polymer...

... dry-tech® ... bearing technology 2023 ... motion plastics® ... igus.eu



Ball bearings. Spherical bearings. Slewing rings. Bar stock. 3D printing. Gears.

...dry-tech®

www.igus.eu/dry-tech

Tech up, Cost down

igus® dry-tech® bearings offer an alternative to lubricated plain, linear and rolling bearings. igus® develops tribopolymers for continuous dry operation. By avoiding lubrication, dry-tech® bearing technology attains superior service life: from -100°C up to +250°C at continuous exposure, from cleanrooms to extreme dirt exposure, from vacuum to extreme humidity.



Available from stock.

Ready to ship from 24hrs, earlier upon request.

The delivery times indicated are the average time until the ordered goods are dispatched.



No minimum order value. No surcharges.

No minimum order value with igus®. Just order the amount you need. You can find our prices online at **www.igus.eu**



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Fax +49-2203 9649-334



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Download 3D CAD models free of charge and quickly find the product you are looking for with our product finders and intelligent filters.



igus® live chat

There are many ways to reach us.
For example, you can use our online live chat.



Do you have any questions?

If you have any questions, simply call us or use our online tools at **www.igus.eu**



iglidur®
Polymer plain bearings
▶ Online service life calculation
▶ Online product finder

From page 23



iglidur®
Clip bearings, piston rings and more
▶ Online service life calculation
▶ Online product finder

From page 637



iglidur®
PRT slewing rings
▶ Online service life calculation
▶ Online product finder

From page 699



iglidur®
Bar stock for design freedom
▶ Online service life calculation
▶ Online product finder

From page 739



iglidur®
Gears
▶ Online service life calculation
▶ Online product finder

From page 793



iglidur®
3D printing
▶ Online service life calculation
▶ 3D printing service online

From page 823



igubal®
Spherical bearings
▶ Online service life calculation
▶ Online product finder

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xiros®
Ball bearings and accessories
▶ Online service life calculation
▶ System configurator online

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Imperial dimensions

From page 1093

Online tools and more

From page 1167

Disclaimer
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The information in this catalogue does not constitute a legally binding assurance of certain properties or suitability for a specific purpose. Due to constant technical refinement, we reserve the right to make technical changes to products at any time. Subject to printing errors.

Our offers are directed to traders/resellers only. The delivery times indicated correspond to the time until the goods are dispatched, and transport costs are not included in the price. We recommend that you always check the suitability of the products for a particular purpose in a practical trial. Contact us for advice.

All products that are marked "New" in the catalogue have been added since the last version of the catalogue was published in May 2020.

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All catalogues at a glance

motion plastics®



Bearing technology
Plain bearings, piston rings, slewing rings, bar stock, gears, 3D printing, spherical bearings and ball bearings



Linear technology
Linear technology, lead screw technology, drive technology, Low Cost Automation



e-chains® and e-chain systems®
- Online service life calculation
- System configurator online



chainflex® cables
- Online service life calculation
- System configurator online



New products journal
All motion plastics® new products at a glance

igus® Kiosk
Brochures, journals and catalogues to browse through

Proven.
Predictable.
Performance.

iglidur® plastic plain bearings from igus® are lubrication-free, maintenance-free, cost-effective and versatile. They are suitable for mass-produced automotive products or for the construction of special machines, for underwater applications, for the food and packaging industry, for extreme resistance to chemicals and temperature fluctuations or for simple metal-sheet bearings: iglidur® plain bearings always offer a solution - either from the product range in the catalogue or as a special customised bearing solution - no minimum order quantity!
For more than 30 years, iglidur® plain bearings, which conform with RoHS, have been a technically and economically advantageous alternative to metal bearings of all kinds. The industry's biggest test laboratory with approximately 15,000 tests per year enables reliable predictability.

Longer service life, no maintenance, available immediately.

The most cost-effective bearing for any application

- 17 standard materials from high temperature to seawater, from food to the automotive
- More than 7,000 standard-compliant bearings available
- Savings potential up to 40%
- 100% lubrication-free and maintenance-free
- 100% corrosion-free
- 100% RoHS-compliant
- Online: product finder and service life calculator, prices, ordering, CAD etc.





Sustainability at igus®
We have been focusing on sustainability in manufacturing and products. As a result, we are now also able to state the CO_2 footprint of a large number of our iglidur® plain bearings. In addition, there are new products that are largely or completely made from recycled material.



Resistant to dirt with igus®
Zero-maintenance and dirt resistance are not the only advantages of iglidur® and drylin® linear technology. Cost down, life up!



No lubrication with igus®
The lubrication-free design of iglidur® also permits its use in the food and pharmaceutical industries. Don't wait any longer!



No maintenance with igus®
iglidur® materials for wide variety of operating conditions. Large program of dimensions compatible with nearly all applications. Predictable service life!



No corrosion with igus®
Lightweight, corrosion resistance as well as zero maintenance and lubrication achieve solutions for almost all types of applications. Fit and forget!

Reduce process costs: bearings technology on the web

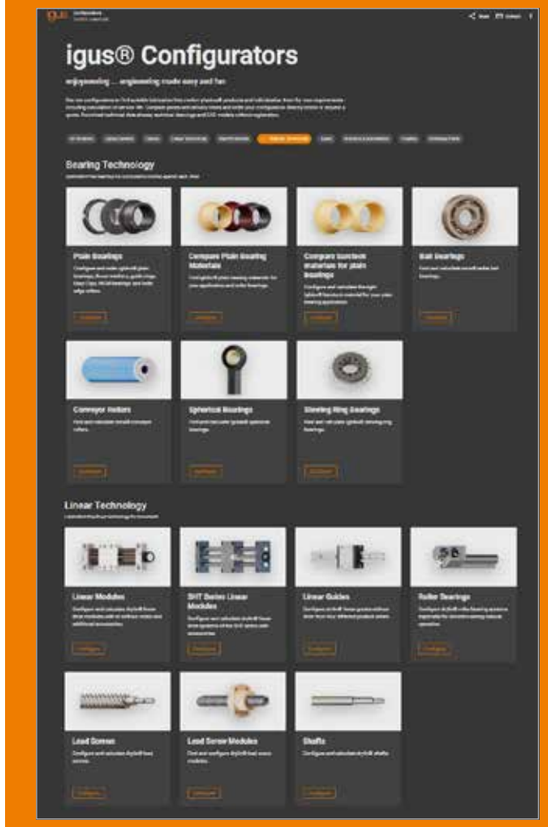
For every product in this catalogue, there is a special quick link or direct online pointer to further details, data and facts. These include:

- Online tools for calculating service life
- 3D CAD files
- DXF data
- Download of current catalogues, brochures, videos and assembly instructions
- Application pictures
- Imperial dimensions
- Personal support
- Catalogue and sample ordering
- Online price list and online shop

More than 40 online tools help you to quickly find, configure and calculate the right product. No registration necessary. 3D CAD models online for downloading. Easy to use.

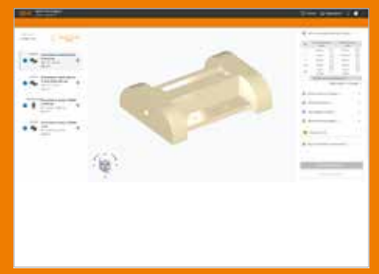
▶ **www.igus.eu/CAD**

▶ **www.igus.eu/online-tools**









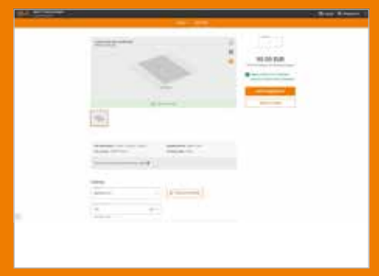












ONLINE TOOLS
Fast selection of the right product incl. Service life calculation

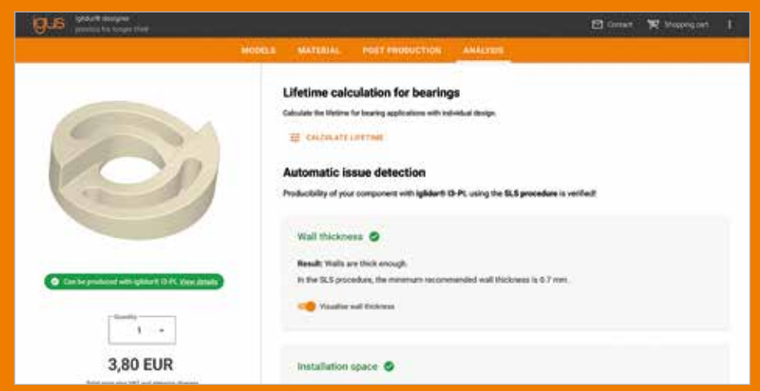
CONFIGURATORS
Assemble your required product, also with individual accessories and post-processing.

SERVICES
Custom machining and other tools.

Individual components

- Service life calculation
- Feasibility analysis
- Instant price





Quality from the igus® test laboratory

Tested thousands of times.
Proven millions of times.

Applications involving high duty cycles, speeds and acceleration or demanding environmental conditions require proven systems especially for polymer plain bearings and linear systems. igus® constantly conducts tests at its own laboratory under real-world conditions. More than 15,000 tests are conducted each year. These tests focus on push/pull forces, coefficient of friction and wear rates. Other factors like speed, load, dirt, weathering, temperature and impact are also tested.

Our laboratory is also at your disposal. If we don't have data for your type of application, we can conduct a test representative of your requirements.

▶ **www.igus.eu/test**

Explore the igus® test laboratory virtually:
▶ igusvr.igus.eu

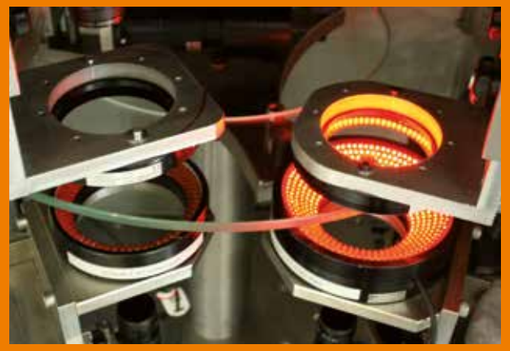
All products are tested and available from one source.

Examples of test certificates and quality seals for igus® products ... more certificates upon request at

▶ **www.igus.eu/quality**



igus® quality assurance ...



... 100% visual inspection ...



... tested in the 250m² dry-tech® lab



More than 15,000 tribological tests per year on more than 50 test rigs ...



... 549 customer tests per year ...



... or heavy duty tests up to 250MPa



Worldwide, quick and reliable - the igus® service

Delivery and consultation daily from 7am to 8pm, Saturday from 8am to 12pm!

No minimum order quantity, delivery from 24hrs, over 200,000 products from stock. Order an iglidur® plain bearing or a harnessed standard system from stock in 24 hours at no extra cost. Rapid delivery worldwide guaranteed. Spare parts are delivered from stock in the shortest possible time.

Take advantage of further service options from igus®:

- **Installation service:** Our installation experts help you to install igus® solutions in your application easily and quickly
- **Free samples:** We will be happy to send you free samples for testing in your application. online request ▶ **www.igus.eu/sample**
- **The monthly newsletter:** we keep you regularly informed about new igus® solutions. Register here ▶ **www.igus.eu/newsletter**

Order at igus®:
No minimum order quantities, no surcharges.

24hrs

Single components
For example:
iglidur® W300 plain bearings; igubal® rod end bearings or drylin® linear bearings.



24 - 48hrs

Custom-made linear systems
Example:
2.46m drylin® T profile rail with carriages.



24 - 72hrs

Complete drive modules
Example:
Lead screw linear systems made to your individual requirements and dimensions.



3 - 7 days

FastLine service
Example:
Customised injection-moulded plain bearings.



3 - 10 days

Machined components or 3D printed special parts
Example:
online configured and machined shafts, lead screws, special parts and bar stock made to design.



speedigus®
production for custom injection moulded or machined parts made of polymer



3 - 6 weeks

Initial samples from new tools
Example:
Injection moulding of parts made to your design.







Shipped from 24hrs



No minimum order quantity



7am to 8pm plus Saturday service

Free igus® online services

Reduce process costs ... discover potential ... gain knowledge ...

Our motion plastics® are already moving your machines and other installed equipment but did you know that we offer unique services on top of this?

From your application evaluation to our free in-house exhibitions directly on your premises, to specific tests performed exactly according to your requirements.
We are always happy to work with you and support you.
Find out about our free offers for your application now.

Use services now
▶ www.igus.eu/service



Handle and test
Free sample parts for tests and prototypes



Assessment of your project application
Our technical sales department will assess your project application with you.



We make your machines smart
Predictive maintenance:
Free assessment at your premises.



No time for trade show visits?
Free in-house exhibitions at your premises. We take care of everything.



Virtual factory tour
Discover our operations from injection moulding to the tool shop, to quality control or our laboratory.



Interchange of digital catalogue data made easy
BMEcat and EDI: talk to us about your preferred data exchange formats.



igus® Corner
A sales colleague will bring the display unit to you, set it up on request and equip the compartments with the products of your choice.



Tests according to your specifications
Application and custom tests in the largest laboratory in the industry.



No minimum order quantity
Whether 3D printed or as a series injection-moulded part, whether 1 metre of cable or hundreds of metres on a drum.



Qualification and training of your employees
Free training courses on installation/assembly and the use of our products.



Quickly available on site, worldwide
More than 700 field representatives are there for you in 30 countries.



The motion plastics® game: igumania
In the igus® game, you install lubricant and maintenance-free products to reduce production maintenance times.



Ready-to-install energy supply systems
Design, harnessing, delivery up to complete assembly of energy chains.



Products developed for you
Numerous innovations every year, to meet customer requests.



Recycling made easy
Make a contribution towards the reduction of plastic waste and the improvement of recycling in industry.



Experience motion plastics® live
Free tickets or in-house tours in Cologne.



Free 3D CAD library
Quickly generate complete 3D models, free and without registration.



Samples for prototypes
We will send you samples for your prototypes and exhibition machines.



We test your Low Cost Automation solution
Just send us your workpiece and we will provide you with a live video of our test or show you the feasibility.



igus® motion plastics® show (imps) - the virtual/real trade show
Experience the new products at our virtual-real imps booth, which you can explore on your own or with a guide.



Low Cost Automation roadshow
Experts demonstrate the robots live at your premises and program your individual application.

The flexible igus® factory

Investments in better technology and faster delivery times

Nearly 200,000 customers worldwide trust "motion plastics®" - manufacturing products at low-cost, while also ensuring quality. We have been developing, making and selling our products according to this principle for years. Wear-resistant parts as catalogue items are on stock, to allow us to complete customer requests within hours and ship.

igus® is continuing its growth trend and is focusing more than ever on sophisticated yet simpler solutions for all applications and budgets.



Material preparation



Injection moulding



Warehouse



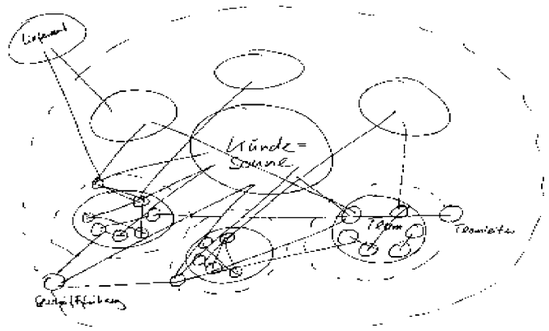
Assembly factory



Toolmaking



Open offices



"For us, customers have the same significance as the sun to life on earth. The sun gives light, warmth and energy; our customers give us ideas, work and money."



Global standards - igus® is close to you

Individual consultation worldwide by phone or at your premises. 30 subsidiaries worldwide.

A large network of sales engineers are at your disposal in Germany and worldwide. We will gladly provide consultation at your premises, supply assembly instructions and tools to installation sites, as well as measure installation spaces and check environmental conditions on site.
There are 4,500 employees in Germany and 30 international subsidiaries, plus distributors in another 52 countries to guarantee a rapid delivery worldwide.

- **Customer-specific projects and special solutions:** for every challenge, we will work with you to find a solution and provide a sample for your application free of charge
- **We are wherever you need us:** numerous e-chain® and plain bearing consultants are at your disposal at any time
- Hands-on with our products at 200 trade shows worldwide
- Individually at your premises with our mobile company trade show stand

▶ **www.igus.eu/worldwide**



igus® motion plastics® show - at your premises or virtually



Technical consultation at your premises



Worldwide open offices - for example in China



Worldwide modular factories - for example in the USA



igus® in-house trade show stand



igus® at trade shows





igus® offices and distributors
All addresses on last page.

Sustainable product development

Plastic is a much-discussed material. We know that high-performance polymers can make a contribution to the protection of resources and to the environment, and have made this the focus of our activities. We look at plastics in three phases: during production, in use and at the end of the product's life. We will give you our answers to sustainability questions for both our products and everyday life at igus®. Much remains unanswered, and for some things, especially with regard to sustainable production, we are still working on answers and solutions.

▶ **www.igus.eu/sustainability**



ECO product range



Cost-effective and versatile.
The new, sustainable iglidur® ECO materials consist of regranulates of our top materials, which have proven themselves for many years.

CO_2 footprint



CO_2 footprint in the online shop
igus® has been focusing more and more on sustainability in manufacturing and products since 2018. As a result, we are now also able to state the carbon footprint of a large number of our iglidur® plain bearings. In addition, there are new products that are largely or completely made from recycled material from our own production. And these are also tested in the laboratory and have a predictable service life.

chainge program



Recycling made easy
As a plastics processing and manufacturing company, we are very concerned about making our contribution to sustainable, resource-conserving use of plastic. We focus on technical plastics because that is exactly what our business is. Make a contribution towards the reduction of plastic waste and the improvement of recycling in industry.
▶ **www.chainge.igus.eu**

igus:bike



Yesterday's waste for tomorrow's mobility: he first motion plastics® bike in the world
The idea for the igus:bike project was born with this vision. The project aims to use plastic waste dumps worldwide as resources for a recycled bicycle. On the newly created igus:bike platform, we want to work with other bicycle and component manufacturers to create a sustainable, corrosion-free, maintenance-free alternative for urban mobility. We are taking the first step with mtrl, a start-up we are supporting during development and production of a bicycle made entirely of plastic.
▶ **www.igus.bike**

Fit and forget

For all tasks - the appropriate solution in any batch size from stock

Different industries need different solutions. From mechanical engineering, automotive assembly or medical technology, to the robotics industry - igus® offers customised solutions for specific applications. igus® possesses many years of experience in most branches of industry and has competent specialists that can be contacted when necessary. If your industry is not listed, please let us know. We're here to help.

Go online and find solutions for almost every branch of industry
▶ www.igus.eu/industry



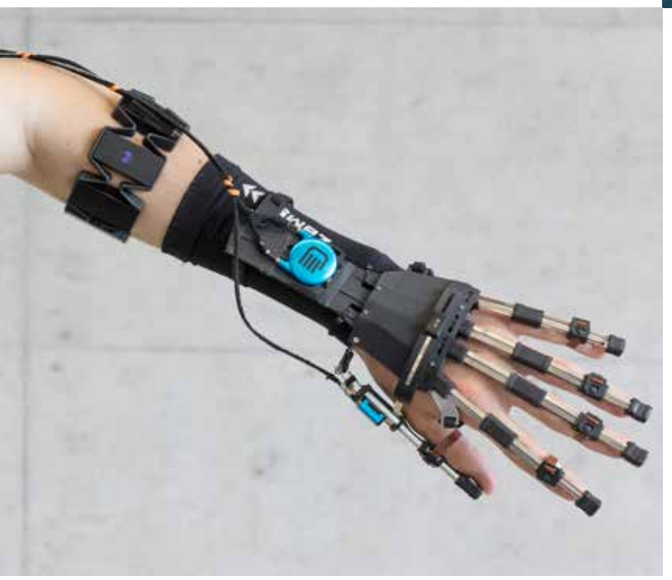
Packaging of sterile syringe sets
This isolator from the Japanese cleanroom specialist Airex Co. Ltd. is used for sterile packaging of syringe sets. The syringe trays are guided through the isolator on a slightly inclined roller system and ejected again at the end of the decontamination isolator via a mechanism. Due to the cleanroom conditions, the bearings used for the roller system had to be lubrication-free and highly resistant to chemicals. The designer decided on xiros® deep groove ball bearings made of the material xirodur® C160 and igubal® pillow block bearings.

Floating power turbine
A floating power generation system that converts the force of sea waves or river currents into energy with the help of turbines. The bearings in the system are exposed to extremely difficult conditions: they have to be mechanically robust as well as compact, lightweight and resistant to seawater. The engineers selected igubal® pillow block bearings (KSTM-GT) and fixed flange bearings made iglidur® W300.



Fertiliser machine
The machine forms a narrow furrow in the soil and injects urea ammonium nitrate (UAN). Bronze bushes cannot withstand the liquid fertiliser, moisture, mud and constant impact forces. The designers therefore use maintenance-free and wear-resistant iglidur® M250 and iglidur® G polymer bearings. Machines equipped with bearings from igus® have already been operating for four years without any problems.





3D printed finger phalanxes in an exoskeleton
Low friction, light and made to measure - quickly printed components for therapeutic applications. According to the German Stroke Association, someone in Germany suffers a stroke every two minutes. In order to make it easier to re-learn how to grasp things after a stroke, Eidgenössische Technische Hochschule Zurich (ETHZ university) developed a hand exoskeleton called RELab tenoexo. This can perform up to 80 per cent of everyday activities. 3D printed finger phalanges made of the iglidur® i6 high-performance plastic ensure optimum force transmission.



Automated production of thermal walls
An important factor in the sustainability and energy efficiency of a building is insulation. An efficient invention in the field of insulation material is the automatic insulation material cutter. This enables fast and precise cutting optimisation, which results in significantly less waste saving material and time costs. In addition, the cutter allows many applications and is therefore also suitable for special shapes and angle cuts. This leads to simplified processing of insulation material and higher efficiency in the work process. The axes bearings of the 3D head were realised with iglidur® slewing ring bearings (PRT-01 type).

iglidur®

Polymer plain bearings



...plastics

Application examples: iglidur®

Tech up ... Cost down

For years the igus® motto has been motion plastics® - high-performance polymers for motion. By this we mean the production of innovative plastic products which reduce maintenance work, achieve technical improvements, at the same time as reducing costs and increasing service life, everything delivered immediately from stock. Our references from the practice show the proven employment from iglidur® plain bearings in a wide variety of applications.



Automated guided vehicle system
iglidur® Z plain bearings are used in the control arms of the autonomous transport vehicles. The bearings ensure that the weight of the robot and its load are distributed evenly. They transmit the axial forces exerted on the suspension bolts and ensure that the entire mechanism moves easily.
(Etisoft Smart Solutions)

Track vehicle
Despite extensive sealing, dirt still sometimes reaches the bearing points. If the bearings then get stuck, the chain could, in the worst case, wear out. To prevent that, the vehicle manufacturers use igutex® TX1 plain bearing bushes on the four oscillating axles and the tensioning axle. igus® manufactured the bushes specifically for Kässbohrer Geländefahrzeug AG in unprecedented dimensions and tested them.
(Kässbohrer Geländefahrzeug AG)



Solar steam system saves CO_2
With iglidur® plain bearings made of the material J UV, the ideal solution was found for the approximately 1,000 bearing points in each plant. The material was specially developed for use in UV radiation and is durable, reliable and maintenance-free even in sunlight.
(ECOTHERM)





Oscillating axles for heavy load transport
The use of iglidur® G plain bearings as well as igutex® TX1 thrust washers made the use of additional lubricants unnecessary and reduced maintenance and servicing to a minimum.
(Demarko)



Plain bearings in farm loaders
igus® plain bearings do not require additional lubrication or sealing, which makes cleaning the unit easier. They are extremely robust and perfectly suited for diverse and fluctuating environmental conditions. At the same time, the high loads are reduced by the vibration-damping properties of the bearings.
(Thaler)

iglidur® plain bearings | Product overview

iglidur® plain bearings: all-rounder

Materials for general purpose



The classic all-rounder: iglidur® G
▶ Page 85



More universal: iglidur® G1
▶ Page 101



The robust all-rounder according to ISO 2795: iglidur® M250
▶ Page 111



Specialist for pivoting, rolling applications and more: iglidur® P210
▶ Page 121



For series: iglidur® P230
▶ Page 129



The cost-effective outdoor all-rounder: iglidur® P
▶ Page 135



Versatile and cost-effective: iglidur® K
▶ Page 145

iglidur® plain bearings: endurance runner

Materials for long service life



Low-cost material for high-volume production: iglidur® GLW
▶ Page 153



The versatile endurance runner: iglidur® J
▶ Page 163



The classic endurance runner up to 30MPa: iglidur® W300
▶ Page 175



Specialist for pivoting and pulsating loads: iglidur® J3
▶ Page 187



Proven long-life material in black: iglidur® J3B
▶ Page 195



Endurance runner with high dimensional stability at high temperature: iglidur® J350
▶ Page 203



Ideal for plastic shafts: iglidur® J260
▶ Page 211

iglidur® plain bearings: endurance runner



Endurance runner up to +180°C: iglidur® W360
▶ Page 219



For fast rotating applications: iglidur® L250
▶ Page 227



For high rotational speeds: iglidur® L350
▶ Page 235



For extreme rotational speeds: iglidur® L500
▶ Page 243



Low-cost: iglidur® R
▶ Page 251



Low-cost with silicone: iglidur® D
▶ Page 259



Specialist for aluminium shafts: iglidur® J200
▶ Page 265



Ideal for pivoting movement: iglidur® E7
▶ Page 271

iglidur® plain bearings: high temperature

Materials for use at high temperatures



New

Extremely wear-resistant: iglidur® E
▶ Page 279



The chemical and temperature specialist: iglidur® X
▶ Page 291



Long service life under extreme conditions: iglidur® Z
▶ Page 301



The high temperature specialists up to +250°C: iglidur® X6
▶ Page 311



For soft shafts and high temperatures: iglidur® V400
▶ Page 319



All-rounder for steam sterilisation: iglidur® HSD350
▶ Page 327



For hot liquids: iglidur® UW500
▶ Page 335

iglidur® plain bearings: high media resistance

Materials with good media resistance



Endurance runner with high media resistance: iglidur® H1
▶ Page 345



Long service life under water: iglidur® H370
▶ Page 353



The classic with high resistance to media and temperature: iglidur® H
▶ Page 363



High temperature endurance runner: iglidur® C500
▶ Page 371



The low cost specialist for chemicals and temperatures: iglidur® H2
▶ Page 379



New

Chemical-resistant: iglidur® H3
▶ Page 385



New

Resistant to temperature and chemicals: iglidur® H5
▶ Page 391

igus EN 09/2023

EN 09/2023 igus

iglidur® plain bearings | Product overview

iglidur® plain bearings: for contact with food

Materials for contact with food



The universal bearing for food contact:
iglidur® A181
▶ Page 401



The endurance runner at higher temperatures in the food sector: iglidur® A350
▶ Page 409



The media and temperature specialist in the food sector: iglidur® A500
▶ Page 417



The all-rounder for food:
iglidur® A180
▶ Page 425



The "food-classic" for low duty:
iglidur® A200
▶ Page 433



Food bearing with high media resistance up to +90°C: iglidur® A160
▶ Page 443



Suitable for contact with drinking water:
iglidur® UW160
▶ Page 451

iglidur® plain bearings: for contact with food



For the tobacco industry:
iglidur® T220
▶ Page 459



New

Conductive and resistant:
iglidur® AX500
▶ Page 465

iglidur® plain bearings: for harsh environments

Materials for harsh environments



The durable heavy-duty bearing:
iglidur® Q2
▶ Page 477



New

Cost-effective heavy-duty bearing:
iglidur® Q3E
▶ Page 485



The peak of stability:
iglidur® Q
▶ Page 491

iglidur® plain bearings: for harsh environments



Heavy-duty on soft shafts:
iglidur® Q290
▶ Page 499



New

For medium-sized loads:
iglidur® M210
▶ Page 505



New

For heavy duty:
iglidur® M260
▶ Page 511

igutex® plain bearings: for high loads

Materials for heavy-duty applications



The robust all-rounder:
igutex® TX1
▶ Page 521



New

The technical shafts specialist:
igutex® TX2
▶ Page 527



New

The endurance runner for the highest loads:
igutex® TX3
▶ Page 533

iglidur® plain bearings: specialists

Materials for special application areas



Electrically conductive:
iglidur® F
▶ Page 545



ESD-compatible all-rounder:
iglidur® F2
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The automotive standard:
iglidur® H4
▶ Page 561



For fast rotation under water:
iglidur® UW
▶ Page 569



For continuous direct sunlight:
iglidur® J UV
▶ Page 577



The biopolymer:
iglidur® N54
▶ Page 585

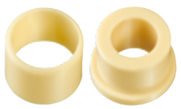


Low-cost all-rounder for fire protection:
iglidur® G V0
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iglidur® plain bearings: specialists



Versatile and cost-effective:
iglidur® J2
▶ Page 601



The first antibacterial iglidur® plain bearing:
iglidur® AB
▶ Page 609



Complies with DIN EN 45545 HL3, R22/R23:
iglidur® RW370
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The variable one:
iglidur® B
▶ Page 625



Free from PTFE and silicone:
iglidur® C
▶ Page 631

iglidur® plain bearings | Technical properties - quick selection

iglidur®	G	G1	M250	P210	P230	P	K	GLW	J	W300	J3	J3B	J350	J260	W360	L250	L350	L500	R	D
Installation tolerances	E10	E10	D11	E10	E10	E10	E10	E10	E10	E10	E10	E10	F10	E10	E10	E10	F10	F10	E10	E10
Descriptive technical specifications																				
Wear resistance at +23°C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wear resistance at +90°C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wear resistance at +150°C	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Slide property	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Wear resistance under water	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Media resistance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Resistant to edge pressures	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Resistant to shock and impact loads	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
Dirt resistance	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■	■
For high loads (>60MPa)	●	●						●					●		●					
Electrically conductive																				
Approvals and standards																				
Dimensions in accordance with DIN	ISO 3547	ISO 3547	ISO 2795	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	
FDA-compliant																				
EU 10/2011-compliant																				
Fire class in accordance with UL-94	HB	HB	V-2	HB	HB	HB	HB	HB	HB	HB	HB	HB	V-0	V-2	HB	HB	V-0	V-0	HB	HB
Mould test DIN EN ISO 846	●	●							●				●							
Fogging DIN 75201-B	●		●	●				●												
Availabilities / variants																				
Type S, sleeve	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Type F, with flange	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	
Type T, thrust washer	●		●						●	●										
Bar stock, round material			●	●				●	●	●	●		●	●					●	
Bar stock, plate									●											
Bar stock, tube									●											
Machined parts made from bar stock			●	●					●	●	●		●	●					●	
tribo-tape liner																				
Page	85	101	111	121	129	135	145	153	163	175	187	195	203	211	219	227	235	243	251	259

iglidur® plain bearings | Technical properties - quick selection

iglidur®	J200	E7	E	X	Z	X6	V400	HSD350	UW500
Installation tolerances	E10	E10	E10	F10	F10	F10	F10	F10	F10
Descriptive technical specifications									
Wear resistance at +23°C									
Wear resistance at +90°C									
Wear resistance at +150°C									
Slide property									
Wear resistance under water									
Media resistance									
Resistant to edge pressures									
Resistant to shock and impact loads									
Dirt resistance									
For high loads (>60MPa)				●	●	●			●
Electrically conductive				●		●			●
Approvals and standards									
Dimensions in accordance with DIN		ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547
FDA-compliant									
EU 10/2011-compliant									
Fire class in accordance with UL-94	HB	HB	HB	V-0	V-0	V-0	V-0	V-0	V-0
Mould test DIN EN ISO 846				●	●				
Fogging DIN 75201-B									
Availabilities / variants									
Type S, sleeve		●	●	●	●	●	●	●	●
Type F, with flange		●	●	●	●	●	●	●	●
Type T, thrust washer				●	●				
Bar stock, round material	●	●	●	●				●	
Bar stock, plate									
Bar stock, tube									
Machined parts made from bar stock	●		●	●				●	
tribo-tape liner							●		
Page	265	271	279	291	301	311	319	327	335

iglidur®	H1	H370	H	C500	H2	H3	H5	A181	A350	A500	A180	A200	A160
Installation tolerances	F10	F10	F10	F10	F10	F10	F10	E10	F10	F10	E10	D11	E10
Descriptive technical specifications													
Wear resistance at +23°C													
Wear resistance at +90°C													
Wear resistance at +150°C													
Slide property													
Wear resistance under water													
Media resistance													
Resistant to edge pressures													
Resistant to shock and impact loads													
Dirt resistance													
For high loads (>60MPa)	●	●	●	●	●				●	●			
Electrically conductive		●											
Approvals and standards													
Dimensions in accordance with DIN	ISO 3547	ISO 3547	ISO 3547	ISO 3547		ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 2795	ISO 3547
FDA-compliant								●	●	●	●	●	●
EU 10/2011-compliant								●	●	●	●	●	●
Fire class in accordance with UL-94	V-0	V-0	V-0	V-0	V-0	V-0	V-0	HB	V-0	V-1	HB	V-2	HB
Mould test DIN EN ISO 846	●												
Fogging DIN 75201-B													
Availabilities / variants													
Type S, sleeve	●	●	●	●				●	●	●	●	●	●
Type F, with flange	●	●	●	●				●	●	●	●	●	●
Type T, thrust washer													
Bar stock, round material	●		●	●		●		●	●	●	●		●
Bar stock, plate									●				
Bar stock, tube													
Machined parts made from bar stock	●		●	●		●		●	●	●	●		●
tribo-tape liner													●
Page	345	353	363	371	379	385	391	401	409	417	425	433	443

iglidur® plain bearings | Technical properties - quick selection

iglidur®	UW160	T220	AX500	Q2	Q3E	Q	Q290	M210	M260	TX1
Installation tolerances	E10	E10	F10	E10	E10	E10	D11	D11	D11	D11
Descriptive technical specifications										
Wear resistance at +23°C	■■□	■■□	■□□	■■□	■■□	■■■	■■■	■■■	■■□	■■□
Wear resistance at +90°C	■□□	■□□	■□□	■□□	■□□	■■□	■■□	■■■	■■□	■□□
Wear resistance at +150°C	■□□	■□□	■■□	■□□	■□□	■□□	■□□	■■□	■□□	■□□
Slide property	■□□	■□□	■□□	■■□	■■□	■■■	■■■	■■■	■■■	■■□
Wear resistance under water	■■■■	■■□	■■■□	■□□	■□□	■□□	■□□	■■□	■■□	■■□
Media resistance	■■■■	■■■	■■■■	■■□	■■□	■■□	■■□	■■□	■■□	■■□
Resistant to edge pressures	■■□	■■□	■■□	■■■	■■■	■■□	■■■	■■■	■■□	■■■
Resistant to shock and impact loads	■■□	■■□	■■□	■■■	■■■	■■□	■■■	■■■	■■□	■■■
Dirt resistance	■■□	■■■	■■□	■■■	■■■	■■□	■■■	■■■	■■□	■■■
For high loads (>60MPa)			●	●	●	●	●			●
Electrically conductive										
Approvals and standards										
Dimensions in accordance with DIN	ISO 3547		ISO 3547	ISO 3547		ISO 3547	ISO 3547	ISO 2795	ISO 2795	ISO 2795
FDA-compliant		●	●							
EU 10/2011-compliant			●							
Fire class in accordance with UL-94	HB	HB	V-1	HB	HB	HB	HB	HB	V-2	
Mould test DIN EN ISO 846										
Fogging DIN 75201-B										
Availabilities / variants										
Type S, sleeve	●		●	●	●	●	●	●	●	●
Type F, with flange	●		●	●	●	●	●			
Type T, thrust washer										
Bar stock, round material	●	●								
Bar stock, plate										
Bar stock, tube										
Machined parts made from bar stock	●	●								
tribo-tape liner										
Page	451	459	465	477	485	491	499	505	511	521

iglidur®	TX2	TX3	F	F2	H4	UW	J UV	N54	G V0	J2	AB	RW370	B	C
Installation tolerances	D11	D11	D11	E10	F10	E10	E10	E10	E10	E10	E10	F10	D11	D11
Descriptive technical specifications														
Wear resistance at +23°C	■■□	■■□	■□□	■□□	■□□	■□□	■■■	■□□	■□□	■□□	■□□	■■□	■□□	■□□
Wear resistance at +90°C	■□□	■□□	■□□	■□□	■□□	■□□	■■■	■□□	■□□	■□□	■□□	■■□	■□□	■□□
Wear resistance at +150°C	■□□	■□□	■□□	■□□	■□□	■□□	■□□	■□□	■□□	■□□	■□□	■■□	■□□	■□□
Slide property	■■□	■■□	■□□	■□□	■□□	■□□	■■■	■■□	■■□	■■□	■■□	■■■	■□□	■□□
Wear resistance under water	■■□	■■□	■□□	■□□	■■□	■■■	■■□	■□□	■□□	■□□	■□□	■□□	■□□	■□□
Media resistance	■■□	■■□	■□□	■□□	■■□	■■□	■■□	■□□	■■□	■■□	■■□	■■□	■■□	■■□
Resistant to edge pressures	■■■	■■■	■■□	■■□	■■□	■□□	■■□	■□□	■■□	■■□	■■□	■■■	■■■	■■□
Resistant to shock and impact loads	■■■	■■■	■■□	■■□	■■□	■■□	■■□	■■□	■■■	■■□	■■□	■■■	■■■	■■□
Dirt resistance	■■■	■■■	■■□	■■□	■■□	■■□	■■□	■■□	■■□	■■□	■■□	■■□	■■□	■■□
For high loads (>60MPa)	●	●	●	●	●				●			●		
Electrically conductive			●	●										
Approvals and standards														
Dimensions in accordance with DIN	ISO 2795	ISO 2795	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	
FDA-compliant														
EU 10/2011-compliant														
Fire class in accordance with UL-94			HB	HB	V-0	HB	HB	HB	V-0	HB	HB	V-0	HB	HB
Mould test DIN EN ISO 846									●					
Fogging DIN 75201-B														
Availabilities / variants														
Type S, sleeve	●	●	●	●	●	●	●	●	●		●	●		
Type F, with flange			●	●	●	●	●	●	●		●	●		
Type T, thrust washer														
Bar stock, round material				●						●	●	●		
Bar stock, plate														
Bar stock, tube														
Machined parts made from bar stock				●						●	●	●		
tribo-tape liner														
Page	527	533	545	553	561	569	577	585	593	601	609	617	625	631

iglidur®	Unit	G	G1	M250	P210	P230	P	K	GLW	J	W300	J3	J3B	J350	J260	W360	L250	L350	L500	R	D	J200	E7	E
General properties																								
Density	[g/cm³]	1.46	1.58	1.14	1.40	1.57	1.58	1.52	1.36	1.49	1.24	1.42	1.42	1.44	1.35	1.34	1.5	1.54	1.53	1.39	1.4	1.72	1.05	1.50
Colour																								
Max. moisture absorption at +23°C and 50% relative humidity	[% weight]	0.7	0.2	1.4	0.3	0.1	0.2	0.1	1.3	0.3	1.3	0.3	0.3	0.3	0.2	0.2	0.7	0.4	0.1	0.2	0.3	0.2	0.1	0.2
Max. moisture absorption	[% weight]	4.0	1.7	7.6	0.5	0.3	0.4	0.6	5.5	1.3	6.5	1.3	1.3	1.6	0.4	1.6	3.9	1.4	0.3	1.1	1.1	0.7	0.1	1.7
Coefficient of sliding friction, dynamic against steel	[µ]	0.08 - 0.15	0.08 - 0.15	0.18 - 0.40	0.07 - 0.19	0.06 - 0.21	0.06 - 0.21	0.06 - 0.21	0.10 - 0.24	0.06 - 0.18	0.08 - 0.23	0.06 - 0.20	0.09 - 0.23	0.10 - 0.20	0.06 - 0.20	0.07 - 0.21	0.08 - 0.19	0.15 - 0.20	0.19 - 0.26	0.09 - 0.25	0.08 - 0.26	0.11 - 0.17	0.08 - 0.17	0.08 - 0.23
pv value, max. (dry)	[MPa·m/s]	0.42	0.60	0.12	0.4	0.30	0.39	0.3	0.3	0.34	0.23	0.5	0.5	0.45	0.35	0.35	0.4	3.0	4.0	0.27	0.27	0.3	0.22	0.25
Mechanical properties																								
Flexural modulus	[MPa]	7,800	11,486	2,700	2,500	6,532	5,300	3,500	7,700	2,400	3,500	2,700	2,895	2,000	2,200	3,829	1,950	15,882	12,015	1,950	2,000	2,800	1,477	2,975
Flexural strength at +20°C	[MPa]	210	178	112	70	173	120	80	235	73	125	70	65	55	60	119	67	210	201	70	72	58	22	79
Compressive strength	[MPa]	78	115	52	50	101	66	60	74	60	61	60	n.s.	60	50	n.s.	47	210	70	68	70	43	18	n.s.
Max. permissible surface pressure at +20°C	[MPa]	80	91	20	50	60	50	50	80	35	60	45	44	60	40	75	45	59	70	23	23	23	18	37
Shore D hardness		81	81	79	75	80	75	72	78	74	77	73	76	80	77	n.s.	68	80	81	77	78	70	61	78
Physical and thermal properties																								
Max. continuous operating temperature	[°C]	+130	+180	+80	+100	+110	+130	+170	+100	+90	+90	+90	+90	+180	+120	+180	+90	+180	+250	+90	+90	+90	+70	+90
Max. short-term operating temperature	[°C]	+220	+220	+170	+160	+180	+200	+240	+160	+120	+180	+120	+110	+220	+140	+200	+180	+210	+315	+110	+110	+120	+90	+120
Min. continuous operating temperature	[°C]	-40	-40	-40	-40	-30	-40	-40	-40	-50	-40	-50	-50	-100	-100	-40	-40	-100	-100	-50	-50	-50	-50	-50
Thermal conductivity	[W/m · K]	0.24	0.46	0.24	0.25	0.34	0.25	0.25	0.24	0.25	0.24	0.25	0.30	0.24	0.24	0.24	0.24	0.61	0.45	0.25	0.25	0.24	0.24	0.25
Coefficient of thermal expansion at +23°C	[$K^{-1} \cdot 10^{-5}$]	9	3.5	10	8	5	4	3	17	10	9	13	12.7	7	13	6	10	7	6	11	11	8	25	10
Electrical properties																								
Specific contact resistance	[Ωcm]	> 10^{13}	> 10^{9}	> 10^{13}	> 10^{12}	> 10^{12}	> 10^{13}	> 10^{12}	> 10^{11}	> 10^{13}	> 10^{13}	> 10^{12}	> 10^{12}	> 10^{13}	> 10^{12}	> 10^{13}	> 10^{10}	> 10^{5}	> 10^{10}	> 10^{12}	> 10^{14}	> 10^{8}	> 10^{9}	> 10^{12}
Surface resistance	[Ω]	> 10^{11}	> 10^{11}	> 10^{11}	> 10^{11}	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{11}	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{10}	> 10^{10}	> 10^{12}	> 10^{11}	> 10^{5}	> 10^{12}	> 10^{12}	> 10^{14}	> 10^{8}	> 10^{9}	> 10^{12}
Page		85	101	111	121	129	135	145	153	163	175	187	195	203	211	219	227	235	243	251	259	265	271	279

iglidur® plain bearings | Material properties

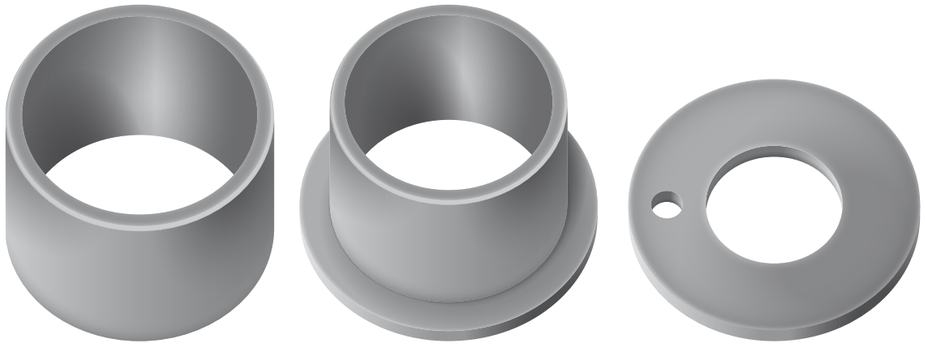
iglidur®	Unit	X	Z	X6	V400	HSD350	UW500	H1	H370
General properties									
Density	[g/cm³]	1.44	1.4	1.53	1.51	1.39	1.49	1.53	1.66
Colour									
Max. moisture absorption at +23°C and 50% relative humidity	[% weight]	0.1	0.3	0.1	0.1	0.6	0.1	0.1	0.1
Max. moisture absorption	[% weight]	0.5	1.1	0.5	0.2	1.2	0.5	0.3	0.1
Coefficient of sliding friction, dynamic against steel	[µ]	0.09 - 0.27	0.06 - 0.14	0.09 - 0.25	0.15 - 0.20	0.07 - 0.23	0.20 - 0.36	0.06 - 0.20	0.07 - 0.17
pv value, max. (dry)	[MPa·m/s]	1.32	0.84	1.35	0.5	0.3	0.35	0.80	0.74
Mechanical properties									
Flexural modulus	[MPa]	8,100	2,400	16,000	4,500	2,150	16,000	2,800	11,100
Flexural strength at +20°C	[MPa]	170	95	290	95	67	260	55	135
Compressive strength	[MPa]	100	65	190	47	44	140	78	79
Max. permissible surface pressure at +20°C	[MPa]	150	150	150	45	30	140	80	75
Shore D hardness		85	81	89	74	77	86	77	82
Physical and thermal properties									
Max. continuous operating temperature	[°C]	+250	+250	+250	+200	+180	+250	+200	+200
Max. short-term operating temperature	[°C]	+315	+310	+315	+240	+210	+300	+240	+240
Min. continuous operating temperature	[°C]	-100	-100	-100	-50	-40	-100	-40	-40
Thermal conductivity	[W/m · K]	0.60	0.62	0.55	0.24	0.24	0.6	0.24	0.5
Coefficient of thermal expansion at +23°C	[$K^{-1} \cdot 10^{-5}$]	5	4	1.1	3	7	4	6	5
Electrical properties									
Specific contact resistance	[Ωcm]	$< 10^5$	$> 10^{11}$	$< 10^5$	$> 10^{12}$	$> 10^{13}$	$< 10^9$	$> 10^{12}$	$< 10^5$
Surface resistance	[Ω]	$< 10^3$	$> 10^{11}$	$< 10^3$	$> 10^{12}$	$> 10^{14}$	$< 10^9$	$> 10^{11}$	$< 10^5$
Page		291	301	311	319	327	335	345	353

H	C500	H2	H3	H5	A181	A350	A500	A180	A200	A160	UW160	T220	AX500
1.71	1.37	1.72	1.41	1.41	1.38	1.42	1.28	1.46	1.14	1.00	1.04	1.28	1.52
0.1	0.3	0.1	0.2	0.1	0.2	0.6	0.3	0.2	1.5	0.1	0.1	0.3	0.3
0.3	0.5	0.2	0.5	0.7	1.3	1.9	0.5	1.3	7.6	0.1	0.1	0.5	0.5
0.07 - 0.20	0.07 - 0.19	0.07 - 0.30	0.08 - 0.17	0.08 - 0.24	0.10 - 0.21	0.10 - 0.20	0.26 - 0.41	0.05 - 0.23	0.10 - 0.40	0.09 - 0.19	0.17 - 0.31	0.20 - 0.32	0.08 - 0.22
1.37	0.7	0.58	0.7	0.7	0.31	0.40	0.28	0.31	0.09	0.25	0.22	0.28	0.9
12,500	3,300	10,300	2,760	6,400	1,913	2,000	3,600	2,300	2,500	1,151	1,349	1,800	6,170
175	100	210	68	150	48	110	140	88	116	19	22	65	115
81	110	109	n.s.	n.s.	60	78	118	78	54	37	32	55	n.s.
90	80	110	40	80	31	60	120	28	18	14	20	40	69
87	80	88	75	72	76	76	83	76	81	60	60	76	81
+200	+250	+200	+200	+200	+90	+180	+250	+90	+80	+90	+90	+100	+250
+240	+300	+240	+240	+240	+110	+210	+300	+110	+170	+100	+100	+160	+300
-40	-100	-40	-40	-40	-50	-100	-100	-50	-40	-50	-50	-40	-100
0.6	0.24	0.24	0.25	0.25	0.25	0.24	0.24	0.25	0.24	0.30	0.50	0.24	0.26
4	9	4	6	7	11	8	9	11	10	11	18	11	9
$< 10^5$	$> 10^{14}$	$> 10^{15}$	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	$> 10^{11}$	$> 10^{14}$	$> 10^{12}$	$> 10^{13}$	$> 10^{12}$	$> 10^{12}$	$> 10^{10}$	$> 10^5$ - $> 10^{11}$
$< 10^2$	$> 10^{13}$	$> 10^{14}$	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	$> 10^{11}$	$> 10^{13}$	$> 10^{11}$	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	$> 10^{10}$	$> 10^5$ - $> 10^{11}$
363	371	379	385	391	401	409	417	425	433	443	451	459	465

iglidur®	Unit	Q2	Q3E	Q	Q290	M210	M260	TX1	TX2	TX3	F	F2	H4	UW	J UV	N54	G V0	J2	AB	RW370	B	C
General properties																						
Density	[g/cm³]	1.46	1.46 - 1.69	1.4	1.27	1.4	1.35	2.1	1.77	1.9	1.25	1.52	1.79	1.52	1.49	1.13	1.53	1.44	1.11	1.34	1.15	1.1
Colour																						
Max. moisture absorption at +23°C and 50% relative humidity	[% weight]	1.1	1.5	0.9	3.0	0.3	0.2	0.2	1.0	0.1	1.8	0.2	0.1	0.2	0.3	1.6	0.7	0.2	0.8	0.25	1.0	1.0
Max. moisture absorption	[% weight]	4.6	5.0	4.9	9.3	0.5	0.4	0.5	1.3	0.1	8.4	0.4	0.2	0.8	1.3	3.6	4.0	1.3	1.6	1.2	6.3	6.9
Coefficient of sliding friction, dynamic against steel	[µ]	0.22 - 0.42	0.22 - 0.42	0.05 - 0.15	0.14 - 0.26	0.08 - 0.20	0.08 - 0.16	0.09 - 0.37	n.s.	n.s.	0.10 - 0.39	0.16 - 0.22	0.08 - 0.25	0.15 - 0-35	0.08 - 0.19	0.15 - 0.23	0.07 - 0.20	0.11 - 0.27	0.18 - 0.31	0.13 - 0.17	0.18 - 0.28	0.17 - 0.25
pv value, max. (dry)	[MPa·m/s]	0.7	0.7	0.55	0.70	0.5	0.35	0.89	0.2	0.2	0.34	0.31	0.70	0.11	0.30	0.5	0.5	0.23	0.25	1.2	0.15	0.10
Mechanical properties																						
Flexural modulus	[MPa]	8,370	n.s.	4,500	3,074	2,200	2,200	12,000	n.s.	n.s.	11,600	7,418	7,500	9,600	2,400	1,800	7,900	3,605	1,850	2,997	1,800	1,900
Flexural strength at +20°C	[MPa]	240	235	120	97	65	60	55	n.s.	n.s.	260	93	120	90	72	70	140	101	50	100	55	60
Compressive strength	[MPa]	130	n.s.	89	68	50	50	220	180	n.s.	98	61	50	70	n.s.	30	100	77	40	129	20	30
Max. permissible surface pressure at +20°C	[MPa]	120	135	100	55	50	40	200	180	180	105	47	65	40	34	36	75	46	25	75	40	40
Shore D hardness		80	80	83	80	75	77	94	91	91	84	72	80	78	74	74	80	n.s.	70	80	69	72
Physical and thermal properties																						
Max. continuous operating temperature	[°C]	+130	+100	+135	+140	+100	+120	+120	+130	+130	+140	+120	+200	+90	+90	+80	+130	+90	+70	+170	+100	+90
Max. short-term operating temperature	[°C]	+200	+140	+155	+180	+160	+140	+170	+140	+140	+180	+165	+240	+110	+120	+120	+210	+110	+140	+190	+130	+130
Min. continuous operating temperature	[°C]	-40	-30	-40	-40	-40	-100	-60	-20	-20	-40	-40	-40	-50	-50	-40	-40	-50	-40	-50	-40	-40
Thermal conductivity	[W/m · K]	0.24	n.s.	0.23	0.24	0.25	0.24	0.24	0.25	0.25	0.65	0.61	0.24	0.6	0.3	0.24	0.25	0.25	0.24	0.22	0.24	0.24
Coefficient of thermal expansion at +23°C	[$K^{-1} \cdot 10^{-5}$]	8	n.s.	5	7	8	13	3	n.s.	n.s.	12	5	5	6	10	9	9	7	10	5	12	15
Electrical properties																						
Specific contact resistance	[Ωcm]	> 10^{13}	> 10^{12}	> 10^{15}	> 10^{12}	> 10^{11}	> 10^{10}	> 10^{11}	insula-ting	insula-ting	< 10^{3}	< 10^{9}	> 10^{13}	< 10^{5}	> 10^{13}	> 10^{13}	> 10^{12}	> 10^{13}	> 10^{12}	> 10^{12}	> 10^{10}	> 10^{10}
Surface resistance	[Ω]	> 10^{11}	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{11}	> 10^{10}	> 10^{13}	insula-ting	insula-ting	< 10^{2}	< 10^{9}	> 10^{12}	< 10^{5}	> 10^{13}	> 10^{11}	> 10^{11}	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{9}	> 10^{9}
Page		477	485	491	499	505	511	521	527	533	545	553	561	569	577	585	593	601	609	617	625	631

dry-tech® bearing technology | Lubrication-free made easy

Proven. Predictable. Performance.



Proven.

Since 1983, igus® has been manufacturing plain bearings from specifically developed iglidur® high-performance plastics. Over 50 different polymer compounds have been developed and tested since then. In order to make the selection of the best material for wear-resistant parts in various environments as easy and safe as possible, igus® tests these materials in over 15,000 application-oriented test series per year. The collected findings flow into unique online selection tools and the know-how of our global network of iglidur® application consultants.

Predictable.

Plain bearings are wear-resistant parts. And wear-resistant parts wear out. But when? When is the wear limit reached and when does the plain bearing have to be replaced? The iglidur® expert system answers this question. Based on more than 15,000 wear tests per year, the iglidur® expert system offers designers the possibility of not only determining the iglidur® plain bearing with the best price-performance ratio within a few minutes, but also to get an exact report on the predicted service life in the application. Easy. Online calculation available.

Performance.

Since 1983, iglidur® plain bearings have successfully established themselves in various applications all over the world. They are not only cost-effective but also maintenance-free, lubrication-free and versatile. They are suitable for large or small volume production, in the automotive sector, in special machine construction, underwater applications or for the food and packaging industry. More than 200,000 customers worldwide successfully use iglidur® plain bearings and thereby reduce the costs and increase the service life of their bearing points.



Picture 01: igus® test lab: 15,000 tribological tests (friction and wear) in 300 test set-ups in the industry's largest laboratory (3,800m²). View inside bearing laboratory in Cologne

iglidur® | High-performance polymers

Properties and design

iglidur® plain bearings made from high-performance polymers

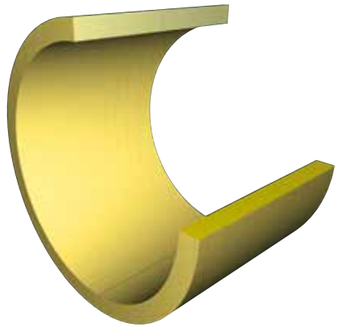
Wear-resistant tribo-polymers improved by precise additions of strengthening materials and solid lubricants, tested thousands of times and proven millions of times - that is iglidur®. igus® engineers develop and test more than 267 new plastic compounds every year. The finely tuned combination of plastic matrix, strengthening components and solid lubricants in every single tribo-polymer results in an individual properties profile in each case. In more than 15,000 individual tests a year on over 200 test rigs in the igus® test laboratory, all materials are thoroughly tested. The findings go into a unique knowledge database on the tribology of maintenance-free plastic plain bearings. This database enables us to select the ideal iglidur® plain bearing for our customers depending on the application and to calculate its anticipated service life. If necessary, it is also possible to develop an application-specific material, exactly adapted to the thermal, mechanical and tribological requirements, which goes beyond the existing iglidur® product range. In addition, freely accessible and user-friendly online tools enable every user to select his personal plain bearing from the iglidur® product range. Whether iglidur® product finder or iglidur® service life calculation, piston ring or bar stock configurator: with a few clicks and application-related information a suitable bearing is quickly found.

▶ www.igus.eu/online-tools

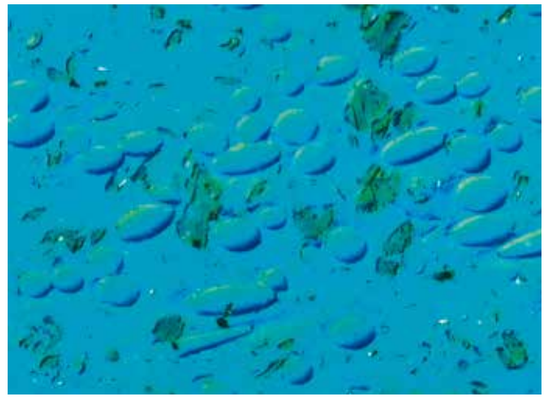
General properties of iglidur® plain bearings

- Lubrication-free
- Corrosion-resistant
- Good media resistance
- High compressive strength
- High mechanical dampening
- Low coefficient of friction
- Maintenance-free
- High resistance to contamination
- Lightweight
- High wear resistance
- Excellent price-performance ratio

Over and above the general properties, each iglidur® bearing material possesses a series of special properties and strengths, which make it specially suitable for certain applications and requirements. You can find a comprehensive description of the materials in the respective chapters before the dimensions tables.



Picture 02: Injection-moulded iglidur® plain bearings are homogeneously structured. Base polymer, bonding materials and solid lubricants mutually complement each other.



Picture 03: Base polymers with fibres and solid lubricants, magnified 200 times, dyed

Properties and design

The traditional solution

Hard shells with soft coating. Every lubricated bearing works according to this principle, and also a number of maintenance-free bearings that are equipped with special sliding layers. However, this soft sliding layer is not strong enough. For high loads, edge pressure or oscillations, it is easily removed.

Base polymers and technical fibres

The radial pressure with which the bearings are loaded is received by the polymer material. In the contact area, this material provides a support to the shaft. The polymer base material ensures that the lubricants do not receive a surface pressure that is too high. The base material is also reinforced by technical fibres or filling materials. These additional materials stabilise the bearing especially in cases of continuous load.

Incorporated self-lubrication

The solid lubricants are, as microscopic particles, embedded in millions of tiny chambers of the material. From these chambers, the plain bearings release tiny amounts of solid lubricants during movement. This is adequate to sufficiently lubricate the immediate surrounding area. The lubricants help to reduce the iglidur® bearing's coefficient of friction. They are not indispensable for the bearing's function, but have a supporting effect. Since they are embedded in the tiny chambers, they cannot be forced out. They are always there as soon as the bearing or the shaft is set in motion.



Picture 04: Polymer granulate; basis compound of the lubrication-free and predictable iglidur® plain bearings

The iglidur® solution: the self-lubricating effect

The high-performance polymers of the iglidur® plain bearings consist of:

- Base polymer
- Fibres and filling material
- Solid lubricants

These components are **not applied in layers**, but instead are mixed together homogeneously. The advantage of this design is clear when the requirements on the bearings surface are studied:

1. The coefficient of friction, which is determined especially by the surface of the bearing, should be as low as possible.
2. The surface cannot be removed by forces that act on the bearing.
3. The wearing force acts especially on the surface of the bearing, for this the bearing must be capable of high resistance.

One universal material, which can fulfil all these tasks equally well, unfortunately does not exist yet. That is why iglidur® plain bearings work differently. Different components of the iglidur® materials give the bearings their properties:

- The **base polymers** are responsible for the resistance to wear.
- **Fibres and filling materials** reinforce the bearing so that high forces or edge loads are possible.
- **Solid lubricants** lubricate the bearing independently and prevent friction of the system.

Load

The load of a plain bearing is expressed by the surface pressure (p) in MPa (corresponding to N/mm²). For this purpose, the radial load is determined on the projected surface of the bearing.

Radial bearing:

$$p = \frac{F}{d1 \cdot b1}$$

Thrust bearing:

$$p = \frac{F}{(d2^2 - d1^2) \cdot \frac{\pi}{4}}$$

In these equations:

F **load in [N]**
d1 **bearing inner diameter in [mm]**
b1 **bearing length in [mm]**
d2 **outer diameter of the bearing in [mm]**

Max. recommended surface pressure

A comparative value of the iglidur® material is the maximum recommended static surface pressure [MPa] at +20°C. The values of the individual iglidur® plain bearings differ greatly on this point. The value [p] indicates the pressure limit of a plain bearing. The plain bearing can carry this pressure permanently without damage. The given value applies to static operation; only very slow speeds up to 0.01m/s are tolerated under this pressure. Higher pressures than those indicated are possible if the duration of the load is short.

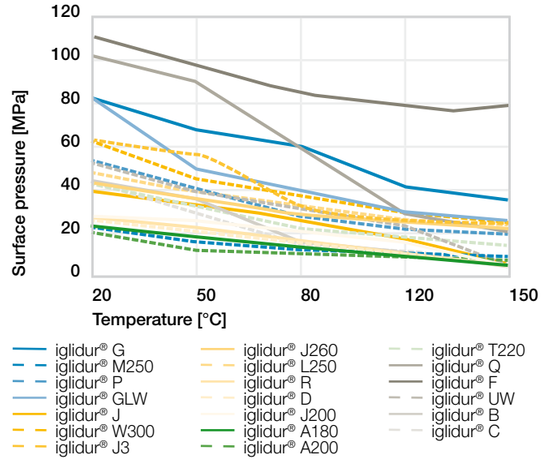
▶ Material properties, **page 60**

Load and temperature

Diagram 02 and 03 show the maximum recommended static surface pressure of the iglidur® plain bearing as a function of temperature. With increasing temperature, this value decreases continuously. Take advantage of the opportunity presented by the predictability of the iglidur® plain bearing to record these effects in advance, or determine the effective temperatures in the test.

Pressure and speed

With decreasing radial load on the plain bearing, the permissible surface speed increases. The product of the pressure [p] and speed [v], the so-called pv value, can be understood as a measurement for the frictional heat of the bearing. This relationship is shown by the pv graph that is the first in the respective chapter for each iglidur® material.



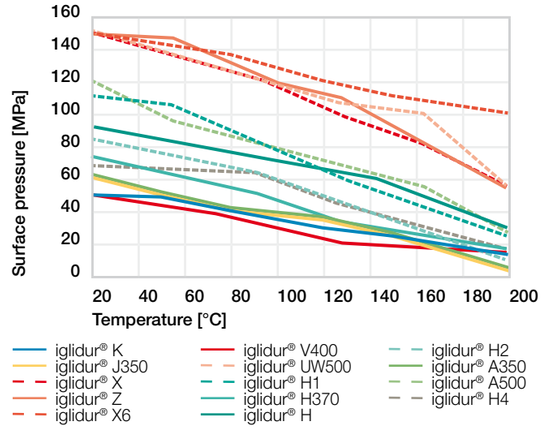


Diagram 02-03: Maximum recommended surface pressure as a function of temperature

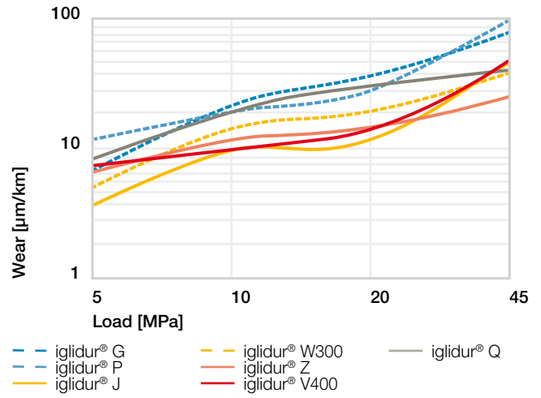
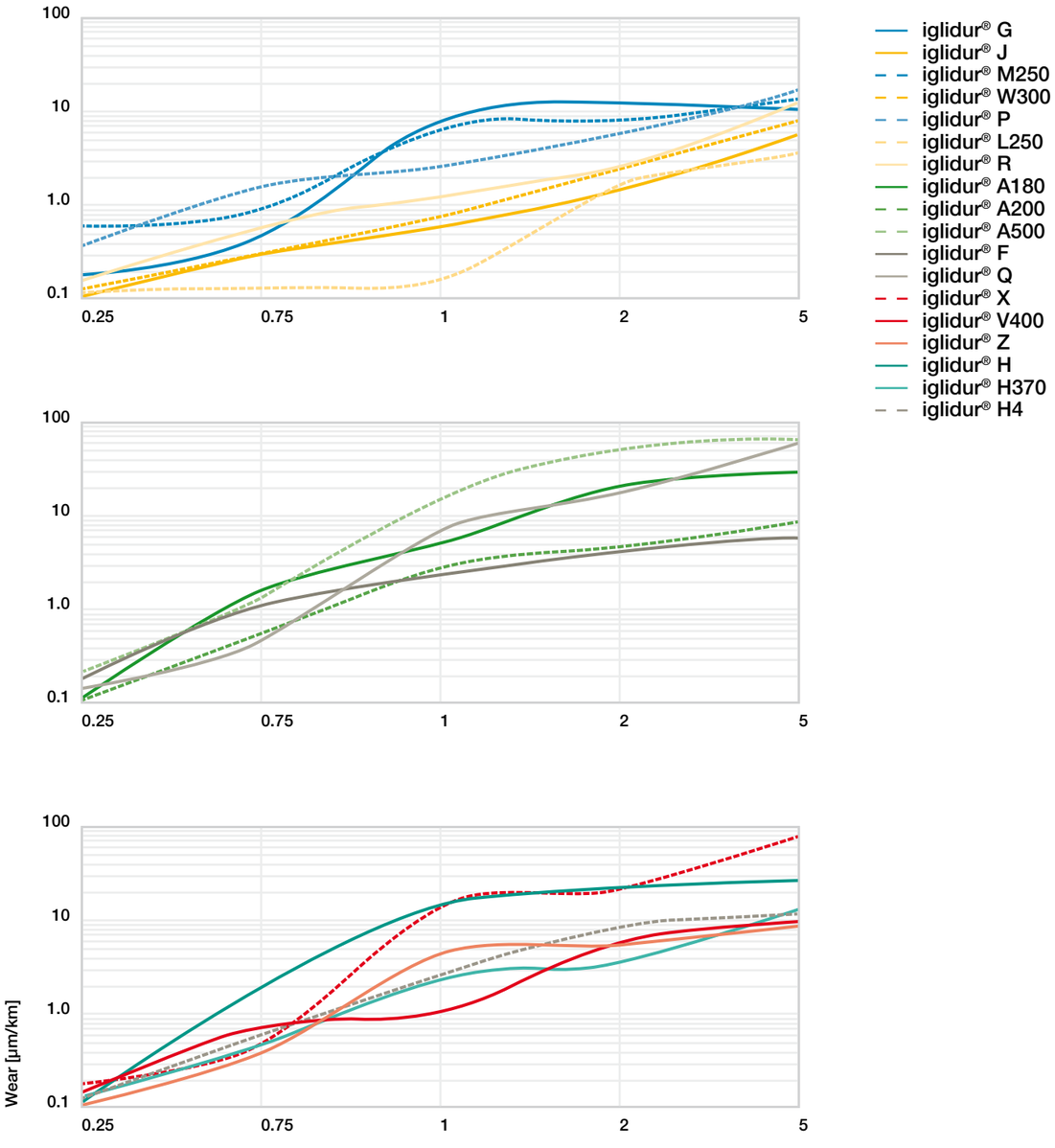


Diagram 04: Wear of iglidur® plain bearings under medium and high pressures

Pressure and wear

The following diagrams show the wear behaviour of the iglidur® bearing materials. It is easily recognised that for each pressure, there is an optimal plain bearing available. The wear is shown as a wear rate in [µm/km].

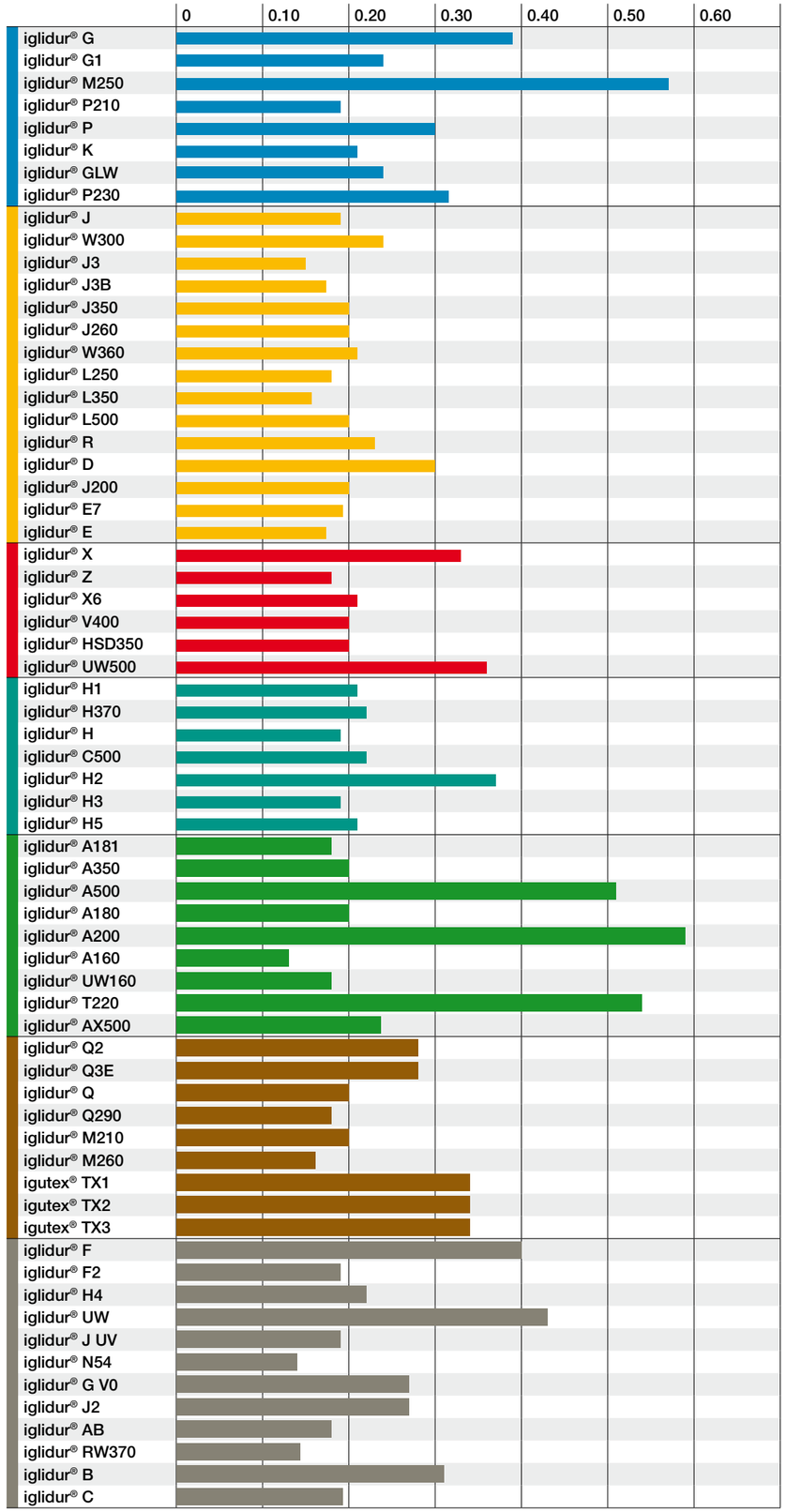


Diagrams 05-07: Wear of iglidur® plain bearings under low pressures

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iglidur® | Technical data

Pressure and coefficient of friction



With increasing load, the coefficient of friction of the plain bearing typically decreases. In this context, shaft materials and the surface finish are also significant.

▶ Coefficient of friction, **page 51**

Diagram 08: Coefficient of friction of iglidur® materials with Cf53 shaft, rotating

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Surface Speed

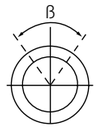
The peripheral speed is always significant in plain bearings. The absolute speed is not crucial, but the relative speed between the shaft and the bearing. The surface speed is expressed in meters per second [m/s] and calculated from the speed n [rpm] with the following formula.
With varying speeds for example with pivoting movements, the value needed is the average surface speed v (see above formula).

Rotational movement: $v = \frac{n \cdot d1 \cdot \pi}{60 \cdot 1{,}000} \left[\frac{m}{s}\right]$

Pivoting movement: $v = d1 \cdot \pi \cdot \frac{2 \cdot ß}{360} \cdot \frac{f}{1{,}000} \left[\frac{m}{s}\right]$

In these equations:

d1 = **Shaft diameter [mm]**
f = **Frequency per second**
ß = **Angle of motion per cycle [°]**
n = **rpm**



Permissible surface speeds

iglidur® plain bearings were primarily developed for low to average surface speeds in continuous operation. Table 01 shows the permissible surface speed of iglidur® plain bearings for rotating, pivoting, and linear movements. These surface speeds are limit values assuming minimal pressure loading of the bearing. In practice, these limit values are rarely reached due to an inverse relationship between load and speed. Each pressure increase leads unavoidably to a reduction of the permissible surface speeds and vice versa. The speed limit is determined by the thermal properties of the bearing. This is also the reason why different surface speeds can occur for the different movement types. For linear movements, more heat can be dissipated via the shaft, since the bearing uses a longer surface area on the shaft.

Surface speed and wear

Considerations regarding the permissible surface speeds should also include the wear resistance of the plain bearing. High surface speeds automatically bring correspondingly high wear rates with them. With higher surface speed, not only the wear rate rises but also the absolute wear.

Surface speed and coefficient of friction

In practice the coefficient of friction of plain bearings is a result of the surface speed. High surface speeds have a higher coefficient of friction than low surface speeds. Diagram 08 shows this relationship by using the example of a steel shaft (Cf53) with a load of 0.7MPa.

Chemical resistance

iglidur® plain bearings can come into contact with many chemicals during their use. This contact can lead to changes of the structural properties. The behaviour of plastics towards a certain chemical is dependent on the temperature, the length of exposure, and the type and amount of the mechanical stress. If iglidur® plain bearings are resistant to a chemical, they can be used in these media. Sometimes, the surrounding media can even take on the role of a lubricant. Therefore plain bearings may also be used lubricated. However, in dirty environments, a traditional lubricant can decrease the wear resistance when compared to dry operation. The following overview demonstrates this. You'll find a detailed list of chemical resistances in the rear of the catalogue.

▶ Chemical table, **page 1170**

Applications in the food industry

The iglidur® product range with specially developed bearing materials is prepared for the special requirements in machines and equipment for the food industry. The materials of the iglidur® A series and of iglidur® T220 are made according to the requirements of the American Food and Drugs Administration (FDA) for the repeated contact with food.

Material	Hydro-carbons	Greases, oils, without additives	Weak acids	Weak alkalines
iglidur® G	+	+	0 up to –	+
iglidur® G1	+	+	0 up to –	+
iglidur® M250	+	+	0 up to –	+
iglidur® P210	–	–	0	–
iglidur® P	–	+	0	–
iglidur® K	+	+	0 up to –	+
iglidur® GLW	+	+	0 up to –	+
iglidur® P230	+	+	+	+
iglidur® J	+	+	0 up to –	+
iglidur® W300	+	+	0 up to –	+
iglidur® J3	+	+	0 up to –	+
iglidur® J3B	+	+	0 up to –	+
iglidur® J350	+ up to 0	+	+	+
iglidur® J260	+	0 up to –	–	+ up to 0
iglidur® W360	+	+	0 up to –	+
iglidur® L250	+	+	0 up to –	+
iglidur® L350	+ up to 0	+	+	+
iglidur® L500	+	+	+	+
iglidur® R	+	+	0 up to –	+
iglidur® D	+	+	0 up to –	+
iglidur® J200	+	+	0 up to –	+
iglidur® E7	+	+	0 up to –	+
iglidur® E	+	+	0 up to –	+
iglidur® X	+	+	+	+
iglidur® Z	+	+	+	+
iglidur® X6	+	+	+	+
iglidur® V400	+	+	+	+
iglidur® HSD350	+	+	+	+
iglidur® UW500	+	+	+	+
iglidur® H1	+	+	+ up to 0	+
iglidur® H370	+	+	+ up to 0	+
iglidur® H	+	+	+ up to 0	+
iglidur® C500	+	+	+	+

Material	Hydro-carbons	Greases, oils, without additives	Weak acids	Weak alkalines
iglidur® H2	+	+	+ up to 0	+
iglidur® H3	+	+	+ up to 0	+
iglidur® H5	+	+	+ up to 0	+
iglidur® A181	+	+	0 up to –	+
iglidur® A350	+ up to 0	+	+	+
iglidur® A500	+	+	+	+
iglidur® A180	+	+	0 up to –	+
iglidur® A200	+	+	0 up to –	+
iglidur® A160	+	+	+	+
iglidur® UW160	+	+	+	+
iglidur® T220	–	+	0	–
iglidur® AX500	+	+	+	+
iglidur® Q2	+	+	0 up to –	+
iglidur® Q3E	+	+	0 up to –	+
iglidur® Q	+	+	0 up to –	+
iglidur® Q290	+	+	0 up to –	+
iglidur® M210	–	–	0	–
iglidur® M260	+	0 up to –	–	+ up to 0
igutex® TX1	+	+	+	+
igutex® TX2	+	+	+	+
igutex® TX3	+	+	+	+
iglidur® F	+	+	0 up to –	+
iglidur® F2	–	+	0	–
iglidur® H4	+	+	+ up to 0	+
iglidur® UW	+	+	0 up to –	+
iglidur® J UV	+	+	0 up to –	+
iglidur® N54	+	+	0 up to –	+
iglidur® G V0	+	+	0 up to –	+
iglidur® J2	+	+	0 up to –	+
iglidur® AB	+	+	0 up to –	+
iglidur® RW370	–	+	+	+
iglidur® B	–	–	0 up to –	–
iglidur® C	+	+	0 up to –	+

Table 05: Chemical resistance of iglidur® materials
+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20°C]

pv value and coefficient of friction

For plain bearings, the product is given a new value depending on the pressure [p] and the surface speed [v].The **pv value** can be considered a measure of the frictional heat and can be used as an analytical tool to answer questions concerning the proper application of a plain bearing. For this purpose the actual **pv value** is compared with a permitted **pv value** calculable for the height. The permitted **pv value** depends on the shaft material, the ambient temperature and the service time.

Correction factor

The permissible **pv value** can be increased in practical operation if the bearing temperature never reaches the maximum limit because of the short operating time. Tests have shown that this is true for operating times below 10 minutes. It is known that a longer dwell time makes a greater contribution to re-cooling. An important qualifier here is the ratio of the operating time and dwell times. The different curves of diagram 09 represent different ratios (3x means that the dwell time is three times longer than the operating time).

Lubrication

Although iglidur® plain bearings are designed for dry operation, they are quite compatible with standard oils and greases. A single lubrication during the installation improves the start-up behaviour and the coefficient of friction, thus reducing the frictional heat. Due to this effect, the permissible loads for plain bearings can be increased by lubrication. Table 02 shows the correction factors for **pv value** using lubrication.

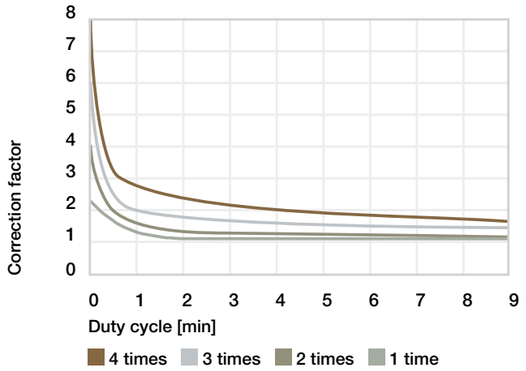


Diagram 09: Correction factor for p · v

Lubrication	Correction factor
Dry operation	1.0
During installation	1.3
Continuous, grease	2.0
Continuous, water	4.0
Continuous, oil	5.0

Table 02: Correction of the tolerated pv value by means of lubrication

Material	Thermal conductivity [W/m · k]
Steel	46
Aluminium	204
Grey cast iron	58
304 stainless steel	16
Ceramics	1.4
Polymer	0.24

Table 03: Heat conductivity values of shaft or housing materials

Coefficient of friction

iglidur® plain bearings are self-lubricating with the addition of solid lubricants. The solid lubricants lower the coefficient of friction of the plain bearings and thus increase the wear resistance. The coefficient of friction μ is proportional to the normal force and describes which force is needed to move a body in relation to another.

Depending on whether an application is starting from a stationary position or the movement is in progress and needs to be maintained, a distinction is made between a static coefficient of friction and a dynamic coefficient of friction.

Coefficient of friction and surfaces

Shown here is the relationship between coefficient of friction and surface finish of shaft materials. It is clearly shown that the amount of friction is composed of different factors.
If the shaft is too rough, abrasion levels play an important role. Small areas of unevenness that can interlock with each other must be worn off the surface.
When the surfaces are too smooth, however, higher adhesion results, i.e. the surfaces stick to each other. Higher forces are necessary to overcome the adhesion, which results from an increased coefficient of friction.
Stick-slip can be the result of a large difference between static and dynamic friction and of a higher adhesive tendency of mating surfaces. Stick-slip also occurs due to intermittent running behaviour and can result in loud squeaking. Over and over again, it is observed that these noises do not occur or can be eliminated with rough shafts. Thus for applications that have a great potential for stick-slip - slow movements, large resonance of the housing - attention must be paid to the optimal surface finish of the shafts.

pv value

$$pv_{perm.} = \left(\frac{[K1 \cdot \pi \cdot \lambda k \cdot \Delta T]}{\mu \cdot s} + \frac{[K2 \cdot \pi \cdot \lambda s \cdot \Delta T]}{\mu \cdot b1 \cdot 2} \right) \cdot 10^{-3}$$

In these equations:

K1, K2	=	Constant for heat dissipation (K1 = 0.5, K2 = 0.042)
s	=	Bearing wall thickness mm
b1	=	Bearing length mm
μ	=	Coefficient of friction
λs	=	Thermal conductivity of the shaft
λk	=	Thermal conductivity of the bearing
ΔT	=	$(T_a - T_u)$
T_u	=	Ambient temperature [°C]
T_a	=	Max. application temperature [°C]



Picture 05: More cost-effective products - a crucial component: the largest test laboratory in the industry. 3,800m² laboratory, over 12,000 tests and two billion test strokes a year.

Temperatures

The temperature resistance of high-performance polymer plain bearings is usually underestimated. Data is often found in the literature about the continuous operating temperature. The continuous operating temperature is the highest temperature, which the plastic can withstand for a period of time without a reduction in the tensile strength of the material above or below a prespecified value. This standardised test however yields only a less relevant characteristic value, as bearings are almost always subjected to a load. The application temperatures of the materials are more revealing.

Application temperatures

The minimum application temperature is the temperature below which the material is so rigid and hard that it becomes too brittle for standard applications. The maximum continuous application temperature is the temperature the material can endure for a longer period of time without the properties changing considerably.

The maximum, short-term application temperature is the temperature above which the material becomes so soft, that it can only withstand small external loads. "Short term" is defined as a period of a few minutes.

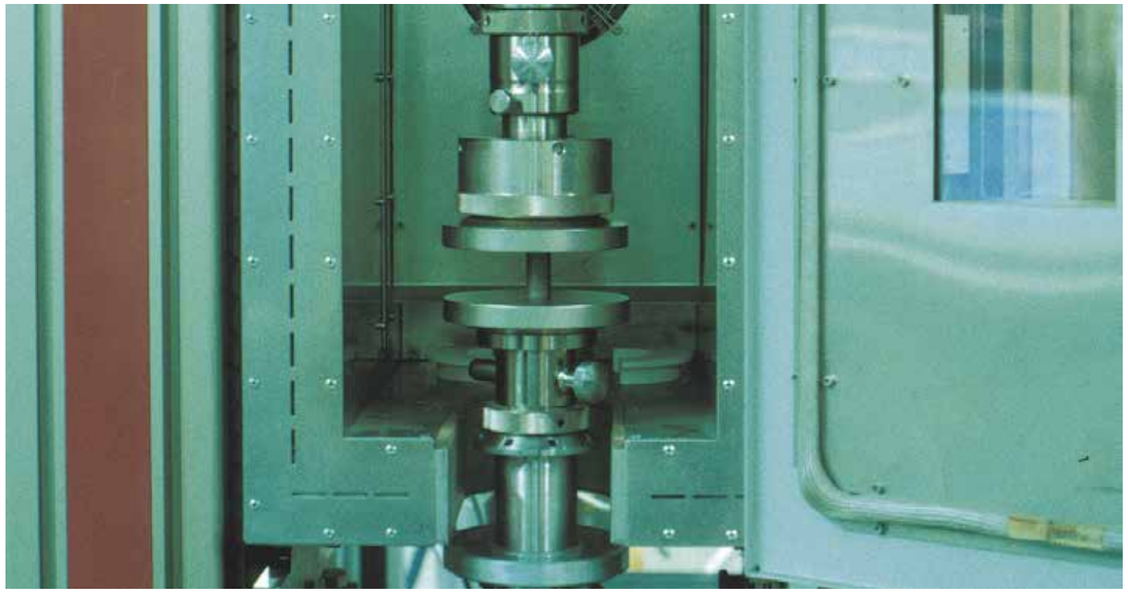
If the plain bearings are moved axially or axial forces occur, there is more opportunity for the bearing to lose press-fit. In these cases, axial securing of the bearing is necessary in addition to the press-fit. The table 04 shows the temperature at which additional securing of the iglidur® plain bearing is required, even under low axial loads. The greater the forces, the more reasons to engage such a fastening.

Temperature and load

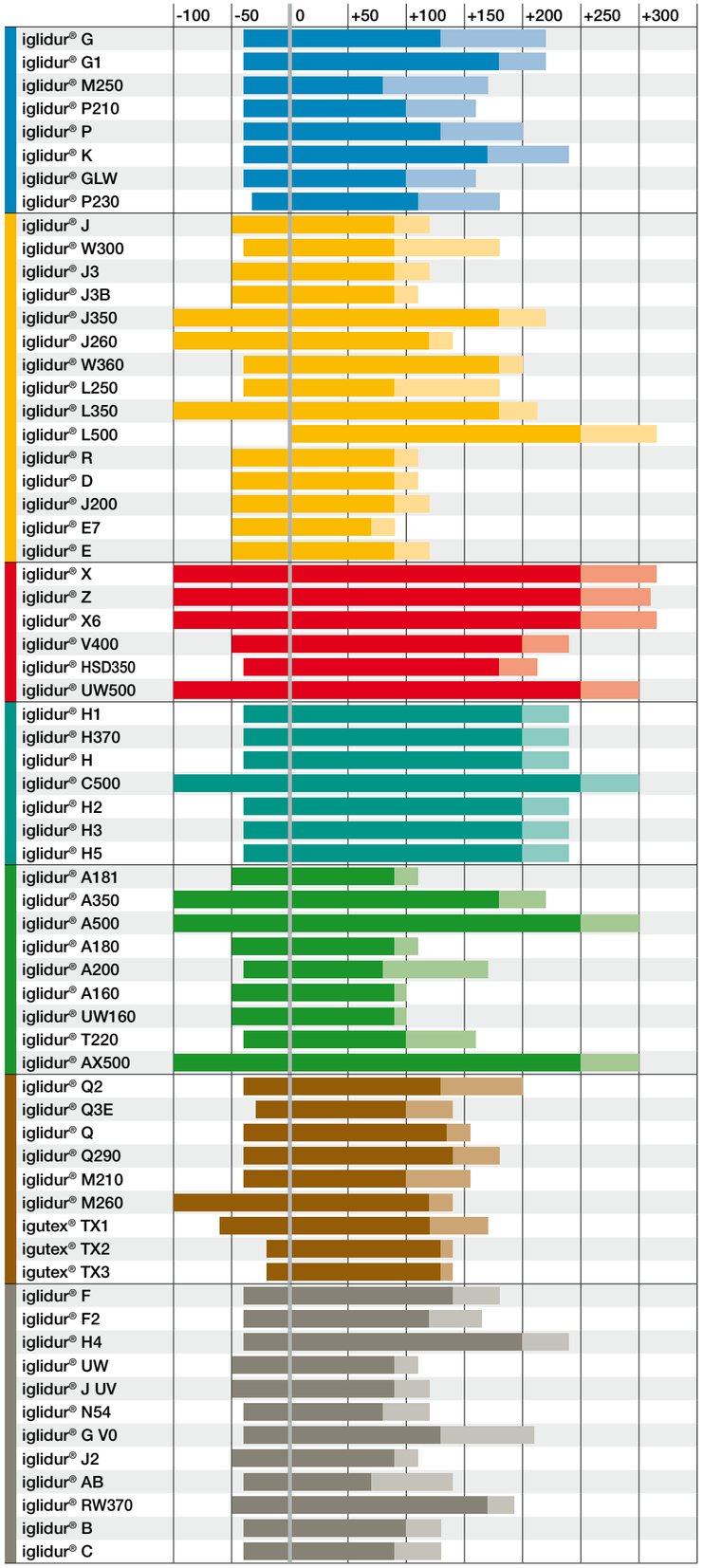
The diagrams 02 and 03 (▶ **Page 45**) show the maximum recommended surface pressure [p] of the iglidur® plain bearings as a function of temperature. With increasing temperature, this value decreases continuously. With plain bearings it is important to note that, due to the friction, the bearing temperature may be higher than the ambient temperature.

Coefficient of thermal expansion

The thermal expansion of polymers is approximately 10 to 20 times higher than metals. In contrast to metal, this expansion is non-linear in plastics. The coefficient of thermal expansion of the iglidur® plain bearing is a significant reason for the bearing clearance. At the given application clearance, seizing of the bearing to the shaft does not occur at high temperatures. The coefficient of thermal expansion of iglidur® plain bearings was examined for significant temperature ranges and the results are given in the individual materials tables, at the start of each chapter.



Picture 06: Material tests are possible up to +250°C



Material	Temperature [°C]
iglidur® G	+80
iglidur® G1	+120
iglidur® M250	+60
iglidur® P210	+50
iglidur® P	+90
iglidur® K	+70
iglidur® GLW	+80
iglidur® P230	+100
iglidur® J	+60
iglidur® W300	+60
iglidur® J3	+60
iglidur® J3B	+60
iglidur® J350	+140
iglidur® J260	+80
iglidur® W360	+90
iglidur® L250	+55
iglidur® L350	+140
iglidur® L500	+135
iglidur® R	+50
iglidur® D	+50
iglidur® J200	+60
iglidur® E7	+30
iglidur® E	+60
iglidur® X	+135
iglidur® Z	+145
iglidur® X6	+165
iglidur® V400	+100
iglidur® HSD350	+130
iglidur® UW500	+150
iglidur® H1	+80
iglidur® H370	+100
iglidur® H	+120
iglidur® C500	+130
iglidur® H2	+110
iglidur® H3	+80
iglidur® H5	+80
iglidur® A181	+60
iglidur® A350	+140
iglidur® A500	+130
iglidur® A180	+60
iglidur® A200	+50
iglidur® A160	+60
iglidur® UW160	+70
iglidur® T220	+50
iglidur® AX500	+130
iglidur® Q2	+70
iglidur® Q3E	+75
iglidur® Q	+50
iglidur® Q290	+80
iglidur® M210	+50
iglidur® M260	+80
igutex® TX1	+100
igutex® TX2	+100
igutex® TX3	+100
iglidur® F	+105
iglidur® F2	+70
iglidur® H4	+110
iglidur® UW	+80
iglidur® J UV	+60
iglidur® N54	+60
iglidur® G V0	+100
iglidur® J2	+60
iglidur® AB	+50
iglidur® RW370	+120
iglidur® B	+50
iglidur® C	+40

Diagram 10 (left): Comparison of the continuous and short-term upper application temperature limits [°C].
Table 04 (right): Temperature at which additional securing of the iglidur® plain bearing is required

Wear resistance

The wear of components depends on many different factors, therefore it is difficult to make general statements about the wear behaviour. In many experiments and tests, the measurement of the wear is a primary factor. In testing, it has become clear what variances are possible between different material pairings. For given loads and surface speeds, the wear resistance can easily vary by a factor of 10 between material pairings that run well together.

▶ Shaft materials, **page 56**

Wear under load

Different loads greatly influence the bearing wear. Among the iglidur® plain bearings, certain materials are optimised for low loads, while others are suitable for use with high or extremely high loads.

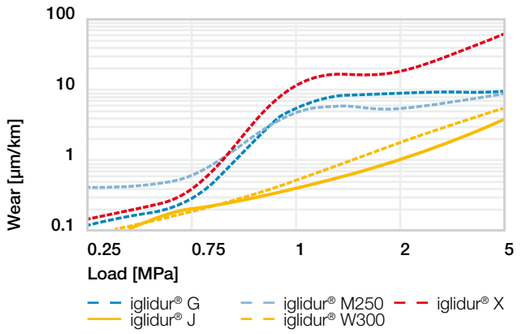


Diagram 11: Wear of iglidur® plain bearings under low pressures, Cf53 shaft, v = 0.1m/s

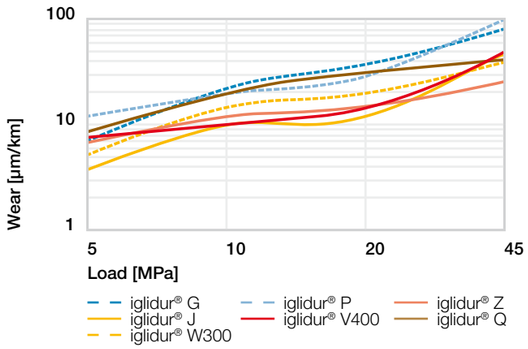


Diagram 12: Wear of iglidur® plain bearings at medium and high pressures, shaft: Cf53, v = 0.1m/s

Wear and temperature

Within wide temperature ranges, the wear resistance of the iglidur® plain bearings shows little change. In the maximum temperature range, however, the temperature increases and the wear of the plain bearing increases. One particular exception is represented by iglidur® X. The wear resistance of iglidur® X greatly increases as temperature increases and reaches the optimum wear resistance at a temperature of +160°C. Then resistance decreases again, gradually.

Wear during abrasive dirt accumulation

Special wear problems frequently occur if abrasive dirt particles get into the bearing. iglidur® plain bearings can clearly improve the operating time of machines and systems in these situations. The high wear resistance of the materials and the dry operation result in the highest service life. As no oil or grease is on the bearing, dirt particles cannot adhere or penetrate as easily into the bearing. Most debris simply falls away from the bearing thus limiting potential damage. If however, a hard particle penetrates into the bearing area, then an iglidur® plain bearing can absorb this particle. The foreign body becomes embedded in the wall of the plain bearing. Up to a certain point, operation can be maintained at optimal levels even when there is extreme dirt accumulation.

However, it is not just hard particles that can damage bearings and shafts. Soft dirt particles such as for example, textile or paper fibres, are frequently the cause for increased wear. In this instance, the dry operation capability and the dust resistance of the iglidur® plain bearings go into action. In the past, this helped save costs in many applications.

Wear and surfaces

Shaft surfaces are important for the wear of bearing systems. Similar to the considerations for the coefficient of friction, a shaft can be too rough in regard to the bearing wear, but it can also be too smooth. A shaft that is too rough acts like a file and during movement separates small particles from the bearing surface. For shafts that are too smooth, however, higher wear can also occur. An extreme increase in friction results due to adhesion. The forces that act on the mating surface can be so large that material blow-outs occur.

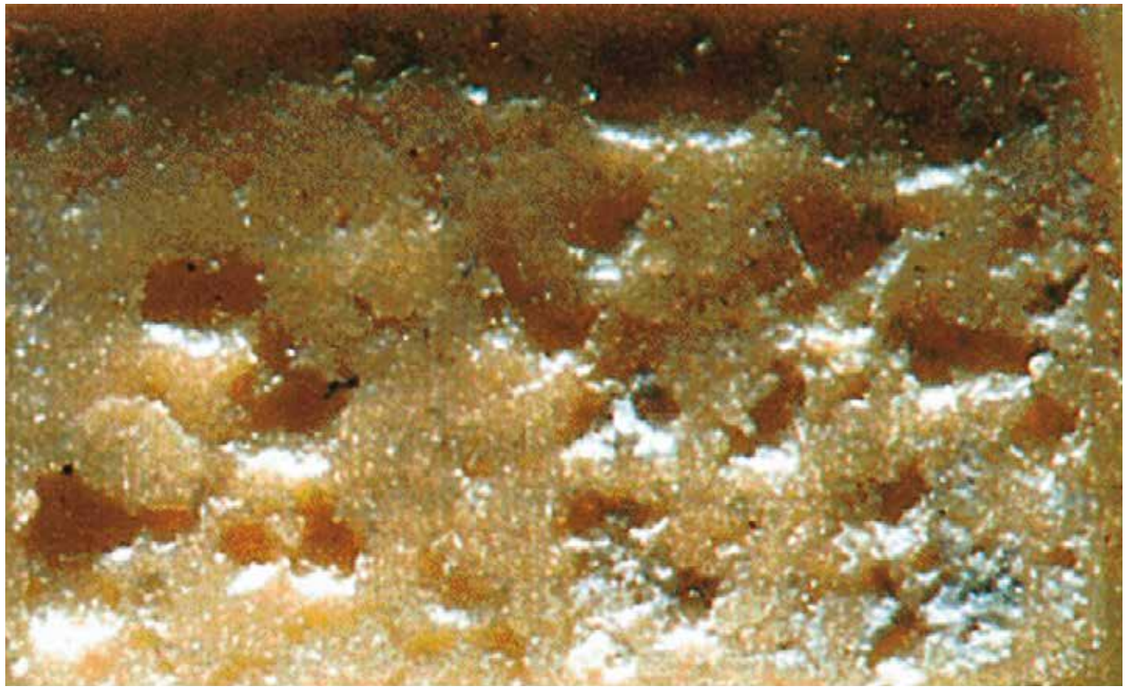
It is significant to note that wear by erosion is non-linear, random and cannot be accurately predicted.



Picture 07: High wear resistance: plain bearing in permanent contact with sand



Picture 8: Wear experiments with aluminium shafts



Picture 9: Erosion damage due to shafts that are too smooth

Wear and shaft materials

The shaft is, apart from the plain bearing itself, the most important parameter in a bearing system. It is in direct contact with the bearing, and like the bearing, it is affected by relative motion. The shaft will wear in any case. Modern bearing systems however are designed in a way that the wear of the shafts is so small that it cannot be detected with traditional methods of measurement technology. Shafts can be distinguished and classified according to their hardness and according to the surface finish.

▶ Coefficient of friction, **page 51**
▶ Wear resistance, **page 54**

The hardness of the shaft also plays an important role. When the shafts are less hard, the shaft is worn smooth during the break-in phase. Abrasive points are worn off and the surface is rebuilt. For some materials, this effect has positive influences, and the wear resistance of the polymer bearing increases. In the following graphs, the most common shaft materials are listed and the iglidur® materials that are best suited are compared. For easier comparison, the scaling of the wear axis is the same in all graphs.

The low wear results of the systems with hard-chromed shafts are especially impressive. This very hard, but also smooth shaft gives excellent results on the wear behaviour with many bearing combinations.The wear of many iglidur® plain bearings is lower on this shaft than on any other shaft material tested. However, it should be pointed out that because of the low surface roughness, the danger of stick-slip on hard-chromed shafts is especially high.
With high-grade steel, a similarly good result is obtained. Cf53 standard shafts give very good results, too. With other shaft materials, the wear results vary considerably. For example, in tests with 304 stainless steel shafts at low loads, extremely positive results can be found with the right bearing material. It must be said on the other side, that no other shaft material shows a bigger variation of wear results with different bearing materials. Therefore, the choice of the most suitable bearing material is particularly important with the shaft materials 304 stainless steel and HR carbon steel. The test results give only a sample of the existing data. All of the results shown were made with same loads and speeds.



Picture 10: Pivoting wear test rig for testing the wear in pivoting movements at low loads



Picture 11: Pivoting wear test rig for testing the wear in pivoting movements at medium loads

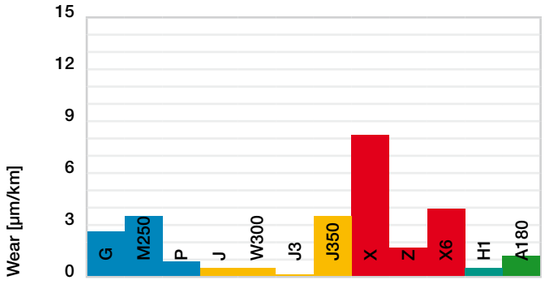


Diagram 13: Wear with Cf53 shaft, p = 1MPa, v = 0.30m/s, Ra = 0.20µm

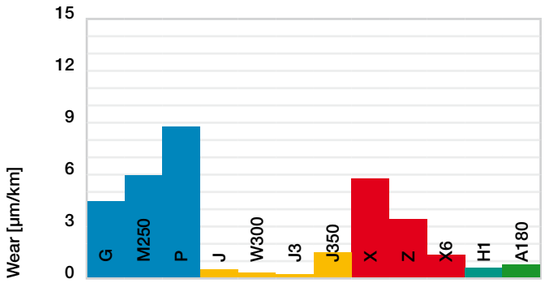


Diagram 14: Wear with 304 stainless steel shaft, p = 1MPa, v = 0.30m/s, Ra = 0.20µm

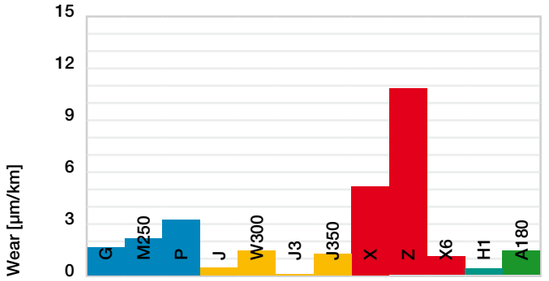


Diagram 15: Wear with HR carbon steel shaft, p = 1MPa, v = 0.30m/s, Ra = 0.20µm

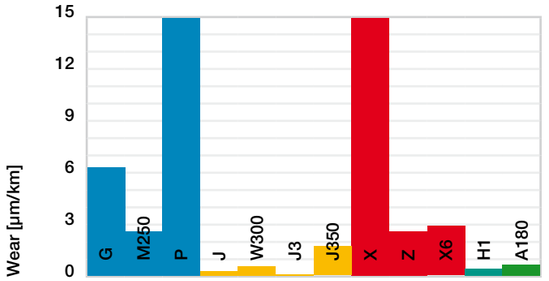


Diagram 16: Wear with Cf53 hard-chromed shaft, p = 1MPa, v = 0.30m/s, Ra = 0.20µm

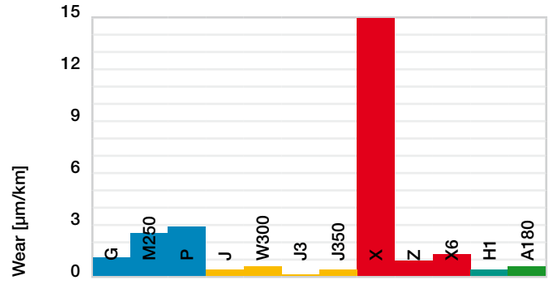


Diagram 17: Wear with hard-anodised aluminium shaft, p = 1MPa, v = 0.30m/s, Ra = 0.20µm

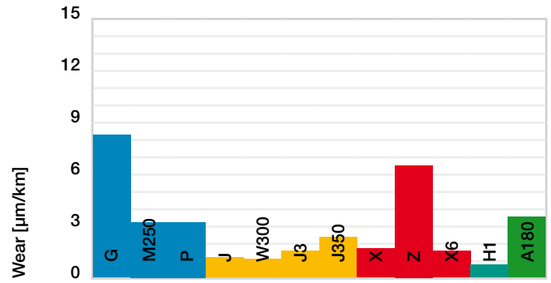


Diagram 18: Wear with free cutting steel shaft, p = 1MPa, v = 0.30m/s, Ra = 0.20µm

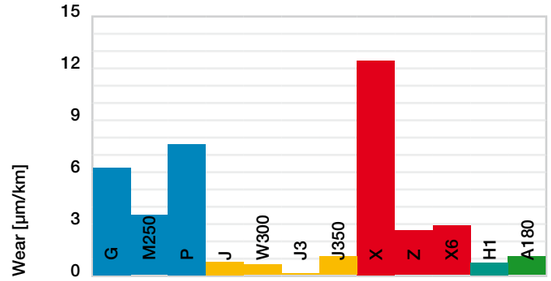


Diagram 19: Wear with high grade steel shaft, p = 1MPa, v = 0.30m/s, Ra = 0.20µm

Resistance to weathering

Radioactive radiation

A comparison of the resistance to radioactive radiation is shown in table 06. iglidur® X, UW500 and Z are by far the most resistant materials.

Resistance to weathering

The UV resistance is an important measure that states whether a material is affected by UV radiation. The effects can extend from slight changes in colour to brittleness of the material. A comparison of the materials to each other is shown in table 08. The results show that iglidur® plain bearings are suitable for outside use. Only for a few iglidur® materials are any changes expected.

Vacuum

iglidur® plain bearings can be used in a vacuum to a limited extent. Only a small amount of outgassing takes place. In most iglidur® plain bearings, the outgassing does not change the material properties. Generally, materials with low moisture absorption are recommended.

Electrical properties

In the product range of the maintenance-free, self-lubricating iglidur® plain bearings, there are both insulating as well as electrically conductive materials. The electrical properties are given in detail in the individual material descriptions. Table 07 compares the surface resistance of "conductive" iglidur® plain bearings. The iglidur® plain bearings not mentioned here are usually electrically insulating. Please observe that for some materials the properties can be changed by the absorption of moisture. In experiments, it should be tested whether the required properties are also stable when the conditions are changing.

Material	Surface resistance [Ω]
iglidur® X	$< 10^3$
iglidur® X6	$< 10^5$
iglidur® UW500	$< 10^9$
iglidur® H	$< 10^2$
iglidur® H370	$< 10^5$
iglidur® F	$< 10^2$
iglidur® F2	$< 10^9$
iglidur® UW	$< 10^5$
iglidur® AX500	10^5 - 10^{11}

Table 07: Electrical properties of conductive iglidur® plain bearings

Material	Radiation resistance
X, Z, UW500, A160	$1 \cdot 10^5$ Gy
X6, A500	$2 \cdot 10^5$ Gy
M250, J3, A200, N54	$1 \cdot 10^4$ Gy
L250	$3 \cdot 10^4$ Gy
V400, C	$2 \cdot 10^4$ Gy
P, K	$5 \cdot 10^2$ Gy
G, G1, J, W300, P210, P230, J260, J200, R, D, C500, A180, UW160, T220, F, F2, Q, Q2, UW, G V0, J2, B, GLW, L500, Q290, AB, J UV, Q3E, E7, J3B, E, AX500, M210, M260	$3 \cdot 10^2$ Gy
J350, H, H1, H370, H2, H4, A181, A350, W360, H3, H5	$2 \cdot 10^2$ Gy

Table 06: Comparison of the radiation resistance of iglidur® plain bearings

Material	Resistance to weathering
iglidur® G	4
iglidur® G1	n.s.
iglidur® M250	2
iglidur® P210	5
iglidur® P	5
iglidur® K	4
iglidur® GLW	4
iglidur® P230	n.s.
iglidur® J	4
iglidur® W300	3
iglidur® J3	4
iglidur® J3B	n.s.
iglidur® J350	5
iglidur® J260	5
iglidur® W360	4
iglidur® L250	3
iglidur® L350	n.s.
iglidur® L500	5
iglidur® R	4
iglidur® D	5
iglidur® J200	4
iglidur® E7	5
iglidur® E	4
iglidur® X	5
iglidur® Z	5
iglidur® X6	5
iglidur® V400	5
iglidur® HSD350	5
iglidur® UW500	5
iglidur® H1	5
iglidur® H370	5
iglidur® H	5

Material	Resistance to weathering
iglidur® C500	4
iglidur® H2	5
iglidur® H3	5
iglidur® H5	5
iglidur® A181	4
iglidur® A350	5
iglidur® A500	2
iglidur® A180	1
iglidur® A200	1
iglidur® A160	5
iglidur® UW160	5
iglidur® T220	4
iglidur® AX500	2
iglidur® Q2	5
iglidur® Q3E	n.s.
iglidur® Q	4
iglidur® Q290	1
iglidur® M210	5
iglidur® M260	5
iglidur® F	3
iglidur® F2	4
iglidur® H4	5
iglidur® UW	3
iglidur® J UV	5
iglidur® N54	4
iglidur® G V0	4
iglidur® J2	3
iglidur® AB	3
iglidur® RW370	5
iglidur® B	3
iglidur® C	3

Table 08: UV resistance of iglidur® plain bearings, 1 low resistance, 5 highest resistance
Determination of bending specifications according to DIN EN ISO 178 after weathering with double stroke 4 of ASTM G154. Two alternating statuses (total time: 2,000hrs). Status 1: Irradiation with UVA-340, irradiance 1.55W/m2/nm and 70°C for 8hrs. Status 2: no irradiation, condensation at 50°C for 4hrs.

Assembly instructions

iglidur® plain bearings are press-fit bearings. The inner diameter adjusts only after press-fit in the proper housing hole with a recommended (H7) tolerance. The press-fit excess dimension can be up to 2% of the inner diameter. This ensures the secure press-fitting of the bearing. Axial or radial movement in the housing are also prevented this way. The hole in the housing should be made with the recommended tolerance (H7) for all bearings and be smooth, flat and chamfered. The bearing should be press-fitted using a flat press. The use of centring or calibrating pins can cause damage to the bearings and bring a greater amount of clearance.



Picture 12: The bearing should be press-fitted using a flat press

Adhesion

It is not usually necessary to use an adhesive to fit the bearing. If a bearing is likely to lose its firm fit on account of high temperatures, a more temperature-resistant plain bearing should be used. If, however, there are plans to secure the bearings with adhesive, it will be necessary to perform suitable tests in each case. It is not possible to simply transfer the successful results seen in other applications.

Machining

iglidur® plain bearings are delivered ready-to-fit. The extensive product line makes it possible to use a standard dimension in most cases. If for some reason, a subsequent machining of the plain bearing is necessary, the adjacent table shows the machining standard values. The subsequent machining of the sliding surfaces is to be avoided if possible. Higher wear rate is most often the result.
An exception is iglidur® M250 which is suitable for subsequent machining. In other iglidur® plain bearings, disadvantages of a sliding surface machining can be counteracted by lubrication during installation.

Process	Turning	Drilling	Milling
Tool material	Stainless steel	Stainless steel	Stainless steel
Feed [mm]	0.1…0.5	0.1…0.5	up to 0.5
Clearance angle	5…15	10…12	3
Rake angle	0…10	3…5	
Cutting speed [m/min]	200…500	50…100	up to 1,000

Table 09: Guidelines for machining

Tolerances and measurement system

The installation dimensions and tolerances of the iglidur® plain bearings are a function of the material and wall thicknesses. For each material, the moisture absorption and the thermal expansion are imperative. Plain bearings with low moisture absorption can be designed with a minimal amount of bearing clearance. For wall thickness, the rule is: the thicker the bearings are, the larger the tolerances must be. Thus, different tolerance classes exist for iglidur® plain bearings. Within these tolerances, iglidur® plain bearings can operate in the permissible temperature range and in humidity conditions up to 70% according to the installation recommendations. Should higher air moisture levels be present, or the bearing is used under water, we provide advice with regard to applications, in order to help you use your bearings correctly.



Picture 13: measurement of the inner diameter of a press-fit plain bearing

Testing methods

iglidur® plain bearings are press-fit bearings for housings with a H7 standard hole. This press-fitting of the bearing fixes the bearing in the housing, and the inner diameter of the plain bearing is also formed upon press-fit.
The bearing size test is performed when the bearing is installed in a hole with the minimum specified dimension; both using a dial gauge and a plug gauge:

- The "Go-Side" of the plug gauge, pressed into the hole, must pass easily through the bearing
- With the 3 point probe, the inner diameter of the bearing must lie within the prescribed tolerance on the measurement plane (diagram 20)

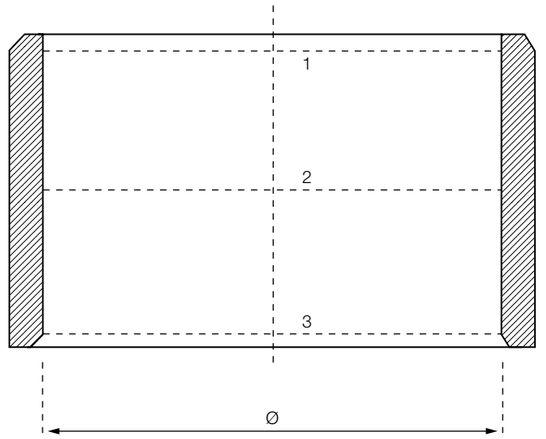


Diagram 20: Positions of the measurement lines

Troubleshooting

In spite of careful manufacturing and assembly of the bearings, differences and questions regarding the recommended installation heights and tolerances can result. For this reason, we have compiled a list of the most frequent reasons for differences. In many cases, with this troubleshooter, the reasons for the differences can be found quickly:

- The hole is not chamfered correctly, so the bearing material is removed upon press-fitting
- A centring pin was used which expanded the inside diameter of the bearing during press-fit
- The hole does not meet the recommended housing hole specifications (usually H7)
- The housing is made out of a soft material that was expanded by the bearing installation
- The shaft is not within recommended tolerances
- The measuring doesn't take place within the measuring lines

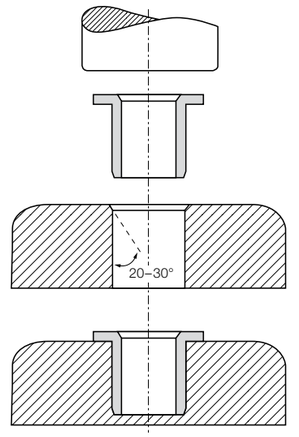


Diagram 21: Press-fit of the bearing (section view)

Tolerances

Installation tolerances

iglidur® plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the corresponding tolerances. For particular dimensions the tolerance differs depending on the wall thickness.

ISO tolerances for iglidur® plain bearings [mm]

Diameter d1	Housing H7	Shaft h9
up to 3	+0.000 +0.010	-0.025 +0.000
> 3 up to 6	+0.000 +0.012	-0.030 +0.000
> 6 up to 10	+0.000 +0.015	-0.036 +0.000
> 10 up to 18	+0.000 +0.018	-0.043 +0.000
> 18 up to 30	+0.000 +0.021	-0.052 +0.000
> 30 up to 50	+0.000 +0.025	-0.062 +0.000
> 50 up to 80	+0.000 +0.030	-0.074 +0.000
> 80 up to 120	+0.000 +0.035	-0.087 +0.000
>120 up to 180	+0.000 +0.040	-0.100 +0.000

Diameter	Tolerances according to ISO 3547-1			
d1	E10	E11	F10	D11
up to 3	+0.014 +0.054	+0.014 +0.074	+0.006 +0.046	+0.020 +0.080
> 3 up to 6	+0.020 +0.068	+0.020 +0.095	+0.010 +0.058	+0.030 +0.105
> 6 up to 10	+0.025 +0.083	+0.025 +0.115	+0.013 +0.071	+0.040 +0.130
> 10 up to 18	+0.032 +0.102	+0.032 +0.142	+0.016 +0.086	+0.050 +0.160
> 18 up to 30	+0.040 +0.124	+0.040 +0.170	+0.020 +0.104	+0.065 +0.195
> 30 up to 50	+0.050 +0.150	+0.050 +0.210	+0.025 +0.125	+0.080 +0.240
> 50 up to 80	+0.060 +0.180	+0.060 +0.250	+0.030 +0.150	+0.100 +0.290
> 80 up to 120	+0.072 +0.212	+0.072 +0.292	+0.036 +0.176	+0.120 +0.340
>120 up to 180	+0.085 +0.245	+0.085 +0.335	+0.043 +0.203	+0.145 +0.395

iglidur® | Calculation

Tolerances

Material	E10	E11	F10	D11
iglidur® G	●			
iglidur® G1			●	
iglidur® M250				●
iglidur® P210	●			
iglidur® P	●			
iglidur® K	●			
iglidur® GLW	●			
iglidur® P230	●			
iglidur® J	●			
iglidur® W300	●			
iglidur® J3	●			
iglidur® J3B	●			
iglidur® J350			●	
iglidur® J260	●			
iglidur® W360	●			
iglidur® L250	●			
iglidur® L350			●	
iglidur® L500			●	
iglidur® R	●			
iglidur® D	●			
iglidur® J200	●			
iglidur® E7	●			
iglidur® E	●			
iglidur® X			●	
iglidur® Z			●	
iglidur® X6			●	
iglidur® V400			●	
iglidur® HSD350			●	
iglidur® UW500			●	
iglidur® H1			●	
iglidur® H370			●	
iglidur® H			●	
iglidur® C500			●	

Material	E10	E11	F10	D11
iglidur® H2			●	
iglidur® H3			●	
iglidur® H5			●	
iglidur® A181	●			
iglidur® A350			●	
iglidur® A500			●	
iglidur® A180	●			
iglidur® A200				●
iglidur® A160	●			
iglidur® UW160	●			
iglidur® T220	●			
iglidur® AX500			●	
iglidur® Q2	●			
iglidur® Q3E		●		
iglidur® Q	●			
iglidur® Q290	●			
iglidur® M210				●
iglidur® M260				●
igutex® TX1				●
igutex® TX2				●
igutex® TX3				●
iglidur® F				●
iglidur® F2	●			
iglidur® H4			●	
iglidur® UW	●			
iglidur® J UV	●			
iglidur® N54	●			
iglidur® G V0	●			
iglidur® J2	●			
iglidur® AB	●			
iglidur® RW370			●	
iglidur® B				●
iglidur® C				●

Table 10: Tolerances of iglidur® plain bearing materials

igus® formulae

Surface pressure

Radial bearing:

$$p = \frac{F}{d1 \cdot b1}$$

Thrust bearing:

$$p = \frac{F}{(d2^2 - d1^2) \cdot \frac{\pi}{4}}$$

Surface Speed

Rotational movement:

$$v = \frac{n \cdot d1 \cdot \pi}{60 \cdot 1{,}000} \left[\frac{m}{s}\right]$$

Pivoting movement:

$$v = d1 \cdot \pi \cdot \frac{2 \cdot \beta}{360} \cdot \frac{f}{1{,}000} \left[\frac{m}{s}\right]$$

pv value

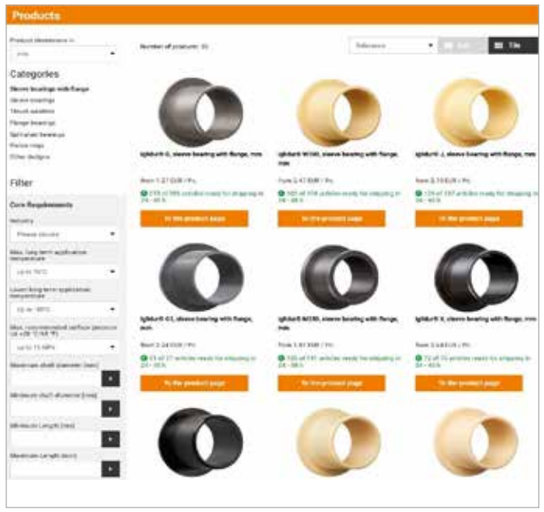
$$pv_{perm.} = \left(\frac{[K1 \cdot \pi \cdot \lambda k \cdot \Delta T]}{\mu \cdot s} + \frac{[K2 \cdot \pi \cdot \lambda s \cdot \Delta T]}{\mu \cdot b1 \cdot 2}\right) \cdot 10^{-3}$$

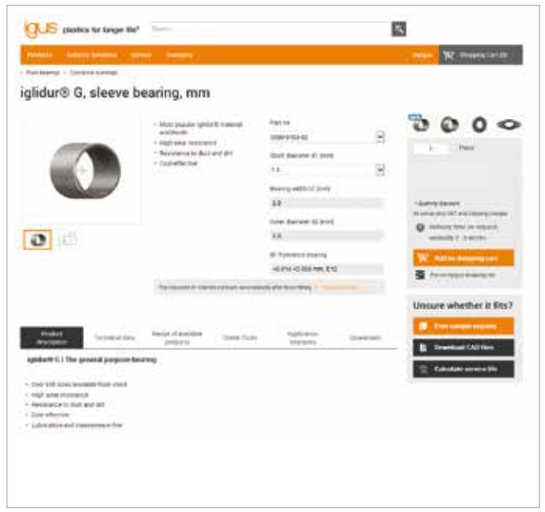
Friction force

$$F_R = \mu \cdot F$$

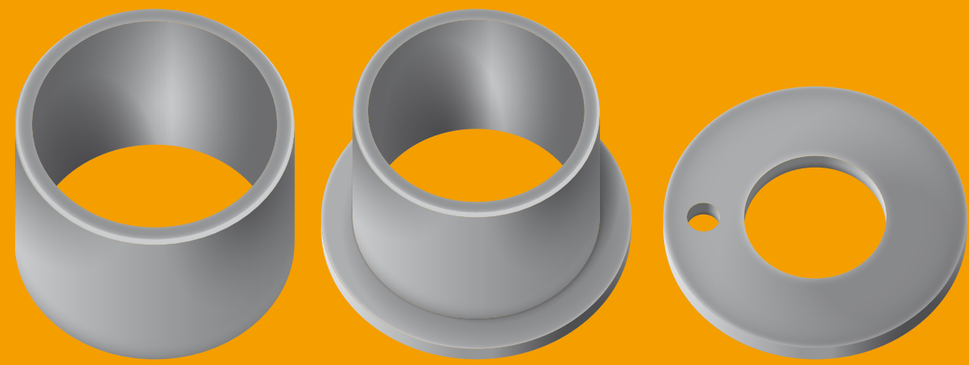
Short cuts and formulae for polymer plain bearings			
F	=	Load	[N]
F_R	=	Friction force	[N]
$d1$	=	Inner diameter of the bearing	[mm]
$b1$	=	Bearing length	[mm]
$d2$	=	Outer diameter of the bearing	[mm]
p	=	Surface pressure	[N/mm²]
v	=	Surface Speed	[m/s]
n	=	Revolutions per minute	
β	=	Angle	[°]
f	=	Frequency in Hertz	
$K1, K2$	=	Constant for heat dissipation	
		(K1 = 0.5 K2 = 0.042)	[N]
s	=	Bearing wall thickness	[mm]
μ	=	Coefficient of friction	
λs	=	Thermal conductivity of the shaft	
λk	=	Thermal conductivity of the bearing	
ΔT	=	$(T_a - T_u)$	
T_u	=	Ambient temperature	[°C]
T_a	=	Max. Application temperature	[°C]

Quicklinks





Quicklinks for more information and additional features on each page. Visit directly your chosen product online, e.g. ▶www.igus.eu/G and you'll find more details, 3D CAD files, DXF files, PDF downloads, application examples and many more for your chosen igus® product.



iglidur® standards: more than 1,900 parts from stock

- Choice of 17 standard iglidur® materials
- For shaft sizes up to 50mm according to ISO 3547-1
- Lubrication and maintenance-free
- Calculate service life online



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iglidur® standards | Materials overview

iglidur® plain bearings: all-rounder

Materials for general purpose



The classic all-rounder: iglidur® G
▶ Page 85



More universal: iglidur® G1
▶ Page 101



The robust all-rounder according to ISO 2795: iglidur® M250
▶ Page 111



Specialist for pivoting, rolling applications and more: iglidur® P210
▶ Page 121



The cost-effective outdoor all-rounder: iglidur® P
▶ Page 135

iglidur® plain bearings: endurance runner

Materials for long service life



The versatile endurance runner: iglidur® J
▶ Page 163



The classic endurance runner up to 30MPa: iglidur® W300
▶ Page 175



Specialist for pivoting and pulsating loads: iglidur® J3
▶ Page 187



Endurance runner with high dimensional stability at high temperature: iglidur® J350
▶ Page 203

iglidur® plain bearings: high temperature

Materials for use at high temperatures



The chemical and temperature specialist: iglidur® X
▶ Page 291



Long service life under extreme conditions: iglidur® Z
▶ Page 301

iglidur® plain bearings: high media resistance

Materials with good media resistance



Endurance runner with high media resistance: iglidur® H1
▶ Page 345



Long service life under water: iglidur® H370
▶ Page 353

iglidur® plain bearings: for contact with food

Materials for contact with food



The universal bearing for food contact: iglidur® A181
▶ Page 401



The endurance runner at higher temperatures in the food sector: iglidur® A350
▶ Page 409



The media and temperature specialist in the food sector: iglidur® A500
▶ Page 417

iglidur® plain bearings: for harsh environments

Materials for harsh environments



The durable heavy-duty bearing: iglidur® Q2
▶ Page 477

The most suitable bearing for any application

The iglidur® standard product range now features standardisation for the main materials with the most common standard dimensions (up to a 50mm shaft diameter) - with or without flange. This means that the standard catalogue range offers more than 1,900 dimensions. Finding, calculating and ordering the most suitable plain bearing for your application that is guaranteed to work has never been easier; for (virtually) any application from high-temperature to salt water, from food to automotive.

- Lubrication and maintenance-free
- Calculate service life online
- No minimum order quantities, no surcharges
- No minimum order quantity
- More than 1,900 dimensions



iglidur® G - the classic all-rounder
Excellent price-performance ratio
▶ Page 85

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	80	– +
Coefficient of friction [µ] [125]	0.22	– +
Wear [µm/km] [125]	1.75	– +
Price index		– +



iglidur® G1 - more universal
The advanced development of iglidur® G
▶ Page 101

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	91	– +
Coefficient of friction [µ] [125]	0.11	– +
Wear [µm/km] [125]	0.76	– +
Price index		– +



iglidur® M250 - the robust all-rounder according to ISO 2795
Excellent vibration dampening
▶ Page 111

Temperature [°C] [123]	+80	– +
Surface pressure [MPa] [124]	20	– +
Coefficient of friction [µ] [125]	0.56	– +
Wear [µm/km] [125]	2.10	– +
Price index		– +



iglidur® P210 - specialist for pivoting, rolling applications and more
Low coefficient of friction and wear on almost every shaft ▶ Page 121

Temperature [°C] [123]	+100	– +
Surface pressure [MPa] [124]	50	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	0.38	– +
Price index		– +



iglidur® P - the cost-effective outdoor all-rounder
No moisture absorption even with high ambient humidity
▶ Page 135

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	50	– +
Coefficient of friction [µ] [125]	0.24	– +
Wear [µm/km] [125]	1.80	– +
Price index		– +



iglidur® J - the versatile endurance runner
Strong performer on most shafts, very low coefficient of friction
▶ Page 163

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	35	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	0.29	- +
Price index		– +



iglidur® W300 - the classic endurance runner up to 30MPa
Excellent wear resistance on (virtually) all shafts
▶ Page 175

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	60	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	0.33	– +
Price index		– +

[123] Max. long-term application temperature; [124] Max. permissible surface pressure at +20°C; [125] Best combination for p = 1MPa, v = 0.3m/s, rotating

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iglidur® J3 - the new endurance runner: specialist for pivoting and pulsating loads
Up to 10MPa up to three times more wear-resistant than iglidur® J ▶ Page 187

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	45	– +
Coefficient of friction [µ] [125]	0.13	– +
Wear [µm/km] [125]	0.07	– +
Price index		– +



iglidur® J350 - endurance runner with high dimensional stability at high temperature
Can be used with many kinds of shafts and loads
▶ Page 203

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	60	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	1.14	– +
Price index		– +



iglidur® X - the chemical and temperature specialist
Up to 150MPa
▶ Page 291

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	150	– +
Coefficient of friction [µ] [125]	0.31	– +
Wear [µm/km] [125]	6.30	– +
Price index		– +



iglidur® Z - long service life under extreme conditions
Resistant to wear and impact even at high loads and temperatures ▶ Page 301

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	150	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	1.00	– +
Price index		– +



iglidur® H1 - endurance runner with high media resistance
Excellent coefficient of friction and wear
▶ Page 345

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	80	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	0.29	– +
Price index		– +



iglidur® H370 - long service life under water
High media resistance
▶ Page 353

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	75	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	1.20	– +
Price index		– +



iglidur® A181 - the universal bearing for food contact
FDA- and EU10/2011-compliant
▶ Page 401

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	31	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	0.48	– +
Price index		– +



iglidur® A350 - the endurance runner at higher temperatures in the food sector
FDA- and EU10/2011-compliant, extremely wear-resistant ▶ Page 409

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	60	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	1.79	– +
Price index		– +



iglidur® A500 - the media and temperature specialist in the food sector
FDA- and EU10/2011-compliant, extremely wear-resistant for high temperatures ▶ Page 417

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	120	– +
Coefficient of friction [µ] [125]	0.36	– +
Wear [µm/km] [125]	4.10	– +
Price index		– +



iglidur® Q2 - the durable heavy-duty bearing
Combined wear resistance and compressive strength at high loads
▶ Page 477

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	120	– +
Coefficient of friction [µ] [125]	0.17	- +
Wear [µm/km] [125]	1.50	– +
Price index		– +

[123] Max. long-term application temperature; [124] Max. permissible surface pressure at +20°C; [125] Best combination for p = 1MPa, v = 0.3m/s, rotating

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iglidur® standards | Technical properties - quick selection

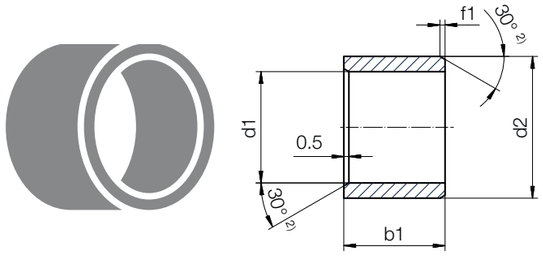
iglidur®	G	G1	M250	P210	P	J	W300	J3	J350	X	Z	H1	H370	A181	A350	A500	Q2
Installation tolerances	E10	E10	D11	E10	E10	E10	E10	E10	F10	F10	F10	F10	F10	E10	F10	F10	E10
Descriptive technical specifications																	
Wear resistance at +23°C																	
Wear resistance at +90°C																	
Wear resistance at +150°C																	
Slide property																	
Wear resistance under water																	
Media resistance																	
Resistant to edge pressures																	
Resistant to shock and impact loads																	
Dirt resistance																	
For high loads (>60MPa)	●	●							●	●	●	●	●		●	●	●
Electrically conductive										●			●				
Approvals and standards																	
Dimensions in accordance with DIN	ISO 3547	ISO 3547	ISO 2795	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547	ISO 3547
FDA- and EU10/2011-compliant														●	●	●	
Fire class in accordance with UL-94	HB	HB	V-2	HB	HB	HB	HB	HB	V-0	V-0	V-0	V-0	V-0	HB	V-0	V-1	HB
Mould test DIN EN ISO 846	●	●				●			●	●		●					
Fogging DIN 75201-B	●		●	●													
Availabilities / variants																	
Type S, sleeve	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Type F, with flange	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Type T, thrust washer	●		●			●	●			●	●						
Bar stock, round bar / tube			●	●		●	●	●	●	●		●		●	●		
Bar stock, plate						●									●		
Machined made from bar stocks			●	●		●	●	●	●	●		●		●	●		

iglidur® standards | Material properties table

iglidur®	Unit	G	G1	M250	P210	P	J	W300	J3	J350	X	Z	H1	H370	A181	A350	A500	Q2
General properties																		
Density	[g/cm³]	1.46	1.58	1.14	1.40	1.58	1.49	1.24	1.42	1.44	1.44	1.4	1.53	1.66	1.38	1.42	1.28	1.46
Colour																		
Max. moisture absorption at +23°C and 50% relative humidity	[% weight]	0.7	0.2	1.4	0.3	0.2	0.3	1.3	0.3	0.3	0.1	0.3	0.1	0.1	0.2	0.6	0.3	1.1
Max. moisture absorption	[% weight]	4.0	1.7	7.6	0.5	0.4	1.3	6.5	1.3	1.6	0.5	1.1	0.3	0.1	1.3	1.9	0.5	4.6
Coefficient of sliding friction, dynamic against steel	[µ]	0.08 - 0.15	0.08 - 0.15	0.18 - 0.40	0.07 - 0.19	0.06 - 0.21	0.06 - 0.18	0.08 - 0.23	0.06 - 0.20	0.10 - 0.20	0.09 - 0.27	0.06 - 0.14	0.06 - 0.20	0.07 - 0.17	0.10 - 0.21	0.10 - 0.20	0.26 - 0.41	0.22 - 0.42
pv value, max. (dry)	[MPa·m/s]	0.42	0.60	0.12	0.4	0.39	0.34	0.23	0.5	0.45	1.32	0.84	0.80	0.74	0.31	0.40	0.28	0.7
Mechanical properties																		
Flexural modulus	[MPa]	7,800	11,486	2,700	2,500	5,300	2,400	3,500	2,700	2,000	8,100	2,400	2,800	11,100	1,913	2,000	3,600	8,370
Flexural strength at +20°C	[MPa]	210	178	112	70	120	73	125	70	55	170	95	55	135	48	110	140	240
Compressive strength	[MPa]	78	115	52	50	66	60	61	60	60	100	65	78	79	60	78	118	130
Max. permissible surface pressure at +20°C	[MPa]	80	91	20	50	50	35	60	45	60	150	150	80	75	31	60	120	120
Shore D hardness		81	81	79	75	75	74	77	73	80	85	81	77	82	76	76	83	80
Physical and thermal properties																		
Max. continuous operatingtemperature	[°C]	+130	+180	+80	+100	+130	+90	+90	+90	+180	+250	+250	+200	+200	+90	+180	+250	+130
Max. short-term operating temperature	[°C]	+220	+220	+170	+160	+200	+120	+180	+120	+220	+315	+310	+240	+240	+110	+210	+300	+200
Min. continuous operating temperature	[°C]	-40	-40	-40	-40	-40	-50	-40	-50	-100	-100	-100	-40	-40	-50	-100	-100	-40
Thermal conductivity	[W/m · K]	0.24	0.46	0.24	0.25	0.25	0.25	0.24	0.25	0.24	0.60	0.62	0.24	0.5	0.25	0.24	0.24	0.24
Coefficient of thermal expansion at +23°C	[$K^{-1} \cdot 10^{-5}$]	9	3.5	10	8	4	10	9	13	7	5	4	6	5	11	8	9	8
Electrical properties																		
Specific contact resistance	[Ωcm]	> 10^{13}	> 10^{9}	> 10^{13}	> 10^{12}	> 10^{13}	> 10^{13}	> 10^{13}	> 10^{12}	> 10^{13}	< 10^{5}	> 10^{11}	> 10^{12}	< 10^{5}	> 10^{12}	> 10^{11}	> 10^{14}	> 10^{13}
Surface resistance	[Ω]	> 10^{11}	> 10^{11}	> 10^{11}	> 10^{11}	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{10}	< 10^{3}	> 10^{11}	> 10^{11}	< 10^{5}	> 10^{12}	> 10^{11}	> 10^{13}	> 10^{11}

iglidur® standards | Product range

Sleeve bearings (form S)



2) Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Order key

Type	Dimensions [mm]				
☐ S	M	-04	05	-04
iglidur® material	Form S	Metric	Inner Ø d1	Outer Ø d2	Length b1

Choose the suitable material and dimensions for your application

Dimensions according to ISO 3547-1
With the exception of iglidur® M250: ISO 2795

Imperial dimensions available
▶ From page 1096

G	The classic all-rounder
G1	More universal
M(250)	The robust all-rounder according to ISO 2795
P210	Specialist for pivoting, rolling applications and more
P	The cost-effective outdoor all-rounder
J	The versatile endurance runner
W(300)	The classic endurance runner up to 30MPa
J3	The new endurance runner: specialist for pivoting applications and pulsating loads
J350	Endurance runner with high dimensional stability at high temperature
X	The chemical and temperature specialist
Z	Long service life under extreme conditions
H1	Endurance runner with high media resistance
H370	Long service life under water
A181	The universal bearing for food contact
A350	The endurance runner at higher temperatures in the food sector
A500	The media and temperature specialist in the food sector
Q2	The durable heavy-duty bearing

Dimensions [mm]

d1 126)	d2	b1	Part No.
4	5.5	4	☐SM-0405-04
4	5.5	6	☐SM-0405-06
5	7	5	☐SM-0507-05
5	7	10	☐SM-0507-10
6	8	6	☐SM-0608-06
6	8	8	☐SM-0608-08
6	8	10	☐SM-0608-10
8	10	8	☐SM-0810-08
8	10	10	☐SM-0810-10
8	10	12	☐SM-0810-12
10	12	8	☐SM-1012-08
10	12	10	☐SM-1012-10
10	12	12	☐SM-1012-12
10	12	15	☐SM-1012-15
10	12	20	☐SM-1012-20
12	14	10	☐SM-1214-10
12	14	12	☐SM-1214-12
12	14	15	☐SM-1214-15
12	14	20	☐SM-1214-20
13	15	10	☐SM-1315-10
13	15	20	☐SM-1315-20
14	16	15	☐SM-1416-15
14	16	20	☐SM-1416-20
14	16	25	☐SM-1416-25
15	17	15	☐SM-1517-15
15	17	20	☐SM-1517-20
15	17	25	☐SM-1517-25
16	18	15	☐SM-1618-15
16	18	20	☐SM-1618-20
16	18	25	☐SM-1618-25
18	20	15	☐SM-1820-15
18	20	20	☐SM-1820-20
18	20	25	☐SM-1820-25
20	23	10	☐SM-2023-10
20	23	15	☐SM-2023-15
20	23	20	☐SM-2023-20
20	23	25	☐SM-2023-25
20	23	30	☐SM-2023-30
22	25	15	☐SM-2225-15
22	25	20	☐SM-2225-20

126) After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the tolerances (more information in material specific chapters)

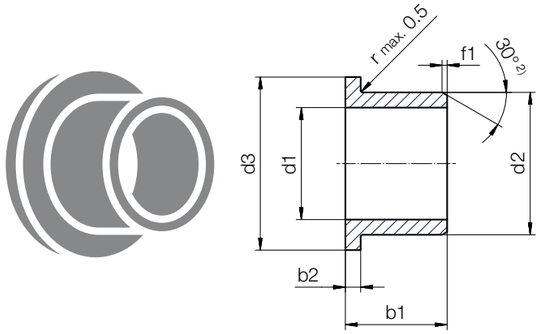
Dimensions [mm]

d1 126)	d2	b1	Part No.
22	25	25	☐SM-2225-25
22	25	30	☐SM-2225-30
24	27	15	☐SM-2427-15
24	27	20	☐SM-2427-20
24	27	25	☐SM-2427-25
24	27	30	☐SM-2427-30
25	28	15	☐SM-2528-15
25	28	20	☐SM-2528-20
25	28	25	☐SM-2528-25
25	28	30	☐SM-2528-30
28	32	20	☐SM-2832-20
28	32	25	☐SM-2832-25
28	32	30	☐SM-2832-30
30	34	20	☐SM-3034-20
30	34	25	☐SM-3034-25
30	34	30	☐SM-3034-30
30	34	40	☐SM-3034-40
32	36	20	☐SM-3236-20
32	36	30	☐SM-3236-30
32	36	40	☐SM-3236-40
35	39	20	☐SM-3539-20
35	39	30	☐SM-3539-30
35	39	40	☐SM-3539-40
35	39	50	☐SM-3539-50
40	44	20	☐SM-4044-20
40	44	30	☐SM-4044-30
40	44	40	☐SM-4044-40
40	44	50	☐SM-4044-50
45	50	20	☐SM-4550-20
45	50	30	☐SM-4550-30
45	50	40	☐SM-4550-40
45	50	50	☐SM-4550-50
50	55	20	☐SM-5055-20
50	55	30	☐SM-5055-30
50	55	40	☐SM-5055-40
50	55	50	☐SM-5055-50
50	55	60	☐SM-5055-60

126) After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the tolerances (more information in material specific chapters)

iglidur® standards | Product range

Flange bearings (form F)



2) Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]:	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f [mm]:	0.3	0.5	0.8	1.2

Order key

Type	Dimensions [mm]				
☐ F	M	-06	08	-04	
iglidur® material	Form F	Metric	Inner Ø d1	Outer Ø d2	Length b1

Choose the suitable material and dimensions for your application

Dimensions according to ISO 3547-1
With the exception of iglidur® M250: ISO 2795

Imperial dimensions available
▶ From page 1098

iglidur® standards | Product range

Absolute flexibility: all iglidur® standard sizes available from stock

G	The classic all-rounder
G1	More universal
M(250)	The robust all-rounder according to ISO 2795
P210	Specialist for pivoting, rolling applications and more
P	The cost-effective outdoor all-rounder
J	The versatile endurance runner
W(300)	The classic endurance runner up to 30MPa
J3	The new endurance runner: specialist for pivoting applications and pulsating loads
J350	Endurance runner with high dimensional stability at high temperature
X	The chemical and temperature specialist
Z	Long service life under extreme conditions
H1	Endurance runner with high media resistance
H370	Long service life under water
A181	The universal bearing for food contact
A350	The endurance runner at higher temperatures in the food sector
A500	The media and temperature specialist in the food sector
Q2	The durable heavy-duty bearing

Dimensions [mm]

d1 126)	d2	d3 d13	b1 h13	b2 h13	Part No.
6	8	12	4	1	☐FM-0608-04
6	8	12	8	1	☐FM-0608-08
8	10	15	5.5	1	☐FM-0810-05
8	10	15	7.5	1	☐FM-0810-07
8	10	15	9.5	1	☐FM-0810-09
10	12	18	7	1	☐FM-1012-07
10	12	18	9	1	☐FM-1012-09
10	12	18	12	1	☐FM-1012-12
10	12	18	17	1	☐FM-1012-17
12	14	20	7	1	☐FM-1214-07
12	14	20	9	1	☐FM-1214-09
12	14	20	12	1	☐FM-1214-12
12	14	20	17	1	☐FM-1214-17
14	16	22	12	1	☐FM-1416-12
14	16	22	17	1	☐FM-1416-17
15	17	23	9	1	☐FM-1517-09
15	17	23	12	1	☐FM-1517-12
15	17	23	17	1	☐FM-1517-17

126) After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the tolerances (more information in material specific chapters)

Dimensions [mm]

d1 126)	d2	d3 d13	b1 h13	b2 h13	Part No.
16	18	24	12	1	☐FM-1618-12
16	18	24	17	1	☐FM-1618-17
18	20	26	12	1	☐FM-1820-12
18	20	26	17	1	☐FM-1820-17
18	20	26	22	1	☐FM-1820-22
20	23	30	11.5	1.5	☐FM-2023-11
20	23	30	16.5	1.5	☐FM-2023-16
20	23	30	21.5	1.5	☐FM-2023-21
25	28	35	11.5	1.5	☐FM-2528-11
25	28	35	16.5	1.5	☐FM-2528-16
25	28	35	21.5	1.5	☐FM-2528-21
30	34	42	16	2	☐FM-3034-16
30	34	42	26	2	☐FM-3034-26
35	39	47	16	2	☐FM-3539-16
35	39	47	26	2	☐FM-3539-26
40	44	52	30	2	☐FM-4044-30
40	44	52	40	2	☐FM-4044-40
45	50	58	50	2	☐FM-4550-50

126) After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the tolerances (more information in material specific chapters)



Dimensions according to ISO 3547-1 and special dimensions

Imperial dimensions available

Order key

Type	Dimensions [mm]				
☐ T	M	-06	20	-015	
iglidur® material	Form T	Metric	Inner Ø d1	Outer Ø d2	Length b1

G	The classic all-rounder
W(300)	The classic endurance runner up to 30MPa
X	The chemical and temperature specialist

Choose the suitable material and dimensions for your application

Dimensions [mm]

d1 +0.25	d2 -0.25	s -0.05	d4 -0.12 +0.12	d5 +0.375 +0.125	h +0.2 -0.2	d6 +0.12	Part No.
6.0	20.0	1.5	13.0	1.5	1.0	20.0	☐TM-0620-015
8.0	18.0	1.5	13.0	1.5	1.0	18.0	☐TM-0818-015
10.0	18.0	1.0	[4]	[4]	0.7	18.0	☐TM-1018-010
12.0	24.0	1.5	18.0	1.5	1.0	24.0	☐TM-1224-015
14.0	26.0	1.5	20.0	2.0	1.0	26.0	☐TM-1426-015
15.0	24.0	1.5	19.5	1.5	1.0	24.0	☐TM-1524-015
16.0	30.0	1.5	22.0	2.0	1.0	30.0	☐TM-1630-015
18.0	32.0	1.5	25.0	2.0	1.0	32.0	☐TM-1832-015
20.0	36.0	1.5	28.0	3.0	1.0	36.0	☐TM-2036-015
22.0	38.0	1.5	30.0	3.0	1.0	38.0	☐TM-2238-015

[4] Design without fixing hole

Dimensions [mm]

d1 +0.25	d2 -0.25	s -0.05	d4 -0.12 +0.12	d5 +0.375 +0.125	h +0.2 -0.2	d6 +0.12	Part No.
24.0	42.0	1.5	33.0	3.0	1.0	42.0	☐TM-2442-015
26.0	44.0	1.5	35.0	3.0	1.0	44.0	☐TM-2644-015
28.0	48.0	1.5	38.0	4.0	1.0	48.0	☐TM-2848-015
32.0	54.0	1.5	43.0	4.0	1.0	54.0	☐TM-3254-015
38.0	62.0	1.5	50.0	4.0	1.0	62.0	☐TM-3862-015
42.0	66.0	1.5	54.0	4.0	1.0	66.0	☐TM-4266-015
48.0	74.0	2.0	61.0	4.0	1.5	74.0	☐TM-4874-020
52.0	78.0	2.0	65.0	4.0	1.5	78.0	☐TM-5278-020
62.0	90.0	2.0	76.0	4.0	1.5	90.0	☐TM-6290-020

[4] Design without fixing hole



Materials for general purpose

Materials for general purpose

This group includes iglidur® materials that can be used almost universally under normal conditions (temperature, media, etc.). iglidur® G is the decathlete among iglidur® materials. It performs exceedingly well in almost all technical disciplines. With reduced moisture absorption and improved wear and temperature behaviour for many applications, iglidur® G1 represents an advanced development of this classic. The iglidur® GLW is specially suitable for solutions in large batches. iglidur® P and iglidur® K have a similar potential as iglidur® G paired with significantly reduced moisture absorption, which is advantageous for use in wet environments.

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert



iglidur® G
The classic all-rounder

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	80	– +
Coefficient of friction [µ] [125]	0.22	– +
Wear [µm/km] [125]	1.75	– +
Price index		– +



iglidur® G1
More universal

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	91	– +
Coefficient of friction [µ] [125]	0.11	– +
Wear [µm/km] [125]	0.76	– +
Price index		– +



iglidur® M250
The robust all-rounder according to ISO 2795

Temperature [°C] [123]	+80	– +
Surface pressure [MPa] [124]	20	– +
Coefficient of friction [µ] [125]	0.56	– +
Wear [µm/km] [125]	2.10	– +
Price index		– +



iglidur® P210
Specialist for pivoting, rolling applications and more

Temperature [°C] [123]	+100	– +
Surface pressure [MPa] [124]	50	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	0.38	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating

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iglidur® P230
The low-cost all-rounder

Temperature [°C] [123]	+110	– +
Surface pressure [MPa] [124]	60	– +
Coefficient of friction [µ] [125]	0.13	– +
Wear [µm/km] [125]	1.53	– +
Price index		– +



iglidur® P
The cost-effective outdoor all-rounder

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	50	– +
Coefficient of friction [µ] [125]	0.24	– +
Wear [µm/km] [125]	1.80	– +
Price index		– +



iglidur® K
Versatile and cost-effective

Temperature [°C] [123]	+170	– +
Surface pressure [MPa] [124]	50	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	0.60	– +
Price index		– +

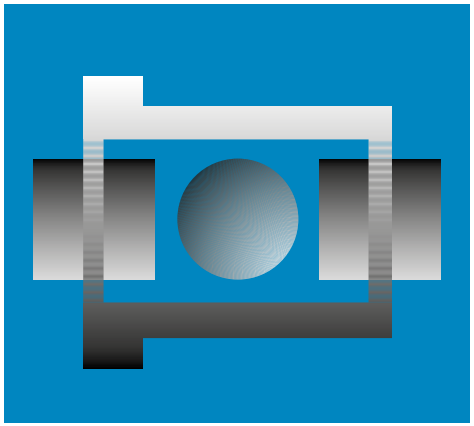


iglidur® GLW
Low-cost material for high-volume production

Temperature [°C] [123]	+100	– +
Surface pressure [MPa] [124]	80	– +
Coefficient of friction [µ] [125]	0.23	– +
Wear [µm/km] [125]	8.30	– +

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The classic all-rounder

Excellent price-performance ratio

iglidur® G

When to use it?

- When an economical all-round performance bearing is required
- For low to medium speeds
- When the bearing needs to run on different shaft materials
- For pivoting and rotational movements

When not to use it?

- When mechanical reaming of the bore is necessary
  iglidur® M250
- When lowest wear is required
  iglidur® W300
- When universal chemical resistance is required
  iglidur® X
- When temperatures are constantly higher than +130 °C
  iglidur® H, iglidur® X, iglidur® H370
- For underwater applications
  iglidur® H370

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Bearing technology | Plain bearings | iglidur® G

Ø
1.5-195.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The classic all-rounder
Excellent price-performance ratio

iglidur® G plain bearings cover an extremely wide range of different requirements - they are truly "all-round". Therefore, the material is rightly called universal. Typical applications include medium to high loads, medium surface speeds and medium temperatures.

- Over 650 sizes available from stock
- High wear resistance
- Resistant to dirt
- Cost-effective
- Lubrication-free
- Maintenance-free
- Resistant to dirt

Typical application areas

- Agricultural machines
- Construction machinery industry
- Sports and leisure
- Automotive industry
- Mechatronics
- Machine building

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■□□	+
Wear resistance at +90°C	–	■■■□□	+
Wear resistance at +150°C	–	■■□□□	+
Slide property	–	■■■■□	+
Wear resistance under water	–	■□□□□	+
Media resistance	–	■■■□□	+
Resistant to edge pressures	–	■■■■□	+
Resistant to shock and impact loads	–	■■■■□	+
Dirt resistance	–	■■■■■	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® G
+130°C
80MPa

Technical data

General properties			Testing method
Density	g/cm³	1.46	
Colour		matt grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.7	DIN 53495
Max. moisture absorption	% weight	4.0	
Coefficient of friction, dynamic, against steel	µ	0.08-0.15	
pv value, max. (dry)	MPa · m/s	0.42	
Mechanical properties			
Flexural modulus	MPa	7,800	DIN 53457
Flexural strength at +20°C	MPa	210	DIN 53452
Compressive strength	MPa	78	
Max. permissible surface pressure (+20°C)	MPa	80	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+130	
Max. application temperature short-term	°C	+220	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Table 01: Material properties

-40°C up to +130°C

80MPa

HB

RoHS-II

ISO 3547-1

iglidur® G is the decathlete among iglidur® materials. It performs exceedingly well in all technical disciplines and is the classic all-rounder, primarily with respect to the overall general, mechanical, thermal and tribological specifications.

Moisture absorption

The moisture absorption of iglidur® G plain bearings in ambient conditions is approximately 0.7 % weight. The saturation limit submerged in water is 4.0% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® G1 bearings.

Radiation resistance

Plain bearings made from iglidur® G are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® G plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® G plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +130°C, the permitted surface pressure still amounts to 35MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® G at radial loads. The plastic deformation is minimal up to a pressure of approximately 100MPa. However, it is also dependent on the service time.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® G

Permissible surface speeds

iglidur® G has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The ambient temperatures strongly influence the properties of plain bearings. The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +120°C. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® G a ground surface with an average surface finish Ra = 0.8μm is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® G. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The "soft" shafts tend to wear themselves and thus increase the wear of the overall system. If the loads exceed 2MPa it is important to recognise that the wear rate (the gradient of the curves) clearly decreases with the hard shaft materials. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® G plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	4.0
Short-term	m/s	2.0	1.4	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

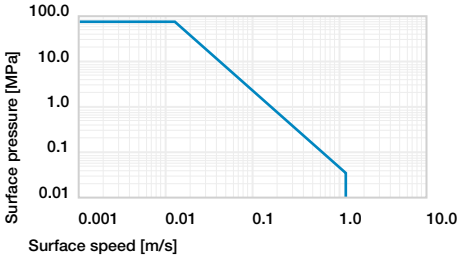


Diagram 01: Permissible pv values for iglidur® G plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

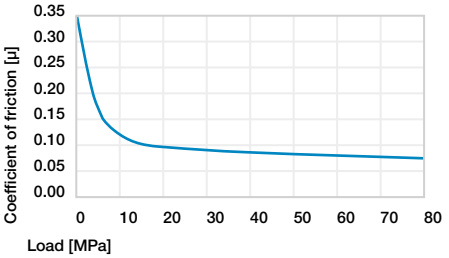


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

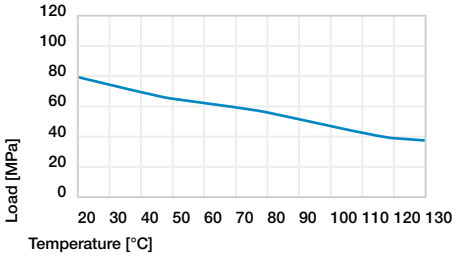


Diagram 02: Maximum recommended surface pressure as a function of temperature (80MPa at +20°C)

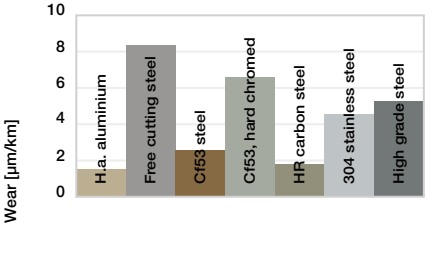


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

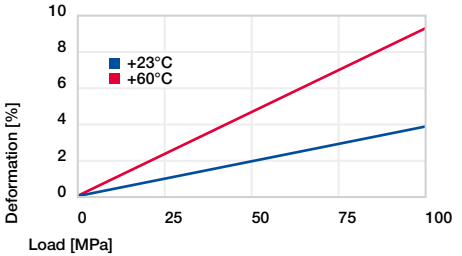


Diagram 03: Deformation under pressure and temperature

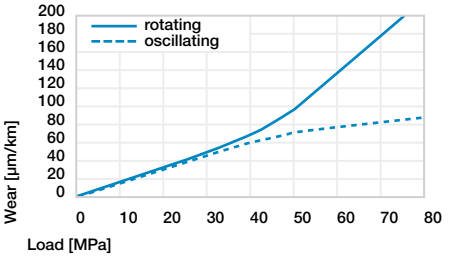


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

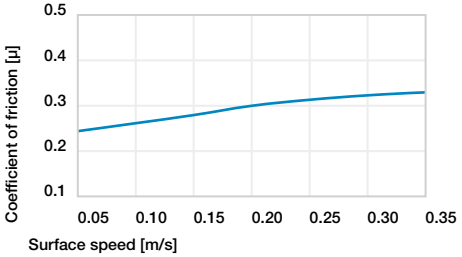
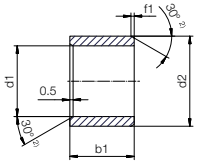


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

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Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: GSM-0103-02 – no minimum order quantity.
G iglidur® material S Cylindrical M Metric 01 Inner Ø d1 03 Outer Ø d2 02 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
1.5		3.0	2.0	GSM-0103-02
2.0		3.5	3.0	GSM-0203-03
2.5	+0.014	4.5	5.0	GSM-02504-05
3.0	+0.054	4.5	3.0	GSM-0304-03
3.0		4.5	5.0	GSM-0304-05
3.0		4.5	6.0	GSM-0304-06
4.0		5.5	4.0	GSM-0405-04
4.0	+0.020	5.5	6.0	GSM-0405-06
4.0	+0.068	7.0	5.5	GSM-0407-05
4.5		6.0	8.0	GSM-0406-08
5.0		6.0	4.6	GSM-0506-046
5.0	+0.010	6.0	5.0	GSM-0506-05
5.0	+0.040	6.0	7.0	GSM-0506-07
5.0		7.0	5.0	GSM-0507-05
5.0	+0.020	7.0	7.0	GSM-0507-07
5.0	+0.068	7.0	8.0	GSM-0507-08
5.0		7.0	10.0	GSM-0507-10
6.0		7.0	6.0	GSM-0607-06
6.0		7.0	12.0	GSM-0607-12
6.0	+0.010	7.0	17.0	GSM-0607-17
6.0	+0.040	7.0	17.5	GSM-0607-17.5
6.0		7.0	19.0	GSM-0607-19
6.0		8.0	1.5	GSM-0608-015
6.0		8.0	2.5	GSM-0608-025
6.0		8.0	3.0	GSM-0608-03
6.0	+0.020	8.0	4.0	GSM-0608-04
6.0	+0.068	8.0	5.0	GSM-0608-05
6.0		8.0	5.5	GSM-0608-055
6.0		8.0	6.0	GSM-0608-06

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0		8.0	8.0	GSM-0608-08
6.0		8.0	9.5	GSM-0608-09
6.0	+0.020	8.0	10.0	GSM-0608-10
6.0	+0.068	8.0	11.8	GSM-0608-11
6.0		8.0	13.8	GSM-0608-13
7.0	+0.013	8.0	10.0	GSM-0708-10
7.0	+0.049	8.0	19.0	GSM-0708-19
7.0		9.0	8.0	GSM-0709-08
7.0	+0.025	9.0	9.0	GSM-0709-09
7.0	+0.083	9.0	10.0	GSM-0709-10
7.0		9.0	12.0	GSM-0709-12
8.0		9.0	5.0	GSM-0809-05
8.0	+0.013	9.0	6.0	GSM-0809-06
8.0	+0.049	9.0	8.0	GSM-0809-08
8.0		9.0	12.0	GSM-0809-12
8.0		10.0	5.0	GSM-0810-05
8.0		10.0	6.0	GSM-0810-06
8.0		10.0	6.8	GSM-0810-07
8.0		10.0	8.0	GSM-0810-08
8.0		10.0	10.0	GSM-0810-10
8.0		10.0	12.0	GSM-0810-12
8.0	+0.025	10.0	13.8	GSM-0810-13
8.0	+0.083	10.0	14.0	GSM-0810-14
8.0		10.0	15.0	GSM-0810-15
8.0		10.0	16.0	GSM-0810-16
8.0		10.0	18.0	GSM-0810-18
8.0		10.0	20.0	GSM-0810-20
8.0		10.0	22.0	GSM-0810-22
8.0		10.0	25.0	GSM-0810-25

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
8.0	+0.040 +0.130	12.0	9.0	GSM-0812-09
9.0	+0.013	10.0	12.0	GSM-0910-12
9.0	+0.049	10.0	16.0	GSM-0910-16
9.0	+0.025	11.0	6.0	GSM-0911-06
9.0	+0.083	11.0	20.0	GSM-0911-20
10.0		11.0	6.0	GSM-1011-06
10.0		11.0	7.0	GSM-1011-07
10.0	+0.013	11.0	10.0	GSM-1011-10
10.0	+0.049	11.0	20.0	GSM-1011-20
10.0		11.0	25.0	GSM-1011-25
10.0		11.0	30.0	GSM-1011-30
10.0		12.0	4.0	GSM-1012-04
10.0		12.0	4.5	GSM-1012-045
10.0		12.0	5.0	GSM-1012-05
10.0		12.0	6.0	GSM-1012-06
10.0		12.0	7.0	GSM-1012-07
10.0		12.0	8.0	GSM-1012-08
10.0	+0.025	12.0	9.0	GSM-1012-09
10.0	+0.083	12.0	10.0	GSM-1012-10
10.0		12.0	12.0	GSM-1012-12
10.0		12.0	14.0	GSM-1012-14
10.0		12.0	15.0	GSM-1012-15
10.0		12.0	17.0	GSM-1012-17
10.0		12.0	20.0	GSM-1012-20
10.0		13.0	13.5	GSM-1013-13
10.0	+0.025	14.0	10.0	GSM-1014-10
10.0	+0.115	14.0	20.0	GSM-1014-20
10.0	+0.040 +0.130	16.0	10.0	GSM-1016-10
12.0		13.0	4.7	GSM-1213-047
12.0	+0.016	13.0	10.0	GSM-1213-10
12.0	+0.059	13.0	12.0	GSM-1213-12
12.0		13.0	15.0	GSM-1213-15
12.0		14.0	4.0	GSM-1214-04
12.0		14.0	5.0	GSM-1214-05
12.0		14.0	6.0	GSM-1214-06
12.0		14.0	8.0	GSM-1214-08
12.0		14.0	10.0	GSM-1214-10
12.0	+0.032	14.0	12.0	GSM-1214-12
12.0	+0.102	14.0	14.0	GSM-1214-14
12.0		14.0	15.0	GSM-1214-15
12.0		14.0	20.0	GSM-1214-20
12.0		14.0	25.0	GSM-1214-25
12.0		15.0	6.0	GSM-1215-06
12.0		15.0	22.0	GSM-1215-22
12.0	+0.050	16.0	10.0	GSM-1216-10
12.0	+0.160	16.0	20.0	GSM-1216-20

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
13.0		15.0	7.0	GSM-1315-070
13.0		15.0	7.5	GSM-1315-075
13.0		15.0	10.0	GSM-1315-10
13.0		15.0	15.0	GSM-1315-15
13.0		15.0	20.0	GSM-1315-20
13.0		15.0	25.0	GSM-1315-25
14.0		16.0	3.0	GSM-1416-03
14.0	+0.032	16.0	6.0	GSM-1416-06
14.0	+0.102	16.0	8.0	GSM-1416-08
14.0		16.0	10.0	GSM-1416-10
14.0		16.0	12.0	GSM-1416-12
14.0		16.0	15.0	GSM-1416-15
14.0		16.0	20.0	GSM-1416-20
14.0		16.0	25.0	GSM-1416-25
14.0		16.0	45.0	GSM-1416-45
15.0	+0.016	16.0	10.0	GSM-1516-10
15.0	+0.059	16.0	15.0	GSM-1516-15
15.0		17.0	4.0	GSM-1517-04
15.0		17.0	10.0	GSM-1517-10
15.0		17.0	12.0	GSM-1517-12
15.0		17.0	15.0	GSM-1517-15
15.0		17.0	20.0	GSM-1517-20
15.0		17.0	25.0	GSM-1517-25
16.0		18.0	5.5	GSM-1618-055
16.0		18.0	8.0	GSM-1618-08
16.0	+0.032	18.0	10.0	GSM-1618-10
16.0	+0.102	18.0	12.0	GSM-1618-12
16.0		18.0	13.5	GSM-1618-13.5
16.0		18.0	15.0	GSM-1618-15
16.0		18.0	20.0	GSM-1618-20
16.0		18.0	25.0	GSM-1618-25
16.0		18.0	30.0	GSM-1618-30
16.0		18.0	38.5	GSM-1618-38.5
16.0		18.0	50.0	GSM-1618-50
17.0		19.0	15.0	GSM-1719-15
18.0	+0.016 +0.059	19.0	15.0	GSM-1819-15
18.0		20.0	6.0	GSM-1820-06
18.0		20.0	10.0	GSM-1820-10
18.0		20.0	12.0	GSM-1820-12
18.0		20.0	15.0	GSM-1820-15
18.0	+0.032	20.0	20.0	GSM-1820-20
18.0	+0.102	20.0	25.0	GSM-1820-25
18.0		20.0	34.0	GSM-1820-34
18.0		20.0	38.0	GSM-1820-38
18.0		20.0	45.0	GSM-1820-45
18.0		22.0	30.0	GSM-1822-30

[3] After press-fit. *Testing methods, page 61*

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d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
19.0	+0.040 +0.124	22.0	6.0	GSM-1922-06
19.0		22.0	28.0	GSM-1922-28
19.0		22.0	35.0	GSM-1922-35
20.0	+0.020 +0.072	21.0	20.0	GSM-2021-20
20.0		22.0	3.0	GSM-2022-03
20.0		22.0	8.0	GSM-2022-08
20.0		22.0	10.5	GSM-2022-105
20.0		22.0	15.0	GSM-2022-15
20.0		22.0	20.0	GSM-2022-20
20.0		22.0	22.0	GSM-2022-22
20.0		22.0	28.0	GSM-2022-28
20.0		22.0	30.0	GSM-2022-30
20.0		22.0	47.0	GSM-2022-47
20.0		23.0	4.5	GSM-2023-045
20.0		23.0	10.0	GSM-2023-10
20.0		23.0	15.0	GSM-2023-15
20.0		23.0	20.0	GSM-2023-20
20.0		23.0	24.0	GSM-2023-24
20.0	+0.040 +0.124	23.0	25.0	GSM-2023-25
20.0		23.0	30.0	GSM-2023-30
20.0		23.0	35.0	GSM-2023-35
22.0		24.0	8.0	GSM-2224-08
22.0		24.0	10.0	GSM-2224-10
22.0		24.0	12.0	GSM-2224-12
22.0		24.0	15.0	GSM-2224-15
22.0		24.0	17.0	GSM-2224-17
22.0		24.0	20.0	GSM-2224-20
22.0		24.0	30.0	GSM-2224-30
22.0		24.0	48.0	GSM-2224-48
22.0		25.0	15.0	GSM-2225-15
22.0		25.0	20.0	GSM-2225-20
22.0		25.0	25.0	GSM-2225-25
22.0		25.0	30.0	GSM-2225-30
22.0		25.0	38.5	GSM-2225-38.5
24.0	+0.020 +0.072	25.0	25.0	GSM-2425-25
24.0		27.0	6.0	GSM-2427-06
24.0		27.0	15.0	GSM-2427-15
24.0	+0.040 +0.124	27.0	20.0	GSM-2427-20
24.0		27.0	24.0	GSM-2427-24
24.0		27.0	25.0	GSM-2427-25
24.0		27.0	30.0	GSM-2427-30
25.0	+0.020 +0.072	26.0	23.0	GSM-2526-23
25.0		26.0	25.0	GSM-2526-25
25.0	+0.040 +0.124	28.0	12.0	GSM-2528-12
25.0		28.0	15.0	GSM-2528-15
25.0		28.0	20.0	GSM-2528-20
25.0		28.0	24.0	GSM-2528-24
25.0		28.0	25.0	GSM-2528-25
25.0		28.0	30.0	GSM-2528-30
25.0		28.0	35.0	GSM-2528-35
25.0		28.0	50.0	GSM-2528-50
26.0		30.0	16.0	GSM-2630-16
27.0	+0.040 +0.124	30.0	5.0	GSM-2730-05
28.0		32.0	10.5	GSM-2832-105
28.0		32.0	12.0	GSM-2832-12
28.0		32.0	15.0	GSM-2832-15
28.0		32.0	20.0	GSM-2832-20
28.0		32.0	23.0	GSM-2832-23
28.0		32.0	25.0	GSM-2832-25
28.0		32.0	30.0	GSM-2832-30
28.0	+0.065 +0.195	35.0	19.0	GSM-2835-19
28.0		35.0	28.0	GSM-2835-28
29.0	+0.040 +0.124	33.0	6.0	GSM-2933-06
30.0	+0.020 +0.072	31.0	5.0	GSM-3031-05
30.0		31.0	12.0	GSM-3031-12
30.0		31.0	30.0	GSM-3031-30
30.0	+0.040 +0.124	34.0	12.0	GSM-3034-12
30.0		34.0	15.0	GSM-3034-15
30.0		34.0	20.0	GSM-3034-20
30.0		34.0	24.0	GSM-3034-24
30.0		34.0	25.0	GSM-3034-25
30.0		34.0	30.0	GSM-3034-30
30.0		34.0	35.0	GSM-3034-35
30.0		34.0	40.0	GSM-3034-40
30.0		34.0	52.5	GSM-3034-525
32.0		36.0	15.0	GSM-3236-15
32.0		36.0	20.0	GSM-3236-20
32.0		36.0	30.0	GSM-3236-30
32.0		36.0	40.0	GSM-3236-40
35.0		39.0	14.0	GSM-3539-14
35.0		39.0	20.0	GSM-3539-20
35.0		39.0	25.0	GSM-3539-25
35.0		39.0	30.0	GSM-3539-30
35.0	+0.050 +0.150	39.0	40.0	GSM-3539-40
35.0		39.0	50.0	GSM-3539-50
35.0		41.0	50.0	GSM-3541-50
36.0		40.0	20.0	GSM-3640-20
37.0		41.0	20.0	GSM-3741-20
38.0		42.0	25.0	GSM-3842-25
40.0		44.0	10.0	GSM-4044-10
40.0		44.0	16.5	GSM-4044-16
40.0		44.0	20.0	GSM-4044-20
40.0		44.0	30.0	GSM-4044-30

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
40.0	+0.050 +0.150	44.0	40.0	GSM-4044-40
40.0		44.0	50.0	GSM-4044-50
40.0		44.0	52.5	GSM-4044-525
42.0		46.0	40.0	GSM-4246-40
44.0		48.0	20.0	GSM-4448-20
45.0		50.0	10.0	GSM-4550-10
45.0		50.0	20.0	GSM-4550-20
45.0		50.0	22.0	GSM-4550-22
45.0		50.0	23.5	GSM-4550-235
45.0		50.0	30.0	GSM-4550-30
45.0		50.0	38.0	GSM-4550-38
45.0		50.0	40.0	GSM-4550-40
45.0		50.0	50.0	GSM-4550-50
50.0		55.0	20.0	GSM-5055-20
50.0		55.0	25.0	GSM-5055-25
50.0		55.0	30.0	GSM-5055-30
50.0		55.0	40.0	GSM-5055-40
50.0		55.0	50.0	GSM-5055-50
50.0		55.0	60.0	GSM-5055-60
52.0	+0.060 +0.180	57.0	20.0	GSM-5257-20
55.0		60.0	20.0	GSM-5560-20
55.0		60.0	40.0	GSM-5560-40
55.0		60.0	50.0	GSM-5560-50
55.0		60.0	60.0	GSM-5560-60
60.0		65.0	30.0	GSM-6065-30
60.0		65.0	40.0	GSM-6065-40
60.0		65.0	50.0	GSM-6065-50
60.0		65.0	60.0	GSM-6065-60
60.0		65.0	70.0	GSM-6065-70
62.0	+0.100 +0.250	67.0	35.0	GSM-6267-35
62.0		67.0	72.0	GSM-6267-72
65.0		70.0	30.0	GSM-6570-30
65.0		70.0	50.0	GSM-6570-50
65.0		70.0	104.0	GSM-6570-104
68.0		73.0	60.0	GSM-6873-60
70.0	+0.060 +0.180	75.0	60.0	GSM-7075-60
72.0		77.0	24.5	GSM-7277-24.5
72.0		77.0	76.0	GSM-7277-76
75.0		80.0	40.0	GSM-7580-40
75.0		80.0	60.0	GSM-7580-60
80.0		85.0	60.0	GSM-8085-60
80.0		85.0	100.0	GSM-8085-100
85.0		90.0	100.0	GSM-8590-100
90.0		95.0	100.0	GSM-9095-100
95.0		100.0	100.0	GSM-95100-100
100.0		105.0	21.5	GSM-100105-21.5
100.0	+0.072 +0.212	105.0	30.0	GSM-100105-30
100.0		105.0	32.0	GSM-100105-32
100.0		105.0	100.0	GSM-100105-100
105.0		110.0	100.0	GSM-105110-100
110.0		115.0	100.0	GSM-110115-100
120.0		125.0	100.0	GSM-120125-100
125.0		130.0	100.0	GSM-125130-100
130.0		135.0	100.0	GSM-130135-100
135.0	+0.085 +0.245	140.0	80.0	GSM-135140-80
140.0		145.0	100.0	GSM-140145-100
140.0		145.0	104.0	GSM-140145-104
150.0		155.0	100.0	GSM-150155-100

[3] After press-fit. *Testing methods, page 61*

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1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

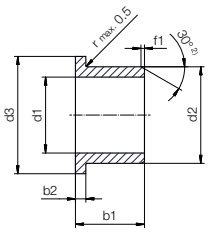
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

EN 09/2023

Bearing technology | Plain bearings | iglidur® G

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: GFM-0304-02 – no minimum order quantity.
G iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 02 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0		4.5	7.5	2.0	0.50	GFM-0304-02
3.0	+0.014	4.5	7.5	2.7	0.75	GFM-0304-0275
3.0	+0.054	4.5	7.5	3.0	0.75	GFM-0304-03
3.0		4.5	7.5	5.0	0.75	GFM-0304-05
3.0		4.5	7.0	5.0	0.75	GFM-030407-05
4.0	+0.010	5.0	9.5	4.0	0.50	GFM-04050-04
4.0	+0.040	5.0	9.5	6.0	0.50	GFM-04050-06
4.0		5.5	9.5	2.5	0.75	GFM-0405-0255
4.0		5.5	9.5	3.0	0.75	GFM-0405-03
4.0	+0.020	5.5	9.5	4.0	0.75	GFM-0405-04
4.0	+0.068	5.5	9.5	6.0	0.75	GFM-0405-06
4.0		5.5	8.0	10.0	1.00	GFM-040508-10
5.0		6.0	10.0	3.5	0.50	GFM-0506-035
5.0		6.0	10.0	4.0	0.50	GFM-0506-04
5.0	+0.010	6.0	10.0	5.0	0.50	GFM-0506-05
5.0	+0.040	6.0	10.0	6.0	0.50	GFM-0506-06
5.0		6.0	10.0	15.3	0.50	GFM-0506-15
5.0		7.0	11.0	3.5	1.00	GFM-0507-03
5.0		7.0	11.0	4.0	1.00	GFM-0507-04
5.0		7.0	15.0	4.0	1.00	GFM-050715-04
5.0		7.0	11.0	5.0	1.00	GFM-0507-05
5.0	+0.020	7.0	9.5	5.0	1.00	GFM-050709-05
5.0	+0.068	7.0	11.0	7.0	1.00	GFM-0507-07
5.0		7.0	11.0	11.0	1.00	GFM-0507-11
5.0		7.0	11.0	14.5	1.00	GFM-0507-145
5.0		7.0	11.0	30.0	1.00	GFM-0507-30
6.0	+0.010	7.0	11.0	2.4	0.50	GFM-0607-024
6.0	+0.040	7.0	11.0	4.5	0.50	GFM-0607-045

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010	7.0	11.0	6.0	0.50	GFM-0607-06
6.0	+0.040	7.0	11.0	10.0	0.50	GFM-0607-10
6.0		8.0	12.0	2.5	1.00	GFM-0608-025
6.0		8.0	14.0	2.8	1.00	GFM-060814-028
6.0		8.0	12.0	4.0	1.00	GFM-0608-04
6.0		8.0	12.0	4.8	1.00	GFM-0608-048
6.0		8.0	12.0	5.0	1.00	GFM-0608-05
6.0	+0.020	8.0	12.0	6.0	1.00	GFM-0608-06
6.0	+0.068	8.0	12.0	7.0	1.00	GFM-0608-07
6.0		8.0	12.0	8.0	1.00	GFM-0608-08
6.0		8.0	12.0	10.0	1.00	GFM-0608-10
6.0		8.0	14.0	12.0	1.00	GFM-060814-12
6.0		8.0	12.0	25.0	1.00	GFM-0608-25
6.0		8.0	12.0	35.0	1.00	GFM-0608-35
7.0		8.0	12.0	1.7	0.50	GFM-0708-017
7.0	+0.013	8.0	12.0	3.0	0.50	GFM-0708-03
7.0	+0.049	8.0	12.0	6.0	0.50	GFM-0708-06
7.0		8.0	12.0	8.0	0.50	GFM-0708-08
7.0		9.0	15.0	3.5	1.00	GFM-0709-035
7.0		9.0	15.0	6.0	1.00	GFM-0709-06
7.0	+0.025	9.0	15.0	10.0	1.00	GFM-0709-10
7.0	+0.083	9.0	19.0	10.0	1.00	GFM-070919-10
7.0		9.0	15.0	12.0	1.00	GFM-0709-12
8.0		9.0	15.0	3.0	0.50	GFM-0809-03
8.0		9.0	13.0	3.5	0.50	GFM-0809-035
8.0	+0.013	9.0	13.0	5.5	0.50	GFM-0809-055
8.0	+0.049	9.0	13.0	8.0	0.50	GFM-0809-08
8.0		9.0	13.0	12.0	0.50	GFM-0809-12

[3] After press-fit. *Testing methods, page 61*

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
8.0		10.0	15.0	3.0	1.00	GFM-0810-03
8.0	+0.025	10.0	18.0	3.0	1.00	GFM-081018-03
8.0	+0.083	10.0	15.0	4.0	1.00	GFM-0810-04
8.0	+0.040	10.0	14.0	5.0	1.00	GFM-081014-05
8.0	+0.098	10.0	15.0	5.5	1.00	GFM-0810-05
8.0		10.0	14.0	6.0	1.00	GFM-081014-06
8.0		10.0	15.0	6.5	1.00	GFM-0810-065
8.0	+0.025	10.0	15.0	7.5	1.00	GFM-0810-07
8.0	+0.083	10.0	13.0	8.0	1.00	GFM-081013-08
8.0		10.0	14.0	8.0	1.00	GFM-081014-08
8.0		10.0	15.0	9.5	1.00	GFM-0810-09
8.0		10.0	15.0	10.0	1.00	GFM-0810-10
8.0	+0.040	10.0	14.0	10.0	1.00	GFM-081014-10
8.0	+0.098	10.0	14.0	11.0	1.00	GFM-0810-11
8.0		10.0	16.0	11.5	1.50	GFM-081016-11
8.0		10.0	12.0	12.5	1.00	GFM-081012-125
8.0	+0.025	10.0	15.0	15.0	1.00	GFM-0810-15
8.0	+0.083	10.0	16.0	15.0	1.50	GFM-081016-15
8.0		10.0	17.0	15.0	1.00	GFM-081017-15
8.0		10.0	15.0	25.0	1.00	GFM-0810-25
8.0		10.0	15.0	30.0	1.00	GFM-0810-30
8.0	+0.040	12.0	16.0	6.0	2.00	GFM-0812-06
8.0	+0.130	12.0	21.0	8.0	2.00	GFM-081221-08
9.0	+0.013	10.0	15.0	6.5	0.50	GFM-0910-065
9.0	+0.049	10.0	15.0	17.5	0.50	GFM-0910-17
10.0	+0.013	11.0	20.0	3.5	0.50	GFM-1011-03
10.0	+0.046	11.0	15.0	4.4	0.50	GFM-1011-044
10.0	+0.013	11.0	15.0	10.0	0.50	GFM-1011-10
10.0	+0.049	12.0	18.0	3.5	1.00	GFM-1012-035
10.0		12.0	18.0	4.0	1.00	GFM-1012-04
10.0		12.0	18.0	5.0	1.00	GFM-1012-05
10.0		12.0	18.0	6.0	1.00	GFM-1012-06
10.0		12.0	16.0	6.0	1.00	GFM-101216-06
10.0		12.0	18.0	7.0	1.00	GFM-1012-07
10.0	+0.025	12.0	18.0	9.0	1.00	GFM-1012-09
10.0	+0.083	12.0	16.0	9.0	1.00	GFM-101216-09
10.0		12.0	18.0	10.0	1.00	GFM-1012-10
10.0		12.0	18.0	12.0	1.00	GFM-1012-12
10.0		12.0	15.0	12.0	1.00	GFM-101215-12
10.0		12.0	18.0	15.0	1.00	GFM-1012-15
10.0		12.0	16.0	15.0	1.00	GFM-101216-15
10.0		12.0	18.0	17.0	1.00	GFM-1012-17
11.0	+0.016	12.0	16.0	6.0	0.50	GFM-1112-06
12.0	+0.059	13.0	17.0	3.0	0.50	GFM-1213-03
12.0		13.0	17.0	12.0	0.50	GFM-1213-12

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
12.0	+0.016	13.0	15.0	12.0	0.50	GFM-121315-12
12.0	+0.059	14.0	20.0	3.0	1.00	GFM-1214-03
12.0		14.0	18.0	4.0	1.00	GFM-121418-04
12.0		14.0	20.0	5.0	1.00	GFM-1214-05
12.0		14.0	20.0	6.0	1.00	GFM-1214-06
12.0		14.0	20.0	7.0	1.00	GFM-1214-07
12.0		14.0	18.0	8.0	1.00	GFM-121418-08
12.0		14.0	20.0	9.0	1.00	GFM-1214-09
12.0		14.0	20.0	10.0	1.00	GFM-1214-10
12.0		14.0	18.0	10.0	1.00	GFM-121418-10
12.0		14.0	20.0	11.0	1.00	GFM-1214-11
12.0		14.0	20.0	12.0	1.00	GFM-1214-12
12.0		14.0	18.0	12.0	1.00	GFM-121418-12
12.0		14.0	20.0	15.0	1.00	GFM-1214-15
12.0		14.0	18.0	15.0	1.00	GFM-121418-15
12.0		14.0	20.0	17.0	1.00	GFM-1214-17
12.0	+0.032	14.0	20.0	20.0	1.00	GFM-1214-20
12.0	+0.102	14.0	18.0	20.0	1.00	GFM-121418-20
12.0		14.0	20.0	24.0	1.00	GFM-1214-24
12.0		14.0	20.0	31.0	1.00	GFM-1214-31
12.0		14.0	20.0	40.0	1.00	GFM-1214-40
13.0		15.0	22.0	6.0	1.00	GFM-1315-06
13.0		15.0	22.0	8.0	1.00	GFM-1315-08
13.0		15.0	22.0	40.0	1.00	GFM-131522-40
14.0		16.0	22.0	3.0	1.00	GFM-1416-03
14.0		16.0	22.0	4.0	1.00	GFM-1416-04
14.0		16.0	22.0	6.0	1.00	GFM-1416-06
14.0		16.0	22.0	8.0	1.00	GFM-1416-08
14.0		16.0	22.0	10.0	1.00	GFM-1416-10
14.0		16.0	22.0	12.0	1.00	GFM-1416-12
14.0		16.0	22.0	17.0	1.00	GFM-1416-17
14.0		16.0	22.0	21.0	1.00	GFM-1416-21
15.0		16.0	20.0	2.0	0.50	GFM-1516-02
15.0	+0.016	16.0	20.0	2.5	0.50	GFM-1516-025
15.0	+0.059	16.0	20.0	3.0	0.50	GFM-1516-03
15.0		16.0	20.0	15.0	0.50	GFM-1516-15
15.0		17.0	23.0	4.0	1.00	GFM-1517-04
15.0		17.0	23.0	4.5	1.00	GFM-1517-045
15.0		17.0	23.0	5.0	1.00	GFM-1517-05
15.0		17.0	23.0	9.0	1.00	GFM-1517-09
15.0		17.0	23.0	12.0	1.00	GFM-1517-12
15.0	+0.032	17.0	23.0	17.0	1.00	GFM-1517-17
15.0	+0.102	17.0	23.0	20.0	1.00	GFM-1517-20
15.0		18.0	24.0	32.0	1.50	GFM-151824-32
16.0		18.0	24.0	4.0	1.00	GFM-1618-04
16.0		18.0	24.0	5.0	1.00	GFM-1618-05
16.0		18.0	24.0	6.0	1.00	GFM-1618-060

[3] After press-fit. *Testing methods, page 61*

Bearing technology | Plain bearings | iglidur® G

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
16.0		18.0	24.0	9.0	1.00	GFM-1618-09
16.0		18.0	24.0	12.0	1.00	GFM-1618-12
16.0		18.0	24.0	16.0	1.00	GFM-1618-16
16.0		18.0	24.0	17.0	1.00	GFM-1618-17
16.0		18.0	24.0	21.0	1.00	GFM-1618-21
17.0		19.0	25.0	9.0	1.00	GFM-1719-09
17.0		19.0	25.0	16.0	1.00	GFM-1719-16
17.0		19.0	25.0	25.0	1.00	GFM-1719-25
18.0		20.0	26.0	4.0	1.00	GFM-1820-04
18.0	+0.032 +0.102	20.0	26.0	6.0	1.00	GFM-1820-06
18.0		20.0	22.0	6.0	1.00	GFM-182022-06
18.0		20.0	26.0	9.0	1.00	GFM-1820-09
18.0		20.0	26.0	11.0	1.00	GFM-1820-11
18.0		20.0	26.0	12.0	1.00	GFM-1820-12
18.0		20.0	26.0	17.0	1.00	GFM-1820-17
18.0		20.0	26.0	22.0	1.00	GFM-1820-22
18.0		20.0	26.0	30.0	1.00	GFM-1820-30
18.0		20.0	26.0	32.0	1.00	GFM-1820-32
18.0		22.0	26.0	28.0	2.00	GFM-1822-28
20.0		21.0	26.0	3.5	0.50	GFM-2021-035
20.0	+0.020 +0.072	21.0	25.0	15.0	0.50	GFM-2021-15
20.0		21.0	25.0	20.0	0.50	GFM-2021-20
20.0		23.0	30.0	7.0	1.50	GFM-2023-07
20.0		23.0	26.0	7.0	1.50	GFM-202326-07
20.0		23.0	30.0	11.5	1.50	GFM-2023-11
20.0		23.0	28.0	15.0	1.50	GFM-202328-15
20.0		23.0	30.0	16.5	1.50	GFM-2023-16
20.0		23.0	29.0	20.0	1.50	GFM-202329-20
20.0		23.0	30.0	21.5	1.50	GFM-2023-21
20.0	+0.040 +0.124	23.0	26.0	21.5	1.50	GFM-202326-21
22.0		24.0	30.0	25.0	1.00	GFM-2224-25
22.0		25.0	29.0	4.5	1.50	GFM-222529-045
22.0		25.0	30.0	21.5	1.50	GFM-222530-215
22.0		25.0	30.0	25.0	1.50	GFM-222530-25
22.0		25.0	35.0	31.5	1.50	GFM-222535-315
24.0		27.0	32.0	7.0	1.50	GFM-2427-07
24.0		27.0	32.0	10.5	1.50	GFM-2427-10
25.0	+0.020 +0.072	26.0	30.0	25.0	0.50	GFM-2526-25
25.0		27.0	32.0	7.0	1.00	GFM-2527-07
25.0		27.0	32.0	48.0	1.00	GFM-2527-48
25.0		28.0	30.0	10.0	1.50	GFM-252830-10
25.0		28.0	35.0	11.5	1.50	GFM-2528-11
25.0	+0.040 +0.124	28.0	35.0	16.5	1.50	GFM-2528-16
25.0		28.0	35.0	21.5	1.50	GFM-2528-21
26.0		30.0	37.0	12.0	2.00	GFM-2630-12
27.0		30.0	38.0	20.0	1.50	GFM-2730-20
28.0		30.0	35.0	10.0	1.00	GFM-2830-10
28.0		30.0	36.0	31.0	1.00	GFM-283036-31
28.0		30.0	35.0	36.0	1.00	GFM-2830-36
28.0		30.0	35.0	48.0	1.00	GFM-2830-48
28.0		32.0	39.0	20.0	2.00	GFM-283239-20
28.0		32.0	50.0	35.0	2.00	GFM-283250-35
30.0		31.0	36.0	20.0	0.50	GFM-3031-20
30.0		31.0	35.0	30.0	0.50	GFM-3031-30
30.0		32.0	37.0	4.0	1.00	GFM-3032-04
30.0	+0.040 +0.124	32.0	37.0	12.0	1.00	GFM-3032-12
30.0		32.0	37.0	17.5	1.00	GFM-3032-17
30.0		32.0	37.0	22.0	1.00	GFM-3032-22
30.0		34.0	42.0	9.0	2.00	GFM-3034-09
30.0		34.0	40.0	10.0	2.00	GFM-303440-10
30.0		34.0	42.0	16.0	2.00	GFM-3034-16
30.0		34.0	42.0	20.0	2.00	GFM-3034-20
30.0		34.0	42.0	26.0	2.00	GFM-3034-26
30.0		34.0	42.0	37.0	2.00	GFM-3034-37
32.0		36.0	40.0	16.0	2.00	GFM-3236-16
32.0		36.0	40.0	26.0	2.00	GFM-3236-26
34.0		38.0	50.0	35.0	2.00	GFM-343850-35
35.0		39.0	47.0	5.8	2.00	GFM-3539-058
35.0		39.0	47.0	7.0	2.00	GFM-3539-07
35.0		39.0	47.0	12.0	2.00	GFM-3539-12
35.0		39.0	47.0	16.0	2.00	GFM-3539-16
35.0		39.0	47.0	26.0	2.00	GFM-3539-26
35.0		39.0	47.0	36.0	2.00	GFM-3539-36
38.0		42.0	54.0	10.0	2.00	GFM-3842-10
38.0		42.0	54.0	22.0	2.00	GFM-3842-22
40.0		44.0	52.0	7.0	2.00	GFM-4044-07
40.0	+0.050 +0.150	44.0	52.0	14.0	2.00	GFM-4044-14
40.0		44.0	52.0	20.0	2.00	GFM-4044-20
40.0		44.0	52.0	30.0	2.00	GFM-4044-30
40.0		44.0	52.0	40.0	2.00	GFM-4044-40
40.0		44.0	52.0	50.0	2.00	GFM-4044-50
40.0		46.0	50.0	20.0	2.00	GFM-4046-20
42.0		46.0	53.0	19.0	2.00	GFM-4246-19
45.0		50.0	58.0	25.0	2.00	GFM-4550-25
45.0		50.0	58.0	30.0	2.00	GFM-4550-30
45.0		50.0	58.0	50.0	2.00	GFM-4550-50
50.0		55.0	63.0	7.0	2.00	GFM-5055-07
50.0		55.0	63.0	10.0	2.00	GFM-5055-10
50.0		55.0	63.0	25.0	2.00	GFM-5055-25
50.0		55.0	63.0	40.0	2.00	GFM-5055-40
50.0		55.0	63.0	50.0	2.00	GFM-5055-50
60.0		65.0	73.0	7.0	2.00	GFM-6065-07
60.0	+0.060 +0.180	65.0	73.0	22.0	2.00	GFM-6065-22
60.0		65.0	73.0	30.0	2.00	GFM-6065-30
60.0		65.0	73.0	50.0	2.00	GFM-6065-50

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
60.0		65.0	80.0	62.0	2.00	GFM-606580-62
65.0		70.0	78.0	50.0	2.00	GFM-6570-50
70.0		75.0	83.0	50.0	2.00	GFM-7075-50
70.0	+0.060 +0.180	75.0	83.0	85.5	2.00	GFM-7075-855
75.0		80.0	88.0	50.0	2.00	GFM-7580-50
80.0		85.0	93.0	50.0	2.50	GFM-8085-50
80.0		85.0	93.0	100.0	2.50	GFM-8085-100
85.0		90.0	98.0	100.0	2.50	GFM-8590-100
90.0	+0.072	95.0	103.0	100.0	2.50	GFM-9095-100
95.0	+0.212	100.0	108.0	100.0	2.50	GFM-95100-100
100.0		105.0	113.0	42.5	2.50	GFM-100105-425
100.0		105.0	113.0	100.0	2.50	GFM-100105-100
110.0	+0.072	115.0	123.0	100.0	2.50	GFM-110115-100
120.0	+0.212	125.0	133.0	80.0	2.50	GFM-120125-80
120.0		125.0	133.0	100.0	2.50	GFM-120125-100
125.0		130.0	138.0	100.0	2.50	GFM-125130-100
130.0	+0.085	135.0	143.0	100.0	2.50	GFM-130135-100
140.0	+0.245	145.0	153.0	100.0	2.50	GFM-140145-100
150.0		155.0	163.0	40.0	2.50	GFM-150155-40
150.0		155.0	163.0	100.0	2.50	GFM-150155-100
195.0	+0.100 +0.285	205.0	240.0	65.0	5.00	GFM-195205240-65

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
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Order online
including delivery times, prices, online tools
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Ordering note
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1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

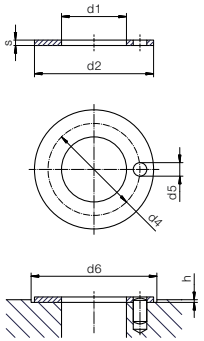
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No low-quantity surcharges.
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Bearing technology | Plain bearings | iglidur® G

Thrust washer (form T)





Dimensions according to ISO 3547-1 and special dimensions

Order example: GTM-0408-005 – no minimum order quantity.
G iglidur® material T Thrust washer M Metric 04 Inner Ø d1 08 Outer Ø d2 005 Height s

d1	d2	d4	d5	h	d6	Øs	Part No.
+0.25	-0.25	-0.12 +0.12	+0.375 +0.125	+0.2/-0.2	+0.12	-0.05	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
4	8	[4]	[4]	0.2	8	0.5	GTM-0408-005
4	9	[4]	[4]	0.3	9	0.6	GTM-0409-006
4	9	[4]	[4]	0.3	9	1.6	GTM-0409-016
4	10	[4]	[4]	0.2	10	0.5	GTM-0410-005
4	11	[4]	[4]	0.2	11	0.5	GTM-0411-005
5	9.5	[4]	[4]	0.3	9.5	0.6	GTM-0509-006
6	12	[4]	[4]	1	12	1.5	GTM-0612-015
6	15	[4]	[4]	1	15	1.5	GTM-0615-015
6	20	13	1.5	1	20	1.5	GTM-0620-015
6.2	11	[4]	[4]	0.7	11	1	GTM-0611-010
7	12	[4]	[4]	0.2	12	0.5	GTM-0712-005
7	13	[4]	[4]	0.2	13	0.5	GTM-0713-005
8	15	[4]	[4]	0.2	15	0.5	GTM-0815-005
8	15	[4]	[4]	1	15	1.5	GTM-0815-015
8	18	[4]	[4]	0.7	18	1	GTM-0818-010
8	18	13	1.5	1	18	1.5	GTM-0818-015
8	18	[4]	[4]	1.5	18	2	GTM-0818-020
9	13	[4]	[4]	0.7	13	1	GTM-0913-010
9	18	13.5	1.5	1	18	1.5	GTM-0918-015
10	17.8	[4]	[4]	0.2	17.8	0.5	GTM-1018-005
10	18	[4]	[4]	0.7	18	1	GTM-1018-010
10	18	[4]	[4]	1	18	1.5	GTM-1018-015
10	18	[4]	[4]	1.5	18	2	GTM-1018-020
10	20	[4]	[4]	0.7	20	1.5	GTM-1020-015
11	15	[4]	[4]	0.7	15	1	GTM-1115-010
11	27	[4]	[4]	0.2	27	0.5	GTM-1127-005
12	24	18	1.5	1	24	1.5	GTM-1224-015
12	30	[4]	[4]	1	30	1.5	GTM-1230-015

[4] Design without fixing hole

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Product range

d1	d2	d4	d5	h	d6	Øs	Part No.
+0.25	-0.25	-0.12 +0.12	+0.375 +0.125	+0.2/-0.2	+0.12	-0.05	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
14	20	[4]	[4]	1	20	1.5	GTM-1420-015
14	26	20	2	1	26	1.5	GTM-1426-015
15	19	[4]	[4]	0.5	19	0.8	GTM-1519-008
15	22	[4]	[4]	0.5	22	0.8	GTM-1522-008
15	24	19.5	1.5	1	24	1.5	GTM-1524-015
15	24	[4]	[4]	2	24	2.75	GTM-1524-0275
16	28	[4]	[4]	0.7	28	1	GTM-1628-010
16	30	22	2	1	30	1.5	GTM-1630-015
18	32	25	2	1	32	1.5	GTM-1832-015
20	36	28	3	1	36	1.5	GTM-2036-015
22	30	[4]	[4]	1	30	1.5	GTM-2230-015
22	38	30	3	1	38	1.5	GTM-2238-015
24	42	33	3	1	42	1.5	GTM-2442-015
26	44	35	3	1	44	1.5	GTM-2644-015
28	48	38	4	1	48	1.5	GTM-2848-015
28.5	35.8	[4]	[4]	0.2	35.8	0.5	GTM-2835-005
32	45.8	[4]	[4]	0.7	45.8	1	GTM-3246-010
32	54	43	4	1	54	1.5	GTM-3254-015
38	62	50	4	1	62	1.5	GTM-3862-015
40	60	[4]	[4]	[4]	60	3.5	GTM-4060-035
42	66	54	4	1	66	1.5	GTM-4266-015
48	60	[4]	[4]	1.5	74	2	GTM-4860-020
48	74	61	4	1.5	74	2	GTM-4874-020
52	78	65	4	1.5	78	2	GTM-5278-020
52.5	69	[4]	[4]	1.5	69	2	GTM-52569-020
62	78	[4]	[4]	1.5	78	2	GTM-6278-020
62	90	[4]	[4]	0.7	90	1	GTM-6290-010
62	90	76	4	1.5	90	2	GTM-6290-020
68	81	[4]	[4]	1.5	81	2	GTM-6881-020
78	114	[4]	[4]	1	114	1.5	GTM-78114-015
80.5	114	[4]	[4]	1	114	1.5	GTM-80114-015

[4] Design without fixing hole

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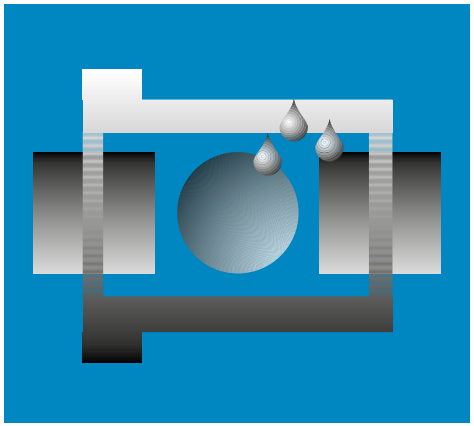
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More universal

The advanced development of iglidur® G

iglidur® G1

When to use it?

- When a universal all-round bearing is required
- When low moisture absorption is fundamental
- For low to medium speeds
- For pivoting and rotational movements

When not to use it?

- When high shock, impact and edge loads occur
  iglidur® G
- When lowest wear is required
  iglidur® W300
- When the ultimate media resistance is required
  iglidur® X
- For underwater applications
  iglidur® H370

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Bearing technology | Plain bearings | iglidur® G1

Ø
4.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
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The advanced development of iglidur® G

The most successful plastic bearing in the world - iglidur® G - improved all round: iglidur® G1, the new standard.

- Double service life at high loads
- Up to 4 times less wear at low loads
- Continuous operating temperatures up to +180°C
- Press-fit up to +120°C (iglidur® G: up to +80°C)
- Moisture absorption reduced by 50%

Typical application areas

- Mechanical engineering
- Automation
- Sports and leisure
- Automotive industry
- Mechatronics

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■□	+
Wear resistance at +90°C	–	■■■■□	+
Wear resistance at +150°C	–	■■■□□	+
Slide property	–	■■■■□	+
Wear resistance under water	–	■□□□□	+
Media resistance	–	■■■□□	+
Resistant to edge pressures	–	■■■□□	+
Resistant to shock and impact loads	–	■■■□□	+
Dirt resistance	–	■■■■□	+

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iglidur® G1
+180 °C
91MPa

Technical data

-40°C up to +180°C

91MPa

General properties			Testing method
Density	g/cm³	1.58	
Colour		grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.7	
Coefficient of friction, dynamic, against steel	µ	0.10-0.29	
pv value, max. (dry)	MPa · m/s	0.60	
Mechanical properties			
Flexural modulus	MPa	11,486	DIN 53457
Flexural strength at +20°C	MPa	178	DIN 53452
Compressive strength	MPa	115	
Max. permissible surface pressure (+20°C)	MPa	91	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+180	
Max. application temperature short-term	°C	+220	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	3.7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^9$	DIN IEC 93
Surface resistance	Ω	$> 10^9$	DIN 53482

Table 01: Material properties

The requirement profile is demanding: comprehensive advanced development of the successful all-round classic iglidur® G. This has been achieved especially in terms of moisture absorption, thermal properties and consistently improved wear resistance. Only with shock, impact and edge loads, the robustness of iglidur® G could not quite be achieved.

Moisture absorption

The moisture absorption of iglidur® G1 plain bearings in ambient conditions is approximately 0.2 % weight. The saturation limit submerged in water is 1.7% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® G1 bearings.

Radiation resistance

Plain bearings made from iglidur® G1 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® G1 plain bearings have not yet been tested for their resistance to weathering. Please consult igus® if you're planning to use them outdoors.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® G1 plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +180°C, the permitted surface pressure still amounts to 40MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® G1 at radial loads. The plastic deformation is minimal up to a pressure of approximately 100MPa. However, it is also dependent on the service time.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® G1

Permissible surface speeds

iglidur® G1 has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The ambient temperatures strongly influence the properties of plain bearings. The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +120°C. For temperatures over 120°C an additional securing of the bearings in the housing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction μ of a plain bearing among other factors is influenced by the surface speed and the load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® G1 a ground surface with an average surface finish Ra = 0.8μm is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® G1. It can be observed that iglidur® G1 achieves good to very good wear results with all shaft materials. The results for stainless steel types are most likely slightly lower. Diagram 07 compares the wear in rotating and pivoting applications. As with many of the iglidur® materials, wear rate is better in pivoting applications.

Shaft materials, page 56

Installation tolerances

iglidur® G1 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.3	1.0	5.0
Short-term	m/s	2.5	1.8	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.10-0.29	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

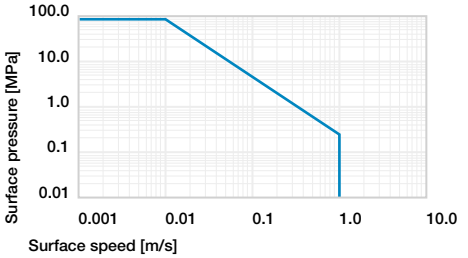


Diagram 01: Permissible pv values for iglidur® G plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

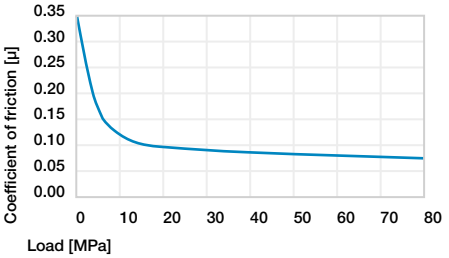


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

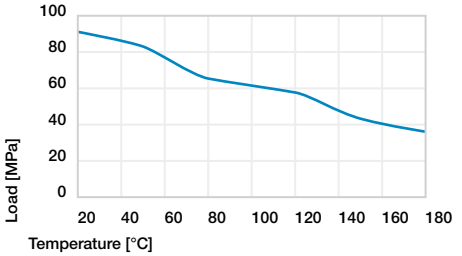


Diagram 02: Maximum recommended surface pressure as a function of temperature (91MPa at +20°C)

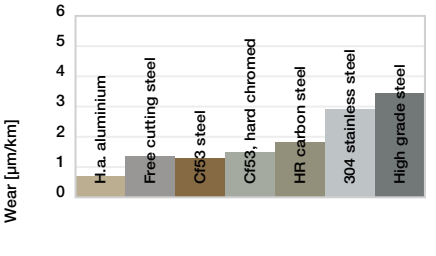


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

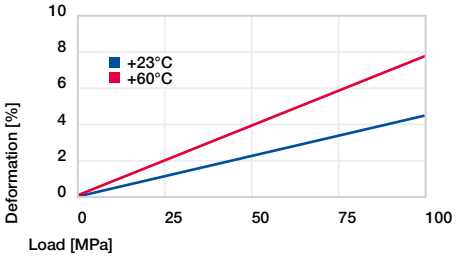


Diagram 03: Deformation under pressure and temperature

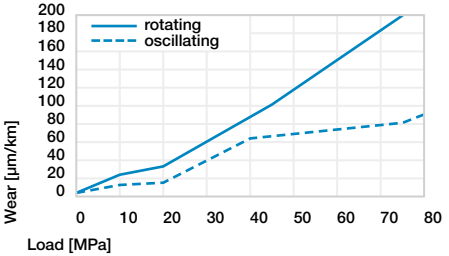


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

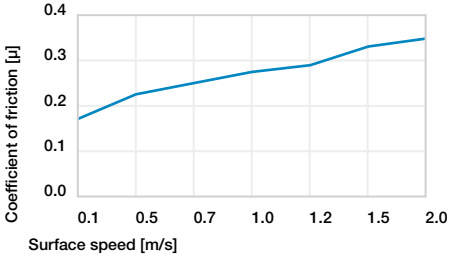
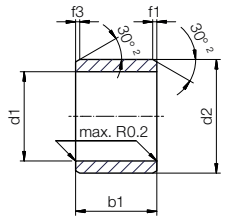


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® G1

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1/f3 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: G1SM-0405-04 – no minimum order quantity.
G1 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0		5.5	4.0	G1SM-0405-04
4.0		5.5	6.0	G1SM-0405-06
5.0	+0.010	7.0	5.0	G1SM-0507-05
5.0	+0.058	7.0	10.0	G1SM-0507-10
6.0		8.0	6.0	G1SM-0608-06
6.0		8.0	8.0	G1SM-0608-08
6.0		8.0	10.0	G1SM-0608-10
8.0		10.0	8.0	G1SM-0810-08
8.0		10.0	10.0	G1SM-0810-10
8.0		10.0	12.0	G1SM-0810-12
10.0	+0.013	12.0	8.0	G1SM-1012-08
10.0	+0.071	12.0	10.0	G1SM-1012-10
10.0		12.0	12.0	G1SM-1012-12
10.0		12.0	15.0	G1SM-1012-15
10.0		12.0	20.0	G1SM-1012-20
12.0		14.0	10.0	G1SM-1214-10
12.0		14.0	12.0	G1SM-1214-12
12.0		14.0	15.0	G1SM-1214-15
12.0		14.0	20.0	G1SM-1214-20
13.0		15.0	10.0	G1SM-1315-10
13.0		15.0	20.0	G1SM-1315-20
14.0	+0.016	16.0	15.0	G1SM-1416-15
14.0	+0.086	16.0	20.0	G1SM-1416-20
14.0		16.0	25.0	G1SM-1416-25
15.0		17.0	15.0	G1SM-1517-15
15.0		17.0	20.0	G1SM-1517-20
15.0		17.0	25.0	G1SM-1517-25
16.0		18.0	15.0	G1SM-1618-15
16.0		18.0	20.0	G1SM-1618-20

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
16.0		18.0	25.0	G1SM-1618-25
18.0	+0.016	20.0	15.0	G1SM-1820-15
18.0	+0.086	20.0	20.0	G1SM-1820-20
18.0		20.0	25.0	G1SM-1820-25
20.0		23.0	10.0	G1SM-2023-10
20.0		23.0	15.0	G1SM-2023-15
20.0		23.0	20.0	G1SM-2023-20
20.0		23.0	25.0	G1SM-2023-25
20.0		23.0	30.0	G1SM-2023-30
22.0		25.0	15.0	G1SM-2225-15
22.0		25.0	20.0	G1SM-2225-20
22.0		25.0	25.0	G1SM-2225-25
22.0		25.0	30.0	G1SM-2225-30
24.0		27.0	15.0	G1SM-2427-15
24.0		27.0	20.0	G1SM-2427-20
24.0	+0.020	27.0	25.0	G1SM-2427-25
24.0	+0.104	27.0	30.0	G1SM-2427-30
25.0		28.0	15.0	G1SM-2528-15
25.0		28.0	20.0	G1SM-2528-20
25.0		28.0	25.0	G1SM-2528-25
25.0		28.0	30.0	G1SM-2528-30
28.0		32.0	20.0	G1SM-2832-20
28.0		32.0	25.0	G1SM-2832-25
28.0		32.0	25.0	G1SM-2832-30
30.0		34.0	20.0	G1SM-3034-20
30.0		34.0	25.0	G1SM-3034-25
30.0		34.0	30.0	G1SM-3034-30
30.0		34.0	40.0	G1SM-3034-40

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
32.0		36.0	20.0	G1SM-3236-20
32.0		36.0	30.0	G1SM-3236-30
32.0		36.0	40.0	G1SM-3236-40
35.0		39.0	20.0	G1SM-3539-20
35.0	+0.025	39.0	30.0	G1SM-3539-30
35.0	+0.125	39.0	40.0	G1SM-3539-40
35.0		39.0	50.0	G1SM-3539-50
40.0		44.0	20.0	G1SM-4044-20
40.0		44.0	30.0	G1SM-4044-30
40.0		44.0	40.0	G1SM-4044-40

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
40.0		44.0	50.0	G1SM-4044-50
45.0		50.0	20.0	G1SM-4550-20
45.0		50.0	30.0	G1SM-4550-30
45.0		50.0	40.0	G1SM-4550-40
45.0	+0.025	50.0	50.0	G1SM-4550-50
50.0	+0.125	55.0	20.0	G1SM-5055-20
50.0		55.0	30.0	G1SM-5055-30
50.0		55.0	40.0	G1SM-5055-40
50.0		55.0	50.0	G1SM-5055-50
50.0		55.0	60.0	G1SM-5055-60

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
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Order online
including delivery times, prices, online tools
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

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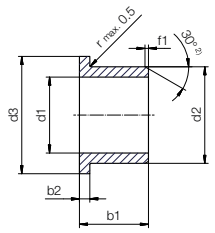
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® G1

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: G1FM-0608-04 – no minimum order quantity.
G1 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	12.0	4.0	1.00	G1FM-0608-04
6.0		8.0	12.0	8.0	1.00	G1FM-0608-08
8.0	+0.013 +0.071	10.0	15.0	5.5	1.00	G1FM-0810-05
8.0		10.0	15.0	7.5	1.00	G1FM-0810-07
8.0		10.0	15.0	9.5	1.00	G1FM-0810-09
10.0		12.0	18.0	7.0	1.00	G1FM-1012-07
10.0		12.0	18.0	9.0	1.00	G1FM-1012-09
10.0		12.0	18.0	12.0	1.00	G1FM-1012-12
10.0		12.0	18.0	17.0	1.00	G1FM-1012-17
12.0	+0.016 +0.086	14.0	20.0	7.0	1.00	G1FM-1214-07
12.0		14.0	20.0	9.0	1.00	G1FM-1214-09
12.0		14.0	20.0	12.0	1.00	G1FM-1214-12
12.0		14.0	20.0	17.0	1.00	G1FM-1214-17
14.0		16.0	22.0	12.0	1.00	G1FM-1416-12
14.0		16.0	22.0	17.0	1.00	G1FM-1416-17
15.0		17.0	23.0	9.0	1.00	G1FM-1517-09
15.0		17.0	23.0	12.0	1.00	G1FM-1517-12
15.0		17.0	23.0	17.0	1.00	G1FM-1517-17
16.0		18.0	24.0	12.0	1.00	G1FM-1618-12
16.0		18.0	24.0	17.0	1.00	G1FM-1618-17
18.0		20.0	26.0	12.0	1.00	G1FM-1820-12
18.0		20.0	26.0	17.0	1.00	G1FM-1820-17
18.0		20.0	26.0	22.0	1.00	G1FM-1820-22
20.0	+0.020 +0.104	23.0	30.0	11.5	1.50	G1FM-2023-11
20.0		23.0	30.0	16.5	1.50	G1FM-2023-16
20.0		23.0	30.0	21.5	1.50	G1FM-2023-21
25.0		28.0	35.0	11.5	1.50	G1FM-2528-11
25.0		28.0	35.0	16.5	1.50	G1FM-2528-16

[3] After press-fit. *Testing methods, page 61*

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iglidur® G1
+180 °C
91MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
25.0	+0.020 +0.104	28.0	35.0	21.5	1.50	G1FM-2528-21
30.0		34.0	42.0	16.0	2.00	G1FM-3034-16
30.0		34.0	42.0	26.0	2.00	G1FM-3034-26
35.0	+0.025 +0.125	39.0	47.0	16.0	2.00	G1FM-3539-16
35.0		39.0	47.0	26.0	2.00	G1FM-3539-26
40.0		44.0	52.0	30.0	2.00	G1FM-4044-30
40.0		44.0	52.0	40.0	2.00	G1FM-4044-40
45.0		50.0	58.0	50.0	2.00	G1FM-4550-50

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Order online
including delivery times, prices, online tools
www.igus.eu/G1

Ordering note
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Discount scaling		
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No minimum order value.
No low-quantity surcharges.
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The robust all-rounder according to ISO 2795

Excellent vibration dampening

iglidur® M250

When to use it?

- When the bearings are exposed to large amounts of dirt
- When high vibration dampening is necessary
- For low to medium speeds
- When mechanical reaming of the bore is necessary

When not to use it?

- For applications in wet areas
  iglidur® H
- When very high precision is necessary
  iglidur® P
- For very smooth shafts
  iglidur® J
- When a cost-effective wear-resistant plain bearing is required
  iglidur® R

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Bearing technology | Plain bearings | iglidur® M250

Ø
1.0-75.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The robust all-rounder according to ISO 2795
Excellent vibration dampening

The self-lubricating plain bearings made of iglidur® M250 are characterised by impact strength, vibration dampening and wear resistance. They prove themselves particularly well under stresses in which the vibration dampening of the bearings is required, e. g. in sports equipment and packaging machines.

- Over 450 sizes available from stock
- Excellent vibration dampening
- Suitable for high edge pressures
- Suitable for impact loads
- Thick-walled according to ISO 2795
- Dirt can become embedded for shaft protection
- Lubrication-free
- Maintenance-free
- Thrust washers available only in imperial sizes, from page 1147

Typical application areas

- Agricultural machines
- Furniture/Industrial design
- Textile industry
- Doors and gates
- Mechanical engineering

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® M250
+80°C
210MPa

Technical data

General properties			Testing method
Density	g/cm³	1.14	
Colour		dark grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.4	DIN 53495
Max. moisture absorption	% weight	7.6	
Coefficient of friction, dynamic, against steel	µ	0.18-0.40	
pv value, max. (dry)	MPa · m/s	0.12	
Mechanical properties			
Flexural modulus	MPa	2,700	DIN 53457
Flexural strength at +20°C	MPa	112	DIN 53452
Compressive strength	MPa	52	
Max. permissible surface pressure (+20°C)	MPa	20	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+80	
Max. application temperature short-term	°C	+170	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

-40 °C up to +80 °C

210MPa

V-2

RoHS-II

ISO 2795

Table 01: Material properties

The self-lubricating plain bearings made of iglidur® M250 are characterised by impact strength, vibration dampening and wear resistance. They prove themselves particularly well under stresses in which the vibration dampening of the bearings is required, e.g. in sports equipment and packaging machines. Since they are additionally able to absorb dirt, they are also suited for agricultural machines and garden appliances.

Moisture absorption

The moisture absorption of iglidur® M250 plain bearings in ambient conditions is approximately 1.4% weight. The saturation limit submerged in water is 7.6% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® M250 have limited use under radioactive radiation. They are resistant up to a radiation intensity of $1 \cdot 10^4$ Gy.

Resistance to weathering

iglidur® M250 plain bearings are not resistant to weathering. The material properties are significantly affected. Discolouration occurs. Practical tests under real application conditions are strongly recommended.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® M250 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
iglidur® M250 plain bearings can withstand a maximum recommended surface pressure of 20MPa. Compared with other iglidur® materials iglidur® M250 plain bearings are highly elastic. By this elasticity they can yield very well, but retain their original shape again. A plastic deformation is minimal up to the maximum recommended surface pressure.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® M250

Permissible surface speeds

As standard, iglidur® M250 is manufactured as a thick-walled bearing. iglidur® M250 is best suited for low to medium surface speeds. The maximum permissible surface speed for dry-operating applications is 0.8m/s (rotating) and 2.5 m/s (linear). In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

Application temperatures up to +170°C are permissible for short periods. However, it is permissible to expose iglidur® M250 plain bearings to this temperature only if they are not subjected to any further load. The maximum long-term application temperature is +80°C. This is also the point of the wear limit, i. e. the temperature over which the wear increases exponentially. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction μ of a plain bearing among other factors is influenced by the surface speed and the load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. If you observe the coefficient of friction, then the ideal shaft surface finish for iglidur® M250 bearings is Ra = 0.6mm. Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® M250. Up to loads of 2MPa the shaft material plays a relatively small role for rotational movements. Therefore, a suitable shaft material must be considered for higher loads. These are hardened shafts, such as Cf53 or hard-chromed. Diagram 07 shows that iglidur® M250 is much better suited for rotational motion than for pivoting movements. However, it must be mentioned that pivoting movements often cause high vibrations, which act on the bearing. This is where iglidur® M250 can show off its special dampening specifications. In our test, these vibrations are excluded for clarity so that the comparison between rotation and pivoting operation is accurate.

Shaft materials, page 56

Installation tolerances

iglidur® M250 plain bearings require a relatively large amount of bearing clearance for optimal operation. This ensures that the bearing remains reliable during temperature change and water absorption. The disadvantages of the bearings clearance are minimised by the vibration-dampening properties. The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). The shaft should have a recommended minimum h9 tolerance.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	2.5
Short-term	m/s	2.0	1.4	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.18-0.40	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.020	+0.080	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.030	+0.105	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.040	+0.130	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.050	+0.160	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.065	+0.195	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.080	+0.240	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.100	+0.290	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.120	+0.340	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.145	+0.395	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® M250
+80°C
210MPa

Technical data

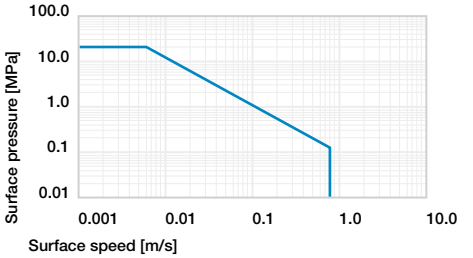


Diagram 01: Permissible pv values for iglidur® M250 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

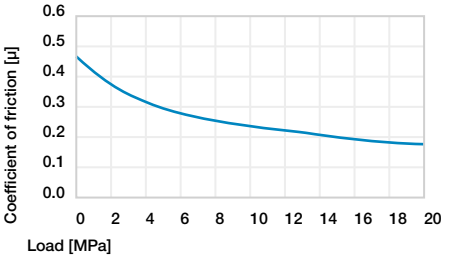


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

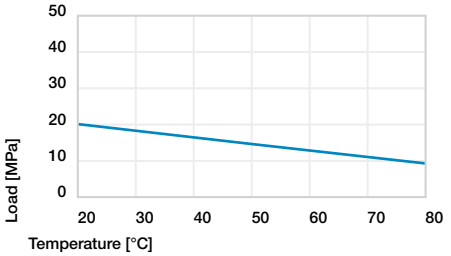


Diagram 02: Maximum recommended surface pressure as a function of temperature (20MPa at +20°C)

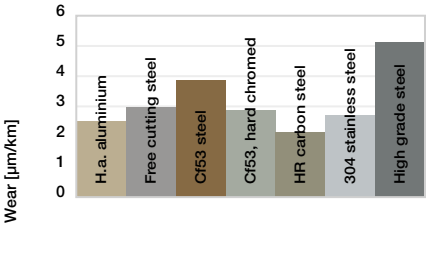


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

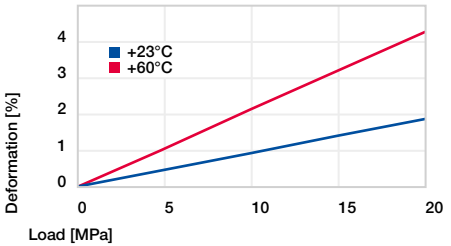


Diagram 03: Deformation under pressure and temperature

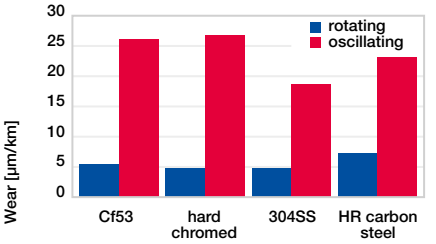


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

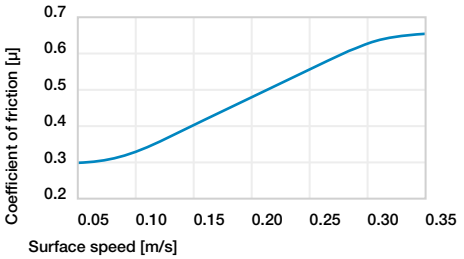
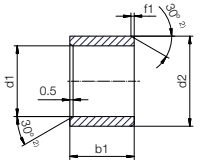


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® M250

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 2795 and special dimensions

Order example: MSM-0103-02 – no minimum order quantity.
M250 iglidur® material S Cylindrical M Metric 01 Inner Ø d1 03 Outer Ø d2 02 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
1.0		3.0	2.0	MSM-0103-02
1.5		4.0	2.0	MSM-0104-02
2.0		5.0	1.0	MSM-0205-01
2.0		5.0	2.0	MSM-0205-02
2.0	+0.020 +0.080	5.0	3.0	MSM-0205-03
2.5		6.0	3.0	MSM-0206-03
3.0		5.0	3.0	MSM-0305-03
3.0		5.0	4.0	MSM-0305-04
3.0		6.0	3.0	MSM-0306-03
3.0		6.0	4.0	MSM-0306-04
4.0		5.5	4.0	MSM-0405-04
4.0		5.5	6.0	MSM-0405-06
4.0		7.0	3.0	MSM-0407-03
4.0		7.0	4.0	MSM-0407-04
4.0		7.0	6.0	MSM-0407-06
4.0		8.0	4.0	MSM-0408-04
4.0		8.0	6.0	MSM-0408-06
5.0		7.0	5.0	MSM-0507-05
5.0		7.0	10.0	MSM-0507-10
5.0	+0.030 +0.105	8.0	4.0	MSM-0508-04
5.0		8.0	5.0	MSM-0508-05
5.0		8.0	8.0	MSM-0508-08
5.0		9.0	5.0	MSM-0509-05
5.0		9.0	8.0	MSM-0509-08
6.0		8.0	6.0	MSM-0608-06
6.0		8.0	8.0	MSM-0608-08
6.0		8.0	10.0	MSM-0608-10
6.0		9.0	6.0	MSM-0609-06
6.0		10.0	2.5	MSM-0610-02
6.0		10.0	4.0	MSM-0610-04
6.0		10.0	6.0	MSM-0610-06
6.0		10.0	8.0	MSM-0610-08
6.0	+0.030 +0.105	10.0	10.0	MSM-0610-10
6.0		11.0	4.0	MSM-0611-04
6.0		12.0	6.0	MSM-0612-06
6.0		12.0	10.0	MSM-0612-10
7.0		10.0	5.0	MSM-0710-05
7.0		10.0	8.0	MSM-0710-08
7.0		10.0	10.0	MSM-0710-10
7.0		11.0	16.0	MSM-0711-16
8.0		10.0	6.0	MSM-0810-06
8.0		10.0	8.0	MSM-0810-08
8.0		10.0	10.0	MSM-0810-10
8.0		10.0	12.0	MSM-0810-12
8.0		11.0	6.0	MSM-0811-06
8.0		11.0	8.0	MSM-0811-08
8.0	+0.040 +0.130	11.0	12.0	MSM-0811-12
8.0		12.0	4.0	MSM-0812-04
8.0		12.0	6.0	MSM-0812-06
8.0		12.0	8.0	MSM-0812-08
8.0		12.0	10.0	MSM-0812-10
8.0		12.0	12.0	MSM-0812-12
8.0		14.0	6.0	MSM-0814-06
8.0		14.0	10.0	MSM-0814-10
9.0		12.0	14.0	MSM-0912-14
10.0		12.0	8.0	MSM-1012-08
10.0		12.0	10.0	MSM-1012-10
10.0		12.0	12.0	MSM-1012-12

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
10.0		12.0	15.0	MSM-1012-15
10.0		12.0	20.0	MSM-1012-20
10.0		14.0	6.0	MSM-1014-06
10.0		14.0	8.0	MSM-1014-08
10.0		14.0	10.0	MSM-1014-10
10.0	+0.040 +0.130	14.0	16.0	MSM-1014-16
10.0		16.0	6.0	MSM-1016-06
10.0		16.0	8.0	MSM-1016-08
10.0		16.0	10.0	MSM-1016-10
10.0		16.0	16.0	MSM-1016-16
10.0		16.0	50.0	MSM-1016-50
12.0		14.0	10.0	MSM-1214-10
12.0		14.0	12.0	MSM-1214-12
12.0		14.0	15.0	MSM-1214-15
12.0		14.0	20.0	MSM-1214-20
12.0		16.0	15.0	MSM-1216-15
12.0		16.0	20.0	MSM-1216-20
12.0		18.0	8.0	MSM-1218-08
12.0		18.0	10.0	MSM-1218-10
12.0		18.0	15.0	MSM-1218-15
12.0		18.0	20.0	MSM-1218-20
13.0		15.0	10.0	MSM-1315-10
13.0		15.0	20.0	MSM-1315-20
14.0		16.0	8.5	MSM-1416-085
14.0		16.0	10.0	MSM-1416-10
14.0		16.0	15.0	MSM-1416-15
14.0		16.0	20.0	MSM-1416-20
14.0		16.0	25.0	MSM-1416-25
14.0		16.0	29.0	MSM-1416-29
14.0	+0.050 +0.160	18.0	20.0	MSM-1418-20
14.0		20.0	10.0	MSM-1420-10
14.0		20.0	15.0	MSM-1420-15
14.0		20.0	20.0	MSM-1420-20
15.0		17.0	10.0	MSM-1517-10
15.0		17.0	15.0	MSM-1517-15
15.0		17.0	20.0	MSM-1517-20
15.0		17.0	25.0	MSM-1517-25
15.0		21.0	10.0	MSM-1521-10
15.0		21.0	15.0	MSM-1521-15
15.0		21.0	20.0	MSM-1521-20
15.0		21.0	23.0	MSM-1521-23
16.0		18.0	12.0	MSM-1618-12
16.0		18.0	15.0	MSM-1618-15
16.0		18.0	20.0	MSM-1618-20
16.0		18.0	25.0	MSM-1618-25
16.0		20.0	20.0	MSM-1620-20
16.0		20.0	25.0	MSM-1620-25
16.0		20.0	30.0	MSM-1620-30
16.0		21.0	7.0	MSM-1621-07
16.0		22.0	12.0	MSM-1622-12
16.0		22.0	15.0	MSM-1622-15
16.0		22.0	16.0	MSM-1622-16
16.0		22.0	20.0	MSM-1622-20
16.0		22.0	25.0	MSM-1622-25
18.0	+0.050 +0.160	20.0	15.0	MSM-1820-15
18.0		20.0	20.0	MSM-1820-20
18.0		20.0	25.0	MSM-1820-25
18.0		24.0	12.0	MSM-1824-12
18.0		24.0	20.0	MSM-1824-20
18.0		24.0	30.0	MSM-1824-30
18.0		24.0	40.0	MSM-1824-40
20.0		23.0	10.0	MSM-2023-10
20.0		23.0	15.0	MSM-2023-15
20.0		23.0	20.0	MSM-2023-20
20.0		23.0	25.0	MSM-2023-25
20.0		23.0	30.0	MSM-2023-30
20.0		25.0	14.0	MSM-2025-14
20.0		25.0	20.0	MSM-2025-20
20.0		25.0	30.0	MSM-2025-30
20.0		26.0	12.0	MSM-2026-12
20.0		26.0	15.0	MSM-2026-15
20.0		26.0	20.0	MSM-2026-20
20.0		26.0	30.0	MSM-2026-30
22.0		24.0	8.0	MSM-2224-08
22.0		25.0	15.0	MSM-2225-15
22.0		25.0	20.0	MSM-2225-20
22.0		25.0	25.0	MSM-2225-25
22.0		25.0	30.0	MSM-2225-30
22.0	+0.065 +0.195	26.0	15.0	MSM-2226-15
22.0		28.0	10.0	MSM-2228-10
22.0		28.0	15.0	MSM-2228-15
22.0		28.0	20.0	MSM-2228-20
22.0		28.0	30.0	MSM-2228-30
24.0		27.0	15.0	MSM-2427-15
24.0		27.0	20.0	MSM-2427-20
24.0		27.0	25.0	MSM-2427-25
24.0		27.0	30.0	MSM-2427-30
24.0		30.0	15.0	MSM-2430-15
24.0		30.0	20.0	MSM-2430-20
24.0		30.0	30.0	MSM-2430-30
25.0		28.0	12.0	MSM-2528-12
25.0		28.0	15.0	MSM-2528-15
25.0		28.0	20.0	MSM-2528-20
25.0		28.0	25.0	MSM-2528-25
25.0		28.0	30.0	MSM-2528-30
25.0		30.0	20.0	MSM-2530-20

[3] After press-fit. *Testing methods, page 61*

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d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
25.0		30.0	30.0	**MSM-2530-30**
25.0		30.0	40.0	**MSM-2530-40**
25.0		32.0	10.0	**MSM-2532-10**
25.0		32.0	12.0	**MSM-2532-12**
25.0		32.0	20.0	**MSM-2532-20**
25.0		32.0	30.0	**MSM-2532-30**
25.0		32.0	35.0	**MSM-2532-35**
25.0		32.0	40.0	**MSM-2532-40**
26.0		30.0	20.0	**MSM-2630-20**
26.0		32.0	30.0	**MSM-2632-30**
27.0		34.0	20.0	**MSM-2734-20**
27.0		34.0	30.0	**MSM-2734-30**
27.0	+0.065	34.0	40.0	**MSM-2734-40**
28.0	+0.195	32.0	20.0	**MSM-2832-20**
28.0		32.0	25.0	**MSM-2832-25**
28.0		32.0	30.0	**MSM-2832-30**
28.0		33.0	20.0	**MSM-2833-20**
28.0		36.0	20.0	**MSM-2836-20**
28.0		36.0	30.0	**MSM-2836-30**
28.0		36.0	40.0	**MSM-2836-40**
30.0		34.0	20.0	**MSM-3034-20**
30.0		34.0	25.0	**MSM-3034-25**
30.0		34.0	30.0	**MSM-3034-30**
30.0		34.0	40.0	**MSM-3034-40**
30.0		35.0	20.0	**MSM-3035-20**
30.0		35.0	40.0	**MSM-3035-40**
30.0	+0.032 +0.102	38.0	3.0	**MSM-3038-03**
30.0	+0.065 +0.195	38.0	4.5	**MSM-3038-045**
30.0	+0.080 +0.240	38.0	17.0	**MSM-3038-17**
30.0		38.0	20.0	**MSM-3038-20**
30.0	+0.065 +0.195	38.0	30.0	**MSM-3038-30**
30.0		38.0	40.0	**MSM-3038-40**
30.0		40.0	40.0	**MSM-3040-40**
32.0		36.0	20.0	**MSM-3236-20**
32.0		36.0	30.0	**MSM-3236-30**
32.0		36.0	40.0	**MSM-3236-40**
32.0		40.0	20.0	**MSM-3240-20**
32.0		40.0	30.0	**MSM-3240-30**
32.0		40.0	40.0	**MSM-3240-40**
35.0		39.0	20.0	**MSM-3539-20**
35.0		39.0	30.0	**MSM-3539-30**
35.0		39.0	40.0	**MSM-3539-40**
35.0		39.0	50.0	**MSM-3539-50**
35.0		42.0	50.0	**MSM-3542-50**
40.0	+0.080 +0.240	44.0	20.0	**MSM-4044-20**
40.0		44.0	30.0	**MSM-4044-30**
40.0		44.0	40.0	**MSM-4044-40**
40.0		44.0	50.0	**MSM-4044-50**
40.0		46.0	20.0	**MSM-4046-20**
45.0		50.0	20.0	**MSM-4550-20**
45.0		50.0	30.0	**MSM-4550-30**
45.0		50.0	40.0	**MSM-4550-40**
45.0		50.0	50.0	**MSM-4550-50**
50.0		55.0	20.0	**MSM-5055-20**
50.0		55.0	30.0	**MSM-5055-30**
50.0		55.0	40.0	**MSM-5055-40**
50.0		55.0	50.0	**MSM-5055-50**
50.0		55.0	60.0	**MSM-5055-60**
75.0	+0.100 +0.290	80.0	60.0	**MSM-7580-60**

[3] After press-fit. *Testing methods, page 61*

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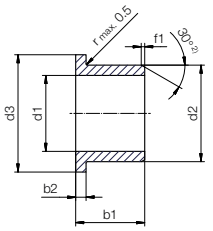
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iglidur® M250
+80°C
210MPa

Bearing technology | Plain bearings | iglidur® M250

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 2795 and special dimensions

Order example: MFM-0103-02 – no minimum order quantity.
M250 iglidur® material F With flange M Metric 01 Inner Ø d1 03 Outer Ø d2 02 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
1.0		3.0	5.0	2.0	1.00	**MFM-0103-02**
1.5	+0.020 +0.080	4.0	6.0	2.0	1.00	**MFM-0104-02**
2.0		5.0	8.0	3.0	1.50	**MFM-0205-03**
2.5		6.0	9.0	3.0	1.50	**MFM-0206-03**
3.0		6.0	9.0	4.0	1.50	**MFM-0306-04**
4.0		8.0	12.0	4.0	2.00	**MFM-0408-04**
4.0		8.0	12.0	6.0	2.00	**MFM-0408-06**
4.0		8.0	12.0	8.0	2.00	**MFM-0408-08**
5.0		9.0	13.0	5.0	2.00	**MFM-0509-05**
5.0		9.0	13.0	6.0	2.00	**MFM-0509-06**
5.0		9.0	13.0	8.0	2.00	**MFM-0509-08**
6.0	+0.030	8.0	12.0	4.0	1.00	**MFM-0608-04**
6.0	+0.105	8.0	12.0	8.0	1.00	**MFM-0608-08**
6.0		10.0	14.0	4.0	2.00	**MFM-0610-04**
6.0		10.0	14.0	6.0	2.00	**MFM-0610-06**
6.0		10.0	14.0	10.0	2.00	**MFM-0610-10**
6.0		11.0	14.0	4.0	2.00	**MFM-0611-04**
6.0		12.0	14.0	6.0	3.00	**MFM-0612-06**
6.0		12.0	14.0	10.0	3.00	**MFM-0612-10**
7.0		11.0	15.0	6.0	2.00	**MFM-0711-06**
7.0		11.0	15.0	8.0	2.00	**MFM-0711-08**
8.0		9.0	13.0	5.5	0.50	**MFM-0809-055**
8.0	+0.040 +0.130	10.0	15.0	5.5	1.00	**MFM-0810-05**
8.0		10.0	15.0	7.5	1.00	**MFM-0810-07**
8.0		10.0	15.0	9.5	1.00	**MFM-0810-09**
8.0		11.0	13.0	5.0	2.00	**MFM-0811-05**
8.0		11.0	13.0	8.0	2.00	**MFM-0811-08**
8.0		12.0	16.0	6.0	2.00	**MFM-0812-06**
8.0		12.0	16.0	8.0	2.00	**MFM-0812-08**
8.0		12.0	16.0	12.0	2.00	**MFM-0812-12**
8.0		14.0	18.0	6.0	3.00	**MFM-0814-06**
8.0		14.0	16.0	6.0	3.00	**MFM-081416-06**
8.0		14.0	18.0	10.0	3.00	**MFM-0814-10**
8.0		14.0	16.0	10.0	3.00	**MFM-081416-10**
9.0		14.0	19.0	6.0	2.00	**MFM-0914-06**
9.0		14.0	19.0	10.0	2.00	**MFM-0914-10**
9.0		14.0	19.0	14.0	2.00	**MFM-0914-14**
10.0		12.0	18.0	7.0	1.00	**MFM-1012-07**
10.0		12.0	18.0	9.0	1.00	**MFM-1012-09**
10.0		12.0	18.0	9.0	1.00	**MFM-1012-09**
10.0	+0.040 +0.130	12.0	18.0	12.0	1.00	**MFM-1012-12**
10.0		12.0	18.0	17.0	1.00	**MFM-1012-17**
10.0		14.0	19.0	8.0	2.00	**MFM-101419-08**
10.0		14.0	19.0	10.0	2.00	**MFM-1014-10**
10.0		14.0	19.0	12.0	1.50	**MFM-101419-12**
10.0		14.0	20.0	12.0	2.00	**MFM-101420-12**
10.0		14.0	17.5	14.0	1.00	**MFM-1014-14**
10.0		14.0	17.5	19.0	1.00	**MFM-1014-19**
10.0		14.0	17.5	24.0	1.00	**MFM-1014-24**
10.0		14.0	17.5	34.0	1.00	**MFM-1014-34**
10.0		16.0	20.0	6.0	3.00	**MFM-101620-06**
10.0		16.0	22.0	8.0	3.00	**MFM-1016-08**
10.0		16.0	22.0	10.0	3.00	**MFM-1016-10**
10.0		16.0	20.0	10.0	3.00	**MFM-101620-10**
10.0		16.0	22.0	16.0	3.00	**MFM-1016-16**

[3] After press-fit. *Testing methods, page 61*

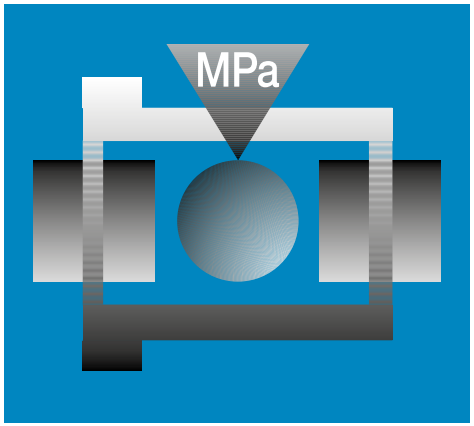
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d1	d1 Tolerance[3]	d2	d3 d13[3]	b1 h13	b2 h13	Part No.
[mm]		[mm]	[mm]	[mm]	[mm]	
12.0		14.0	20.0	7.0	1.00	**MFM-1214-07**
12.0		14.0	20.0	9.0	1.00	**MFM-1214-09**
12.0		14.0	20.0	12.0	1.00	**MFM-1214-12**
12.0		14.0	20.0	17.0	1.00	**MFM-1214-17**
12.0		16.0	22.0	10.0	2.00	**MFM-1216-10**
12.0		16.0	22.0	20.0	2.00	**MFM-1216-20**
12.0		18.0	24.0	8.0	3.00	**MFM-1218-08**
12.0		18.0	22.0	10.0	3.00	**MFM-1218-10**
12.0		18.0	24.0	12.0	3.00	**MFM-1218-12**
12.0		18.0	22.0	15.0	3.00	**MFM-1218-15**
12.0		18.0	22.0	20.0	3.00	**MFM-1218-20**
13.0		15.0	20.0	14.0	2.00	**MFM-1315-14**
13.0		16.0	24.0	8.0	2.00	**MFM-131624-08**
14.0		16.0	22.0	12.0	1.00	**MFM-1416-12**
14.0		16.0	22.0	17.0	1.00	**MFM-1416-17**
14.0		20.0	25.0	7.0	3.00	**MFM-1420-07**
14.0		20.0	25.0	10.0	3.00	**MFM-1420-10**
14.0		20.0	25.0	15.0	3.00	**MFM-1420-15**
14.0		20.0	25.0	20.0	3.00	**MFM-1420-20**
15.0		17.0	23.0	9.0	1.00	**MFM-1517-09**
15.0	+0.050	17.0	23.0	12.0	1.00	**MFM-1517-12**
15.0	+0.160	17.0	23.0	17.0	1.00	**MFM-1517-17**
15.0		21.0	27.0	10.0	3.00	**MFM-1521-10**
15.0		21.0	27.0	15.0	3.00	**MFM-1521-15**
15.0		21.0	27.0	20.0	3.00	**MFM-1521-20**
15.0		21.0	27.0	25.0	3.00	**MFM-1521-25**
16.0		18.0	28.0	8.0	2.00	**MFM-1618-08/02**
16.0		18.0	24.0	12.0	1.00	**MFM-1618-12**
16.0		18.0	24.0	17.0	1.00	**MFM-1618-17**
16.0		22.0	28.0	12.0	3.00	**MFM-1622-12**
16.0		22.0	28.0	15.0	3.00	**MFM-1622-15**
16.0		22.0	28.0	20.0	3.00	**MFM-1622-20**
16.0		22.0	28.0	25.0	3.00	**MFM-1622-25**
18.0		20.0	26.0	12.0	1.00	**MFM-1820-12**
18.0		20.0	26.0	17.0	1.00	**MFM-1820-17**
18.0		20.0	26.0	22.0	1.00	**MFM-1820-22**
18.0		24.0	26.0	7.8	3.00	**MFM-182426-078**
18.0		24.0	30.0	8.0	3.00	**MFM-1824-08**
18.0		24.0	30.0	12.0	3.00	**MFM-1824-12**
18.0		24.0	30.0	18.0	3.00	**MFM-1824-18**
18.0		24.0	30.0	20.0	3.00	**MFM-1824-20**
18.0		24.0	30.0	30.0	3.00	**MFM-1824-30**
19.0		24.0	27.0	12.0	2.00	**MFM-192427-12**
20.0		23.0	30.0	11.5	1.50	**MFM-2023-11**
20.0		23.0	30.0	16.5	1.50	**MFM-2023-16**
20.0		23.0	30.0	21.5	1.50	**MFM-2023-21**
20.0		26.0	28.0	12.0	3.00	**MFM-202628-12**
20.0		26.0	32.0	15.0	3.00	**MFM-2026-15**
20.0		26.0	32.0	20.0	3.00	**MFM-2026-20**
20.0		26.0	32.0	30.0	3.00	**MFM-2026-30**
22.0		28.0	34.0	15.0	3.00	**MFM-2228-15**
22.0		28.0	34.0	20.0	3.00	**MFM-2228-20**
22.0		28.0	34.0	30.0	3.00	**MFM-2228-30**
24.0		30.0	36.0	15.0	3.00	**MFM-2430-15**
24.0		30.0	36.0	20.0	3.00	**MFM-2430-20**
24.0		30.0	36.0	30.0	3.00	**MFM-2430-30**
25.0		28.0	35.0	11.5	1.50	**MFM-2528-11**
25.0		28.0	35.0	16.5	1.50	**MFM-2528-16**
25.0	+0.065	28.0	35.0	21.5	1.50	**MFM-2528-21**
25.0	+0.195	32.0	38.0	12.0	4.00	**MFM-2532-12**
25.0		32.0	38.0	15.0	4.00	**MFM-2532-15**
25.0		32.0	38.0	20.0	4.00	**MFM-2532-20**
25.0		32.0	38.0	30.0	4.00	**MFM-2532-30**
25.0		32.0	38.0	40.0	4.00	**MFM-2532-40**
27.0		34.0	40.0	20.0	4.00	**MFM-2734-20**
27.0		34.0	40.0	30.0	4.00	**MFM-2734-30**
27.0		34.0	40.0	40.0	4.00	**MFM-2734-40**
28.0		36.0	42.0	20.0	4.00	**MFM-2836-20**
28.0		36.0	42.0	30.0	4.00	**MFM-2836-30**
28.0		36.0	42.0	40.0	4.00	**MFM-2836-40**
30.0		34.0	42.0	16.0	2.00	**MFM-3034-16**
30.0		34.0	42.0	26.0	2.00	**MFM-3034-26**
30.0		35.0	44.0	20.0	4.00	**MFM-3035-20**
30.0		38.0	44.0	20.0	4.00	**MFM-3038-20**
30.0		38.0	44.0	30.0	4.00	**MFM-3038-30**
30.0		38.0	44.0	40.0	4.00	**MFM-3038-40**
32.0		40.0	46.0	20.0	4.00	**MFM-3240-20**
32.0		40.0	46.0	30.0	4.00	**MFM-3240-30**
32.0		40.0	46.0	40.0	4.00	**MFM-3240-40**
35.0	+0.080	39.0	47.0	16.0	2.00	**MFM-3539-16**
35.0	+0.240	39.0	47.0	26.0	2.00	**MFM-3539-26**
40.0		44.0	52.0	30.0	2.00	**MFM-4044-30**
40.0		44.0	52.0	40.0	2.00	**MFM-4044-40**
45.0		50.0	58.0	50.0	2.00	**MFM-4550-50**

[3] After press-fit. *Testing methods, page 61*





Specialist for pivoting, rolling applications and more

Low coefficient of friction and wear on almost every shaft

iglidur® P210

When to use it?

- When a universal plain bearing for use in a wet environment is required
- When a wear-resistant plain bearing for pivoting applications at medium loads is required
- When edge loads and shocks occur
- When the surface pressure of iglidur® J is insufficient

When not to use it?

- When a universal plain bearing with the largest possible range of dimensions is required
  iglidur® G
- When a plain bearing for highly loaded pivoting applications is required
  iglidur® Q, iglidur® Q2
- When temperatures are higher than +100°C
  iglidur® G, iglidur® J350

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Bearing technology | Plain bearings | iglidur® P210

Ø
4.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Specialist for pivoting, rolling applications and more

Low coefficient of friction and wear on almost every shaft

This versatile material has already proven its worth in many customer-specific solutions and as a bar stock material. Clip-on or pre-loaded designs as well as vehicle interior applications are possible. Now available in a standard size range from stock.

- Low moisture absorption
- Versatile: performance on many different shafts
- Suitable for high edge pressures
- Lubrication-free
- Maintenance-free

Typical application areas

- Agricultural machines
- Furniture/Industrial design
- Textile industry
- Doors and gates
- Mechanical engineering

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® P210
+100°C
50MPa

Technical data

General properties			Testing method
Density	g/cm³	1.40	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.07-0.19	
pv value, max. (dry)	MPa · m/s	0.40	
Mechanical properties			
Flexural modulus	MPa	2,500	DIN 53457
Flexural strength at +20°C	MPa	70	DIN 53452
Compressive strength	MPa	50	
Max. permissible surface pressure (+20°C)	MPa	50	
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+160	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	8	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

-40°C up to +100°C

50MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® P210 plain bearings provide the user with versatile all-round bearings, which have proven to have above average service life, primarily in pivoting applications at medium loads of up to 20MPa.

Moisture absorption
The humidity absorption of iglidur® P210 bearings amounts to about 0.3 % weight in standard climatic conditions. The saturation limit submerged in water is 0.5% weight. This low moisture absorption is well below the values of iglidur® G.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance
Plain bearings made from iglidur® P210 have limited use under radioactive radiation. They are resistant up to a radiation intensity of 3 - 10^2 Gy.

Resistance to weathering
iglidur® P210 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® P210 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® P210 as a function of radial pressure. At the recommended maximum surface pressure of 50MPa the deformation is less than 3% at room temperature.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® P210

Permissible surface speeds

Plain bearings made from iglidur® P210 are maintenance-free, they are developed for low to medium surface speeds. The maximum values given in table 03 can only be achieved at a very low surface pressure. The maximum speed given is the speed at which an increase up to the continuous use temperature occurs due to friction.

Surface speed, page 48

Temperature

Also thanks to its maximum long-term application temperature of +100°C, iglidur® P210 is suitable for a wide range of applications. If even higher temperatures are required, iglidur® G is also available with a max. long-term application temperature of +130°C. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® P210. For rotational movements at radial loads below 1MPa, iglidur® P210 has generally very low wear. Wear is only significantly higher in combination with HR carbon steel shafts. Generally, rotational wear will be higher than for a pivoting application of equal load. This is only reversed at loads above 25MPa (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® P210 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0
Diluted alkalines	–
Fuels	+
Greases, oils without additives	+
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07-0.19	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

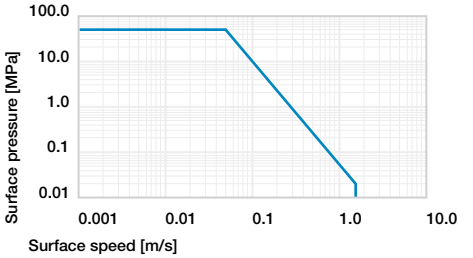


Diagram 01: Permissible pv values for iglidur® P210 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

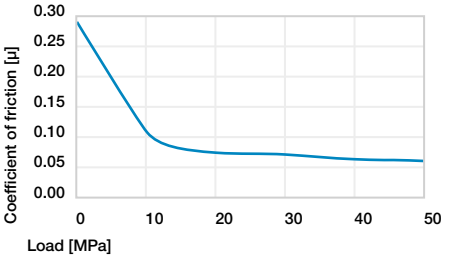


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

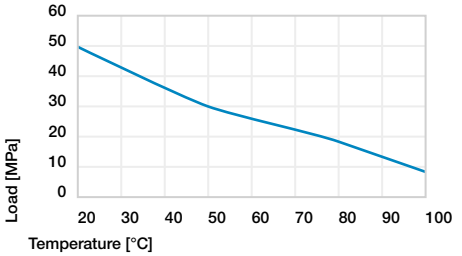


Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

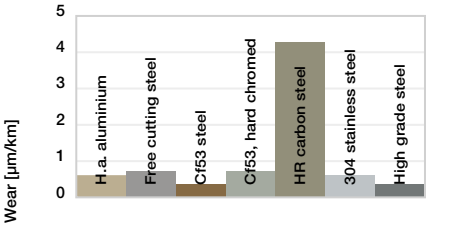


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

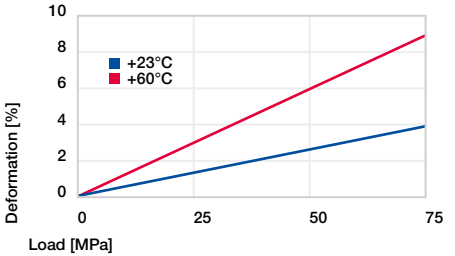


Diagram 03: Deformation under pressure and temperature

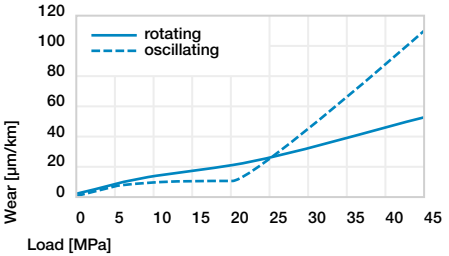


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

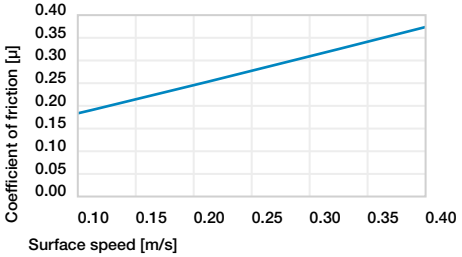
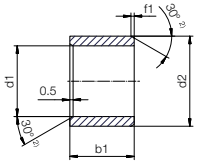


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® P210

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: P210SM-0405-04 – no minimum order quantity.
P210 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0		5.5	4.0	P210SM-0405-04
4.0		5.5	6.0	P210SM-0405-06
5.0	+0.020	7.0	5.0	P210SM-0507-05
5.0	+0.068	7.0	10.0	P210SM-0507-10
6.0		8.0	6.0	P210SM-0608-06
6.0		8.0	8.0	P210SM-0608-08
6.0		8.0	10.0	P210SM-0608-10
8.0		10.0	8.0	P210SM-0810-08
8.0		10.0	10.0	P210SM-0810-10
8.0		10.0	12.0	P210SM-0810-12
10.0	+0.025	12.0	8.0	P210SM-1012-08
10.0	+0.083	12.0	10.0	P210SM-1012-10
10.0		12.0	12.0	P210SM-1012-12
10.0		12.0	15.0	P210SM-1012-15
10.0		12.0	20.0	P210SM-1012-20
12.0		14.0	10.0	P210SM-1214-10
12.0		14.0	12.0	P210SM-1214-12
12.0		14.0	15.0	P210SM-1214-15
12.0		14.0	20.0	P210SM-1214-20
13.0		15.0	10.0	P210SM-1315-10
13.0		15.0	20.0	P210SM-1315-20
14.0	+0.032	16.0	15.0	P210SM-1416-15
14.0	+0.102	16.0	20.0	P210SM-1416-20
14.0		16.0	25.0	P210SM-1416-25
15.0		17.0	15.0	P210SM-1517-15
15.0		17.0	20.0	P210SM-1517-20
15.0		17.0	25.0	P210SM-1517-25
16.0		18.0	15.0	P210SM-1618-15
16.0		18.0	20.0	P210SM-1618-20

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
16.0		18.0	25.0	P210SM-1618-25
18.0	+0.032	20.0	15.0	P210SM-1820-15
18.0	+0.102	20.0	20.0	P210SM-1820-20
18.0		20.0	25.0	P210SM-1820-25
20.0		23.0	10.0	P210SM-2023-10
20.0		23.0	15.0	P210SM-2023-15
20.0		23.0	20.0	P210SM-2023-20
20.0		23.0	25.0	P210SM-2023-25
20.0		23.0	30.0	P210SM-2023-30
22.0		25.0	15.0	P210SM-2225-15
22.0		25.0	20.0	P210SM-2225-20
22.0		25.0	25.0	P210SM-2225-25
22.0		25.0	30.0	P210SM-2225-30
24.0		27.0	15.0	P210SM-2427-15
24.0		27.0	20.0	P210SM-2427-20
24.0	+0.040	27.0	25.0	P210SM-2427-25
24.0	+0.124	27.0	30.0	P210SM-2427-30
25.0		28.0	15.0	P210SM-2528-15
25.0		28.0	20.0	P210SM-2528-20
25.0		28.0	25.0	P210SM-2528-25
25.0		28.0	30.0	P210SM-2528-30
28.0		32.0	20.0	P210SM-2832-20
28.0		32.0	25.0	P210SM-2832-25
28.0		32.0	30.0	P210SM-2832-30
30.0		34.0	20.0	P210SM-3034-20
30.0		34.0	25.0	P210SM-3034-25
30.0		34.0	30.0	P210SM-3034-30
30.0		34.0	40.0	P210SM-3034-40

[3] After press-fit. *Testing methods, page 61*

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iglidur® P210
+100°C
50MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
32.0		36.0	20.0	P210SM-3236-20
32.0		36.0	30.0	P210SM-3236-30
32.0		36.0	40.0	P210SM-3236-40
35.0		39.0	20.0	P210SM-3539-20
35.0	+0.050	39.0	30.0	P210SM-3539-30
35.0	+0.150	39.0	40.0	P210SM-3539-40
35.0		39.0	50.0	P210SM-3539-50
40.0		44.0	20.0	P210SM-4044-20
40.0		44.0	30.0	P210SM-4044-30
40.0		44.0	40.0	P210SM-4044-40

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
40.0		44.0	50.0	P210SM-4044-50
45.0		50.0	20.0	P210SM-4550-20
45.0		50.0	30.0	P210SM-4550-30
45.0		50.0	40.0	P210SM-4550-40
45.0	+0.050	50.0	50.0	P210SM-4550-50
50.0	+0.150	55.0	20.0	P210SM-5055-20
50.0		55.0	30.0	P210SM-5055-30
50.0		55.0	40.0	P210SM-5055-40
50.0		55.0	50.0	P210SM-5055-50
50.0		55.0	60.0	P210SM-5055-60

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/P210

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

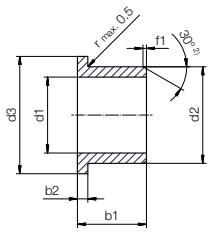
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® P210

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

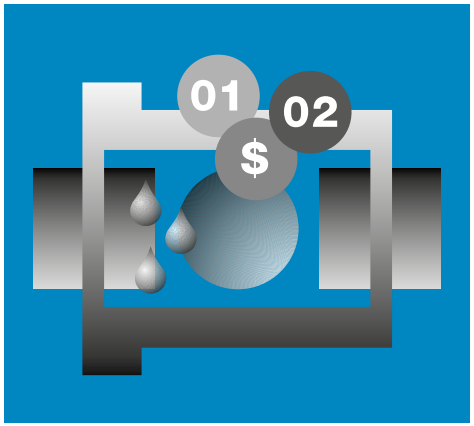
Dimensions according to ISO 3547-1 and special dimensions

Order example: P210FM-0608-04 – no minimum order quantity.
P210 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	4.0	1.00	P210FM-0608-04
6.0		8.0	12.0	6.0	1.00	P210FM-0608-06
6.0		8.0	12.0	8.0	1.00	P210FM-0608-08
8.0		10.0	15.0	5.5	1.00	P210FM-0810-05
8.0		10.0	15.0	7.5	1.00	P210FM-0810-07
8.0		10.0	15.0	9.5	1.00	P210FM-0810-09
8.0		10.0	15.0	10.0	1.00	P210FM-0810-10
8.0	+0.025	10.0	16.0	15.0	1.50	P210FM-081016-15
10.0	+0.083	12.0	18.0	7.0	1.00	P210FM-1012-07
10.0		12.0	18.0	9.0	1.00	P210FM-1012-09
10.0		12.0	18.0	10.0	1.00	P210FM-1012-10
10.0		12.0	18.0	12.0	1.00	P210FM-1012-12
10.0		12.0	18.0	17.0	1.00	P210FM-1012-17
12.0		14.0	20.0	7.0	1.00	P210FM-1214-07
12.0		14.0	20.0	9.0	1.00	P210FM-1214-09
12.0		14.0	20.0	12.0	1.00	P210FM-1214-12
12.0	+0.032	14.0	20.0	17.0	1.00	P210FM-1214-17
14.0	+0.102	16.0	22.0	12.0	1.00	P210FM-1416-12
14.0		16.0	22.0	17.0	1.00	P210FM-1416-17
15.0		17.0	23.0	9.0	1.00	P210FM-1517-09
15.0		17.0	23.0	12.0	1.00	P210FM-1517-12
15.0		17.0	23.0	17.0	1.00	P210FM-1517-17
16.0		18.0	24.0	12.0	1.00	P210FM-1618-12
16.0	+0.032	18.0	24.0	17.0	1.00	P210FM-1618-17
18.0	+0.102	20.0	26.0	12.0	1.00	P210FM-1820-12
18.0		20.0	26.0	17.0	1.00	P210FM-1820-17
18.0		20.0	26.0	22.0	1.00	P210FM-1820-22
20.0		23.0	30.0	11.5	1.50	P210FM-2023-11
20.0		23.0	30.0	16.5	1.50	P210FM-2023-16
20.0		23.0	30.0	21.5	1.50	P210FM-2023-21
25.0	+0.040	28.0	35.0	11.5	1.50	P210FM-2528-11
25.0	+0.124	28.0	35.0	16.5	1.50	P210FM-2528-16
25.0		28.0	35.0	21.5	1.50	P210FM-2528-21
30.0		34.0	42.0	16.0	2.00	P210FM-3034-16
30.0		34.0	42.0	26.0	2.00	P210FM-3034-26
35.0	+0.050 +0.124	39.0	47.0	16.0	2.00	P210FM-3539-16
35.0		39.0	47.0	26.0	2.00	P210FM-3539-26
40.0	+0.040	44.0	52.0	30.0	2.00	P210FM-4044-30
40.0	+0.124	44.0	52.0	40.0	2.00	P210FM-4044-40
45.0		50.0	58.0	50.0	2.00	P210FM-4550-50

[3] After press-fit. *Testing methods, page 61*





The low-cost all-rounder

Well-balanced properties at a low price

iglidur® P230

When to use it?

- When a cost-effective all-round bearing for high volumes is required
- When a low-cost bearing with low moisture absorption is required
- When low pv values occur

When not to use it?

- When a cost-effective all-rounder for small quantities is required
  iglidur® G
- When high wear resistance is required
  iglidur® G, iglidur® G1
- When continuous operating temperatures are higher than +110°C
  iglidur® G, iglidur® G1

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Ø
–



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The low-cost all-rounder

Well-balanced properties at a low price

Developed for (large-scale) series application, iglidur® P230 has a well-balanced property profile compared to other iglidur® low-cost materials.

- Good wear resistance
- High media resistance
- Cost-effective
- For low and medium loads
- For applications with low pv values

Typical application areas

- Industrial series-production applications
- Mechanical engineering and jig construction
- Two-wheeler

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® P230
+110°C
60MPa

Technical data

General properties			Testing method
Density	g/cm³	1.57	
Colour		beige	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.3	
Coefficient of friction, dynamic, against steel	µ	0.13-0.32	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	6,532	DIN 53457
Flexural strength at +20°C	MPa	173	
Compressive strength	MPa	101	
Max. permissible surface pressure (+20°C)	MPa	60	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+110	
Max. application temperature short-term	°C	+180	
Min. application temperature	°C	-30	
Thermal conductivity	W/m · K	0.34	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	5	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$>10^{12}$	DIN IEC 93
Surface resistance	Ω	$>10^{12}$	DIN 53482

-30°C up to +110°C

60MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® P230 is a material with low moisture absorption and well-balanced thermal properties for use in cost-sensitive series-production applications. Good wear resistance at low pv values and low to medium speeds and loads round off the all-round profile.

Moisture absorption

The humidity absorption of iglidur® P230 bearings amounts to about 0.1% weight in standard climatic conditions. The saturation limit submerged in water is 0.3% weight. This low moisture absorption is well below the values of iglidur® M250 or iglidur® G.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® P230 bearings.

Radiation resistance

Plain bearings made from iglidur® P230 have limited use under radioactive radiation. They are resistant up to a radiation intensity of 3 - 10^2 Gy.

Resistance to weathering

iglidur® P230 plain bearings have not yet been tested for their resistance to weathering. Please consult igus® if you're planning to use them outdoors.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® P230 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® P230 as a function of radial pressure. At the recommended maximum surface pressure of 60MPa the deformation is less than 3% at room temperature. A plastic deformation can be negligible up to this value. It is however also dependent on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® P230

Permissible surface speeds

iglidur® P230 was developed for low to average surface speeds. During continuous operation, a maximum speed of 1.0m/s (rotating) or 3.0m/s (linear) is permissible. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

Also thanks to its maximum long-term application temperature of +110°C, iglidur® P230 is suitable for a wide range of applications. If even higher temperatures are required, the best-seller iglidur® G (+130°C) or the new standard iglidur® G1 (+180°C) are available. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +100°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagram 04).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® P230. For rotating movements with 1 MPa radial load, wear on all shafts is low, with the "soft" shaft types providing the higher coefficients of wear. The comparison of pivoting and rotational movements (diagram 07) shows fewer differences than with many other iglidur® materials. The limitation of iglidur® P230 to low to medium loads becomes clear.

Shaft materials, page 56

Installation tolerances

iglidur® P230 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® P230 plain bearings are currently manufactured to special order.

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.13-0.32	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® P230
+110°C
60MPa

Technical data

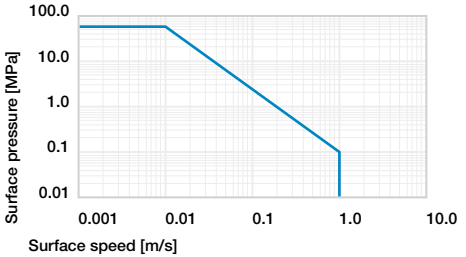


Diagram 01: Permissible pv values for iglidur® P230 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

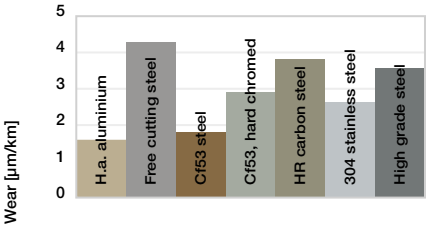


Diagram 05: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

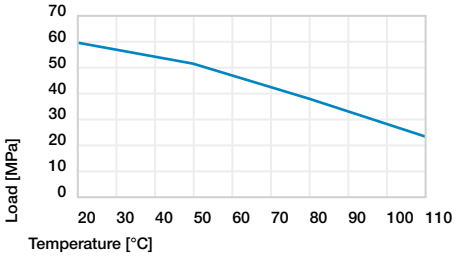


Diagram 02: Maximum recommended surface pressure as a function of temperature (60MPa at +20°C)

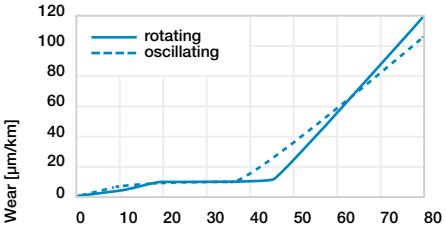


Diagram 06: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

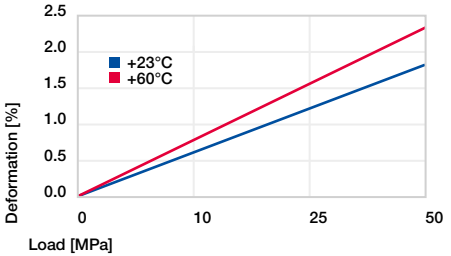


Diagram 03: Deformation under pressure and temperature

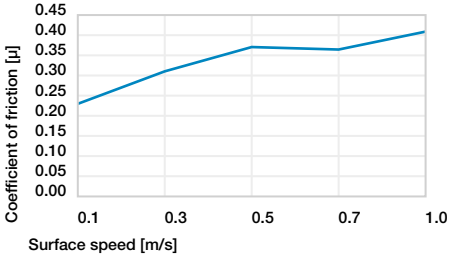
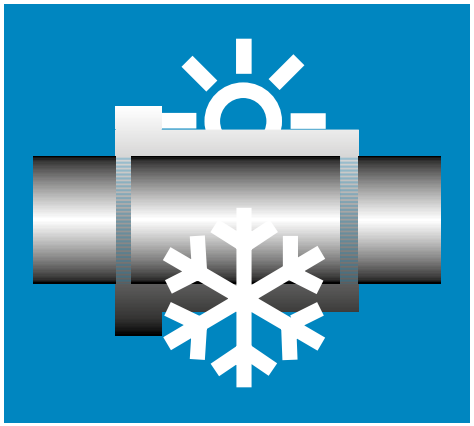


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa





The cost-effective outdoor all-rounder

No moisture absorption even with high ambient humidity

iglidur® P

When to use it?

- When low moisture absorption is fundamental
- When a cost-effective plain bearing for high pressure loads is required
- When high precision in high humidity and moderately high temperatures are required

When not to use it?

- When the maximum application temperature is above +120°C
  iglidur® K
- When mechanical reaming of the bore is necessary
  iglidur® M250
- When the highest wear resistance is required
  iglidur® W300

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Bearing technology | Plain bearings | iglidur® P

Ø 3.0-
95.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The cost-effective outdoor all-rounder

No moisture absorption even with high ambient humidity

Due to thermal stability and low water absorption, the iglidur® P bearings are among the most dimensionally strong all-round bearings under varying environmental conditions. iglidur® P plain bearings are recommended for pivoting and rotational movements at average loads.

- Low moisture absorption
- High wear resistance
- Suitable for high loads
- Cost-effective
- Lubrication-free
- Standard range from stock
- Maintenance-free

Typical application areas

- Solar technology
- Mechanical engineering
- Doors and gates
- Railway technology
- Sports and leisure

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® P
+130°C
50MPa

Technical data

General properties			Testing method
Density	g/cm³	1.58	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.4	
Coefficient of friction, dynamic, against steel	µ	0.06-0.21	
pv value, max. (dry)	MPa · m/s	0.39	
Mechanical properties			
Flexural modulus	MPa	5,300	DIN 53457
Flexural strength at +20°C	MPa	120	DIN 53452
Compressive strength	MPa	66	
Max. permissible surface pressure (+20°C)	MPa	50	
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+130	
Max. application temperature short-term	°C	+200	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	4	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-40°C up to +130°C

50MPa

HB

RoHS-II

ISO 3547-1

The iglidur® P plain bearings are a cost-effective, maintenance-free bearing solution for the user. Compared to iglidur® G, plain bearings made from iglidur® P are suitable for use with rotational movements and average loads.

Moisture absorption

The moisture absorption of iglidur® P plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 0.4% weight. This low moisture absorption is well below the values of iglidur® G.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® P have limited use under radioactive radiation. They are resistant up to a radiation intensity of $5 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® P plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® P plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® P at radial loads. At the maximum recommended surface pressure of 50MPa, the deformation is less than 4%.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® P

Permissible surface speeds

Plain bearings made from iglidur® P are maintenance-free plain bearings developed for low to medium surface speeds. The maximum values given in table 03 can only be achieved at a very low surface pressure. The maximum speed given is the speed at which an increase up to the continuous use temperature occurs due to friction.

Surface speed, page 48

Temperature

Even with its maximum long-term application temperature of +130°C, the values for iglidur® P do not quite come up to those of iglidur® G. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +90°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction declines just as the wear resistance with increasing load (diagrams 04 and 05). iglidur® P plain bearings obtain a minimum coefficient of friction on shafts with a surface finish Ra from 0.1-0.2µm. Both smoother and rougher shaft surface finish cause the friction to clearly increase.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® P. For rotational movements, the wear of iglidur® P with Cf53 and HR carbon steel shafts is very low. On the other hand, the bearings hard-chromed shafts result in higher wear than other shaft materials even in the low load range. For example at a load of 2MPa, cold rolled steel is six times better than 304 stainless steel. For pivoting movement, hardened shafts and 304 stainless steel perform better than that of a softer unhardened carbon shafts.

Shaft materials, page 56

Installation tolerances

iglidur® P plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0
Diluted alkalines	–
Fuels	+
Greases, oils without additives	+
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.06-0.21	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

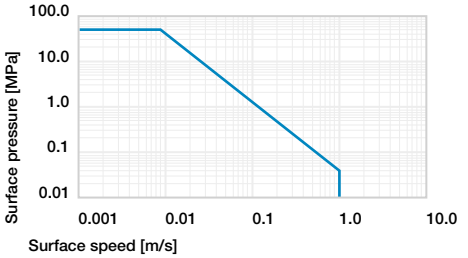


Diagram 01: Permissible pv values for iglidur® P plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

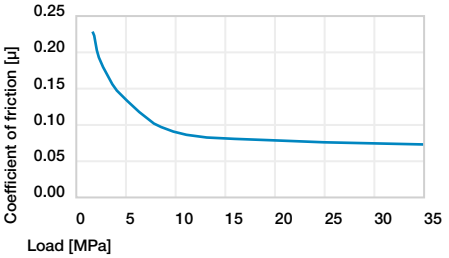


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

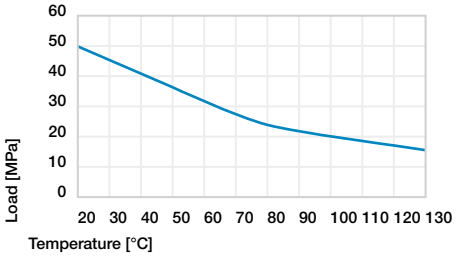


Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

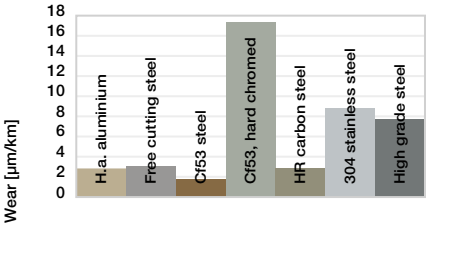


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

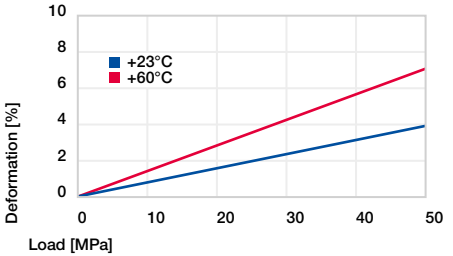


Diagram 03: Deformation under pressure and temperature

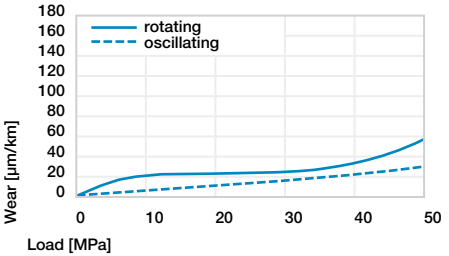


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

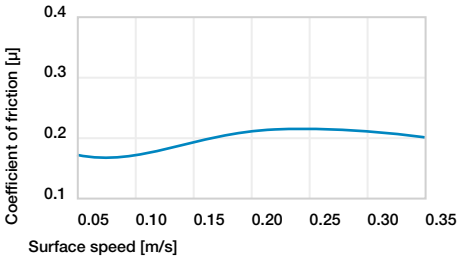
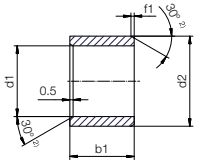


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® P

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: PSM-0304-03 – no minimum order quantity.
P iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.014 +0.054	4.5	3.0	PSM-0304-03
4.0		5.5	4.0	PSM-0405-04
4.0		5.5	6.0	PSM-0405-06
5.0	+0.020 +0.068	7.0	5.0	PSM-0507-05
5.0		7.0	10.0	PSM-0507-10
6.0		8.0	6.0	PSM-0608-06
6.0		8.0	8.0	PSM-0608-08
6.0		8.0	10.0	PSM-0608-10
8.0		10.0	8.0	PSM-0810-08
8.0		10.0	10.0	PSM-0810-10
8.0	+0.025 +0.083	10.0	11.5	PSM-0810-11
8.0		10.0	12.0	PSM-0810-12
10.0		12.0	8.0	PSM-1012-08
10.0		12.0	10.0	PSM-1012-10
10.0		12.0	12.0	PSM-1012-12
10.0		12.0	15.0	PSM-1012-15
10.0		12.0	20.0	PSM-1012-20
12.0		14.0	10.0	PSM-1214-10
12.0		14.0	12.0	PSM-1214-12
12.0		14.0	15.0	PSM-1214-15
12.0		14.0	20.0	PSM-1214-20
12.0		14.0	25.0	PSM-1214-25
13.0	+0.032 +0.102	15.0	10.0	PSM-1315-10
13.0		15.0	20.0	PSM-1315-20
14.0		16.0	15.0	PSM-1416-15
14.0		16.0	20.0	PSM-1416-20
14.0		16.0	25.0	PSM-1416-25
15.0		17.0	15.0	PSM-1517-15
15.0		17.0	20.0	PSM-1517-20
15.0		17.0	25.0	PSM-1517-25
16.0		18.0	15.0	PSM-1618-15
16.0		18.0	20.0	PSM-1618-20
16.0	+0.032	18.0	25.0	PSM-1618-25
16.0	+0.102	18.0	42.0	PSM-1618-42
18.0		20.0	15.0	PSM-1820-15
18.0		20.0	20.0	PSM-1820-20
18.0		20.0	25.0	PSM-1820-25
18.0		20.0	33.0	PSM-1820-33
20.0		22.0	22.0	PSM-2022-22
20.0		22.0	30.0	PSM-2022-30
20.0		22.0	48.0	PSM-2022-48
20.0		22.0	51.0	PSM-2022-51
20.0		23.0	10.0	PSM-2023-10
20.0		23.0	15.0	PSM-2023-15
20.0		23.0	20.0	PSM-2023-20
20.0		23.0	25.0	PSM-2023-25
20.0		23.0	30.0	PSM-2023-30
22.0	+0.040 +0.124	24.0	42.0	PSM-2224-42
22.0		24.0	45.0	PSM-2224-45
22.0		25.0	15.0	PSM-2225-15
22.0		25.0	20.0	PSM-2225-20
22.0		25.0	25.0	PSM-2225-25
22.0		25.0	30.0	PSM-2225-30
22.0		25.0	45.0	PSM-2225-45
23.0		25.0	37.0	PSM-2325-37
23.0		25.0	58.0	PSM-2325-58
23.0		25.0	68.0	PSM-2325-68

[3] After press-fit. *Testing methods, page 61*

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iglidur® P
+130°C
50MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
24.0		27.0	15.0	PSM-2427-15
24.0		27.0	20.0	PSM-2427-20
24.0		27.0	25.0	PSM-2427-25
24.0		27.0	30.0	PSM-2427-30
25.0		28.0	15.0	PSM-2528-15
25.0		28.0	20.0	PSM-2528-20
25.0		28.0	25.0	PSM-2528-25
25.0		28.0	30.0	PSM-2528-30
25.0	+0.040	28.0	35.0	PSM-2528-35
26.0	+0.124	30.0	25.0	PSM-2630-25
28.0		32.0	20.0	PSM-2832-20
28.0		32.0	25.0	PSM-2832-25
28.0		32.0	30.0	PSM-2832-30
30.0		34.0	20.0	PSM-3034-20
30.0		34.0	25.0	PSM-3034-25
30.0		34.0	30.0	PSM-3034-30
30.0		34.0	40.0	PSM-3034-40
30.0		34.0	45.0	PSM-3034-45
32.0		36.0	20.0	PSM-3236-20
32.0		36.0	30.0	PSM-3236-30
32.0	+0.050 +0.150	36.0	40.0	PSM-3236-40
35.0		39.0	20.0	PSM-3539-20
35.0		39.0	30.0	PSM-3539-30
35.0		39.0	40.0	PSM-3539-40
35.0		39.0	50.0	PSM-3539-50
40.0		44.0	20.0	PSM-4044-20
40.0		44.0	30.0	PSM-4044-30
40.0		44.0	40.0	PSM-4044-40
40.0		44.0	50.0	PSM-4044-50
40.0	+0.050	44.0	58.0	PSM-4044-58
45.0	+0.150	50.0	20.0	PSM-4550-20
45.0		50.0	30.0	PSM-4550-30
45.0		50.0	40.0	PSM-4550-40
45.0		50.0	50.0	PSM-4550-50
50.0		55.0	20.0	PSM-5055-20
50.0		55.0	30.0	PSM-5055-30
50.0		55.0	40.0	PSM-5055-40
50.0		55.0	50.0	PSM-5055-50
50.0		55.0	60.0	PSM-5055-60
60.0	+0.060	65.0	50.0	PSM-6065-50
60.0	+0.180	65.0	60.0	PSM-6065-60
65.0		70.0	50.0	PSM-6570-50
75.0		80.0	80.0	PSM-7580-80
90.0	+0.072	95.0	100.0	PSM-9095-100
95.0	+0.212	100.0	100.0	PSM-95100-100

[3] After press-fit. *Testing methods, page 61*

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25-49	200-499	2,500-4,999

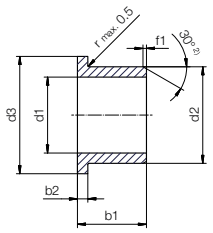
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® P

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: PFM-0405-04 – no minimum order quantity.
P iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0		5.5	9.5	4.0	0.75	PFM-0405-04
5.0	+0.020	6.0	10.0	3.0	0.50	PFM-0506-03
5.0	+0.068	7.0	11.0	5.0	1.00	PFM-0507-05
6.0		8.0	12.0	4.0	1.00	PFM-0608-04
6.0		8.0	12.0	6.0	1.00	PFM-0608-06
6.0		8.0	12.0	8.0	1.00	PFM-0608-08
7.0		9.0	15.0	4.0	1.00	PFM-0709-04
8.0		10.0	15.0	5.5	1.00	PFM-0810-05
8.0	+0.025	10.0	15.0	7.5	1.00	PFM-0810-07
8.0	+0.083	10.0	15.0	9.5	1.00	PFM-0810-09
8.0		10.0	15.0	10.0	1.00	PFM-0810-10
8.0		10.0	12.0	10.0	1.00	PFM-081012-10
8.0		10.0	15.0	15.0	1.00	PFM-0810-15
10.0	+0.032	12.0	18.0	5.0	1.00	PFM-1012-05
	+0.102					
10.0		12.0	18.0	7.0	1.00	PFM-1012-07
10.0	+0.025	12.0	18.0	9.0	1.00	PFM-1012-09
10.0	+0.083	12.0	18.0	10.0	1.00	PFM-1012-10
10.0		12.0	18.0	12.0	1.00	PFM-1012-12
10.0		12.0	18.0	17.0	1.00	PFM-1012-17
12.0		14.0	20.0	7.0	1.00	PFM-1214-07
12.0		14.0	18.0	8.0	1.00	PFM-121418-08
12.0		14.0	20.0	9.0	1.00	PFM-1214-09
12.0	+0.032	14.0	20.0	10.0	1.00	PFM-1214-10
12.0	+0.102	14.0	20.0	12.0	1.00	PFM-1214-12
12.0		14.0	20.0	15.0	1.00	PFM-1214-15
12.0		14.0	20.0	17.0	1.00	PFM-1214-17
14.0		16.0	22.0	4.0	1.00	PFM-1416-04

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
14.0		16.0	22.0	8.0	1.00	PFM-1416-08
14.0	+0.032	16.0	22.0	12.0	1.00	PFM-1416-12
14.0	+0.102	16.0	22.0	17.0	1.00	PFM-1416-17
14.0		16.0	24.0	25.0	1.00	PFM-141624-25
14.0	+0.050	20.0	25.0	10.0	3.00	PFM-1420-10
	+0.160					
15.0		17.0	23.0	9.0	1.00	PFM-1517-09
15.0		17.0	23.0	12.0	1.00	PFM-1517-12
15.0		17.0	23.0	17.0	1.00	PFM-1517-17
15.0		17.0	23.0	22.0	1.00	PFM-1517-22
15.0	+0.032	18.0	24.0	32.0	1.50	PFM-151824-32
16.0	+0.102	18.0	24.0	12.0	1.00	PFM-1618-12
16.0		18.0	24.0	17.0	1.00	PFM-1618-17
16.0		18.0	24.0	40.0	1.00	PFM-161824-40
17.0		19.0	25.0	25.0	1.00	PFM-1719-25
18.0		20.0	26.0	12.0	1.00	PFM-1820-12
18.0		20.0	26.0	17.0	1.00	PFM-1820-17
18.0		20.0	26.0	22.0	1.00	PFM-1820-22
20.0		23.0	30.0	11.5	1.50	PFM-2023-11
20.0		23.0	28.0	15.0	1.50	PFM-202328-15
20.0		23.0	30.0	16.5	1.50	PFM-2023-16
20.0		23.0	30.0	21.5	1.50	PFM-2023-21
20.0	+0.040	23.0	30.0	30.0	1.50	PFM-2023-30
24.0	+0.124	27.0	32.0	22.0	1.50	PFM-2427-22
25.0		28.0	35.0	11.5	1.50	PFM-2528-11
25.0		28.0	35.0	16.5	1.50	PFM-2528-16
25.0		28.0	35.0	21.5	1.50	PFM-2528-21
30.0		34.0	42.0	16.0	2.00	PFM-3034-16

[3] After press-fit. *Testing methods, page 61*

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iglidur® P
+130°C
50MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
30.0	+0.040	34.0	42.0	26.0	2.00	PFM-3034-26
30.0	+0.124	34.0	42.0	30.0	2.00	PFM-3034-30
30.0		34.0	42.0	37.0	2.00	PFM-3034-37
35.0		39.0	47.0	16.0	2.00	PFM-3539-16
35.0	+0.050	39.0	47.0	26.0	2.00	PFM-3539-26
40.0	+0.150	44.0	52.0	30.0	2.00	PFM-4044-30
40.0		44.0	52.0	40.0	2.00	PFM-4044-40

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
45.0	+0.050	50.0	58.0	50.0	2.00	PFM-4550-50
50.0	+0.150	55.0	63.0	50.0	2.00	PFM-5055-50
60.0		65.0	73.0	40.0	2.00	PFM-6065-40
60.0	+0.060	65.0	73.0	50.0	2.00	PFM-6065-50
70.0	+0.180	75.0	83.0	50.0	2.00	PFM-7075-50
80.0		85.0	93.0	100.0	2.50	PFM-8085-100

[3] After press-fit. *Testing methods, page 61*

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25-49	200-499	2,500-4,999

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No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Versatile and cost-effective

For medium temperatures and wet environments

iglidur® K

When to use it?

- When a cost-effective all-round plain bearing is required
- For operations in wet environments
- When good wear resistance is required at medium loads

When not to use it?

- When the highest wear resistance is required
  iglidur® W300
- When high media resistance is required
  iglidur® X6
- When a high-temperature bearing is required
  iglidur® H

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Bearing technology | Plain bearings | iglidur® K

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Versatile and cost-effective
For medium temperatures and wet environments

iglidur® K is the cost-effective general purpose bearing for medium temperatures, low moisture absorption and good environmental resistance.

- Low moisture absorption
- Wear-resistant
- Cost-effective
- Lubrication-free
- Maintenance-free

Typical application areas

- Printing industry
- Electronics industry
- Packaging
- Medical technology
- Polymer processing machines

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■□□	+
Wear resistance at +90°C	–	■■■□□	+
Wear resistance at +150°C	–	■■□□□	+
Slide property	–	■■■■□	+
Wear resistance under water	–	■■□□□	+
Media resistance	–	■■■□□	+
Resistant to edge pressures	–	■■■□□	+
Resistant to shock and impact loads	–	■■■□□	+
Dirt resistance	–	■■■■□	+

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www.igus.eu/iglidur-expert

EN 09/2023

iglidur® K
+170°C
50MPa

Technical data

General properties			Testing method
Density	g/cm³	1.52	
Colour		yellow-beige	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.6	
Coefficient of friction, dynamic, against steel	µ	0.06-0.21	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	3,500	DIN 53457
Flexural strength at +20°C	MPa	80	DIN 53452
Compressive strength	MPa	60	
Max. permissible surface pressure (+20°C)	MPa	50	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+170	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	3	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

-40°C up to +170°C

50MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® K is characterised by its good wear characteristics at low moisture absorption and good thermal and mechanical specifications. This supports a very universal application spectrum.

Moisture absorption

The moisture absorption of iglidur® K plain bearings in ambient conditions is approximately 0.1% weight. The saturation limit submerged in water is 0.6% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® K bearings.

Radiation resistance

Plain bearings made from iglidur® K are resistant up to a radiation intensity of $5 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® K plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® K plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® K at radial loads. At the maximum recommended surface pressure of 50MPa, the deformation is less than 3%. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® K

Permissible surface speeds

iglidur® K has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +100°C. For temperatures over +70°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® K a ground surface with an average surface finish Ra = 0.15-0.2μm is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® K. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The "soft" shafts tend to wear more easily and thus increase the wear of the overall system, if the loads exceed 2MPa. The comparison of rotation and pivoting shows that the wear is almost identical at a pressure up to 5MPa. The higher the loads, the greater the difference (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® K plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.06-0.21	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

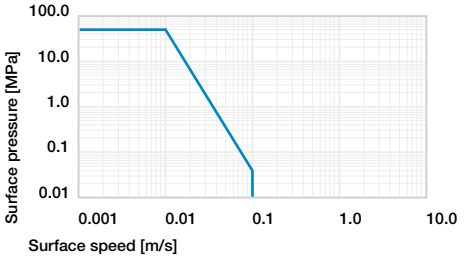


Diagram 01: Permissible pv values for iglidur® K plain bearing with a wall thickness of 1 mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

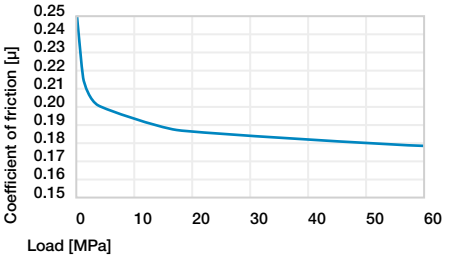


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

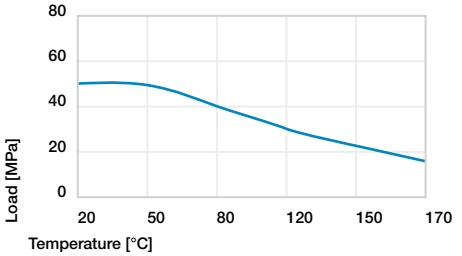


Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

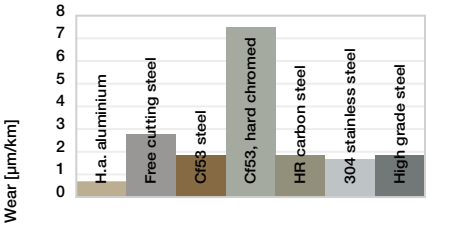


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

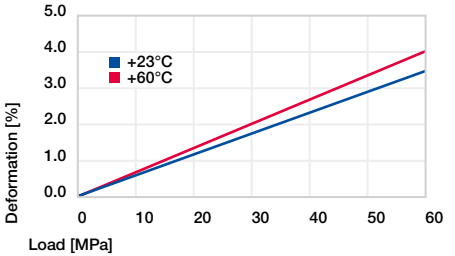


Diagram 03: Deformation under pressure and temperature

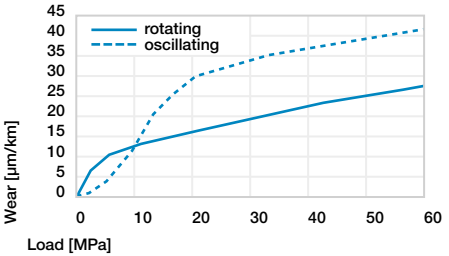


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

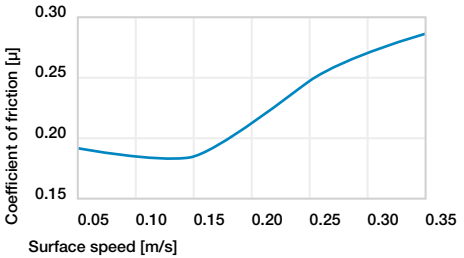
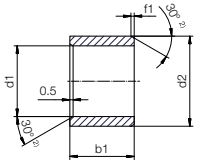


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® K

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: KSM-0608-06 – no minimum order quantity.
K iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**KSM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**KSM-0810-10**
10.0		12.0	10.0	**KSM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**KSM-1214-12**
16.0		18.0	15.0	**KSM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**KSM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

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including delivery times, prices, online tools
www.igus.eu/K

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

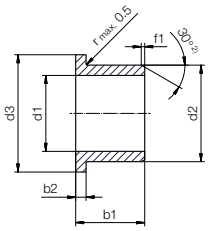
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Free shipping within Germany for orders above €150.

iglidur® K
+170°C
50MPa

Bearing technology | Plain bearings | iglidur® K

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: KFM-0608-06 – no minimum order quantity.
K iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**KFM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**KFM-0810-10**
10.0		12.0	18.0	10.0	1.00	**KFM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**KFM-1214-12**
16.0		18.0	24.0	17.0	1.00	**KFM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**KFM-2023-21**

[3] After press-fit. *Testing methods, page 61*

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www.igus.eu/24

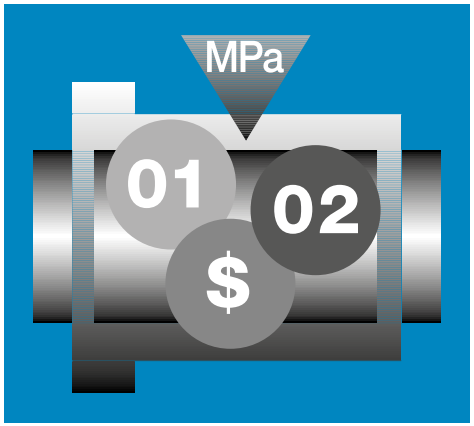
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Ordering note
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Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Low-cost material for high-volume production

For applications with mainly static loads

iglidur® GLW

When to use it?

- When an economical universal bearing for high volumes is required
- For high, primarily static loads
- For low to medium speeds

When not to use it?

- When mechanical reaming of the bore is necessary
  iglidur® M250
- For primarily dynamic loads
  iglidur® G
- When the highest wear resistance is required
  iglidur® W300
- When temperatures are constantly higher than +130 °C
  iglidur® K
- For underwater applications
  iglidur® H2

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Bearing technology | Plain bearings | iglidur® GLW

Ø
–



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Low-cost material for high-volume production
For applications with mainly static loads

iglidur® GLW plain bearings are preferred in applications with static load, where only occasional movement takes place.

- Applications with static loads
- Cost-effective
- Resistant to dirt
- Resistant to vibrations
- Lubrication-free
- Maintenance-free

Typical application areas

- Automation
- Automotive
- Industrial handling

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	-		+
Slide property	–		+
Wear resistance under water	-		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® GLW
+100°C
80MPa

Technical data

General properties			Testing method
Density	g/cm³	1.36	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.3	DIN 53495
Max. moisture absorption	% weight	5.5	
Coefficient of friction, dynamic, against steel	µ	0.10-0.24	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	7,700	DIN 53457
Flexural strength at +20°C	MPa	235	DIN 53452
Compressive strength	MPa	74	
Max. permissible surface pressure (+20°C)	MPa	80	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+160	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	17	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{11}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

-40°C up to +100°C

80MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

With plain bearings made from iglidur® GLW, we can offer our customers an alternative to iglidur® G for high-volume production applications. Featuring similar mechanical designed as iglidur® G, iglidur® GLW plain bearings are primarily recommended for static loads. With regard to these applications, in which the dynamic properties of iglidur® G to a large extent are unimportant, iglidur® GLW presents a cost-effective alternative.

Moisture absorption

The moisture absorption of iglidur® GLW plain bearings in ambient conditions is approximately 1.3% weight. The saturation limit submerged in water is 5.5% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour.

Radiation resistance

Plain bearings made from iglidur® GLW are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® GLW plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® GLW plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® GLW as a function of radial pressure. At the recommended maximum surface pressure of 80MPa the deformation is less than 3% at room temperature. A plastic deformation can be negligible up to this value. It is however also dependent on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® GLW

Permissible surface speeds

iglidur® GLW has been developed for low to medium surface speeds. During continuous operation, a maximum speed of 0.8m/s (rotating) or 2.5m/s (linear) is permissible. The maximum values shown in table 03 can only be achieved at low pressures. In practice, these values are rarely reached, due to the increasing temperatures approaching or exceeding the maximum permitted value.

Surface speed, page 48

Temperature

The ambient temperatures strongly influence the properties of plain bearings. Diagram 02 shows this inverse relationship. The wear rises with increasing temperatures. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® GLW a ground surface with an average surface finish Ra = 0.1-0.2μm is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® GLW. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® GLW plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® GLW plain bearings are manufactured to special order. For high volume applications, please request iglidur® GLW plain bearings as an alternative to iglidur® G.

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	2.5
Short-term	m/s	1.0	0.7	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.10-0.24	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

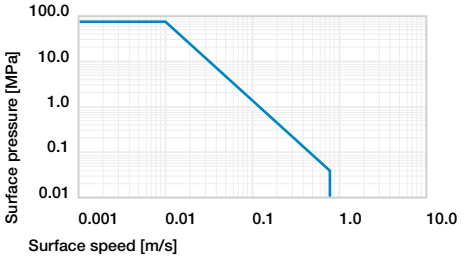


Diagram 01: Permissible pv values for iglidur® GLW with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

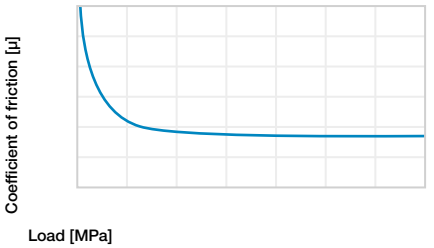


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

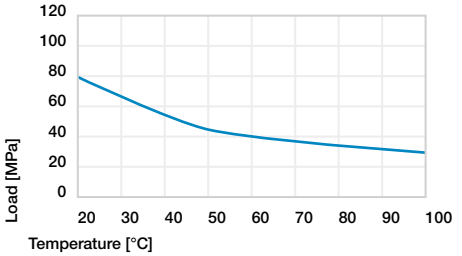


Diagram 02: Maximum recommended surface pressure as a function of temperature (80MPa at +20°C)

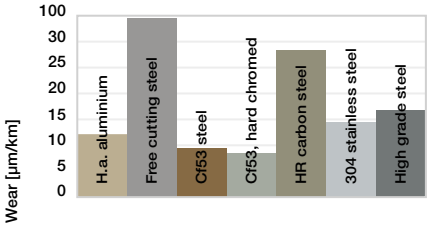


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

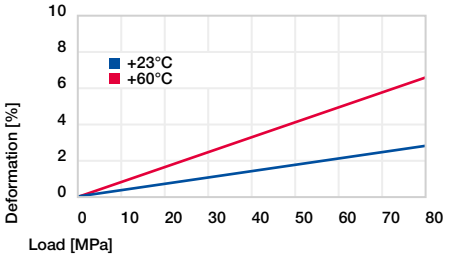


Diagram 03: Deformation under pressure and temperature

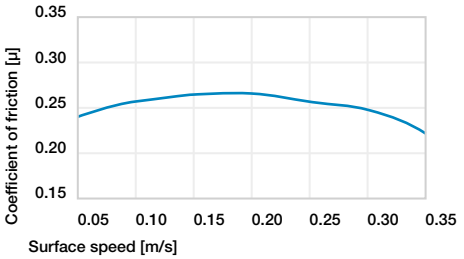


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa



Materials for long service life

Materials for long service life

Every iglidur® plain bearing is naturally optimised for wear, but the materials in this group are characterised by very low rates of wear and therefore the ability to provide a long service life.
In addition to their service life and the price level, the materials differ among other things by temperature and load ranges as well as the applicability in conjunction with special shaft materials.

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert



iglidur® J
The versatile endurance runner

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	35	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	0.29	– +
Price index		– +



iglidur® W300
The classic endurance runner up to 30MPa

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	60	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	0.33	– +
Price index		– +



iglidur® J3
The new endurance runner: specialist for pivoting applications and pulsating loads

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	45	– +
Coefficient of friction [µ] [125]	0.13	– +
Wear [µm/km] [125]	0.07	– +
Price index		– +



iglidur® J3B
Proven long-life material in black

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	44	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	0.07	– +
Price index		– +



iglidur® J350
Endurance runner with high dimensional stability at high temperatures

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	60	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	1.14	– +
Price index		– +



iglidur® J260
Ideal for plastic shafts

Temperature [°C] [123]	+120	– +
Surface pressure [MPa] [124]	40	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	0.11	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating

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Endurance runner



iglidur® W360
Endurance runner up to +180°C

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	75	– +
Coefficient of friction [µ] [125]	0.07	– +
Wear [µm/km] [125]	0.24	– +
Price index		– +



iglidur® L250
For fast rotating applications

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	45	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	0.20	– +
Price index		– +



iglidur® L350
For high rotational speeds

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	59	– +
Coefficient of friction [µ] [125]	0.12	– +
Wear [µm/km] [125]	1.50	– +
Price index		– +



iglidur® L500
For extreme rotational speeds

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	70	– +
Coefficient of friction [µ] [125]	0.19	– +
Wear [µm/km] [125]	1.00	– +
Price index		– +



iglidur® R
Low-cost

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	23	– +
Coefficient of friction [µ] [125]	0.20	– +
Wear [µm/km] [125]	0.95	– +
Price index		– +



iglidur® D
Low-cost with silicone

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	23	– +
Coefficient of friction [µ] [125]	0.25	– +
Wear [µm/km] [125]	1.91	– +



iglidur® J200
Specialist for linear movement

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	23	– +
Coefficient of friction [µ] [125]	0.15	– +
Wear [µm/km] [125]	1.30	– +
Price index		– +



iglidur® E7
Ideal for pivoting movement

Temperature [°C] [123]	+70	– +
Surface pressure [MPa] [124]	18	– +
Coefficient of friction [µ] [125]	0.13	– +
Wear [µm/km] [125]	0.14	– +
Price index		– +

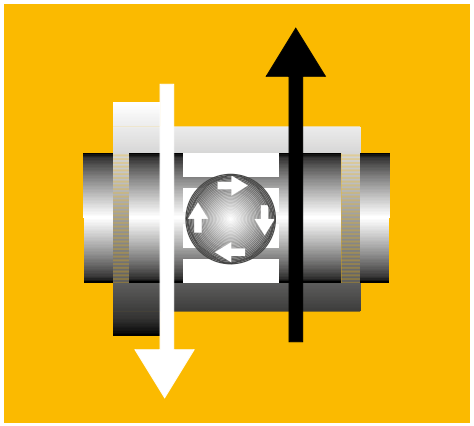


iglidur® E
Extremely wear-resistant

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	37	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	0.10	– +
Price index		– +

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The versatile endurance runner

Strong performer on most shafts, very low coefficient of friction

iglidur® J

When to use it?

- For high speeds
- When highest wear resistance at low to medium pressures is required
- Low wear against different shafts
- When a low coefficient of friction in dry operation is requested
- For vibration dampening
- When good chemical resistance is required
- For best performance with soft shaft materials
- Low moisture absorption

When not to use it?

- When high pressures occur
  iglidur® G, iglidur® W300
- When temperatures higher than +120 °C occur
  iglidur® G, iglidur® Z
- When a cost-effective plain bearing for occasional movements is necessary
  iglidur® G

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Bearing technology | Plain bearings | iglidur® J

Ø
1.5-120.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 848

The versatile endurance runner

Strong performer on most shafts, very low coefficient of friction

One main advantage of iglidur® J plain bearings is the combination of a low coefficient of friction in dry operation and the low stickslip tendency. With a maximum recommended surface pressure of 35MPa, iglidur® J plain bearings are not suitable for extreme loads.

- Over 250 sizes available from stock
- High wear resistance
- Low coefficient of friction
- Vibration-dampening
- Chemical-resistant
- Recommended for soft shafts
- Low moisture absorption

Typical application areas

- Automation
- Printing industry
- Beverage industry
- Aerospace engineering
- Cleanroom

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■■	+
Wear resistance at +90°C	–	■■■■■	+
Wear resistance at +150°C	–	■□□□□	+
Slide property	–	■■■■■	+
Wear resistance under water	–	■■■□□	+
Media resistance	–	■■■■□	+
Resistant to edge pressures	–	■■■■□	+
Resistant to shock and impact loads	–	■■■■□	+
Dirt resistance	–	■■■■□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® J
+90°C
35MPa

Technical data

General properties			Testing method
Density	g/cm³	1.49	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	µ	0.06-0.18	
pv value, max. (dry)	MPa · m/s	0.34	
Mechanical properties			
Flexural modulus	MPa	2,400	DIN 53457
Flexural strength at +20°C	MPa	73	DIN 53452
Compressive strength	MPa	60	
Max. permissible surface pressure (+20°C)	MPa	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+120	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-50°C up to +90°C

35MPa

HB

RoHS-II

ISO 3547-1

One main advantage of iglidur® J plain bearings is the combination of a low coefficient of friction in dry operation and the low stickslip tendency.

Moisture absorption

The moisture absorption of iglidur® J plain bearings in ambient conditions is approximately 0.3% weight. The saturation limit submerged in water is 1.3% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J bearings.

Radiation resistance

Plain bearings made from iglidur® J are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® J plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +90°C, the permitted surface pressure still amounts to 20MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
With a maximum recommended surface pressure of 35MPa, iglidur® J plain bearings are not suitable for extreme loads. Diagram 03 shows the elastic deformation of iglidur® J at radial loads.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® J

Permissible surface speeds

The low coefficient of friction and no stick-slip tendency of iglidur® J plain bearings are particularly important at very low speeds. However, iglidur® J can also be used for high speeds of over 1m/s. In both cases the static friction is very low and stick slip does not occur. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

iglidur® J plain bearings can be used between -50°C and +90°C; the short-term maximum permissible temperature is +120°C. Wear increases significantly at temperatures above +80°C. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. With increasing shaft surface finish, the coefficient of friction also increases. For iglidur® J a ground surface with an average surface finish Ra = 0.1-0.3μm is recommended. Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® J. When compared to most other iglidur® materials, iglidur® J plain bearings have very low wear results at low loads compared with all shaft materials tested. Also, for increasing loads up to 5 MPa, the wear resistance of iglidur® J plain bearings is excellent. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® J plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	1.1	8.0
Short-term	m/s	3.0	2.1	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.06-0.18	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

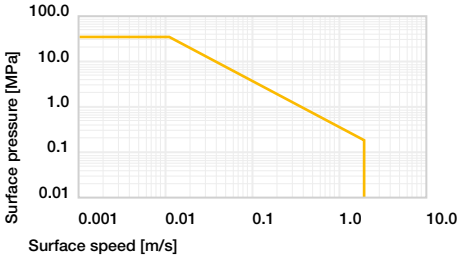


Diagram 01: Permissible pv values for iglidur® J plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

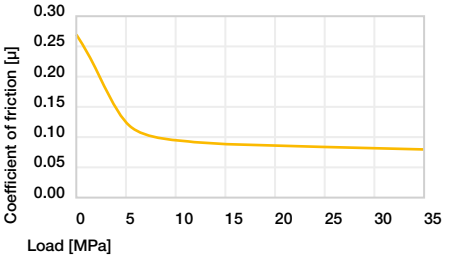


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

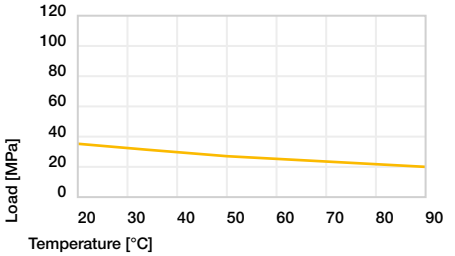


Diagram 02: Maximum recommended surface pressure as a function of temperature (35MPa at +20°C)

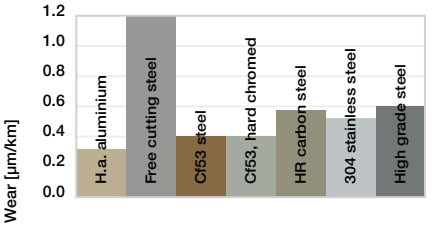


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

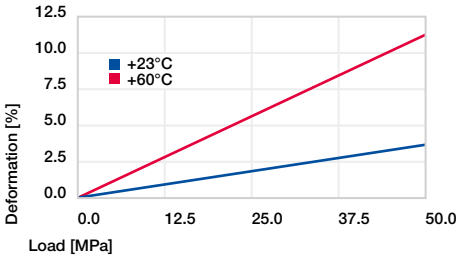


Diagram 03: Deformation under pressure and temperature

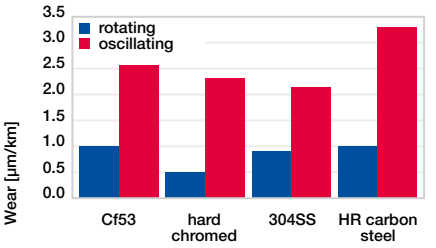


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

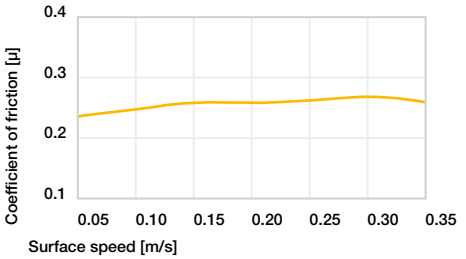
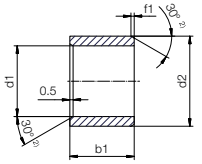


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® J

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: JSM-0104-02 – no minimum order quantity.
J iglidur® material S Cylindrical M Metric 01 Inner Ø d1 04 Outer Ø d2 02 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
1.5	+0.014	4.0	2.0	JSM-0104-02
2.0	+0.054	3.5	7.0	JSM-0203-07
2.0	+0.020	5.0	2.5	JSM-0205-02
2.5	+0.080	6.0	2.5	JSM-0206-02
3.0	+0.014	4.5	5.0	JSM-0304-05
3.0	+0.054	4.5	9.0	JSM-0304-09
3.0		5.0	4.0	JSM-0305-04
3.0	+0.020	7.0	14.0	JSM-0307-14
3.0	+0.080	8.0	4.0	JSM-0308-04
3.0		8.0	5.0	JSM-0308-05
4.0		5.5	4.0	JSM-0405-04
4.0		5.5	6.0	JSM-0405-06
4.0		5.5	8.0	JSM-0405-08
5.0	+0.020	7.0	4.6	JSM-0507-046
5.0	+0.068	7.0	5.0	JSM-0507-05
5.0		7.0	10.0	JSM-0507-10
5.0		7.0	14.0	JSM-0507-14
5.0	+0.020 +0.080	7.0	15.0	JSM-0507-15
5.0	+0.030 +0.105	8.0	5.0	JSM-0508-05
6.0		7.0	3.0	JSM-0607-03
6.0		7.0	5.0	JSM-0607-05
6.0	+0.010	7.0	8.0	JSM-0607-08
6.0	+0.058	7.0	12.5	JSM-0607-12.5
6.0		7.0	14.0	JSM-0607-14
6.0		8.0	4.3	JSM-0608-043
6.0	+0.020	8.0	6.0	JSM-0608-06
6.0	+0.068	8.0	8.0	JSM-0608-08
6.0	+0.020 +0.068	8.0	10.0	JSM-0608-10
6.0	+0.030	9.0	6.0	JSM-0609-06
6.0	+0.105	10.0	10.0	JSM-0610-10
7.0		9.0	5.0	JSM-0709-05
7.0		9.0	7.0	JSM-0709-07
7.0		9.0	9.0	JSM-0709-09
7.0		9.0	12.5	JSM-0709-125
8.0		10.0	3.0	JSM-0810-03
8.0	+0.025	10.0	4.0	JSM-0810-04
8.0	+0.083	10.0	6.0	JSM-0810-06
8.0		10.0	8.0	JSM-0810-08
8.0		10.0	10.0	JSM-0810-10
8.0		10.0	12.0	JSM-0810-12
8.0		10.0	16.0	JSM-0810-16
8.0	+0.040	12.0	10.0	JSM-0812-10
8.0	+0.130	12.0	12.0	JSM-0812-12
9.0		11.0	10.0	JSM-0911-10
10.0		12.0	5.0	JSM-1012-05
10.0		12.0	6.0	JSM-1012-06
10.0		12.0	8.0	JSM-1012-08
10.0	+0.025	12.0	10.0	JSM-1012-10
10.0	+0.083	12.0	11.0	JSM-1012-11
10.0		12.0	12.0	JSM-1012-12
10.0		12.0	15.0	JSM-1012-15
10.0		12.0	20.0	JSM-1012-20
10.0	+0.040	14.0	10.0	JSM-1014-10
10.0	+0.130	14.0	16.0	JSM-1014-16

[3] After press-fit. *Testing methods, page 57*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
12.0		14.0	6.0	JSM-1214-06
12.0		14.0	8.0	JSM-1214-08
12.0		14.0	9.0	JSM-1214-09
12.0	+0.032	14.0	10.0	JSM-1214-10
12.0	+0.102	14.0	12.0	JSM-1214-12
12.0		14.0	15.0	JSM-1214-15
12.0		14.0	20.0	JSM-1214-20
12.0	+0.050	16.0	12.0	JSM-1216-12
12.0	+0.160	16.0	17.0	JSM-1216-17
13.0		15.0	10.0	JSM-1315-10
13.0		15.0	20.0	JSM-1315-20
13.0		16.0	18.5	JSM-1316-185
14.0		16.0	5.0	JSM-1416-05
14.0	+0.032	16.0	8.0	JSM-1416-08
14.0	+0.102	16.0	10.0	JSM-1416-10
14.0		16.0	15.0	JSM-1416-15
14.0		16.0	20.0	JSM-1416-20
14.0		16.0	25.0	JSM-1416-25
14.0		18.0	18.0	JSM-1418-18
14.0	+0.050 +0.160	20.0	20.0	JSM-1420-20
15.0		17.0	6.0	JSM-1517-06
15.0		17.0	10.0	JSM-1517-10
15.0		17.0	12.0	JSM-1517-12
15.0		17.0	15.0	JSM-1517-15
15.0		17.0	20.0	JSM-1517-20
15.0	+0.032	17.0	25.0	JSM-1517-25
15.0	+0.102	18.0	10.0	JSM-1518-10
16.0		18.0	10.0	JSM-1618-10
16.0		18.0	12.0	JSM-1618-12
16.0		18.0	15.0	JSM-1618-15
16.0		18.0	20.0	JSM-1618-20
16.0		18.0	25.0	JSM-1618-25
16.0	+0.050	20.0	16.0	JSM-1620-16
16.0	+0.160	22.0	16.0	JSM-1622-16
16.0		22.0	20.0	JSM-1622-20
17.0		19.0	6.0	JSM-1719-06
18.0		20.0	10.0	JSM-1820-10
18.0	+0.032	20.0	15.0	JSM-1820-15
18.0	+0.102	20.0	20.0	JSM-1820-20
18.0		20.0	25.0	JSM-1820-25
19.0		22.0	14.0	JSM-1922-14
20.0		22.0	20.0	JSM-2022-20
20.0		22.0	30.0	JSM-2022-30
20.0	+0.040	23.0	10.0	JSM-2023-10
20.0	+0.124	23.0	15.0	JSM-2023-15
20.0		23.0	20.0	JSM-2023-20
20.0	+0.020	23.0	25.0	JSM-2023-25
20.0	+0.104	23.0	30.0	JSM-2023-30
20.0		26.0	6.0	JSM-2026-06
20.0	+0.065	26.0	20.0	JSM-2026-20
20.0	+0.195	26.0	25.0	JSM-2026-25
20.0		26.0	30.0	JSM-2026-30
21.0		24.0	12.0	JSM-2124-12
22.0		25.0	15.0	JSM-2225-15
22.0		25.0	20.0	JSM-2225-20
22.0		25.0	25.0	JSM-2225-25
22.0		25.0	30.0	JSM-2225-30
23.0		26.0	12.0	JSM-2326-12
24.0		27.0	15.0	JSM-2427-15
24.0	+0.040	27.0	20.0	JSM-2427-20
24.0	+0.124	27.0	25.0	JSM-2427-25
24.0		27.0	30.0	JSM-2427-30
24.0		27.0	46.0	JSM-2427-46
25.0		28.0	12.0	JSM-2528-12
25.0		28.0	15.0	JSM-2528-15
25.0		28.0	20.0	JSM-2528-20
25.0		28.0	25.0	JSM-2528-25
25.0		28.0	30.0	JSM-2528-30
25.0		28.0	60.0	JSM-2528-60
25.0		30.0	40.0	JSM-2530-40
25.0	+0.065	32.0	25.0	JSM-2532-25
25.0	+0.195	32.0	32.0	JSM-2532-32
25.0		32.0	35.0	JSM-2532-35
26.0		30.0	20.0	JSM-2630-20
27.0	+0.040 +0.124	30.0	20.0	JSM-2730-20
28.0		32.0	20.0	JSM-2832-20
28.0	+0.065	32.0	25.0	JSM-2832-25
28.0	+0.195	32.0	30.0	JSM-2832-30
30.0		34.0	20.0	JSM-3034-20
30.0	+0.040	34.0	25.0	JSM-3034-25
30.0	+0.124	34.0	30.0	JSM-3034-30
30.0		34.0	40.0	JSM-3034-40
30.0	+0.065 +0.195	38.0	40.0	JSM-3038-40
32.0		36.0	20.0	JSM-3236-20
32.0		36.0	30.0	JSM-3236-30
32.0		36.0	40.0	JSM-3236-40
32.0		37.0	25.0	JSM-3237-25
32.0	+0.050	38.0	50.0	JSM-3238-50
35.0	+0.150	39.0	20.0	JSM-3539-20
35.0		39.0	30.0	JSM-3539-30
35.0		39.0	40.0	JSM-3539-40
35.0		39.0	50.0	JSM-3539-50

[3] After press-fit. *Testing methods, page 57*

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d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
36.0		40.0	45.0	**JSM-3640-45**
40.0		44.0	20.0	**JSM-4044-20**
40.0	+0.050	44.0	30.0	**JSM-4044-30**
40.0	+0.150	44.0	35.0	**JSM-4044-35**
40.0		44.0	40.0	**JSM-4044-40**
40.0		44.0	50.0	**JSM-4044-50**
42.0	+0.080 +0.240	46.0	73.0	**JSM-4246-73**
45.0		50.0	20.0	**JSM-4550-20**
45.0	+0.025	50.0	30.0	**JSM-4550-30**
45.0	+0.125	50.0	40.0	**JSM-4550-40**
45.0		50.0	50.0	**JSM-4550-50**
50.0		55.0	20.0	**JSM-5055-20**
50.0	+0.050	55.0	30.0	**JSM-5055-30**
50.0	+0.150	55.0	40.0	**JSM-5055-40**
50.0		55.0	50.0	**JSM-5055-50**
50.0		55.0	60.0	**JSM-5055-60**
55.0		60.0	60.0	**JSM-5560-60**
60.0		65.0	60.0	**JSM-6065-60**
65.0	+0.060	70.0	50.0	**JSM-6570-50**
70.0	+0.180	75.0	60.0	**JSM-7075-60**
75.0		80.0	60.0	**JSM-7580-60**
80.0		85.0	100.0	**JSM-8085-100**
80.0		86.0	60.0	**JSM-8086-60**
100.0	+0.072	105.0	100.0	**JSM-100105-100**
110.0	+0.212	115.0	60.0	**JSM-110115-60**

[3] After press-fit. *Testing methods, page 57*

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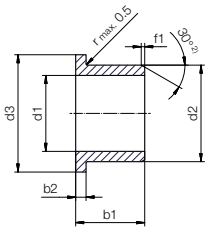
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1-9	50-99	500-999
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No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: JFM-0304-03 **– no minimum order quantity.**
J iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0	+0.014	4.5	7.5	3.0	0.75	**JFM-0304-03**
3.0	+0.054	4.5	7.5	4.5	0.75	**JFM-0304-045**
3.0		4.5	7.5	5.0	0.75	**JFM-0304-05**
3.0	+0.020 +0.080	6.0	9.0	10.0	1.50	**JFM-0306-10**
4.0		5.5	9.5	3.0	0.75	**JFM-0405-03**
4.0		5.5	9.5	6.0	0.75	**JFM-0405-06**
5.0		6.0	10.0	5.0	0.50	**JFM-0506-05**
5.0	+0.020	7.0	11.0	3.0	1.00	**JFM-0507-03**
5.0	+0.068	7.0	11.0	5.0	1.00	**JFM-0507-05**
6.0		8.0	12.0	4.0	1.00	**JFM-0608-04**
6.0		8.0	12.0	6.0	1.00	**JFM-0608-06**
6.0		8.0	12.0	8.0	1.00	**JFM-0608-08**
6.0		8.0	12.0	10.0	1.00	**JFM-0608-10**
6.0	+0.030 +0.105	10.0	14.0	10.0	2.00	**JFM-0610-10**
8.0		10.0	15.0	3.8	1.00	**JFM-0810-038**
8.0		10.0	15.0	5.0	1.00	**JFM-0810-05**
8.0		10.0	15.0	6.0	1.00	**JFM-0810-06**
8.0		10.0	15.0	7.0	1.00	**JFM-0810-07**
8.0		10.0	15.0	8.0	1.00	**JFM-0810-08**
8.0	+0.025	10.0	15.0	9.5	1.00	**JFM-0810-09**
8.0	+0.083	10.0	15.0	10.0	1.00	**JFM-0810-10**
8.0		10.0	12.5	10.0	1.00	**JFM-0810125-10**
8.0		10.0	14.0	10.0	1.00	**JFM-081014-10**
8.0		10.0	16.0	11.0	2.00	**JFM-081016-11**
8.0		10.0	12.0	16.0	1.00	**JFM-081012-16**
8.0	+0.025 +0.115	12.0	16.0	6.0	2.00	**JFM-0812-06**
8.0		12.0	16.0	9.0	2.00	**JFM-0812-09**
10.0		12.0	15.0	3.5	1.00	**JFM-101215-035**
10.0		12.0	18.0	5.0	1.00	**JFM-1012-05**
10.0		12.0	18.0	7.0	1.00	**JFM-1012-07**
10.0		12.0	18.0	9.0	1.00	**JFM-1012-09**
10.0	+0.025	12.0	18.0	10.0	1.00	**JFM-1012-10**
10.0	+0.083	12.0	18.0	12.0	1.00	**JFM-1012-12**
10.0		12.0	18.0	15.0	1.00	**JFM-1012-15**
10.0		12.0	18.0	17.0	1.00	**JFM-1012-17**
10.0		12.0	18.0	18.0	1.00	**JFM-1012-18**
10.0		14.0	17.5	14.0	1.00	**JFM-1014-14**
10.0	+0.040	16.0	22.0	10.0	3.00	**JFM-1016-10**
10.0	+0.130	16.0	22.0	16.0	3.00	**JFM-1016-16**
11.0		13.0	18.0	5.0	1.00	**JFM-1113-05**
12.0		14.0	20.0	4.0	1.00	**JFM-1214-04**
12.0		14.0	18.0	4.5	1.00	**JFM-121418-045**
12.0		14.0	20.0	5.0	1.00	**JFM-1214-05**
12.0	+0.032	14.0	20.0	7.0	1.00	**JFM-1214-07**
12.0	+0.102	14.0	20.0	9.0	1.00	**JFM-1214-09**
12.0		14.0	18.0	10.0	1.00	**JFM-121418-10**
12.0		14.0	20.0	12.0	1.00	**JFM-1214-12**
12.0		14.0	20.0	15.0	1.00	**JFM-1214-15**
12.0		14.0	20.0	17.0	1.00	**JFM-1214-17**
12.0	+0.050	18.0	24.0	8.0	3.00	**JFM-1218-08**
12.0	+0.160	18.0	24.0	12.0	3.00	**JFM-1218-12**

[3] After press-fit. *Testing methods, page 61*

Bearing technology | Plain bearings | iglidur® J

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
12.0	+0.050 +0.160	18.0	22.0	20.0	3.00	**JFM-1218-20**
14.0		16.0	22.0	3.0	1.00	**JFM-1416-03**
14.0		16.0	22.0	10.0	1.00	**JFM-1416-10**
14.0		16.0	22.0	12.0	1.00	**JFM-1416-12**
14.0		16.0	22.0	17.0	1.00	**JFM-1416-17**
14.0		18.0	22.0	20.0	2.00	**JFM-141822-20**
14.0	+0.032 +0.102	18.0	25.0	24.0	2.00	**JFM-141825-24**
15.0		17.0	23.0	4.0	1.00	**JFM-1517-04**
15.0		17.0	23.0	5.5	1.00	**JFM-1517-055**
15.0		17.0	23.0	9.0	1.00	**JFM-1517-09**
15.0		17.0	23.0	12.0	1.00	**JFM-1517-12**
15.0		17.0	23.0	17.0	1.00	**JFM-1517-17**
15.0	+0.050 +0.160	21.0	27.0	20.0	3.00	**JFM-1521-20**
16.0		18.0	24.0	6.0	1.00	**JFM-1618-06**
16.0	+0.032	18.0	24.0	12.0	1.00	**JFM-1618-12**
16.0	+0.102	18.0	24.0	16.0	1.00	**JFM-1618-16**
16.0		18.0	24.0	17.0	1.00	**JFM-1618-17**
16.0	+0.050	22.0	28.0	12.0	3.00	**JFM-1622-12**
16.0	+0.160	22.0	28.0	15.0	3.00	**JFM-1622-15**
17.0		19.0	25.0	9.0	1.00	**JFM-1719-09**
17.0		19.0	25.0	21.0	1.00	**JFM-1719-21**
18.0		20.0	26.0	4.0	1.00	**JFM-1820-04**
18.0		20.0	26.0	12.0	1.00	**JFM-1820-12**
18.0	+0.032 +0.102	20.0	26.0	17.0	1.00	**JFM-1820-17**
18.0		20.0	26.0	22.0	1.00	**JFM-1820-22**
18.0		21.0	25.0	12.0	1.00	**JFM-1821-12**
19.0		22.0	26.0	23.0	1.00	**JFM-1922-23**
19.0		22.0	26.0	36.0	1.00	**JFM-1922-36**
20.0		23.0	30.0	11.5	1.50	**JFM-2023-11**
20.0	+0.040	23.0	30.0	15.5	1.50	**JFM-2023-15.5**
20.0	+0.124	23.0	30.0	16.5	1.50	**JFM-2023-16**
20.0		23.0	30.0	21.5	1.50	**JFM-2023-21**
20.0		26.0	32.0	15.0	3.00	**JFM-2026-15**
20.0	+0.065 +0.195	26.0	32.0	20.0	3.00	**JFM-2026-20**
20.0		26.0	32.0	25.0	3.00	**JFM-2026-25**
22.0	+0.040	25.0	32.0	8.0	1.50	**JFM-222532-08**
24.0	+0.124	30.0	36.0	30.0	3.00	**JFM-2430-30**
25.0		28.0	39.0	5.0	1.50	**JFM-252839-05**
25.0		28.0	35.0	6.0	1.50	**JFM-2528-06**
25.0		28.0	39.0	7.5	1.50	**JFM-252839-075**
25.0	+0.040 +0.124	28.0	35.0	11.5	1.50	**JFM-2528-11**
25.0		28.0	35.0	12.0	1.50	**JFM-2528-12**
25.0		28.0	35.0	14.5	1.50	**JFM-2528-14.5**
25.0		28.0	35.0	21.5	1.50	**JFM-2528-21**
25.0		32.0	38.0	20.0	4.00	**JFM-2532-20**
25.0	+0.065 +0.195	32.0	38.0	25.0	4.00	**JFM-2532-25**
28.0		32.0	35.0	7.0	2.00	**JFM-283235-07**
28.0		32.0	39.0	20.0	2.00	**JFM-283239-20**
30.0		32.0	40.0	12.0	1.00	**JFM-303240-12**
30.0	+0.040 +0.124	34.0	42.0	16.0	2.00	**JFM-3034-16**
30.0		34.0	42.0	20.0	2.00	**JFM-3034-20**
30.0		34.0	42.0	26.0	2.00	**JFM-3034-26**
30.0	+0.080 +0.240	38.0	44.0	20.0	4.00	**JFM-3038-20**
30.0	+0.065	38.0	44.0	30.0	4.00	**JFM-3038-30**
30.0	+0.195	38.0	44.0	36.0	4.00	**JFM-3038-36**
35.0		39.0	47.0	12.0	2.00	**JFM-3539-12**
35.0		39.0	47.0	16.0	2.00	**JFM-3539-16**
35.0		39.0	47.0	26.0	2.00	**JFM-3539-26**
40.0		44.0	52.0	20.0	2.00	**JFM-4044-20**
40.0		44.0	52.0	30.0	2.00	**JFM-4044-30**
40.0	+0.050 +0.150	44.0	52.0	40.0	2.00	**JFM-4044-40**
45.0		50.0	58.0	12.0	2.00	**JFM-4550-12**
45.0		50.0	58.0	20.0	2.00	**JFM-4550-20**
45.0		50.0	58.0	50.0	2.00	**JFM-4550-50**
50.0		55.0	63.0	11.5	2.00	**JFM-5055-115**
50.0		55.0	63.0	50.0	2.00	**JFM-5055-50**
55.0		60.0	68.0	50.0	2.00	**JFM-5560-50**
60.0	+0.060 +0.180	65.0	73.0	37.0	2.00	**JFM-6065-37**
60.0		65.0	73.0	50.0	2.00	**JFM-6065-50**
60.0		70.0	78.0	60.0	2.00	**JFM-6570-60**
70.0		75.0	83.0	50.0	2.00	**JFM-7075-50**
90.0		95.0	103.0	100.0	2.50	**JFM-9095-100**
100.0	+0.072	105.0	113.0	100.0	2.50	**JFM-100105-100**
110.0	+0.212	115.0	123.0	100.0	2.50	**JFM-110115-100**
120.0		125.0	133.0	100.0	2.50	**JFM-120125-100**

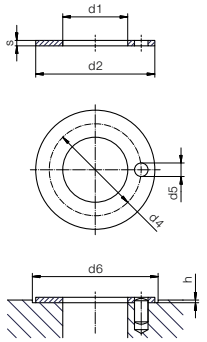
[3] After press-fit. *Testing methods, page 61*

iglidur® J
+90°C
35MPa

Bearing technology | Plain bearings | iglidur® J

Thrust washer (form T)





Dimensions according to ISO 3547-1 and special dimensions

Order example: JTM-1224-015 **– no minimum order quantity.**
J iglidur® material T Thrust washer M Metric 12 Inner Ø d1 24 Outer Ø d2 015 Height s

d1 +0.25 [mm]	d2 -0.25 [mm]	d4 -0.12 +0.12 [mm]	d5 +0.375 +0.125 [mm]	h +0.2/-0.2 [mm]	d6 +0.12 [mm]	Øs -0.05 [mm]	Part No.
12	24	18	1.5	1	24	1.5	**JTM-1224-015**
12	34	[4]	[4]	1	34	1.5	**JTM-1234-015**
14	20	[4]	[4]	1	20	1.5	**JTM-1420-015**
20	36	28	3	1	36	1.5	**JTM-2036-015**
28	42	35	3	1	42	2	**JTM-2842-020**
30	39	[4]	[4]	1	39	1.5	**JTM-3039-015**
56	70	[4]	[4]	0.7	70	1	**JTM-5670-010**
139	188	[4]	[4]	1.5	188	2	**JTM-139188-020**

[4] **Design without fixing hole**

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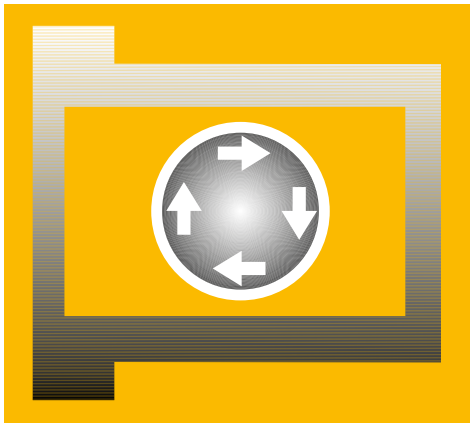
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10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





The classic endurance runner up to 30MPa

Excellent wear resistance on (virtually) all shafts

iglidur® W300

When to use it?

- When especially long service life is necessary
- When low coefficient of dynamic friction and high wear resistance are required
- For use on 304 stainless steel shafts
- For harsh environments and rough shafts
- Dirt-resistant

When not to use it?

- For high loads starting at 50MPa
  iglidur® Q
- When temperatures are constantly higher than +90 °C
  iglidur® H, iglidur® X
- For very wet environments
  iglidur® P
- When a cost-effective plain bearing is required
  iglidur® G

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Bearing technology | Plain bearings | iglidur® W300

Ø
2.0-120.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 845

The classic endurance runner up to 30MPa
Excellent wear resistance on (virtually) all shafts

iglidur® W300 gives excellent wear resistance, even in harsh environments or when used with rough shafts. Of all iglidur® materials, iglidur® W300 is the most resistant to these conditions.

- Over 400 sizes available from stock
- Very long service life
- Low coefficient of friction
- Low coefficient of friction
- Very wear-resistant
- Suitable for applications with soft shafts
- Lubrication-free
- Maintenance-free

Typical application areas

- Automation
- Printing industry
- Woodworking
- Mechatronics
- Test engineering and quality assurance

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■■	+
Wear resistance at +90°C	–	■■■■■	+
Wear resistance at +150°C	–	■□□□□	+
Slide property	–	■■■■□	+
Wear resistance under water	–	■□□□□	+
Media resistance	–	■■□□□	+
Resistant to edge pressures	–	■■■■■	+
Resistant to shock and impact loads	–	■■■■■	+
Dirt resistance	–	■■■■□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® W300
+90°C
60MPa

Technical data

General properties			Testing method
Density	g/cm³	1.24	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.3	DIN 53495
Max. moisture absorption	% weight	6.5	
Coefficient of friction, dynamic, against steel	µ	0.08 -0.23	
pv value, max. (dry)	MPa · m/s	0.23	
Mechanical properties			
Flexural modulus	MPa	3,500	DIN 53457
Flexural strength at +20°C	MPa	125	DIN 53452
Compressive strength	MPa	61	
Max. permissible surface pressure (+20°C)	MPa	60	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+180	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-40°C up to +90°C

60MPa

HB

RoHS-II

ISO 3547-1

iglidur® W300 gives excellent wear resistance, even in harsh environments or when used with rough shafts. This material is the most tolerant of these external effects out of all the iglidur® range.

Moisture absorption

The moisture absorption of iglidur® W300 plain bearings in ambient conditions is approximately 1.3% weight. The saturation limit submerged in water is 6.5% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® W300 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® W300 plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® W300 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
iglidur® W300 shows a very high compressive strength despite high elasticity. Diagram 03 shows the elastic deformation of iglidur® W300 at radial loads. At the maximum recommended surface pressure of 60MPa, the deformation is less than 3%.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® W300

Permissible surface speeds

Even at higher surface speeds, the coefficient of friction of iglidur® W300 plain bearings do not increase. In relation to other materials, therefore, somewhat higher surface speeds can be attained, for example, up to 1.5m/s rotating and up to 6m/s linear. The wear remains low when used for long periods at high speeds, due to exceptional wear resistance. Very high speeds can be attained with iglidur® W300 bearings on hardened shafts that are not too smooth.

Surface speed, page 48

Temperature

iglidur® W300 bearings retain their exceptional wear resistance even up to the highest permissible application temperatures and at the same time resist becoming brittle at low temperatures. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. In contrast to other iglidur® materials, the coefficient of friction of iglidur® W300 remains consistently low at higher rotational speeds.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. Smooth shafts have the danger of stick slip. Squeaking as an effect of stick-slip is usually the result of shafts that are too smooth. Shaft finishes of Ra = 0.4-0.5μm have proven best. For iglidur® W300, the wear resistance is still excellent with this surface finish as the friction adopts the minimum value. Diagram 06 shows results of testing different shafts. Hardened shafts are preferred for applications for higher loads. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® W300 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	4.0
Short-term	m/s	1.5	1.8	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08 -0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® W300
+90°C
60MPa

Technical data

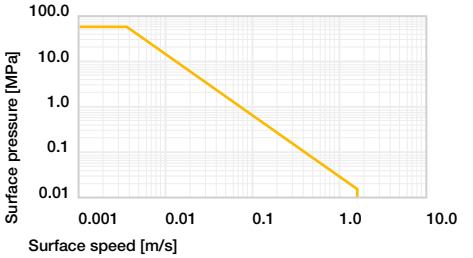


Diagram 01: Permissible pv values for iglidur® W300 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

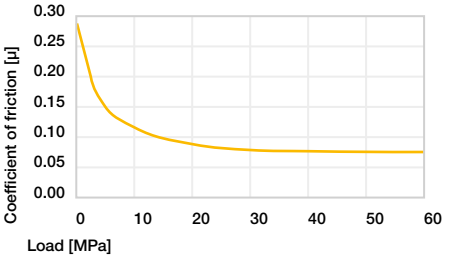


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

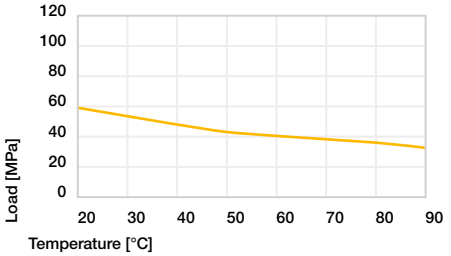


Diagram 02: Maximum recommended surface pressure as a function of temperature (60MPa at +20°C)

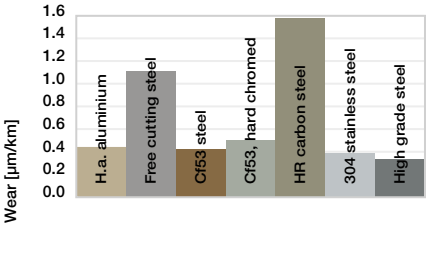


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

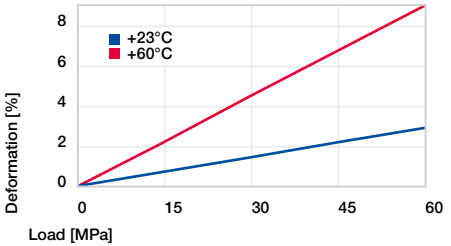


Diagram 03: Deformation under pressure and temperature

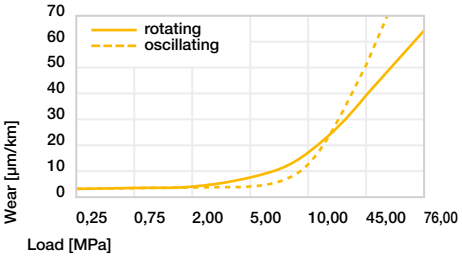


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

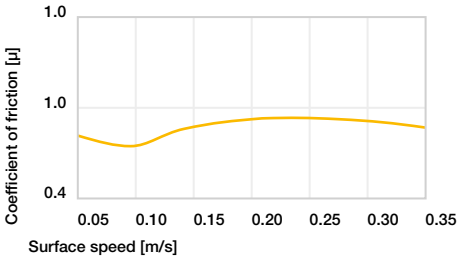
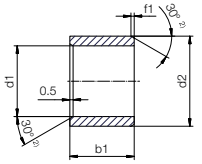


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® W300

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: WSM-0203-03 **– no minimum order quantity.**
W300 iglidur® material S Cylindrical M Metric 02 Inner Ø d1 03 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
2.0		3.5	3.0	**WSM-0203-03**
2.5		4.0	1.8	**WSM-0204-018**
2.5	+0.014	4.0	3.0	**WSM-0204-03**
3.0	+0.054	4.5	3.0	**WSM-0304-03**
3.0		4.5	5.0	**WSM-0304-05**
3.0		4.5	6.0	**WSM-0304-06**
4.0		5.5	4.0	**WSM-0405-04**
4.0		5.5	6.0	**WSM-0405-06**
4.0		5.5	8.0	**WSM-0405-08**
4.0	+0.020	5.5	10.0	**WSM-0405-10**
5.0	+0.068	7.0	5.0	**WSM-0507-05**
5.0		7.0	8.0	**WSM-0507-08**
5.0		7.0	10.0	**WSM-0507-10**
6.0	+0.010	7.0	14.0	**WSM-0607-14**
	+0.058			
6.0		8.0	6.0	**WSM-0608-06**
6.0		8.0	8.0	**WSM-0608-08**
6.0	+0.020	8.0	9.5	**WSM-0608-09**
6.0	+0.068	8.0	10.0	**WSM-0608-10**
6.0		8.0	11.8	**WSM-0608-11**
6.0		8.0	13.8	**WSM-0608-13**
7.0		9.0	9.0	**WSM-0709-09**
7.0		9.0	12.0	**WSM-0709-12**
7.0		9.0	12.5	**WSM-0709-125**
8.0	+0.025	10.0	6.0	**WSM-0810-06**
8.0	+0.083	10.0	8.0	**WSM-0810-08**
8.0		10.0	10.0	**WSM-0810-10**
8.0		10.0	12.0	**WSM-0810-12**
8.0		10.0	13.8	**WSM-0810-13**
8.0		10.0	15.0	**WSM-0810-15**
8.0		10.0	16.0	**WSM-0810-16**
8.0		10.0	20.0	**WSM-0810-20**
8.0		10.0	21.0	**WSM-0810-21**
9.0		11.0	6.0	**WSM-0911-06**
10.0		12.0	4.0	**WSM-1012-04**
10.0		12.0	6.0	**WSM-1012-06**
10.0	+0.025	12.0	8.0	**WSM-1012-08**
10.0	+0.083	12.0	9.0	**WSM-1012-09**
10.0		12.0	10.0	**WSM-1012-10**
10.0		12.0	12.0	**WSM-1012-12**
10.0		12.0	15.0	**WSM-1012-15**
10.0		12.0	17.0	**WSM-1012-17**
10.0		12.0	20.0	**WSM-1012-20**
10.0		12.0	25.5	**WSM-1012-25.5**
11.0		13.0	8.0	**WSM-1113-08**
12.0		14.0	4.0	**WSM-1214-04**
12.0		14.0	5.0	**WSM-1214-05**
12.0		14.0	6.0	**WSM-1214-06**
12.0		14.0	8.0	**WSM-1214-08**
12.0		14.0	10.0	**WSM-1214-10**
12.0	+0.032	14.0	12.0	**WSM-1214-12**
12.0	+0.102	14.0	15.0	**WSM-1214-15**
12.0		14.0	20.0	**WSM-1214-20**
12.0		14.0	25.0	**WSM-1214-25**
13.0		15.0	7.0	**WSM-1315-07**
13.0		15.0	10.0	**WSM-1315-10**
13.0		15.0	15.0	**WSM-1315-15**
13.0		15.0	20.0	**WSM-1315-20**

[3] After press-fit. *Testing methods, page 61*

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iglidur® W300
+90°C
60MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
14.0		16.0	7.2	**WSM-1416-07**
14.0		16.0	10.0	**WSM-1416-10**
14.0		16.0	15.0	**WSM-1416-15**
14.0		16.0	20.0	**WSM-1416-20**
14.0		16.0	25.0	**WSM-1416-25**
14.0		16.0	33.0	**WSM-1416-33**
15.0		17.0	10.0	**WSM-1517-10**
15.0		17.0	15.0	**WSM-1517-15**
15.0		17.0	20.0	**WSM-1517-20**
15.0		17.0	25.0	**WSM-1517-25**
16.0		18.0	7.0	**WSM-1618-07**
16.0		18.0	8.0	**WSM-1618-08**
16.0	+0.032	18.0	11.5	**WSM-1618-11**
16.0	+0.102	18.0	12.0	**WSM-1618-12**
16.0		18.0	15.0	**WSM-1618-15**
16.0		18.0	20.0	**WSM-1618-20**
16.0		18.0	25.0	**WSM-1618-25**
16.0		18.0	30.0	**WSM-1618-30**
16.0		18.0	35.0	**WSM-1618-35**
16.0		18.0	45.0	**WSM-1618-45**
18.0		20.0	12.0	**WSM-1820-12**
18.0		20.0	15.0	**WSM-1820-15**
18.0		20.0	20.0	**WSM-1820-20**
18.0		20.0	25.0	**WSM-1820-25**
18.0		20.0	33.0	**WSM-1820-33**
18.0		20.0	35.0	**WSM-1820-35**
19.0		22.0	28.0	**WSM-1922-28**
20.0		22.0	11.5	**WSM-2022-11**
20.0		22.0	12.0	**WSM-2022-12**
20.0		22.0	15.0	**WSM-2022-15**
20.0		22.0	20.0	**WSM-2022-20**
20.0		22.0	30.0	**WSM-2022-30**
20.0		23.0	8.0	**WSM-2023-08**
20.0		23.0	10.0	**WSM-2023-10**
20.0		23.0	12.0	**WSM-2023-12**
20.0		23.0	15.0	**WSM-2023-15**
20.0	+0.040	23.0	20.0	**WSM-2023-20**
20.0	+0.124	23.0	23.0	**WSM-2023-23**
20.0		23.0	25.0	**WSM-2023-25**
20.0		23.0	30.0	**WSM-2023-30**
22.0		24.0	15.0	**WSM-2224-15**
22.0		24.0	20.0	**WSM-2224-20**
22.0		24.0	30.0	**WSM-2224-30**
22.0		24.0	35.0	**WSM-2224-35**
22.0		24.0	45.0	**WSM-2224-45**
22.0		25.0	15.0	**WSM-2225-15**
22.0		25.0	20.0	**WSM-2225-20**
22.0		25.0	25.0	**WSM-2225-25**
22.0		25.0	30.0	**WSM-2225-30**
24.0		27.0	15.0	**WSM-2427-15**
24.0		27.0	20.0	**WSM-2427-20**
24.0		27.0	25.0	**WSM-2427-25**
24.0		27.0	30.0	**WSM-2427-30**
25.0		28.0	12.0	**WSM-2528-12**
25.0		28.0	14.0	**WSM-2528-14**
25.0		28.0	15.0	**WSM-2528-15**
25.0		28.0	20.0	**WSM-2528-20**
25.0		28.0	25.0	**WSM-2528-25**
25.0		28.0	30.0	**WSM-2528-30**
25.0		28.0	50.0	**WSM-2528-50**
26.0		30.0	16.0	**WSM-2630-16**
26.0	+0.040	30.0	25.0	**WSM-2630-25**
28.0	+0.124	30.0	10.0	**WSM-2830-10**
28.0		31.0	10.0	**WSM-2831-10**
28.0		32.0	20.0	**WSM-2832-20**
28.0		32.0	25.0	**WSM-2832-25**
28.0		32.0	30.0	**WSM-2832-30**
30.0		34.0	16.0	**WSM-3034-16**
30.0		34.0	20.0	**WSM-3034-20**
30.0		34.0	24.0	**WSM-3034-24**
30.0		34.0	25.0	**WSM-3034-25**
30.0		34.0	30.0	**WSM-3034-30**
30.0		34.0	36.0	**WSM-3034-36**
30.0		34.0	38.0	**WSM-3034-38**
30.0		34.0	40.0	**WSM-3034-40**
30.0		34.0	45.0	**WSM-3034-45**
30.0		34.0	47.0	**WSM-3034-47**
32.0		36.0	20.0	**WSM-3236-20**
32.0		36.0	25.0	**WSM-3236-25**
32.0		36.0	30.0	**WSM-3236-30**
32.0		36.0	40.0	**WSM-3236-40**
35.0		39.0	20.0	**WSM-3539-20**
35.0		39.0	30.0	**WSM-3539-30**
35.0		39.0	40.0	**WSM-3539-40**
35.0		39.0	50.0	**WSM-3539-50**
35.0		40.0	7.0	**WSM-3540-07**
40.0	+0.050	44.0	20.0	**WSM-4044-20**
40.0	+0.150	44.0	30.0	**WSM-4044-30**
40.0		44.0	40.0	**WSM-4044-40**
40.0		44.0	50.0	**WSM-4044-50**
45.0		50.0	20.0	**WSM-4550-20**
45.0		50.0	30.0	**WSM-4550-30**
45.0		50.0	40.0	**WSM-4550-40**
45.0		50.0	50.0	**WSM-4550-50**
50.0		55.0	20.0	**WSM-5055-20**
50.0		55.0	30.0	**WSM-5055-30**

[3] After press-fit. *Testing methods, page 61*

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d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
50.0		55.0	40.0	**WSM-5055-40**
50.0	+0.050	55.0	50.0	**WSM-5055-50**
50.0	+0.150	55.0	55.0	**WSM-5055-55**
50.0		55.0	60.0	**WSM-5055-60**
55.0		60.0	40.0	**WSM-5560-40**
55.0	+0.060	60.0	60.0	**WSM-5560-60**
60.0	+0.180	65.0	30.0	**WSM-6065-30**
60.0		65.0	60.0	**WSM-6065-60**

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
65.0		70.0	60.0	**WSM-6570-60**
70.0	+0.060	75.0	60.0	**WSM-7075-60**
75.0	+0.180	80.0	100.0	**WSM-7580-100**
80.0		85.0	20.0	**WSM-8085-20**
80.0		85.0	100.0	**WSM-8085-100**
90.0	+0.072	95.0	100.0	**WSM-9095-100**
100.0	+0.212	105.0	100.0	**WSM-100105-100**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/W300

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

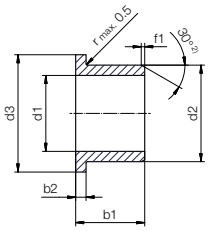
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iglidur® W300
+90°C
60MPa

Bearing technology | Plain bearings | iglidur® W300

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: WFM-0204-03 – no minimum order quantity.
W300 iglidur® material F With flange M Metric 02 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
2.5		4.0	6.5	3.0	0.75	**WFM-0204-03**
3.0	+0.014 +0.054	4.5	7.5	3.0	0.75	**WFM-0304-03**
3.0		4.5	7.5	5.0	0.75	**WFM-0304-05**
4.0		5.5	9.5	3.0	0.75	**WFM-0405-03**
4.0	+0.020 +0.068	5.5	9.5	4.0	0.75	**WFM-0405-04**
4.0		5.5	9.5	6.0	0.75	**WFM-0405-06**
5.0	+0.010 +0.040	6.0	10.0	8.0	0.50	**WFM-0506-08**
5.0		7.0	11.0	4.0	1.00	**WFM-0507-04**
5.0		7.0	11.0	5.0	1.00	**WFM-0507-05**
6.0		8.0	12.0	4.0	1.00	**WFM-0608-04**
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**WFM-0608-06**
6.0		8.0	12.0	8.0	1.00	**WFM-0608-08**
6.0		8.0	12.0	10.0	1.00	**WFM-0608-10**
6.0		8.0	12.0	15.0	1.00	**WFM-0608-15**
7.0		9.0	15.0	10.0	1.00	**WFM-0709-10**
7.0		9.0	15.0	12.0	1.00	**WFM-0709-12**
8.0		10.0	15.0	2.7	1.00	**WFM-0810-02**
8.0		10.0	15.0	4.0	1.00	**WFM-0810-04**
8.0		10.0	15.0	5.0	1.00	**WFM-081015-05**
8.0		10.0	15.0	5.5	1.00	**WFM-0810-05**
8.0	+0.025 +0.083	10.0	15.0	7.5	1.00	**WFM-0810-07**
8.0		10.0	15.0	9.5	1.00	**WFM-0810-09**
8.0		10.0	15.0	10.0	1.00	**WFM-0810-10**
8.0		10.0	15.0	23.0	1.00	**WFM-0810-23**
8.0		10.0	15.0	30.0	1.00	**WFM-0810-30**
10.0		12.0	18.0	4.0	1.00	**WFM-1012-04**
10.0		12.0	18.0	5.0	1.00	**WFM-1012-05**

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
10.0		12.0	18.0	6.0	1.00	**WFM-1012-06**
10.0		12.0	18.0	7.0	1.00	**WFM-1012-07**
10.0		12.0	18.0	9.0	1.00	**WFM-1012-09**
10.0	+0.025 +0.083	12.0	18.0	10.0	1.00	**WFM-1012-10**
10.0		12.0	18.0	12.0	1.00	**WFM-1012-12**
10.0		12.0	18.0	15.0	1.00	**WFM-1012-15**
10.0		12.0	18.0	17.0	1.00	**WFM-1012-17**
12.0		14.0	20.0	4.0	1.00	**WFM-1214-04**
12.0		14.0	20.0	4.4	1.00	**WFM-1214-044**
12.0		14.0	20.0	6.0	1.00	**WFM-1214-06**
12.0		14.0	20.0	7.0	1.00	**WFM-1214-07**
12.0		14.0	20.0	9.0	1.00	**WFM-1214-09**
12.0		14.0	20.0	10.0	1.00	**WFM-1214-10**
12.0		14.0	20.0	11.0	1.00	**WFM-1214-11**
12.0		14.0	20.0	12.0	1.00	**WFM-1214-12**
12.0		14.0	20.0	15.0	1.00	**WFM-1214-15**
12.0		14.0	20.0	17.0	1.00	**WFM-1214-17**
12.0	+0.032 +0.102	14.0	20.0	20.0	1.00	**WFM-1214-20**
13.0		15.0	22.0	6.0	1.00	**WFM-1315-06**
14.0		16.0	22.0	4.0	1.00	**WFM-1416-04**
14.0		16.0	22.0	5.0	1.00	**WFM-1416-05**
14.0		16.0	22.0	8.0	1.00	**WFM-1416-08**
14.0		16.0	22.0	12.0	1.00	**WFM-1416-12**
14.0		16.0	22.0	17.0	1.00	**WFM-1416-17**
14.0		16.0	22.0	29.0	1.00	**WFM-1416-29**
15.0		17.0	23.0	9.0	1.00	**WFM-1517-09**
15.0		17.0	23.0	12.0	1.00	**WFM-1517-12**
15.0		17.0	23.0	17.0	1.00	**WFM-1517-17**

[3] After press-fit. *Testing methods, page 61*

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Bearing technology | Plain bearings | iglidur® W300

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
15.0		17.0	23.0	20.0	1.00	**WFM-1517-20**
16.0		18.0	24.0	9.0	1.00	**WFM-1618-09**
16.0		18.0	24.0	12.0	1.00	**WFM-1618-12**
16.0		18.0	24.0	17.0	1.00	**WFM-1618-17**
17.0	+0.032	19.0	25.0	12.0	1.00	**WFM-1719-12**
17.0	+0.102	19.0	25.0	18.0	1.00	**WFM-1719-18**
17.0		19.0	25.0	25.0	1.00	**WFM-1719-25**
18.0		20.0	26.0	6.0	1.00	**WFM-1820-06**
18.0		20.0	26.0	12.0	1.00	**WFM-1820-12**
18.0		20.0	26.0	17.0	1.00	**WFM-1820-17**
18.0		20.0	26.0	22.0	1.00	**WFM-1820-22**
20.0		23.0	30.0	8.0	1.50	**WFM-2023-08**
20.0		23.0	30.0	8.5	1.50	**WFM-2023-085**
20.0		23.0	30.0	11.5	1.50	**WFM-2023-11**
20.0		23.0	30.0	14.5	1.50	**WFM-2023-14**
20.0		23.0	30.0	16.5	1.50	**WFM-2023-16**
20.0		23.0	30.0	21.5	1.50	**WFM-2023-21**
24.0	+0.040	27.0	32.0	10.5	1.50	**WFM-2427-10**
25.0	+0.124	28.0	35.0	11.5	1.50	**WFM-2528-11**
25.0		28.0	31.0	13.5	1.50	**WFM-252831-13**
25.0		28.0	35.0	16.5	1.50	**WFM-2528-16**
25.0		28.0	35.0	21.5	1.50	**WFM-2528-21**
25.0		28.0	32.0	30.0	1.50	**WFM-2528-30**
28.0		30.0	35.0	36.0	1.00	**WFM-2830-36**
30.0		34.0	42.0	10.0	2.00	**WFM-3034-10**
30.0		34.0	42.0	16.0	2.00	**WFM-3034-16**
30.0	+0.040	34.0	42.0	26.0	2.00	**WFM-3034-26**
30.0	+0.124	34.0	42.0	37.0	2.00	**WFM-3034-37**
32.0		36.0	40.0	16.0	2.00	**WFM-3236-16**
32.0		36.0	40.0	26.0	2.00	**WFM-3236-26**
35.0		39.0	47.0	9.0	2.00	**WFM-3539-09**
35.0		39.0	47.0	16.0	2.00	**WFM-3539-16**
35.0		39.0	47.0	26.0	2.00	**WFM-3539-26**
35.0	+0.050	39.0	50.0	35.0	2.00	**WFM-353950-35**
38.0	+0.150	42.0	50.0	22.0	2.00	**WFM-3842-22**
40.0		44.0	52.0	30.0	2.00	**WFM-4044-30**
40.0		44.0	52.0	40.0	2.00	**WFM-4044-40**
45.0		50.0	58.0	50.0	2.00	**WFM-4550-50**
50.0		55.0	63.0	40.0	2.00	**WFM-5055-40**
50.0		55.0	63.0	50.0	2.00	**WFM-5055-50**
55.0		60.0	68.0	60.0	2.00	**WFM-5560-60**
57.0		62.0	67.0	40.0	2.00	**WFM-5762-40**
60.0	+0.060	65.0	73.0	60.0	2.00	**WFM-6065-60**
65.0	+0.180	70.0	78.0	60.0	2.00	**WFM-6570-60**
70.0		75.0	83.0	100.0	2.50	**WFM-7075-100**
75.0		80.0	88.0	100.0	2.50	**WFM-7580-100**
80.0		85.0	93.0	100.0	2.50	**WFM-8085-100**
90.0	+0.072	95.0	103.0	100.0	2.50	**WFM-9095-100**
100.0	+0.212	105.0	113.0	100.0	2.50	**WFM-100105-100**
120.0		125.0	133.0	100.0	2.50	**WFM-120125-100**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/W300

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

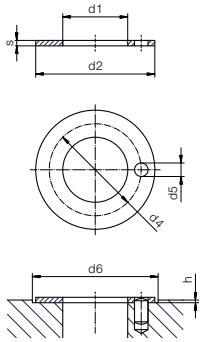
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® W300
+90°C
60MPa

Bearing technology | Plain bearings | iglidur® W300

Thrust washer (form T)





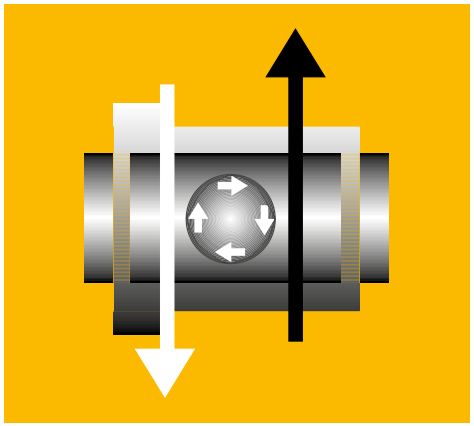
Dimensions according to ISO 3547-1 and special dimensions

Order example: WTM-0509-006 **– no minimum order quantity.**
W300 iglidur® material T Thrust washer M Metric 05 Inner Ø d1 09 Outer Ø d2 006 Height s

d1 +0.25 [mm]	d2 -0.25 [mm]	d4 -0.12 +0.12 [mm]	d5 +0.375 +0.125 [mm]	h +0.2/-0.2 [mm]	d6 +0.12 [mm]	Øs -0.05 [mm]	Part No.
5	9.5	[4]	[4]	0.3	9.5	0.6	**WTM-0509-006**
6	20	13	1.5	1	20	1.5	**WTM-0620-015**
8	18	13	1.5	1	18	1.5	**WTM-0818-015**
10	18	[4]	[4]	0.7	18	1	**WTM-1018-010**
10	18	[4]	[4]	1	18	1.5	**WTM-1018-015**
12	24	18	1.5	1	24	1.5	**WTM-1224-015**
14	26	20	2	1	26	1.5	**WTM-1426-015**
15	24	19.5	1.5	1	24	1.5	**WTM-1524-015**
16	30	23	2	1	30	1.5	**WTM-1630-015**
18	32	25	2	1	32	1.5	**WTM-1832-015**
18	44	30	7	1	44	1.5	**WTM-1844-015**
20	36	28	3	1	36	1.5	**WTM-2036-015**
22	38	30	3	1	38	1.5	**WTM-2238-015**
24	42	33	3	1	42	1.5	**WTM-2442-015**
26	44	35	3	1	44	1.5	**WTM-2644-015**
28	40	38	4	1	48	1.5	**WTM-2840-015**
28	48	38	4	1	48	1.5	**WTM-2848-015**
32	54	43	4	1	54	1.5	**WTM-3254-015**
38	62	50	4	1	62	1.5	**WTM-3862-015**
42	66	54	4	1	66	1.5	**WTM-4266-015**
48	74	61	4	1.5	74	2	**WTM-4874-020**
52	78	65	4	1.5	78	2	**WTM-5278-020**
62	90	76	4	1.5	90	2	**WTM-6290-020**
82	110	[4]	[4]	1.5	110	2	**WTM-82110-020**
102	130	[4]	[4]	1.5	130	2	**WTM-102130-020**
120	150	[4]	[4]	1.5	150	2	**WTM-120150-020**

[4] Design without fixing hole





The new endurance runner: specialist for pivoting applications and pulsating loads

Up to 10MPa, up to three times more wear-resistant than iglidur® J

iglidur® J3

When to use it?

- When optimising wear resistance compared to iglidur® J
- When very low coefficient of friction in dry operation are required
- When high wear resistance at low loads is required
- When low moisture absorption is fundamental
- When good liquid media resistance is required

When not to use it?

- When a wear-resistant plain bearing for linear motion is required
  iglidur® J
- When permanent temperatures exceed +90°C
  iglidur® J260
- When radial surface pressure is higher than 45MPa
  iglidur® W300

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Bearing technology | Plain bearings | iglidur® J3

Ø
2.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The new endurance runner: specialist for pivoting applications and pulsating loads

Up to 10MPa, up to three times more wear-resistant than iglidur® J

iglidur® J3 is a material with improved wear resistance at low to medium loads and high speed. The service life is up to 300% longer than iglidur® J - the proven top endurance runner material.

- Low coefficient of friction
- High media resistance
- Low moisture absorption
- PTFE-free
- Lubrication-free
- Maintenance-free

Typical application areas

- Automation
- Printing industry
- Beverage industry
- Glass industry
- Aerospace engineering

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■■	+
Wear resistance at +90°C	–	■■■■■	+
Wear resistance at +150°C	–	■□□□□	+
Slide property	–	■■■■■	+
Wear resistance under water	–	■■■■□	+
Media resistance	–	■■■■□	+
Resistant to edge pressures	–	■■■■□	+
Resistant to shock and impact loads	–	■■■■□	+
Dirt resistance	–	■■■■□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® J3
+90°C
45MPa

Technical data

General properties			Testing method
Density	g/cm³	1.42	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	µ	0.06-0.20	
pv value, max. (dry)	MPa · m/s	0.50	
Mechanical properties			
Flexural modulus	MPa	2,700	DIN 53457
Flexural strength at +20°C	MPa	70	DIN 53452
Compressive strength	MPa	60	
Max. permissible surface pressure (+20°C)	MPa	45	
Shore D hardness		73	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+120	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	13	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-50°C up to +90°C

45MPa

HB

RoHS-II

ISO 3547-1

With respect to its general mechanical and thermal specifications, iglidur® J3 is directly comparable to our classic, iglidur® J.

Moisture absorption

The moisture absorption of iglidur® J3 plain bearings in ambient conditions is approximately 0.3% weight. The saturation limit submerged in water is 1.3% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J3 bearings.

Radiation resistance

They are resistant up to a radiation intensity of $1 \cdot 10^4$ Gy.

Resistance to weathering

iglidur® J3 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® J3 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® J3 at radial loads. At the recommended maximum surface pressure of 45MPa the deformation is less than 6% at room temperature. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

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Permissible surface speeds

iglidur® J3 is also suitable for medium to high surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +90°C. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® J3 a ground surface with an average surface finish Ra = 0.1-0.3μm is recommended. Diagram 06 shows that iglidur® J3 can be combined with various shaft materials. Diagram 07 shows rotating and pivoting applications in comparison. With higher load, the wear increases more for rotating than for pivoting movements.

Shaft materials, page 56

Installation tolerances

iglidur® J3 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	1.1	8.0
Short-term	m/s	3.0	2.1	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.06-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

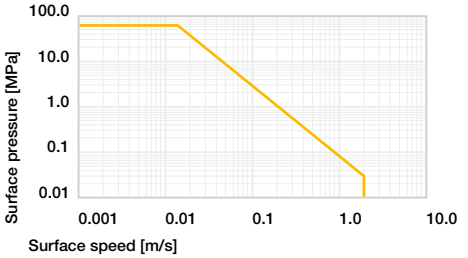


Diagram 01: Permissible pv values for iglidur® J3 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

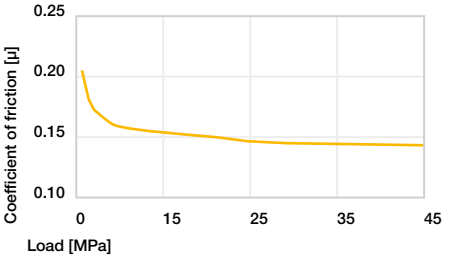


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

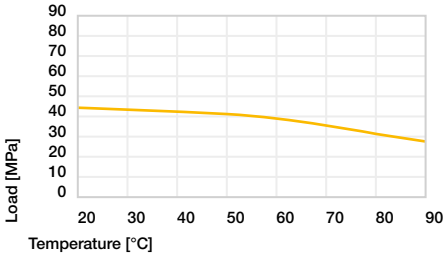


Diagram 02: Maximum recommended surface pressure as a function of temperature (45MPa at +20°C)

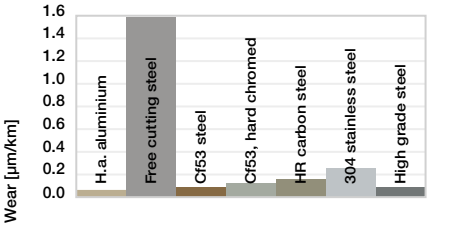


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

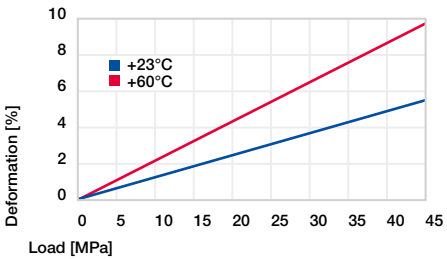


Diagram 03: Deformation under pressure and temperature

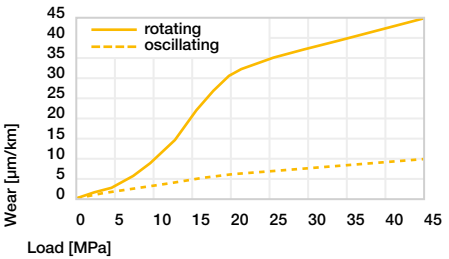


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

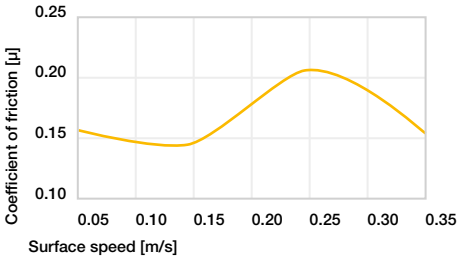
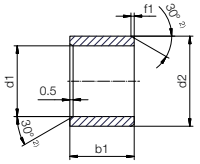


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® J3

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: J3SM-0304-05 – no minimum order quantity.
J3 iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.014 +0.054	4.5	5.0	**J3SM-0304-05**
4.0		5.5	4.0	**J3SM-0405-04**
4.0		5.5	6.0	**J3SM-0405-06**
5.0		7.0	5.0	**J3SM-0507-05**
5.0	+0.020 +0.068	7.0	10.0	**J3SM-0507-10**
6.0		8.0	6.0	**J3SM-0608-06**
6.0		8.0	8.0	**J3SM-0608-08**
6.0		8.0	10.0	**J3SM-0608-10**
8.0		10.0	8.0	**J3SM-0810-08**
8.0		10.0	10.0	**J3SM-0810-10**
8.0		10.0	12.0	**J3SM-0810-12**
10.0	+0.025	12.0	8.0	**J3SM-1012-08**
10.0	+0.083	12.0	10.0	**J3SM-1012-10**
10.0		12.0	12.0	**J3SM-1012-12**
10.0		12.0	15.0	**J3SM-1012-15**
10.0		12.0	20.0	**J3SM-1012-20**
12.0		14.0	10.0	**J3SM-1214-10**
12.0		14.0	12.0	**J3SM-1214-12**
12.0		14.0	15.0	**J3SM-1214-15**
12.0		14.0	20.0	**J3SM-1214-20**
13.0		15.0	10.0	**J3SM-1315-10**
13.0	+0.032	15.0	20.0	**J3SM-1315-20**
14.0	+0.102	16.0	15.0	**J3SM-1416-15**
14.0		16.0	20.0	**J3SM-1416-20**
14.0		16.0	25.0	**J3SM-1416-25**
15.0		17.0	15.0	**J3SM-1517-15**
15.0		17.0	20.0	**J3SM-1517-20**
15.0		17.0	25.0	**J3SM-1517-25**
15.0		17.0	30.0	**J3SM-1517-30**
16.0		18.0	15.0	**J3SM-1618-15**
16.0		18.0	20.0	**J3SM-1618-20**
16.0	+0.032	18.0	25.0	**J3SM-1618-25**
18.0	+0.102	20.0	15.0	**J3SM-1820-15**
18.0		20.0	20.0	**J3SM-1820-20**
18.0		20.0	25.0	**J3SM-1820-25**
18.0		21.0	25.0	**J3SM-1821-25**
20.0		23.0	10.0	**J3SM-2023-10**
20.0		23.0	15.0	**J3SM-2023-15**
20.0		23.0	20.0	**J3SM-2023-20**
20.0		23.0	25.0	**J3SM-2023-25**
20.0		23.0	30.0	**J3SM-2023-30**
22.0		25.0	15.0	**J3SM-2225-15**
22.0		25.0	20.0	**J3SM-2225-20**
22.0		25.0	25.0	**J3SM-2225-25**
22.0		25.0	30.0	**J3SM-2225-30**
24.0		27.0	15.0	**J3SM-2427-15**
24.0	+0.040 +0.124	27.0	20.0	**J3SM-2427-20**
24.0		27.0	25.0	**J3SM-2427-25**
24.0		27.0	30.0	**J3SM-2427-30**
25.0		28.0	15.0	**J3SM-2528-15**
25.0		28.0	20.0	**J3SM-2528-20**
25.0		28.0	25.0	**J3SM-2528-25**
25.0		28.0	30.0	**J3SM-2528-30**
28.0		32.0	20.0	**J3SM-2832-20**
28.0		32.0	25.0	**J3SM-2832-25**
28.0		32.0	30.0	**J3SM-2832-30**
30.0		34.0	20.0	**J3SM-3034-20**

[3] After press-fit. *Testing methods, page 61*

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iglidur® J3
+90°C
45MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
30.0	+0.040 +0.124	34.0	25.0	**J3SM-3034-25**
30.0		34.0	30.0	**J3SM-3034-30**
30.0		34.0	40.0	**J3SM-3034-40**
32.0		36.0	20.0	**J3SM-3236-20**
32.0		36.0	30.0	**J3SM-3236-30**
32.0		36.0	40.0	**J3SM-3236-40**
35.0	+0.050 +0.150	39.0	20.0	**J3SM-3539-20**
35.0		39.0	30.0	**J3SM-3539-30**
35.0		39.0	40.0	**J3SM-3539-40**
35.0		39.0	50.0	**J3SM-3539-50**
40.0		44.0	20.0	**J3SM-4044-20**
40.0		44.0	30.0	**J3SM-4044-30**
40.0		44.0	40.0	**J3SM-4044-40**
40.0		44.0	50.0	**J3SM-4044-50**
45.0		50.0	20.0	**J3SM-4550-20**
45.0		50.0	30.0	**J3SM-4550-30**
45.0		50.0	40.0	**J3SM-4550-40**
45.0	+0.050 +0.150	50.0	50.0	**J3SM-4550-50**
50.0		55.0	20.0	**J3SM-5055-20**
50.0		55.0	30.0	**J3SM-5055-30**
50.0		55.0	40.0	**J3SM-5055-40**
50.0		55.0	50.0	**J3SM-5055-50**
50.0		55.0	60.0	**J3SM-5055-60**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/J3

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

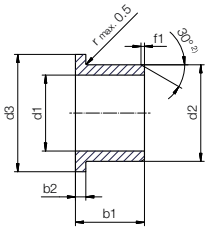
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

EN 09/2023

Bearing technology | Plain bearings | iglidur® J3

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

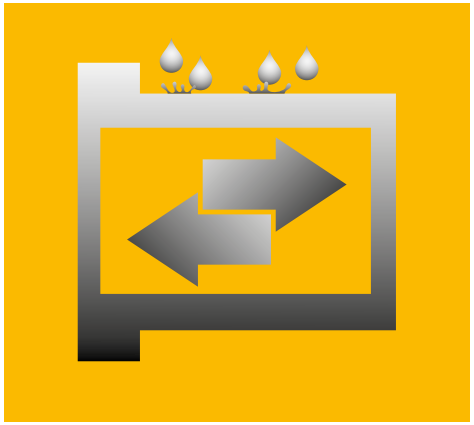
Order example: J3FM-0304-05 **– no minimum order quantity.**
J3 iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
2.0	+0.014	3.5	5.0	5.0	0.75	**J3FM-0203505-05**
3.0	+0.054	4.5	7.5	5.0	0.75	**J3FM-0304-05**
5.0		7.0	11.0	5.0	1.00	**J3FM-0507-05**
6.0	+0.020	8.0	12.0	4.0	1.00	**J3FM-0608-04**
6.0	+0.068	8.0	12.0	6.0	1.00	**J3FM-0608-06**
6.0		8.0	12.0	8.0	1.00	**J3FM-0608-08**
8.0		10.0	15.0	5.5	1.00	**J3FM-0810-05**
8.0		10.0	15.0	7.5	1.00	**J3FM-0810-07**
8.0		10.0	15.0	9.5	1.00	**J3FM-0810-09**
8.0		10.0	15.0	10.0	1.00	**J3FM-0810-10**
10.0	+0.025 +0.083	12.0	18.0	7.0	1.00	**J3FM-1012-07**
10.0		12.0	18.0	9.0	1.00	**J3FM-1012-09**
10.0		12.0	18.0	10.0	1.00	**J3FM-1012-10**
10.0		12.0	18.0	12.0	1.00	**J3FM-1012-12**
10.0		12.0	18.0	17.0	1.00	**J3FM-1012-17**
12.0		14.0	20.0	7.0	1.00	**J3FM-1214-07**
12.0		14.0	20.0	9.0	1.00	**J3FM-1214-09**
12.0	+0.032	14.0	20.0	12.0	1.00	**J3FM-1214-12**
12.0	+0.102	14.0	20.0	17.0	1.00	**J3FM-1214-17**
14.0		16.0	22.0	12.0	1.00	**J3FM-1416-12**
14.0		16.0	22.0	17.0	1.00	**J3FM-1416-17**

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
15.0		17.0	23.0	9.0	1.00	**J3FM-1517-09**
15.0	+0.032	17.0	23.0	12.0	1.00	**J3FM-1517-12**
15.0	+0.102	17.0	23.0	17.0	1.00	**J3FM-1517-17**
16.0		18.0	24.0	12.0	1.00	**J3FM-1618-12**
16.0		18.0	24.0	17.0	1.00	**J3FM-1618-17**
18.0		20.0	26.0	12.0	1.00	**J3FM-1820-12**
18.0		20.0	26.0	17.0	1.00	**J3FM-1820-17**
18.0		20.0	26.0	22.0	1.00	**J3FM-1820-22**
18.0		21.0	25.0	12.0	1.00	**J3FM-1821-12**
20.0		23.0	30.0	11.5	1.50	**J3FM-2023-11**
20.0	+0.040	23.0	30.0	16.5	1.50	**J3FM-2023-16**
20.0	+0.124	23.0	30.0	21.5	1.50	**J3FM-2023-21**
25.0		28.0	35.0	11.5	1.50	**J3FM-2528-11**
25.0		28.0	35.0	16.5	1.50	**J3FM-2528-16**
25.0		28.0	35.0	21.5	1.50	**J3FM-2528-21**
30.0		34.0	42.0	16.0	2.00	**J3FM-3034-16**
30.0		34.0	42.0	26.0	2.00	**J3FM-3034-26**
35.0		39.0	47.0	16.0	2.00	**J3FM-3539-16**
35.0	+0.050	39.0	47.0	26.0	2.00	**J3FM-3539-26**
40.0	+0.150	44.0	52.0	30.0	2.00	**J3FM-4044-30**
40.0		44.0	52.0	40.0	2.00	**J3FM-4044-40**
45.0		50.0	58.0	50.0	2.00	**J3FM-4550-50**

[3] After press-fit. *Testing methods, page 61*





Proven long-life material in black

Wear-resistant endurance runner up to 10MPa

iglidur® J3B

When to use it?

- When optimising wear resistance compared to iglidur® J
- When low moisture absorption is fundamental
- When good liquid media resistance is required
- When high wear resistance at low loads is required
- When very low coefficient of friction in dry operation are required

When not to use it?

- When a wear-resistant plain bearing for linear motion is required
  iglidur® J
- When permanent temperatures exceed +90°C
  iglidur® J260
- When radial surface pressure is higher than 45MPa
  iglidur® W300

Bearing technology | Plain bearings | iglidur® J3B

Ø
6.0-20.0mm



Proven long-life material in black
Wear-resistant endurance runner up to 10MPa

The proven long-life material iglidur® J3 is now available in black as well. The endurance runner is a specialist for pivoting and pulsating loads and also media-resistant.

- Aesthetically suitable
- Low coefficient of friction
- Is especially long-lasting in the most varied of applications
- Low moisture absorption

Typical application areas

- Furniture industry
- Sports and leisure
- Two-wheel technology

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■■	+
Wear resistance at +90°C	–	■■■■■	+
Wear resistance at +150°C	–	■□□□□	+
Slide property	–	■■■■■	+
Wear resistance under water	–	■■■■□	+
Media resistance	–	■■■■□	+
Resistant to edge pressures	–	■■■■□	+
Resistant to shock and impact loads	–	■■■■□	+
Dirt resistance	–	■■■■□	+

Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

Technical data

General properties			Testing method
Density	g/cm³	1.42	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	µ	0.08-0.17	
pv value, max. (dry)	MPa · m/s	0.50	
Mechanical properties			
Flexural modulus	MPa	2,895	DIN 53457
Flexural strength at +20°C	MPa	65	DIN 53452
Compressive strength	MPa	n.s.	
Max. permissible surface pressure (+20°C)	MPa	44	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.30	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	12.7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

-50°C up to +90°C

44MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

With respect to its general mechanical and thermal specifications, iglidur® J3B is directly comparable to our classic, iglidur® J.

Moisture absorption

The moisture absorption of iglidur® J3B plain bearings in ambient conditions is approximately 0.3% weight. The saturation limit submerged in water is 1.3% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J3B bearings.

Radiation resistance

They are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® J3B plain bearings have not yet been tested for their resistance to weathering. Please consult igus® if you're planning to use them outdoors.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J3B plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® J3B at radial loads. At the recommended maximum surface pressure of 44MPa the deformation is less than 6% at room temperature. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

Bearing technology | Plain bearings | iglidur® J3B

Permissible surface speeds

iglidur® J3B is also suitable for medium to high surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® J3B a ground surface with an average surface finish Ra = 0.1-0.3μm is recommended. Diagram 06 shows results of testing different shafts. Diagram 07 shows rotating and pivoting applications in comparison. With higher load, the wear increases more for rotating than for pivoting movements.

Shaft materials, page 56

Installation tolerances

iglidur® J3B plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	1.1	8.0
Short-term	m/s	3.0	2.1	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.17	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

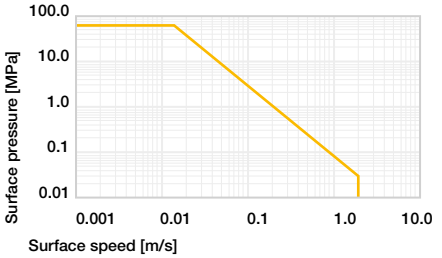


Diagram 01: Permissible pv values for iglidur® J3B plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

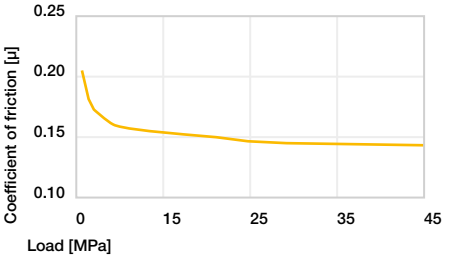


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

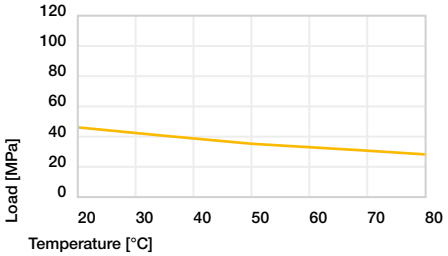


Diagram 02: Maximum recommended surface pressure as a function of temperature (44MPa at +20°C)

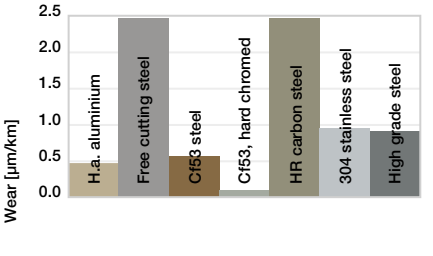


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

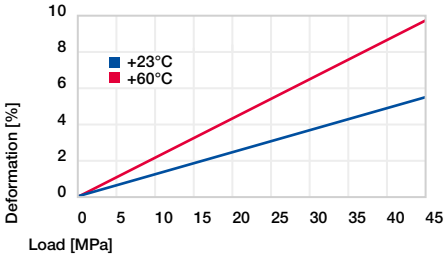


Diagram 03: Deformation under pressure and temperature

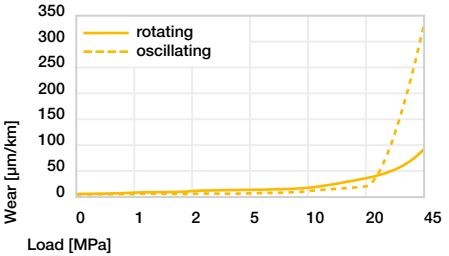


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

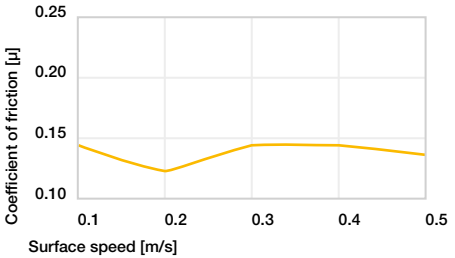
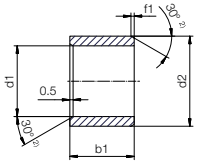


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® J3B

Sleeve bearings (form S)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: J3BSM-0608-06 **– no minimum order quantity.**
J3B iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**J3BSM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**J3BSM-0810-10**
10.0		12.0	10.0	**J3BSM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**J3BSM-1214-12**
16.0		18.0	15.0	**J3BSM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**J3BSM-2023-20**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/J3B

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

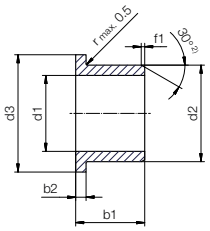
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® J3B
+90°C
44MPa

Bearing technology | Plain bearings | iglidur® J3B

Flange bearings (form F)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: J3BFM-0608-06 **– no minimum order quantity.**
J3B iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	d3 d13³⁾ [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	8.0	1.00	**J3BFM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	9.5	1.00	**J3BFM-0810-10**
10.0		12.0	18.0	9.0	1.00	**J3BFM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**J3BFM-1214-12**
16.0		18.0	24.0	17.0	1.00	**J3BFM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**J3BFM-2023-21**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

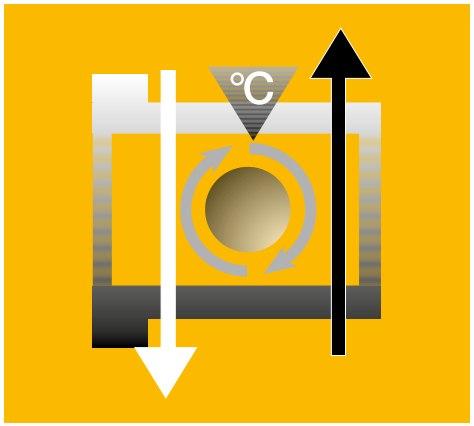
Order online
including delivery times, prices, online tools
www.igus.eu/J3B

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Endurance runner with high dimensional stability at high temperatures

Can be used with many kinds of shafts and loads

iglidur® J350

When to use it?

- When a wear-resistant bearing for rotational movement at medium and high loads is required
- When a cost-effective plain bearing for high temperatures is required
- When press-fit up to +150°C is necessary
- When the bearing is exposed to shock loading

When not to use it?

- When continuous operating temperatures are higher than +180°C
  iglidur® X
- When the lowest friction is required
  iglidur® J
- When a cost-effective plain bearing with low friction is required
  iglidur® D, iglidur® R
- For high rotational speeds
  iglidur® J

EN 09/2023

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Bearing technology | Plain bearings | iglidur® J350

Ø
4.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Endurance runner with high dimensional stability at high temperatures

Can be used with many kinds of shafts and loads

An outstanding plain bearing for rotating applications - and for a wide range of different shaft materials: with iglidur® J350 plain bearings, the service life can often be increased for applications between 2 and 50MPa. In addition, the high temperature resistance makes it a very versatile material.

- Recommended for steel shafts
- Continuous operating temperatures up to +180°C
- Suitable for medium and high loads
- Suitable for rotating applications
- Lubrication-free
- Maintenance-free

Typical application areas

- Automation
- Mechanical engineering
- Automotive
- Glass industry

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® J350
+180 °C
60MPa

Technical data

General properties			Testing method
Density	g/cm³	1.44	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.6	
Coefficient of friction, dynamic, against steel	µ	0.10-0.20	
pv value, max. (dry)	MPa · m/s	0.45	
Mechanical properties			
Flexural modulus	MPa	2,000	DIN 53457
Flexural strength at +20°C	MPa	55	DIN 53452
Compressive strength	MPa	60	
Max. permissible surface pressure (+20°C)	MPa	60	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+180	
Max. application temperature short-term	°C	+220	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{10}$	DIN 53482

Table 01: Material properties

-100 °C up to +180 °C

60MPa

V-0

RoHS-II

ISO 3547-1

iglidur® J350 blends universally good wear resistance, flexibility and temperature resistance into a very versatile iglidur® material with a broad application spectrum.

Moisture absorption

The moisture absorption of iglidur® J350 is low and can be ignored when using standard plain bearings. Even when saturated with water, iglidur® J350 does not absorb more than 1.6% weight of water (by weight).

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J350 bearings.

Radiation resistance

Plain bearings made from iglidur® J350 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® J350 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® J350 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
iglidur® J350 plain bearings are adequate for medium and high loads. Diagram 03 shows the elastic deformation of iglidur® J350 at radial loads. It shows the material behaviour submitted to a short-term load. The ambient temperatures are only noticeable at 60MPa.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® J350

Permissible surface speeds

iglidur® J350 plain bearings are suitable for low and medium speeds in rotating and oscillating applications. The wear rates, however, are much better in the case of rotating applications. Good bearing support for linear movements is also possible with iglidur® J350.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. The wear-rate of iglidur® J350 bearings changes very little at high temperatures. In some cases, wear even decreases at +100°C. For temperatures over +140°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of iglidur® J350 in dry operation against steel is very good. They decrease significantly at higher surface speeds. This benefits the service life of the plain bearings in continuous operations with high surface speeds. Diagram 04 shows this inverse relationship. Especially with loads higher than 2MPa, the iglidur® J350 plain bearings are clearly superior to other bearings in rotating applications.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® J350. iglidur® J350 plain bearings can be combined with various shaft materials. One shaft - bearing combination stands out when looking at the wear results of the test: iglidur® J350 with soft 304 stainless steel. Not many bearing materials are suitable for use with this rather difficult soft stainless steel material (304 stainless steel) and achieve good wear results. Also, good properties are reached with hard-anodised aluminium shafts. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® J350 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+ up to 0
Strong acids	+ up to 0
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.3	1.0	4.0
Short-term	m/s	3.0	2.3	8.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.10-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

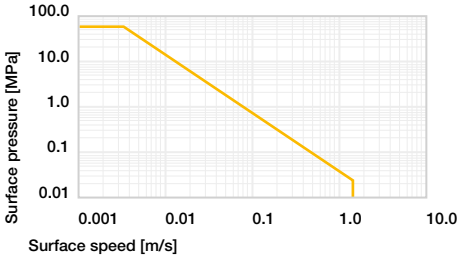


Diagram 01: Permissible pv values for iglidur® J350 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

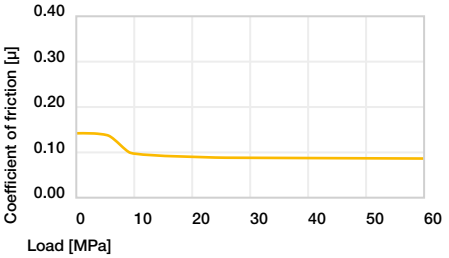


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

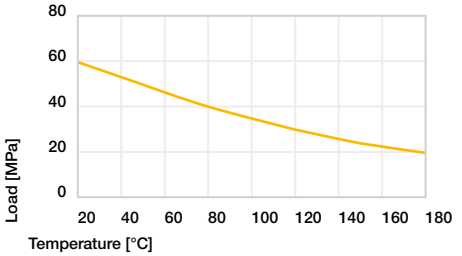


Diagram 02: Maximum recommended surface pressure as a function of temperature (60MPa at +20°C)

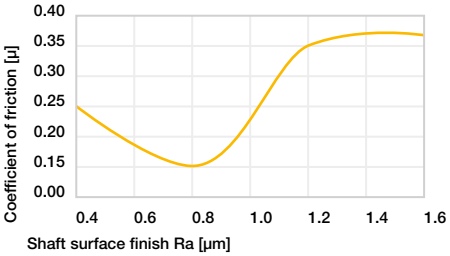


Diagram 06: Coefficient of friction as a function of the shaft surface (Cf53 shaft)

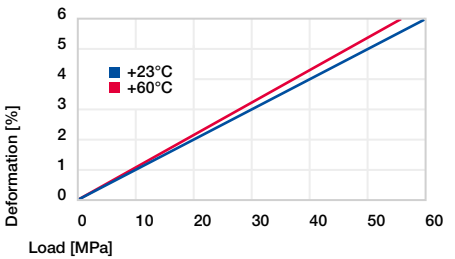


Diagram 03: Deformation under pressure and temperature

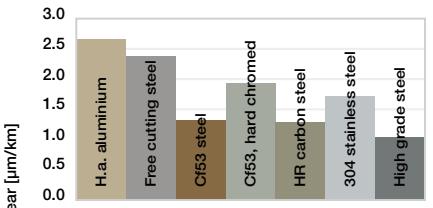


Diagram 07: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

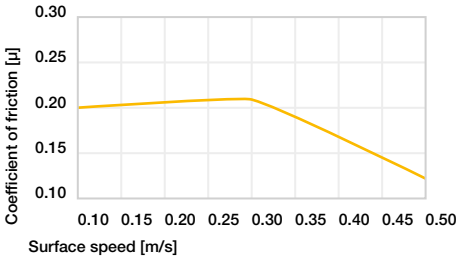
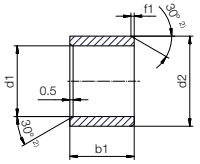


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® J350

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: J350SM-0405-04 – no minimum order quantity.
J350 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0		5.5	4.0	J350SM-0405-04
4.0		5.5	6.0	J350SM-0405-06
5.0		7.0	5.0	J350SM-0507-05
5.0	+0.010 +0.058	7.0	10.0	J350SM-0507-10
6.0		8.0	6.0	J350SM-0608-06
6.0		8.0	8.0	J350SM-0608-08
6.0		8.0	10.0	J350SM-0608-10
8.0		10.0	8.0	J350SM-0810-08
8.0		10.0	10.0	J350SM-0810-10
8.0		10.0	12.0	J350SM-0810-12
10.0	+0.013	12.0	8.0	J350SM-1012-08
10.0	+0.071	12.0	10.0	J350SM-1012-10
10.0		12.0	12.0	J350SM-1012-12
10.0		12.0	15.0	J350SM-1012-15
10.0		12.0	20.0	J350SM-1012-20
12.0		14.0	10.0	J350SM-1214-10
12.0		14.0	12.0	J350SM-1214-12
12.0		14.0	15.0	J350SM-1214-15
12.0		14.0	20.0	J350SM-1214-20
13.0		15.0	10.0	J350SM-1315-10
13.0		15.0	20.0	J350SM-1315-20
14.0	+0.016	16.0	15.0	J350SM-1416-15
14.0	+0.086	16.0	20.0	J350SM-1416-20
14.0		16.0	25.0	J350SM-1416-25
15.0		17.0	15.0	J350SM-1517-15
15.0		17.0	20.0	J350SM-1517-20
15.0		17.0	25.0	J350SM-1517-25
16.0		18.0	4.0	J350SM-1618-04
16.0		18.0	15.0	J350SM-1618-15
16.0	+0.016 +0.086	18.0	20.0	J350SM-1618-20
16.0		18.0	25.0	J350SM-1618-25
18.0		20.0	15.0	J350SM-1820-15
18.0		20.0	20.0	J350SM-1820-20
18.0		20.0	25.0	J350SM-1820-25
20.0		23.0	10.0	J350SM-2023-10
20.0		23.0	15.0	J350SM-2023-15
20.0		23.0	20.0	J350SM-2023-20
20.0		23.0	25.0	J350SM-2023-25
20.0		23.0	30.0	J350SM-2023-30
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22.0		25.0	20.0	J350SM-2225-20
22.0		25.0	25.0	J350SM-2225-25
22.0		25.0	30.0	J350SM-2225-30
24.0		27.0	15.0	J350SM-2427-15
24.0		27.0	20.0	J350SM-2427-20
24.0	+0.020 +0.104	27.0	25.0	J350SM-2427-25
24.0		27.0	30.0	J350SM-2427-30
25.0		28.0	15.0	J350SM-2528-15
25.0		28.0	20.0	J350SM-2528-20
25.0		28.0	25.0	J350SM-2528-25
25.0		28.0	30.0	J350SM-2528-30
25.0		28.0	45.0	J350SM-2528-45
28.0		32.0	20.0	J350SM-2832-20
28.0		32.0	25.0	J350SM-2832-25
28.0		32.0	30.0	J350SM-2832-30
30.0		34.0	20.0	J350SM-3034-20
30.0		34.0	25.0	J350SM-3034-25
30.0		34.0	30.0	J350SM-3034-30

[3] After press-fit. *Testing methods, page 61*

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iglidur® J350
+180 °C
60MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
30.0	+0.020 +0.104	34.0	40.0	J350SM-3034-40
32.0		36.0	20.0	J350SM-3236-20
32.0		36.0	30.0	J350SM-3236-30
32.0		36.0	40.0	J350SM-3236-40
35.0		39.0	20.0	J350SM-3539-20
35.0	+0.025 +0.125	39.0	30.0	J350SM-3539-30
35.0		39.0	40.0	J350SM-3539-40
35.0		39.0	50.0	J350SM-3539-50
40.0		44.0	20.0	J350SM-4044-20
40.0		44.0	30.0	J350SM-4044-30
40.0		44.0	40.0	J350SM-4044-40
40.0		44.0	50.0	J350SM-4044-50
45.0		50.0	20.0	J350SM-4550-20
45.0		50.0	30.0	J350SM-4550-30
45.0		50.0	40.0	J350SM-4550-40
45.0	+0.025 +0.125	50.0	50.0	J350SM-4550-50
50.0		55.0	20.0	J350SM-5055-20
50.0		55.0	30.0	J350SM-5055-30
50.0		55.0	40.0	J350SM-5055-40
50.0		55.0	50.0	J350SM-5055-50
50.0		55.0	60.0	J350SM-5055-60

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/J350

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

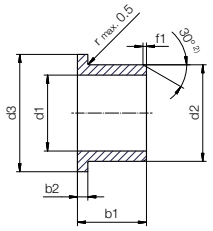
No minimum order value.
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Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® J350

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

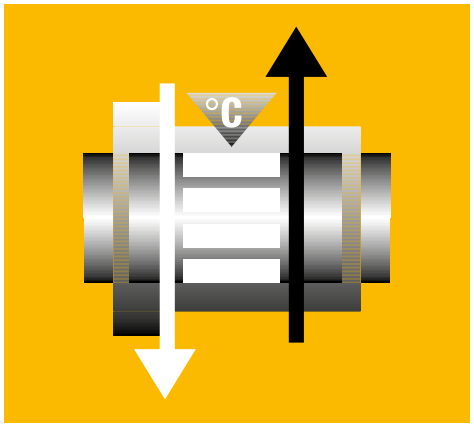
Dimensions according to ISO 3547-1 and special dimensions

Order example: J350FM-0608-04 – no minimum order quantity.
J350 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	12.0	4.0	1.00	**J350FM-0608-04**
6.0		8.0	12.0	6.0	1.00	**J350FM-0608-06**
6.0		8.0	12.0	8.0	1.00	**J350FM-0608-08**
8.0	+0.013 +0.071	10.0	15.0	5.5	1.00	**J350FM-0810-05**
8.0		10.0	15.0	7.5	1.00	**J350FM-0810-07**
8.0		10.0	15.0	9.5	1.00	**J350FM-0810-09**
8.0		10.0	15.0	10.0	1.00	**J350FM-0810-10**
10.0		12.0	18.0	7.0	1.00	**J350FM-1012-07**
10.0		12.0	18.0	9.0	1.00	**J350FM-1012-09**
10.0		12.0	18.0	10.0	1.00	**J350FM-1012-10**
10.0		12.0	18.0	12.0	1.00	**J350FM-1012-12**
10.0		12.0	18.0	17.0	1.00	**J350FM-1012-17**
12.0	+0.016 +0.086	14.0	20.0	7.0	1.00	**J350FM-1214-07**
12.0		14.0	20.0	9.0	1.00	**J350FM-1214-09**
12.0		14.0	20.0	12.0	1.00	**J350FM-1214-12**
12.0		14.0	20.0	17.0	1.00	**J350FM-1214-17**
14.0		16.0	22.0	12.0	1.00	**J350FM-1416-12**
14.0		16.0	22.0	17.0	1.00	**J350FM-1416-17**
15.0		17.0	23.0	9.0	1.00	**J350FM-1517-09**
15.0		17.0	23.0	12.0	1.00	**J350FM-1517-12**
15.0		17.0	23.0	17.0	1.00	**J350FM-1517-17**
16.0	+0.016 +0.086	18.0	24.0	12.0	1.00	**J350FM-1618-12**
16.0		18.0	24.0	17.0	1.00	**J350FM-1618-17**
18.0		20.0	26.0	12.0	1.00	**J350FM-1820-12**
18.0		20.0	26.0	17.0	1.00	**J350FM-1820-17**
18.0		20.0	26.0	22.0	1.00	**J350FM-1820-22**
20.0	+0.020 +0.104	23.0	30.0	11.5	1.50	**J350FM-2023-11**
20.0		23.0	30.0	16.5	1.50	**J350FM-2023-16**
20.0		23.0	30.0	21.5	1.50	**J350FM-2023-21**
25.0		28.0	35.0	11.5	1.50	**J350FM-2528-11**
25.0		28.0	35.0	16.5	1.50	**J350FM-2528-16**
25.0		28.0	35.0	21.5	1.50	**J350FM-2528-21**
30.0		34.0	42.0	16.0	2.00	**J350FM-3034-16**
30.0		34.0	42.0	22.0	2.00	**J350FM-3034-22**
30.0		34.0	42.0	26.0	2.00	**J350FM-3034-26**
30.0		34.0	42.0	37.0	2.00	**J350FM-3034-37**
35.0	+0.025 +0.125	39.0	47.0	16.0	2.00	**J350FM-3539-16**
35.0		39.0	47.0	26.0	2.00	**J350FM-3539-26**
40.0		44.0	52.0	30.0	2.00	**J350FM-4044-30**
40.0		44.0	52.0	40.0	2.00	**J350FM-4044-40**
45.0		50.0	58.0	50.0	2.00	**J350FM-4550-50**

[3] After press-fit. *Testing methods, page 61*





Ideal for plastic shafts

Wear-resistant at medium temperatures and loads

iglidur® J260

When to use it?

- When polymer shafts are used
- When the temperature rating of iglidur® J is not sufficient
- When a plain bearing with low coefficient of friction is required
- When high wear resistance is required at medium loads
- When good liquid media resistance is required

When not to use it?

- When high surface pressures occur
  iglidur® Z
- When permanent temperatures exceed +120°C
  iglidur® J350
- When universal wear resistance is required
  iglidur® J

EN 09/2023

Bearing technology | Plain bearings | iglidur® J260

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Ideal for plastic shafts

Wear-resistant at medium temperatures and loads

Time and again the iglidur® J260 material proves its worth where the maximum service life and best coefficient of friction are required under special application conditions - particularly in connection with plastic shafts!

- For low and medium loads
- High media resistance
- Slightly higher temperature rating than iglidur® J
- Long service life - even on polymer shafts and other special cases

Typical application areas

- Automation
- Plant construction
- Test engineering and quality assurance
- Robotics industry
- Electronics industry

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® J260
+120°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.35	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.4	
Coefficient of friction, dynamic, against steel	µ	0.06-0.20	
pv value, max. (dry)	MPa · m/s	0.35	
Mechanical properties			
Flexural modulus	MPa	2,200	DIN 53457
Flexural strength at +20°C	MPa	60	DIN 53452
Compressive strength	MPa	50	
Max. permissible surface pressure (+20°C)	MPa	40	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+120	
Max. application temperature short-term	°C	+140	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	13	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{10}$	DIN 53482

Table 01: Material properties

-100 °C up to +120 °C

40MPa

V-2

RoHS-II

ISO 3547-1

Similar to the classic, iglidur® J, iglidur® J260 is an endurance runner with outstanding wear behaviour, but provides increased reserves at its long-term application temperature of +120°C.

Moisture absorption
The moisture absorption of iglidur® J260 plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 0.4% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum
In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J260 bearings.

Radiation resistance
They are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® J260 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® J260 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® J260 as a function of radial pressure. At the recommended maximum surface pressure of 40MPa the deformation is less than 2.5% at room temperature. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® J260

Permissible surface speeds

iglidur® J260 has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +80°C. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases considerably with increasing loads, whereas a slight increase in surface speed causes an increase of the coefficient of friction (Diagram 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® J260 a ground surface with an average surface finish Ra = 0.8μm is recommended. Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® J260. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The "soft" shafts tend to wear more easily and thus increase the wear of the overall system, if the loads exceed 2MPa. The comparison of rotating and pivoting movements in diagram 07 makes it very clear that iglidur® J260 plain bearings are most suited for rotating operation.

Shaft materials, page 56

Installation tolerances

iglidur® J260 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	–
Diluted alkalines	+ up to 0
Fuels	–
Greases, oils without additives	0 up to –
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.06-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® J260
+120°C
40MPa

Technical data

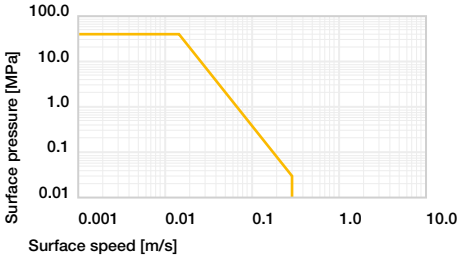


Diagram 01: Permissible pv values for iglidur® J260 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

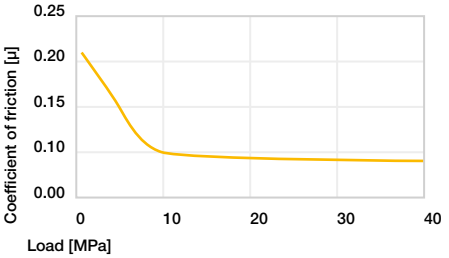


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

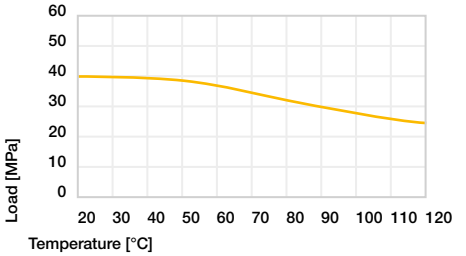


Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

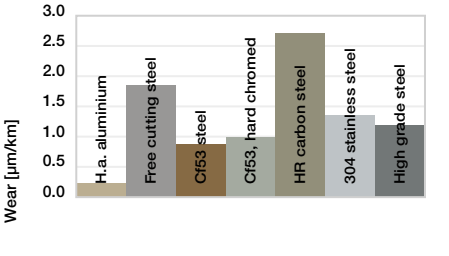


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

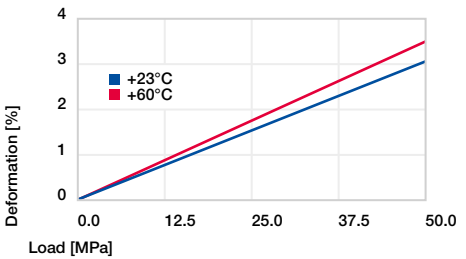


Diagram 03: Deformation under pressure and temperature

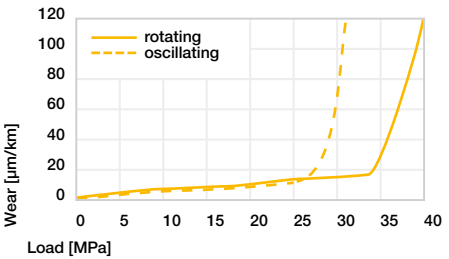


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

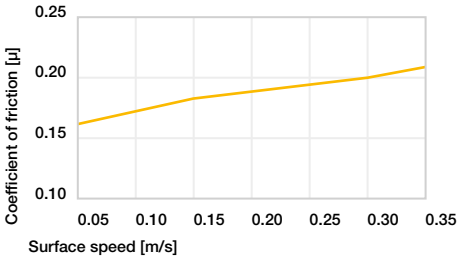
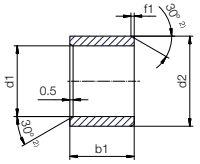


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® J260

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: J260SM-0608-06 – no minimum order quantity.
J260 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**J260SM-0608-06**
8.0	+0.025 +0.083	10.0	6.0	**J260SM-0810-06**
8.0		10.0	10.0	**J260SM-0810-10**
10.0		12.0	10.0	**J260SM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**J260SM-1214-12**
12.0		14.0	15.0	**J260SM-1214-15**
16.0		18.0	13.5	**J260SM-1618-135**
16.0		18.0	15.0	**J260SM-1618-15**
18.0		20.0	12.0	**J260SM-1820-12**
18.0		20.0	20.0	**J260SM-1820-20**
20.0	+0.040 +0.124	23.0	20.0	**J260SM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/J260

Ordering note
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Discount scaling		
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10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

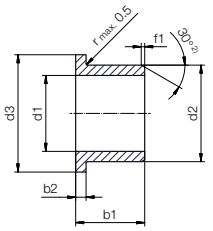
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iglidur® J260
+120°C
40MPa

Bearing technology | Plain bearings | iglidur® J260

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: J260FM-0608-06 – no minimum order quantity.
J260 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**J260FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**J260FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**J260FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**J260FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**J260FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**J260FM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
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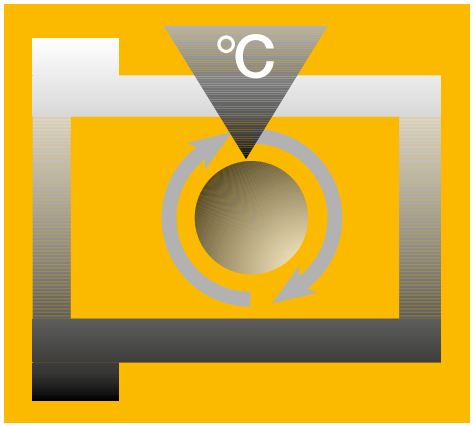
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Ordering note
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Discount scaling		
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10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

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Endurance runner up to +180°C

For applications that are clean and dry

iglidur® W360

When to use it?

- When an extremely wear-resistant plain bearing is required for medium loads
- When a low coefficient of friction at higher temperatures is required
- When continuous operating temperatures are higher than +90°C

When not to use it?

- When a wear-resistant plain bearing is sought for the standard temperature range and low to medium loads

  iglidur® J
- When the maximum temperature resistance and high wear resistance is required

  iglidur® Z, iglidur® J350, iglidur® V400
- When the highest wear resistance under water is required

  iglidur® UW, iglidur® H370

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Bearing technology | Plain bearings | iglidur® W360

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
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Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Endurance runner up to +180°C
For applications that are clean and dry

The new iglidur® material combines outstanding endurance running properties with excellent temperature resistance, reduced moisture absorption and good value for money - a real all-rounder in the endurance field.

- High wear resistance
- Temperature-resistant up to +180°C
- Suitable for wet environments
- Good price-performance ratio
- Lubrication-free
- Maintenance-free

Typical application areas

- Material handling
- Automation
- Two-wheel technology
- Electromobility

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® W360
+180 °C
75MPa

Technical data

General properties			Testing method
Density	g/cm³	1.34	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.6	
Coefficient of friction, dynamic, against steel	µ	0.07-0.21	
pv value, max. (dry)	MPa · m/s	0.35	
Mechanical properties			
Flexural modulus	MPa	3,829	DIN 53457
Flexural strength at +20°C	MPa	119	DIN 53452
Compressive strength	MPa	75	
Max. permissible surface pressure (+20°C)	MPa	75	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+180	
Max. application temperature short-term	°C	+200	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	6	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-40°C up to +180°C

75MPa

HB

RoHS-II

ISO 3547-1

Low moisture absorption and high temperature resistance result in an extremely broad range of uses for this extremely wear-resistant material.

Moisture absorption
The moisture absorption of iglidur® W360 is low and can be disregarded when used in a humid environment. With a full saturation of 1.6% weight, however, underwater use is only possible to a very restricted extent.

Vacuum
In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® W360 bearings.

Radiation resistance
Plain bearings made from iglidur® W360 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® W360 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® W360 plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +180°C, the permitted surface pressure still amounts to 10MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
iglidur® W360 plain bearings are suitable for a broad range of loads. Diagram 03 shows the deformation under temperature. It shows the material behaviour submitted to a short-term load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® W360

Permissible surface speeds

iglidur® W360 plain bearings are suitable for low and medium speeds in rotating and oscillating applications. The wear rates, however, are much better in the case of rotating applications. Good bearing support for linear movements is also possible with iglidur® W360.

Surface speed, page 48

Temperature

The temperature resistance makes iglidur® W360 a very universal material for plain bearings in different industries. Application temperatures up to +200°C are permissible for short periods. For temperatures over +90°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of iglidur® W360 in dry operation against steel is very good. They constantly remain at a low level regardless of the speed. Diagram 04 shows this inverse relationship. As the load increases, the coefficient of friction decreases. The correlation is especially strong up to approximately 15MPa (diagram 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

In the case of W360, the shaft's surface finish has practically no effect on the coefficient of friction in the range of up to 1.6MPa (diagram 06). Diagram 07 shows results of testing different shafts. iglidur® W360 plain bearings are suitable for all sliding surfaces. During rotation with a load of 1MPa, all HC aluminium, Cf53 and stainless steel shafts stand out. A similar picture also exists with other loads or pivoting movements. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® W360 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	0 up to –
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	0 up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.2	0.9	3.0
Short-term	m/s	2.7	2.0	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.07-0.21	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

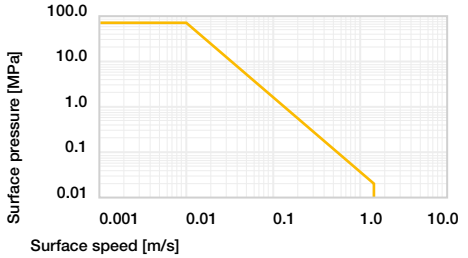


Diagram 01: Permissible pv values for iglidur® W360 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

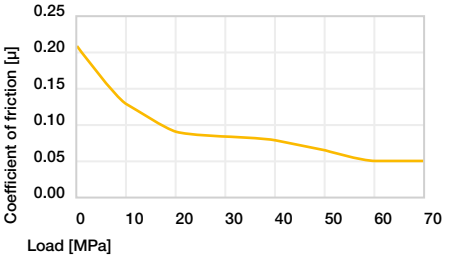


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

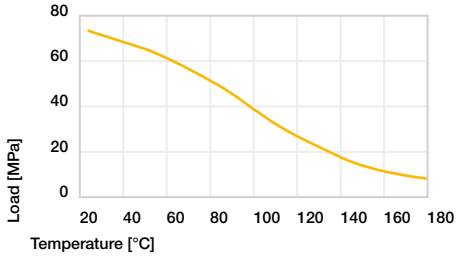


Diagram 02: Maximum recommended surface pressure as a function of temperature (75MPa at +20°C)

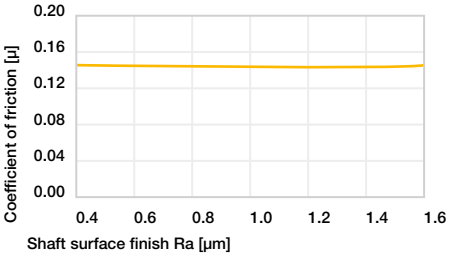


Diagram 06: Coefficient of friction as a function of the shaft surface (Cf53 shaft)

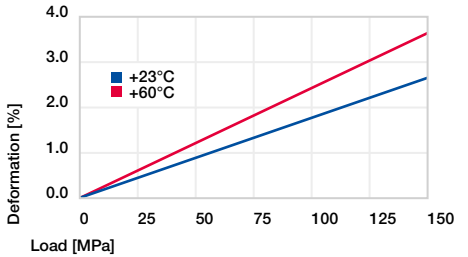


Diagram 03: Deformation under pressure and temperature

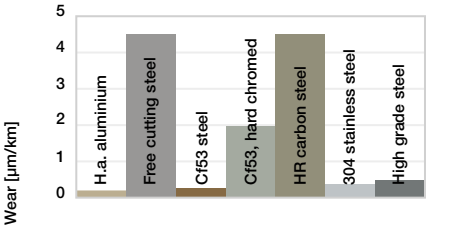


Diagram 07: Wear, rotating with different shaft materials, p = 1MPa, v = 0.3m/s

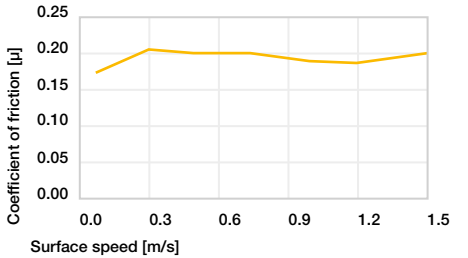
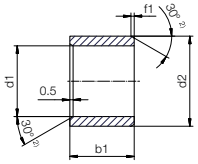


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® W360

Sleeve bearings (form S)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: W360SM-0608-06 – no minimum order quantity.
W360 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**W360SM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**W360SM-0810-10**
10.0		12.0	10.0	**W360SM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**W360SM-1214-12**
16.0		18.0	15.0	**W360SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**W360SM-2023-20**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/W360

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

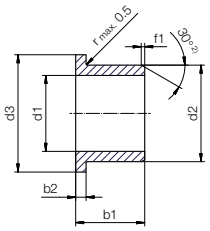
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® W360
+180 °C
75MPa

Bearing technology | Plain bearings | iglidur® W360

Flange bearings (form F)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: W360FM-0608-06 – no minimum order quantity.
W360 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	d3 d13³⁾ [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**W360FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**W360FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**W360FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**W360FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**W360FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**W360FM-2023-21**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

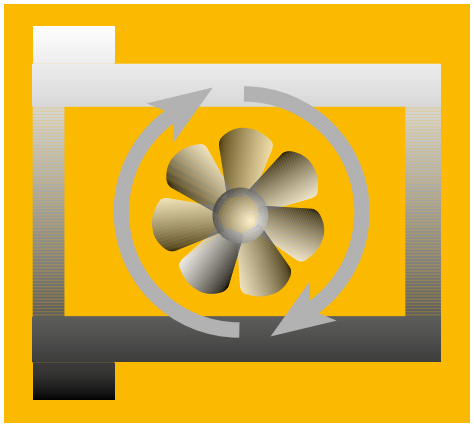
Order online
including delivery times, prices, online tools
www.igus.eu/W360

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





For fast rotating applications

Low coefficient of friction under low load

iglidur® L250

When to use it?

- For rotating applications at high speed
- When the highest service life is required
- For low load applications
- When a low noise level is required
- For very low coefficient of friction

When not to use it?

- When high pressure occurs
  iglidur® Q, iglidur® W300
- When continuous operating temperatures are higher than +90°C
  iglidur® V400
- When low moisture absorption is required
  iglidur® H1, iglidur® J

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Bearing technology | Plain bearings | iglidur® L250

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For fast rotating applications
Low coefficient of friction under low load

Plain bearings for high speed rotation applications, especially for fans and motors.

- Suitable for high rotating speeds
- Low coefficient of friction
- Very wear-resistant
- Lubrication-free
- Maintenance-free

Typical application areas

- Automotive industry
- Electronics industry
- Mechatronics
- Optical industry
- Test engineering and quality assurance

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■□□	+
Wear resistance at +90°C	–	■■■□□	+
Wear resistance at +150°C	–	■■□□□	+
Slide property	-	■■■■■	+
Wear resistance under water	–	■□□□□	+
Media resistance	–	■■■□□	+
Resistant to edge pressures	–	■■■■□	+
Resistant to shock and impact loads	–	■■■■□	+
Dirt resistance	–	■■■□□	+

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Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® L250
+90°C
45MPa

Technical data

General properties			Testing method
Density	g/cm³	1.50	
Colour		beige	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.7	DIN 53495
Max. moisture absorption	% weight	3.9	
Coefficient of friction, dynamic, against steel	µ	0.08-0.19	
pv value, max. (dry)	MPa · m/s	0.40	
Mechanical properties			
Flexural modulus	MPa	1,950	DIN 53457
Flexural strength at +20°C	MPa	67	DIN 53452
Compressive strength	MPa	47	
Max. permissible surface pressure (+20°C)	MPa	45	
Shore D hardness		68	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+180	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Table 01: Material properties

-40°C up to +90°C

45MPa

HB

RoHS-II

ISO 3547-1

iglidur® L250 is a bearing material for high rotation speeds and low coefficient of friction. The iglidur® L250 material can highlight these advantages particularly with low loads. Applications which feature these advantages are fans, small motors, fast-running sensors or the magnet technology.

Moisture absorption

With regard to applications where the smallest bearing clearances are concerned, please take the moisture absorption into consideration.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® L250 bearings.

Radiation resistance

Plain bearings made from iglidur® L250 are resistant up to a radiation intensity of $3 \cdot 10^4$ Gy. Higher radiation weakens the material and may result in a significant decrease in mechanical properties.

Resistance to weathering

iglidur® L250 plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® L250 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® L250 under different loads. At the recommended maximum surface pressure of 45MPa the deformation is less than 3% at room temperature. A plastic deformation can be negligible up to this value. It is however also dependent on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® L250

Permissible surface speeds

iglidur® L250 has been developed especially for high surface speeds with low loads. Besides the physical limit, which is pre-set by the heating of the bearing, the coefficient of wear also acts limiting if rapidly high glide paths emerge at high peripheral speeds and the permitted wear limit is thus reached earlier. The maximum speeds are shown in table 03.

Surface speed, page 48

Temperature

iglidur® L250 plain bearings can be used at temperatures up to +180°C for short periods. Note that a mechanical securing of the bearing is recommended from temperatures of +55°C. Higher temperatures can also cause the plain bearing to lose its press-fit and move in the hole.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

In the best pairing (with 304 stainless steel shafts), coefficient of friction of 0.14µ is already reached with low loads. Coefficient of friction under 0.1 was measured already below 10MPa (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

As seen in diagram 06, many shafts are recommendable for low loads and low rotations. The low coefficient of friction is additionally retained over a wide range of recommendable shaft surfaces finish. For loads higher than 1MPa, particular attention should be paid to the shaft material used.

Shaft materials, page 56

Installation tolerances

iglidur® L250 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	1.0	0.7	2.0
Short-term	**m/s**	1.5	1.1	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.08-0.19	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

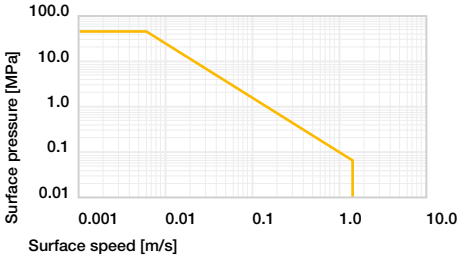


Diagram 01: Permissible pv values for iglidur® L250 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

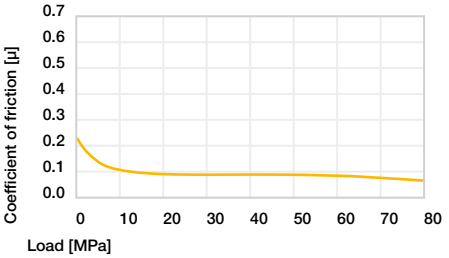


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

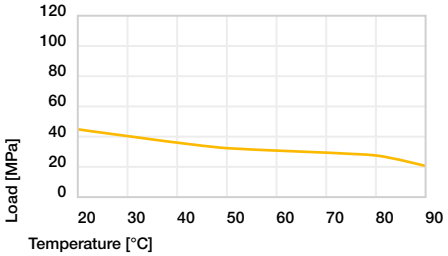


Diagram 02: Maximum recommended surface pressure as a function of temperature (45MPa at +20°C)

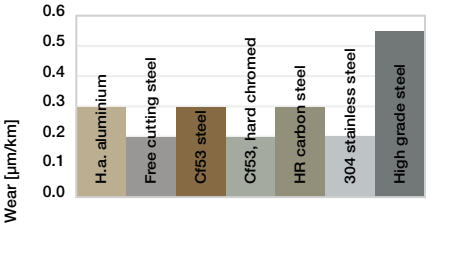


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

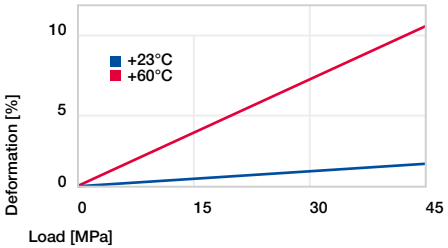


Diagram 03: Deformation under pressure and temperature

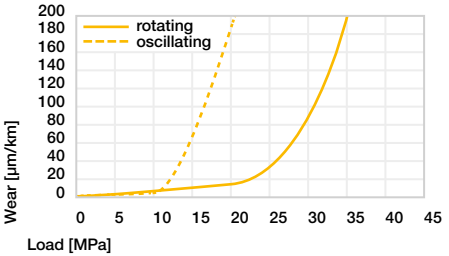


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

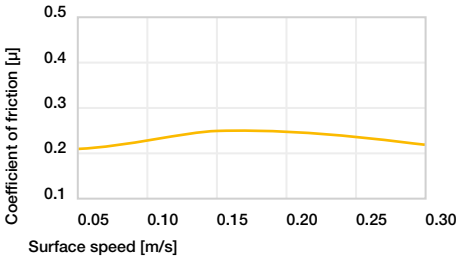
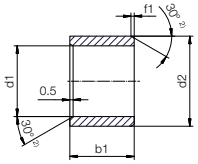


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® L250

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: L250SM-0608-06 **– no minimum order quantity.**
L250 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**L250SM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**L250SM-0810-10**
10.0		12.0	10.0	**L250SM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**L250SM-1214-12**
16.0		18.0	15.0	**L250SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**L250SM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/L250

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

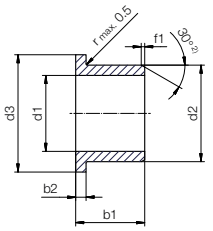
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iglidur® L250
+90°C
45MPa

Bearing technology | Plain bearings | iglidur® L250

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: 250FM-0608-06 **– no minimum order quantity.**
L250 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**L250FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**L250FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**L250FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**L250FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**L250FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**L250FM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

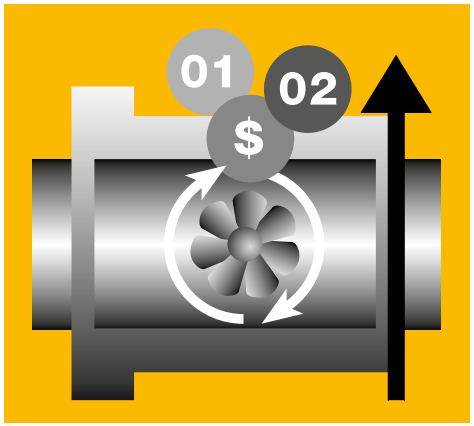
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Ordering note
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Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





For high rotational speeds

High performance at lower cost

iglidur® L350

When to use it?

- For rotating applications at high speed
- When the highest service life is required
- For high pv values with low loads
- At operating temperatures up to +180 °C (long-term, short-term up to max. +210°C)

When not to use it?

- When a universal bearing for high temperatures is required
  iglidur® X
- When medium to high pressures occur
  iglidur® G, iglidur® Q
- For oscillating applications
  iglidur® W300, iglidur® J350

EN 09/2023

Bearing technology | Plain bearings | iglidur® L350

Ø
3.0-10.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For high rotational speeds
High performance at lower cost

iglidur® L350 is extremely long-lasting. Developed for the best coefficient of wear and friction at speeds of 1.5m/s and more, this material outperforms classic plain bearings in high-speed rotation operation.

- Up to 3.5m/s rotating
- Temperature-resistant up to +210°C in continuous use
- Low moisture absorption
- Good price-performance ratio
- Extremely wear-resistant
- Lubrication and maintenance-free
- Standard range from stock

Typical application areas

- Electric motors
- Fans
- Household appliances

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® L350
+180 °C
59MPa

Technical data

General properties			Testing method
Density	g/cm³	1.54	
Colour		dark grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.4	DIN 53495
Max. moisture absorption	% weight	1.4	
Coefficient of friction, dynamic, against steel	µ	0.07-0.18	
pv value, max. (dry)	MPa · m/s	3.00	
Mechanical properties			
Flexural modulus	MPa	15,882	DIN 53457
Flexural strength at +20°C	MPa	210	DIN 53452
Compressive strength	MPa	210	
Max. permissible surface pressure (+20°C)	MPa	59	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+180	
Max. application temperature short-term	°C	+210	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.61	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^5$	DIN IEC 93
Surface resistance	Ω	$> 10^5$	DIN 53482

-100 °C up to +180 °C

59MPa

V-0

RoHS-II

ISO 3547-1

Table 01: Material properties

With iglidur® L350, another lubrication and maintenance-free material is now available, which is designed for continuous high speeds. Due to the low thermal expansion and low moisture absorption, bearings can be manufactured with very little clearance. iglidur® L350 is especially suitable for use in fans, blowers or electric motors – and the costs are also lower.

Moisture absorption

The very low moisture absorption of 0.4 %weight in standard climatic conditions and 1.4 %weight at maximum water absorption also enables continuous operation in high humidity or in liquid media.

Vacuum

In vacuum, the moisture content is released as vapour. Due to its low moisture absorption, use in a vacuum is possible.

Radiation resistance

Plain bearings made from iglidur® L350 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy. Higher radiation affects the material and may result in a significant decrease in mechanical properties.

Resistance to weathering

iglidur® L350 plain bearings have not yet been tested for their resistance to weathering. Please consult igus® if you're planning to use them outdoors.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® L350 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® L350 under different loads. At the recommended maximum surface pressure of 59MPa the deformation is less than 2.5% at room temperature. A plastic deformation can be negligible up to this value. It is however also dependent on the duty cycle of the load.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® L350

Permissible surface speeds

iglidur® L350 has been developed especially for high surface speeds with low loads. Due to the high temperature resistance of iglidur® L350, the physical limit created from heating of the bearing has been increased significantly. In addition, the extremely low wear allows the high acceleration speeds to be reached and maintained. The maximum speeds are shown in table 03.

Surface speed, page 48

Temperature

The iglidur® L350 plain bearings can be used at temperatures up to +210°C for short periods. Note that a mechanical securing of the bearing is recommended from temperatures of +140°C. Higher temperatures can also cause the plain bearing to lose its press-fit and move in the hole.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The very low coefficient of friction remains, even at high speeds. Diagram 04 shows this relationship on a steel shaft at 0.75MPa surface pressure.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 05 compares the wear of a sintered bearing with that of bearings made of the materials iglidur® L500 and L350. At a surface speed of 1.5m/s or more, the wear of the sintered bearing increases exponentially whereas the wear of the iglidur® plain bearings almost remains the same up to a speed of more than 3m/s.

Shaft materials, page 56

Installation tolerances

iglidur® L350 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+ up to 0
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	3.0	1.5	4.0
Short-term	m/s	4.0	3.0	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07-0.18	0.06	0.04	0.03

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings F10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

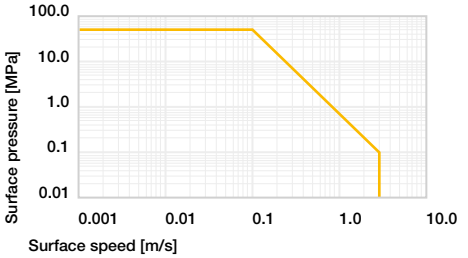


Diagram 01: Permissible pv values for iglidur® L350 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

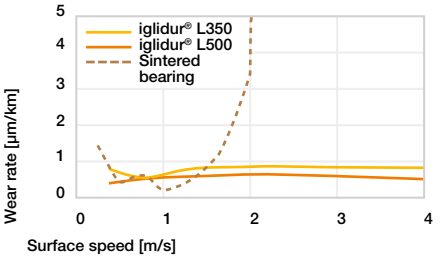


Diagram 05: Rotating wear against Cf53, p = 0.25MPa, T = +23°C

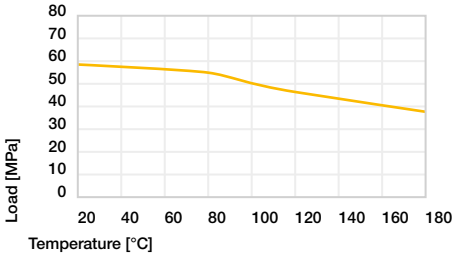


Diagram 02: Maximum recommended surface pressure as a function of temperature (59MPa at +20°C)

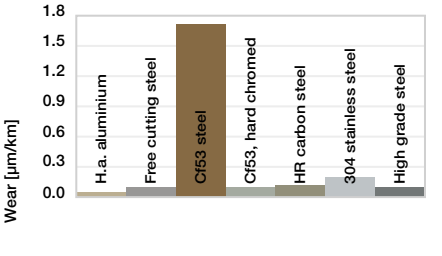


Diagram 06: Wear, rotating with different shaft materials, p = 1MPa, v = 0.3m/s

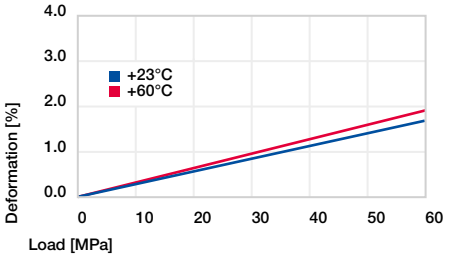


Diagram 03: Deformation under pressure and temperature

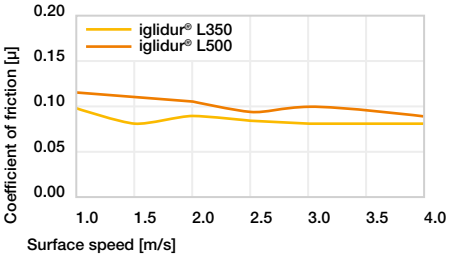


Diagram 07: Rotating coefficient of friction - "High speed" against Cf53, p = 1 MPa (except for iglidur® L250), T = +23°C

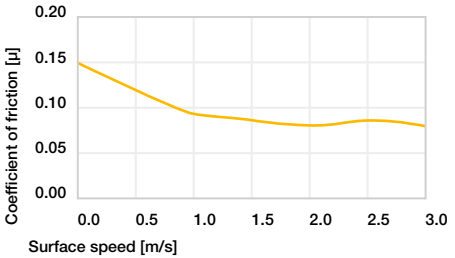
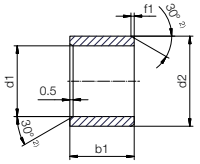


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® L350

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12
f1 [mm]	0.3	0.5

Dimensions according to ISO 3547-1 and special dimensions

Order example: L350SM-0304-03 – no minimum order quantity.
L350 iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	3.0	**L350SM-0304-03**
4.0	+0.010 +0.058	5.5	4.0	**L350SM-0405-04**
5.0		7.0	5.0	**L350SM-0507-05**
6.0		8.0	6.0	**L350SM-0608-06**
8.0	+0.013 +0.071	10.0	10.0	**L350SM-0810-10**
10.0		12.0	10.0	**L350SM-1012-10**

[3] After press-fit. *Testing methods, page 61*

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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
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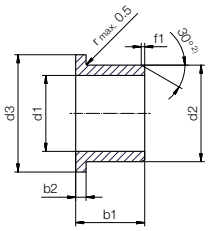
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iglidur® L350
+180 °C
59MPa

Bearing technology | Plain bearings | iglidur® L350

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12
f1 [mm]	0.3	0.5

Dimensions according to ISO 3547-1 and special dimensions

Order example: L350FM-0304-05 – no minimum order quantity.
L350 iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	7.5	5.0	0.75	**L350FM-0304-05**
4.0	+0.010 +0.058	5.5	9.5	6.0	0.75	**L350FM-0405-06**
5.0		7.0	11.0	7.0	1.00	**L350FM-0507-07**
6.0		8.0	12.0	8.0	1.00	**L350FM-0608-08**
8.0	+0.013 +0.071	10.0	15.0	9.0	1.00	**L350FM-0810-09**
10.0		12.0	18.0	9.0	1.00	**L350FM-1012-09**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

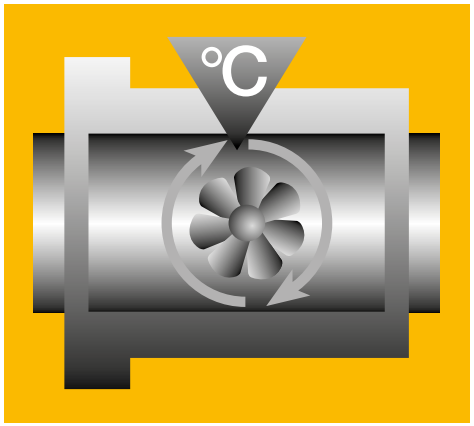
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Discount scaling		
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10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





For extreme rotational speeds

Temperature-resistant and media-resistant

iglidur® L500

When to use it?

- For rotating applications at high speed
- When the highest service life is required
- For high pv values with low loads
- At continuous operating temperatures up to +250°C (short-term up to max. +350°C)

When not to use it?

- When a universal plain bearing for high temperatures is required
  iglidur® X
- When medium to high pressures occur
  iglidur® G, iglidur® Q
- For oscillating applications
  iglidur® W300, iglidur® J350

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Bearing technology | Plain bearings | iglidur® L500

Ø
3.0-10.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For extreme rotational speeds
Temperature-resistant and media-resistant

Specially developed for fast continuous operation under low loads, iglidur® L500, inter alia, is intended for fan and electric motor applications.

- Temperature-resistant up to +250°C
- For rotational movements with surface speeds up to 5m/s
- Very wear-resistant
- Low moisture absorption
- Low thermal expansion
- Lubrication-free
- Maintenance-free

Typical application areas

- Cooling fans
- Electric motors
- Fans, etc.

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
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Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® L500
+250°C
70MPa

Technical data

General properties			Testing method
Density	g/cm³	1.53	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.3	
Coefficient of friction, dynamic, against steel	µ	0.08-0.15	
pv value, max. (dry)	MPa · m/s	4.00	
Mechanical properties			
Flexural modulus	MPa	12,015	DIN 53457
Flexural strength at +20°C	MPa	201	DIN 53452
Compressive strength	MPa	70	
Max. permissible surface pressure (+20°C)	MPa	70	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+315	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.45	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	6	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-100°C up to +250°C

70MPa

V-0

RoHS-II

ISO 3547-1

iglidur® L500 is a plain bearing material for high speeds and fast sliding movements with low loads. Due to the low thermal expansion and low moisture absorption, bearings can be manufactured with very little clearance. Applications which feature these advantages are fans, small motors, fast-running sensors or the magnet technology.

Moisture absorption

The very low moisture absorption of 0.1% weight in standard climatic conditions and 1.4% weight at maximum water absorption also enables continuous operation in high humidity or in liquid media.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

Plain bearings made from iglidur® L500 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy. Higher radiation weakens the material and may result in a significant decrease in mechanical properties.

Resistance to weathering

iglidur® L500 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® L500 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® L500 under different loads. At the recommended maximum surface pressure of 70MPa the deformation is less than 2.5% at room temperature. A plastic deformation can be negligible up to this value. It is however also dependent on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® L500

Permissible surface speeds

iglidur® L500 has been developed especially for high surface speeds with low loads. Due to the high temperature resistance of iglidur® L500, the physical limit created from heating of the bearing has been increased significantly. In addition, the extremely low wear allows the high acceleration speeds to be reached and maintained. The maximum speeds are shown in table 03.

Surface speed, page 48

Temperature

iglidur® L250 plain bearings can be used at temperatures up to +315°C for short periods. For temperatures over +135°C an additional securing is required. Higher temperatures can also cause the plain bearing to lose its press-fit and move in the hole.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The excellent coefficient of friction level of iglidur® L500 in dry operation decreases considerably with speed. Diagram 04 shows this with respect to a steel shaft. As the load increases, the coefficient of friction decreases, especially in the range up to 20MPa (diagram 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 07 shows the result of a comparison test between iglidur® L500 and a sintered bearing. The wear of the sintered bearing increases exponentially above 1.5m/s, while the iglidur® L500 plain bearing retains a near constant wear rate up to and above 4m/s.

Shaft materials, page 56

Installation tolerances

iglidur® L500 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	4.0	1.5	5.0
Short-term	m/s	5.0	3.0	8.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

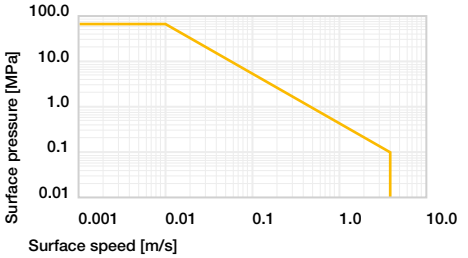


Diagram 01: Permissible pv values for iglidur® L500 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

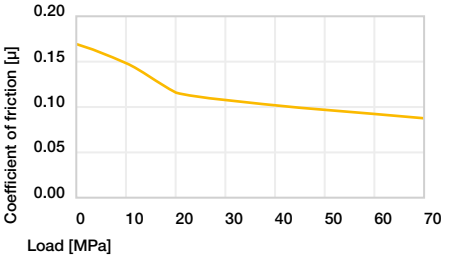


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

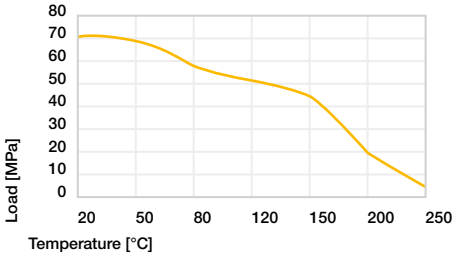


Diagram 02: Maximum recommended surface pressure as a function of temperature (70MPa at +20°C)

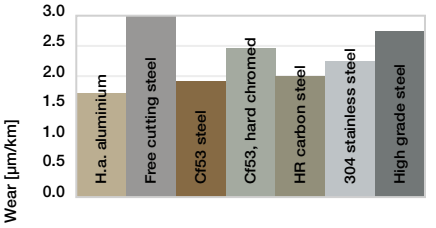


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

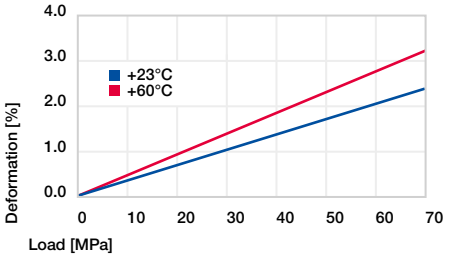


Diagram 03: Deformation under pressure and temperature

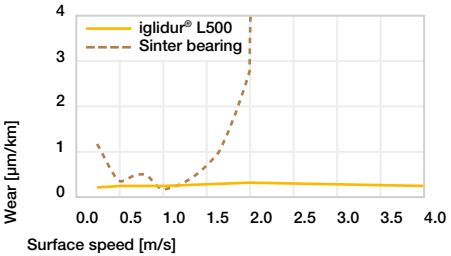


Diagram 07: Rotating wear against Cf53, p = 0.25MPa, T = +23°C

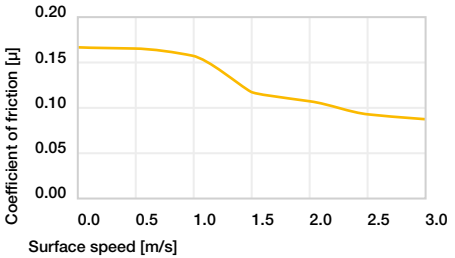
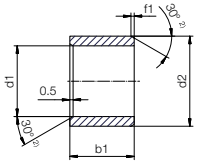


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® L500

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12
f1 [mm]	0.3	0.5

Dimensions according to ISO 3547-1 and special dimensions

Order example: L500SM-0304-03 – no minimum order quantity.
L500 iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	3.0	**L500SM-0304-03**
4.0	+0.010 +0.058	5.5	4.0	**L500SM-0405-04**
5.0		7.0	5.0	**L500SM-0507-05**
6.0		8.0	6.0	**L500SM-0608-06**
8.0	+0.013 +0.071	10.0	10.0	**L500SM-0810-10**
10.0		12.0	10.0	**L500SM-1012-10**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/L500

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

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1-9	50-99	500-999
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25-49	200-499	2,500-4,999

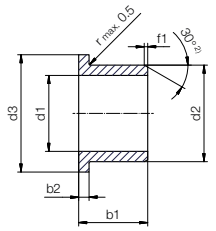
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® L500
+250°C
70MPa

Bearing technology | Plain bearings | iglidur® L500

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12
f1 [mm]	0.3	0.5

Dimensions according to ISO 3547-1 and special dimensions

Order example: L500FM-0304-05 – no minimum order quantity.
L500 iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	7.5	5.0	0.75	**L500FM-0304-05**
4.0	+0.010 +0.058	5.0	9.5	4.0	0.75	**L500FM-0405-04**
5.0		7.0	11.0	7.0	1.00	**L500FM-0507-07**
6.0		8.0	12.0	8.0	1.00	**L500FM-0608-08**
8.0	+0.013 +0.071	10.0	15.0	9.5	1.00	**L500FM-0810-09**
10.0		12.0	18.0	9.5	1.00	**L500FM-1012-09**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

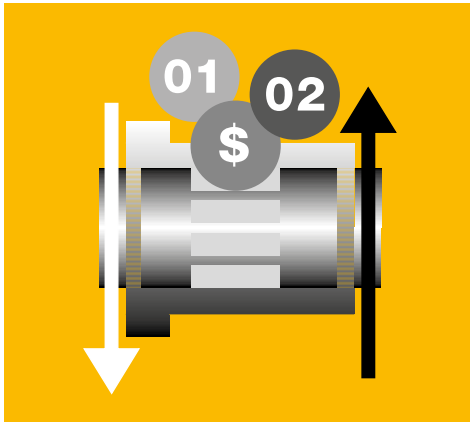
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Low-cost
Abrasion-resistant
iglidur® R

When to use it?

- When high wear resistance at low loads is required
- When a cost-effective plain bearing is required
- When very low coefficient of friction in dry operation are required
- When high edge loads occur
- When you are looking for low water absorption
- When PTFE and silicone are not allowed in your application

When not to use it?

- When high pressure occurs
  iglidur® G
- When continuous operating temperatures are higher than +90°C
  iglidur® G, iglidur® P
- When the best wear resistance is required
  iglidur® J

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Bearing technology | Plain bearings | iglidur® R

Ø
2.0-35.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 846

Low-cost
Abrasion-resistant

Low-cost material with low coefficient of friction and good wear resistance at low to medium loads.

- High wear resistance
- Low coefficient of friction
- Cost-effective
- Low moisture absorption
- Lubrication-free
- Maintenance-free

Typical application areas

- Sports and leisure
- Model making
- Furniture industry
- Mechatronics

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® R
+90°C
23MPa

Technical data

General properties			Testing method
Density	g/cm³	1.39	
Colour		dark red	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.1	
Coefficient of friction, dynamic, against steel	µ	0.09-0.25	
pv value, max. (dry)	MPa · m/s	0.27	
Mechanical properties			
Flexural modulus	MPa	1,950	DIN 53457
Flexural strength at +20°C	MPa	70	DIN 53452
Compressive strength	MPa	68	
Max. permissible surface pressure (+20°C)	MPa	23	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	11	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

-50°C up to +90°C

23MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

The development of the iglidur® R as a bearing material focused on high performance and very low cost. Especially in the dry operation, low coefficient of friction and wear were to be achieved. Plain bearings made from iglidur® R are supported by a combination of solid lubricants. The PTFE and silicon-free material achieves extremely low coefficient of friction in dry operation and runs largely free of stick-slip effects.

Moisture absorption

The moisture absorption of iglidur® R plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 1.1% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® R are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® R plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® R plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® R at radial loads. At the maximum recommended surface pressure of 23MPa the deformation is about 4% at room temperature. A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.
Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® R

Permissible surface speeds

iglidur® R plain bearings are suitable for high surface speeds. Speeds of up to 5.0m/s are permitted in linear motions. The maximum values shown in table 03 can only be achieved at low pressures. The specified values show the speed at which due to friction an increase in temperature up to the long-term permitted value can occur.

Surface speed, page 48

Temperature

With increasing temperatures, the compressive strength of iglidur® R plain bearings decreases. Diagram 02 shows this inverse relationship. The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagram 04 and 05). iglidur® R is especially suitable for applications in which high pv values are induced mainly through the high surface speed rather than surface pressure. Less distinct is the dependency of the coefficient of friction of the iglidur® R plain bearings on the shaft surface.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® R. At 0.3m/s and 1MPa, the high grade steel and Cf53 shafts are the best materials. With increasing loads the iglidur® R bearings feature the best wear behaviour with Cf53 and 304 stainless steel shafts. In pivoting applications, the hard-chromed shaft proves to be the ideal mating surface. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® R plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	3.5
Short-term	m/s	1.2	1.0	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.09-0.25	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

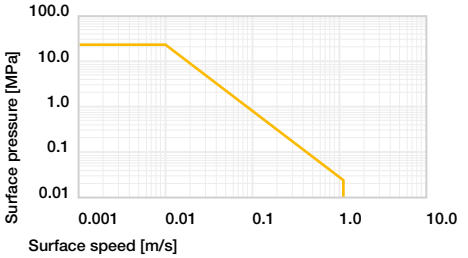


Diagram 01: Permissible pv values for iglidur® R plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

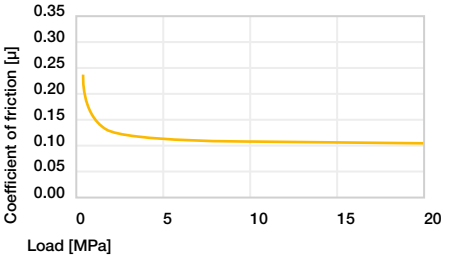


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

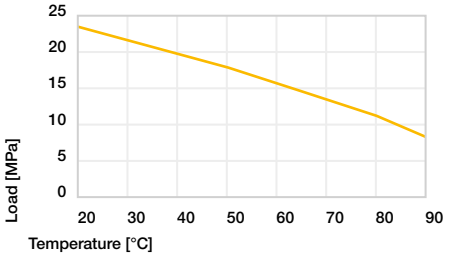


Diagram 02: Maximum recommended surface pressure as a function of temperature (23MPa at +20°C)

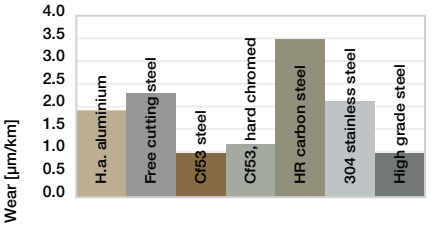


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

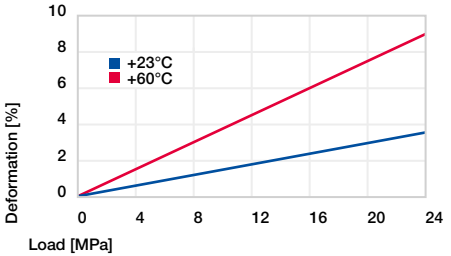


Diagram 03: Deformation under pressure and temperature

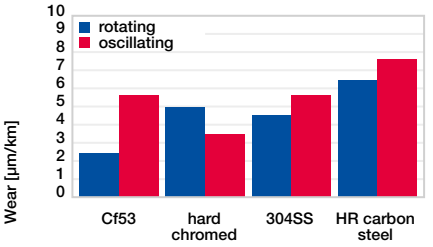


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

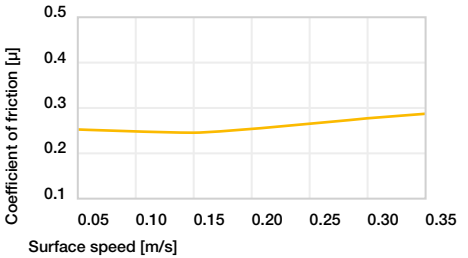
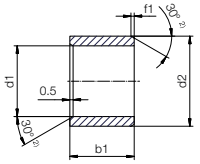


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® R

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: RSM-0203-07 – no minimum order quantity.
R iglidur® material S Cylindrical M Metric 02 Inner Ø d1 03 Outer Ø d2 07 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
2.0	+0.014 +0.054	3.6	7.0	**RSM-0203-07**
4.0	+0.020 +0.068	5.5	4.0	**RSM-0405-04**
5.0		7.0	5.0	**RSM-0507-05**
6.0		8.0	6.0	**RSM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**RSM-0810-10**
10.0		12.0	5.0	**RSM-1012-05**
10.0		12.0	10.0	**RSM-1012-10**
10.0		12.0	15.0	**RSM-1012-15**
12.0	+0.032 +0.102	14.0	12.0	**RSM-1214-12**
14.0		16.0	15.0	**RSM-1416-15**
15.0		17.0	15.0	**RSM-1517-15**
16.0		18.0	15.0	**RSM-1618-15**
18.0		20.0	25.0	**RSM-1820-25**
20.0	+0.040 +0.124	23.0	15.0	**RSM-2023-15**
20.0		23.0	20.0	**RSM-2023-20**
25.0		28.0	25.0	**RSM-2528-25**
28.0		32.0	12.0	**RSM-2832-12**
30.0		34.0	25.0	**RSM-3034-25**
30.0		34.0	30.0	**RSM-3034-30**
35.0	+0.050 +0.150	39.0	30.0	**RSM-3539-30**

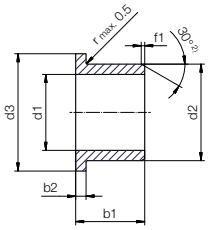
[3] After press-fit. *Testing methods, page 61*

iglidur® R
+90°C
23MPa

Bearing technology | Plain bearings | iglidur® R

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: RFM-0405-03 – no minimum order quantity.
R iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0	+0.020 +0.068	5.5	9.5	3.0	0.75	**RFM-0405-03**
4.0		5.5	9.5	4.0	0.75	**RFM-0405-04**
5.0		7.0	11.0	5.0	1.00	**RFM-0507-05**
6.0		8.0	12.0	6.0	1.00	**RFM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	5.0	1.00	**RFM-0810-05**
8.0		10.0	15.0	10.0	1.00	**RFM-0810-10**
10.0		12.0	18.0	10.0	1.00	**RFM-1012-10**
10.0		12.0	18.0	18.0	1.00	**RFM-1012-18**
12.0	+0.032 +0.102	14.0	20.0	10.0	1.00	**RFM-1214-10**
12.0		14.0	20.0	12.0	1.00	**RFM-1214-12**
14.0		16.0	22.0	17.0	1.00	**RFM-1416-17**
15.0		17.0	23.0	17.0	1.00	**RFM-1517-17**
16.0		18.0	24.0	17.0	1.00	**RFM-1618-17**
18.0		20.0	26.0	17.0	1.00	**RFM-1820-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**RFM-2023-21**
22.0		25.0	29.0	4.5	1.50	**RFM-222529-045**
25.0		28.0	35.0	21.5	1.50	**RFM-2528-21**

[3] After press-fit. *Testing methods, page 61*

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Detailed information about delivery time online.
www.igus.eu/24

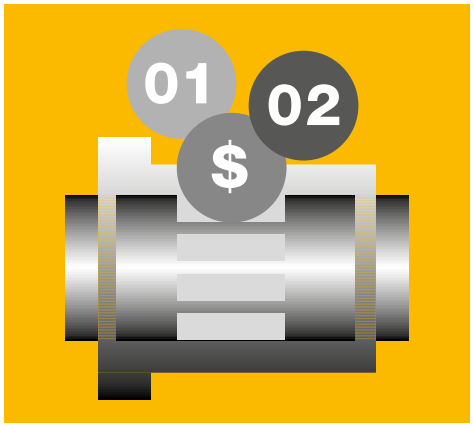
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including delivery times, prices, online tools
www.igus.eu/R

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Low-cost with silicone
Abrasion-resistant
iglidur® D

When to use it?

- When low coefficient of friction is required
- For high speeds
- For low load
- When a cost-effective plain bearing is required

When not to use it?

- When high pressure occurs
  iglidur® G
- When the part should be free of silicone
  iglidur® J, iglidur® R
- When continuous operating temperatures are higher than +90°C
  iglidur® G, iglidur® P

EN 09/2023

Bearing technology | Plain bearings | iglidur® D

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Low-cost with silicone
Abrasion-resistant

Low-cost-material with low coefficient of friction and good wear resistance at low loads.

- Low coefficient of friction
- For low loads
- Cost-effective
- Vibration-dampening
- Low moisture absorption
- Lubrication-free
- Suitable for high surface speeds

Typical application areas

- Sports and leisure
- Model making
- Furniture industry
- Mechatronics

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

Technical data

General properties			Testing method
Density	g/cm³	1.40	
Colour		green	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.1	
Coefficient of friction, dynamic, against steel	µ	0.08-0.26	
pv value, max. (dry)	MPa · m/s	0.27	
Mechanical properties			
Flexural modulus	MPa	2,000	DIN 53457
Flexural strength at +20°C	MPa	72	DIN 53452
Compressive strength	MPa	70	
Max. permissible surface pressure (+20°C)	MPa	23	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	11	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{14}$	DIN IEC 93
Surface resistance	Ω	$> 10^{14}$	DIN 53482

Table 01: Material properties

-50°C up to +90°C

23MPa

HB

RoHS-II

During the development process of iglidur® D as a bearing material, high performance and low price were the top requirements. In particular, low coefficient of friction was required at high speeds in dry operation. This material containing silicone achieves low coefficient of friction in dry operation and runs with virtually no stick-slip.

Moisture absorption
The moisture absorption of iglidur® D plain bearings in ambient conditions is approximately 0.3% weight. The saturation limit submerged in water is 1.1% weight. This low moisture absorption allows its use in wet environments.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance
Plain bearings made from iglidur® D are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® D plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® D plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
iglidur® D plain bearings were specially developed for low radial loads. Diagram 03 shows the elastic deformation of iglidur® D at radial loads. At the maximum recommended surface pressure of 23MPa, the deformation is less than 3%. A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.
Surface pressure, page 45

Bearing technology | Plain bearings | iglidur® D

Permissible surface speeds

iglidur® D plain bearings are suitable for high surface speeds. Speeds of up to 10.0m/s are permitted in linear motions. The maximum values shown in table 03 can only be achieved at low pressures. The specified values show the speed at which due to friction an increase in temperature up to the long-term permitted value can occur.

Surface speed, page 48

Temperature

With increasing temperatures, the compressive strength of iglidur® D plain bearings decreases. Diagram 02 shows this inverse relationship. The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagram 04 and 05). In the Ra range between 0.4-0.6μm, the coefficient of friction attains its optimum value.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® D. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® D plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® D plain bearings are manufactured to special order.

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	1.5	1.1	8.0
Short-term	**m/s**	3.0	2.1	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.26	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

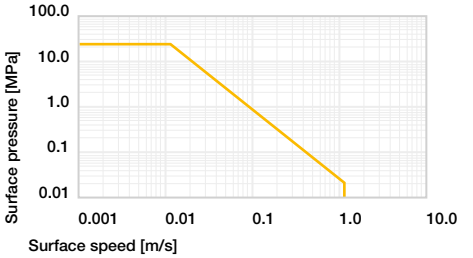


Diagram 01: Permissible pv values for iglidur® D plain bearing with a wall thickness of 1 mm dry operation against a steel shaft at +20°C, mounted in a steel housing

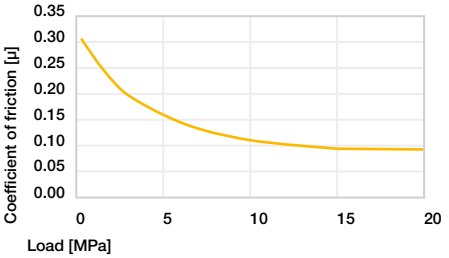


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

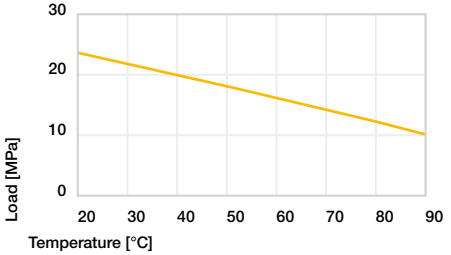


Diagram 02: Maximum recommended surface pressure as a function of temperature (23MPa at +20°C)

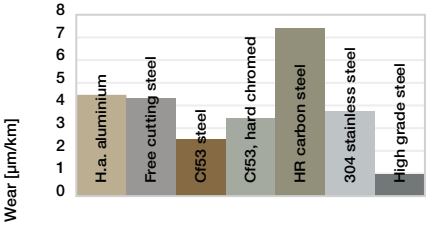


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

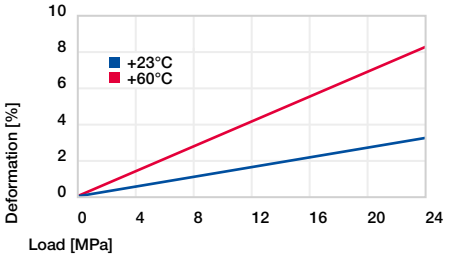


Diagram 03: Deformation under pressure and temperature

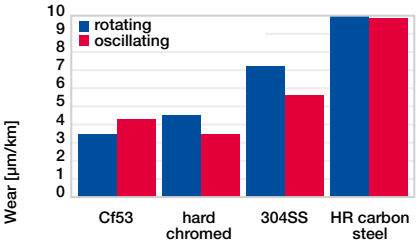


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

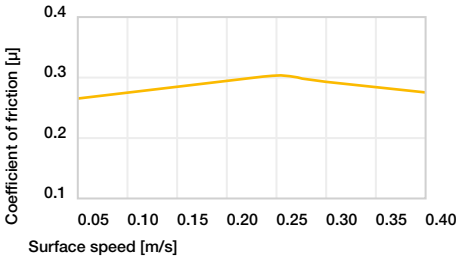
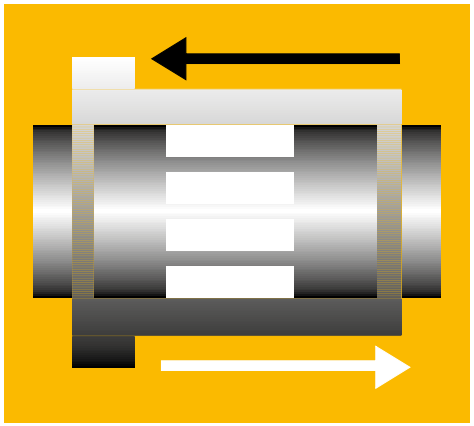


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa





Specialist for linear movement

Low wear with low coefficient of friction

iglidur® J200

When to use it?

- For applications with hard-anodised shafts
- When lowest coefficient of friction is required
- When long service life at low loads is required

When not to use it?

- For steel shafts
  iglidur® J, iglidur® W300
- When continuous operating temperatures are higher than +90°C
  iglidur® V400
- When a cost-effective universal plain bearing is required
  iglidur® G, iglidur® P

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Bearing technology | Plain bearings | iglidur® J200

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Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Specialist for linear movement
Low wear with low coefficient of friction

The specialist for low coefficient of friction and minimal wear with hard-anodised aluminium shafts.

- Recommended for hard-anodised aluminium shafts
- Low coefficient of friction
- High wear resistance
- For low and medium loads
- Lubrication-free
- Maintenance-free

Typical application areas

- Automation
- Linear technology
- Actuator

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

Technical data

General properties			Testing method
Density	g/cm³	1.72	
Colour		matt grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.7	
Coefficient of friction, dynamic, against steel	µ	0.11-0.17	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	2,800	DIN 53457
Flexural strength at +20°C	MPa	58	DIN 53452
Compressive strength	MPa	43	
Max. permissible surface pressure (+20°C)	MPa	23	
Shore D hardness		70	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+120	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	8	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^8$	DIN IEC 93
Surface resistance	Ω	$> 10^8$	DIN 53482

Table 01: Material properties

-50°C up to +90°C

23MPa

HB

RoHS-II

iglidur® J200 is the result of the development of extremely low friction plain bearing materials. When using plain bearings in linear motion, friction can be critical. Many materials can give low coefficient of friction under high loads, but iglidur® J200 can give excellent friction values even at low loads.

Moisture absorption
The moisture absorption of iglidur® J200 plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 0.7% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance
Plain bearings made from iglidur® J200 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® J3 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® J200 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
At the maximum permissible load of 23MPa, the deformation is approximately 3.5% (diagram 03). A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.
Surface pressure, page 45

Bearing technology | Plain bearings | iglidur® J200

Permissible surface speeds

iglidur® J200 allows high surface speeds due to its excellent coefficient of friction. Continuous rotation speeds of 1.0m/s are possible. The permitted speeds are clearly higher yet in linear movements or in short-term operation. Speeds of over 15.0m/s have already been successfully tested in linear applications.

Surface speed, page 48

Temperature

The maximum permissible temperature of +120°C should not be exceeded. Therefore the ambient temperature generated by friction has to be added. From +60°C upwards, the bearing should be mechanically retained, so as to avoid the bearing moving out of the hole. The wear resistance also decreases exponentially from +70°C upwards.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Among all the iglidur® materials, iglidur® J200 exhibits the lowest coefficient of friction. The average coefficient of friction of all measurements, even with different shaft materials, is 0.11µ. The use of hard-anodised aluminium as a shaft material is also of importance. The comparison with the rest of the iglidur® materials shows that iglidur® J200 plain bearings are suitable for rather low loads. The influence of surface speed and load on the coefficient of friction is small. The change of the coefficient of friction at high loads is in the normal range (diagrams 04 and 05). Surface finishes (Ra) of the shaft between 0.2-0.4 µm are ideal. The influence of the shaft material on the wear resistance is significant. Even at low loads, we recommend to have a closer look into the wear database.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The shaft material has a great impact on the wear resistance. In fact, all shaft materials (smooth or hardened) are suitable for use with iglidur® J200, but the best results are achieved with hard-anodised aluminium. In particular when used in linear motion, this running surface has proven its value.

Shaft materials, page 56

Installation tolerances

iglidur® J200 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® J200 plain bearings are manufactured to special order.

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	10.0
Short-term	m/s	1.5	1.1	15.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.11-0.17	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

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iglidur® J200
+90°C
23MPa

Technical data

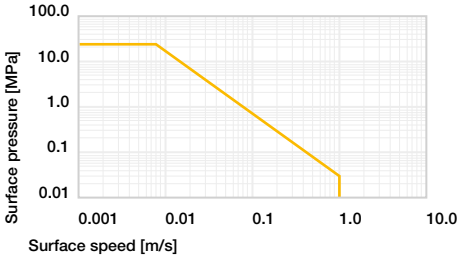


Diagram 01: Permissible pv values for iglidur® J200 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

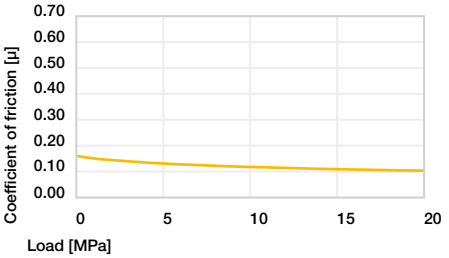


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

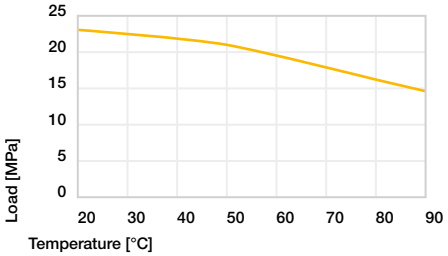


Diagram 02: Maximum recommended surface pressure as a function of temperature (23MPa at +20°C)

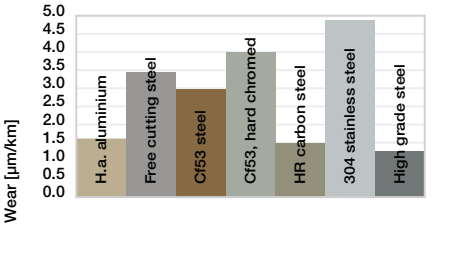


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

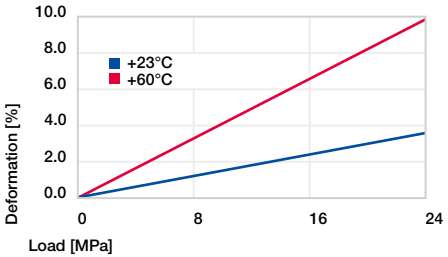


Diagram 03: Deformation under pressure and temperature

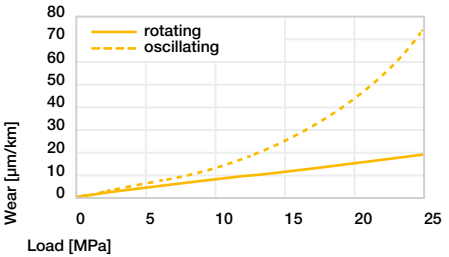


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

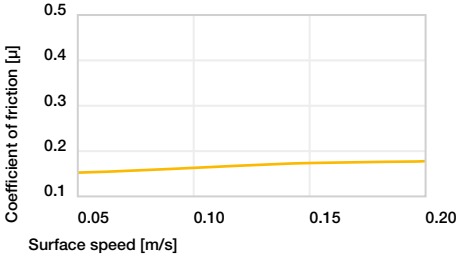
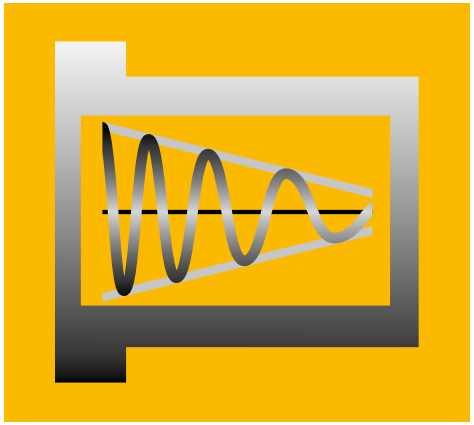


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

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Ideal for pivoting movement

Vibration-dampening with low coefficient of friction for low or medium loads

iglidur® E7

When to use it?

- When good dampening properties and quiet operation are required
- When a low coefficient of friction in a pivoting movement is required
- When a tough material is required

When not to use it?

- When high pressures occur
  iglidur® G, iglidur® Z
- When continuous operating temperatures are higher than +70°C
  iglidur® J350
- When universal wear resistance is required
  iglidur® J

EN 09/2023

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Bearing technology | Plain bearings | iglidur® E7

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Ideal for pivoting movement

Vibration-dampening with low coefficient of friction for low or medium loads

For the first time, the material iglidur® E7, well-known from drylin® linear technology, is also available as a plain bearing. Plain bearings made of the material offer excellent coefficient of friction and wear with low to medium loads.

- Noise-dampening
- Low coefficient of friction
- Lubrication-free
- Corrosion-free

Typical application areas

- Packaging industry
- Textile industry
- Furniture/Industrial design

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■■	+
Wear resistance at +90°C	–	■■■■■	+
Wear resistance at +150°C	–	■□□□□	+
Slide property	–	■■■■■	+
Wear resistance under water	–	■■■□□	+
Media resistance	–	■■■■□	+
Resistant to edge pressures	–	■■■■□	+
Resistant to shock and impact loads	–	■■■■□	+
Dirt resistance	–	■■■■□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® E7
+70°C
18MPa

Technical data

General properties			Testing method
Density	g/cm³	1.05	
Colour		dark grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.1	
Coefficient of friction, dynamic, against steel	µ	0.09-0.23	
pv value, max. (dry)	MPa · m/s	0.22	
Mechanical properties			
Flexural modulus	MPa	1,477	DIN 53457
Flexural strength at +20°C	MPa	22	DIN 53452
Compressive strength	MPa	18	
Max. permissible surface pressure (+20°C)	MPa	18	
Shore D hardness		61	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+70	
Max. application temperature short-term	°C	+90	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	25	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$>10^9$	DIN IEC 93
Surface resistance	Ω	$>10^9$	DIN 53482

-50°C up to +70°C

18MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

The material E7 offers good vibration-dampening properties. With low coefficient of friction at low and medium loads, the material is a suitable partner for almost all shaft materials.

Moisture absorption

The moisture absorption of iglidur® E7 plain bearings in ambient conditions is approximately 0.1% weight. The saturation limit submerged in water is 0.1% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

Plain bearings made from iglidur® E7 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® E7 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® E7 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this. At the maximum permissible load of 18MPa, the deformation is approximately 3.5% (diagram 03). A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® E7

Permissible surface speeds

iglidur® E7 allows high surface speeds due to its excellent coefficient of friction. Continuous rotation speeds of 0.5m/s are possible. The permitted speeds are clearly higher yet in linear movements or in short-term operation. Speeds of over 3.0m/s have already been successfully tested in linear applications.

Surface speed, page 48

Temperature

The maximum permissible temperature of +90°C should not be exceeded. Therefore the ambient temperature generated by friction has to be added. From +30°C upwards, the bearing should be mechanically retained, so as to avoid the bearing moving out of the hole. The wear resistance also decreases exponentially from +90°C upwards.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Among all the iglidur® materials, iglidur® E7 exhibits the lowest coefficient of friction. The average coefficient of friction of all measurements, even with different shaft materials, is 0.11µ. The use of hard-anodised aluminium as a shaft material is also of importance. The comparison with the rest of the iglidur® materials shows that iglidur® E7 plain bearings are suitable for rather low loads. The influence of surface speed and load on the coefficient of friction is small. The change of the coefficient of friction at high loads is in the normal range (diagrams 04 and 05). Surface finishes (Ra) of the shaft between 0.8µm are ideal. The influence of the shaft material on the wear resistance is significant. Even at low loads, we recommend to have a closer look into the wear database.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The shaft material has a great impact on the wear resistance. In fact, all shaft materials (smooth or hardened) are suitable for use with iglidur® E7, but the best results are achieved with hard-anodised aluminium. In particular when used in linear motion, this running surface has proven its value.

Shaft materials, page 56

Installation tolerances

iglidur® E7 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.5	0.4	2.0
Short-term	m/s	0.8	0.6	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.09-0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® E7
+70°C
18MPa

Technical data

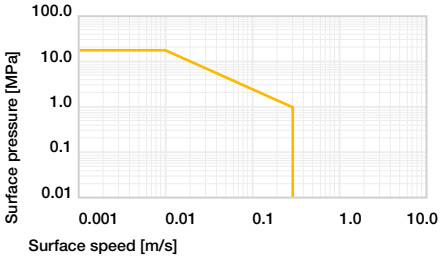


Diagram 01: Permissible pv values for iglidur® E7 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

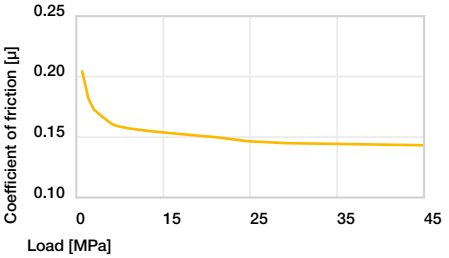


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

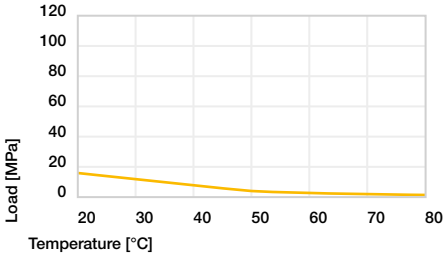


Diagram 02: Maximum recommended surface pressure as a function of temperature (18MPa at +20°C)

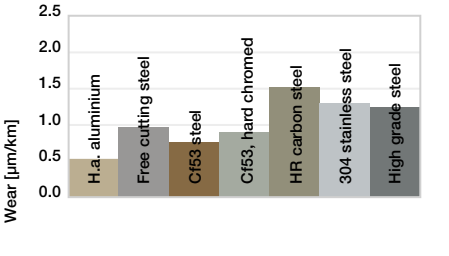


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

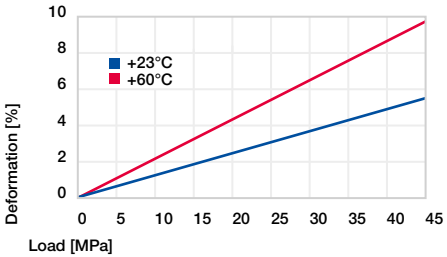


Diagram 03: Deformation under pressure and temperature

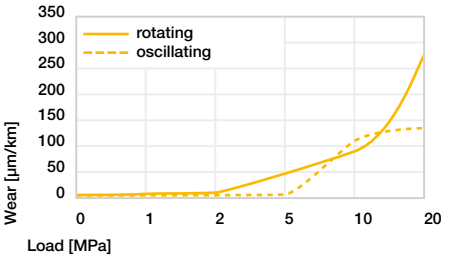


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

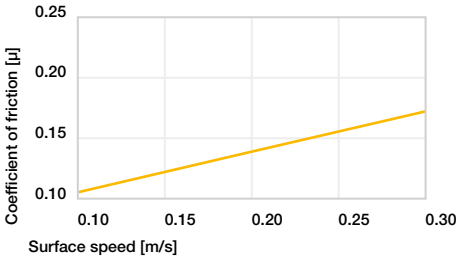
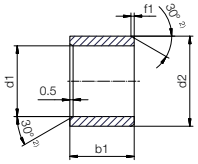


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® E7

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: E7SM-0608-06 – no minimum order quantity.
E7 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**E7SM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**E7SM-0810-10**
10.0		12.0	10.0	**E7SM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**E7SM-1214-12**
16.0		18.0	15.0	**E7SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**E7SM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/E7

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

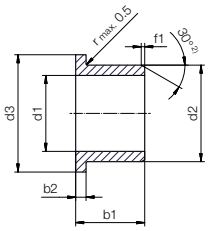
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® E7
+70°C
18MPa

Bearing technology | Plain bearings | iglidur® E7

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: E7FM-0608-06 – no minimum order quantity.
E7 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**E7FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**E7FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**E7FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**E7FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**E7FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**E7FM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

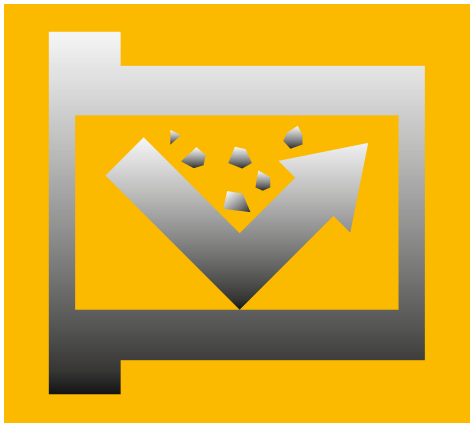
Order online
including delivery times, prices, online tools
www.igus.eu/E7

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Extremely wear-resistant

Strong performer on most shafts, very low coefficient of friction

iglidur® E

When to use it?

- For high speeds
- When highest wear resistance at low to medium pressures is required
- Low wear against different shafts
- When a low coefficient of friction in dry operation is requested
- For vibration dampening
- When good chemical resistance is required
- For best performance with soft shaft materials
- Low moisture absorption

When not to use it?

- When high pressures occur
  iglidur® G, iglidur® W300
- When temperatures higher than +120 °C occur
  iglidur® G, iglidur® Z
- When a cost-effective plain bearing for occasional movements is necessary
  iglidur® G

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Bearing technology | Plain bearings | iglidur® E

Ø
6.0 - 20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 848

Extremely wear-resistant

Strong performer on most shafts, very low coefficient of friction

iglidur® E is especially characterised by its long service life in combination with hard-anodised aluminium shafts. Especially in linear and pivoting movement, iglidur® E offers particularly good wear-resistant properties.

- Low coefficient of friction
- Wear-resistant material for continuous operation
- Vibration-dampening

Typical application areas

- Textile industry
- Packaging industry
- Printing industry
- Vending machinery

Descriptive technical specifications		
Wear resistance at +23°C	-	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

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Online service life calculation
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EN 09/2023

iglidur® E
+90°C
37MPa

Technical data

General properties			Testing method
Density	g/cm³	1.50	
Colour		beige	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.7	
Coefficient of friction, dynamic, against steel	µ	0.08 -0.23	
pv value, max. (dry)	MPa · m/s	0.25	
Mechanical properties			
Flexural modulus	MPa	2,975	DIN 53457
Flexural strength at +20°C	MPa	79	DIN 53452
Compressive strength	MPa	n.s.	
Max. permissible surface pressure (+20°C)	MPa	37	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+120	
Min. application temperature	°C	up to -50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	n.s.	
Surface resistance	Ω	> 10^{12}	DIN 53482

Table 01: Material properties

-50°C up to +90°C

37MPa

HB

RoHS-II

ISO 3547-1

One main advantage of iglidur® E plain bearings is the combination of a low coefficient of friction in dry operation and the low stick-slip tendency.

Moisture absorption
The moisture absorption of iglidur® E plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 1.7% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum
In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® E bearings.

Radiation resistance
Plain bearings made from iglidur® E are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® E plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® E plain bearings decreases Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +90°C, the permitted surface pressure still amounts to 20MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
With a maximum recommended surface pressure of 37MPa, iglidur® E plain bearings are not suitable for extreme loads. Diagram 03 shows the elastic deformation of iglidur® E at radial loads.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® E

Permissible surface speeds

The low coefficient of friction and no stick-slip tendency of iglidur® E plain bearings are particularly important at very low speeds. However, iglidur® E can also be used for high speeds of over 1m/s. In both cases the static friction is very low and stick slip does not occur. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

iglidur® E plain bearings can be used between -50°C and +90°C; the short-term maximum permissible temperature is +120°C. Wear increases significantly at temperatures above +80°C. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. With increasing shaft surface finish, the coefficient of friction also increases. For iglidur® E a ground surface with an average surface finish Ra = 0.1-0.3μm is recommended. Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® E. When compared to most other iglidur® materials, iglidur® E plain bearings have very low wear results at low loads compared with all shaft materials tested. Also, for increasing loads up to 5 MPa, the wear resistance of iglidur® E plain bearings is excellent. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® E plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	2.0
Short-term	m/s	1.5	1.1	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08 -0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® E
+90°C
37MPa

Technical data

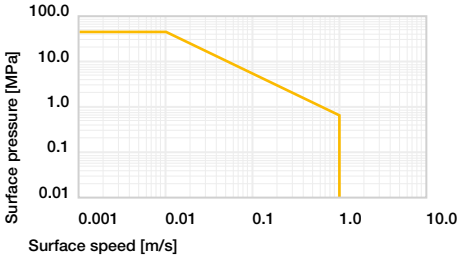


Diagram 01: Permissible pv values for iglidur® E plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

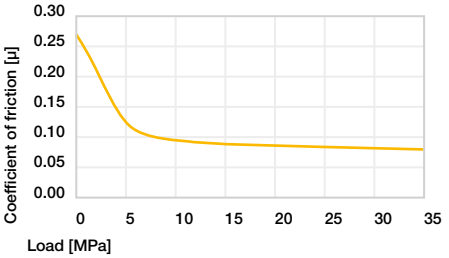


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

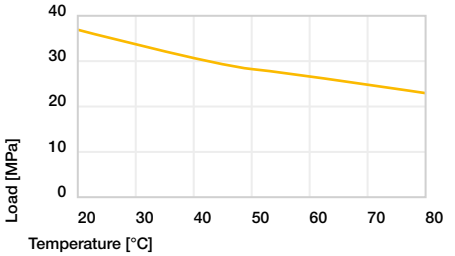


Diagram 02: Maximum recommended surface pressure as a function of temperature (35MPa at +20°C)

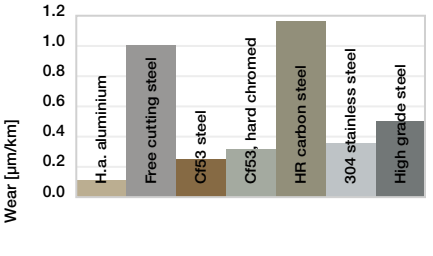


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

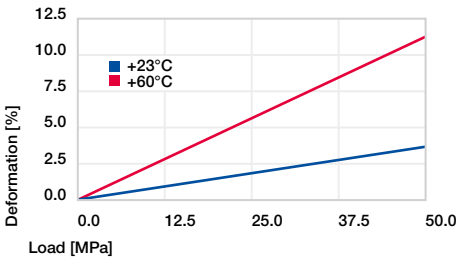


Diagram 03: Deformation under pressure and temperature

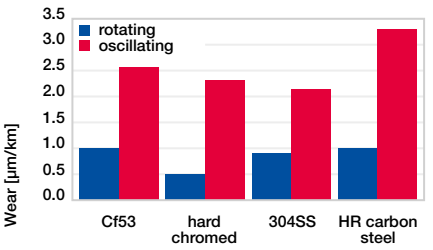


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

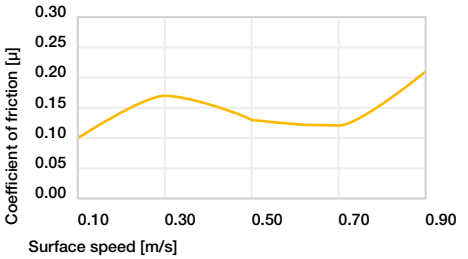
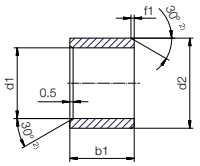


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® E

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: ESM-0608-06 - no minimum order quantity.
E iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**ESM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**ESM-0810-10**
10.0	+0.025 +0.083	12.0	10.0	**ESM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**ESM-1214-12**
16.0	+0.032 +0.102	18.0	15.0	**ESM-1618-15**
16.0	+0.032 +0.102	18.0	17.0	**ESM-1618-17**
20.0	+0.040 +0.124	23.0	20.0	**ESM-2023-20**
20.0	+0.040 +0.124	23.0	21.0	**ESM-2023-21**

[3] After press-fit. *Testing methods, page 61*

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Order online
including delivery times, prices, online tools
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

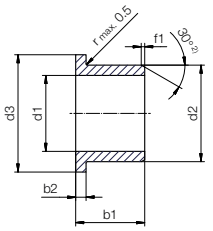
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® E
+90°C
37MPa

Bearing technology | Plain bearings | iglidur® E

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: EFM-0608-06 - no minimum order quantity.
E iglidur® material F With Flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**EFM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	9.5	1.00	**EFM-0810-10**
10.0	+0.025 +0.083	12.0	18.0	9.0	1.00	**EFM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**EFM-1214-12**
16.0	+0.032 +0.102	18.0	24.0	17.0	1.00	**EFM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**EFM-2023-21**

[3] After press-fit. *Testing methods, page 61*

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Order online
including delivery times, prices, online tools
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Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.



Plain bearing materials for high temperatures

Plain bearing materials for high temperatures

Here you will find high-temperature specialists for continuous operating temperatures up to +250°C (exception: iglidur® V400 with +200°C).
In the meantime, the iglidur® X6 surpasses the standard iglidur® X here in many rotating and pivoting applications. iglidur® Z has also been long established as standard with extremely low wear rates under high loads and/or temperatures. iglidur® V400 is characterised as a problem solver in many special cases, and iglidur® UW500 is the specialist for hot liquids.

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert



iglidur® X
The chemical and temperature specialist

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	150	– +
Coefficient of friction [µ] [125]	0.31	– +
Wear [µm/km] [125]	6.30	– +
Price index		– +



iglidur® Z
Long service life under extreme conditions

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	150	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	1.00	– +
Price index		– +



iglidur® X6
The high-temperature specialist up to +250°C

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	150	– +
Coefficient of friction [µ] [125]		– +
Wear [µm/km] [125]		– +
Price index		– +



iglidur® V400
For soft shafts and high temperatures

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	45	– +
Coefficient of friction [µ] [125]	0.19	– +
Wear [µm/km] [125]	0.30	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating



iglidur® HSD350
All-rounder for steam sterilisation

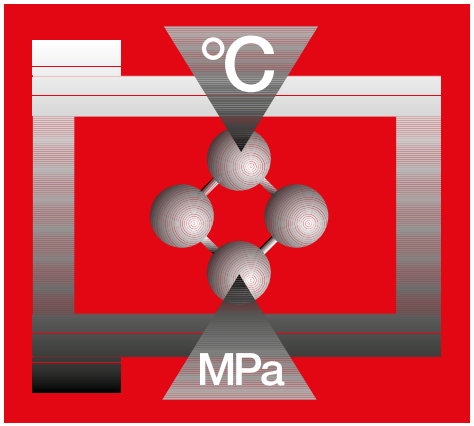
Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	30	– +
Coefficient of friction [µ] [125]	1.15	– +
Wear [µm/km] [125]	2.00	– +
Price index		– +



iglidur® UW500
For hot liquids

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	140	– +
Coefficient of friction [µ] [125]	0.33	– +
Wear [µm/km] [125]	2.20	– +
Price index		– +





The chemical and temperature specialist

Up to 150MPa

iglidur® X

When to use it?

- For pressure loads up to 150MPa
- For linear movements with stainless steel at high temperatures
- Universal chemical resistance
- For temperature resistance from -100°C to +250°C (short-term up to +315°C)
- For very low moisture absorption
- For high wear resistance over the entire temperature range

When not to use it?

- For very low wear at high loads
  iglidur® Q, iglidur® Z
- When a cost-effective plain bearing for underwater use is required
  iglidur® H, iglidur® H370
- For edge loads
  iglidur® Z

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Bearing technology | Plain bearings | iglidur® X

Ø
2.0-120.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 847

The chemical and temperature specialist
Up to 150MPa

iglidur® X is defined by its combination of very high temperature resistance with high compressive strength, along with high resistance to chemicals. iglidur® X is designed for higher speeds than other iglidur® bearings.

- Continuous operating temperature from -100°C to +250°C
- Extremely high chemical resistance
- High compressive strength
- Low moisture absorption
- High wear resistance

Typical application areas

- Beverage industry
- Woodworking
- Plastic processing industry
- Aerospace engineering
- Cleanroom

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® X
+250°C
150MPa

Technical data

General properties			Testing method
Density	g/cm³	1.44	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.09-0.27	
pv value, max. (dry)	MPa · m/s	1.32	
Mechanical properties			
Flexural modulus	MPa	8,100	DIN 53457
Flexural strength at +20°C	MPa	170	DIN 53452
Compressive strength	MPa	100	
Max. permissible surface pressure (+20°C)	MPa	150	
Shore D hardness		85	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+315	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.60	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	5	DIN 53752
Electrical properties[5]			
Specific transitional resistance	Ωcm	$< 10^5$	DIN IEC 93
Surface resistance	Ω	$< 10^3$	DIN 53482

[5] The good conductivity of this material can favour the generation of corrosion on the metallic contact components.

Table 01: Material properties

-100°C up to +250°C

150MPa

V-0

RoHS-II

ISO 3547-1

iglidur® X has an excellent combination of high temperature resistance, high compressive strength, and excellent resistance to chemicals. The aspect of temperature resistance and pressure susceptibility is also reflected in the pv graph.

Moisture absorption

The moisture absorption of iglidur® X plain bearings is very low. It is approximately 0.1% weight under standard climatic conditions. The maximum moisture absorption is 0.5% weight.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

Plain bearings made from iglidur® X are resistant up to a radiation intensity of $1 \cdot 10^5$ Gy.

Resistance to weathering

iglidur® X plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® X plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® X at radial loads.
Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® X

Permissible surface speeds

iglidur® X is designed for higher speeds than other iglidur® bearings. This is enabled by its high temperature resistance and excellent thermal conductivity. This is also made clear by the max. pv value of 1.32MPa. However, in this case, only the smallest radial loads may act on the bearings.
At the given speeds, friction can cause a temperature increase to maximum permissible levels.
Surface speed, page 48

Temperature

In the case of a permissible long-term application temperature of +250°C, iglidur® X will even withstand +315°C for short periods. As in the case of all thermoplastics, the compression strength of iglidur® X decreases when temperatures rise. For temperatures over +135°C an additional securing is required. At temperatures over +170°C the axial security of the bearing in the housing needs to be tested. Please contact us if you have questions on bearing use.
Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).
Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® X a ground surface with an average surface finish Ra = 0.6-0.8μm is recommended. Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® X. If the shaft material you plan on using is not shown in these test results, please contact us.
Shaft materials, page 56

Installation tolerances

iglidur® X plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).
Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	0 up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	1.1	5.0
Short-term	m/s	3.5	2.5	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.09-0.27	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

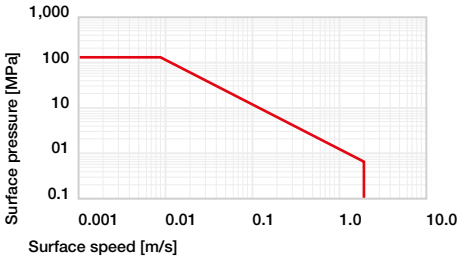


Diagram 01: Permissible pv values for iglidur® X plain bearing with a wall thickness of 1 mm dry operation against a steel shaft at +20°C, mounted in a steel housing

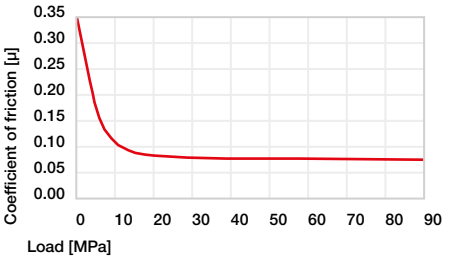


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

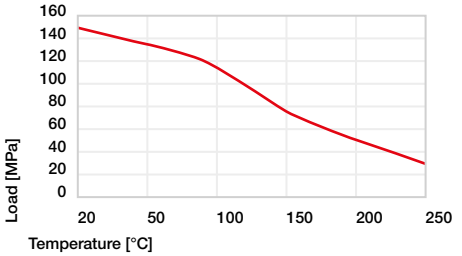


Diagram 02: Maximum recommended surface pressure as a function of temperature (150MPa at +20°C)

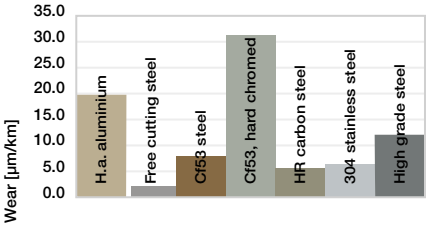


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

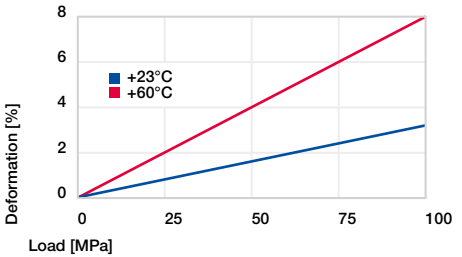


Diagram 03: Deformation under pressure and temperature

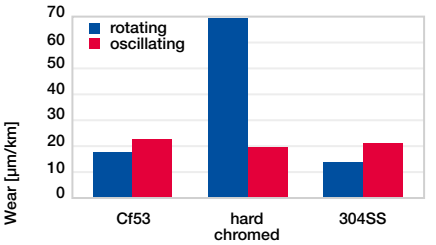


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

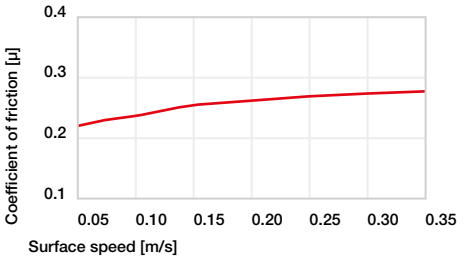
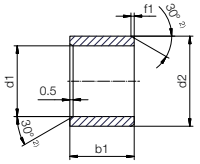


Diagram 04: Coefficient of friction as a function of the surface speed, v = 0.01m/s

Bearing technology | Plain bearings | iglidur® X

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: XSM-0203-03 – no minimum order quantity.
X iglidur® material S Cylindrical M Metric 02 Inner Ø d1 03 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
2.0	+0.006 +0.046	3.5	3.0	XSM-0203-03
3.0		4.5	3.0	XSM-0304-03
3.0		4.5	6.0	XSM-0304-06
4.0		5.5	4.0	XSM-0405-04
4.0		5.5	6.0	XSM-0405-06
4.0		5.5	9.0	XSM-0405-09
4.0		5.5	10.0	XSM-0405-10
5.0		7.0	3.5	XSM-0507-035
5.0	+0.010 +0.058	7.0	5.0	XSM-0507-05
5.0		7.0	8.0	XSM-0507-08
5.0		7.0	10.0	XSM-0507-10
6.0		8.0	6.0	XSM-0608-06
6.0		8.0	8.0	XSM-0608-08
6.0		8.0	10.0	XSM-0608-10
6.0		8.0	13.8	XSM-0608-13
7.0		9.0	10.0	XSM-0709-10
7.0		9.0	12.0	XSM-0709-12
8.0		10.0	6.0	XSM-0810-06
8.0		10.0	8.0	XSM-0810-08
8.0		10.0	10.0	XSM-0810-10
8.0		10.0	12.0	XSM-0810-12
8.0	+0.013	10.0	15.0	XSM-0810-15
10.0	+0.071	12.0	3.5	XSM-1012-035
10.0		12.0	6.0	XSM-1012-06
10.0		12.0	8.0	XSM-1012-08
10.0		12.0	10.0	XSM-1012-10
10.0		12.0	12.0	XSM-1012-12
10.0		12.0	15.0	XSM-1012-15
10.0		12.0	20.0	XSM-1012-20
12.0	+0.016 +0.086	14.0	3.5	XSM-1214-035
12.0		14.0	6.0	XSM-1214-06
12.0		14.0	8.0	XSM-1214-08
12.0		14.0	10.0	XSM-1214-10
12.0		14.0	12.0	XSM-1214-12
12.0		14.0	15.0	XSM-1214-15
12.0		14.0	20.0	XSM-1214-20
12.0		14.0	25.0	XSM-1214-25
13.0		15.0	10.0	XSM-1315-10
13.0		15.0	20.0	XSM-1315-20
14.0		16.0	12.0	XSM-1416-12
14.0		16.0	15.0	XSM-1416-15
14.0		16.0	20.0	XSM-1416-20
14.0		16.0	25.0	XSM-1416-25
15.0		17.0	7.0	XSM-1517-07
15.0		17.0	10.0	XSM-1517-10
15.0		17.0	15.0	XSM-1517-15
15.0		17.0	20.0	XSM-1517-20
15.0		17.0	25.0	XSM-1517-25
16.0		18.0	10.0	XSM-1618-10
16.0		18.0	12.0	XSM-1618-12
16.0		18.0	15.0	XSM-1618-15
16.0		18.0	20.0	XSM-1618-20
16.0		18.0	25.0	XSM-1618-25
16.0		18.0	35.0	XSM-1618-35
17.0		19.0	20.0	XSM-1719-20
18.0		20.0	15.0	XSM-1820-15
18.0		20.0	20.0	XSM-1820-20
18.0		20.0	25.0	XSM-1820-25

[3] After press-fit. *Testing methods, page 61*

iglidur® X
+250°C
150MPa

Product range

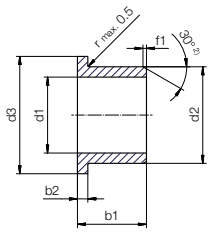
d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
20.0	+0.016 +0.086	22.0	14.0	XSM-2022-140
20.0		22.0	14.5	XSM-2022-145
20.0		22.0	17.0	XSM-2022-17
20.0		22.0	18.0	XSM-2022-18
20.0		22.0	20.0	XSM-2022-20
20.0		23.0	7.0	XSM-2023-07
20.0		23.0	10.0	XSM-2023-10
20.0		23.0	15.0	XSM-2023-15
20.0		23.0	20.0	XSM-2023-20
20.0		23.0	25.0	XSM-2023-25
20.0		23.0	30.0	XSM-2023-30
22.0		25.0	15.0	XSM-2225-15
22.0		25.0	20.0	XSM-2225-20
22.0		25.0	25.0	XSM-2225-25
22.0		25.0	30.0	XSM-2225-30
24.0		26.0	20.0	XSM-2426-20
24.0		27.0	6.0	XSM-2427-06
24.0		27.0	15.0	XSM-2427-15
24.0		27.0	20.0	XSM-2427-20
24.0	+0.020 +0.104	27.0	25.0	XSM-2427-25
24.0		27.0	30.0	XSM-2427-30
25.0		28.0	7.7	XSM-2528-077
25.0		28.0	9.0	XSM-2528-09
25.0		28.0	12.0	XSM-2528-12
25.0		28.0	13.0	XSM-2528-13
25.0		28.0	15.0	XSM-2528-15
25.0		28.0	20.0	XSM-2528-20
25.0		28.0	25.0	XSM-2528-25
25.0		28.0	30.0	XSM-2528-30
25.0		28.0	35.0	XSM-2528-35
26.0		28.0	10.0	XSM-2628-10
27.0		30.0	5.7	XSM-2730-05
28.0		32.0	20.0	XSM-2832-20
28.0		32.0	25.0	XSM-2832-25
28.0		32.0	30.0	XSM-2832-30
28.0		32.0	69.0	XSM-2832-69
30.0		34.0	10.0	XSM-3034-10
30.0		34.0	15.0	XSM-3034-15
30.0		34.0	20.0	XSM-3034-20
30.0	+0.020 +0.104	34.0	25.0	XSM-3034-25
30.0		34.0	30.0	XSM-3034-30
30.0		34.0	40.0	XSM-3034-40
32.0		36.0	20.0	XSM-3236-20
32.0		36.0	25.0	XSM-3236-25
32.0		36.0	30.0	XSM-3236-30
32.0		36.0	35.0	XSM-3236-35
32.0		36.0	40.0	XSM-3236-40
32.0		36.0	54.0	XSM-3236-54
35.0		39.0	20.0	XSM-3539-20
35.0		39.0	30.0	XSM-3539-30
35.0		39.0	40.0	XSM-3539-40
35.0		39.0	50.0	XSM-3539-50
40.0	+0.025 +0.125	44.0	20.0	XSM-4044-20
40.0		44.0	30.0	XSM-4044-30
40.0		44.0	40.0	XSM-4044-40
40.0		44.0	50.0	XSM-4044-50
45.0		50.0	20.0	XSM-4550-20
45.0		50.0	30.0	XSM-4550-30
45.0		50.0	40.0	XSM-4550-40
45.0		50.0	50.0	XSM-4550-50
50.0		55.0	20.0	XSM-5055-20
50.0		55.0	30.0	XSM-5055-30
50.0		55.0	40.0	XSM-5055-40
50.0		55.0	50.0	XSM-5055-50
50.0		55.0	60.0	XSM-5055-60
55.0		60.0	50.0	XSM-5560-50
60.0		65.0	45.0	XSM-6065-45
60.0		65.0	60.0	XSM-6065-60
65.0	+0.030 +0.150	70.0	50.0	XSM-6570-50
70.0		75.0	70.0	XSM-7075-70
75.0		80.0	60.0	XSM-7580-60
80.0		85.0	100.0	XSM-8085-100
90.0		95.0	100.0	XSM-9095-100
100.0	+0.036 +0.176	105.0	100.0	XSM-100105-100
110.0		115.0	100.0	XSM-110115-100
120.0		125.0	100.0	XSM-120125-100

[3] After press-fit. *Testing methods, page 61*

Bearing technology | Plain bearings | iglidur® X

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: XFM-0304-05 – no minimum order quantity.
X iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
2.0	+0.006	4.0	6.0	3.0	1.00	XFM-020406-03
3.0	+0.046	4.5	7.5	5.0	0.75	XFM-0304-05
4.0		5.5	9.5	4.0	0.75	XFM-0405-04
4.0		5.5	9.5	6.0	0.75	XFM-0405-06
4.0		5.5	8.0	6.0	0.75	XFM-040508-06
5.0	+0.010 +0.058	7.0	11.0	5.0	1.00	XFM-0507-05
6.0		8.0	12.0	4.0	1.00	XFM-0608-04
6.0		8.0	12.0	8.0	1.00	XFM-0608-08
6.0		8.0	12.0	10.0	1.00	XFM-0608-10
8.0		10.0	12.0	4.0	1.00	XFM-081012-04
8.0		10.0	15.0	5.5	1.00	XFM-0810-05
8.0		10.0	15.0	7.5	1.00	XFM-0810-07
8.0		10.0	15.0	8.0	1.00	XFM-0810-08
8.0		10.0	15.0	9.5	1.00	XFM-0810-09
8.0		10.0	14.0	31.5	1.00	XFM-081014-31
9.0		11.0	15.0	18.0	1.00	XFM-0911-18
10.0		12.0	18.0	5.0	1.00	XFM-1012-05
10.0	+0.013	12.0	18.0	6.0	1.00	XFM-1012-06
10.0	+0.071	12.0	18.0	7.0	1.00	XFM-1012-07
10.0		12.0	15.0	8.0	1.00	XFM-1012-08
10.0		12.0	18.0	9.0	1.00	XFM-1012-09
10.0		12.0	18.0	12.0	1.00	XFM-1012-12
10.0		12.0	18.0	15.0	1.00	XFM-1012-15
10.0		12.0	18.0	17.0	1.00	XFM-1012-17
10.0		12.0	18.0	18.0	1.00	XFM-1012-18
10.0		12.0	15.0	22.0	1.00	XFM-1012-22
10.0		12.0	18.0	25.0	1.00	XFM-1012-25
12.0		14.0	18.0	3.9	1.00	XFM-121418-039
12.0		14.0	20.0	5.5	1.00	XFM-1214-055
12.0		14.0	18.0	5.9	1.00	XFM-121418-059
12.0		14.0	20.0	9.0	1.00	XFM-1214-09
12.0		14.0	20.0	12.0	1.00	XFM-1214-12
12.0		14.0	20.0	15.0	1.00	XFM-1214-15
12.0		14.0	20.0	17.0	1.00	XFM-1214-17
14.0		16.0	22.0	10.0	1.00	XFM-1416-10
14.0	+0.016	16.0	22.0	12.0	1.00	XFM-1416-12
14.0	+0.086	16.0	22.0	17.0	1.00	XFM-1416-17
15.0		17.0	23.0	6.0	1.00	XFM-1517-06
15.0		17.0	23.0	9.0	1.00	XFM-1517-09
15.0		17.0	23.0	12.0	1.00	XFM-1517-12
15.0		17.0	23.0	17.0	1.00	XFM-1517-17
16.0		18.0	24.0	12.0	1.00	XFM-1618-12
16.0		18.0	24.0	17.0	1.00	XFM-1618-17
18.0		20.0	26.0	12.0	1.00	XFM-1820-12
18.0		20.0	26.0	17.0	1.00	XFM-1820-17
18.0		20.0	26.0	22.0	1.00	XFM-1820-22
20.0		23.0	30.0	6.5	1.50	XFM-2023-065
20.0		23.0	30.0	7.5	1.50	XFM-2023-075
20.0		23.0	30.0	11.5	1.50	XFM-2023-11
20.0		23.0	30.0	16.5	1.50	XFM-2023-16
20.0	+0.020	23.0	30.0	21.0	1.50	XFM-2023-21
25.0	+0.104	28.0	33.0	8.0	1.00	XFM-252833-08
25.0		28.0	35.0	11.5	1.50	XFM-2528-11
25.0		28.0	35.0	13.5	1.50	XFM-2528-13
25.0		28.0	35.0	16.5	1.50	XFM-2528-16

[3] After press-fit. *Testing methods, page 61*

iglidur® X
+250°C
150MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
25.0		28.0	35.0	21.0	1.50	XFM-2528-21
27.0	+0.020	30.0	38.0	20.0	1.50	XFM-2730-20
30.0	+0.104	34.0	42.0	16.0	2.00	XFM-3034-16
30.0		34.0	42.0	26.0	2.00	XFM-3034-26
30.0		34.0	42.0	40.0	2.00	XFM-3034-40
32.0		36.0	45.0	15.0	2.00	XFM-3236-15
32.0	+0.025	36.0	45.0	26.0	2.00	XFM-3236-26
35.0	+0.125	39.0	47.0	16.0	2.00	XFM-3539-16
35.0		39.0	47.0	26.0	2.00	XFM-3539-26
40.0		44.0	52.0	22.0	2.00	XFM-4044-22
40.0	+0.025	44.0	52.0	30.0	2.00	XFM-4044-30
40.0	+0.125	44.0	52.0	40.0	2.00	XFM-4044-40
45.0		50.0	58.0	50.0	2.00	XFM-4550-50
50.0		55.0	63.0	40.0	2.00	XFM-5055-40
60.0	+0.030	65.0	73.0	40.0	2.00	XFM-6065-40
70.0	+0.150	75.0	83.0	40.0	2.00	XFM-7075-40
75.0		80.0	88.0	50.0	2.00	XFM-7580-50

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/X

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

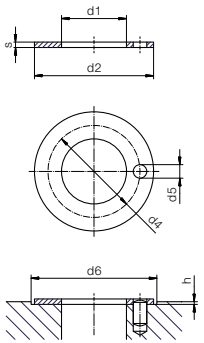
Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

Bearing technology | Plain bearings | iglidur® X

Thrust washer (form T)





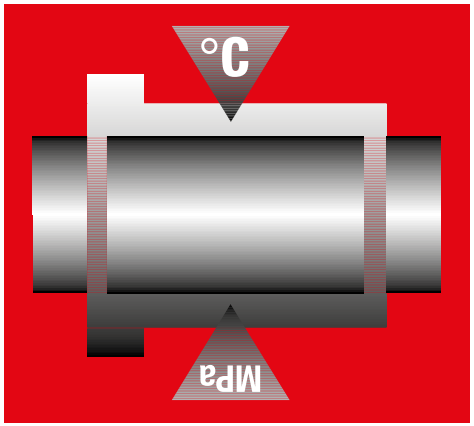
Dimensions according to ISO 3547-1 and special dimensions

Order example: XTM-0620-015 – no minimum order quantity.
X iglidur® material T Thrust washer M Metric 06 Inner Ø d1 20 Outer Ø d2 015 Height s

d1	d2	d4	d5	h	d6	Øs	Part No.
+0.25	-0.25	-0.12 +0.12	+0.375 +0.125	+0.2/-0.2	+0.12	-0.05	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
6	20	13	1.5	1	20	1.5	**XTM-0620-015**
8	18	13	1.5	1	18	1.5	**XTM-0818-015**
8	29	[4]	[4]	1	29	1.5	**XTM-0829-015**
8	30	[4]	[4]	1	30	1.5	**XTM-0830-015**
10	18	[4]	[4]	0.7	18	1	**XTM-1018-010**
12	24	18	1.5	1	24	1.5	**XTM-1224-015**
14	26	20	2	1	26	1.5	**XTM-1426-015**
15	22	[4]	[4]	0.5	22	0.8	**XTM-1522-008**
15	24	19.5	1.5	1	24	1.5	**XTM-1524-015**
16	30	22	2	1	30	1.5	**XTM-1630-015**
18	32	25	2	1	32	1.5	**XTM-1832-015**
20	36	28	3	1	36	1.5	**XTM-2036-015**
22	38	30	3	1	38	1.5	**XTM-2238-015**
24	42	33	3	1	42	1.5	**XTM-2442-015**
26	44	35	3	1	44	1.5	**XTM-2644-015**
28	48	38	4	1	48	1.5	**XTM-2848-015**
32	54	43	4	1	54	1.5	**XTM-3254-015**
38	62	50	4	1	62	1.5	**XTM-3862-015**
42	66	54	4	1	66	1.5	**XTM-4266-015**
48	74	61	4	1.5	74	2	**XTM-4874-020**
52	78	65	4	1.5	78	2	**XTM-5278-020**
62	90	76	4	1.5	90	2	**XTM-6290-020**

[4] Design without fixing hole





Long service life under extreme conditions

Resistant to wear and impact even at high loads and temperatures

iglidur® Z

When to use it?

- For temperatures up to +250°C long-term or +310°C short-term
- When low wear is required especially under high radial loads
- For high surface speeds
- For edge pressure in connection with high surface pressures

When not to use it?

- For low loads and temperatures
  iglidur® P
- When a cost-effective all-round plain bearing is required
  iglidur® G
- When electrically conductive plain bearings are required
  iglidur® F, iglidur® H, iglidur® H370

EN 09/2023

Bearing technology | Plain bearings | iglidur® Z

Ø
4.0-120.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Long service life under extreme conditions

Resistant to wear and impact even at high loads and temperatures

Extremely high compressive strength coupled with high flexibility enables iglidur® Z bearings to attain their prominent properties in association with soft shafts, edge loads and impacts. At the same time the bearings suitable for temperatures up to +250°C.

- Excellent wear resistance especially with high loads
- High temperature resistance
- Suitable for very high loads
- Suitable for high surface speeds
- Suitable for high edge pressures
- Lubrication-free
- Maintenance-free

Typical application areas

- Construction machinery industry
- Mechanical engineering
- Textile industry
- Aerospace engineering
- Glass industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	-	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® Z
+250°C
150MPa

Technical data

General properties			Testing method
Density	g/cm³	1.40	
Colour		brown	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.1	
Coefficient of friction, dynamic, against steel	µ	0.06-0.14	
pv value, max. (dry)	MPa · m/s	0.84	
Mechanical properties			
Flexural modulus	MPa	2,400	DIN 53457
Flexural strength at +20°C	MPa	95	DIN 53452
Compressive strength	MPa	65	
Max. permissible surface pressure (+20°C)	MPa	150	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+310	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.62	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	4	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{11}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Table 01: Material properties

-100°C up to +250°C

150MPa

V-0

RoHS-II

ISO 3547-1

In addition to iglidur® X, iglidur® Z is among the best-selling iglidur® high-temperature materials. Specifically worth noting is the outstanding wear behaviour under extreme conditions (high loads and temperatures).

Moisture absorption

The moisture absorption of iglidur® Z plain bearings in ambient conditions is approximately 0.3% weight. The saturation limit submerged in water is 1.1% weight.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® Z bearings.

Radiation resistance

Plain bearings made from iglidur® Z are resistant up to a radiation intensity of $1 \cdot 10^5$ Gy.

Resistance to weathering

iglidur® Z plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® Z plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
iglidur® Z is suitable for both medium and - due to its high heat resistance - high speeds. Diagram 03 shows the elastic deformation of iglidur® Z at radial loads. At the maximum recommended surface pressure of 23MPa the deformation is about 5.5% at room temperature.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® Z

Permissible surface speeds

iglidur® Z is a high temperature material that is suitable for applications involving very high specific loads. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The iglidur® Z plain bearings can be used at temperatures up to +310°C for short periods. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. At high temperatures iglidur® Z is also the most wear-resistant material in dry operation. For temperatures over +145°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction declines just as the wear resistance with increasing load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows wear rates in the lower load range, which are very similar to those of other wear-resistant iglidur® materials. However, in the upper load range iglidur® Z outperforms all other materials in wear resistance. Provided a Cf53 hardened and ground steel shaft is used, the wear is still only 15µm/km at 45MPa. At low loads iglidur® Z plain bearings wear less in pivoting applications than in rotating applications. 304 stainless steel and hard-chromed shafts are of interest here.

Shaft materials, page 56

Installation tolerances

iglidur® Z plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	0
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	1.1	5.0
Short-term	m/s	3.5	2.5	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.06-0.14	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® Z
+250°C
150MPa

Technical data

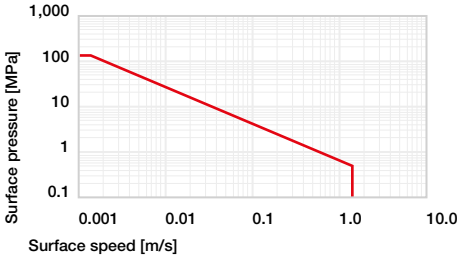


Diagram 01: Permissible pv values for iglidur® Z plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

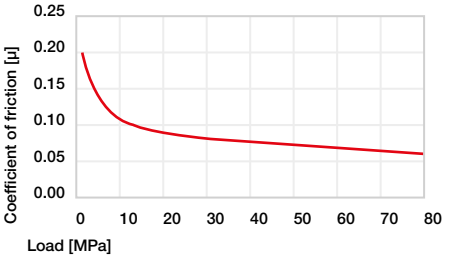


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

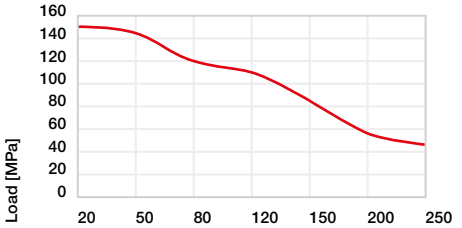


Diagram 02: Maximum recommended surface pressure as a function of temperature (150MPa at +20°C)

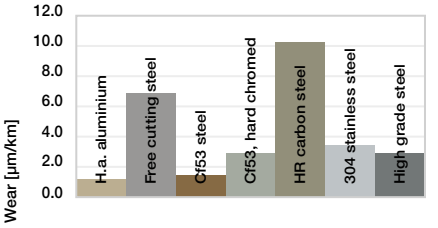


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

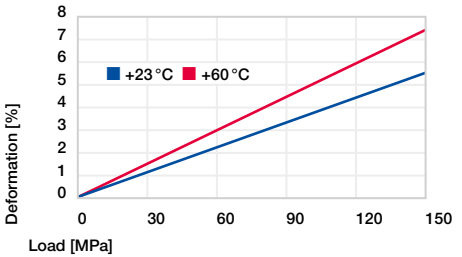


Diagram 03: Deformation under pressure and temperature

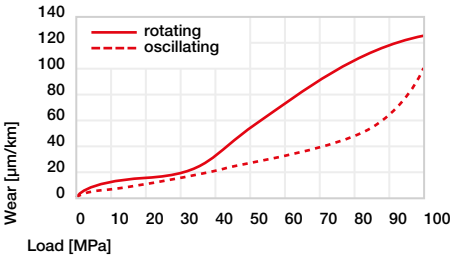


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

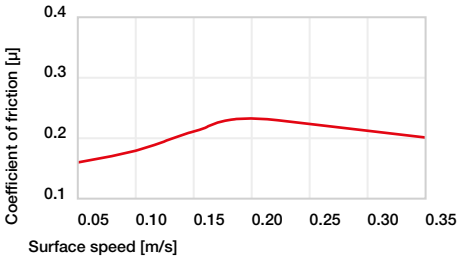
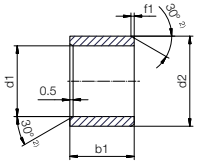


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® Z

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: ZSM-0405-04 – no minimum order quantity.
Z iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0		5.5	8.0	ZSM-0405-08
4.0		5.5	4.0	ZSM-0405-04
4.0		5.5	6.0	ZSM-0405-06
5.0		7.0	5.0	ZSM-0507-05
5.0		7.0	9.0	ZSM-0507-09
5.0	+0.010 +0.058	7.0	10.0	ZSM-0507-10
6.0		8.0	6.0	ZSM-0608-06
6.0		8.0	8.0	ZSM-0608-08
6.0		8.0	10.0	ZSM-0608-10
6.0		8.0	12.0	ZSM-0608-12
6.0		10.0	6.0	ZSM-0610-06
8.0		10.0	6.0	ZSM-0810-06
8.0		10.0	8.0	ZSM-0810-08
8.0		10.0	10.0	ZSM-0810-10
8.0		10.0	12.0	ZSM-0810-12
10.0	+0.013 +0.071	12.0	8.0	ZSM-1012-08
10.0		12.0	10.0	ZSM-1012-10
10.0		12.0	12.0	ZSM-1012-12
10.0		12.0	15.0	ZSM-1012-15
10.0		12.0	20.0	ZSM-1012-20
12.0		14.0	8.0	ZSM-1214-08
12.0		14.0	10.0	ZSM-1214-10
12.0		14.0	12.0	ZSM-1214-12
12.0		14.0	15.0	ZSM-1214-15
12.0	+0.016 +0.086	14.0	20.0	ZSM-1214-20
13.0		15.0	10.0	ZSM-1315-10
13.0		15.0	20.0	ZSM-1315-20
14.0		16.0	15.0	ZSM-1416-15
14.0		16.0	20.0	ZSM-1416-20

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
14.0		16.0	25.0	ZSM-1416-25
15.0		17.0	15.0	ZSM-1517-15
15.0		17.0	20.0	ZSM-1517-20
15.0		17.0	22.0	ZSM-1517-22
15.0		17.0	25.0	ZSM-1517-25
16.0		18.0	12.0	ZSM-1618-12
16.0	+0.016 +0.086	18.0	15.0	ZSM-1618-15
16.0		18.0	20.0	ZSM-1618-20
16.0		18.0	25.0	ZSM-1618-25
18.0		20.0	15.0	ZSM-1820-15
18.0		20.0	20.0	ZSM-1820-20
18.0		20.0	24.0	ZSM-1820-24
18.0		20.0	25.0	ZSM-1820-25
20.0		23.0	10.0	ZSM-2023-10
20.0		23.0	15.0	ZSM-2023-15
20.0		23.0	20.0	ZSM-2023-20
20.0		23.0	25.0	ZSM-2023-25
20.0		23.0	30.0	ZSM-2023-30
20.0		23.0	35.0	ZSM-2023-35
22.0		24.0	30.0	ZSM-2224-30
22.0	+0.020 +0.104	25.0	15.0	ZSM-2225-15
22.0		25.0	20.0	ZSM-2225-20
22.0		25.0	25.0	ZSM-2225-25
22.0		25.0	30.0	ZSM-2225-30
24.0		27.0	15.0	ZSM-2427-15
24.0		27.0	20.0	ZSM-2427-20
24.0		27.0	25.0	ZSM-2427-25
24.0		27.0	30.0	ZSM-2427-30
25.0		28.0	15.0	ZSM-2528-15

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
25.0		28.0	20.0	ZSM-2528-20
25.0		28.0	25.0	ZSM-2528-25
25.0		28.0	30.0	ZSM-2528-30
25.0		28.0	48.0	ZSM-2528-48
25.0		30.0	20.0	ZSM-2530-20
26.0		30.0	34.0	ZSM-2630-34
28.0	+0.020	32.0	20.0	ZSM-2832-20
28.0	+0.104	32.0	25.0	ZSM-2832-25
28.0		32.0	30.0	ZSM-2832-30
28.0		34.0	29.0	ZSM-2834-29
30.0		34.0	20.0	ZSM-3034-20
30.0		34.0	25.0	ZSM-3034-25
30.0		34.0	30.0	ZSM-3034-30
30.0		34.0	40.0	ZSM-3034-40
32.0		35.0	44.0	ZSM-3235-44
32.0		36.0	20.0	ZSM-3236-20
32.0		36.0	30.0	ZSM-3236-30
32.0		36.0	40.0	ZSM-3236-40
35.0		39.0	20.0	ZSM-3539-20
35.0	+0.025 +0.125	39.0	30.0	ZSM-3539-30
35.0		39.0	40.0	ZSM-3539-40
35.0		39.0	50.0	ZSM-3539-50
40.0		44.0	15.0	ZSM-4044-15
40.0		44.0	20.0	ZSM-4044-20
40.0		44.0	30.0	ZSM-4044-30

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
40.0		44.0	40.0	ZSM-4044-40
40.0		44.0	47.0	ZSM-4044-47
40.0		44.0	50.0	ZSM-4044-50
45.0		50.0	20.0	ZSM-4550-20
45.0		50.0	30.0	ZSM-4550-30
45.0	+0.025	50.0	40.0	ZSM-4550-40
45.0	+0.125	50.0	50.0	ZSM-4550-50
50.0		55.0	20.0	ZSM-5055-20
50.0		55.0	30.0	ZSM-5055-30
50.0		55.0	40.0	ZSM-5055-40
50.0		55.0	50.0	ZSM-5055-50
50.0		55.0	60.0	ZSM-5055-60
55.0		60.0	60.0	ZSM-5560-60
60.0	+0.030	65.0	60.0	ZSM-6065-60
70.0	+0.150	75.0	70.0	ZSM-7075-70
80.0		85.0	60.0	ZSM-8085-60
80.0		85.0	80.0	ZSM-8085-80
85.0	+0.036	90.0	60.0	ZSM-8590-60
85.0	+0.176	90.0	100.0	ZSM-8590-100
95.0		100.0	60.0	ZSM-95100-60
100.0	+0.072 +0.212	105.0	100.0	ZSM-100105-100
120.0	+0.043 +0.203	125.0	100.0	ZSM-120125-100

[3] After press-fit. *Testing methods, page 61*

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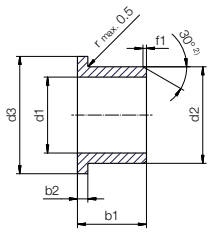
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® Z

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: ZFM-0405-04 – no minimum order quantity.
Z iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0		5.5	9.5	4.0	0.75	ZFM-0405-04
5.0	+0.010	7.0	11.0	5.0	1.00	ZFM-0507-05
6.0	+0.058	8.0	12.0	4.0	1.00	ZFM-0608-04
6.0		8.0	12.0	8.0	1.00	ZFM-0608-08
8.0		10.0	15.0	5.0	1.00	ZFM-0810-05
8.0		10.0	15.0	7.5	1.00	ZFM-0810-07
8.0		10.0	15.0	9.0	1.00	ZFM-0810-09
9.0		11.0	17.0	20.0	1.00	ZFM-091117-20
10.0		12.0	18.0	5.0	1.00	ZFM-1012-05
10.0	+0.013	12.0	18.0	7.0	1.00	ZFM-1012-07
10.0	+0.071	12.0	18.0	9.0	1.00	ZFM-1012-09
10.0		12.0	18.0	12.0	1.00	ZFM-1012-12
10.0		12.0	18.0	15.0	1.00	ZFM-1012-15
10.0		12.0	18.0	17.0	1.00	ZFM-1012-17
10.0		13.0	15.0	5.5	1.50	ZFM-101315-05
12.0		14.0	20.0	7.0	1.00	ZFM-1214-07
12.0		14.0	20.0	9.0	1.00	ZFM-1214-09
12.0		14.0	20.0	12.0	1.00	ZFM-1214-12
12.0		14.0	20.0	17.0	1.00	ZFM-1214-17
12.0		14.0	20.0	20.0	1.00	ZFM-1214-20
14.0		16.0	22.0	12.0	1.00	ZFM-1416-12
14.0	+0.016	16.0	22.0	17.0	1.00	ZFM-1416-17
15.0	+0.086	17.0	23.0	9.0	1.00	ZFM-1517-09
15.0		17.0	23.0	11.0	1.00	ZFM-1517-11
15.0		17.0	23.0	12.0	1.00	ZFM-1517-12
15.0		17.0	23.0	15.0	1.00	ZFM-1517-15
15.0		17.0	23.0	17.0	1.00	ZFM-1517-17
15.0		17.0	23.0	23.0	1.00	ZFM-151723-23
16.0		18.0	24.0	12.0	1.00	ZFM-1618-12
16.0		18.0	24.0	17.0	1.00	ZFM-1618-17
18.0	+0.016	20.0	26.0	4.0	1.00	ZFM-1820-04
18.0	+0.086	20.0	26.0	12.0	1.00	ZFM-1820-12
18.0		20.0	26.0	17.0	1.00	ZFM-1820-17
18.0		20.0	26.0	22.0	1.00	ZFM-1820-22
20.0		22.0	30.0	21.0	1.00	ZFM-2022-21
20.0		23.0	30.0	11.5	1.50	ZFM-2023-11
20.0		23.0	30.0	15.5	1.50	ZFM-2023-155
20.0		23.0	30.0	16.5	1.50	ZFM-2023-16
20.0		23.0	30.0	21.5	1.50	ZFM-2023-21
20.0		23.0	30.0	31.5	1.50	ZFM-2023-31
25.0		28.0	35.0	11.5	1.50	ZFM-2528-11
25.0	+0.020	28.0	35.0	16.5	1.50	ZFM-2528-16
25.0	+0.104	28.0	35.0	21.5	1.50	ZFM-2528-21
25.0		28.0	35.0	31.5	1.50	ZFM-2528-31
30.0		34.0	42.0	13.0	2.00	ZFM-3034-13
30.0		34.0	42.0	16.0	2.00	ZFM-3034-16
30.0		34.0	42.0	20.0	2.00	ZFM-3034-20
30.0		34.0	42.0	26.0	2.00	ZFM-3034-26
30.0		34.0	42.0	37.0	2.00	ZFM-3034-37
35.0		39.0	47.0	16.0	2.00	ZFM-3539-16
35.0		39.0	47.0	26.0	2.00	ZFM-3539-26
40.0		44.0	52.0	20.0	2.00	ZFM-4044-20
40.0	+0.025	44.0	52.0	30.0	2.00	ZFM-4044-30
40.0	+0.125	44.0	52.0	40.0	2.00	ZFM-4044-40
45.0		50.0	58.0	50.0	2.00	ZFM-4550-50
50.0		55.0	63.0	20.0	2.00	ZFM-5055-20

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
50.0	+0.025 +0.125	55.0	63.0	50.0	2.00	ZFM-5055-50
60.0		65.0	73.0	50.0	2.00	ZFM-6065-50
75.0	+0.030 +0.150	80.0	88.0	50.0	2.50	ZFM-7580-50
75.0		80.0	94.0	65.0	2.00	ZFM-758094-65

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

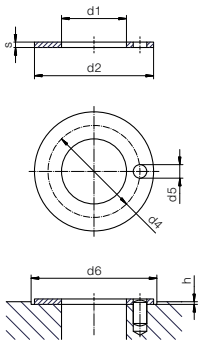
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Bearing technology | Plain bearings | iglidur® Z

Thrust washer (form T)





Dimensions according to ISO 3547-1 and special dimensions

Order example: ZTM-1430-015 – no minimum order quantity.
Z iglidur® material **T** Thrust washer **M** Metric **14** Inner Ø d1 **30** Outer Ø d2 **015** Height s

d1	d2	d4	d5	h	d6	Øs	Part No.
+0.25	-0.25	-0.12 +0.12	+0.375 +0.125	+0.2/-0.2	+0.12	-0.05	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
14	30	25	2	1.0	30	1.5	**ZTM-1430-015**[146)]
15	27	[4)]	[4)]	1.0	27	1.5	**ZTM-1527-015**
15	35	[4)]	[4)]	1.0	35	1.5	**ZTM-1535-015**
15	40	[4)]	[4)]	1.0	35	1.5	**ZTM-1540-015**
16	23	[4)]	[4)]	1.0	23	1.5	**ZTM-1623-015**
20	36	28	3	1.0	36	1.5	**ZTM-2036-015**
22	38	30	3	1.0	38	1.5	**ZTM-2238-015**
22	50	30	3	1.0	38	0.5	**ZTM-2250-005**
22	50	30	3	1.0	38	1.5	**ZTM-2250-015**
28	38	[4)]	[4)]	1.0	38	1.5	**ZTM-2838-015**
32	54	43	4	1.0	54	1.5	**ZTM-3254-015**
62	90	[4)]	[4)]	1.5	90	2.0	**ZTM-6290-020**

[4)] **Design without fixing hole** [146)] **d4 +/-0.2, d5 +/-0.1**

Available from stock
Detailed information about delivery time online.
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including delivery times, prices, online tools
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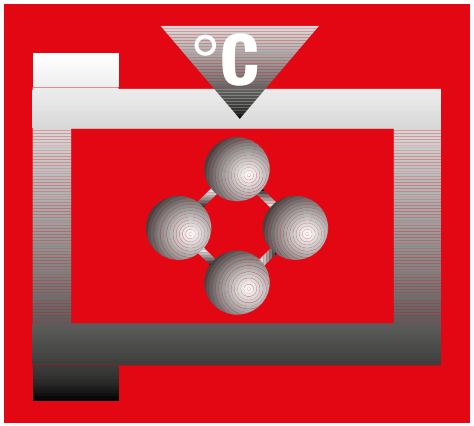
Ordering note
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1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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The high-temperature specialist up to +250°C

Up to six times more wear-resistant than iglidur® X

iglidur® X6

When to use it?
- When temperatures are higher than +150°C
- When the wear resistance of iglidur® X in pivoting and rotating applications is not sufficient
- When the press-fit should be improved over iglidur® X
- When high media resistance is required
- When a bearing which is free of PTFE is required

When not to use it?
- When a cost-effective universal plain bearing is required
  iglidur® G
- When a plain bearing for underwater use is required
  iglidur® UW500, iglidur® H370
- When a wear-resistant high-temperature plain bearing for linear motion is required
  iglidur® Z

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Bearing technology | Plain bearings | iglidur® X6

Ø
3.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The high-temperature specialist up to +250°C
Up to six times more wear-resistant than iglidur® X

Due to nanotechnology, iglidur® X6 shows up to six longer service life than iglidur® X in many pivoting and rotating applications - even at temperatures over +100°C.

- Continuous operating temperatures up to +250°C
- Up to 50 % better press-fit than iglidur® X
- High compressive strength
- Extremely high chemical resistance
- PTFE-free
- Lubrication-free
- Maintenance-free

Typical application areas

- Glass industry
- Food industry
- Fluid technology
- Textile industry
- Mechanical engineering

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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Technical data

General properties			Testing method
Density	g/cm³	1.53	
Colour		dark blue	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.09-0.25	
pv value, max. (dry)	MPa · m/s	1.35	
Mechanical properties			
Flexural modulus	MPa	16,000	DIN 53457
Flexural strength at +20°C	MPa	290	DIN 53452
Compressive strength	MPa	190	
Max. permissible surface pressure (+20°C)	MPa	150	
Shore D hardness		89	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+315	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.55	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	1.1	DIN 53752
Electrical properties[5]			
Specific transitional resistance	Ωcm	$< 10^5$	DIN IEC 93
Surface resistance	Ω	$< 10^3$	DIN 53482

[5] The good conductivity of this material can favour the generation of corrosion on the metallic contact components.

Table 01: Material properties

-100°C up to +250°C

150MPa

V-0

RoHS-II

ISO 3547-1

With respect to its general mechanical and thermal specifications, iglidur® X6 is directly comparable to our high-temperature classic, iglidur® X, and may even provide advantages, such as its wear behaviour.

Moisture absorption
The moisture absorption of iglidur® X6 plain bearings in ambient conditions is approximately 0.1% weight. The saturation limit submerged in water is 0.5% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance
They are resistant up to a radiation intensity of $2 \cdot 10^5$ Gy.

Resistance to weathering
iglidur® X6 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® X6 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® X6 at radial loads. At the maximum recommended surface pressure of 150MPa, the deformation is less than 2%. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® X6

Permissible surface speeds

The high temperature resistance and good thermal conductivity values mean that iglidur® X6 is suitable for high-speed applications. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The ambient temperatures strongly influence the properties of plain bearings. With regard to temperature resistance, iglidur® X6 is among the highest in the iglidur® range. In many tests it has shown a six times higher wear resistance compared to the established high-temperature specialist iglidur® X. For temperatures over +165°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction of iglidur® X6 declines with higher pressure and is practically constant for pressures above 30MPa. A higher speed of the shaft also results in a lower coefficient of friction (diagram 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. The best case for iglidur® X6 is a ground surface with an average surface finish Ra = 0.4-0.7μm. Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® X6. The best performance is achieved with the plain shaft materials free cutting steel and plain steel 1.0037. At higher loads, we recommend harder steel qualities. Non-hardened steel shafts can be worn by the bearing at pressures over 2MPa. The wear database shows that iglidur® X6 is more suitable for rotating than for pivoting applications (diagram 07). If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® X6 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	1.1	5.0
Short-term	m/s	3.5	2.5	10.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.09-0.25	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings F10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® X6
+250°C
150MPa

Technical data

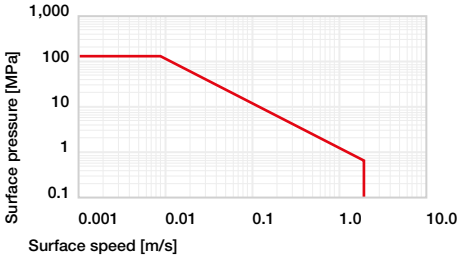


Diagram 01: Permissible pv values for iglidur® X6 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

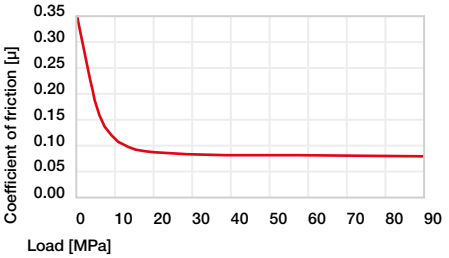


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

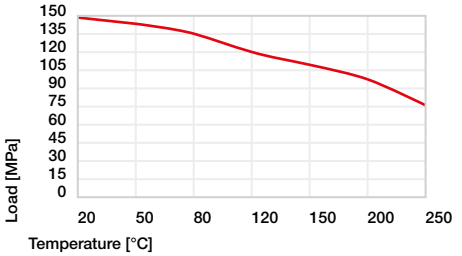


Diagram 02: Maximum recommended surface pressure as a function of temperature (150MPa at +20°C)

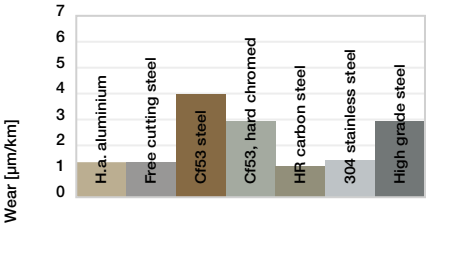


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

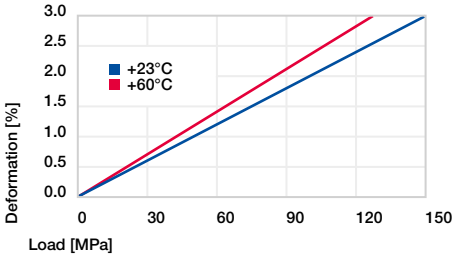


Diagram 03: Deformation under pressure and temperature

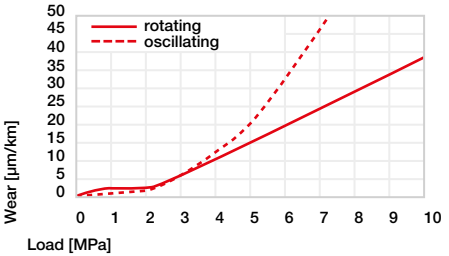


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

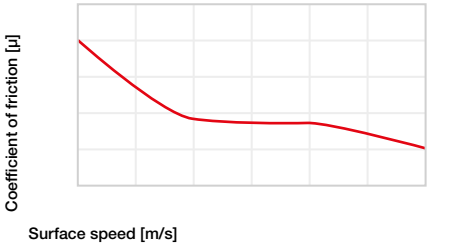
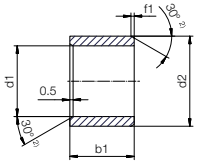


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® X6

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: X6SM-0304-03 – no minimum order quantity.
X6 iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.010 +0.058	4.5	3.0	X6SM-0304-03
5.0		7.0	5.0	X6SM-0507-05
6.0		8.0	6.0	X6SM-0608-06
8.0	+0.013 +0.071	10.0	10.0	X6SM-0810-10
10.0		12.0	10.0	X6SM-1012-10
12.0	+0.016 +0.086	14.0	12.0	X6SM-1214-12
16.0		18.0	15.0	X6SM-1618-15
20.0	+0.020 +0.104	23.0	20.0	X6SM-2023-20
25.0		28.0	30.0	X6SM-2528-30
30.0		34.0	30.0	X6SM-3034-30
35.0	+0.025 +0.125	39.0	40.0	X6SM-3539-40
40.0		44.0	40.0	X6SM-4044-40
50.0		55.0	40.0	X6SM-5055-40

[3] After press-fit. *Testing methods, page 61*

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Discount scaling		
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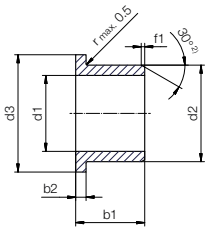
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iglidur® X6
+250°C
150MPa

Bearing technology | Plain bearings | iglidur® X6

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: X6FM-0304-05 – no minimum order quantity.
X6 iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0	+0.010 +0.058	4.5	7.5	5.0	0.75	X6FM-0304-05
5.0		7.0	11.0	5.0	1.00	X6FM-0507-05
6.0		8.0	12.0	6.0	1.00	X6FM-0608-06
8.0	+0.013 +0.071	10.0	15.0	10.0	1.00	X6FM-0810-10
10.0		12.0	18.0	10.0	1.00	X6FM-1012-10
10.0		12.0	18.0	25.0	1.00	X6FM-1012-25
12.0	+0.016 +0.086	14.0	20.0	12.0	1.00	X6FM-1214-12
16.0		18.0	24.0	12.0	1.00	X6FM-1618-12
16.0		18.0	24.0	17.0	1.00	X6FM-1618-17
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	X6FM-2023-21
25.0		28.0	35.0	21.5	1.50	X6FM-2528-21
30.0		34.0	42.0	40.0	2.00	X6FM-3034-40
35.0	+0.025 +0.125	39.0	47.0	26.0	2.00	X6FM-3539-26
40.0		44.0	52.0	40.0	2.00	X6FM-4044-40

[3] After press-fit. *Testing methods, page 61*

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Discount scaling		
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25-49	200-499	2,500-4,999

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No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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For soft shafts and high temperatures

Wear and media-resistant
iglidur® V400

When to use it?

- When extreme wear resistance is required with soft shafts
- When the highest wear resistance at temperatures above +100°C is required
- When vibrations and edge loads are present
- When the bearing should be resistant to chemicals

When not to use it?

- For hardened shafts
  iglidur® W300
- For applications at normal temperatures
  iglidur® G, iglidur® J, iglidur® W300
- When a cost-effective universal plain bearing is required
  iglidur® G

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Bearing technology | Plain bearings | iglidur® V400

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For soft shafts and high temperatures
Wear and media-resistant

Highly wear-resistant bearings for soft shafts and temperatures up to +200°C with low moisture absorption and excellent resistance to chemicals.

- Excellent wear resistance with soft shaft materials and for temperatures up to +200°C
- Chemical-resistant
- High elasticity
- Lubrication-free
- Maintenance-free

Typical application areas

- Plant construction
- Automotive industry
- Automation
- Aerospace engineering
- Mechatronics

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

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Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® V400
+200°C
45MPa

Technical data

General properties			Testing method
Density	g/cm³	1.51	
Colour		cream	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.2	
Coefficient of friction, dynamic, against steel	µ	0.15-0.20	
pv value, max. (dry)	MPa · m/s	0.50	
Mechanical properties			
Flexural modulus	MPa	4,500	DIN 53457
Flexural strength at +20°C	MPa	95	DIN 53452
Compressive strength	MPa	47	
Max. permissible surface pressure (+20°C)	MPa	45	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	3	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-50°C up to +200°C

45MPa

V-0

RoHS-II

ISO 3547-1

iglidur® V400 plain bearings are not suitable for high pressures or static high loads. However they are characterised by a high wear resistance all the way up to the maximum recommended surface pressure.

Moisture absorption

The moisture absorption of iglidur® V400 plain bearings is only 0.2%weight after saturation in water.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® V400 are resistant up to a radiation intensity of $2 \cdot 10^4$ Gy. Higher radiation affects their mechanical properties.

Resistance to weathering

iglidur® V400 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® V400 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Moreover the limit of the permitted loads at +100°C is still very high with 20MPa. The high flexibility is shown in diagram 03.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® V400

Permissible surface speeds

iglidur® V400 also permits high surface speeds due to the high temperature resistance. The very favourable coefficient of friction of the bearing enables maximum surface speeds up to 1.3m/s. In linear applications, the permissible speeds are even higher and can be up to 3.0m/s.

Surface speed, page 48

Temperature

The maximum long-term application temperature is +200°C. For temperatures over +100°C an additional securing is required. Then, however, the wear resistance of the bearings is very good and adopts a leading position among all iglidur® materials. When temperatures increase, the compressive strength of iglidur® V400 plain bearings decreases. Diagram 02 shows this inverse relationship.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction is dependent on the bearing's stressing capacity (diagrams 04 and 05). The coefficient of friction of iglidur® V400 is very constant. No other iglidur® plain bearing material exhibits a lower variance in the coefficients of friction, even when the shaft material is altered.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The influence of the shaft material on the wear resistance is bigger than on the friction. Here, even at low loads (0.75MPa), significant differences occur, as shown in diagram 06. With regard to wear, iglidur® V400 plain bearings show better values in rotating applications than in pivoting movements (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® V400 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.9	0.6	2.0
Short-term	m/s	1.3	0.9	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.15-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

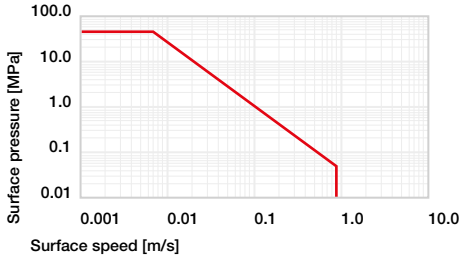


Diagram 01: Permissible pv values for iglidur® V400 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

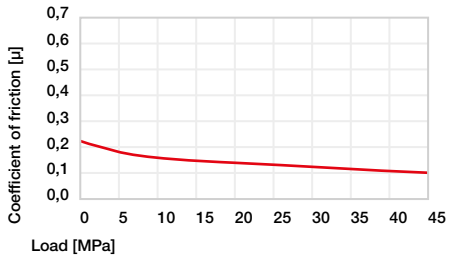


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

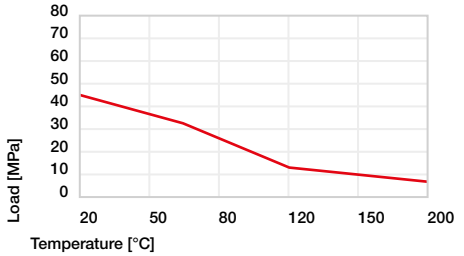


Diagram 02: Maximum recommended surface pressure as a function of temperature (45MPa at +20°C)

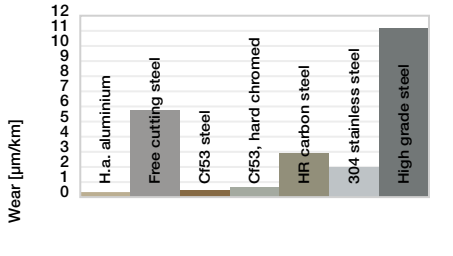


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

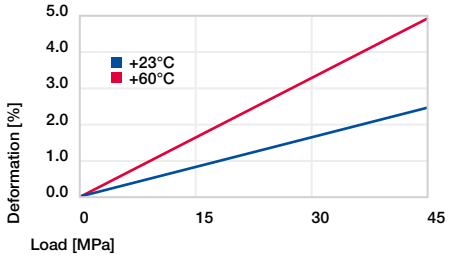


Diagram 03: Deformation under pressure and temperature

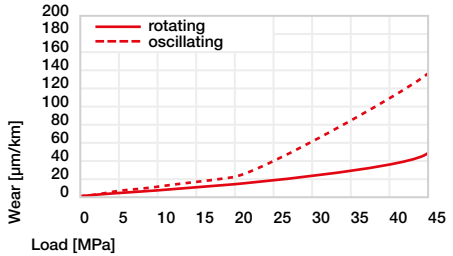


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

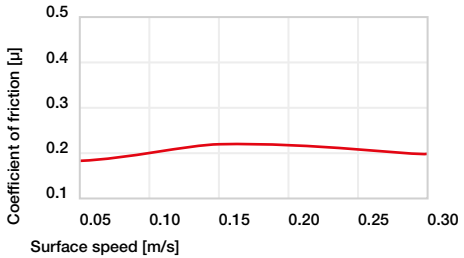
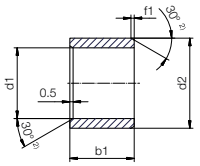


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® V400

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: VSM-0608-06 – no minimum order quantity.
V400 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	6.0	VSM-0608-06
8.0	+0.013 +0.071	10.0	10.0	VSM-0810-10
10.0		12.0	10.0	VSM-1012-10
12.0	+0.016 +0.086	14.0	12.0	VSM-1214-12
16.0		18.0	15.0	VSM-1618-15
20.0	+0.020 +0.104	23.0	20.0	VSM-2023-20

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/V400

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

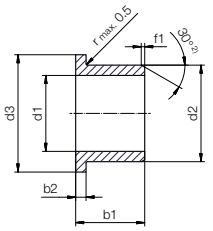
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iglidur® V400
+200°C
45MPa

Bearing technology | Plain bearings | iglidur® V400

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: VFM-0608-06 – no minimum order quantity.
V400 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	12.0	6.0	1.00	VFM-0608-06
8.0	+0.013 +0.071	10.0	15.0	10.0	1.00	VFM-0810-10
10.0		12.0	18.0	10.0	1.00	VFM-1012-10
12.0	+0.016 +0.086	14.0	20.0	12.0	1.00	VFM-1214-12
16.0		18.0	24.0	17.0	1.00	VFM-1618-17
18.0	+0.020 +0.104	20.0	26.0	20.0	1.00	VFM-1820-20
20.0		23.0	30.0	21.5	1.50	VFM-2023-21

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/V400

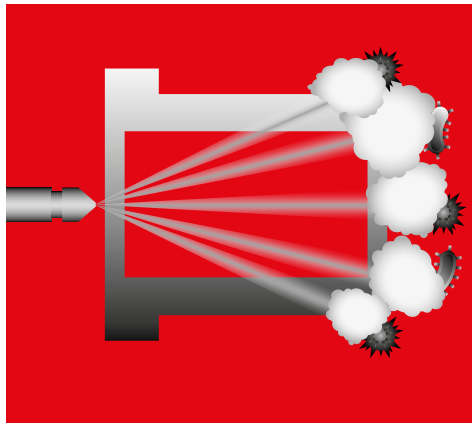
Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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All-rounder for steam sterilisation

Low-cost, media-resistant and hygienic

iglidur® HSD350

When to use it?

- If the bearing point is regularly sterilised with hot steam
- When a low-cost material is required at the same time
- When good chemical resistance is required
- Low moisture absorption

When not to use it?

- When high pressures occur
  iglidur® G, iglidur® W300
- When continuous operating temperatures are higher than +180°C
  iglidur® G, iglidur® Z
- When a cost-effective bearing for occasional movements is necessary
  iglidur® G

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Bearing technology | Plain bearings | iglidur® HSD350

Ø 6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

All-rounder for steam sterilisation
Low-cost, media-resistant and hygienic

The new material enables continuous operation where hygiene is important, including regular sterilisation, with an outstanding price-performance ratio.

- Temperature-resistant up to +180°C
- Suitable for wet environments
- High media resistance
- Corrosion-free
- Lubrication-free
- Sterilisable
- Maintenance-free

Typical application areas

- Filling technology
- Medical and laboratory technology

Descriptive technical specifications			
Wear resistance at +23°C	-	■■■■□	+
Wear resistance at +90°C	–	■■■■□	+
Wear resistance at +150°C	–	■■■□□	+
Slide property	–	■■■■■	+
Wear resistance under water	–	■■■□□	+
Media resistance	–	■■■■■	+
Resistant to edge pressures	–	■■■■□	+
Resistant to shock and impact loads	–	■■■■□	+
Dirt resistance	–	■■■□□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® HSD350 +180 °C 30MPa

Technical data

General properties			Testing method
Density	g/cm³	1.39	
Colour		beige	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.6	ISO 175
Max. moisture absorption	% weight	1.2	ISO 62
Coefficient of friction, dynamic, against steel	µ	0.07-0.23	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	2,150	DIN EN ISO 178
Flexural strength at +20°C	MPa	67	DIN EN ISO 178
Compressive strength	MPa	44	
Max. permissible surface pressure (+20°C)	MPa	30	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+180	
Max. application temperature short-term	°C	+210	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{14}$	DIN 53482

Table 01: Material properties

-40°C up to +180°C

30MPa

V-0

RoHS-II

ISO 3547-1

iglidur® HSD350 was specially developed for use in applications where decontamination by steam (e.g. in autoclaves) is necessary. iglidur® HSD350 offers an excellent price-performance ratio.

Moisture absorption

The moisture absorption of iglidur® HSD350 plain bearings is approximately 0.6% weight in standard climatic conditions. The saturation limit submerged in water is 1.2% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, the moisture content is released as vapour. Due to its low moisture absorption, use in a vacuum is possible.

Radiation resistance

Plain bearings made from iglidur® HSD350 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® HSD350 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® HSD350 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® HSD350 under different loads. At the maximum recommended surface pressure of 30MPa, the deformation is less than 2%. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® HSD350

Permissible surface speeds

Due to its rather good thermal conductivity and thermal resistance, iglidur® HSD350 is suitable for speeds in the medium range. The permissible surface speed decreases with increasing surface pressure.

Surface speed, page 48

Temperature

The ambient temperatures strongly influence the properties of plain bearings. According to its field of application as autoclavable material, iglidur® HSD350 offers good thermal resistance. For temperatures over +130°C an axial securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction increases constantly and slowly over the speed, but remains below 0.3µ up to a speed of 2.0m/s.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the test results with different shaft materials conducted with plain bearings made from iglidur® HSD350. At 0.3 m/s and 1 MPa surface pressure, a wide variety of shafts are suitable and provide good wear results. Hard-anodised aluminium, free cutting steel, hard-chromed Cf53, 304 stainless steel and high grade steel exhibit low wear. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® HSD350 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table). In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	+
Diluted alkalines	+
Fuels	+ up to 0
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	0
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.1	0.8	3.0
Short-term	m/s	1.2	1.0	3.2

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.07-0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings F10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® HSD350 +180 °C 30MPa

Technical data

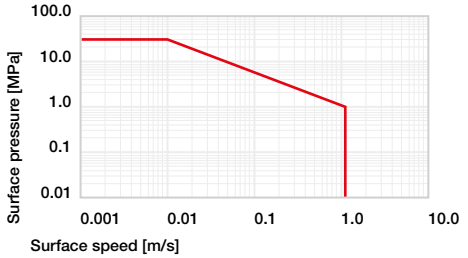


Diagram 01: Permissible pv values for iglidur® HSD350 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

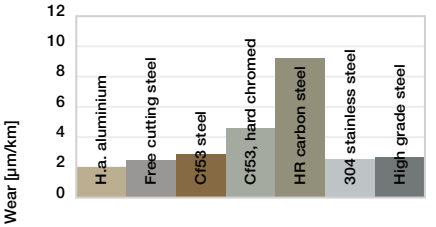


Diagram 05: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

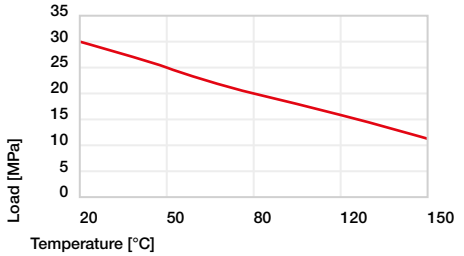


Diagram 02: Maximum recommended surface pressure as a function of temperature (30MPa at +20°C)

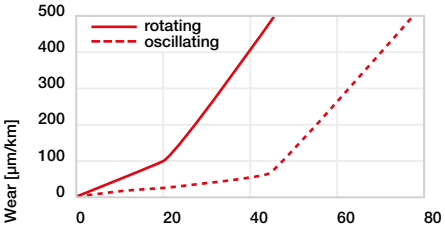


Diagram 06: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

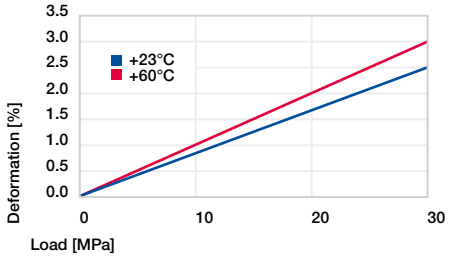


Diagram 03: Deformation under pressure and temperature

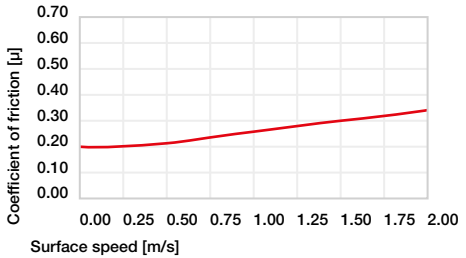
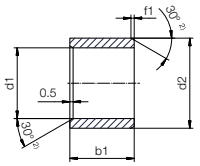


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® HSD350

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: HSD350SM-0608-06 – no minimum order quantity.
HSD350 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	6.0	HSD350SM-0608-06
8.0	+0.013 +0.071	10.0	10.0	HSD350SM-0810-10
10.0		12.0	10.0	HSD350SM-1012-10
12.0	+0.016 +0.086	14.0	12.0	HSD350SM-1214-12
16.0		18.0	15.0	HSD350SM-1618-15
20.0	+0.020 +0.104	23.0	20.0	HSD350SM-2023-20

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/HSD350

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

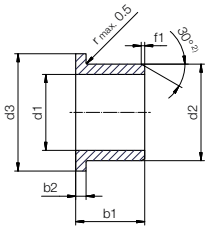
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur®
HSD350
+180 °C
30MPa

Bearing technology | Plain bearings | iglidur® HSD350

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: HSD350FM-0608-06 – no minimum order quantity.
HSD350 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	12.0	6.0	1.00	HSD350FM-0608-06
8.0	+0.013 +0.071	10.0	15.0	10.0	1.00	HSD350FM-0810-09
10.0		12.0	18.0	9.0	1.00	HSD350FM-1012-09
12.0	+0.016 +0.086	14.0	20.0	12.0	1.00	HSD350FM-1214-12
16.0		18.0	24.0	17.0	1.00	HSD350FM-1618-17
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	HSD350FM-2023-21

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

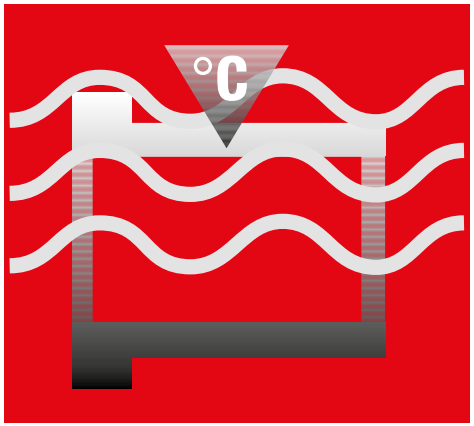
Order online
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





For hot liquids

Continuous wear resistance in liquids

iglidur® UW500

When to use it?

- When plain bearings need to be used in liquids
- For high speeds
- For high temperatures
- When a high chemical resistance is required

When not to use it?

- When a cost-effective underwater plain bearing for the standard temperature range is required
  iglidur® UW
- When a cost-effective underwater plain bearing is required for rare operations
  iglidur® H
- When a cost-effective universal plain bearing is required
  iglidur® G

EN 09/2023

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Ø
–



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For hot liquids

Continuous wear resistance in liquids

iglidur® UW500 was developed for underwater applications at higher temperatures up to +250°C. In addition, the plain bearings will run in chemicals which would act as a lubricant.

- High temperature resistance
- Suitable for high surface speeds
- Lubrication-free
- Suitable for underwater applications
- Maintenance-free

Typical application areas

- Plant construction
- Pumps
- Chemical industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
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Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® UW500 +250°C 140 MPa

Technical data

General properties			Testing method
Density	g/cm³	1.49	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption[6]	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.20-0.36	
pv value, max. (dry)	MPa · m/s	0.35	
Mechanical properties			
Flexural modulus	MPa	16,000	DIN 53457
Flexural strength at +20°C	MPa	260	DIN 53452
Compressive strength	MPa	140	
Max. permissible surface pressure (+20°C)	MPa	140	
Shore D hardness		86	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+300	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.60	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	4	DIN 53752
Electrical properties[5]			
Specific transitional resistance	Ωcm	$< 10^9$	DIN IEC 93
Surface resistance	Ω	$< 10^9$	DIN 53482

[5] The good conductivity of this material can favour the generation of corrosion on the metallic contact components.

[6] All results were obtained under laboratory conditions with demineralised water. For application with direct water contact, we recommend tests under real application conditions.

Table 01: Material properties

-100°C up to +250°C

140 MPa

V-0

RoHS-II

ISO 3547-1

The plain bearings made from iglidur® UW500 were developed for underwater applications with high temperatures. Examples for this are water pumps in automotive engineering, but also the field of medical engineering and related sectors. Unless the underwater operation is explicitly stated, the information in this chapter describes iglidur® UW500 in dry operation.

Moisture absorption

The moisture absorption of iglidur® UW500 plain bearings is below 0.1% weight in ambient conditions. The maximum moisture absorption is 0.5% weight. iglidur® UW500 plain bearings can be used for underwater applications.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

Plain bearings made from iglidur® UW500 are resistant up to a radiation intensity of $1 \cdot 10^5$ Gy. They resist to hard gamma radiation (1,000Mrad) and alpha or beta radiation (10,000Mrad).

Resistance to weathering

iglidur® UW500 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® UW500 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® UW500 under different loads.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® UW500

Permissible surface speeds

iglidur® UW500 plain bearings can be used in applications involving dry operation as well as in liquids in a wide variety of applications. Due to hydrodynamic lubrication at high speeds, surface speeds far above 1.5m/s can be achieved.

Surface speed, page 48

Temperature

iglidur® UW500 can be used in applications where there are continuous temperatures of +150°C. If the bearings are mechanically secured, these temperatures can be even higher than +200°C. iglidur® UW500 belongs to the most temperature-resistant iglidur® materials. For temperatures over +150°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Diagrams 04 and 05 show the coefficient of friction of iglidur® UW500 plain bearings as a function of surface speed and pressure. The friction and wear are also dependent, to a large degree, on the mating partner. Ground surfaces with an average surface finish Ra of 0.1 to 0.4µm are ideal.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® UW500.

Shaft materials, page 56

Installation tolerances

iglidur® UW500 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® UW500 plain bearings are manufactured to special order.

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	2.0
Short-term	m/s	1.5	1.1	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.20-0.36	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

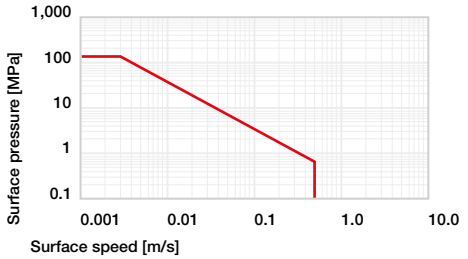


Diagram 01: Permissible pv values for iglidur® UW500 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

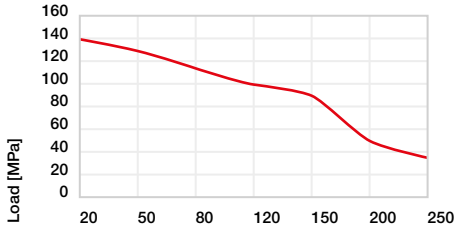


Diagram 02: Maximum recommended surface pressure as a function of temperature (140MPa at +20°C)

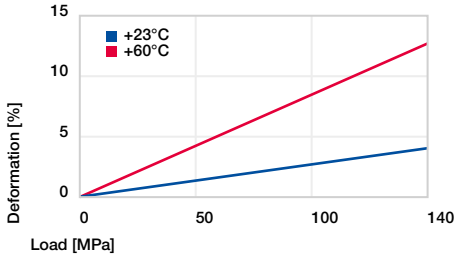


Diagram 03: Deformation under pressure and temperature

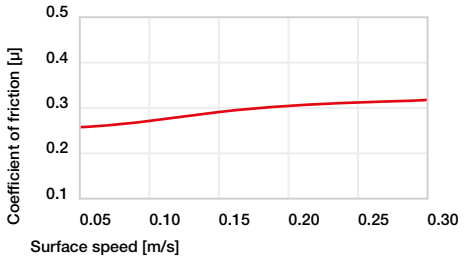


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

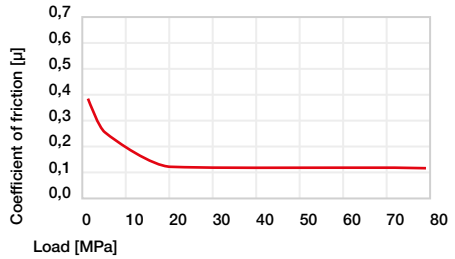


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

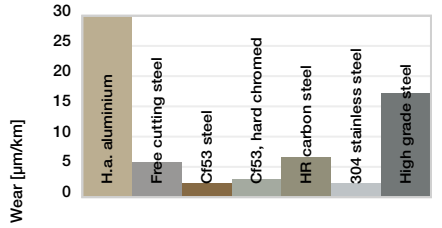


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

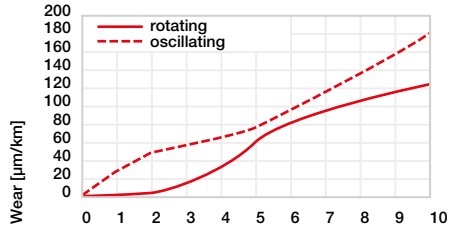


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load



Plain bearing materials with good media resistance

Plain bearing materials with good media resistance

Almost at the same level as the previous group in terms of temperatures, the "iglidur® H family" is characterised by a high media resistance and a wide range of applications in wet areas.
iglidur® H370 is the specialist for underwater applications, iglidur® H2 is the media-resistant, low-cost bearing solution for high-volume production with low running performance and iglidur® H1, the endurance runner of this group.

Online product finder
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Online service life calculation
www.igus.eu/iglidur-expert



iglidur® H1
Endurance runner with high media resistance

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	80	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	0.29	– +
Price index		– +



iglidur® H370
Long service life under water

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	75	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	1.20	– +
Price index		– +



iglidur® H
The classic with high resistance to media and temperature

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	90	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	2.10	– +
Price index		– +



iglidur® C500
High temperature endurance runner

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	80	– +
Coefficient of friction [µ] [125]	0.19	– +
Wear [µm/km] [125]	0.48	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating

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iglidur® H2
The low-cost specialist for chemicals and temperatures

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	110	– +
Coefficient of friction [µ] [125]	0.32	– +
Wear [µm/km] [125]	4.80	– +
Price index		– +



iglidur® H3
Chemical resistance

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	40	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	0.14	– +
Price index		– +

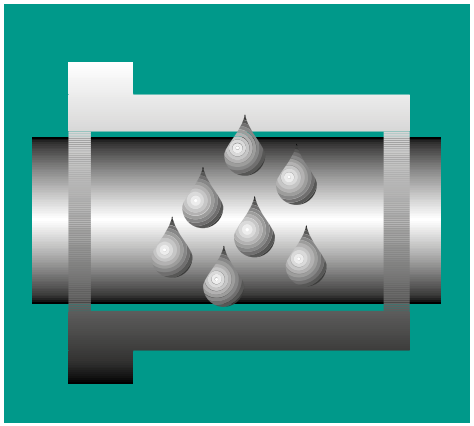


iglidur® H5
Resistant to temperature and chemicals

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	80	– +
Coefficient of friction [µ] [125]	0.23	– +
Wear [µm/km] [125]	1.82	– +
Price index		– +

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Endurance runner with high media resistance

Excellent coefficient of friction and wear

iglidur® H1

When to use it?

- When extreme service life is required under the influence of temperature and humidity
- When low coefficient of friction at high temperature is important
- When aggressive cleaning is required
- For under bonnet applications

When not to use it?

- When high surface pressures occur
  iglidur® Z
- When the best universal chemical resistance is required
  iglidur® X
- When a cost-effective high-temperature plain bearing is required, not the ideal wear resistance
  iglidur® H2
- When an FDA-compliant plain bearing with high temperature resistance is required
  iglidur® A500

EN 09/2023

Bearing technology | Plain bearings | iglidur® H1

Ø
3.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Endurance runner with high media resistance
Excellent coefficient of friction and wear

iglidur® H1 is the first choice when long service life is required in extreme environmental conditions. Extreme wear resistance is coupled with excellent resistance to temperature and media - not only in the food and packaging industries or the automotive industry.

- High wear resistance in extreme ambient conditions
- Low coefficient of friction
- High temperature resistance
- For underbonnet applications
- Lubrication-free
- Chemical-resistant
- Maintenance-free

Typical application areas

- Beverage industry
- Automation
- Packaging
- Textile industry
- Optical industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

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Online service life calculation
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iglidur® H1
+200°C
80MPa

Technical data

General properties			Testing method
Density	g/cm³	1.53	
Colour		cream	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.3	
Coefficient of friction, dynamic, against steel	µ	0.06-0.20	
pv value, max. (dry)	MPa · m/s	0.80	
Mechanical properties			
Flexural modulus	MPa	2,800	DIN 53457
Flexural strength at +20°C	MPa	55	DIN 53452
Compressive strength	MPa	78	
Max. permissible surface pressure (+20°C)	MPa	80	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	6	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Table 01: Material properties

-40°C up to +200°C

80MPa

V-0

RoHS-II

ISO 3547-1

iglidur® H1 plain bearings have been specially developed for use under extreme environmental conditions. Their strengths are the extremely high wear resistance and the excellent coefficient of friction even in applications in which the bearing is exposed to extreme temperatures and/or aggressive chemicals. iglidur® H1 plain bearings can be used completely free of lubrication; in wet area applications, the surrounding medium acts as additional lubricant.

Moisture absorption

The moisture absorption of iglidur® H1 plain bearings in ambient conditions is approximately 0.1% weight. The saturation limit submerged in water is 0.3% weight. Therefore iglidur® H1 is very well suited for use in wet environments.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

They are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® H1 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H1 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® H1 at radial loads. Among the iglidur® H materials, iglidur® H1 material has the greatest flexibility. This must be considered for applications with high surface pressure or edge loads.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® H1

Permissible surface speeds

Due to their excellent coefficient of friction, rotating surface speeds of up to 2.0m/s are possible with iglidur® H1 plain bearings in dry operation. Linear speeds up to 5.0m/s can be attained. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 48

Temperature

iglidur® H1 is an extremely temperature-resistant material. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. In the case of iglidur® H1 in particular, however, this increase is very small. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction alters similarly to the wear resistance with increasing load and surface speed (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® H1. The iglidur® H1 plain bearings display excellent wear behaviour in combination with a wide variety of shaft materials both in rotating and pivoting applications. On the 304 stainless steel shafts in particular, iglidur® H1 attains very low wear rates both in rotating and pivoting operations. Even on hard-anodised aluminium shafts, iglidur® H1 plain bearings attain long service life in rotating applications with low to medium loads.

Shaft materials, page 56

Installation tolerances

iglidur® H1 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+ up to 0
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+ up to –
Strong alkalines	+ up to –

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	2.0	1.0	5.0
Short-term	m/s	2.5	1.5	7.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.06-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

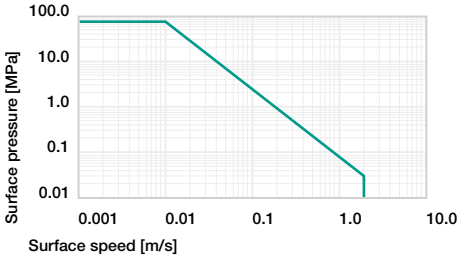


Diagram 01: Permissible pv values for iglidur® H1 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

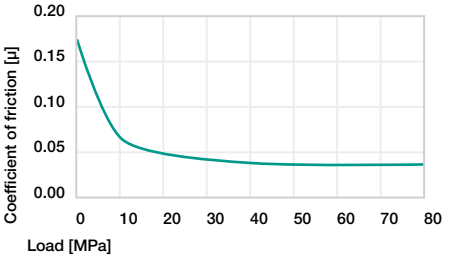


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

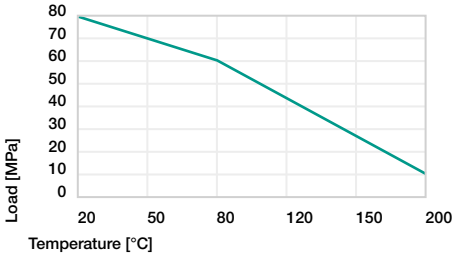


Diagram 02: Maximum recommended surface pressure as a function of temperature (80MPa at +20°C)

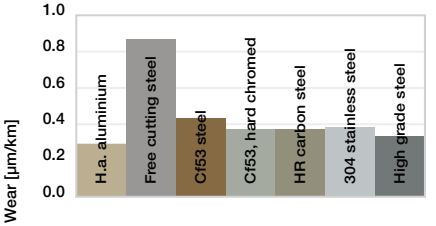


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

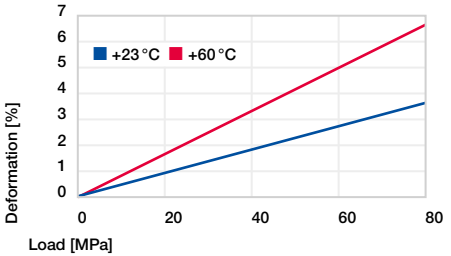


Diagram 03: Deformation under pressure and temperature

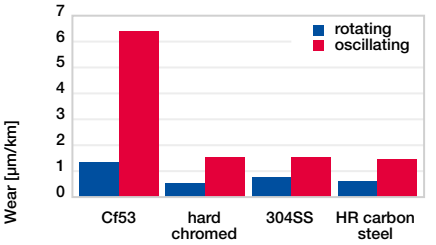


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

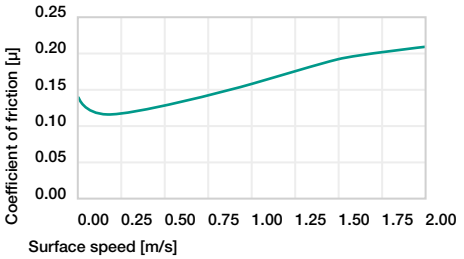
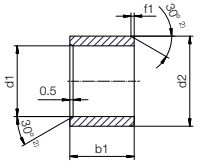


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® H1

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: H1SM-0304-05 – no minimum order quantity.
H1 iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	5.0	H1SM-0304-05
4.0		5.5	4.0	H1SM-0405-04
4.0		5.5	6.0	H1SM-0405-06
5.0	+0.010 +0.058	7.0	5.0	H1SM-0507-05
5.0		7.0	10.0	H1SM-0507-10
6.0		8.0	6.0	H1SM-0608-06
6.0		8.0	8.0	H1SM-0608-08
6.0		8.0	10.0	H1SM-0608-10
8.0		10.0	8.0	H1SM-0810-08
8.0		10.0	10.0	H1SM-0810-10
8.0		10.0	12.0	H1SM-0810-12
8.0		10.0	15.0	H1SM-0810-15
10.0	+0.013 +0.071	12.0	8.0	H1SM-1012-08
10.0		12.0	10.0	H1SM-1012-10
10.0		12.0	12.0	H1SM-1012-12
10.0		12.0	15.0	H1SM-1012-15
10.0		12.0	20.0	H1SM-1012-20
12.0		14.0	10.0	H1SM-1214-10
12.0		14.0	12.0	H1SM-1214-12
12.0		14.0	15.0	H1SM-1214-15
12.0		14.0	20.0	H1SM-1214-20
13.0		15.0	10.0	H1SM-1315-10
13.0	+0.016 +0.086	15.0	20.0	H1SM-1315-20
14.0		16.0	15.0	H1SM-1416-15
14.0		16.0	20.0	H1SM-1416-20
14.0		16.0	25.0	H1SM-1416-25
15.0		17.0	15.0	H1SM-1517-15
15.0		17.0	20.0	H1SM-1517-20
15.0	+0.016 +0.086	17.0	25.0	H1SM-1517-25
16.0		18.0	15.0	H1SM-1618-15
16.0		18.0	20.0	H1SM-1618-20
16.0		18.0	25.0	H1SM-1618-25
18.0		20.0	15.0	H1SM-1820-15
18.0		20.0	20.0	H1SM-1820-20
18.0		20.0	25.0	H1SM-1820-25
20.0		23.0	10.0	H1SM-2023-10
20.0		23.0	15.0	H1SM-2023-15
20.0		23.0	20.0	H1SM-2023-20
20.0		23.0	25.0	H1SM-2023-25
20.0		23.0	30.0	H1SM-2023-30
22.0		25.0	15.0	H1SM-2225-15
22.0		25.0	20.0	H1SM-2225-20
22.0		25.0	25.0	H1SM-2225-25
22.0		25.0	30.0	H1SM-2225-30
24.0		27.0	15.0	H1SM-2427-15
24.0	+0.020 +0.104	27.0	20.0	H1SM-2427-20
24.0		27.0	25.0	H1SM-2427-25
24.0		27.0	30.0	H1SM-2427-30
25.0		28.0	15.0	H1SM-2528-15
25.0		28.0	20.0	H1SM-2528-20
25.0		28.0	25.0	H1SM-2528-25
25.0		28.0	30.0	H1SM-2528-30
28.0		32.0	20.0	H1SM-2832-20
28.0		32.0	25.0	H1SM-2832-25
28.0		32.0	30.0	H1SM-2832-30
30.0		34.0	30.0	H1SM-3034-30
30.0		34.0	40.0	H1SM-3034-40

[3] After press-fit. *Testing methods, page 61*

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iglidur® H1
+200°C
80MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
32.0		36.0	20.0	H1SM-3236-20
32.0		36.0	30.0	H1SM-3236-30
32.0		36.0	40.0	H1SM-3236-40
35.0		39.0	20.0	H1SM-3539-20
35.0	+0.025	39.0	30.0	H1SM-3539-30
35.0	+0.125	39.0	40.0	H1SM-3539-40
35.0		39.0	50.0	H1SM-3539-50
40.0		44.0	20.0	H1SM-4044-20
40.0		44.0	30.0	H1SM-4044-30
40.0		44.0	40.0	H1SM-4044-40
40.0		44.0	50.0	H1SM-4044-50
45.0		50.0	20.0	H1SM-4550-20
45.0		50.0	30.0	H1SM-4550-30
45.0		50.0	40.0	H1SM-4550-40
45.0	+0.025	50.0	50.0	H1SM-4550-50
50.0	+0.125	55.0	20.0	H1SM-5055-20
50.0		55.0	30.0	H1SM-5055-30
50.0		55.0	40.0	H1SM-5055-40
50.0		55.0	50.0	H1SM-5055-50
50.0		55.0	60.0	H1SM-5055-60

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/H1

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

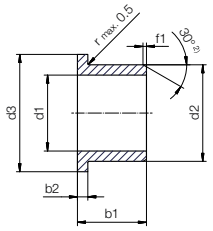
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® H1

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

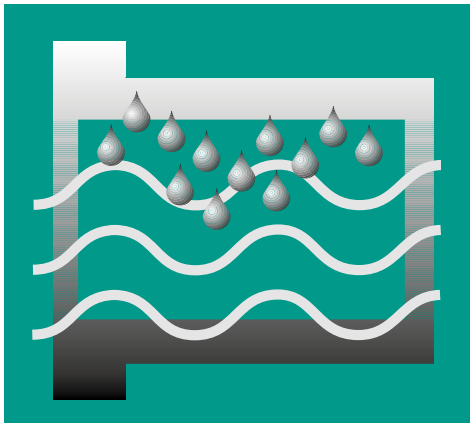
Dimensions according to ISO 3547-1 and special dimensions

Order example: H1FM-0304-05 – no minimum order quantity.
H1 iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	7.5	5.0	0.75	H1FM-0304-05
4.0	+0.010 +0.058	5.5	9.5	6.0	0.75	H1FM-0405-06
5.0	+0.010 +0.058	7.0	11.0	5.0	1.00	H1FM-0507-05
6.0	+0.013 +0.071	8.0	12.0	4.0	1.00	H1FM-0608-04
6.0	+0.010 +0.058	8.0	12.0	6.0	1.00	H1FM-0608-06
6.0		8.0	12.0	8.0	1.00	H1FM-0608-08
6.0		8.0	12.0	10.0	1.00	H1FM-0608-10
8.0	+0.013 +0.071	10.0	15.0	5.5	1.00	H1FM-0810-05
8.0		10.0	15.0	6.5	1.00	H1FM-0810-065
8.0		10.0	15.0	7.5	1.00	H1FM-0810-07
8.0		10.0	15.0	9.5	1.00	H1FM-0810-09
8.0		10.0	15.0	10.0	1.00	H1FM-0810-10
10.0		12.0	18.0	7.0	1.00	H1FM-1012-07
10.0		12.0	18.0	9.0	1.00	H1FM-1012-09
10.0		12.0	18.0	10.0	1.00	H1FM-1012-10
10.0		12.0	18.0	12.0	1.00	H1FM-1012-12
10.0		12.0	18.0	17.0	1.00	H1FM-1012-17
12.0	+0.016 +0.086	14.0	20.0	7.0	1.00	H1FM-1214-07
12.0		14.0	20.0	9.0	1.00	H1FM-1214-09
12.0		14.0	20.0	12.0	1.00	H1FM-1214-12
12.0		14.0	20.0	17.0	1.00	H1FM-1214-17
12.0		14.0	20.0	20.0	1.00	H1FM-1214-20
14.0	+0.016 +0.086	16.0	22.0	12.0	1.00	H1FM-1416-12
14.0		16.0	22.0	17.0	1.00	H1FM-1416-17
15.0		17.0	23.0	9.0	1.00	H1FM-1517-09
15.0		17.0	23.0	12.0	1.00	H1FM-1517-12
15.0		17.0	23.0	17.0	1.00	H1FM-1517-17
16.0		18.0	24.0	12.0	1.00	H1FM-1618-12
16.0		18.0	24.0	17.0	1.00	H1FM-1618-17
16.0		18.0	24.0	25.0	1.00	H1FM-1618-25
18.0		20.0	26.0	12.0	1.00	H1FM-1820-12
18.0		20.0	26.0	17.0	1.00	H1FM-1820-17
18.0		20.0	26.0	22.0	1.00	H1FM-1820-22
20.0	+0.020 +0.104	23.0	30.0	11.5	1.50	H1FM-2023-11
20.0		23.0	30.0	16.5	1.50	H1FM-2023-16
20.0		23.0	30.0	21.5	1.50	H1FM-2023-21
20.0		23.0	30.0	30.0	1.50	H1FM-2023-30
25.0		28.0	35.0	11.5	1.50	H1FM-2528-11
25.0		28.0	35.0	16.5	1.50	H1FM-2528-16
25.0		28.0	35.0	21.5	1.50	H1FM-2528-21
30.0		34.0	42.0	16.0	2.00	H1FM-3034-16
30.0		34.0	42.0	26.0	2.00	H1FM-3034-26
35.0	+0.025 +0.125	39.0	47.0	16.0	2.00	H1FM-3539-16
35.0		39.0	47.0	26.0	2.00	H1FM-3539-26
40.0		44.0	52.0	30.0	2.00	H1FM-4044-30
40.0		44.0	52.0	40.0	2.00	H1FM-4044-40
45.0		50.0	58.0	50.0	2.00	H1FM-4550-50

[3] After press-fit. *Testing methods, page 61*





Long service life under water

High media resistance

iglidur® H370

When to use it?

- For underwater applications
- When high temperature resistance is required
- When high mechanical loading and wear resistance is required
- When good chemical resistance is required

When not to use it?

- When mechanical reaming of the bore is necessary
  iglidur® M250
- When high wear resistance in temperatures is required
  iglidur® H1
- For use in dirty surroundings
  iglidur® Z
- When a cost-effective, large-volume solution is required
  iglidur® H2

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Bearing technology | Plain bearings | iglidur® H370

Ø
3.0-75.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Long service life under water
High media resistance

iglidur® H370 is the right solution for underwater applications. The bearings absorb extremely high loads, are resistant to chemicals and can be used at temperatures up to +200°C.

- Suitable for underwater applications
- Temperature-resistant from -40°C to +200°C
- Chemical-resistant
- Lubrication-free
- Maintenance-free

Typical application areas

- Offshore
- Ship building
- Fluid technology
- Packaging
- Plant construction

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® H370
+200°C
75MPa

Technical data

General properties			Testing method
Density	g/cm³	1.66	
Colour		grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.1	
Coefficient of friction, dynamic, against steel	µ	0.07-0.17	
pv value, max. (dry)	MPa · m/s	0.74	
Mechanical properties			
Flexural modulus	MPa	11,100	DIN 53457
Flexural strength at +20°C	MPa	135	DIN 53452
Compressive strength	MPa	79	
Max. permissible surface pressure (+20°C)	MPa	75	
Shore D hardness		82	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.50	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	5	DIN 53752
Electrical properties[5]			
Specific transitional resistance	Ωcm	$< 10^5$	DIN IEC 93
Surface resistance	Ω	$< 10^5$	DIN 53482

[5] The good conductivity of this material can favour the generation of corrosion on the metallic contact components.

Table 01: Material properties

-40°C up to +200°C

75MPa

V-0

RoHS-II

ISO 3547-1

iglidur® H370 is an advanced development of the iglidur® H series. The material is characterised by particularly low moisture absorption and clearly enhanced wear resistance. With regard to the mechanical and thermal characteristic values, iglidur® H370 shows the same features as iglidur® H.

Moisture absorption

The moisture absorption of iglidur® H370 plain bearings is below 0.1% weight in ambient conditions. The saturation limit submerged in water is also 0.1% weight. For this reason, iglidur® H370 plain bearings are often used for underwater applications.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

iglidur® H370 withstands neutron and gamma particle radiation. Plain bearings made from iglidur® H370 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® H370 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H370 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® H370 under different loads. At the recommended maximum surface pressure of 75MPa the deformation is less than 2.5% at room temperature.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® H370

Permissible surface speeds

The maximum permitted surface speed is dependent on whether the temperature at the bearing point becomes too high or not. iglidur® H370 is suitable for surface speeds of 1.2m/s (rotating) or 4m/s (linear). The maximum values stated in table 03 are valid only with minimum pressure loads and are often not attained in practice.

Surface speed, page 48

Temperature

With increasing temperatures, the compressive strength of iglidur® H370 plain bearings decreases. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +100°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction alters only little, like the wear resistance with increasing load and surface speed (diagram 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® H370. For loads up to 2MPa in rotating applications, the hard-chromed shaft is the best material for the iglidur® H370 plain bearings. The high coefficient of wear with 304 stainless steel shafts, which due to their extremely ground surfaces are prone to the stick-slip effect, is striking. Despite same values in the lowest range, the HR carbon steel shaft shows already better values than Cf53 with loads of 2MPa. On the other hand, the 304 stainless steel shaft shows a clear advantage in pivoting movements.

Shaft materials, page 56

Installation tolerances

iglidur® H370 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+ up to 0
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+ up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.2	0.8	4.0
Short-term	m/s	1.5	1.1	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07-0.17	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

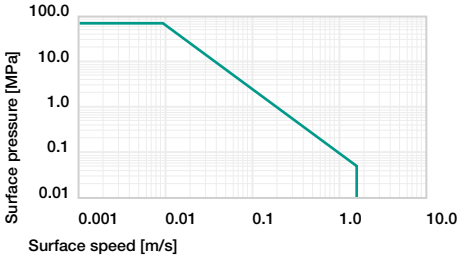


Diagram 01: Permissible pv values for iglidur® H370 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

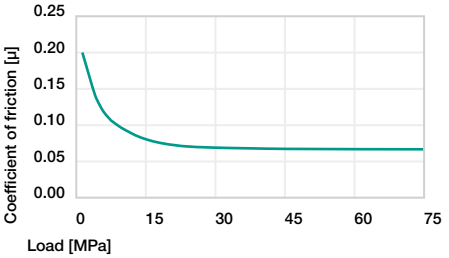


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

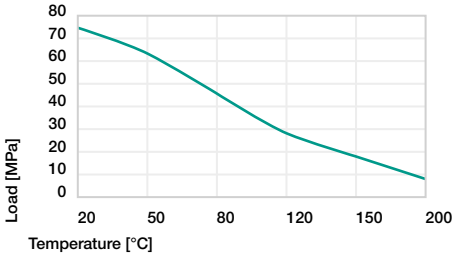


Diagram 02: Maximum recommended surface pressure as a function of temperature (75MPa at +20°C)

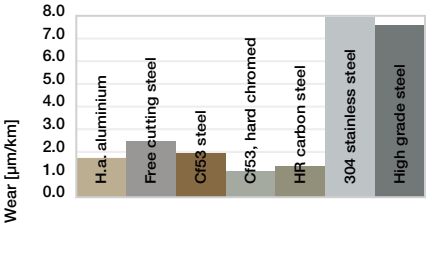


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

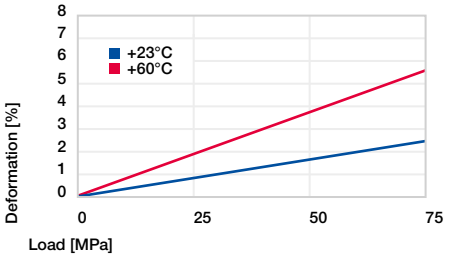


Diagram 03: Deformation under pressure and temperature

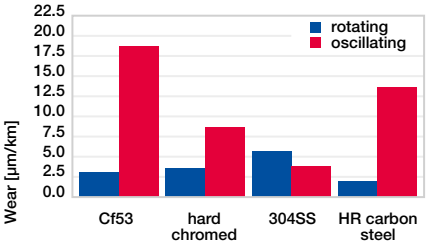


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

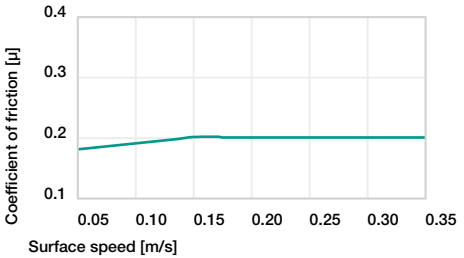
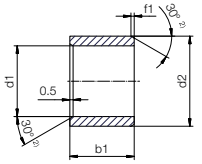


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® H370

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: H370SM-0304-03 – no minimum order quantity.
H370 iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	3.0	H370SM-0304-03
4.0		5.5	4.0	H370SM-0405-04
4.0		5.5	6.0	H370SM-0405-06
4.0		5.5	12.0	H370SM-0405-12
5.0	+0.010 +0.058	7.0	5.0	H370SM-0507-05
5.0		7.0	10.0	H370SM-0507-10
6.0		8.0	6.0	H370SM-0608-06
6.0		8.0	8.0	H370SM-0608-08
6.0		8.0	10.0	H370SM-0608-10
8.0		10.0	8.0	H370SM-0810-08
8.0		10.0	10.0	H370SM-0810-10
8.0		10.0	12.0	H370SM-0810-12
8.0		10.0	15.0	H370SM-0810-15
10.0	+0.013 +0.071	12.0	8.0	H370SM-1012-08
10.0		12.0	10.0	H370SM-1012-10
10.0		12.0	12.0	H370SM-1012-12
10.0		12.0	15.0	H370SM-1012-15
10.0		12.0	20.0	H370SM-1012-20
12.0		14.0	10.0	H370SM-1214-10
12.0		14.0	12.0	H370SM-1214-12
12.0		14.0	15.0	H370SM-1214-15
12.0		14.0	20.0	H370SM-1214-20
13.0	+0.016 +0.086	15.0	10.0	H370SM-1315-10
13.0		15.0	20.0	H370SM-1315-20
14.0		16.0	15.0	H370SM-1416-15
14.0		16.0	20.0	H370SM-1416-20
14.0		16.0	25.0	H370SM-1416-25
15.0		17.0	15.0	H370SM-1517-15
15.0		17.0	20.0	H370SM-1517-20
15.0		17.0	25.0	H370SM-1517-25
16.0		18.0	15.0	H370SM-1618-15
16.0	+0.016 +0.086	18.0	20.0	H370SM-1618-20
16.0		18.0	25.0	H370SM-1618-25
18.0		20.0	15.0	H370SM-1820-15
18.0		20.0	20.0	H370SM-1820-20
18.0		20.0	25.0	H370SM-1820-25
20.0		23.0	10.0	H370SM-2023-10
20.0		23.0	15.0	H370SM-2023-15
20.0		23.0	20.0	H370SM-2023-20
20.0		23.0	25.0	H370SM-2023-25
20.0		23.0	30.0	H370SM-2023-30
22.0		25.0	15.0	H370SM-2225-15
22.0		25.0	20.0	H370SM-2225-20
22.0		25.0	25.0	H370SM-2225-25
22.0		25.0	30.0	H370SM-2225-30
24.0		27.0	15.0	H370SM-2427-15
24.0	+0.020 +0.104	27.0	20.0	H370SM-2427-20
24.0		27.0	25.0	H370SM-2427-25
24.0		27.0	30.0	H370SM-2427-30
25.0		28.0	15.0	H370SM-2528-15
25.0		28.0	20.0	H370SM-2528-20
25.0		28.0	25.0	H370SM-2528-25
25.0		28.0	30.0	H370SM-2528-30
28.0		32.0	20.0	H370SM-2832-20
28.0		32.0	25.0	H370SM-2832-25
28.0		32.0	30.0	H370SM-2832-30
30.0		34.0	20.0	H370SM-3034-20

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
30.0	+0.020 +0.104	34.0	25.0	H370SM-3034-25
30.0		34.0	30.0	H370SM-3034-30
30.0		34.0	40.0	H370SM-3034-40
32.0	+0.025 +0.125	36.0	20.0	H370SM-3236-20
32.0		36.0	30.0	H370SM-3236-30
32.0		36.0	40.0	H370SM-3236-40
35.0		39.0	20.0	H370SM-3539-20
35.0		39.0	30.0	H370SM-3539-30
35.0		39.0	40.0	H370SM-3539-40
35.0		39.0	50.0	H370SM-3539-50
40.0		44.0	20.0	H370SM-4044-20
40.0		44.0	30.0	H370SM-4044-30
40.0		44.0	40.0	H370SM-4044-40
40.0	+0.025 +0.125	44.0	50.0	H370SM-4044-50
45.0		50.0	20.0	H370SM-4550-20
45.0		50.0	30.0	H370SM-4550-30
45.0		50.0	40.0	H370SM-4550-40
45.0		50.0	50.0	H370SM-4550-50
50.0	+0.000 +0.100	55.0	20.0	H370SM-5055-20
50.0		55.0	30.0	H370SM-5055-30
50.0		55.0	40.0	H370SM-5055-40
50.0		55.0	50.0	H370SM-5055-50
50.0		55.0	60.0	H370SM-5055-60
55.0	+0.030 +0.150	60.0	26.0	H370SM-5560-26
60.0		65.0	60.0	H370SM-6065-60
75.0		80.0	60.0	H370SM-7580-60

[3] After press-fit. *Testing methods, page 61*

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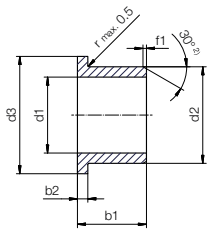
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Bearing technology | Plain bearings | iglidur® H370

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: H370FM-0405-04 – no minimum order quantity.
H370 iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0		5.5	9.5	4.0	0.75	H370FM-0405-04
5.0	+0.010	7.0	11.0	5.0	1.00	H370FM-0507-05
6.0	+0.058	8.0	12.0	4.0	1.00	H370FM-0608-04
6.0		8.0	12.0	6.0	1.00	H370FM-0608-06
6.0		8.0	12.0	8.0	1.00	H370FM-0608-08
8.0		10.0	15.0	5.5	1.00	H370FM-0810-05
8.0		10.0	15.0	6.0	1.00	H370FM-0810-06
8.0		10.0	15.0	7.5	1.00	H370FM-0810-07
8.0		10.0	15.0	9.5	1.00	H370FM-0810-09
8.0		10.0	15.0	10.0	1.00	H370FM-0810-10
8.0		10.0	15.0	15.0	1.00	H370FM-0810-15
10.0	+0.013	12.0	18.0	7.0	1.00	H370FM-1012-07
10.0	+0.071	12.0	18.0	9.0	1.00	H370FM-1012-09
10.0		12.0	18.0	10.0	1.00	H370FM-1012-10
10.0		12.0	18.0	12.0	1.00	H370FM-1012-12
10.0		12.0	18.0	14.5	1.00	H370FM-1012-145
10.0		12.0	18.0	17.0	1.00	H370FM-1012-17
10.0		12.0	18.0	20.0	1.00	H370FM-1012-20
12.0		14.0	20.0	7.0	1.00	H370FM-1214-07
12.0		14.0	20.0	9.0	1.00	H370FM-1214-09
12.0		14.0	20.0	12.0	1.00	H370FM-1214-12
12.0	+0.016	14.0	20.0	15.0	1.00	H370FM-1214-15
12.0	+0.086	14.0	20.0	17.0	1.00	H370FM-1214-17
12.0		14.0	20.0	20.0	1.00	H370FM-1214-20
14.0		16.0	22.0	12.0	1.00	H370FM-1416-12
14.0		16.0	22.0	17.0	1.00	H370FM-1416-17

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
15.0		17.0	23.0	9.0	1.00	H370FM-1517-09
15.0		17.0	23.0	12.0	1.00	H370FM-1517-12
15.0		17.0	23.0	17.0	1.00	H370FM-1517-17
16.0		18.0	24.0	10.0	1.00	H370FM-1618-10
16.0		18.0	22.0	10.0	1.00	H370FM-161822-10
16.0	+0.016	18.0	24.0	12.0	1.00	H370FM-1618-12
16.0	+0.086	18.0	24.0	17.0	1.00	H370FM-1618-17
16.0		18.0	24.0	25.0	1.00	H370FM-1618-25
18.0		20.0	26.0	12.0	1.00	H370FM-1820-12
18.0		20.0	26.0	17.0	1.00	H370FM-1820-17
18.0		20.0	26.0	22.0	1.00	H370FM-1820-22
20.0		23.0	30.0	11.5	1.50	H370FM-2023-11
20.0		23.0	30.0	16.5	1.50	H370FM-2023-16
20.0		23.0	30.0	21.5	1.50	H370FM-2023-21
20.0		23.0	30.0	30.0	1.50	H370FM-2023-30
22.0		25.0	32.0	21.5	1.50	H370FM-222532-215
25.0	+0.020	28.0	35.0	11.5	1.50	H370FM-2528-11
25.0	+0.104	28.0	35.0	16.5	1.50	H370FM-2528-16
25.0		28.0	35.0	21.5	1.50	H370FM-2528-21
25.0		28.0	35.0	30.0	1.50	H370FM-2528-30
30.0		34.0	42.0	16.0	2.00	H370FM-3034-16
30.0		34.0	42.0	26.0	2.00	H370FM-3034-26
30.0		34.0	42.0	40.0	2.00	H370FM-3034-40
35.0	+0.025	39.0	47.0	16.0	2.00	H370FM-3539-16
35.0	+0.125	39.0	47.0	26.0	2.00	H370FM-3539-26
40.0		44.0	52.0	30.0	2.00	H370FM-4044-30

[3] After press-fit. *Testing methods, page 61*

iglidur® H370
+200°C
75MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
40.0	+0.025	44.0	52.0	40.0	2.00	H370FM-4044-40
45.0	+0.125	50.0	58.0	50.0	2.00	H370FM-4550-50
50.0		55.0	63.0	50.0	2.00	H370FM-5055-50

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
60.0	+0.030	65.0	73.0	50.0	2.00	H370FM-6065-50
70.0	+0.150	75.0	83.0	50.0	2.00	H370FM-7075-50

[3] After press-fit. *Testing methods, page 61*

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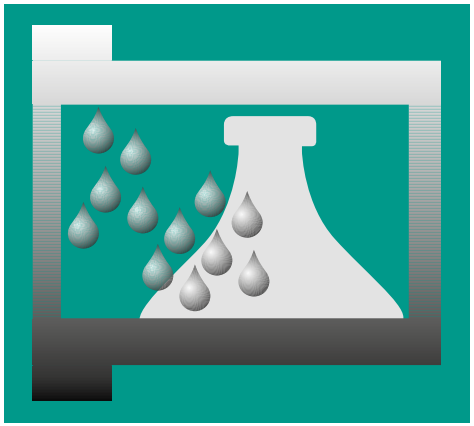
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The classic with high resistance to media and temperature

Up to +200°C

iglidur® H

When to use it?

- For underwater applications
- When high temperature resistance is required
- For high mechanical loading
- For applications in contact with chemicals

When not to use it?

- When extremely high wear resistance under water is required
  iglidur® H370
- When the best universal resistance to chemicals is required
  iglidur® X
- For the maximum compressive strength at higher temperatures
  iglidur® X, iglidur® Z

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Bearing technology | Plain bearings | iglidur® H

Ø
3.0-70.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
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- High temperature resistance
- Chemical resistance
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- Maintenance-free

Typical application areas

- Offshore
- Ship building
- Beverage industry
- Medical technology
- Mechatronics

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	-	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

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Technical data

General properties			Testing method
Density	g/cm³	1.71	
Colour		grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.3	
Coefficient of friction, dynamic, against steel	µ	0.07-0.20	
pv value, max. (dry)	MPa · m/s	1.37	
Mechanical properties			
Flexural modulus	MPa	12,500	DIN 53457
Flexural strength at +20°C	MPa	175	DIN 53452
Compressive strength	MPa	81	
Max. permissible surface pressure (+20°C)	MPa	90	
Shore D hardness		87	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.60	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	4	DIN 53752
Electrical properties[5]			
Specific transitional resistance	Ωcm	$< 10^5$	DIN IEC 93
Surface resistance	Ω	$< 10^2$	DIN 53482

[5] The good conductivity of this material can favour the generation of corrosion on the metallic contact components.

Table 01: Material properties

-40°C up to +200°C

90 MPa

V-0

RoHS-II

ISO 3547-1

iglidur® H is a fibre-reinforced thermoplastic material especially developed for applications in high atmospheric humidity or under water. Plain bearings made from iglidur® H can be used completely free of lubrication; in wet applications, the surrounding media acts as additional lubricant.

Moisture absorption
The moisture absorption of iglidur® H plain bearings is below 0.1% weight in ambient conditions. The saturation limit submerged in water is 0.3% weight. iglidur® H is very well suited for use in wet environments.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance
iglidur® H withstands neutron and gamma particle radiation. Plain bearings made from iglidur® H are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® H plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® H plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® H at radial loads. At the maximum recommended surface pressure of 90MPa the deformation is about 2.5% at room temperature.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® H

Permissible surface speeds

The maximum permitted surface speed is dependent on whether the temperature at the bearing point becomes too high or not. iglidur® H is suitable for maximum surface speeds of 1.0m/s (rotating) and 3.0m/s (linear) in dry operation. Linear movements enable higher surface speeds, as a large area of the shaft contributes to the cooling.

Surface speed, page 48

Temperature

With increasing temperatures, the compressive strength of iglidur® H plain bearings decreases. Diagram 02 shows this inverse relationship. The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +120°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Both the wear resistance and the coefficient of friction change depending on the load. Interestingly, the coefficient of friction μ lowers slightly with the increase of surface speed at constant load (see diagram 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® H. The iglidur® H plain bearings give different results when used in rotating and pivoting applications on different shaft materials. The Cf53 and HR carbon steel shafts give the best wear values in rotating applications, whereas the 304 stainless steel shafts (which are not so good for rotation) give the best results in pivoting applications. Hard-chromed shafts only give an advantage at low pressures when used with iglidur® H bearings.

Shaft materials, page 56

Installation tolerances

iglidur® H plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+ up to 0
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+ up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	3.0
Short-term	m/s	1.5	1.1	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

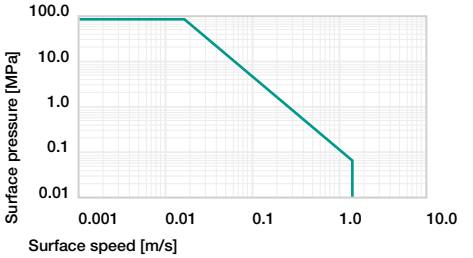


Diagram 01: Permissible pv values for iglidur® H plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

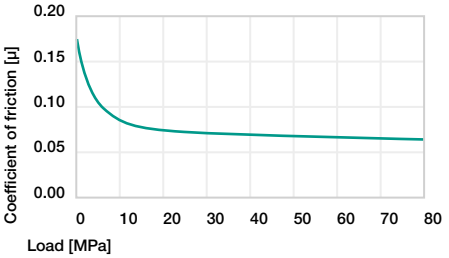


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

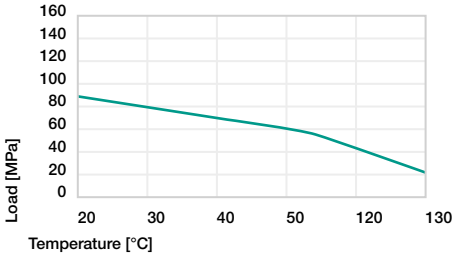


Diagram 02: Maximum recommended surface pressure as a function of temperature (90MPa at +20°C)

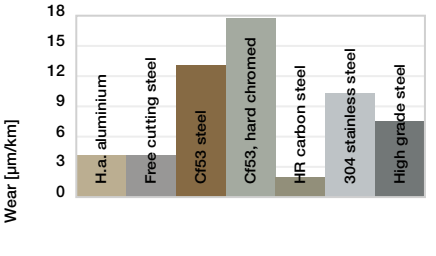


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

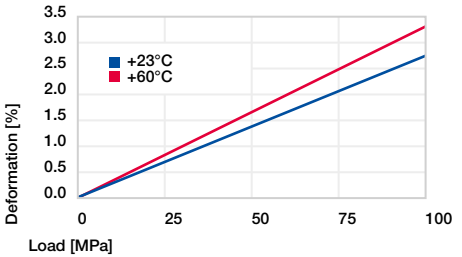


Diagram 03: Deformation under pressure and temperature

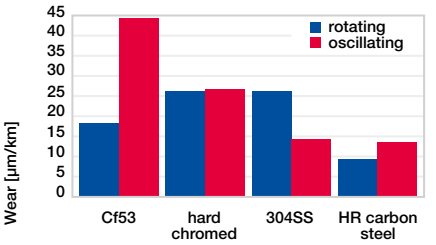


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

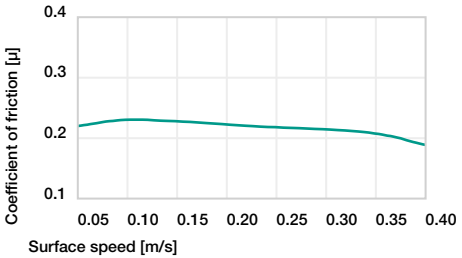
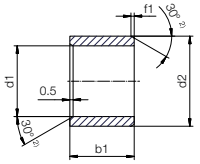


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® H

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: HSM-0304-03 – no minimum order quantity.
H iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.006 +0.046	4.5	3.0	HSM-0304-03
4.0		5.5	4.0	HSM-0405-04
5.0	+0.010	7.0	5.0	HSM-0507-05
6.0	+0.058	8.0	3.0	HSM-0608-03
6.0		8.0	6.0	HSM-0608-06
8.0		10.0	8.0	HSM-0810-08
8.0	+0.013	10.0	10.0	HSM-0810-10
10.0	+0.071	12.0	6.0	HSM-1012-06
10.0		12.0	10.0	HSM-1012-10
12.0		14.0	10.0	HSM-1214-10
12.0		14.0	12.0	HSM-1214-12
12.0		14.0	15.0	HSM-1214-15
12.0		14.0	20.0	HSM-1214-20
14.0	+0.016 +0.086	16.0	20.0	HSM-1416-20
15.0		17.0	15.0	HSM-1517-15
16.0		18.0	15.0	HSM-1618-15
16.0		18.0	20.0	HSM-1618-20
16.0		18.0	25.0	HSM-1618-25
18.0	+0.016	20.0	15.0	HSM-1820-15
18.0	+0.086	20.0	25.0	HSM-1820-25
20.0		23.0	20.0	HSM-2023-20
20.0		23.0	30.0	HSM-2023-30
22.0		25.0	20.0	HSM-2225-20
25.0	+0.020	28.0	15.0	HSM-2528-15
25.0	+0.104	28.0	20.0	HSM-2528-20
30.0		34.0	20.0	HSM-3034-20
30.0		34.0	30.0	HSM-3034-30
30.0		34.0	40.0	HSM-3034-40
32.0		36.0	30.0	HSM-3236-30
35.0		39.0	40.0	HSM-3539-40
40.0	+0.025	44.0	20.0	HSM-4044-20
40.0	+0.125	44.0	50.0	HSM-4044-50
45.0		50.0	30.0	HSM-4550-30
50.0		55.0	40.0	HSM-5055-40
55.0	+0.030	60.0	26.0	HSM-5560-26
60.0	+0.150	65.0	60.0	HSM-6065-60
70.0		75.0	50.0	HSM-7075-50

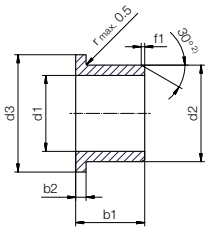
[3] After press-fit. *Testing methods, page 61*

iglidur® H
+200°C
90 MPa

Bearing technology | Plain bearings | iglidur® H

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: HFM-0405-04 – no minimum order quantity.
H iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0		5.5	9.5	4.0	0.75	HFM-0405-04
5.0		7.0	11.0	5.0	1.00	HFM-0507-05
5.0	+0.010	7.0	11.0	8.0	1.00	HFM-0507-08
6.0	+0.058	8.0	12.0	4.0	1.00	HFM-0608-04
6.0		8.0	12.0	6.0	1.00	HFM-0608-06
6.0		8.0	12.0	10.0	1.00	HFM-0608-10
8.0		10.0	15.0	7.0	1.00	HFM-0810-07
8.0		10.0	15.0	10.0	1.00	HFM-0810-10
8.0	+0.013	10.0	15.0	15.0	1.00	HFM-0810-15
10.0	+0.071	12.0	18.0	4.0	1.00	HFM-1012-04
10.0		12.0	18.0	9.0	1.00	HFM-1012-09
10.0		12.0	18.0	15.0	1.00	HFM-1012-15
10.0		12.0	18.0	20.0	1.00	HFM-1012-20
12.0		14.0	20.0	7.0	1.00	HFM-1214-07
12.0	+0.016	14.0	20.0	10.0	1.00	HFM-1214-10
12.0	+0.086	14.0	20.0	15.0	1.00	HFM-1214-15
14.0		16.0	22.0	12.0	1.00	HFM-1416-12
15.0		17.0	23.0	17.0	1.00	HFM-1517-17
16.0	+0.016	18.0	24.0	13.0	1.00	HFM-1618-13
16.0	+0.086	18.0	24.0	17.0	1.00	HFM-1618-17
18.0		20.0	26.0	17.0	1.00	HFM-1820-17
20.0		23.0	30.0	7.0	1.50	HFM-2023-07
20.0		23.0	30.0	16.5	1.50	HFM-2023-16
20.0	+0.020	23.0	30.0	30.0	1.50	HFM-2023-30
25.0	+0.104	28.0	35.0	30.0	1.50	HFM-2528-30
27.0		30.0	38.0	20.0	1.50	HFM-2730-20
30.0		34.0	42.0	40.0	2.00	HFM-3034-40
34.0		38.0	46.0	13.0	2.00	HFM-3438-13
35.0	+0.025	39.0	47.0	26.0	2.00	HFM-3539-26
40.0	+0.125	44.0	52.0	40.0	2.00	HFM-4044-40
45.0		50.0	58.0	50.0	2.00	HFM-4550-50
50.0		55.0	63.0	50.0	2.00	HFM-5055-50
60.0	+0.030	65.0	73.0	50.0	2.00	HFM-6065-50
70.0	+0.150	75.0	83.0	50.0	2.00	HFM-7075-50

[3] After press-fit. *Testing methods, page 61*

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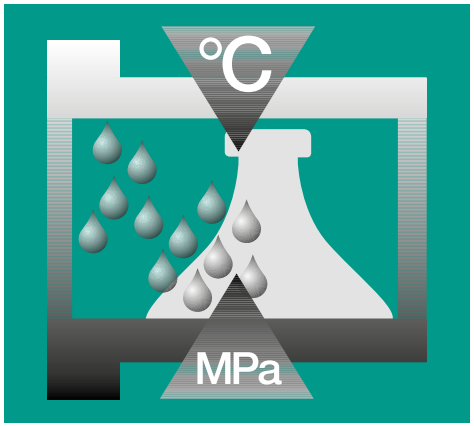
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High temperature endurance runner

Extreme wear and media resistance up to +250°C

iglidur® C500

When to use it?

- When an extremely media-resistant plain bearing with high flexibility is required
- When you need a highly wear-resistant and media-resistant plain bearing

When not to use it?

- When an FDA-compliant high-temperature plain bearing is required
  iglidur® A500
- When a media-resistant, high-temperature plain bearing with the largest possible range of dimensions is required
  iglidur® X

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Bearing technology | Plain bearings | iglidur® C500

Ø
6.0-40.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

High temperature endurance runner
Extreme wear and media resistance up to +250°C

iglidur® C500 can be used up to +250°C and is extremely media-resistant (even in cleaning processes using hydrogen peroxide). It is also wear-resistant and has low coefficient of friction. Also suitable for various special designs. The colour shows the use under extreme environmental influences.

- High temperature resistance
- Resistant to water vapour
- Low coefficient of friction
- Lubrication-free
- High wear resistance
- High media resistance
- Maintenance-free

Typical application areas

- Plant construction
- Valves
- Chemical industry
- Process technology

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■□	+
Wear resistance at +90°C	–	■■■■□	+
Wear resistance at +150°C	–	■■■■■	+
Slide property	–	■■■■■	+
Wear resistance under water	–	■■■■□	+
Media resistance	–	■■■■■	+
Resistant to edge pressures	–	■■■□□	+
Resistant to shock and impact loads	–	■■■□□	+
Dirt resistance	–	■■■□□	+

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Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® C500
+250°C
80MPa

Technical data

General properties			Testing method
Density	g/cm³	1.37	
Colour		magenta	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.07-0.19	
pv value, max. (dry)	MPa · m/s	0.70	
Mechanical properties			
Flexural modulus	MPa	3,300	DIN 53457
Flexural strength at +20°C	MPa	100	DIN 53452
Compressive strength	MPa	110	
Max. permissible surface pressure (+20°C)	MPa	80	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+300	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{14}$	DIN IEC 93
Surface resistance	Ω	$> 10^{13}$	DIN 53482

-100°C up to +250°C

80MPa

V-0

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® C500 is a member of the family of extremely media and temperature-resistant iglidur® materials X, X6 and A500. This material is characterised by improved wear resistance and increased design freedom.

Moisture absorption
The moisture absorption of iglidur® C500 plain bearings is below 0.3% weight in ambient conditions. The saturation limit submerged in water is 0.5% weight.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance
iglidur® C500 withstands neutron and gamma particle radiation without detectable losses of its excellent mechanical properties. Plain bearings made from iglidur® C500 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® C500 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® C500 plain bearings decreases. Diagram 02 shows this inverse relationship. However, at an operation temperature of +200°C the permissible surface pressure is close to 20MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® C500 under different loads. At the maximum recommended surface pressure of 80MPa, the deformation is less than 4.5%.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® C500

Permissible surface speeds

The maximum recommended surface speed is based on the frictional heat generated at the bearing surface. The temperature should only be permitted to increase to a value that will ensure a sustainable use of the bearing with respect to wear and dimensional integrity. The maximum values stated in table 03 are valid only with minimum pressure loads and are often not attained in practice.

Surface speed, page 48

Temperature

iglidur® C500 belongs to the most temperature resistant iglidur® materials. As in the case of all thermoplastics, the compressive strength of iglidur® C500 bearings decreases when temperatures rise. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +130°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction and wear in iglidur® C500 are more favourable than in the other high temperature materials iglidur® X and A500. The coefficient of friction increases moderately as the sliding speed increases. The coefficient of friction initially drops rapidly to less than 0.1 under loads of up to approximately 20MPa, and then only marginally increases as loads continue to increase. The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. Ground surfaces with an average surface finish Ra of 0.6 to 0.8µm are ideal.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® C500. Using the example of a rotating motion at 1MPa and a speed of 0.3m/s, it becomes apparent that iglidur® C500 has consistent wear characteristics across a variety of shaft types. This wear rate spikes in combination with free cutting steel, and, notably so, reduces in combination with HC aluminium. The wear under rotational loads is higher, specifically with increasing radial loads as compared to pivoting movements (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® C500 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.9	0.7	2.4
Short-term	m/s	1.1	1.0	2.8

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.07-0.19	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings F10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

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Technical data

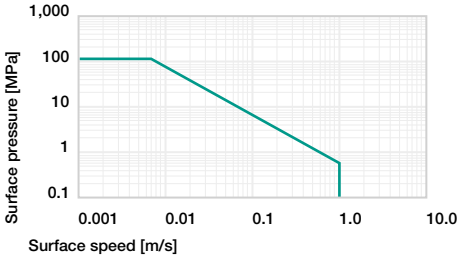


Diagram 01: Permissible pv values for iglidur® C500 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

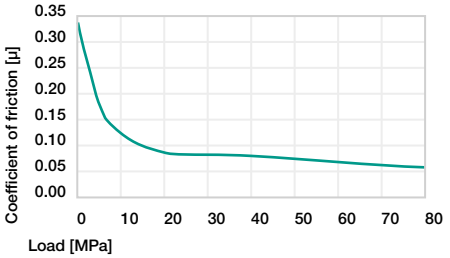


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

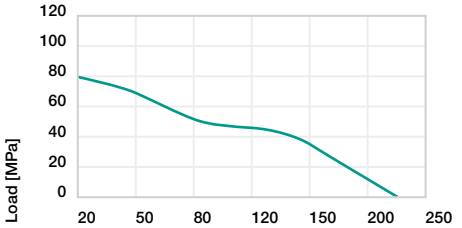


Diagram 02: Maximum recommended surface pressure as a function of temperature (80MPa at +20°C)

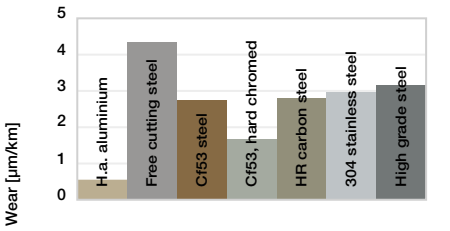


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

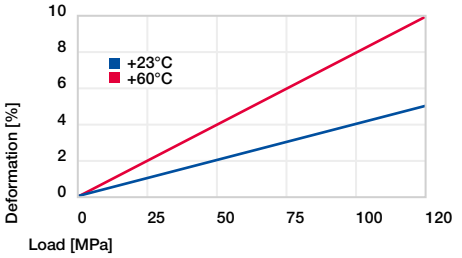


Diagram 03: Deformation under pressure and temperature

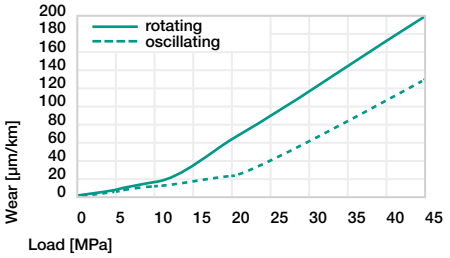


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

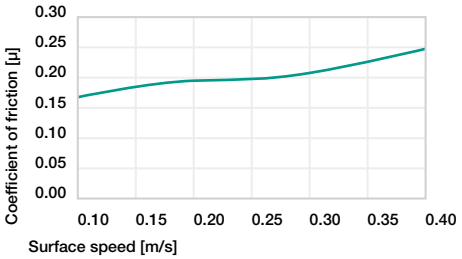


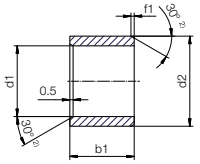
Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

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Bearing technology | Plain bearings | iglidur® C500

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: C500SM-0608-06 – no minimum order quantity.
C500 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	6.0	C500SM-0608-06
8.0	+0.013 +0.071	10.0	10.0	C500SM-0810-10
10.0		12.0	10.0	C500SM-1012-10
12.0	+0.016 +0.086	14.0	12.0	C500SM-1214-12
16.0		18.0	15.0	C500SM-1618-15
20.0	+0.020 +0.104	23.0	20.0	C500SM-2023-20
40.0	+0.025 +0.125	44.0	30.0	C500SM-4044-30

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/C500

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

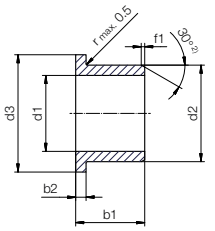
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iglidur® C500
+250°C
80MPa

Bearing technology | Plain bearings | iglidur® C500

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: C500FM-0608-06 – no minimum order quantity.
C500 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	12.0	6.0	1.00	C500FM-0608-06
8.0	+0.013 +0.071	10.0	15.0	10.0	1.00	C500FM-0810-10
10.0		12.0	18.0	10.0	1.00	C500FM-1012-10
12.0	+0.016 +0.086	14.0	20.0	12.0	1.00	C500FM-1214-12
16.0		18.0	24.0	17.0	1.00	C500FM-1618-17
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	C500FM-2023-21

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/C500

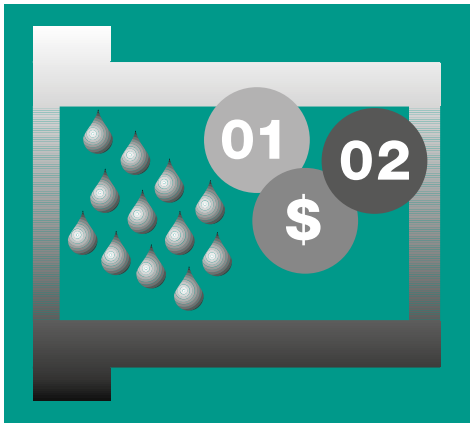
Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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The low-cost specialist for chemicals and temperatures

Up to +200°C, most capable under static load

iglidur® H2

When to use it?

- For underwater applications
- When a cost-effective plain bearing for high temperatures is required
- For applications with fuels, oils, etc.

When not to use it?

- When the highest wear resistance is required
  iglidur® H1, iglidur® H4, iglidur® W300
- When vibration dampening is necessary
  iglidur® B, iglidur® M250
- When neither increased temperatures nor media contact occur
  iglidur® GLW

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Bearing technology | Plain bearings | iglidur® H2

Ø
–



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The low-cost specialist for chemicals and temperatures

Up to +200°C, most capable under static load

For applications with high temperature requirements. Can be conditionally used in dry operation; excellent properties with additional lubrication.

- Suitable for underwater applications
- Cost-effective
- Chemical resistance
- High temperature resistance
- Lubrication-free
- Maintenance-free

Typical application areas

- Automotive industry
- Actuator
- Bicycle industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® H2
+200°C
110MPa

Technical data

-40°C up to +200°C

110MPa

V-0

RoHS-II

General properties			Testing method
Density	g/cm³	1.72	
Colour		brown	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.2	
Coefficient of friction, dynamic, against steel	µ	0.07-0.30	
pv value, max. (dry)	MPa · m/s	0.58	
Mechanical properties			
Flexural modulus	MPa	10,300	DIN 53457
Flexural strength at +20°C	MPa	210	DIN 53452
Compressive strength	MPa	109	
Max. permissible surface pressure (+20°C)	MPa	110	
Shore D hardness		88	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	4	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{15}$	DIN IEC 93
Surface resistance	Ω	$> 10^{14}$	DIN 53482

Table 01: Material properties

In applications with iglidur® H2 plain bearings, economical aspects are in focus. It is the first time that it is possible to offer such a high-performance bearing for high volume applications with these technical advantages at such a low price: temperatures up to +200°C, permitted surface pressure up to 110N/mm², and excellent chemical resistance. The iglidur® H2 plain bearings are self-lubricating and suitable for all motions.

Moisture absorption

The moisture absorption of iglidur® H2 plain bearings is below 0.1% weight in ambient conditions. The saturation limit submerged in water is 0.2% weight. iglidur® H2 is an ideal material for wet environments.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

iglidur® H2 withstands neutron and gamma particle radiation. Plain bearings made from iglidur® H2 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® H2 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H2 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

Diagram 03 shows the elastic deformation of iglidur® H2 at radial loads. At the recommended maximum surface pressure of 110MPa the deformation is less than 3% at room temperature. The values for tensile and compressive strength are higher than those of iglidur® H at room temperature.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® H2

Permissible surface speeds

During the development of iglidur® H2, costs and mechanical stability were the main considerations. The permitted surface speeds of this bearing are rather low, which primarily permits an application with slow movements or in intermittent service.

Surface speed, page 48

Temperature

iglidur® H2 is an extremely temperature-resistant material. The short-term maximum temperature permitted is +240°C and allows the use of iglidur® H2 plain bearings in applications where the bearings are not subjected to any additional load such as a paint drying process. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +110°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of iglidur® H2 plain bearings change with different surface speeds, loads and surface finishes, as indicated in the diagrams 04 and 05.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Regarding the wear resistance of combinations with iglidur® H2, it must be indicated once again that this bearing was developed for statically high mechanical stability. The wear resistance however does not attain, with none of the bearing-shaft combinations, the values of iglidur® H370 with the corresponding shaft. When the iglidur® H2 bearings are used, they should not be combined with hard-chromed shafts. Shafts made from Cf53 steel and 304 stainless steel are essentially better, as is found in diagrams 06 and 07.

Shaft materials, page 56

Installation tolerances

iglidur® H2 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® H2 plain bearings are manufactured to special order. Please request iglidur® H2 plain bearings as an alternative to iglidur® H and iglidur® H4 bearings in high volume applications.

Chemicals	Resistance
Alcohols	+
Diluted acids	+ up to 0
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	0 up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.9	0.6	2.5
Short-term	m/s	1.0	0.7	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07-0.30	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings F10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

EN 09/2023

Technical data

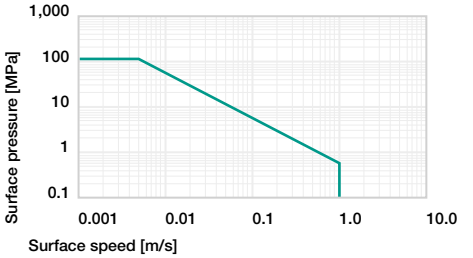


Diagram 01: Permissible pv values for iglidur® H2 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

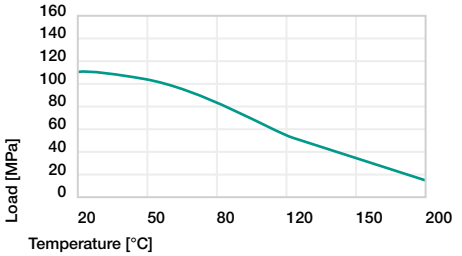


Diagram 02: Maximum recommended surface pressure as a function of temperature (110MPa at +20°C)

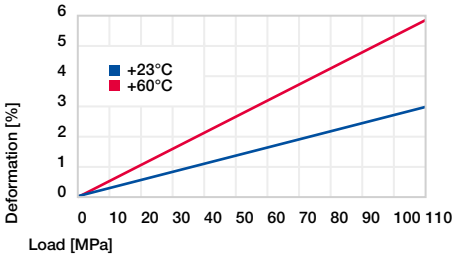


Diagram 03: Deformation under pressure and temperature

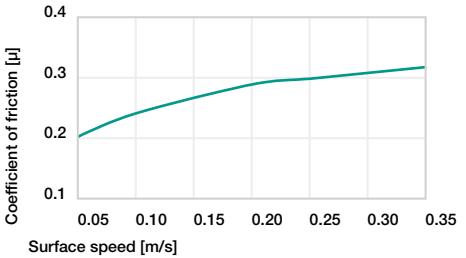


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

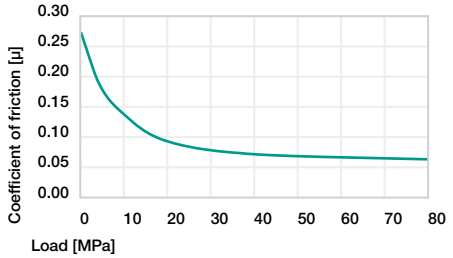


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

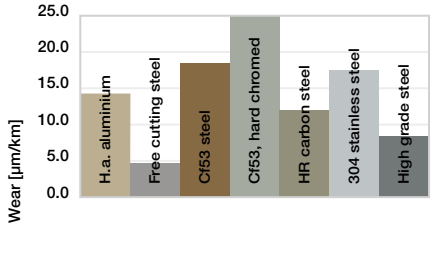


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

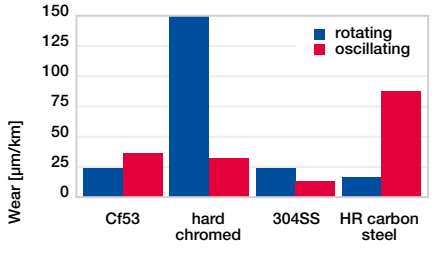
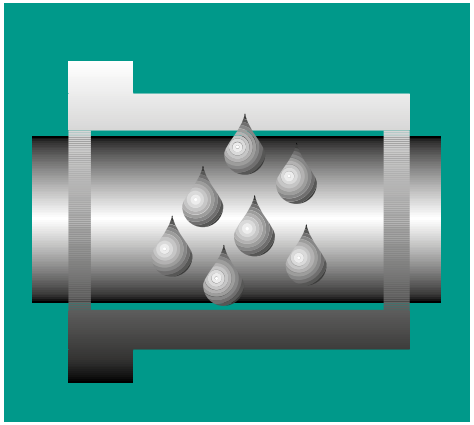


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

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Chemical resistance

Excellent coefficient of friction and wear

iglidur® H3

When to use it?

- When extreme service life is required under the influence of temperature and humidity
- When low coefficient of friction at high temperature is important
- When aggressive cleaning is required
- For under bonnet applications

When not to use it?

- When high surface pressures occur
  iglidur® Z
- When the best universal chemical resistance is required
  iglidur® X
- When a cost-effective high-temperature plain bearing is required, not the ideal wear resistance
  iglidur® H2
- When an FDA-compliant plain bearing with high temperature resistance is required
  iglidur® A500

EN 09/2023

Bearing technology | Plain bearings | iglidur® H3

Ø
3.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Chemical resistance

Excellent coefficient of friction and wear

iglidur® H3 is the first choice when long service life is required in extreme environmental conditions. Extreme wear resistance is coupled with excellent resistance to temperature and media - not only in the food and packaging industries or the automotive industry.

- More wear-resistant than iglidur® H1
- Low moisture absorption
- Resistant to many chemicals

Typical application areas

- Beverage industry
- Automation
- Packaging
- Textile industry
- Optical industry

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■■□	+
Wear resistance at +90°C	–	■■■■□	+
Wear resistance at +150°C	–	■■■■□	+
Slide property	–	■■■■■	+
Wear resistance under water	–	■■□□□	+
Media resistance	–	■■■■■	+
Resistant to edge pressures	–	■■■□□	+
Resistant to shock and impact loads	–	■■■□□	+
Dirt resistance	–	■■■□□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® H3
+200°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.41	
Colour		grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.08-0.17	
pv value, max. (dry)	MPa · m/s	0.7	
Mechanical properties			
Flexural modulus	MPa	2,760	DIN 53457
Flexural strength at +20°C	MPa	68	DIN 53452
Compressive strength	MPa	n.s.	
Max. permissible surface pressure (+20°C)	MPa	40	
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	up to -40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	6	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	n.s.	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

Table 01: Material properties

-40°C up to +200°C

40MPa

V-0

RoHS-II

ISO 3547-1

iglidur® H3 plain bearings have been specially developed for use under extreme environmental conditions. Their strengths are the extremely high wear resistance and the excellent coefficient of friction even in applications in which the bearing is exposed to extreme temperatures and/or aggressive chemicals. iglidur® H3 plain bearings can be used completely free of lubrication; in wet area applications, the surrounding medium acts as additional lubricant.

Moisture absorption
The moisture absorption of iglidur® H3 plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 0.5% weight. Therefore iglidur® H3 is very well suited for use in wet environments.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance
Plain bearings made from iglidur® H3 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® H3 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® H3 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® H3 at radial loads. Among the iglidur® H materials, iglidur® H3 material has the greatest flexibility. This must be considered for applications with high surface pressure or edge loads.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® H3

Permissible surface speeds

Due to their excellent coefficient of friction, rotating surface speeds of up to 2.0m/s are possible with iglidur® H3 plain bearings in dry operation. Linear speeds up to 5.0m/s can be attained. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 48

Temperature

iglidur® H3 is an extremely temperature-resistant material. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. In the case of iglidur® H3 in particular, however, this increase is very small. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction alters similarly to the wear resistance with increasing load and surface speed (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® H3. The iglidur® H3 plain bearings display excellent wear behaviour in combination with a wide variety of shaft materials both in rotating and pivoting applications. On the 304 stainless steel shafts in particular, iglidur® H3 attains very low wear rates both in rotating and pivoting operations. Even on hard-anodised aluminium shafts, iglidur® H3 plain bearings attain long service life in rotating applications with low to medium loads.

Shaft materials, page 56

Installation tolerances

iglidur® H3 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+ up to 0
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+ up to –
Strong alkalines	+ up to –

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	4.0
Short-term	m/s	1.5	1.1	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.17	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

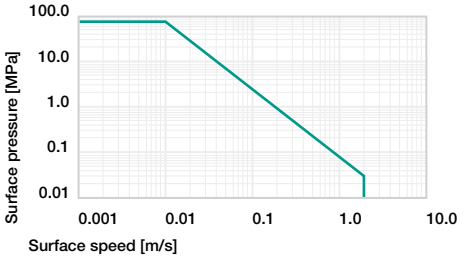


Diagram 01: Permissible pv values for iglidur® H3 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

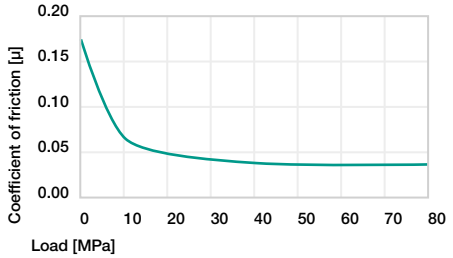


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

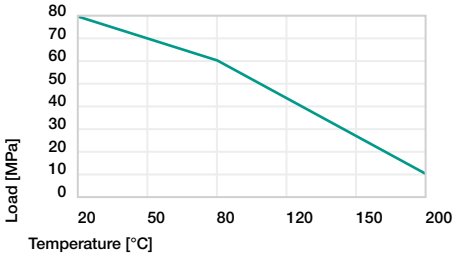


Diagram 02: Maximum recommended surface pressure as a function of temperature (80MPa at +20°C)

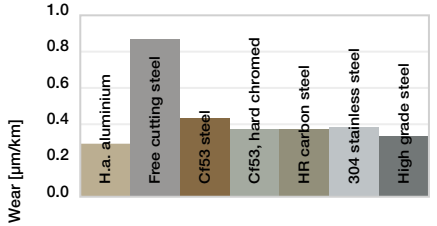


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

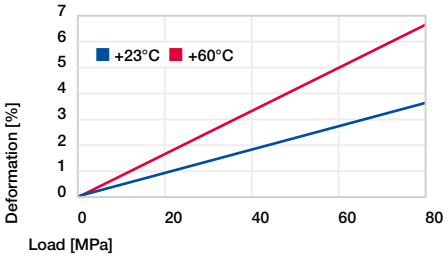


Diagram 03: Deformation under pressure and temperature

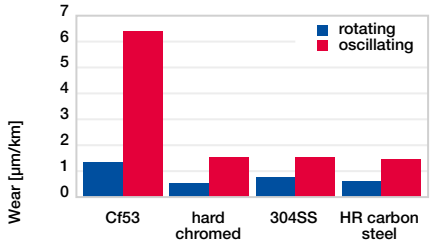


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

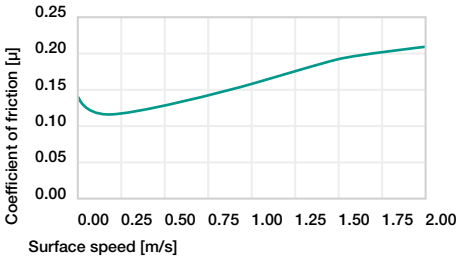
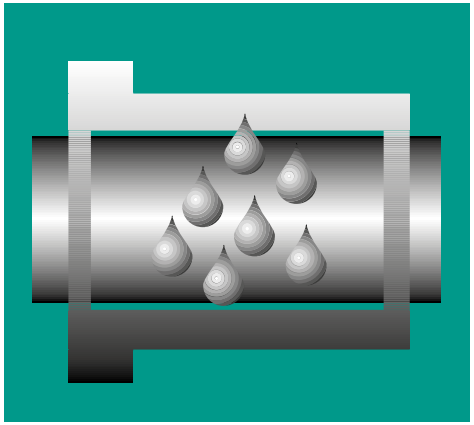


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa





Resistant to temperature and chemicals

Robust media resistance

iglidur® H5

When to use it?

- When extreme service life is required under the influence of temperature and humidity
- When low coefficient of friction at high temperature is important
- When aggressive cleaning is required
- For under bonnet applications

When not to use it?

- When high surface pressures occur
  iglidur® Z
- When the best universal chemical resistance is required
  iglidur® X
- When a cost-effective high-temperature plain bearing is required, not the ideal wear resistance
  iglidur® H2
- When an FDA-compliant plain bearing with high temperature resistance is required
  iglidur® A500

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Bearing technology | Plain bearings | iglidur® H5

Ø
3.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Resistant to temperature and chemicals
Robust media resistance

iglidur® H5 was especially developed for the application in corrosive environments, in which high edge pressures and impact loads occur.

- Good media-resistance
- Resistant to impacts and shocks
- Resistant to edge pressures

Typical application areas

- Automotive industry
- Automation
- Packaging

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® H5
+200°C
80MPa

Technical data

General properties			Testing method
Density	g/cm³	1.41	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.7	
Coefficient of friction, dynamic, against steel	µ	0.08-0.24	
pv value, max. (dry)	MPa · m/s	0.7	
Mechanical properties			
Flexural modulus	MPa	6,400	DIN 53457
Flexural strength at +20°C	MPa	150	DIN 53452
Compressive strength	MPa	n.s.	
Max. permissible surface pressure (+20°C)	MPa	80	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	up to -40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	n.s.	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-40°C up to +200°C

80MPa

V-0

RoHS-II

ISO 3547-1

iglidur® H5 plain bearings stand for high carrying capacity, good abrasion resistance and good temperature resistance, besides the obvious economic factors. Temperatures up to +200°C, permitted surface pressure up to 65MPa, and excellent chemical resistance are only some of the essential attributes. Solid lubricants reduce the coefficient of friction and support the wear resistance, which has been significantly improved compared to the iglidur® H3 plain bearings, which are also very cost-effective. iglidur® H5 plain bearings are suitable for all sliding surfaces.

Moisture absorption
The moisture absorption of iglidur® H5 plain bearings is below 0.1% weight in ambient conditions. The saturation limit submerged in water is 0.7% weight. iglidur® H5 is therefore an ideal material for wet environments.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance
Plain bearings made from iglidur® H5 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® H5 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® H5 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® H5 at radial loads.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® H5

Permissible surface speeds

In contrast to the similarly cost-effective iglidur® H3 plain bearings, iglidur® H5 has a favourable coefficient of friction. This accounts for the higher permitted surface speeds that can be attained with these bearings. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 48

Temperature

iglidur® H5 is an extremely temperature-resistant material. With increasing temperatures, the compressive strength of iglidur® H5 plain bearings decreases. When considering temperatures, the additional frictional heat in the bearing system must be taken into account. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of the iglidur® H5 plain bearings is very low (diagrams 04 and 05). Please note that a sliding surface with a rough surface finish will increase the friction.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

With many of the suitable shaft materials, iglidur® H5 is the economical alternative to many other high-temperature bearings. The important thing is however the selection of the suitable shaft material. It cannot be generally stated that iglidur® H5 is suitable for use with hard or soft shafts. Tests have however shown that pivoting applications yield better wear data. In rotating applications, the wear increases markedly from 10MPa.

Shaft materials, page 56

Installation tolerances

iglidur® H5 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+ up to 0
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	0 up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	1.0	0.7	4.0
Short-term	**m/s**	1.5	1.1	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.24	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

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Technical data

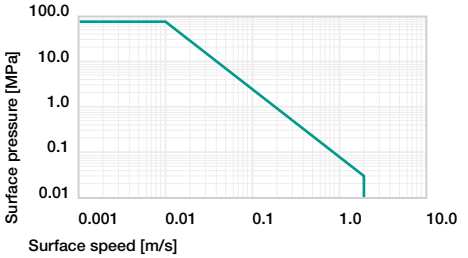


Diagram 01: Permissible pv values for iglidur® H5 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

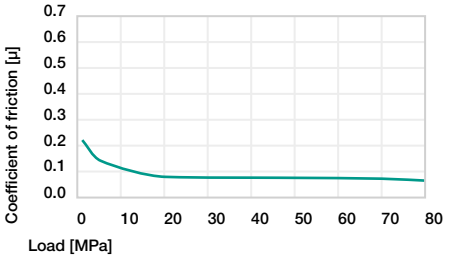


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

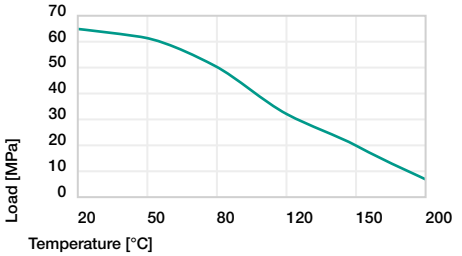


Diagram 02: Maximum recommended surface pressure as a function of temperature (65MPa at +20°C)

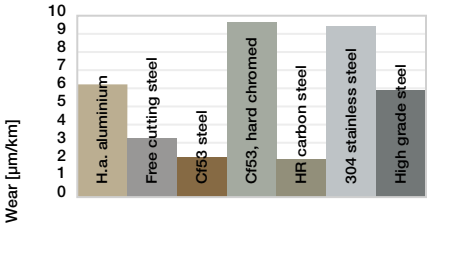


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

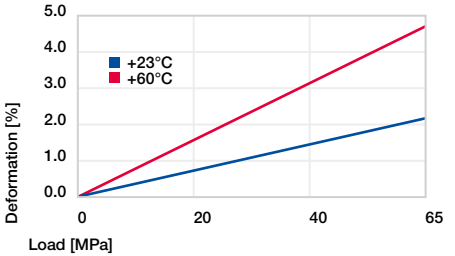


Diagram 03: Deformation under pressure and temperature

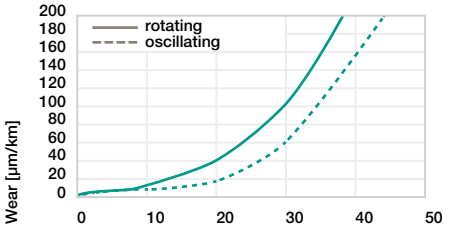


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

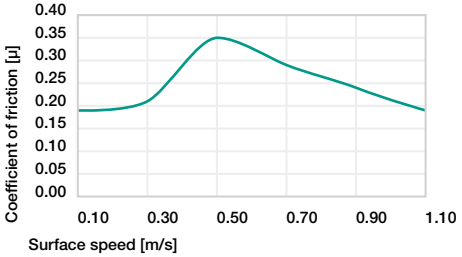


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

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Plain bearing materials for contact with food

Plain bearing materials for contact with food

The iglidur® materials are most at home when they are not lubricated and the highest hygiene is required. Where is this more true than in food handling and processing?
This group comprises FDA-compliant materials for the most varied operating conditions in terms of moisture and temperature, including iglidur® T220, a material suitable even for the tobacco industry.

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert



iglidur® A181
The universal bearing for food contact

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	31	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	0.48	– +
Price index		– +



iglidur® A350
The endurance runner at higher temperatures in the food sector

Temperature [°C] [123]	+180	– +
Surface pressure [MPa] [124]	60	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	1.79	– +
Price index		– +



iglidur® A500
The media and temperature specialist in the food sector

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	120	– +
Coefficient of friction [µ] [125]	0.36	– +
Wear [µm/km] [125]	4.10	– +
Price index		– +



iglidur® A180
The all-rounder for food

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	28	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	0.50	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating

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iglidur® A200
The "food-classic" for low duty

Temperature [°C] [123]	+80	– +
Surface pressure [MPa] [124]	18	– +
Coefficient of friction [µ] [125]	0.45	– +
Wear [µm/km] [125]	1.62	– +
Price index		– +



iglidur® A160
"Food" bearing with media resistance up to +90°C

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	14	– +
Coefficient of friction [µ] [125]	0.09	– +
Wear [µm/km] [125]	0.33	– +
Price index		– +



iglidur® UW160
Suitable for contact with drinking water

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	20	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	2.00	– +
Price index		– +



iglidur® T220
For the tobacco industry

Temperature [°C] [123]	+100	– +
Surface pressure [MPa] [124]	40	– +
Coefficient of friction [µ] [125]	0.36	– +
Wear [µm/km] [125]	0.80	– +

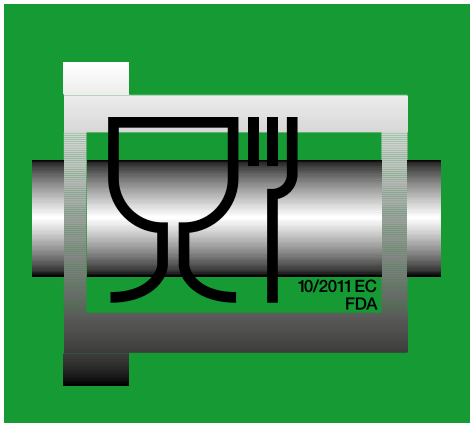


iglidur® AX500
Conductive and resistant

Temperature [°C] [123]	+250	– +
Surface pressure [MPa] [124]	69	– +
Coefficient of friction [µ] [125]	0.22	– +
Wear [µm/km] [125]	0.24	– +
Price index		– +

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The universal bearing for food contact

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

iglidur® A181

When to use it?

- When FDA compliance is required
- When a material compliant in accordance with Regulation (EU) No. 10/2011 is required
- When an universal material suitable for direct contact with food is required

When not to use it?

- When Regulation (EU) No. 10/2011 and FDA compliance are not required
  iglidur® J
- When continuous operating temperatures are higher than +90°C
  iglidur® A350
- When a cost-effective universal plain bearing is required
  iglidur® G, iglidur® P

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Bearing technology | Plain bearings | iglidur® A181

Ø
4.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The universal bearing for food contact

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

The iglidur® A181 material is compliant with Regulation (EU) No. 10/2011 and also with FDA specifications. The blue colour also facilitates the "optical detectability" often desired in the food sector.

- Compliant with Regulation (EU) No. 10/2011
- FDA-compliant
- Universal installation
- High media resistance
- Wear-resistant
- Lubrication-free
- Maintenance-free

Typical application areas

- Food industry
- Beverage technology
- Medical technology

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® A181
+90°C
31MPa

Technical data

General properties			Testing method
Density	g/cm³	1.38	
Colour		blue	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	µ	0.10-0.21	
pv value, max. (dry)	MPa · m/s	0.31	
Mechanical properties			
Flexural modulus	MPa	1,913	DIN 53457
Flexural strength at +20°C	MPa	48	DIN 53452
Compressive strength	MPa	60	
Max. permissible surface pressure (+20°C)	MPa	31	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	11	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

-50°C up to +90°C

31MPa

HB

FOOD

RoHS-II

ISO 3547-1

Table 01: Material properties

Due to their technical specifications and their conformity with the relevant regulations, iglidur® A181 plain bearings are predestined for applications in food technology. Compared to iglidur® A180 with regard to the mechanical properties, temperature and media resistance, iglidur® A181 is more suitable with respect to the wear resistance in most cases.

Moisture absorption

The moisture absorption of iglidur® A181 plain bearings is approximately 0.2 % weight in standard climatic conditions. The saturation limit submerged in water is 1.3% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® A181 bearings.

Radiation resistance

Plain bearings made from iglidur® A181 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® A181 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® A181 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® A181 at radial loads.
Surface pressure, page 45

Permissible surface speeds

iglidur® A181 was developed for low surface speeds. Maximum speeds of up to 0.8m/s (rotating) and 3.5m/s (linear), respectively, are permissible during continuous dry operation. The given values in table 03 indicate the limits at which an increase up to the continuous permissible temperature occurs. This increase is a result of friction. In practice, though, this level is rarely reached, due to varying application conditions.
Surface speed, page 48

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Bearing technology | Plain bearings | iglidur® A181

Temperature

The long-term upper temperature limit of +90°C permits the broad use in applications with direct contact with food. As shown in diagram 02, with increasing temperatures, the compressive strength decreases. When considering temperatures, the additional frictional heat in the bearing system must be taken into account. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagram 04 and 05). For iglidur® A181 plain bearings, the alteration of the coefficient of friction μ depends on surface speed and the shaft surface finish.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® A181. Particular attention is paid in the food industry to the corrosion-resistant shaft types. Diagram 06 shows that very low wear rates can be achieved in combination with these shafts. As with many of the iglidur® materials, wear rate increases with otherwise identical parameters in rotation (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® A181 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	3.5
Short-term	m/s	1.2	1.0	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.10-0.21	0.08	0.03	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

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Technical data

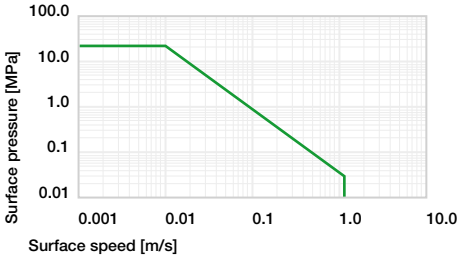


Diagram 01: Permissible pv values for iglidur® A181 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

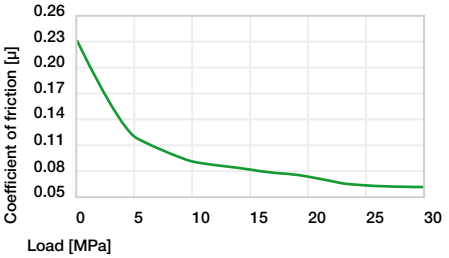


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

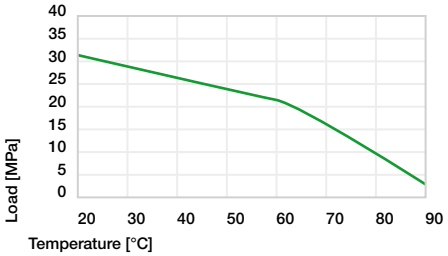


Diagram 02: Maximum recommended surface pressure as a function of temperature (31MPa at +20°C)

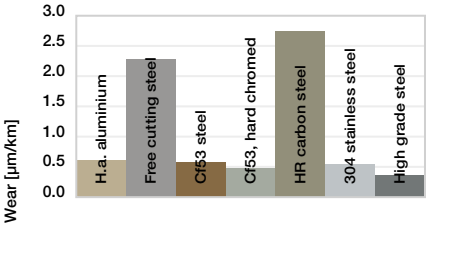


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

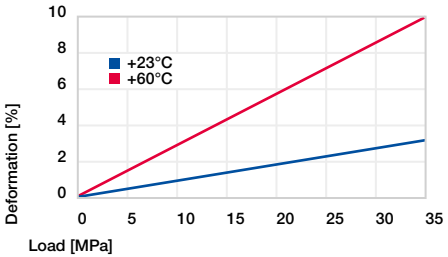


Diagram 03: Deformation under pressure and temperature

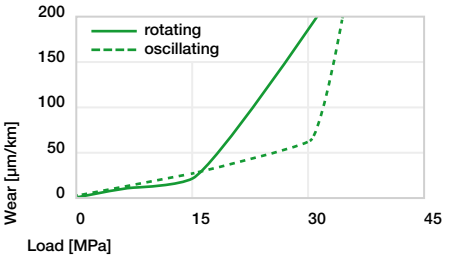


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

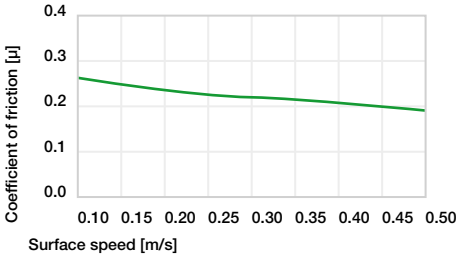


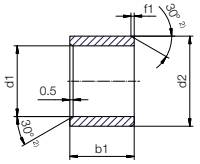
Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

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Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: A181SM-0405-04 – no minimum order quantity.
A181 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0		5.5	4.0	A181SM-0405-04
4.0		5.5	6.0	A181SM-0405-06
5.0		7.0	5.0	A181SM-0507-05
5.0	+0.020 +0.068	7.0	10.0	A181SM-0507-10
6.0		8.0	6.0	A181SM-0608-06
6.0		8.0	8.0	A181SM-0608-08
6.0		8.0	10.0	A181SM-0608-10
8.0		10.0	8.0	A181SM-0810-08
8.0		10.0	10.0	A181SM-0810-10
8.0		10.0	12.0	A181SM-0810-12
10.0	+0.025	12.0	8.0	A181SM-1012-08
10.0	+0.083	12.0	10.0	A181SM-1012-10
10.0		12.0	12.0	A181SM-1012-12
10.0		12.0	15.0	A181SM-1012-15
10.0		12.0	20.0	A181SM-1012-20
12.0		14.0	12.0	A181SM-1214-12
12.0		14.0	15.0	A181SM-1214-15
12.0		14.0	20.0	A181SM-1214-20
13.0		15.0	10.0	A181SM-1315-10
13.0		15.0	20.0	A181SM-1315-20
14.0		16.0	15.0	A181SM-1416-15
14.0	+0.032	16.0	20.0	A181SM-1416-20
14.0	+0.102	16.0	25.0	A181SM-1416-25
15.0		17.0	15.0	A181SM-1517-15
15.0		17.0	20.0	A181SM-1517-20
15.0		17.0	25.0	A181SM-1517-25
16.0		18.0	15.0	A181SM-1618-15
16.0		18.0	20.0	A181SM-1618-20
16.0		18.0	25.0	A181SM-1618-25
18.0		20.0	15.0	A181SM-1820-15
18.0	+0.032 +0.102	20.0	20.0	A181SM-1820-20
18.0		20.0	25.0	A181SM-1820-25
20.0		23.0	10.0	A181SM-2023-10
20.0		23.0	15.0	A181SM-2023-15
20.0		23.0	20.0	A181SM-2023-20
20.0		23.0	25.0	A181SM-2023-25
20.0		23.0	30.0	A181SM-2023-30
22.0		25.0	15.0	A181SM-2225-15
22.0		25.0	20.0	A181SM-2225-20
22.0		25.0	25.0	A181SM-2225-25
22.0		25.0	30.0	A181SM-2225-30
24.0		27.0	15.0	A181SM-2427-15
24.0		27.0	20.0	A181SM-2427-20
24.0	+0.040	27.0	25.0	A181SM-2427-25
24.0	+0.124	27.0	30.0	A181SM-2427-30
25.0		28.0	15.0	A181SM-2528-15
25.0		28.0	20.0	A181SM-2528-20
25.0		28.0	25.0	A181SM-2528-25
25.0		28.0	30.0	A181SM-2528-30
28.0		32.0	20.0	A181SM-2832-20
28.0		32.0	20.0	A181SM-3034-20
28.0		32.0	25.0	A181SM-2832-25
28.0		32.0	30.0	A181SM-2832-30
30.0		34.0	25.0	A181SM-3034-25
30.0		34.0	30.0	A181SM-3034-30
30.0		34.0	40.0	A181SM-3034-40
32.0	+0.050	36.0	20.0	A181SM-3236-20
32.0	+0.150	36.0	30.0	A181SM-3236-30

[3] After press-fit. *Testing methods, page 61*

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iglidur® A181
+90°C
31MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
32.0		36.0	40.0	A181SM-3236-40
35.0		39.0	20.0	A181SM-3539-20
35.0		39.0	30.0	A181SM-3539-30
35.0		39.0	40.0	A181SM-3539-40
35.0	+0.050 +0.150	39.0	50.0	A181SM-3539-50
40.0		44.0	20.0	A181SM-4044-20
40.0		44.0	30.0	A181SM-4044-30
40.0		44.0	40.0	A181SM-4044-40
40.0		44.0	50.0	A181SM-4044-50
45.0		50.0	20.0	A181SM-4550-20
45.0		50.0	30.0	A181SM-4550-30
45.0		50.0	40.0	A181SM-4550-40
45.0		50.0	50.0	A181SM-4550-50
50.0	+0.050 +0.150	55.0	20.0	A181SM-5055-20
50.0		55.0	30.0	A181SM-5055-30
50.0		55.0	40.0	A181SM-5055-40
50.0		55.0	50.0	A181SM-5055-50
50.0		55.0	60.0	A181SM-5055-60

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/A181

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

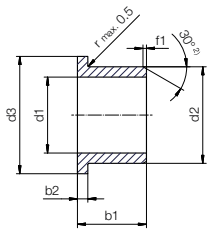
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® A181

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.5	0.8	1.2

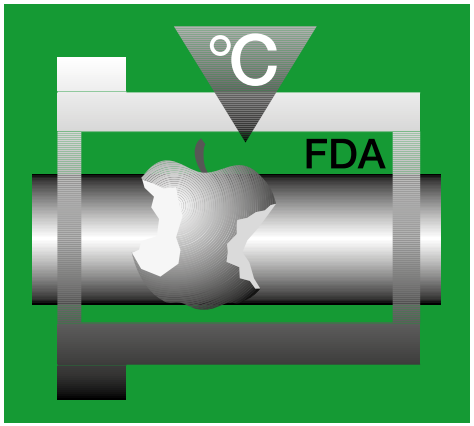
Dimensions according to ISO 3547-1 and special dimensions

Order example: A181FM-0608-04 – no minimum order quantity.
A181 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	4.0	1.00	A181FM-0608-04
6.0		8.0	12.0	6.0	1.00	A181FM-0608-06
6.0		8.0	12.0	8.0	1.00	A181FM-0608-08
8.0	+0.025 +0.083	10.0	15.0	5.5	1.00	A181FM-0810-05
8.0		10.0	15.0	7.5	1.00	A181FM-0810-07
8.0		10.0	15.0	9.5	1.00	A181FM-0810-09
8.0		10.0	15.0	10.0	1.00	A181FM-0810-10
10.0		12.0	18.0	7.0	1.00	A181FM-1012-07
10.0		12.0	18.0	9.0	1.00	A181FM-1012-09
10.0		12.0	18.0	10.0	1.00	A181FM-1012-10
10.0		12.0	18.0	12.0	1.00	A181FM-1012-12
10.0		12.0	18.0	17.0	1.00	A181FM-1012-17
12.0	+0.032 +0.102	14.0	20.0	7.0	1.00	A181FM-1214-07
12.0		14.0	20.0	9.0	1.00	A181FM-1214-09
12.0		14.0	20.0	12.0	1.00	A181FM-1214-12
12.0		14.0	20.0	17.0	1.00	A181FM-1214-17
14.0		16.0	22.0	12.0	1.00	A181FM-1416-12
14.0		16.0	22.0	17.0	1.00	A181FM-1416-17
15.0		17.0	23.0	9.0	1.00	A181FM-1517-09
15.0		17.0	23.0	12.0	1.00	A181FM-1517-12
15.0		17.0	23.0	17.0	1.00	A181FM-1517-17
16.0	+0.032 +0.102	18.0	24.0	12.0	1.00	A181FM-1618-12
16.0		18.0	24.0	17.0	1.00	A181FM-1618-17
18.0		20.0	26.0	12.0	1.00	A181FM-1820-12
18.0		20.0	26.0	17.0	1.00	A181FM-1820-17
18.0		20.0	26.0	22.0	1.00	A181FM-1820-22
20.0	+0.040 +0.124	23.0	30.0	11.5	1.50	A181FM-2023-11
20.0		23.0	30.0	16.5	1.50	A181FM-2023-16
20.0		23.0	30.0	21.5	1.50	A181FM-2023-21
25.0		28.0	35.0	11.5	1.50	A181FM-2528-11
25.0		28.0	35.0	16.5	1.50	A181FM-2528-16
25.0		28.0	35.0	21.5	1.50	A181FM-2528-21
30.0		34.0	42.0	16.0	2.00	A181FM-3034-16
30.0		34.0	42.0	26.0	2.00	A181FM-3034-26
35.0		39.0	47.0	16.0	2.00	A181FM-3539-16
35.0		39.0	47.0	26.0	2.00	A181FM-3539-26
40.0		44.0	52.0	30.0	2.00	A181FM-4044-30
40.0		44.0	52.0	40.0	2.00	A181FM-4044-40
45.0		50.0	58.0	50.0	2.50	A181FM-4550-50

[3] After press-fit. *Testing methods, page 61*





The endurance runner at higher temperatures in the food sector

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

iglidur® A350

When to use it?

- When FDA compliance is required
- When wear resistance and FDA-compliance are necessary at high loads
- When the bearing is used in acid environments

When not to use it?

- When temperatures are continuously higher than +180°C
  iglidur® A500
- When the maximum wear resistance is necessary
  iglidur® J
- When a cost-effective FDA-compliant plain bearing is required
  iglidur® A200, iglidur® A180
- For high speeds
  iglidur® J

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Bearing technology | Plain bearings | iglidur® A350

Ø
4.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The endurance runner at higher temperatures in the food sector

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

A universal plain bearing for use in the area of food and pharmaceutical industries. Composition of FDA-compliant materials allows the use in areas where other plain bearings cannot be used due to the contact with food. With good tribological and mechanical properties, iglidur® A350 plain bearings are suitable for all-round use in and around food machinery.

- Compliant with Regulation (EU) No. 10/2011
- FDA-compliant
- Temperature-resistant up to +180°C
- Suitable for medium and high loads
- Suitable for pivoting applications
- Lubrication-free
- Standard range from stock
- Suitable for rotating applications
- Maintenance-free

Typical application areas

- Food industry
- Beverage technology
- Medical technology

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■□□	+
Wear resistance at +90°C	–	■■■□□	+
Wear resistance at +150°C	–	■■■□□	+
Slide property	–	■■■■□	+
Wear resistance under water	–	■■■■□	+
Media resistance	–	■■■■□	+
Resistant to edge pressures	–	■■■□□	+
Resistant to shock and impact loads	–	■■■□□	+
Dirt resistance	–	■■■□□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

iglidur® A350
+180 °C
60MPa

Technical data

General properties			Testing method
Density	g/cm³	1.42	
Colour		blue	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.6	DIN 53495
Max. moisture absorption	% weight	1.9	
Coefficient of friction, dynamic, against steel	µ	0.10-0.20	
pv value, max. (dry)	MPa · m/s	0.40	
Mechanical properties			
Flexural modulus	MPa	2,000	DIN 53457
Flexural strength at +20°C	MPa	110	DIN 53452
Compressive strength	MPa	78	
Max. permissible surface pressure (+20°C)	MPa	60	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+180	
Max. application temperature short-term	°C	+210	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	8	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{11}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

-100 °C up to +180 °C

60MPa

V-0

FOOD

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® A350 plain bearings are made for practically all loads in food and packaging machinery. Even high loads, often seen in lifting equipment, are taken easily and the bearings work flawlessly without any external lubrication.

Moisture absorption
The moisture absorption of iglidur® A350 is low and can be ignored when using standard plain bearings. Even when saturated with water, iglidur® A350 does not absorb more than 1.9% weight of water (by weight).

Vacuum
In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® A350 bearings.

Radiation resistance
Plain bearings made from iglidur® A350 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® A350 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® A350 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® A350 under different loads. At the recommended maximum surface pressure of 60MPa the deformation is less than 5% at room temperature.
Surface pressure, page 45

Bearing technology | Plain bearings | iglidur® A350

Permissible surface speeds

iglidur® A350 plain bearings are suitable for low and medium speeds in rotating and oscillating applications. Good bearing support for linear movements is also possible with iglidur® A350. In the case of high surface speeds it should be tested whether iglidur® J or iglidur® L250 can be used, as the wear rate of these bearings is lower.

Surface speed, page 48

Temperature

Its temperature resistance makes iglidur® A350 the ideal material for plain bearing used in the food area. For temperatures over +140°C an additional securing is required. The wear rate of iglidur® A350 plain bearings rises only little with higher temperatures. Tests have shown good wear results at +100°C on all tested shaft materials.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of iglidur® A350 on a steel shaft is in the mid range (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The corrosion-resistant steels are rather considered a natural choice for use in the food industry. The trials were therefore carried out especially on such materials. It has been shown that there is no clear favourite and 304 stainless steel, high grade steel and hard-chromed steel are all suitable. Hard-anodised aluminium is also well suited for both linear and rotational movements.

Shaft materials, page 56

Installation tolerances

iglidur® A350 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+ up to 0
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.8	2.5
Short-term	m/s	1.2	0.9	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.10-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

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iglidur® A350
+180 °C
60MPa

Technical data

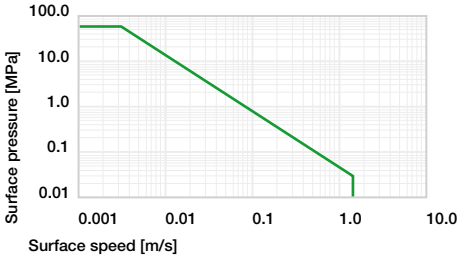


Diagram 01: Permissible pv values for iglidur® A350 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

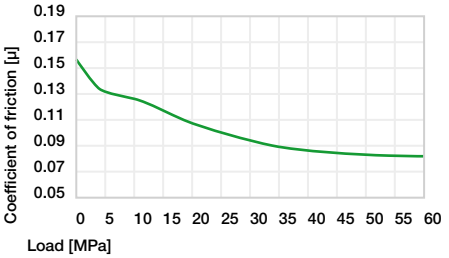


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

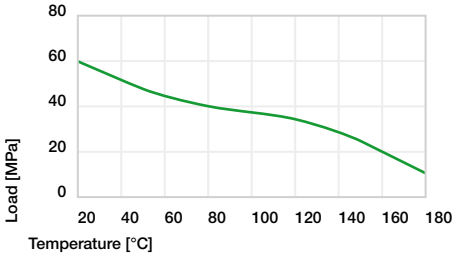


Diagram 02: Maximum recommended surface pressure as a function of temperature (60MPa at +20°C)

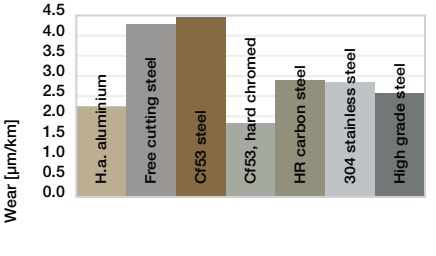


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

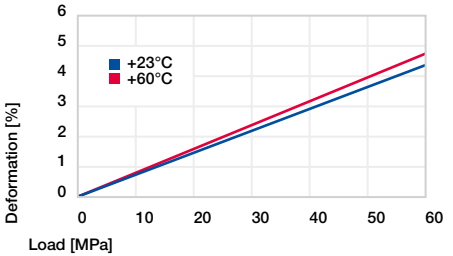


Diagram 03: Deformation under pressure and temperature

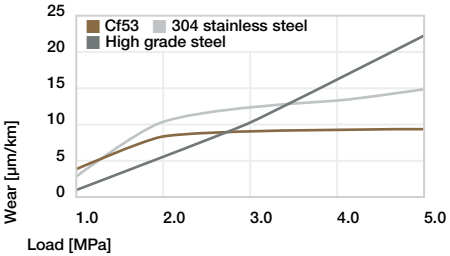


Diagram 07: Wear, rotating with different shaft materials, as a function of the load

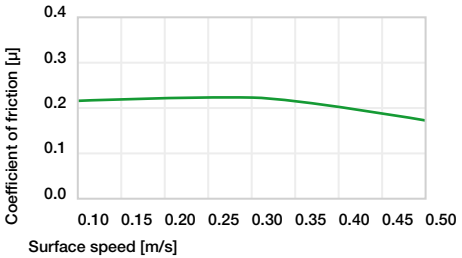


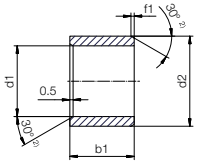
Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

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Bearing technology | Plain bearings | iglidur® A350

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: A350SM-0405-04 – no minimum order quantity.
A350 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0		5.5	4.0	A350SM-0405-04
4.0		5.5	6.0	A350SM-0405-06
5.0	+0.010	7.0	5.0	A350SM-0507-05
5.0	+0.058	7.0	10.0	A350SM-0507-10
6.0		8.0	6.0	A350SM-0608-06
6.0		8.0	8.0	A350SM-0608-08
6.0		8.0	10.0	A350SM-0608-10
8.0		10.0	8.0	A350SM-0810-08
8.0		10.0	10.0	A350SM-0810-10
8.0		10.0	12.0	A350SM-0810-12
10.0	+0.013	12.0	8.0	A350SM-1012-08
10.0	+0.071	12.0	10.0	A350SM-1012-10
10.0		12.0	12.0	A350SM-1012-12
10.0		12.0	15.0	A350SM-1012-15
10.0		12.0	20.0	A350SM-1012-20
12.0		14.0	10.0	A350SM-1214-10
12.0		14.0	12.0	A350SM-1214-12
12.0		14.0	15.0	A350SM-1214-15
12.0		14.0	20.0	A350SM-1214-20
13.0		15.0	10.0	A350SM-1315-10
13.0		15.0	20.0	A350SM-1315-20
14.0	+0.016	16.0	15.0	A350SM-1416-15
14.0	+0.086	16.0	20.0	A350SM-1416-20
14.0		16.0	25.0	A350SM-1416-25
15.0		17.0	15.0	A350SM-1517-15
15.0		17.0	20.0	A350SM-1517-20
15.0		17.0	25.0	A350SM-1517-25
16.0		18.0	15.0	A350SM-1618-15
16.0		18.0	20.0	A350SM-1618-20

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
16.0		18.0	25.0	A350SM-1618-25
18.0	+0.016	20.0	15.0	A350SM-1820-15
18.0	+0.086	20.0	20.0	A350SM-1820-20
18.0		20.0	25.0	A350SM-1820-25
20.0		23.0	10.0	A350SM-2023-10
20.0		23.0	15.0	A350SM-2023-15
20.0		23.0	20.0	A350SM-2023-20
20.0		23.0	25.0	A350SM-2023-25
20.0		23.0	30.0	A350SM-2023-30
22.0		25.0	15.0	A350SM-2225-15
22.0		25.0	20.0	A350SM-2225-20
22.0		25.0	25.0	A350SM-2225-25
22.0		25.0	30.0	A350SM-2225-30
24.0		27.0	15.0	A350SM-2427-15
24.0		27.0	20.0	A350SM-2427-20
24.0	+0.020	27.0	25.0	A350SM-2427-25
24.0	+0.104	27.0	30.0	A350SM-2427-30
24.0		28.0	30.0	A350SM-2428-30
25.0		28.0	15.0	A350SM-2528-15
25.0		28.0	20.0	A350SM-2528-20
25.0		28.0	25.0	A350SM-2528-25
25.0		28.0	30.0	A350SM-2528-30
28.0		32.0	20.0	A350SM-2832-20
28.0		32.0	25.0	A350SM-2832-25
28.0		32.0	30.0	A350SM-2832-30
30.0		34.0	20.0	A350SM-3034-20
30.0		34.0	25.0	A350SM-3034-25
30.0		34.0	30.0	A350SM-3034-30
30.0		34.0	40.0	A350SM-3034-40

[3] After press-fit. *Testing methods, page 61*

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iglidur® A350
+180 °C
60MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
32.0		36.0	20.0	A350SM-3236-20
32.0		36.0	30.0	A350SM-3236-30
32.0		36.0	40.0	A350SM-3236-40
35.0		39.0	20.0	A350SM-3539-20
35.0	+0.025	39.0	30.0	A350SM-3539-30
35.0	+0.125	39.0	40.0	A350SM-3539-40
35.0		39.0	50.0	A350SM-3539-50
40.0		44.0	20.0	A350SM-4044-20
40.0		44.0	30.0	A350SM-4044-30
40.0		44.0	40.0	A350SM-4044-40
40.0		44.0	50.0	A350SM-4044-50
45.0		50.0	20.0	A350SM-4550-20
45.0		50.0	30.0	A350SM-4550-30
45.0		50.0	40.0	A350SM-4550-40
45.0	+0.025	50.0	50.0	A350SM-4550-50
50.0	+0.125	55.0	20.0	A350SM-5055-20
50.0		55.0	30.0	A350SM-5055-30
50.0		55.0	40.0	A350SM-5055-40
50.0		55.0	50.0	A350SM-5055-50
50.0		55.0	60.0	A350SM-5055-60

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/A350

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

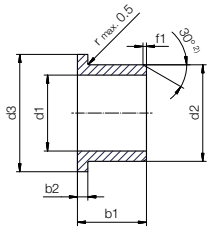
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® A350

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

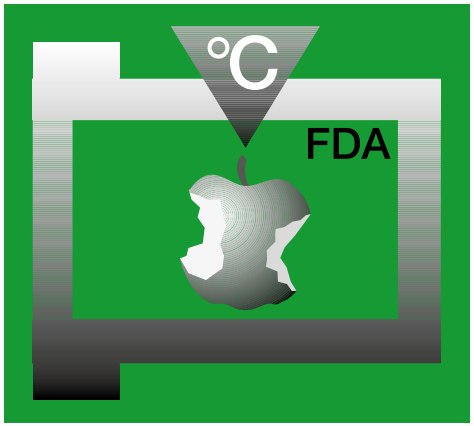
Order example: A350FM-0507-05 – no minimum order quantity.
A350 iglidur® material F With flange M Metric 05 Inner Ø d1 07 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
5.0		7.0	11.0	5.0	1.00	A350FM-0507-05
6.0	+0.010	8.0	12.0	4.0	1.00	A350FM-0608-04
6.0	+0.058	8.0	12.0	6.0	1.00	A350FM-0608-06
6.0		8.0	12.0	8.0	1.00	A350FM-0608-08
8.0		10.0	15.0	5.5	1.00	A350FM-0810-05
8.0		10.0	15.0	7.5	1.00	A350FM-0810-07
8.0		10.0	15.0	9.5	1.00	A350FM-0810-09
10.0		10.0	15.0	10.0	1.00	A350FM-0810-10
10.0	+0.013	12.0	18.0	7.0	1.00	A350FM-1012-07
10.0	+0.071	12.0	18.0	9.0	1.00	A350FM-1012-09
10.0		12.0	18.0	10.0	1.00	A350FM-1012-10
10.0		12.0	18.0	12.0	1.00	A350FM-1012-12
10.0		12.0	18.0	17.0	1.00	A350FM-1012-17
12.0		14.0	20.0	7.0	1.00	A350FM-1214-07
12.0		14.0	20.0	9.0	1.00	A350FM-1214-09
12.0	+0.016	14.0	20.0	12.0	1.00	A350FM-1214-12
12.0	+0.086	14.0	20.0	17.0	1.00	A350FM-1214-17
14.0		16.0	22.0	12.0	1.00	A350FM-1416-12
14.0		16.0	22.0	17.0	1.00	A350FM-1416-17

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
15.0		17.0	23.0	9.0	1.00	A350FM-1517-09
15.0		17.0	23.0	12.0	1.00	A350FM-1517-12
15.0	+0.016	17.0	23.0	17.0	1.00	A350FM-1517-17
16.0	+0.086	18.0	24.0	12.0	1.00	A350FM-1618-12
16.0		18.0	24.0	17.0	1.00	A350FM-1618-17
18.0		20.0	26.0	12.0	1.00	A350FM-1820-12
18.0		20.0	26.0	17.0	1.00	A350FM-1820-17
20.0		23.0	30.0	11.5	1.50	A350FM-2023-11
20.0		23.0	30.0	16.5	1.50	A350FM-2023-16
20.0		23.0	30.0	21.5	1.50	A350FM-2023-21
25.0	+0.020	28.0	35.0	11.5	1.50	A350FM-2528-11
25.0	+0.104	28.0	35.0	16.5	1.50	A350FM-2528-16
25.0		28.0	35.0	21.5	1.50	A350FM-2528-21
30.0		34.0	42.0	16.0	2.00	A350FM-3034-16
30.0		34.0	42.0	26.0	2.00	A350FM-3034-26
35.0		39.0	47.0	16.0	2.00	A350FM-3539-16
35.0	+0.025	39.0	47.0	26.0	2.00	A350FM-3539-26
40.0	+0.125	44.0	52.0	30.0	2.00	A350FM-4044-30
40.0		44.0	52.0	40.0	2.00	A350FM-4044-40
45.0		50.0	58.0	50.0	2.00	A350FM-4550-50

[3] After press-fit. *Testing methods, page 61*





The media and temperature specialist in the food sector

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

iglidur® A500

When to use it?

- When FDA compliance is required
- When a high chemical resistance is required
- Abrasion-resistant
- Temperature-resistant from -100°C to +250°C

When not to use it?

- When the highest wear resistance is required
  iglidur® X6, iglidur® Z
- When no resistance to temperature or chemicals is required
  iglidur® A180, iglidur® A200
- When a cost-effective universal plain bearing is required
  iglidur® G, iglidur® P

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Bearing technology | Plain bearings | iglidur® A500

Ø
4.0-50.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The media and temperature specialist in the food sector

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

Plain bearings made from iglidur® A500 can be exposed to extremely high temperatures and are suitable for direct contact with food (FDA-compliant).

- Compliant with Regulation (EU) No. 10/2011
- FDA-compliant
- Temperature-resistant from -100°C to +250°C
- Chemical-resistant
- Lubrication-free
- Maintenance-free

Typical application areas

- Food industry
- Beverage technology
- Medical technology

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® A500
+250°C
120MPa

Technical data

General properties			Testing method
Density	g/cm³	1.28	
Colour		brown	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.26-0.41	
pv value, max. (dry)	MPa · m/s	0.28	
Mechanical properties			
Flexural modulus	MPa	3,600	DIN 53457
Flexural strength at +20°C	MPa	140	DIN 53452
Compressive strength	MPa	118	
Max. permissible surface pressure (+20°C)	MPa	120	
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+300	
Min. application temperature	°C	-100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{14}$	DIN IEC 93
Surface resistance	Ω	$> 10^{13}$	DIN 53482

Table 01: Material properties

-100°C up to +250°C

120MPa

V-0

FOOD

RoHS-II

ISO 3547-1

Plain bearings made from iglidur® A500 can be used at high temperatures and are permitted for use in direct contact with food (FDA-compliant). They exhibit an exceptionally good chemical resistance and are suitable for heavy-duty use in and around machinery for the food industry. Though iglidur® A500 is a soft material, it possesses an excellent compressive strength even at high temperatures.

Moisture absorption

The moisture absorption of iglidur® A500 plain bearings is only 0.5% weight after saturation in water.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® A500 are resistant up to a radiation intensity of $2 \cdot 10^5$ Gy.

Resistance to weathering

iglidur® A500 plain bearings are resistant to weathering. The material properties are significantly affected. Discolouration occurs. Practical tests under real application conditions are strongly recommended.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® A500 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 02 shows the maximum recommended surface pressure of the bearing as a function of the temperature. The combination of high stability and high flexibility acts very positively during vibrations and edge loads. As the wear of the plain bearing rapidly escalates from pressures of 10 to 20MPa, we recommend a particularly accurate testing of the application above these limits.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® A500

Permissible surface speeds

iglidur® A500 also permits high surface speeds due to its high temperature resistance. The coefficient of friction rises however by these high speeds leading to a higher heating up of the bearing. Tests show that plain bearings made from iglidur® A500 are more wear-resistant in the case of pivoting movements, and the permissible pv values are also higher in pivoting applications.

Surface speed, page 48

Temperature

iglidur® A500 plain bearings can be used at temperatures up to +300°C for short periods. When temperatures increase, the compressive strength of iglidur® A500 plain bearings decreases. Diagram 02 shows this inverse relationship. The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +130°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction is dependent on the load that acts on the bearing (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® A500. The combination "iglidur® A500/hard-chromed shaft" clearly stands out in rotating application. Up to about 2.0MPa, the wear of this combination remains largely independent of load. In pivoting applications with Cf53 shafts, the wear resistance is better than in rotations under equal load. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® A500 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.6	0.4	1.0
Short-term	m/s	1.0	0.7	2.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.26-0.41	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

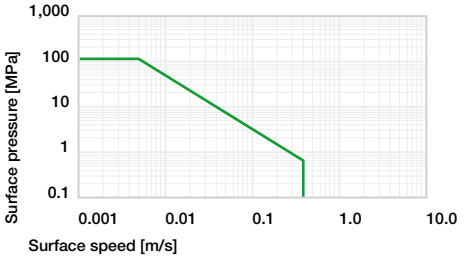


Diagram 01: Permissible pv values for iglidur® A500 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

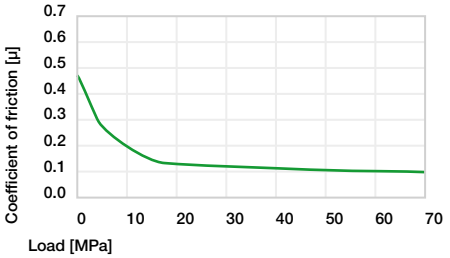


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

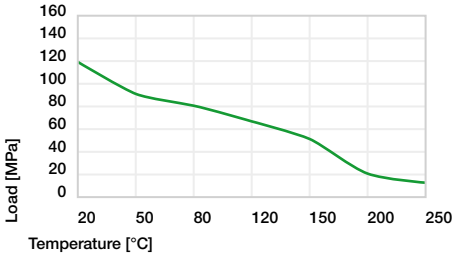


Diagram 02: Maximum recommended surface pressure as a function of temperature (120MPa at +20°C)

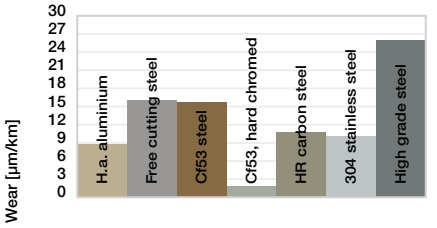


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

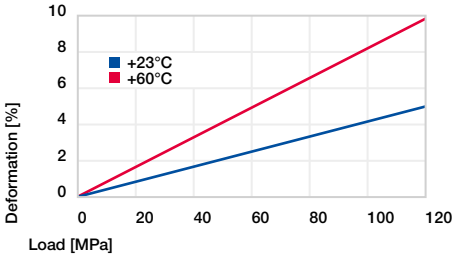


Diagram 03: Deformation under pressure and temperature

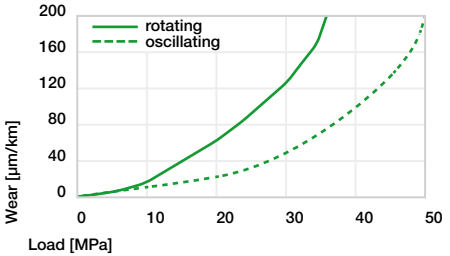


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

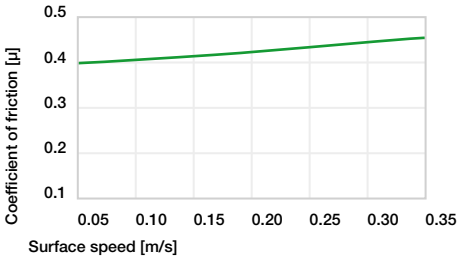
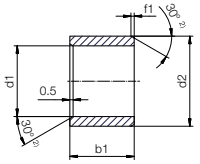


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® A500

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: A500SM-0405-04 – no minimum order quantity.
A500 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0	+0.010 +0.058	5.5	4.0	A500SM-0405-04
4.0		5.5	6.0	A500SM-0405-06
5.0		7.0	5.0	A500SM-0507-05
5.0		7.0	10.0	A500SM-0507-10
6.0		8.0	6.0	A500SM-0608-06
6.0		8.0	8.0	A500SM-0608-08
6.0		8.0	10.0	A500SM-0608-10
8.0	+0.013 +0.071	10.0	6.0	A500SM-0810-06
8.0		10.0	8.0	A500SM-0810-08
8.0		10.0	10.0	A500SM-0810-10
8.0		10.0	12.0	A500SM-0810-12
10.0		12.0	8.0	A500SM-1012-08
10.0		12.0	10.0	A500SM-1012-10
10.0		12.0	12.0	A500SM-1012-12
10.0		12.0	15.0	A500SM-1012-15
10.0		12.0	20.0	A500SM-1012-20
12.0	+0.016 +0.086	14.0	10.0	A500SM-1214-10
12.0		14.0	12.0	A500SM-1214-12
12.0		14.0	15.0	A500SM-1214-15
12.0		14.0	20.0	A500SM-1214-20
12.0		15.0	15.0	A500SM-1215-15
13.0		15.0	10.0	A500SM-1315-10
13.0		15.0	20.0	A500SM-1315-20
14.0		16.0	15.0	A500SM-1416-15
14.0		16.0	16.0	A500SM-1416-16
14.0		16.0	20.0	A500SM-1416-20
14.0		16.0	25.0	A500SM-1416-25
15.0		17.0	15.0	A500SM-1517-15
15.0		17.0	20.0	A500SM-1517-20
15.0	+0.016 +0.086	17.0	25.0	A500SM-1517-25
16.0		18.0	15.0	A500SM-1618-15
16.0		18.0	20.0	A500SM-1618-20
16.0		18.0	25.0	A500SM-1618-25
18.0		20.0	15.0	A500SM-1820-15
18.0		20.0	20.0	A500SM-1820-20
18.0		20.0	25.0	A500SM-1820-25
20.0	+0.020 +0.104	23.0	10.0	A500SM-2023-10
20.0		23.0	15.0	A500SM-2023-15
20.0		23.0	20.0	A500SM-2023-20
20.0		23.0	25.0	A500SM-2023-25
20.0		23.0	30.0	A500SM-2023-30
22.0		25.0	15.0	A500SM-2225-15
22.0		25.0	20.0	A500SM-2225-20
22.0		25.0	25.0	A500SM-2225-25
22.0		25.0	30.0	A500SM-2225-30
24.0		27.0	15.0	A500SM-2427-15
24.0		27.0	20.0	A500SM-2427-20
24.0		27.0	25.0	A500SM-2427-25
24.0		27.0	30.0	A500SM-2427-30
25.0		28.0	15.0	A500SM-2528-15
25.0		28.0	20.0	A500SM-2528-20
25.0		28.0	25.0	A500SM-2528-25
25.0		28.0	30.0	A500SM-2528-30
28.0		32.0	20.0	A500SM-2832-20
28.0		32.0	25.0	A500SM-2832-25
28.0		32.0	30.0	A500SM-2832-30
30.0		34.0	20.0	A500SM-3034-20
30.0		34.0	25.0	A500SM-3034-25

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
30.0	+0.020	34.0	30.0	A500SM-3034-30
30.0	+0.104	34.0	40.0	A500SM-3034-40
32.0	+0.025 +0.125	36.0	20.0	A500SM-3236-20
32.0		36.0	30.0	A500SM-3236-30
32.0		36.0	40.0	A500SM-3236-40
35.0		39.0	20.0	A500SM-3539-20
35.0		39.0	30.0	A500SM-3539-30
35.0		39.0	40.0	A500SM-3539-40
35.0		39.0	50.0	A500SM-3539-50
40.0		44.0	20.0	A500SM-4044-20
40.0		44.0	30.0	A500SM-4044-30
40.0	+0.025 +0.125	44.0	40.0	A500SM-4044-40
40.0		44.0	50.0	A500SM-4044-50
45.0		50.0	20.0	A500SM-4550-20
45.0		50.0	30.0	A500SM-4550-30
45.0		50.0	40.0	A500SM-4550-40
45.0		50.0	50.0	A500SM-4550-50
50.0		55.0	20.0	A500SM-5055-20
50.0		55.0	30.0	A500SM-5055-30
50.0		55.0	40.0	A500SM-5055-40
50.0		55.0	50.0	A500SM-5055-50
50.0		55.0	60.0	A500SM-5055-60

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/A500

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

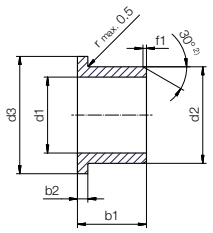
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® A500

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

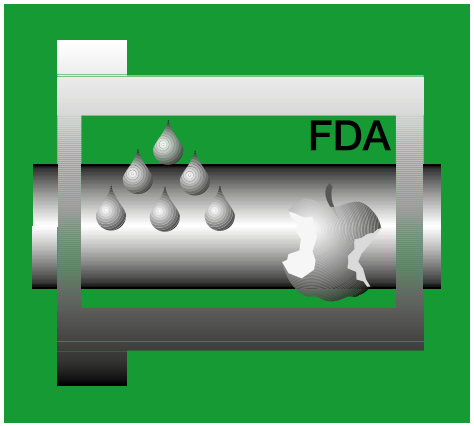
Dimensions according to ISO 3547-1 and special dimensions

Order example: A500FM-0405-04 – no minimum order quantity.
A500 iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0	+0.010 +0.058	5.5	9.5	4.0	0.75	A500FM-0405-04
4.0		8.0	12.0	6.0	2.00	A500FM-0408-06
6.0		8.0	12.0	4.0	1.00	A500FM-0608-04
6.0		8.0	12.0	6.0	1.00	A500FM-0608-06
6.0		8.0	12.0	8.0	1.00	A500FM-0608-08
8.0	+0.013 +0.071	10.0	15.0	5.5	1.00	A500FM-0810-05
8.0		10.0	15.0	7.5	1.00	A500FM-0810-07
8.0		10.0	15.0	9.5	1.00	A500FM-0810-09
8.0		10.0	15.0	10.0	1.00	A500FM-0810-10
10.0		12.0	18.0	7.0	1.00	A500FM-1012-07
10.0		12.0	18.0	9.0	1.00	A500FM-1012-09
10.0		12.0	18.0	12.0	1.00	A500FM-1012-12
10.0		12.0	18.0	15.0	1.00	A500FM-1012-15
10.0		12.0	18.0	17.0	1.00	A500FM-1012-17
12.0	+0.016 +0.086	14.0	20.0	7.0	1.00	A500FM-1214-07
12.0		14.0	20.0	9.0	1.00	A500FM-1214-09
12.0		14.0	20.0	12.0	1.00	A500FM-1214-12
12.0		14.0	20.0	13.0	1.00	A500FM-1214-13
12.0		14.0	20.0	15.0	1.00	A500FM-1214-15
12.0		14.0	20.0	17.0	1.00	A500FM-1214-17
14.0		16.0	22.0	12.0	1.00	A500FM-1416-12
14.0		16.0	22.0	17.0	1.00	A500FM-1416-17
15.0		17.0	23.0	9.0	1.00	A500FM-1517-09
15.0		17.0	23.0	12.0	1.00	A500FM-1517-12
15.0		17.0	23.0	17.0	1.00	A500FM-1517-17
16.0	+0.016 +0.086	18.0	24.0	12.0	1.00	A500FM-1618-12
16.0		18.0	24.0	17.0	1.00	A500FM-1618-17
18.0		20.0	26.0	12.0	1.00	A500FM-1820-12
18.0		20.0	26.0	17.0	1.00	A500FM-1820-17
18.0		20.0	26.0	22.0	1.00	A500FM-1820-22
20.0	+0.020 +0.104	23.0	30.0	11.5	1.50	A500FM-2023-11
20.0		23.0	30.0	16.5	1.50	A500FM-2023-16
20.0		23.0	30.0	21.5	1.50	A500FM-2023-21
25.0		28.0	35.0	11.5	1.50	A500FM-2528-11
25.0		28.0	35.0	16.5	1.50	A500FM-2528-16
25.0		28.0	35.0	21.5	1.50	A500FM-2528-21
30.0		34.0	42.0	16.0	2.00	A500FM-3034-16
30.0		34.0	42.0	26.0	2.00	A500FM-3034-26
30.0		34.0	42.0	40.0	2.00	A500FM-3034-40
35.0	+0.025 +0.125	39.0	47.0	16.0	2.00	A500FM-3539-16
35.0		39.0	47.0	26.0	2.00	A500FM-3539-26
35.0		39.0	47.0	40.0	2.00	A500FM-3539-40
40.0		44.0	52.0	30.0	2.00	A500FM-4044-30
40.0		44.0	52.0	40.0	2.00	A500FM-4044-40
45.0		50.0	58.0	50.0	2.00	A500FM-4550-50

[3] After press-fit. *Testing methods, page 61*





The all-rounder for food

FDA-compliant

iglidur® A180

When to use it?

- When the bearings have direct contact with food
- When FDA compliance is required
- When a low noise level is required
- When low moisture absorption is fundamental

When not to use it?

- When the maximum wear resistance is necessary
  iglidur® J
- When temperatures are continuously higher than +80°C
  iglidur® A350, iglidur® A500
- When a cost-effective universal plain bearing is required
  iglidur® G, iglidur® P

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Bearing technology | Plain bearings | iglidur® A180

Ø
6.0-30.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The all-rounder for food
FDA-compliant

FDA-compliant material for applications with low to medium loads in immediate environments of (or contact with) food or drugs, as well as humidity.

- FDA-compliant
- Compliant with Regulation (EU) No. 10/2011
- High media resistance
- Suitable for wet environments
- High wear resistance
- Lubrication-free
- Maintenance-free

Typical application areas

- Food industry
- Beverage technology
- Medical technology

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® A180
+90°C
28MPa

Technical data

General properties			Testing method
Density	g/cm³	1.46	
Colour		white	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	µ	0.05-0.23	
pv value, max. (dry)	MPa · m/s	0.31	
Mechanical properties			
Flexural modulus	MPa	2,300	DIN 53457
Flexural strength at +20°C	MPa	88	DIN 53452
Compressive strength	MPa	78	
Max. permissible surface pressure (+20°C)	MPa	28	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	11	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

-50°C up to +90°C

28MPa

HB

FOOD

RoHS-II

ISO 3547-1

Table 01: Material properties

Plain bearings made from iglidur® A180 are suitable for application in direct contact with food. They are the ideal solution for bearing points on machines for the food and packaging industry, medical equipment manufacturing, small household appliances, etc. Even where wet cleaning contact occurs, the iglidur® A180 is characterised by the lowest moisture absorption.

Moisture absorption

The moisture absorption of iglidur® A180 plain bearings is approximately 0.2 % weight in standard climatic conditions. The saturation limit submerged in water is 1.3% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® A180 bearings.

Radiation resistance

Plain bearings made from iglidur® A180 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® A180 plain bearings are resistant to weathering. The material properties are significantly affected. Severe discolouration occurs. Applications with this material under weathering conditions are not recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® A180 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® A180 at radial loads. At the maximum recommended surface pressure of 28MPa, the deformation is less than 2.5%. A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® A180

Permissible surface speeds

iglidur® A180 was developed for low surface speeds. The given values in table 03 indicate the limits at which an increase up to the continuous permissible temperature occurs. This increase is a result of friction. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The iglidur® A180 plain bearings can be used at temperatures up to +110°C for short periods. With increasing temperatures, the compressive strength of iglidur® A180 plain bearings decreases. Diagram 02 shows this inverse relationship. The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagram 04 and 05). The coefficient of friction decreases with increasing load.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® A180. The combination "iglidur® A180 against hard-anodised aluminium shaft" clearly stands out. It attains good to excellent wear rates also with other shafts. With Cf53 shafts, the higher wear in pivoting applications is exemplary compared to rotating applications (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® A180 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	0.8	0.6	3.5
Short-term	**m/s**	1.2	1.0	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.05-0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

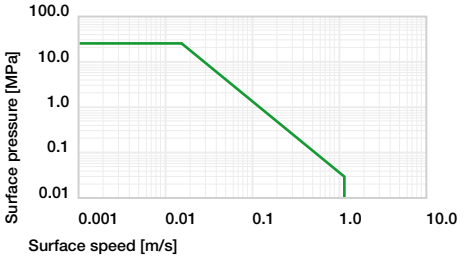


Diagram 01: Permissible pv values for iglidur® A180 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

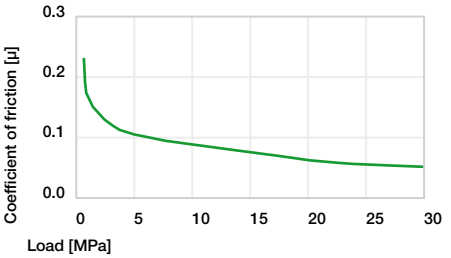


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

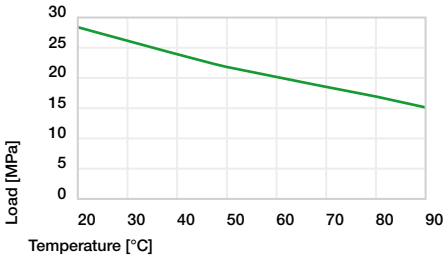


Diagram 02: Maximum recommended surface pressure as a function of temperature (28MPa at +20°C)

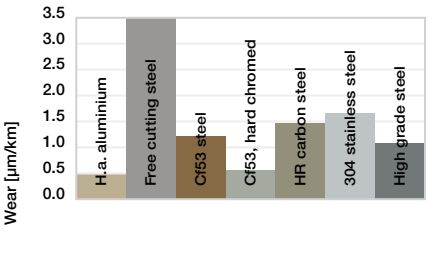


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

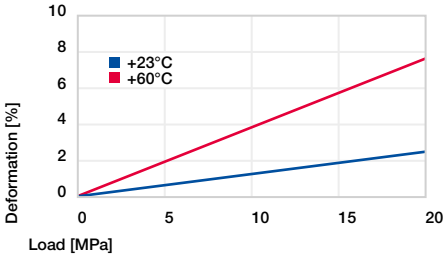


Diagram 03: Deformation under pressure and temperature

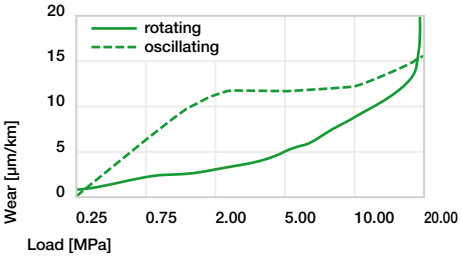


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

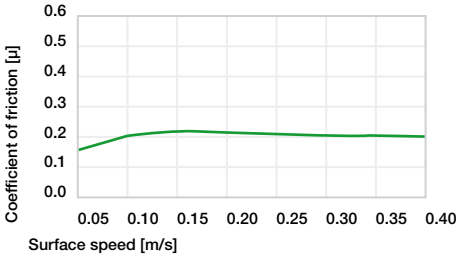
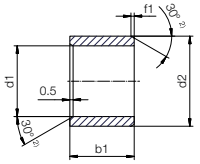


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® A180

Sleeve bearings (form S)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: A180SM-0608-10 – no minimum order quantity.
A180 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 10 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	10.0	**A180SM-0608-10**
8.0	+0.025 +0.083	10.0	10.0	**A180SM-0810-10**
10.0		12.0	10.0	**A180SM-1012-10**
12.0	+0.032 +0.102	14.0	15.0	**A180SM-1214-15**
16.0		18.0	15.0	**A180SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**A180SM-2023-20**
25.0		28.0	30.0	**A180SM-2528-30**
30.0		34.0	20.0	**A180SM-3034-20**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
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Order online
including delivery times, prices, online tools
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

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1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

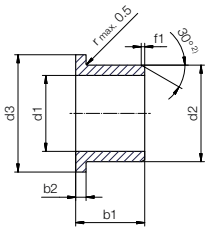
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No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® A180
+90°C
28MPa

Bearing technology | Plain bearings | iglidur® A180

Flange bearings (form F)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: A180FM-0608-06 – no minimum order quantity.
A180 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	d3 d13³⁾ [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**A180FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**A180FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**A180FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	15.0	1.00	**A180FM-1214-15**
16.0		18.0	24.0	17.0	1.00	**A180FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**A180FM-2023-21**
25.0		28.0	35.0	21.5	1.50	**A180FM-2528-21**
30.0		34.0	42.0	26.0	2.00	**A180FM-3034-26**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
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Order online
including delivery times, prices, online tools
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling
1-9 | 50-99 | 500-999
10-24 | 100-199 | 1,000-2,499
25-49 | 200-499 | 2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.



The "food-classic" for low duty

FDA-compliant

iglidur® A200

When to use it?

- Suitable for contact with food
- When a low noise level is required
- When dirt needs to become embedded
- When FDA compliance is required

When not to use it?

- When the maximum wear resistance is necessary
  iglidur® W300
- When temperatures are continuously higher than +80°C
  iglidur® A350, iglidur® A500
- When a cost-effective universal plain bearing is required
  iglidur® G
- For operations in wet environments
  iglidur® A180

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Bearing technology | Plain bearings | iglidur® A200

Ø
1.0-32.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The "food-classic" for low duty
FDA-compliant

FDA-compliant material for applications with low to medium loads in immediate environs of (or contact) with food or drugs.

- FDA-compliant
- Suitable for contact with food
- Suitable for low surface speeds
- Lubrication-free
- Standard range from stock
- Maintenance-free
- Thrust washers available only in imperial sizes, from page 1147

Typical application areas
- Food industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® A200
+80°C
18MPa

Technical data

General properties			Testing method
Density	g/cm³	1.14	
Colour		white	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.5	DIN 53495
Max. moisture absorption	% weight	7.6	
Coefficient of friction, dynamic, against steel	µ	0.10-0.40	
pv value, max. (dry)	MPa · m/s	0.09	
Mechanical properties			
Flexural modulus	MPa	2,500	DIN 53457
Flexural strength at +20°C	MPa	116	DIN 53452
Compressive strength	MPa	54	
Max. permissible surface pressure (+20°C)	MPa	18	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+80	
Max. application temperature short-term	°C	+170	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-40 °C up to +80 °C

18MPa

V-2

FOOD

RoHS-II

ISO 2795

Plain bearings made from iglidur® A200 are suitable for application in direct contact with food. Hence they are the ideal solution for bearing requirements in machines for the food industry, medical equipment manufacturing, for small equipment for households, etc. As the incorporation of solid lubricants is dispensed with in favour of food compatibility, the thermoplastic composition of iglidur® A200 is especially adjusted for abrasion resistance. In addition the iglidur® A200 is characterised by its capacity to embed dirt and by its quiet operating behaviour. The good wear properties, dirt resistance and the possibility for dry operation allow to replace elaborately sealed, lubricated bearings for little costs.

Moisture absorption
The humidity absorption of iglidur® A200 bearings amounts to about 1.5% weight in standard climatic conditions. The saturation limit submerged in water is 7.6% weight. This must be taken into account for these types of applications.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance
Plain bearings made from iglidur® A200 are resistant up to a radiation intensity of $1 \cdot 10^4$ Gy.

Resistance to weathering
iglidur® A200 plain bearings are resistant to weathering. The material properties are significantly affected. Severe discolouration occurs. Applications with this material under weathering conditions are not recommended.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® A200 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® A200 under different loads. At the maximum recommended surface pressure of 18MPa, the deformation is less than 2%. A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.
Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® A200

Permissible surface speeds

iglidur® A2000 was developed for low surface speeds. The given values in table 03 indicate the limits at which an increase up to the continuous permissible temperature occurs. This increase is a result of friction. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

iglidur® A200 plain bearings can be used at temperatures up to +170°C for short periods. The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® A200. In pivoting applications below a load of 2MPa, the wear of iglidur® A200 plain bearings is higher than in rotating applications with equal load. Here the HR carbon steel shaft is a positive exception.

Shaft materials, page 56

Installation tolerances

iglidur® A200 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	2.0
Short-term	m/s	1.5	1.1	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.10-0.40	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.020	+0.080	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.030	+0.105	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.040	+0.130	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.050	+0.160	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.065	+0.195	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.080	+0.240	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.100	+0.290	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.120	+0.340	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.145	+0.395	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

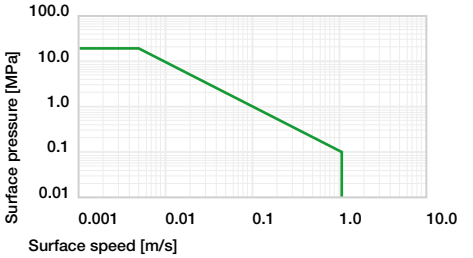


Diagram 01: Permissible pv values for iglidur® A200 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

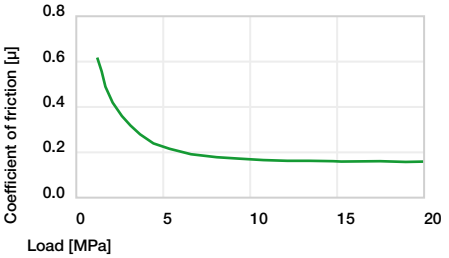


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

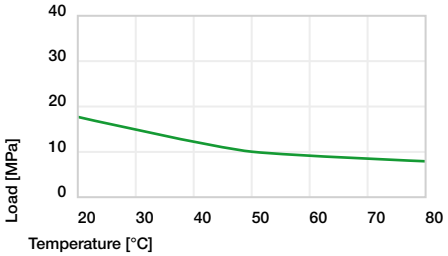


Diagram 02: Maximum recommended surface pressure as a function of temperature (18MPa at +20°C)

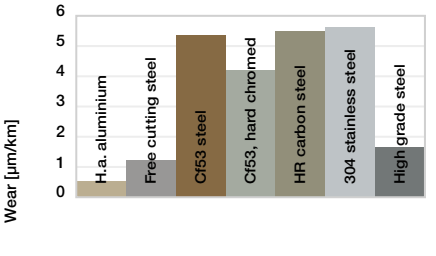


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

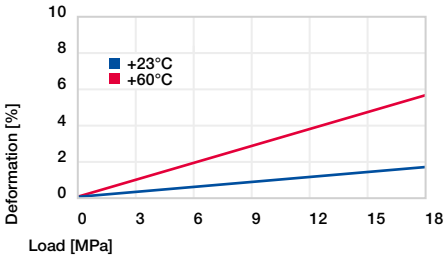


Diagram 03: Deformation under pressure and temperature

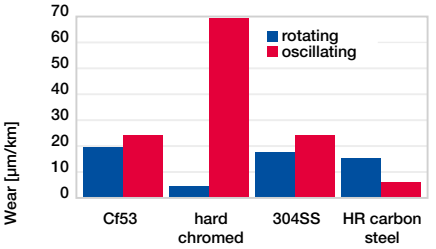


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

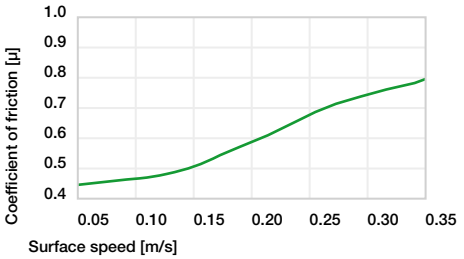
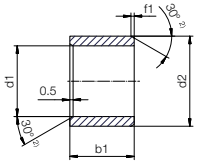


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® A200

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 2795 and special dimensions

Order example: ASM-0103-02 – no minimum order quantity.
A200 iglidur® material S Cylindrical M Metric 01 Inner Ø d1 03 Outer Ø d2 02 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
1.0		3.0	2.0	ASM-0103-02
1.5		4.0	2.0	ASM-0104-02
2.0		5.0	2.0	ASM-0205-02
2.0		5.0	3.0	ASM-0205-03
2.5	+0.020 +0.080	6.0	3.0	ASM-0206-03
3.0		5.0	3.0	ASM-0305-03
3.0		5.0	4.0	ASM-0305-04
3.0		6.0	3.0	ASM-0306-03
3.0		6.0	4.0	ASM-0306-04
4.0		7.0	3.0	ASM-0407-03
4.0		7.0	4.0	ASM-0407-04
4.0		7.0	6.0	ASM-0407-06
4.0		8.0	6.0	ASM-0408-06
5.0		8.0	4.0	ASM-0508-04
5.0		8.0	5.0	ASM-0508-05
5.0		8.0	8.0	ASM-0508-08
5.0	+0.030	9.0	5.0	ASM-0509-05
5.0	+0.105	9.0	8.0	ASM-0509-08
6.0		8.0	10.0	ASM-0608-10
6.0		9.0	6.0	ASM-0609-06
6.0		10.0	4.0	ASM-0610-04
6.0		10.0	6.0	ASM-0610-06
6.0		10.0	10.0	ASM-0610-10
6.0		12.0	6.0	ASM-0612-06
6.0		12.0	10.0	ASM-0612-10
7.0		10.0	5.0	ASM-0710-05
7.0	+0.040	10.0	8.0	ASM-0710-08
8.0	+0.130	10.0	6.0	ASM-0810-06
8.0		10.0	8.0	ASM-0810-08
8.0		10.0	10.0	ASM-0810-10
8.0		11.0	8.0	ASM-0811-08
8.0		11.0	12.0	ASM-0811-12
8.0		12.0	6.0	ASM-0812-06
8.0		12.0	8.0	ASM-0812-08
8.0		12.0	10.0	ASM-0812-10
8.0		12.0	12.0	ASM-0812-12
8.0		14.0	6.0	ASM-0814-06
8.0	+0.040	14.0	10.0	ASM-0814-10
9.0	+0.130	12.0	14.0	ASM-0912-14
10.0		12.0	10.0	ASM-1012-10
10.0		14.0	6.0	ASM-1014-06
10.0		14.0	8.0	ASM-1014-08
10.0		14.0	10.0	ASM-1014-10
10.0		14.0	16.0	ASM-1014-16
10.0		16.0	6.0	ASM-1016-06
10.0		16.0	10.0	ASM-1016-10
10.0		16.0	16.0	ASM-1016-16
12.0		14.0	20.0	ASM-1214-20
12.0		16.0	15.0	ASM-1216-15
12.0		16.0	20.0	ASM-1216-20
12.0		18.0	8.0	ASM-1218-08
12.0		18.0	10.0	ASM-1218-10
12.0	+0.050	18.0	15.0	ASM-1218-15
12.0	+0.160	18.0	20.0	ASM-1218-20
14.0		16.0	10.0	ASM-1416-10
14.0		16.0	15.0	ASM-1416-15
14.0		16.0	20.0	ASM-1416-20
14.0		20.0	10.0	ASM-1420-10

[3] After press-fit. *Testing methods, page 61*

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Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
14.0		20.0	15.0	ASM-1420-15
14.0		20.0	20.0	ASM-1420-20
15.0		17.0	10.0	ASM-1517-10
15.0		17.0	15.0	ASM-1517-15
15.0		21.0	10.0	ASM-1521-10
15.0		21.0	15.0	ASM-1521-15
15.0		21.0	20.0	ASM-1521-20
16.0		18.0	12.0	ASM-1618-12
16.0	+0.050	18.0	20.0	ASM-1618-20
16.0	+0.160	20.0	20.0	ASM-1620-20
16.0		20.0	25.0	ASM-1620-25
16.0		22.0	12.0	ASM-1622-12
16.0		22.0	15.0	ASM-1622-15
16.0		22.0	16.0	ASM-1622-16
16.0		22.0	20.0	ASM-1622-20
16.0		22.0	25.0	ASM-1622-25
18.0		24.0	12.0	ASM-1824-12
18.0		24.0	20.0	ASM-1824-20
18.0		24.0	30.0	ASM-1824-30
20.0		23.0	15.0	ASM-2023-15
20.0		23.0	20.0	ASM-2023-20
20.0		25.0	15.0	ASM-2025-15
20.0		25.0	20.0	ASM-2025-20
20.0	+0.065	25.0	30.0	ASM-2025-30
20.0	+0.195	26.0	15.0	ASM-2026-15
20.0		26.0	20.0	ASM-2026-20
20.0		26.0	30.0	ASM-2026-30
22.0		26.0	15.0	ASM-2226-15
22.0		28.0	10.0	ASM-2228-10
22.0		28.0	15.0	ASM-2228-15
22.0		28.0	20.0	ASM-2228-20
22.0		28.0	30.0	ASM-2228-30
24.0		30.0	15.0	ASM-2430-15
24.0		30.0	20.0	ASM-2430-20
24.0		30.0	30.0	ASM-2430-30
25.0		28.0	12.0	ASM-2528-12
25.0		28.0	20.0	ASM-2528-20
25.0		30.0	20.0	ASM-2530-20
25.0		30.0	30.0	ASM-2530-30
25.0		30.0	40.0	ASM-2530-40
25.0		32.0	20.0	ASM-2532-20
25.0	+0.065	32.0	30.0	ASM-2532-30
25.0	+0.195	32.0	40.0	ASM-2532-40
26.0		30.0	20.0	ASM-2630-20
26.0		32.0	30.0	ASM-2632-30
27.0		34.0	20.0	ASM-2734-20
27.0		34.0	30.0	ASM-2734-30
27.0		34.0	40.0	ASM-2734-40
28.0		33.0	20.0	ASM-2833-20
28.0		36.0	20.0	ASM-2836-20
28.0		36.0	30.0	ASM-2836-30
28.0		36.0	40.0	ASM-2836-40
30.0		38.0	20.0	ASM-3038-20
30.0		38.0	30.0	ASM-3038-30
30.0		38.0	40.0	ASM-3038-40
32.0	+0.080	40.0	20.0	ASM-3240-20
32.0	+0.240	40.0	30.0	ASM-3240-30
32.0		40.0	40.0	ASM-3240-40

[3] After press-fit. *Testing methods, page 61*

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including delivery times, prices, online tools
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Discount scaling		
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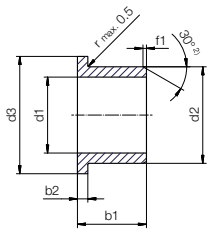
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Bearing technology | Plain bearings | iglidur® A200

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 2795 and special dimensions

Order example: AFM-0103-02 – no minimum order quantity.
A200 iglidur® material F With flange M Metric 01 Inner Ø d1 03 Outer Ø d2 02 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
1.0		3.0	5.0	2.0	1.00	**AFM-0103-02**
1.5	+0.020	4.0	6.0	2.0	1.00	**AFM-0104-02**
2.0	+0.080	5.0	8.0	3.0	1.50	**AFM-0205-03**
2.5		6.0	9.0	3.0	1.50	**AFM-0206-03**
3.0		6.0	9.0	4.0	1.50	**AFM-0306-04**
4.0		8.0	12.0	4.0	2.00	**AFM-0408-04**
4.0		8.0	12.0	6.0	2.00	**AFM-0408-06**
5.0		7.0	11.0	5.0	1.00	**AFM-0507-05**
5.0		9.0	13.0	5.0	2.00	**AFM-0509-05**
5.0		9.0	13.0	6.0	2.00	**AFM-0509-06**
5.0	+0.030	9.0	13.0	8.0	2.00	**AFM-0509-08**
6.0	+0.105	10.0	14.0	4.0	2.00	**AFM-0610-04**
6.0		10.0	14.0	6.0	2.00	**AFM-0610-06**
6.0		10.0	14.0	10.0	2.00	**AFM-0610-10**
6.0		12.0	14.0	6.0	3.00	**AFM-0612-06**
6.0		12.0	14.0	10.0	3.00	**AFM-0612-10**
7.0		11.0	15.0	8.0	2.00	**AFM-0711-08**
8.0		11.0	13.0	8.0	2.00	**AFM-0811-08**
8.0		12.0	16.0	6.0	2.00	**AFM-0812-06**
8.0		12.0	16.0	8.0	2.00	**AFM-0812-08**
8.0		12.0	16.0	12.0	2.00	**AFM-0812-12**
8.0	+0.040	12.0	16.0	22.0	2.00	**AFM-0812-22**
8.0	+0.130	14.0	18.0	6.0	3.00	**AFM-0814-06**
8.0		14.0	18.0	10.0	3.00	**AFM-0814-10**
9.0		14.0	19.0	6.0	2.00	**AFM-0914-06**
9.0		14.0	19.0	10.0	2.00	**AFM-0914-10**
9.0		14.0	19.0	14.0	2.00	**AFM-0914-14**
10.0		16.0	22.0	6.0	3.00	**AFM-1016-06**

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
10.0		16.0	22.0	8.0	3.00	**AFM-1016-08**
10.0	+0.040	16.0	22.0	10.0	3.00	**AFM-1016-10**
10.0	+0.130	16.0	20.0	10.0	3.00	**AFM-101620-10**
10.0		16.0	22.0	16.0	3.00	**AFM-1016-16**
12.0		14.0	20.0	12.0	1.00	**AFM-1214-12**
12.0		18.0	24.0	8.0	3.00	**AFM-1218-08**
12.0		18.0	22.0	10.0	3.00	**AFM-1218-10**
12.0		18.0	24.0	12.0	3.00	**AFM-1218-12**
12.0		18.0	22.0	15.0	3.00	**AFM-1218-15**
12.0		18.0	22.0	20.0	3.00	**AFM-1218-20**
14.0		20.0	25.0	10.0	3.00	**AFM-1420-10**
14.0		20.0	25.0	15.0	3.00	**AFM-1420-15**
14.0		20.0	25.0	20.0	3.00	**AFM-1420-20**
15.0	+0.050	21.0	27.0	10.0	3.00	**AFM-1521-10**
15.0	+0.160	21.0	27.0	15.0	3.00	**AFM-1521-15**
15.0		21.0	27.0	20.0	3.00	**AFM-1521-20**
15.0		21.0	27.0	25.0	3.00	**AFM-1521-25**
16.0		22.0	28.0	12.0	3.00	**AFM-1622-12**
16.0		22.0	28.0	15.0	3.00	**AFM-1622-15**
16.0		22.0	28.0	20.0	3.00	**AFM-1622-20**
16.0		22.0	28.0	25.0	3.00	**AFM-1622-25**
18.0		24.0	30.0	12.0	3.00	**AFM-1824-12**
18.0		24.0	30.0	18.0	3.00	**AFM-1824-18**
18.0		24.0	30.0	20.0	3.00	**AFM-1824-20**
18.0		24.0	30.0	30.0	3.00	**AFM-1824-30**
20.0	+0.065	26.0	32.0	15.0	3.00	**AFM-2026-15**
20.0	+0.195	26.0	32.0	20.0	3.00	**AFM-2026-20**
20.0		26.0	32.0	30.0	3.00	**AFM-2026-30**

[3] After press-fit. *Testing methods, page 61*

iglidur® A200
+80°C
18MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
22.0		28.0	34.0	15.0	3.00	**AFM-2228-15**
22.0		28.0	34.0	20.0	3.00	**AFM-2228-20**
22.0		28.0	34.0	30.0	3.00	**AFM-2228-30**
24.0		30.0	36.0	15.0	3.00	**AFM-2430-15**
24.0		30.0	36.0	20.0	3.00	**AFM-2430-20**
24.0	+0.065	30.0	36.0	30.0	3.00	**AFM-2430-30**
25.0	+0.195	32.0	38.0	20.0	4.00	**AFM-2532-20**
25.0		32.0	38.0	30.0	4.00	**AFM-2532-30**
25.0		32.0	38.0	40.0	4.00	**AFM-2532-40**
27.0		34.0	40.0	20.0	4.00	**AFM-2734-20**
27.0		34.0	40.0	30.0	4.00	**AFM-2734-30**

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
27.0		34.0	40.0	40.0	4.00	**AFM-2734-40**
28.0		36.0	42.0	20.0	4.00	**AFM-2836-20**
28.0		36.0	42.0	30.0	4.00	**AFM-2836-30**
28.0	+0.065	36.0	42.0	40.0	4.00	**AFM-2836-40**
30.0	+0.195	38.0	44.0	20.0	4.00	**AFM-3038-20**
30.0		38.0	44.0	30.0	4.00	**AFM-3038-30**
30.0		38.0	44.0	40.0	4.00	**AFM-3038-40**
32.0	+0.080	40.0	46.0	20.0	4.00	**AFM-3240-20**
32.0	+0.240	40.0	46.0	30.0	4.00	**AFM-3240-30**
32.0		40.0	46.0	40.0	4.00	**AFM-3240-40**

[3] After press-fit. *Testing methods, page 61*

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Ordering note
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10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Food bearing with media resistance up to +90°C

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

iglidur® A160

When to use it?

- When a plain bearing with maximum media resistance is required
- When a cost-effective plain bearing with high media resistance is required
- When a material compliant in accordance with Regulation (EU) No. 10/2011 is required

When not to use it?

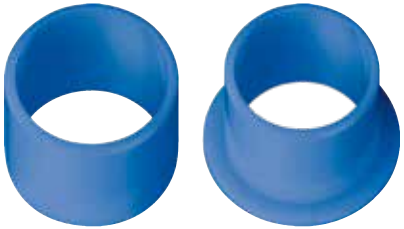
- When a universal material for the food industry is required
  iglidur® A180, iglidur® A181
- When a media-resistant plain bearing is required for applications at more than +90°C
  iglidur® A500, iglidur® X
- When a low-cost material with high wear resistance is required for dry operation
  iglidur® R

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Bearing technology | Plain bearings | iglidur® A160

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Food bearing with media resistance up to +90°C

Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

iglidur® A160 offers maximum media resistance in the medium temperature range and is therefore a true low-cost iglidur®. The profile of properties is completed by the suitability for applications in the food industry.

- Compliant with Regulation (EU) No. 10/2011
- FDA-compliant
- High media resistance
- Cost-effective
- Lubrication-free
- Maintenance-free

Typical application areas

- Food industry
- Beverage technology
- Medical technology

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® A160
+90°C
15MPa

Technical data

General properties			Testing method
Density	g/cm³	1.00	
Colour		blue	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.1	
Coefficient of friction, dynamic, against steel	µ	0.09-0.19	
pv value, max. (dry)	MPa · m/s	0.25	
Mechanical properties			
Flexural modulus	MPa	1,151	DIN 53457
Flexural strength at +20°C	MPa	19	DIN 53452
Compressive strength	MPa	37	
Max. permissible surface pressure (+20°C)	MPa	14	
Shore D hardness		60	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+100	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.30	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	11	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-50°C up to +90°C

15MPa

HB

FOOD

RoHS-II

ISO 3547-1

iglidur® A160 plain bearings are characterised by extreme media resistance at a low cost. Tribologically optimised, the material can be used in temperatures up to +90°C and also conforms to demands of the food processing sector. The profile of properties is completed by the "optical detectability", i.e. the blue colour, often required in the industry.

Moisture absorption

The moisture absorption of iglidur® A160 plain bearings in ambient conditions is approximately 0.1% weight. The saturation limit submerged in water is also approximately 0.1% weight.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® A160 bearings.

Radiation resistance

Plain bearings made from iglidur® A160 are resistant up to a radiation intensity of $1 \cdot 10^5$ Gy.

Resistance to weathering

iglidur® A160 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® A160 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® A160 under different loads. Plastic deformation is minimal up to a radial load of 15MPa. However, it is also dependent on the service time.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® A160

Permissible surface speeds

iglidur® A160 was developed for low surface speeds. Maximum speeds of up to 0.5m/s (rotating) and 2.0m/s (linear), respectively, are permissible during continuous dry operation. The given values in table 03 indicate the limits at which an increase up to the continuous permissible temperature occurs. This increase is a result of friction. In practice, though, this level is rarely reached, due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Coefficient of friction and wear resistance are dependent on the application parameters (diagrams 04 and 05). For iglidur® A160 plain bearings, altering the coefficient of friction μ as a function of surface speed has less effect. The coefficient of friction decreases with increasing load. Surface finishes (Ra) of the shaft between 0.6-0.7μm are ideal.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® A160. For rotational applications with low loads, the most interesting, media and corrosion-resistant shaft materials 304 stainless steel, high grade steel and hard-chromed steel reveal themselves as particularly good mating partners. On high grade steel shafts, however, the wear increases the fastest with the load (diagram 06). With Cf53 shafts, the wear in pivoting applications is exemplary compared to rotating applications. In rotation the wear, as with many other iglidur® materials, is higher than when pivoting (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® A160 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+ up to 0
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.5	0.4	2.0
Short-term	m/s	0.7	0.6	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.09-0.19	0.08	0.03	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

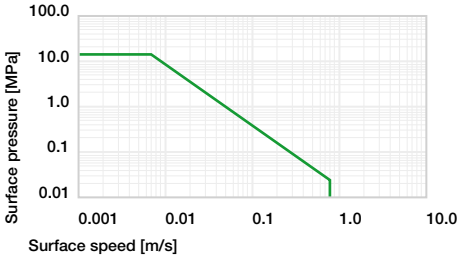


Diagram 01: Permissible pv values for iglidur® A160 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

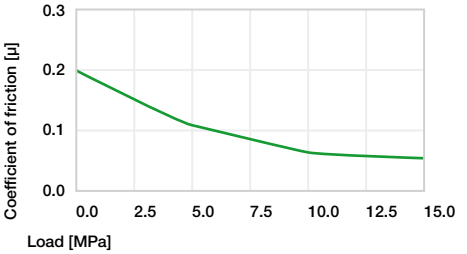


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

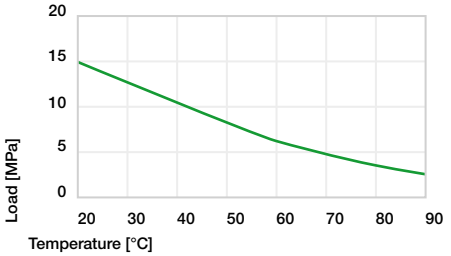


Diagram 02: Maximum recommended surface pressure as a function of temperature (15MPa at +20°C)

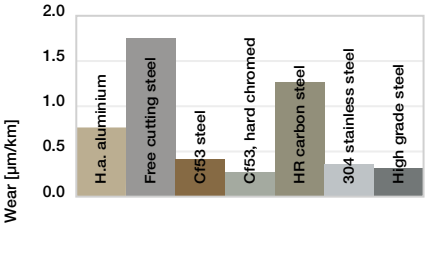


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

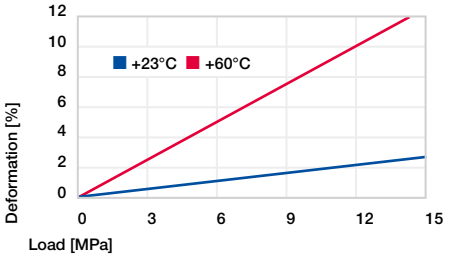


Diagram 03: Deformation under pressure and temperature

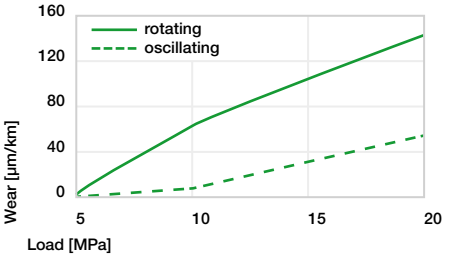


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

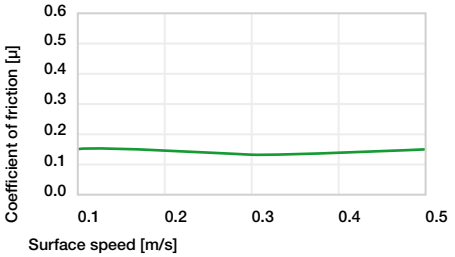
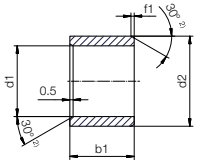


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® A160

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: A160SM-0608-06 – no minimum order quantity.
A160 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**A160SM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**A160SM-0810-10**
10.0		12.0	10.0	**A160SM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**A160SM-1214-12**
16.0		18.0	15.0	**A160SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**A160SM-2023-20**

[3] After press-fit. *Testing methods, page 61*

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www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/A160

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

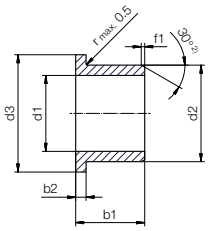
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No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur® A160
+90°C
15MPa

Bearing technology | Plain bearings | iglidur® A160

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: A160FM-0608-06 – no minimum order quantity.
A160 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**A160FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**A160FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**A160FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**A160FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**A160FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**A160FM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
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including delivery times, prices, online tools
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Ordering note
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Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Suitable for contact with drinking water

KTW-compliant

iglidur® UW160

When to use it?

- When a KTW-compliant material is required
- When a wear-resistant material for continuous operation in liquid is required

When not to use it?

- When a recurring media-resistant plain bearing with intermittent dry operation is required

  iglidur® A160
- When a media and temperature-resistant universal plain bearing is required

  iglidur® X
- When a standard plain bearing is required for use in a moist environment

  iglidur® P

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Bearing technology | Plain bearings | iglidur® UW160

Ø 3.0-10.0mm



Also available as:

Bar stock, round bar Page 743

Bar stock, plate Page 773

tribo-tape liner Page 781

Guide rings Page 641

Two hole flange bearings Page 667

Moulded special parts Page 696

igubal® spherical balls Page 993

Suitable for contact with drinking water
KTW-compliant

iglidur® UW160 is tribologically optimised for continuous operation in liquid media. Its superior media resistance not only permits uses with potable water contact.

- Suitable for applications in liquids
- Suitable for contact with drinking water (KTW-compliant)
- High media resistance
- Lubrication-free
- Maintenance-free

Typical application areas

- Fluid technology
- Pumps
- Water meters

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® UW160 +90°C 15MPa

Technical data

General properties			Testing method
Density	g/cm³	1.04	
Colour		grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.1	
Coefficient of friction, dynamic, against steel	µ	0.17-0.31	
pv value, max. (dry)	MPa · m/s	0.22	
Mechanical properties			
Flexural modulus	MPa	1,349	DIN 53457
Flexural strength at +20°C	MPa	22	DIN 53452
Compressive strength	MPa	32	
Max. permissible surface pressure (+20°C)	MPa	20	
Shore D hardness		60	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+100	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.50	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	18	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-50°C up to +90°C

15MPa

HB

RoHS-II

ISO 3547-1

iglidur® UW160 was developed quite specifically with regard to maximum wear resistance in media-based continuous operation. In such applications, low radial loads and medium temperatures usually occur. The suitability for contact with drinking water and very good durability complete the profile of properties.

Moisture absorption
The moisture absorption of iglidur® UW160 plain bearings in ambient conditions is approximately 0.1% weight. The saturation limit submerged in water is 0.1% weight.

Vacuum
In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® UW160 bearings.

Radiation resistance
Plain bearings made from iglidur® UW160 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® UW160 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® UW160 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® UW160 under different loads.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® UW160

Permissible surface speeds

The maximum recommended surface speed is based on the frictional heat generated at the bearing surface. The temperature should only be permitted to increase to a value that will ensure a sustainable use of the bearing with respect to wear and dimensional integrity. The maximum values specified in table 03 are for the dry operation. In media-based application, sometimes significantly higher speeds are achieved due to reduced heat generation depending on the installation.

Surface speed, page 48

Temperature

iglidur® UW160 was developed for use in liquid media in the normal and medium temperature range. As in the case of all thermoplastics, the compression strength of iglidur® UW160 decreases when temperatures rise. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +70°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagram 04 and 05). The influence of surface speed and surface finish of the shaft on the friction coefficient is low, but with increasing radial load the coefficient of friction decreases significantly, mainly in the range of up to 7.5MPa.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® UW160. In the example of a rotational movement with radial loads of 1MPa and a speed of 0.3m/s, it becomes clear that iglidur® UW160 achieves good coefficient of wear with the most varied shafts. It is also clear that there are better iglidur® materials for dry operation. As with many other iglidur® materials in dry operation, diagram 07 shows the significantly higher wear in rotation than in pivoting with otherwise identical parameters.

Shaft materials, page 56

Installation tolerances

iglidur® UW160 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+ up to 0
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	+
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.3	0.3	1.0
Short-term	m/s	0.5	0.4	2.5

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.17-0.31	0.08	0.03	0.03

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

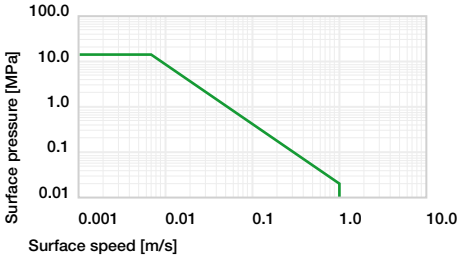


Diagram 01: Permissible pv values for iglidur® UW160 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

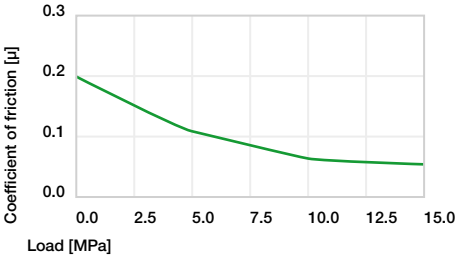


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

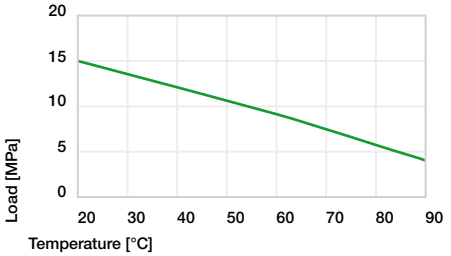


Diagram 02: Maximum recommended surface pressure as a function of temperature (15MPa at +20°C)

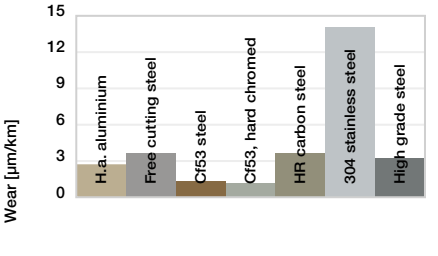


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

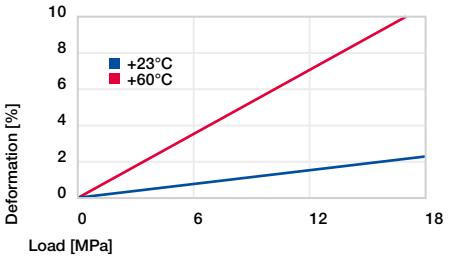


Diagram 03: Deformation under pressure and temperature

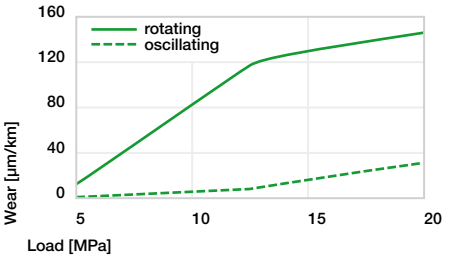


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

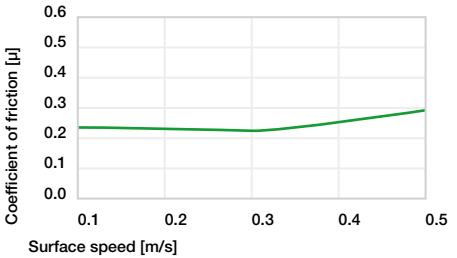
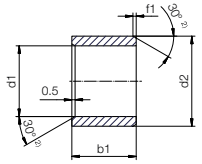


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® UW160

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12
f1 [mm]	0.3	0.5

Dimensions according to ISO 3547-1 and special dimensions

Order example: UW160SM-0304-03 – no minimum order quantity.
UW160 iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.014 +0.054	4.0	3.0	UW160SM-0304-03
4.0		5.0	4.0	UW160SM-0405-04
5.0	+0.020 +0.068	7.0	5.0	UW160SM-0507-05
6.0		8.0	6.0	UW160SM-0608-06
8.0	+0.025 +0.083	10.0	10.0	UW160SM-0810-10
10.0		12.0	10.0	UW160SM-1012-10

[3] After press-fit. *Testing methods, page 61*

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25-49	200-499	2,500-4,999

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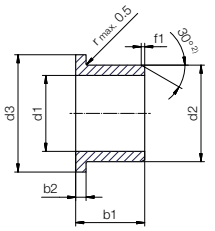
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iglidur® UW160 +90°C 15MPa

Bearing technology | Plain bearings | iglidur® UW160

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12
f1 [mm]	0.3	0.5

Dimensions according to ISO 3547-1 and special dimensions

Order example: UW160FM-0304-05 – no minimum order quantity.
UW160 iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0	+0.014 +0.054	4.5	7.5	5.0	0.75	UW160FM-0304-05
4.0		5.5	9.5	6.0	0.75	UW160FM-0405-06
5.0	+0.020 +0.068	7.0	11.0	7.0	1.00	UW160FM-0507-07
6.0		8.0	12.0	6.0	1.00	UW160FM-0608-06
8.0	+0.025 +0.083	10.0	14.0	10.0	1.00	UW160FM-0810-10
10.0		12.0	18.0	10.0	1.00	UW160FM-1012-10

[3] After press-fit. *Testing methods, page 61*

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www.igus.eu/UW160

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Discount scaling		
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25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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For the tobacco industry
FDA-compliant
iglidur® T220

When to use it?

- When you need a bearing free from non-permitted materials in the tobacco industry
- When FDA compliance is required

When not to use it?

- When high surface pressures occur
  iglidur® Z
- When a cost-effective all-round plain bearing is required
  iglidur® G, iglidur® M250
- When the highest wear resistance at low pressures is required
  iglidur® J

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Bearing technology | Plain bearings | iglidur® T220

Ø
–



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For the tobacco industry
FDA-compliant

Plain bearings that constitute only materials "recommended" for the tobacco industry. They are free from carcinogenic additives like, for instance, PTFE.

- Free from banned ingredients as requested by main manufacturers of tobacco products
- FDA-compliant
- Lubrication-free
- Maintenance-free

Typical application areas

- Tobacco industry

Descriptive technical specifications			
Wear resistance at +23°C	–	■■	+
Wear resistance at +90°C	–	■	+
Wear resistance at +150°C	–	■	+
Slide property	–	■■	+
Wear resistance under water	–	■■	+
Media resistance	–	■■■	+
Resistant to edge pressures	–	■■■	+
Resistant to shock and impact loads	–	■■■	+
Dirt resistance	–	■■■■	+

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iglidur® T220
+100°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.28	
Colour		white	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.20-0.32	
pv value, max. (dry)	MPa · m/s	0.28	
Mechanical properties			
Flexural modulus	MPa	1,800	DIN 53457
Flexural strength at +20°C	MPa	65	DIN 53452
Compressive strength	MPa	55	
Max. permissible surface pressure (+20°C)	MPa	40	
Shore D hardness		76	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+160	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	11	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{10}$	DIN 53482

Table 01: Material properties

-40°C up to +100°C

40MPa

HB

FOOD

RoHS-II

ISO 3547-1

iglidur® T220 is a special material for applications in the tobacco processing industry. It fulfils the demands of the tobacco industry (engineering database). The material is free of undesirable or banned ingredients, as requested by reputed manufacturers from 2004 onward.

Moisture absorption

The humidity absorption of iglidur® T220 bearings amounts to about 0.3% weight in standard climatic conditions. The saturation limit submerged in water is 0.5% weight. These values are so low that consideration of expansion by moisture absorption is only required under extreme circumstances.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® T220 bearings.

Radiation resistance

Plain bearings made from iglidur® T220 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® T220 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® T220 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

iglidur® T220 plain bearings can be stressed up to the permitted limit of 40MPa, the elastic deformation is less than 2% at room temperature. The permitted load is limited by higher temperatures (diagram 03).

Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® T220

Permissible surface speeds

The maximum speeds of iglidur® T220 plain bearings when rotating continuously is 0.4 m/s. The friction and the associated temperature increase limit the permissible speeds. From this it follows that intermittent service or in linear movements, higher speeds can be attained.

Surface speed, page 48

Temperature

The flexibility of the bearings depends on the temperature. Even temperatures as low as +60°C lead to a considerable increase in flexibility. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

By the observance of the tobacco processing industry specifications, the coefficient of friction and wear of iglidur® T220 plain bearings remain behind those of the best iglidur® plain bearings. The coefficient of friction decreases with the load and increases only slightly with higher speeds.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® T220. Diagram 07 shows that the bearings react with a heavy increase in wear when the load is increased. Therefore care should be taken to maintain the loads under 5MPa through adequate dimensioning of the bearing.

Shaft materials, page 56

Installation tolerances

iglidur® T220 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® T220 plain bearings are manufactured to special order.

Chemicals	Resistance
Alcohols	+
Diluted acids	0
Diluted alkalines	–
Fuels	+
Greases, oils without additives	+
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.4	0.3	1.0
Short-term	m/s	1.0	0.7	2.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.20-0.32	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

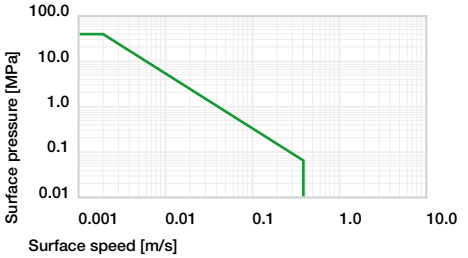


Diagram 01: Permissible pv values for iglidur® T220 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

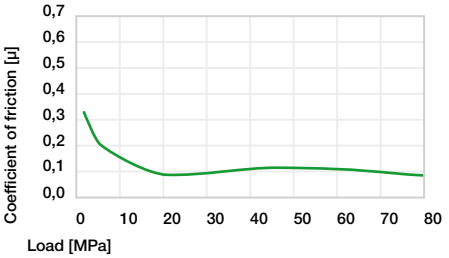


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

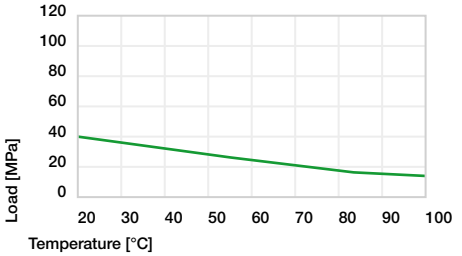


Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

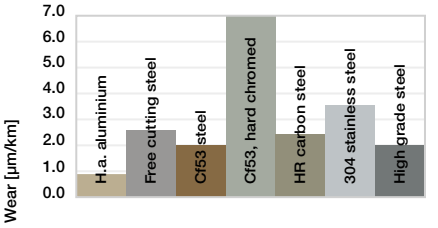


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

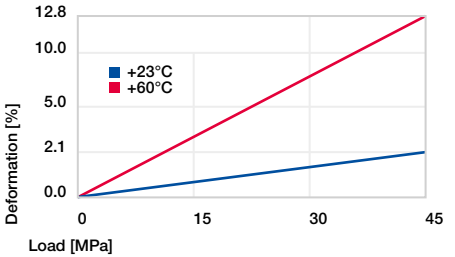


Diagram 03: Deformation under pressure and temperature

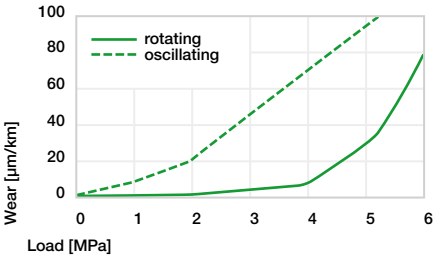


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

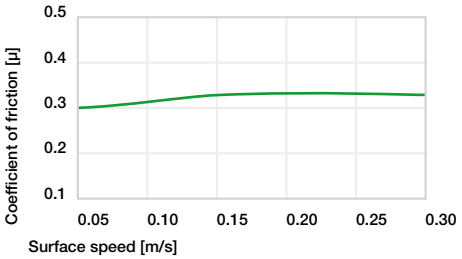


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa





Conductive and resistant

ESD material for high temperatures and food contact

iglidur® AX500

When to use it?

- When an extremely media-resistant plain bearing with high flexibility is required
- When you need a highly wear-resistant and media-resistant plain bearing

When not to use it?

- When an FDA-compliant high-temperature plain bearing is required
  iglidur® A500
- When a media-resistant, high-temperature plain bearing with the largest possible range of dimensions is required
  iglidur® X

EN 09/2023

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Ø 6.0-40.0mm



Also available as:

Bar stock, round bar **Page 743**

Bar stock, plate **Page 773**

tribo-tape liner **Page 781**

Guide rings **Page 641**

Two hole flange bearings **Page 667**

Moulded special parts **Page 696**

igubal® spherical balls **Page 993**

Conductive and resistant
ESD material for high temperatures and food contact

iglidur® AX500 is a further development of iglidur® A500, a long-term endurance material. The special feature of AX500 is that it is a conductive material. In addition, AX500 has an even lower coefficient of wear than its predecessor. The material was specially developed for the food industry and can therefore be used in contact with food products.

- Compliant with EU Regulation 10/2011 EC
- Temperature-resistant from -100°C to +250°C
- Chemical-resistant
- Lubrication and maintenance-free
- Standard range from stock

Typical application areas

- Beverage industry
- Food industry
- Medical technology

Descriptive technical specifications			
Wear resistance at +23°C	–	■■	+
Wear resistance at +90°C	–	■■	+
Wear resistance at +150°C	–	■■■	+
Slide property	–	■■	+
Wear resistance under water	–	■■■■	+
Media resistance	–	■■■■■	+
Resistant to edge pressures	–	■■■■	+
Resistant to shock and impact loads	–	■■■■	+
Dirt resistance	–	■■■	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

iglidur® AX500 +250°C 69MPa

Technical data

General properties			Testing method
Density	g/cm³	1.55	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.3	
Coefficient of friction, dynamic, against steel	µ	0.08-0.22	
pv value, max. (dry)	MPa · m/s	0.9	
Mechanical properties			
Flexural modulus	MPa	6,170	DIN 53457
Flexural strength at +20°C	MPa	115	DIN 53452
Compressive strength	MPa	n.s.	
Max. permissible surface pressure (+20°C)	MPa	69	
Shore D hardness		81	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+250	
Max. application temperature short-term	°C	+300	
Min. application temperature	°C	up to -100	
Thermal conductivity	W/m · K	0.26	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	n.s.	DIN IEC 93
Surface resistance	Ω	10^5 - 10^{11}	DIN 53482

-100°C up to +250°C

69MPa

V-0

FOOD

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® AX500 is a member of the family of extremely media and temperature-resistant iglidur® materials X, X6 and A500. This material is characterised by improved wear resistance and increased design freedom.

Moisture absorption
The moisture absorption of iglidur® AX500 plain bearings is below 0.3% weight in ambient conditions. The saturation limit submerged in water is 0.5% weight.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance
iglidur® AX500 withstands neutron and gamma particle radiation without detectable losses of its excellent mechanical properties. Plain bearings made from iglidur® AX500 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® AX500 plain bearings are resistant to weathering The material properties are slightly affected. Discolouration occurs.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® AX500 plain bearings decreases. Diagram 02 shows this inverse relationship. However, at an operation temperature of +200°C the permissible surface pressure is close to 20MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® AX500 under different loads. At the maximum recommended surface pressure of 69MPa, the deformation is less than 4.5%.
Surface pressure, page 45

Bearing technology | Plain bearings | iglidur® AX500

Permissible surface speeds

The maximum recommended surface speed is based on the frictional heat generated at the bearing surface. The temperature should only be permitted to increase to a value that will ensure a sustainable use of the bearing with respect to wear and dimensional integrity. The maximum values stated in table 03 are valid only with minimum pressure loads and are often not attained in practice.

Surface speed, page 48

Temperature

iglidur® AX500 belongs to the most temperature resistant iglidur® materials. As in the case of all thermoplastics, the compressive strength of iglidur® AX500 bearings decreases when temperatures rise. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +130°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction and wear in iglidur® AX500 are more favourable than in the other high temperature materials iglidur® X and A500. The coefficient of friction increases moderately as the sliding speed increases. The coefficient of friction initially drops rapidly to less than 0.1 under loads of up to approximately 20MPa, and then only marginally increases as loads continue to increase. The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. Ground surfaces with an average surface finish Ra of 0.6 to 0.8µm are ideal.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® AX500. Using the example of a rotating motion at 1MPa and a speed of 0.3m/s, it becomes apparent that iglidur® AX500 has consistent wear characteristics across a variety of shaft types. This wear rate spikes in combination with free cutting steel, and, notably so, reduces in combination with HC aluminium. The wear under rotational loads is higher, specifically with increasing radial loads as compared to pivoting movements (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® AX500 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	0 up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.4	2.0
Short-term	m/s	1.5	0.6	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.08-0.22	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings F10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur®
AX500
+250°C
69MPa

Technical data

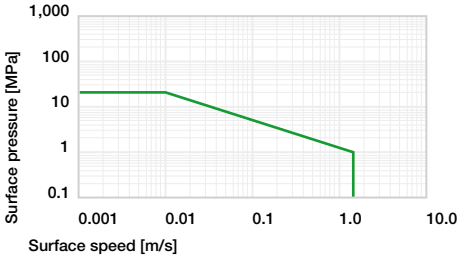


Diagram 01: Permissible pv values for AX500 plain bearings with a wall thickness of 1mm, dry operation against a steel shaft, at +20°C, mounted in a steel housing

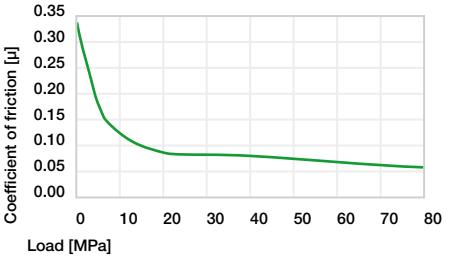


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

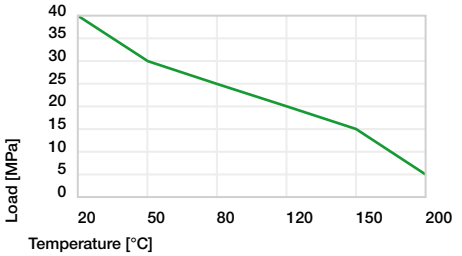


Diagram 02: Maximum recommended surface pressure as a function of temperature (80MPa at +20°C)

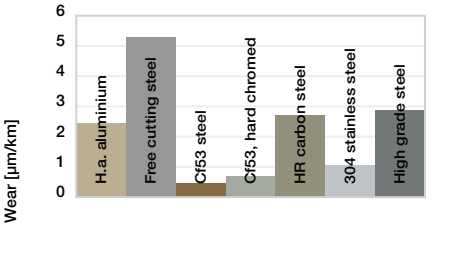


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

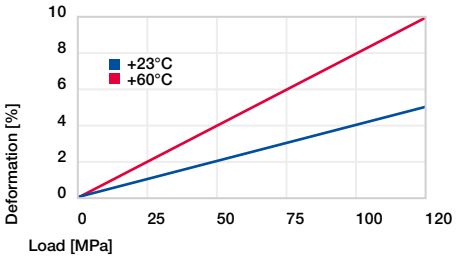


Diagram 03: Deformation under pressure and temperature

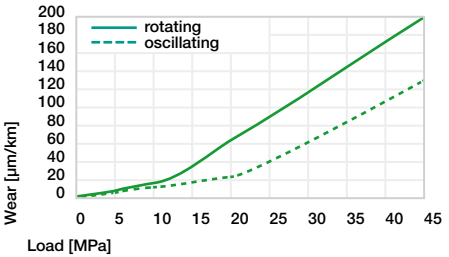


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

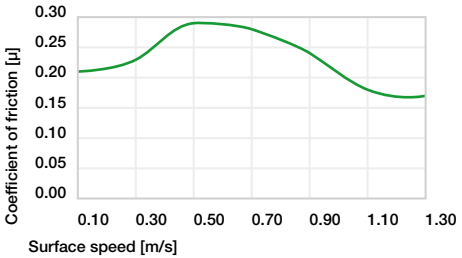
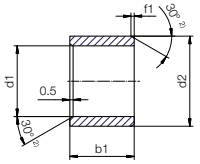


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® AX500

Sleeve bearings (form S)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: AX500SM-0608-06 - no minimum order quantity.
AX500 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	6.0	**AX500SM-0608-06**
8.0	+0.013 +0.071	10.0	10.0	**AX500SM-0810-10**
10.0		12.0	10.0	**AX500SM-1012-10**
12.0	+0.016 +0.086	14.0	12.0	**AX500SM-1214-12**
16.0		18.0	15.0	**AX500SM-1618-15**
16.0		18.0	20.0	**AX500SM-1618-20**
16.0		18.0	25.0	**AX500SM-1618-25**
20.0	+0.020 +0.104	23.0	20.0	**AX500SM-2023-20**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/AX500

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

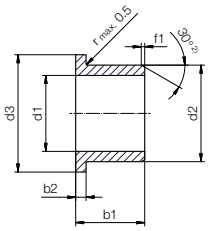
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur®
AX500
+250°C
69MPa

Bearing technology | Plain bearings | iglidur® AX500

Flange bearings (form F)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: AX500SM-0608-06 - no minimum order quantity.
AX500 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	d3 d13³⁾ [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	12.0	8.0	1.00	**AX500FM-0608-06**
8.0	+0.013 +0.071	10.0	15.0	9.5	1.00	**AX500FM-0810-10**
10.0		12.0	18.0	9.0	1.00	**AX500FM-1012-10**
12.0	+0.016 +0.086	14.0	20.0	12.0	1.00	**AX500FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**AX500FM-1618-17**
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	**AX500FM-2023-21**

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/AX500

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.



Plain bearing materials for harsh environments

Plain bearing materials for harsh environments

The iglidur® plain bearings for high load combine high wear resistance with the ability to withstand high (static) loads, shocks and edge loads.
Within these properties they all have their own special strengths. Harsh environments mean radial surface pressure starting from 30MPa up to more than 100MPa (100MPa means 1,000kg on a 10 x 10mm plain bearing)

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert



iglidur® Q2
The durable heavy-duty bearing

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	120	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	1.50	– +
Price index		– +



iglidur® Q3E
Cost-effective heavy-duty bearing

Temperature [°C] [123]	+100	– +
Surface pressure [MPa] [124]	135	– +
Coefficient of friction [µ] [125]	0.17	– +
Wear [µm/km] [125]	1.50	– +
Price index		– +



iglidur® Q
The peak of stability

Temperature [°C] [123]	+135	– +
Surface pressure [MPa] [124]	100	– +
Coefficient of friction [µ] [125]	0.19	– +
Wear [µm/km] [125]	1.90	– +
Price index	-	+



iglidur® Q290
Heavy-duty on soft shafts

Temperature [°C] [123]	+140	– +
Surface pressure [MPa] [124]	55	– +
Coefficient of friction [µ] [125]	0.12	– +
Wear [µm/km] [125]	0.48	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating

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iglidur® M210
For medium-sized loads

Temperature [°C] [123]	+100	– +
Surface pressure [MPa] [124]	50	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	0.38	– +
Price index		– +

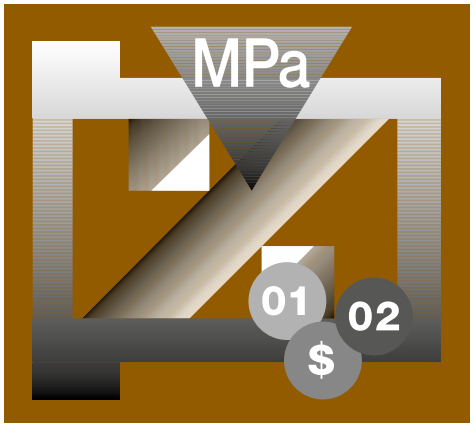


iglidur® M260
For heavy duty

Temperature [°C] [123]	+120	– +
Surface pressure [MPa] [124]	40	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	0.11	– +
Price index		– +

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The durable heavy-duty bearing

Combined wear resistance and compressive strength at high loads

iglidur® Q2

When to use it?

- When high dynamic loads occur
- When dirt occurs in addition to high shock and impact loads
- For highly loaded pivoting movements

When not to use it?

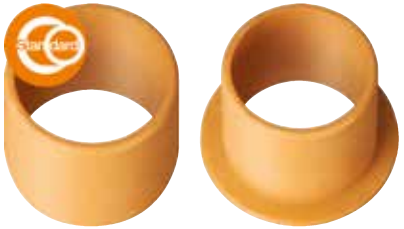
- When only static loads occur
  iglidur® X, iglidur® H2
- When high pv values occur in conjunction with high speeds
  iglidur® Z
- When a cost-effective all-round plain bearing is required
  iglidur® G
- When soft shafts are in use
  iglidur® W300

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Bearing technology | Plain bearings | iglidur® Q2

Ø
4.0-120.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The durable heavy-duty bearing

Combined wear resistance and compressive strength at high loads

Where previous iglidur® bearing solutions are limited within the scope of extreme loads and strong impact forces, the iglidur® Q2 starts. Made for heavy-duty pivoting applications under extreme conditions.

- Wear-resistant
- Good price-performance ratio
- Lubrication-free
- Maintenance-free
- High rigidity
- Suitable for high loads

Typical application areas

- Agricultural engineering
- Utility and construction vehicles
- Mechanical engineering

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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Technical data

General properties			Testing method
Density	g/cm³	1.46	
Colour		beige-brown	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.1	DIN 53495
Max. moisture absorption	% weight	4.6	
Coefficient of friction, dynamic, against steel	µ	0.22-0.42	
pv value, max. (dry)	MPa · m/s	0.70	
Mechanical properties			
Flexural modulus	MPa	8,370	DIN 53457
Flexural strength at +20°C	MPa	240	DIN 53452
Compressive strength	MPa	130	
Max. permissible surface pressure (+20°C)	MPa	120	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+130	
Max. application temperature short-term	°C	+200	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	8	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Table 01: Material properties

-40°C up to +130°C

120MPa

HB

RoHS-II

ISO 3547-1

iglidur® Q2 plain bearings represent high load capacities and good abrasion resistance at high loads. The price-performance ratio is outstanding. Solid lubricants reduce the coefficient of friction and improve the resistance to wear, which was markedly improved as compared to other iglidur® plain bearings, especially for heavily loaded pivoting applications.

Moisture absorption

The moisture absorption of iglidur® Q2 plain bearings in ambient conditions is approximately 1.1% weight. The saturation limit submerged in water is 4.6% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® Q2 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® Q2 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® Q2 plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +130°C, the permitted surface pressure still amounts to 20MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® Q2 at radial loads.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® Q2

Permissible surface speeds

Typical applications for iglidur® Q2 plain bearings are pivoting movements under high loads at comparatively low speeds. However, relatively high speeds are still attainable. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 48

Temperature

iglidur® Q2 is an extremely temperature-resistant material. The long-term upper temperature limit of +130°C permits the broad use in applications typical for the agricultural, utility vehicle or construction equipment sectors. With increasing temperatures, the compressive strength of iglidur® Q2 plain bearings decreases. For temperatures over +70°C an additional securing is required. When considering temperatures, the additional frictional heat in the bearing system must be taken into account.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of iglidur® Q2 is low. Please note that a sliding surface with a rough surface finish will increase the friction. The highest coefficient of friction occur at Ra = 1µm. Surface finishes (Ra) of the shaft between 0.1-0.4µm are ideal. Furthermore, the coefficient of friction of iglidur® Q2 plain bearings largely depends on the speed and load. As the surface speed increases, the coefficient of friction will quickly increase as well. However, as the load is reduced, the coefficient of friction initially drops significantly, then moderately.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

In high load applications, we generally recommend the use of hardened shafts. Furthermore, even at low to medium loads, iglidur® Q2 will attain increased service life with "hard" shafts as compared to "soft" shafts. But for low load applications, the results are outstanding with free cutting steel as well. For high loads, the wear in pivoting applications is much lower than for rotation. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® Q2 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	1.0	0.7	4.0
Short-term	**m/s**	2.0	1.4	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.22-0.42	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

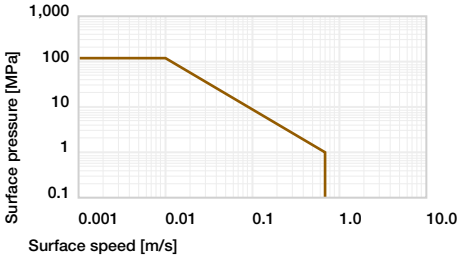


Diagram 01: Permissible pv values for iglidur® Q2 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

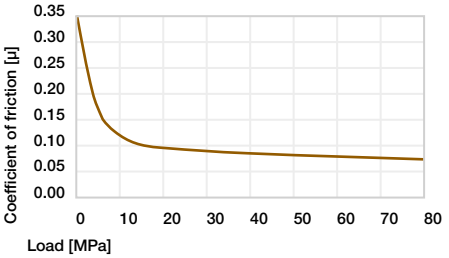


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

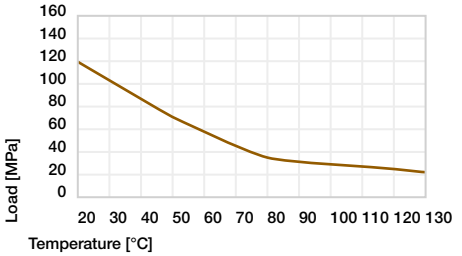


Diagram 02: Maximum recommended surface pressure as a function of temperature (120MPa at +20°C)

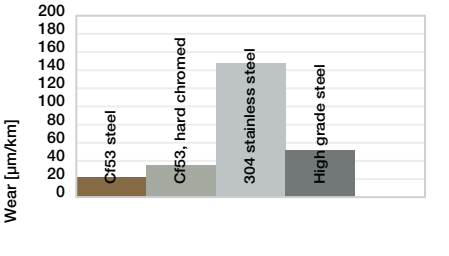


Diagram 06: Wear, pivoting with different shaft materials, pressure p = 45MPa, v = 0.01m/s

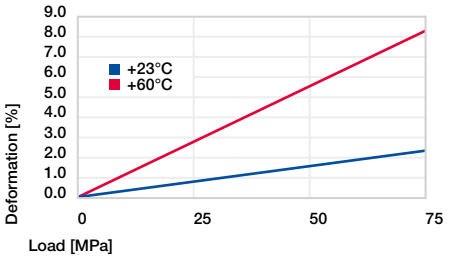


Diagram 03: Deformation under pressure and temperature

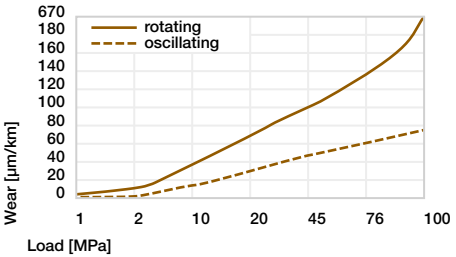


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

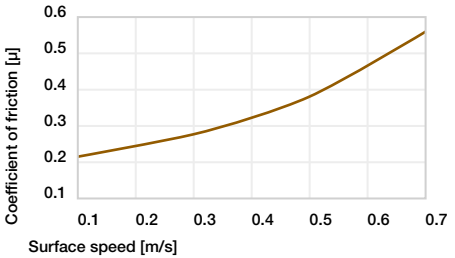
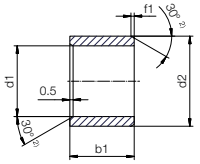


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® Q2

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: Q2SM-0405-04 – no minimum order quantity.
Q2 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0		5.5	4.0	Q2SM-0405-04
4.0		5.5	6.0	Q2SM-0405-06
5.0	+0.020	7.0	5.0	Q2SM-0507-05
5.0	+0.068	7.0	10.0	Q2SM-0507-10
6.0		8.0	6.0	Q2SM-0608-06
6.0		8.0	8.0	Q2SM-0608-08
6.0		8.0	10.0	Q2SM-0608-10
8.0		10.0	8.0	Q2SM-0810-08
8.0		10.0	10.0	Q2SM-0810-10
8.0		10.0	12.0	Q2SM-0810-12
10.0	+0.025	12.0	8.0	Q2SM-1012-08
10.0	+0.083	12.0	10.0	Q2SM-1012-10
10.0		12.0	12.0	Q2SM-1012-12
10.0		12.0	15.0	Q2SM-1012-15
10.0		12.0	20.0	Q2SM-1012-20
12.0		14.0	10.0	Q2SM-1214-10
12.0		14.0	12.0	Q2SM-1214-12
12.0		14.0	15.0	Q2SM-1214-15
12.0		14.0	20.0	Q2SM-1214-20
13.0		15.0	10.0	Q2SM-1315-10
13.0		15.0	20.0	Q2SM-1315-20
14.0	+0.032	16.0	15.0	Q2SM-1416-15
14.0	+0.102	16.0	20.0	Q2SM-1416-20
14.0		16.0	25.0	Q2SM-1416-25
15.0		17.0	15.0	Q2SM-1517-15
15.0		17.0	20.0	Q2SM-1517-20
15.0		17.0	25.0	Q2SM-1517-25
16.0		18.0	15.0	Q2SM-1618-15
16.0		18.0	20.0	Q2SM-1618-20
16.0		18.0	25.0	Q2SM-1618-25
18.0	+0.032	20.0	15.0	Q2SM-1820-15
18.0	+0.102	20.0	20.0	Q2SM-1820-20
18.0		20.0	25.0	Q2SM-1820-25
20.0		23.0	10.0	Q2SM-2023-10
20.0		23.0	15.0	Q2SM-2023-15
20.0		23.0	20.0	Q2SM-2023-20
20.0		23.0	25.0	Q2SM-2023-25
20.0		23.0	30.0	Q2SM-2023-30
22.0		25.0	15.0	Q2SM-2225-15
22.0		25.0	20.0	Q2SM-2225-20
22.0		25.0	25.0	Q2SM-2225-25
22.0		25.0	30.0	Q2SM-2225-30
24.0		27.0	15.0	Q2SM-2427-15
24.0		27.0	20.0	Q2SM-2427-20
24.0	+0.040	27.0	25.0	Q2SM-2427-25
24.0	+0.124	27.0	30.0	Q2SM-2427-30
25.0		28.0	15.0	Q2SM-2528-15
25.0		28.0	20.0	Q2SM-2528-20
25.0		28.0	25.0	Q2SM-2528-25
25.0		28.0	30.0	Q2SM-2528-30
28.0		32.0	30.0	Q2SM-2832-30
30.0		34.0	20.0	Q2SM-3034-20
30.0		34.0	25.0	Q2SM-3034-25
30.0		34.0	30.0	Q2SM-3034-30
30.0		34.0	40.0	Q2SM-3034-40
30.0		35.0	40.0	Q2SM-3035-40
32.0	+0.050	36.0	20.0	Q2SM-3236-20
32.0	+0.150	36.0	30.0	Q2SM-3236-30

[3] After press-fit. *Testing methods, page 61*

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iglidur® Q2
+130°C
120MPa

Product range

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
32.0		36.0	40.0	Q2SM-3236-40
32.0		40.0	40.0	Q2SM-3240-40
35.0		39.0	20.0	Q2SM-3539-20
35.0		39.0	30.0	Q2SM-3539-30
35.0		39.0	40.0	Q2SM-3539-40
35.0	+0.050	39.0	50.0	Q2SM-3539-50
40.0	+0.150	44.0	20.0	Q2SM-4044-20
40.0		44.0	30.0	Q2SM-4044-30
40.0		44.0	40.0	Q2SM-4044-40
40.0		44.0	50.0	Q2SM-4044-50
45.0		50.0	20.0	Q2SM-4550-20
45.0		50.0	30.0	Q2SM-4550-30
45.0		50.0	40.0	Q2SM-4550-40
45.0		50.0	50.0	Q2SM-4550-50
50.0		55.0	20.0	Q2SM-5055-20
50.0	+0.050	55.0	30.0	Q2SM-5055-30
50.0	+0.150	55.0	40.0	Q2SM-5055-40
50.0		55.0	50.0	Q2SM-5055-50
50.0		55.0	60.0	Q2SM-5055-60
60.0		65.0	60.0	Q2SM-6065-60
65.0	+0.060	70.0	60.0	Q2SM-6570-60
70.0	+0.180	75.0	60.0	Q2SM-7075-60
75.0		80.0	40.0	Q2SM-7580-40

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/Q2

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

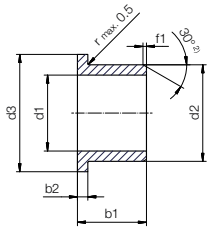
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Bearing technology | Plain bearings | iglidur® Q2

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

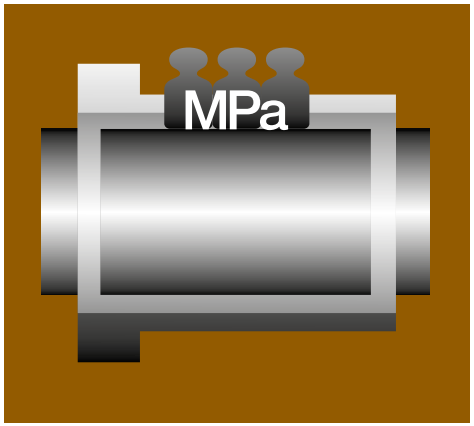
Order example: Q2FM-0507-05 – no minimum order quantity.
Q2 iglidur® material F With flange M Metric 05 Inner Ø d1 07 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
5.0		7.0	11.0	5.0	1.00	**Q2FM-0507-05**
6.0	+0.020	8.0	12.0	4.0	1.00	**Q2FM-0608-04**
6.0	+0.068	8.0	12.0	6.0	1.00	**Q2FM-0608-06**
6.0		8.0	12.0	8.0	1.00	**Q2FM-0608-08**
8.0		10.0	15.0	3.0	1.00	**Q2FM-0810-03**
8.0		10.0	15.0	5.5	1.00	**Q2FM-0810-05**
8.0		10.0	15.0	7.5	1.00	**Q2FM-0810-07**
8.0		10.0	15.0	9.5	1.00	**Q2FM-0810-09**
8.0	+0.025	10.0	15.0	10.0	1.00	**Q2FM-0810-10**
10.0	+0.083	12.0	18.0	7.0	1.00	**Q2FM-1012-07**
10.0		12.0	18.0	9.0	1.00	**Q2FM-1012-09**
10.0		12.0	18.0	10.0	1.00	**Q2FM-1012-10**
10.0		12.0	18.0	12.0	1.00	**Q2FM-1012-12**
10.0		12.0	18.0	17.0	1.00	**Q2FM-1012-17**
12.0		14.0	20.0	7.0	1.00	**Q2FM-1214-07**
12.0		14.0	20.0	9.0	1.00	**Q2FM-1214-09**
12.0		14.0	20.0	12.0	1.00	**Q2FM-1214-12**
12.0		14.0	20.0	17.0	1.00	**Q2FM-1214-17**
14.0		16.0	22.0	5.0	1.00	**Q2FM-1416-05**
14.0	+0.032	16.0	22.0	12.0	1.00	**Q2FM-1416-12**
14.0	+0.102	16.0	22.0	17.0	1.00	**Q2FM-1416-17**
15.0		17.0	23.0	9.0	1.00	**Q2FM-1517-09**
15.0		17.0	23.0	12.0	1.00	**Q2FM-1517-12**
15.0		17.0	23.0	17.0	1.00	**Q2FM-1517-17**
16.0		18.0	24.0	12.0	1.00	**Q2FM-1618-12**
16.0		18.0	24.0	17.0	1.00	**Q2FM-1618-17**
18.0		20.0	26.0	12.0	1.00	**Q2FM-1820-12**

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
18.0	+0.032	20.0	26.0	17.0	1.00	**Q2FM-1820-17**
18.0	+0.102	20.0	26.0	22.0	1.00	**Q2FM-1820-22**
20.0		23.0	30.0	11.5	1.50	**Q2FM-2023-11**
20.0		23.0	30.0	12.0	1.50	**Q2FM-2023-12**
20.0		23.0	30.0	16.5	1.50	**Q2FM-2023-16**
20.0		23.0	30.0	21.5	1.50	**Q2FM-2023-21**
25.0	+0.040	28.0	35.0	11.5	1.50	**Q2FM-2528-11**
25.0	+0.124	28.0	35.0	16.5	1.50	**Q2FM-2528-16**
25.0		28.0	35.0	21.5	1.50	**Q2FM-2528-21**
30.0		34.0	42.0	16.0	2.00	**Q2FM-3034-16**
30.0		34.0	42.0	26.0	2.00	**Q2FM-3034-26**
30.0		34.0	42.0	37.0	2.00	**Q2FM-3034-37**
30.0		34.0	42.0	40.0	2.00	**Q2FM-3034-40**
35.0		39.0	47.0	16.0	2.00	**Q2FM-3539-16**
35.0		39.0	47.0	26.0	2.00	**Q2FM-3539-26**
35.0		39.0	47.0	40.0	2.00	**Q2FM-3539-40**
40.0	+0.050	44.0	52.0	30.0	2.00	**Q2FM-4044-30**
40.0	+0.150	44.0	52.0	40.0	2.00	**Q2FM-4044-40**
45.0		50.0	58.0	50.0	2.00	**Q2FM-4550-50**
50.0		55.0	63.0	10.0	2.00	**Q2FM-5055-10**
50.0		55.0	63.0	50.0	2.00	**Q2FM-5055-50**
60.0	+0.060	65.0	73.0	60.0	2.00	**Q2FM-6065-60**
80.0	+0.180	85.0	93.0	100.0	2.50	**Q2FM-8085-100**
100.0	+0.072 +0.212	105.0	125.0	90.0	2.50	**Q2FM-100105125-90**
120.0	+0.085 +0.245	125.0	145.0	90.0	2.50	**Q2FM-120125145-90**

[3] After press-fit. *Testing methods, page 61*





Cost-effective heavy-duty bearing

Robust and dimensionally stable iglidur® Q3E

When to use it?

- When a wear-resistant plain bearing at loads up to 130MPa is required
- When a robust and dirt-resistant plain bearing is required
- When a plain bearing with dimensional stability is required

When not to use it?

- When a plain bearing with the highest possible media resistance is required
  iglidur® X
- With high rotational speeds
  iglidur® J, iglidur® L250
- When a universal standard plain bearing for occasional movements is required
  iglidur® G

EN 09/2023

Bearing technology | Plain bearings | iglidur® Q3E

Ø
20.0-60.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Cost-effective heavy-duty bearing
Robust and dimensionally stable

With extreme loads, even high-tech polymers reach their limits. Therefore iglidur® Q3E offers a completely new multi-component design and is able to carry even extreme loads. In addition, thanks to optimised injection moulding technology, it is more cost-effective than comparable fibre composites.

- Lubrication-free
- Wear-resistant up to 130MPa dynamic load
- Resistant to dirt
- Corrosion-free

Typical application areas

- Agricultural machinery
- Construction machinery industry
- Utility and construction vehicles
- Hoisting technology

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® Q3E
+100°C
135MPa

Technical data

General properties			Testing method
Density	g/cm³	1.46-1.69	
Colour sliding layer		black	
Colour supporting layer		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.5	DIN 53495
Max. moisture absorption	% weight	5.0	
Coefficient of friction, dynamic, against steel	µ	0.22-0.42	
pv value, max. (dry)	MPa · m/s	0.70	
Mechanical properties			
Flexural modulus	MPa	n.s.	DIN 53457
Flexural strength at +20°C[171)]	MPa	235	DIN 53452
Compressive strength	MPa	n.s.	
Max. permissible surface pressure (+20°C)	MPa	135	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+140	
Min. application temperature	°C	-30	
Thermal conductivity		n.s.	
Coefficient of thermal expansion		n.s.	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

[171)] Valid for the outer shell of the bearing

Table 01: Material properties

-30 °C up to +100 °C

135MPa

HB

RoHS-II

The iglidur® Q3E plain bearings defy dirt at the heaviest loads due to their robust design.

Moisture absorption
The humidity absorption of iglidur® Q3E bearings amounts to about 1.5% weight in standard climatic conditions. The saturation limit submerged in water is 5.0% weight. This must be taken into account for these types of applications.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance
Plain bearings made from iglidur® Q3E are resistant up to a radiation intensity of 3 · 10^2 Gy.

Resistance to weathering
iglidur® Q3E plain bearings have not yet been tested for their resistance to weathering. Please consult igus® if you're planning to use them outdoors.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® Q3E plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® Q3E at radial loads.
Surface pressure, page 45

Permissible surface speeds
Typical applications for iglidur® Q3E plain bearings are pivoting movements under high loads at comparatively low speeds. However, relatively high speeds are still attainable. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.
Surface speed, page 48

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Bearing technology | Plain bearings | iglidur® Q3E

Temperature

iglidur® Q3E is an extremely temperature-resistant material. The long-term upper temperature limit of +100°C permits the broad use.in applications typical for the agricultural, utility vehicle or construction equipment sectors. With increasing temperatures, the compressive strength of iglidur® Q3E plain bearings decreases. For temperatures over +75°C an additional securing is required. When considering temperatures, the additional frictional heat in the bearing system must be taken into account.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction alters similarly to the wear resistance with increasing load and surface speed (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

In high load applications, we generally recommend the use of hardened shafts. Furthermore, even at low to medium loads, iglidur® Q3E will attain increased service life with "hard" shafts as compared to "soft" shafts. But for low load applications, the results are outstanding with free cutting steel as well. For high loads, the wear in pivoting applications is much lower than for rotation. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® Q3E plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. The tolerances are based on class E11. After installing in a nominal size housing, the inner diameter of the bearings is adjusted according to the specifications in the product range.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	1.0	0.7	4.0
Short-term	**m/s**	2.0	1.4	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.22-0.42	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E11 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.074	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.095	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.115	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.142	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.170	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.210	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.250	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.292	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.335	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

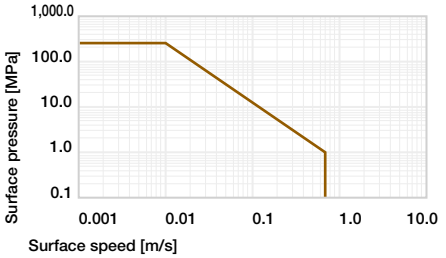


Diagram 01: Permissible pv values for iglidur® Q3E with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

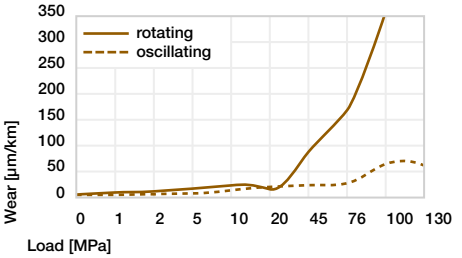


Diagram 05: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

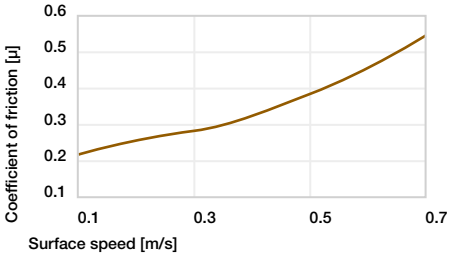


Diagram 02: Coefficient of friction as a function of the surface speed, p = 0.75MPa

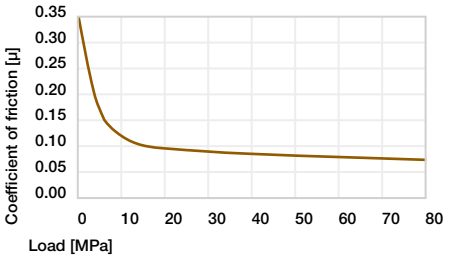


Diagram 03: Coefficient of friction as a function of the pressure, v = 0.01m/s

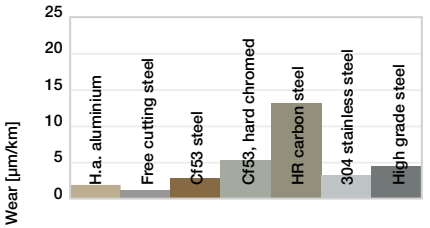
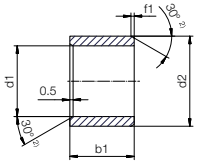


Diagram 04: Wear, pivoting with different shaft materials, p = 1MPa, v = 0.3m/s

Bearing technology | Plain bearings | iglidur® Q3E

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 12-30	Ø > 30
f1 [mm]	0.8	1.2

Order example: Q3ESM-2025-20 – no minimum order quantity.
Q3E iglidur® material S Cylindrical M Metric 20 Inner Ø d1 25 Outer Ø d2 20 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
20.0	+0.040 +0.164	25.0	20.0	**Q3ESM-2025-20**
25.0		30.0	30.0	**Q3ESM-2530-30**
30.0	+0.050 +0.190	35.0	30.0	**Q3ESM-3035-30**
35.0		40.0	40.0	**Q3ESM-3540-40**
40.0		45.0	40.0	**Q3ESM-4045-40**
45.0		50.0	50.0	**Q3ESM-4550-50**
50.0	+0.060 +0.220	55.0	50.0	**Q3ESM-5055-50**
60.0		65.0	60.0	**Q3ESM-6065-60**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/Q3E

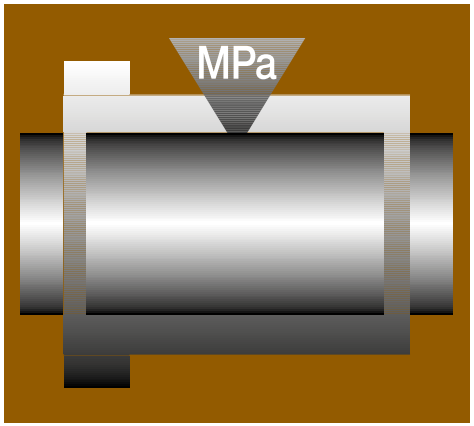
Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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The peak of stability

Long service life at medium to high loads

iglidur® Q

When to use it?
- For pivoting applications
- For excellent wear resistance, especially for extreme loads
- For extreme pv values
- When dirt-resistant bearings is required

When not to use it?
- For underwater applications
  iglidur® H370
- When temperatures are constantly higher than +135°C
  iglidur® H, iglidur® X, iglidur® Z
- In situations involving high edge loads or strong impact loads
  iglidur® Q2

EN 09/2023

Bearing technology | Plain bearings | iglidur® Q

Ø
6.0-90.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The peak of stability
Long service life at medium to high loads

iglidur® Q is the cost-effective solution for heavy-duty cycles with extreme loads. Plain bearings made from this material can be used in all types of motion, but is best suited for pivoting applications.

- Very wear-resistant
- Very high pv values
- Low coefficient of friction
- Resistant to dirt
- Lubrication-free
- Standard range from stock
- Maintenance-free

Typical application areas

- Construction machinery industry
- Sheet metal industry
- Agricultural machines
- Railway technology
- Doors and gates

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® Q
+135°C
100MPa

Technical data

General properties			Testing method
Density	g/cm³	1.40	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.9	DIN 53495
Max. moisture absorption	% weight	4.9	
Coefficient of friction, dynamic, against steel	µ	0.05-0.15	
pv value, max. (dry)	MPa · m/s	0.55	
Mechanical properties			
Flexural modulus	MPa	4,500	DIN 53457
Flexural strength at +20°C	MPa	120	DIN 53452
Compressive strength	MPa	89	
Max. permissible surface pressure (+20°C)	MPa	100	
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+135	
Max. application temperature short-term	°C	+155	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.23	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	5	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{15}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

-40°C up to +135°C

100MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® Q plain bearings were developed especially for extreme loads. Under high loads, iglidur® Q figures among the iglidur® materials that display the best wear resistance. From a radial load of 25MPa, even plain bearings made from the abrasion-resistant iglidur® W300 are exceeded. Specific solid lubricants, precisely integrated into the material, ensure that the maintenance-free dry operation is guaranteed under any load.

Moisture absorption

The moisture absorption of iglidur® Q plain bearings in ambient conditions is approximately 0.9% weight. The saturation limit submerged in water is 4.9% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® Q bearings.

Radiation resistance

Plain bearings made from iglidur® Q are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® Q plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® Q plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
iglidur® Q is a material used when high pv values are reached with high loads. Diagram 03 shows the elastic deformation of iglidur® Q at radial loads. At the maximum recommended surface pressure of 100MPa, the deformation is less than 3%.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® Q

Permissible surface speeds

Under extreme radial loads, the iglidur® Q plain bearings can reach the maximum pv values which are possible during dry operation with plain bearings. Although iglidur® Q plain bearings have the greatest advantages under high loads and at low speeds, high surface speeds are also attainable due to the excellent coefficient of friction of these bearings. The given values in table 03 indicate the limits at which an increase up to the continuous permissible temperature occurs. This increase is a result of friction.

Surface speed, page 48

Temperature

Plain bearings made from iglidur® Q retain their excellent wear resistance even at high temperatures. For temperatures over +50°C an additional securing is required. It should also be noted that the coefficient of friction increases considerably at temperatures above approximately +100°C.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Many plastic bearings feature decreasing coefficient of friction with increasing pressure in dry operation. iglidur® Q goes further than most, under high pressures the material gives excellent low coefficient of friction (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® Q. The strengths offered by iglidur® heavy-duty materials become clear from 30MPa. iglidur® Q stands out in particular. Other heavy-duty materials such as iglidur® Q2 and TX1 only offer the best performances in terms of wear when subjected to even higher loads. iglidur® Q offers strikingly good wear properties on many different shaft materials.

Shaft materials, page 56

Installation tolerances

iglidur® Q plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	5.0
Short-term	m/s	2.0	1.4	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.05-0.15	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

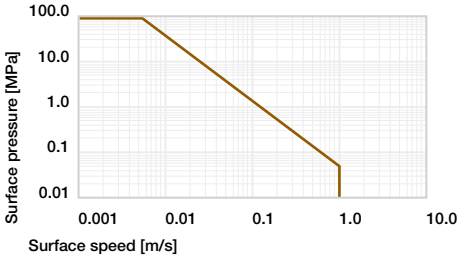


Diagram 01: Permissible pv values for iglidur® Q plain bearing with a wall thickness of 1 mm dry operation against a steel shaft at +20°C, mounted in a steel housing

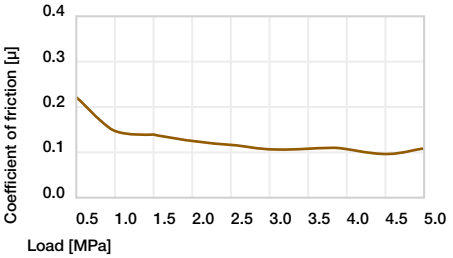


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

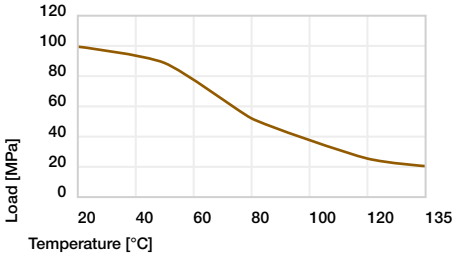


Diagram 02: Maximum recommended surface pressure as a function of temperature (100MPa at +20°C)

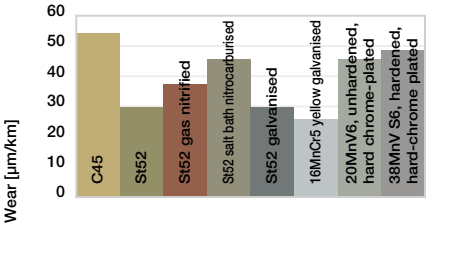


Diagram 06: wear, pivoting with different shaft materials, pressure p = 30MPa, v = 0.01m/s

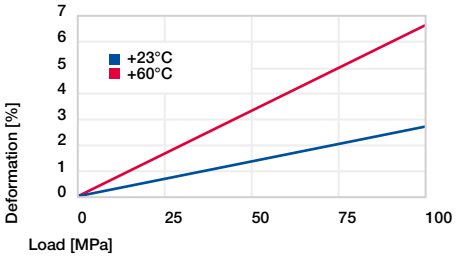


Diagram 03: Deformation under pressure and temperature

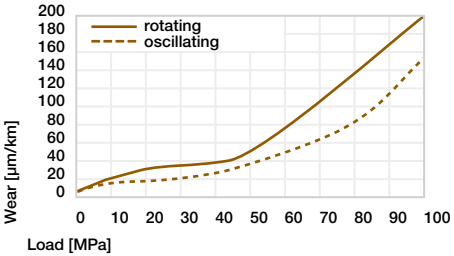


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

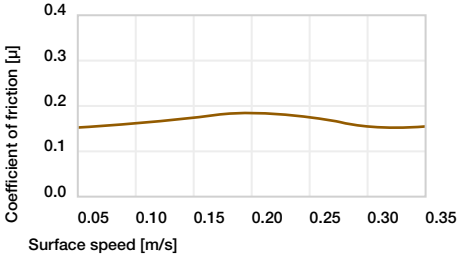
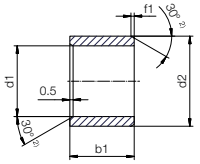


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® Q

Sleeve bearings (form S)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: QSM-0608-10 – no minimum order quantity.
Q iglidur® material **S** Cylindrical **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **10** Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	10.0	QSM-0608-10
8.0	+0.025	10.0	8.0	QSM-0810-08
10.0	+0.083	12.0	10.0	QSM-1012-10
12.0		14.0	10.0	QSM-1214-10
12.0		14.0	20.0	QSM-1214-20
16.0	+0.032	18.0	8.0	QSM-1618-08
16.0	+0.102	18.0	12.5	QSM-1618-12
16.0		18.0	20.0	QSM-1618-20
18.0		20.0	20.0	QSM-1820-20
20.0		22.0	15.0	QSM-2022-15
20.0		23.0	15.0	QSM-2023-15
20.0		23.0	20.0	QSM-2023-20
20.0		23.0	25.0	QSM-2023-25
20.0	+0.040	23.0	30.0	QSM-2023-30
25.0	+0.124	28.0	25.0	QSM-2528-25
25.0		28.0	48.0	QSM-2528-48
30.0		34.0	20.0	QSM-3034-20
30.0		34.0	35.0	QSM-3034-35
30.0		34.0	40.0	QSM-3034-40
35.0		39.0	15.0	QSM-3539-15
35.0		39.0	30.0	QSM-3539-30
35.0		39.0	35.0	QSM-3539-35
35.0		39.0	50.0	QSM-3539-50
40.0		44.0	30.0	QSM-4044-30
40.0	+0.050	44.0	40.0	QSM-4044-40
40.0	+0.150	44.0	47.0	QSM-4044-47
45.0		50.0	25.2	QSM-4550-252
45.0		50.0	50.0	QSM-4550-50
50.0		55.0	50.0	QSM-5055-50
50.0		55.0	60.0	QSM-5055-60
50.0		55.0	80.0	QSM-5055-80
55.0		60.0	50.0	QSM-5560-50
60.0		65.0	50.0	QSM-6065-50
65.0	+0.060	70.0	34.0	QSM-6570-34
70.0	+0.180	75.0	50.0	QSM-7075-50
75.0		80.0	40.0	QSM-7580-40
80.0		85.0	60.0	QSM-8085-60
90.0	+0.072 +0.212	95.0	50.0	QSM-9095-50

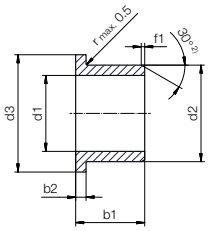
³⁾ After press-fit. *Testing methods, page 61*

iglidur® Q
+135°C
100MPa

Bearing technology | Plain bearings | iglidur® Q

Flange bearings (form F)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: QFM-0608-03 – no minimum order quantity.
Q iglidur® material **F** With flange **M** Metric **06** Inner Ø d1 **08** Outer Ø d2 **03** Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	d3 d13³⁾ [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	3.0	1.00	QFM-0608-03
6.0		8.0	12.0	4.0	1.00	QFM-0608-04
6.0		8.0	12.0	8.0	1.00	QFM-0608-08
8.0		10.0	15.0	5.5	1.00	QFM-0810-05
8.0		10.0	15.0	6.0	1.00	QFM-0810-06
10.0	+0.025	12.0	15.0	3.5	1.00	QFM-101215-035
10.0	+0.083	12.0	18.0	6.0	1.00	QFM-1012-06
10.0		12.0	15.0	8.0	1.00	QFM-101215-08
10.0		12.0	18.0	10.0	1.00	QFM-1012-10
12.0		14.0	20.0	8.0	1.00	QFM-1214-08
12.0	+0.032	14.0	20.0	12.0	1.00	QFM-1214-12
12.0	+0.102	14.0	20.0	20.0	1.00	QFM-1214-20
14.0		16.0	22.0	12.0	1.00	QFM-1416-12
16.0		18.0	24.0	17.0	1.00	QFM-1618-17
18.0	+0.032 +0.102	20.0	26.0	5.0	1.00	QFM-182026-051
18.0		20.0	26.0	12.0	1.00	QFM-1820-12
20.0		23.0	30.0	21.5	1.50	QFM-2023-21
25.0		28.0	35.0	21.5	1.50	QFM-2528-21
26.0	+0.040	29.0	35.0	5.0	1.50	QFM-2629-05
27.0	+0.124	30.0	38.0	20.0	1.50	QFM-2730-20
30.0		34.0	42.0	37.0	2.00	QFM-3034-37
35.0		39.0	47.0	26.0	2.00	QFM-3539-26
35.0		39.0	50.0	35.0	2.00	QFM-353950-35
40.0	+0.050	44.0	52.0	14.0	2.00	QFM-4044-14
40.0	+0.150	44.0	52.0	40.0	2.00	QFM-4044-40
50.0		55.0	63.0	10.0	2.00	QFM-5055-10
50.0		55.0	63.0	50.0	2.00	QFM-5055-50
60.0	+0.060	65.0	78.0	50.0	2.00	QFM-6065-50
70.0	+0.180	75.0	83.0	50.0	2.00	QFM-7075-50

³⁾ After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/Q

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

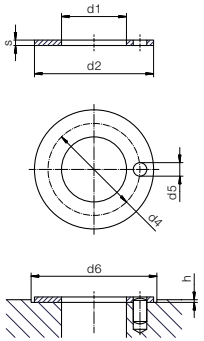
Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

Bearing technology | Plain bearings | iglidur® Q

Thrust washer (form T)





Dimensions according to ISO 3547-1 and special dimensions

Order example: QTM-2842-015 – no minimum order quantity.
Q iglidur® material **T** Thrust washer **M** Metric **28** Inner Ø d1 **42** Outer Ø d2 **015** Height s

d1	d2	d4	d5	h	d6	Øs	Part No.
+0.25	-0.25	-0.12 +0.12	+0.375 +0.125	+0.2/-0.2	+0.12	-0.05	
[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]	
28	42	35	4	1	42	1.5	**QTM-2842-015**
32	54	[4]	4	1	54	1.5	**QTM-3254-015**

[4] Design without fixing hole

Available from stock
Detailed information about delivery time online.
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Order online
including delivery times, prices, online tools
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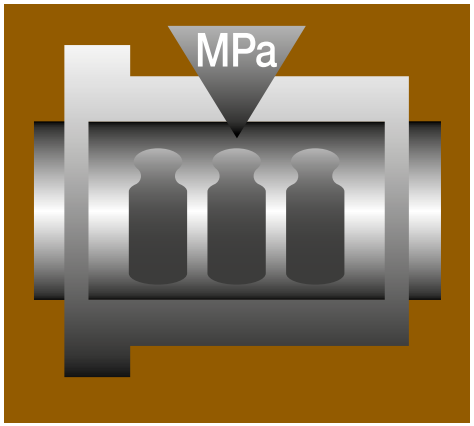
Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

EN 09/2023





Heavy-duty on soft shafts

For medium to high loads, especially on soft shafts

iglidur® Q290

When to use it?
- When a long-lasting plain bearing is required for tough operating conditions (agricultural equipment, construction machinery, etc.) with medium to high dynamic loads on "soft" shafts

When not to use it?
- When permanent static loads higher than 55MPa occur
  iglidur® G, iglidur® Q, iglidur® Q2
- When an very wear-resistant plain bearing is required on "soft" shafts for minor loads
  iglidur® J, iglidur® J3
- When continuous operating temperatures are higher than +140°C
  iglidur® J350, iglidur® Z

EN 09/2023

Bearing technology | Plain bearings | iglidur® Q290

Ø 20.0-80.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Heavy-duty on soft shafts

For medium to high loads, especially on soft shafts

iglidur® Q290 shows outstanding service life in tough pivoting applications, as they are frequently found in agricultural machinery, especially on "soft" coated shafts (e.g. galvanised). The wear on the shafts is minimal.

- Recommended for soft shafts
- Suitable for high edge pressures
- Temperature-resistant up to +140°C
- Good price-performance ratio
- Lubrication-free
- Maintenance-free

Typical application areas

- Agricultural engineering
- Utility and construction vehicles

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® Q290
+140°C
55MPa

Technical data

General properties			Testing method
Density	g/cm³	1.27	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	3	DIN 53495
Max. moisture absorption	% weight	9.3	
Coefficient of friction, dynamic, against steel	µ	0.14-0.26	
pv value, max. (dry)	MPa · m/s	0.70	
Mechanical properties			
Flexural modulus	MPa	3,074	DIN 53457
Flexural strength at +20°C	MPa	97	DIN 53452
Compressive strength	MPa	68	
Max. permissible surface pressure (+20°C)	MPa	55	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+140	
Max. application temperature short-term	°C	+180	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Table 01: Material properties

-40°C up to +140°C

55MPa

HB

RoHS-II

ISO 3547-1

iglidur® Q290 plain bearings do not have the highest static load capacity within the iglidur® product range, instead the material shows its strengths at medium to high dynamic loads: outstanding service life is achieved for tough pivoting applications, e.g. in agricultural or construction machinery, and especially on "soft" shafts, for both the shafts and bearings!

Moisture absorption

The humidity absorption of iglidur® Q290 bearings amounts to about 0.3% weight in standard climatic conditions. The saturation limit submerged in water is 9.3% weight.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® Q290 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® Q290 plain bearings are resistant to weathering. The material properties are significantly affected. Severe discolouration occurs. Applications with this material under weathering conditions are not recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® Q290 plain bearings decreases. Diagram 02 shows this inverse relationship. At the short-term permitted application temperature of +180°C, the permitted surface pressure is still 10MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

Diagram 03 shows the elastic deformation of iglidur® Q290 under different loads. These high elastic deformation values, even for loads of more than 50MPa, contribute significantly to the long service life under tough environmental conditions such as edge loads, collisions and impacts.

Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® Q290

Permissible surface speeds

Typical applications for iglidur® Q290 plain bearings are pivoting movements under medium to high loads at comparatively low speeds. However, relatively high speeds are still attainable. The speeds shown in table 03 are threshold values for low bearing loads. They do not provide any indication of the wear resistance under these parameters.

Surface speed, page 48

Temperature

The long-term upper temperature limit of +140°C permits the broad use in applications typical for the agricultural, utility vehicle or construction equipment sectors. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Please note that a sliding surface with a rough surface finish will increase the friction. The coefficient of friction of iglidur® Q290 increases as the speed increases (diagram 04). In contrast, the coefficient of friction drops continually with the radial load, as illustrated by diagram 05.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Generally, the use of hardened shafts is recommended for higher loads starting at approximately 10MPa. This is, however, often not the case in practice, especially in connection with corrosion-resistant coating methods. Thus, the iglidur® Q290 material has a lot of importance in such applications. Diagram 08 shows this very clearly in connection with galvanised shafts. The special suitability for pivoting applications is shown in diagram 07.

Shaft materials, page 56

Installation tolerances

iglidur® Q290 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	1.0
Short-term	m/s	2.0	1.4	2.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.14-0.26	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

iglidur® Q290
+140°C
55MPa

Technical data

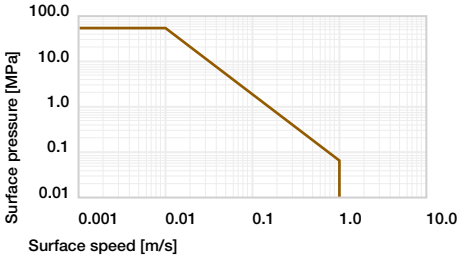


Diagram 01: Permissible pv values for iglidur® Q290 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

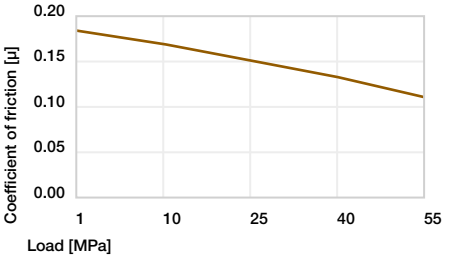


Diagram 05: Coefficient of friction as a function of the load, v = 0.01m/s against Cf53

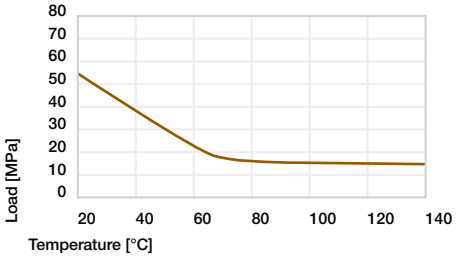


Diagram 02: Maximum recommended surface pressure as a function of temperature (55MPa at +20°C)

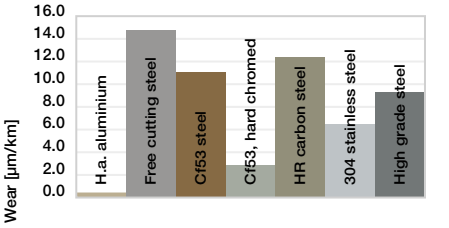


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

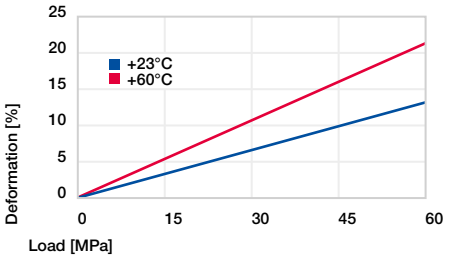


Diagram 03: Deformation under pressure and temperature

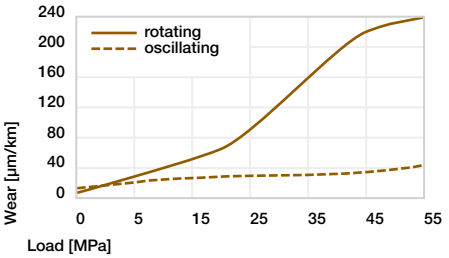


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

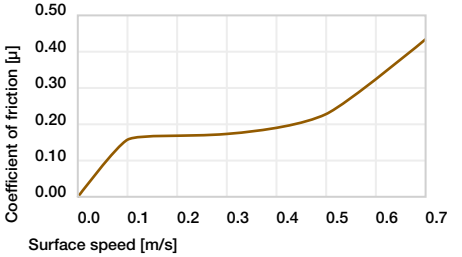


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

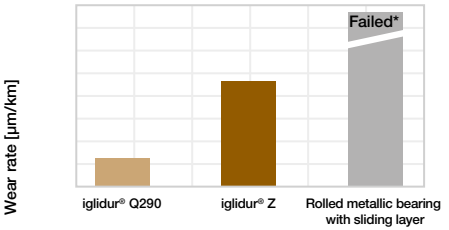


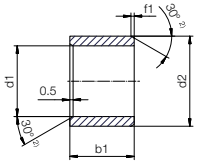
Diagram 08: Wear, pivoting applications on galvanised shafts, p >50MPa, v = 0.01m/s

* Shaft St52 galvanised. Cycle frequency 60,000. Tested with bearing diameter 20mm and 20mm length. The force in the test was 30,400N

Bearing technology | Plain bearings | iglidur® Q290

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 12-30	Ø > 30
f1 [mm]	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: Q290SM-2023-20 – no minimum order quantity.
Q290 iglidur® material S Cylindrical M Metric 20 Inner Ø d1 23 Outer Ø d2 20 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
20.0	+0.040 +0.124	23.0	20.0	**Q290SM-2023-20**
25.0		28.0	30.0	**Q290SM-2528-30**
30.0		34.0	30.0	**Q290SM-3034-30**
30.0		34.0	40.0	**Q290SM-3034-40**
35.0	+0.050 +0.150	39.0	30.0	**Q290SM-3539-30**
35.0		39.0	40.0	**Q290SM-3539-40**
35.0		39.0	50.0	**Q290SM-3539-50**
40.0		44.0	40.0	**Q290SM-4044-40**
50.0		55.0	50.0	**Q290SM-5055-50**
60.0	+0.060 +0.180	65.0	60.0	**Q290SM-6065-60**
65.0		70.0	60.0	**Q290SM-6570-60**
70.0		75.0	60.0	**Q290SM-7075-60**
80.0		85.0	100.0	**Q290SM-8085-100**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/Q290

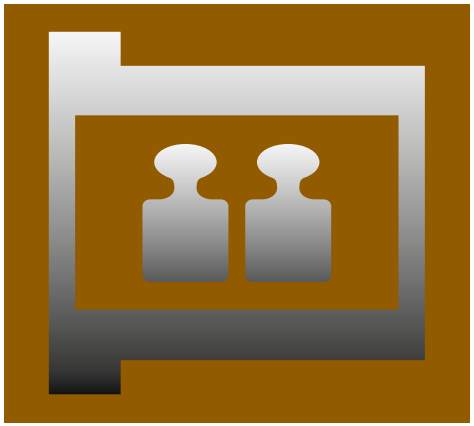
Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

EN 09/2023





For medium-sized loads

Low coefficient of friction and wear on almost every shaft

iglidur® M210

When to use it?
- When a universal plain bearing for use in a wet environment is required
- When a wear-resistant plain bearing for pivoting applications at medium loads is required
- When edge loads and shocks occur
- When the surface pressure of iglidur® J is insufficient

When not to use it?
- When a universal plain bearing with the largest possible range of dimensions is required
  iglidur® G
- When a plain bearing for highly loaded pivoting applications is required
  iglidur® Q, iglidur® Q2
- When temperatures are higher than +100°C
  iglidur® G, iglidur® J350

EN 09/2023

Bearing technology | Plain bearings | iglidur® M210

Ø
20.0-60.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For medium-sized loads

Low coefficient of friction and wear on almost every shaft

iglidur® M210 was specifically developed for the application for medium pivoting loads. Special attention was paid during development to ensure the material can be used for injection-moulded thick-walled bearings. Therefore iglidur® M210 is well-suited for applications in which thick-walled bearings are used or replaced, which are at the same robust.

- Good wear resistance at room temperature
- Excellent friction coefficients
- Low moisture absorption
- Extremely resistant to edge pressure
- Resistant to shocks and impact
- Resistant to dirt and dust
- Fogging behaviour according to DIN 75201-B

Typical application areas

- Agricultural engineering
- Mechanical engineering
- Furniture / Industrial design
- Textile industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® M210
+100°C
50MPa

Technical data

General properties			Testing method
Density	g/cm³	1.40	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	
Coefficient of friction, dynamic, against steel	µ	0.08-0.20	
pv value, max. (dry)	MPa · m/s	0.5	
Mechanical properties			
Flexural modulus	MPa	2,200	DIN 53457
Flexural strength at +20°C	MPa	65	DIN 53452
Compressive strength	MPa	50	
Max. permissible surface pressure (+20°C)	MPa	50	
Shore D hardness		75	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+160	
Min. application temperature	°C	up to -40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	8	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	n.s.	
Surface resistance	Ω	$> 10^{11}$	DIN 53482

Table 01: Material properties

-40°C up to +100°C

50MPa

HB

RoHS-II

ISO 2795

iglidur® M210 plain bearings provide the user with versatile all-round bearings, which have proven to have above average service life, primarily in pivoting applications at medium loads of up to 20MPa.

Moisture absorption
The humidity absorption of iglidur® M210 bearings amounts to about 0.3 % weight in standard climatic conditions. The saturation limit submerged in water is 0.5% weight. This low moisture absorption is well below the values of iglidur® G.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance
Plain bearings made from iglidur® M210 have limited use under radioactive radiation. They are resistant up to a radiation intensity of 3 - 10^2 Gy.

Resistance to weathering
iglidur® M210 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® M210 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® M210 as a function of radial pressure. At the recommended maximum surface pressure of 50MPa the deformation is less than 3% at room temperature.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® M210

Permissible surface speeds

Plain bearings made from iglidur® M210 are maintenance-free, they are developed for low to medium surface speeds. The maximum values given in table 03 can only be achieved at a very low surface pressure. The maximum speed given is the speed at which an increase up to the continuous use temperature occurs due to friction.

Surface speed, page 48

Temperature

Also thanks to its maximum long-term application temperature of +100°C, iglidur® M210 is suitable for a wide range of applications. If even higher temperatures are required, iglidur® G is also available with a max. long-term application temperature of +130°C. The temperatures prevailing in the bearing system also have an influence on the wear. The wear rises with increasing temperatures. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® M210. For rotational movements at radial loads below 1MPa, iglidur® M210 has generally very low wear. Wear is only significantly higher in combination with HR carbon steel shafts. Generally, rotational wear will be higher than for a pivoting application of equal load. This is only reversed at loads above 25MPa (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® M210 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0
Diluted alkalines	–
Fuels	+
Greases, oils without additives	+
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	0.7	8.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings D11 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.020	+0.080	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.030	+0.105	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.040	+0.130	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.050	+0.160	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.065	+0.195	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.080	+0.240	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.100	+0.290	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.120	+0.340	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.145	+0.395	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 2795 after press-fit

Technical data

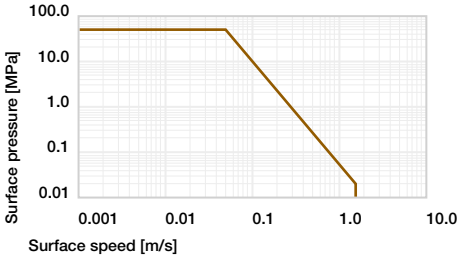


Diagram 01: Permissible pv values for iglidur® M210 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

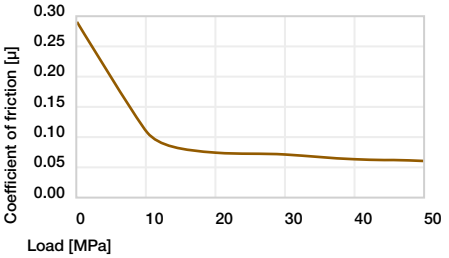


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

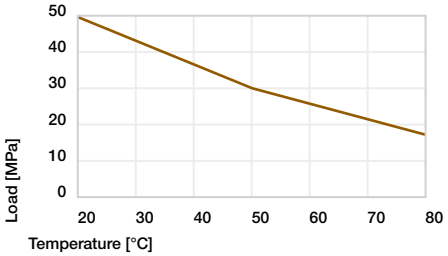


Diagram 02: Maximum recommended surface pressure as a function of temperature (50MPa at +20°C)

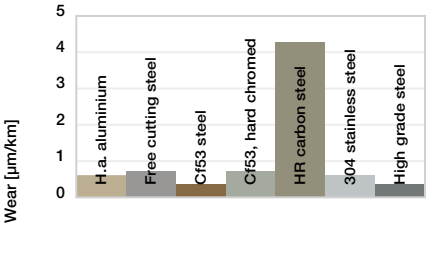


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

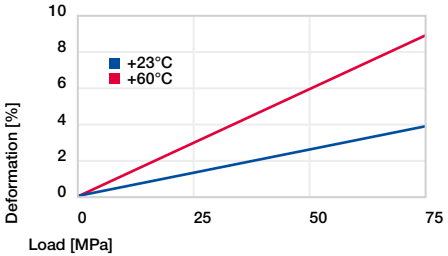


Diagram 03: Deformation under pressure and temperature

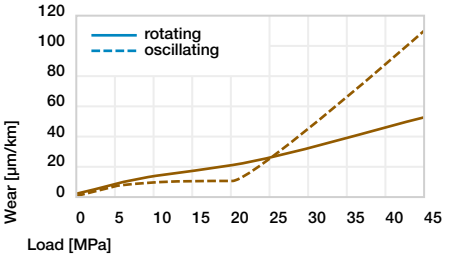


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

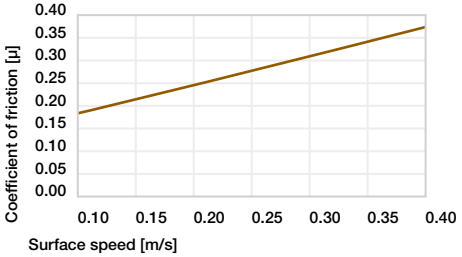
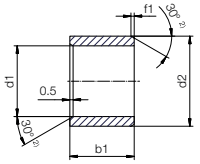


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® M210

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 2795 and special dimensions

Order example: M210SM-2024-25 - no minimum order quantity.
M210 iglidur® material S Cylindrical M Metric 20 Inner Ø d1 24 Outer Ø d2 25 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
20.0	+0.040 +0.124	24.0	25.0	**M210SM-2024-25**
20.0	+0.040 +0.124	28.0	20.0	**M210SM-2028-20**
30.0	+0.040 +0.124	36.0	30.0	**M210SM-3036-30**
40.0	+0.050 +0.150	50.0	40.0	**M210SM-4050-40**
60.0	+0.060 +0.180	70.0	60.0	**M210SM-6070-60**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/M210

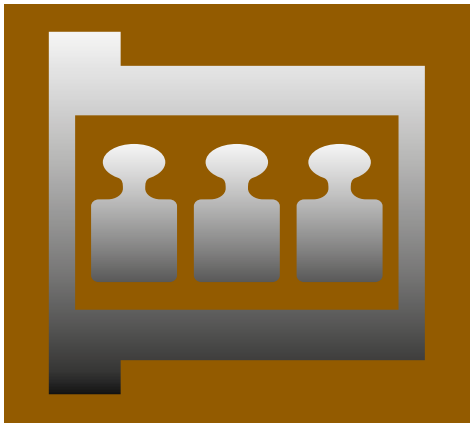
Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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For heavy duty

Wear-resistant at medium temperatures and loads

iglidur® M260

When to use it?
- When polymer shafts are used
- When the temperature rating of iglidur® J is not sufficient
- When a plain bearing with low coefficient of friction is required
- When high wear resistance is required at medium loads
- When good liquid media resistance is required

When not to use it?
- When high surface pressures occur
  iglidur® Z
- When permanent temperatures exceed +120°C
  iglidur® J350
- When universal wear resistance is required
  iglidur® J

EN 09/2023

Bearing technology | Plain bearings | iglidur® M260

Ø
20.0-60.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For heavy duty
Wear-resistant at medium temperatures and loads

iglidur® M260 was specially developed for the application in harsh environments. Special attention was paid during development to ensure the material can be used for injection-moulded thick-walled bearings. Therefore iglidur® M260 is well-suited for applications in which thick-walled bearings are used or replaced, which are at the same robust.

- Excellent coefficient of friction
- Low moisture absorption

Typical application areas

- Automation
- Plant construction
- Test engineering and quality assurance
- Robotics industry
- Electronics industry

Descriptive technical specifications			
Wear resistance at +23°C	–	■■■□□	+
Wear resistance at +90°C	–	■■■□□	+
Wear resistance at +150°C	–	■■□□□	+
Slide property	–	■■■■□	+
Wear resistance under water	–	■■□□□	+
Media resistance	–	■■■□□	+
Resistant to edge pressures	–	■■■□□	+
Resistant to shock and impact loads	–	■■■□□	+
Dirt resistance	–	■■■□□	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

Technical data

General properties			Testing method
Density	g/cm³	1.35	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.4	
Coefficient of friction, dynamic, against steel	µ	0.08-0.16	
pv value, max. (dry)	MPa · m/s	0.35	
Mechanical properties			
Flexural modulus	MPa	2,200	DIN 53457
Flexural strength at +20°C	MPa	60	DIN 53452
Compressive strength	MPa	50	
Max. permissible surface pressure (+20°C)	MPa	40	
Shore D hardness		77	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+120	
Max. application temperature short-term	°C	+140	
Min. application temperature	°C	up to -100	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	13	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	n.s.	
Surface resistance	Ω	$> 10^{10}$	DIN 53482

Table 01: Material properties

-100 °C to +120 °C

40MPa

V-2

RoHS-II

ISO 2795

Similar to the classic, iglidur® J, iglidur® M260 is an endurance runner with outstanding wear behaviour, but provides increased reserves at its long-term application temperature of +120°C.

Moisture absorption

The moisture absorption of iglidur® M260 plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 0.4% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® M260 bearings.

Radiation resistance

They are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® M260 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® M260 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® M260 as a function of radial pressure. At the recommended maximum surface pressure of 40MPa the deformation is less than 2.5% at room temperature. A possible deformation could be, among others, dependant on the duty cycle of the load.

Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® M260

Permissible surface speeds

iglidur® M260 has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +80°C. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases considerably with increasing loads, whereas a slight increase in surface speed causes an increase of the coefficient of friction (Diagram 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® M260 a ground surface with an average surface finish Ra = 0.8μm is recommended. Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® M260. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The "soft" shafts tend to wear more easily and thus increase the wear of the overall system, if the loads exceed 2MPa. The comparison of rotating and pivoting movements in diagram 07 makes it very clear that iglidur® M260 plain bearings are most suited for rotating operation.

Shaft materials, page 56

Installation tolerances

iglidur® M260 plain bearings are standard bearings for shafts with h tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	–
Diluted alkalines	+ up to 0
Fuels	–
Greases, oils without additives	0 up to –
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	0.7	8.0
Short-term	m/s	2.0	1.4	4.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.16	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.020	+0.080	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.030	+0.105	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.040	+0.130	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.050	+0.160	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.065	+0.195	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.080	+0.240	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.100	+0.290	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.120	+0.340	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.145	+0.395	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 2795 after press-fit

Technical data

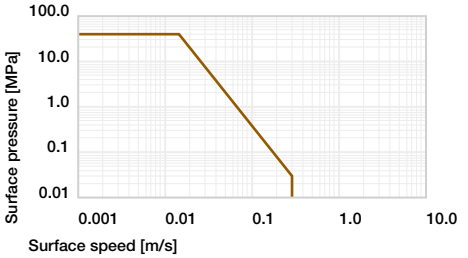


Diagram 01: Permissible pv values for iglidur® M260 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

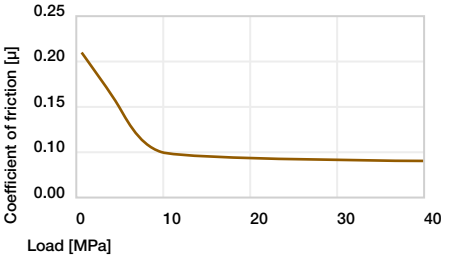


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

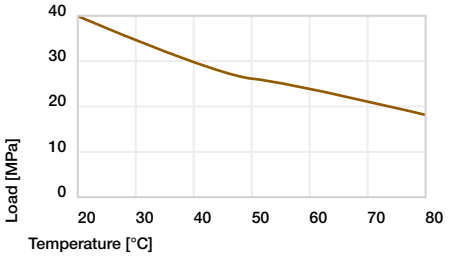


Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

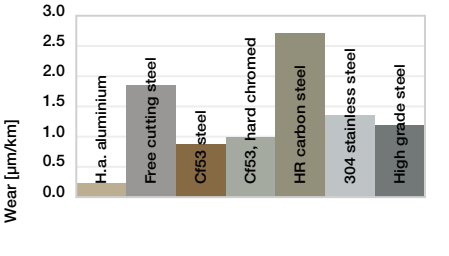


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

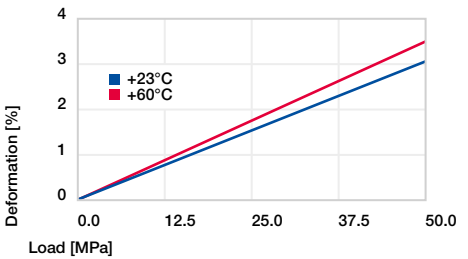


Diagram 03: Deformation under pressure and temperature

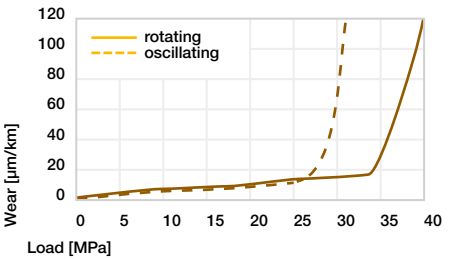


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

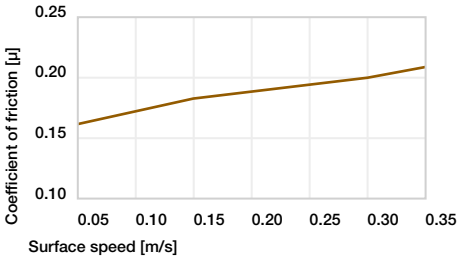
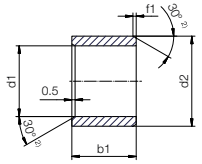


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® M260

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 2795 and special dimensions

Order example: M260SM-2024-25 - no minimum order quantity.
M260 iglidur® material S Cylindrical M Metric 20 Inner Ø d1 24 Outer Ø d2 25 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
20.0	+0.040 +0.124	24.0	25.0	**M260SM-2024-25**
20.0	+0.040 +0.124	28.0	20.0	**M260SM-2028-20**
30.0	+0.040 +0.124	36.0	30.0	**M260SM-3036-30**
40.0	+0.050 +0.150	50.0	40.0	**M260SM-4050-40**
60.0	+0.060 +0.180	70.0	60.0	**M260SM-6070-60**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/M260

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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Plain bearing materials for heavy-duty applications

Plain bearing materials for heavy-duty applications

The igutex® plain bearings for high load combine high wear resistance with the ability to withstand high (static) loads, shocks and edge loads.
For special mechanical strength, igutex® bearings are woven from fibre composites enabling even higher strength than fibre-reinforced injection-moulded bearings made of thermoplastics.

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert



igutex® TX1
The robust all-rounder

Temperature [°C] [123]	+120	– +
Surface pressure [MPa] [124]	200	– +
Coefficient of friction [µ] [125]	0.37	– +
Wear [µm/km] [125]	7.10	– +
Price index		– +



igutex® TX2
The technical shafts specialist

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	180	– +
Coefficient of friction [µ] [125]	0.31	– +
Wear [µm/km] [125]	5.80	– +
Price index		– +



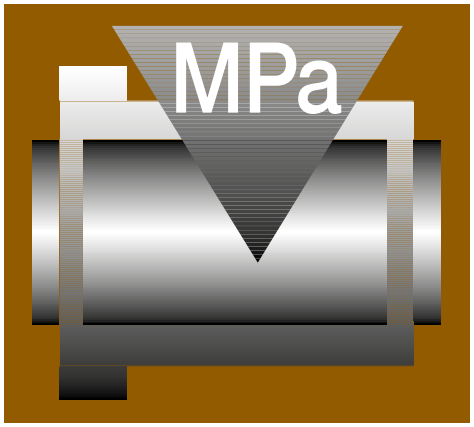
igutex® TX3
The endurance runner for the highest loads

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	180	– +
Coefficient of friction [µ] [125]	0.28	– +
Wear [µm/km] [125]	2.00	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating

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The robust all-rounder

For pivoting applications under extreme loads

igutex® TX1

When to use it?
- When very high permanent static loads occur
- For highly loaded pivoting movements
- When not only high loads but also high temperatures and media resistance are required

When not to use it?
- When loads of far less than 75MPa occur
  iglidur® G, iglidur® Q2, iglidur® Q
- For rotational movements during continuous operation
  iglidur® W300, iglidur® Z, iglidur® G
- For high-temperature applications with average load levels
  iglidur® X, iglidur® J350, iglidur® H

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Ø 20.0-80.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The robust all-rounder
For pivoting applications under extreme loads

Outstanding rigidity and durability especially under high radial loads during pivoting operations characterise the plain bearings in the new igutex® TX1 series. Thanks to the closed-loop wound structure, excellent dimensional stability is achieved in cases of major forces and impacts.

- Suitable for static loads up to 200MPa
- Wear-resistant
- High media resistance
- Lubrication-free
- Suitable for dynamic loads up to 140MPa
- Maintenance-free
- High rigidity

Typical application areas

- Agricultural engineering
- Utility and construction vehicles
- Heavy equipments

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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igutex® TX1
+120°C
200MPa

Technical data

General properties			Testing method
Density	g/cm³	2.10	
Colour		grey-green	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.5	
Mechanical properties			
Max. permissible surface pressure (+20°C)	MPa	200	
Shore D hardness		94	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+120	
Max. application temperature short-term	°C	+170	
Min. application temperature	°C	-60	
Electrical properties			
Specific transitional resistance	Ωcm	> 1 x 10^{11}	DIN IEC 93
Surface resistance	Ω	> 1 x 10^{13}	DIN 53482

Table 01: Material properties

-60°C up to +120°C

200MPa

igutex® TX1 plain bearings represent very high load capacity with high radial loads and good abrasion resistance. The special design not only ensures excellent dimensional stability due to the long-fibre winding but also allows lubrication and maintenance-free operation thanks to solid lubricants. Dirt and media resistance round off the list of properties.

Permissible surface speeds

Typical applications for igutex® TX1 plain bearings are pivoting movements under high loads at comparatively low speeds.
Table 03

Temperature

igutex® TX1 is an extremely temperature-resistant material. The long-term upper temperature limit of +120°C permits the broad use in applications typical for the agricultural, utility vehicle or construction equipment sectors. The press-in and press-out forces of igutex® TX1 plain bearings are very high over the entire temperature range. As a result, additional axial securing is usually not necessary. Although these forces remain very high, a certain decrease can be observed at temperatures above +100°C and, in some cases axial securing is therefore recommended above this temperature.

Friction and wear

Please note that a sliding surface with a rough surface finish will increase the friction. Shafts that are too smooth also increase the coefficient of friction of the bearing. Surface finishes (Ra) of the shaft between 0.4-0.7µm are ideal. Furthermore, the coefficient of friction of igutex® TX1 plain bearings largely depends on the speed and load. As the surface speed increases, the coefficient of friction will quickly increase as well. With increasing load, the coefficient of friction however decreases continuously.

Shaft materials

In high load applications, we generally recommend the use of hardened shafts. This particularly applies when using igutex® TX1. However, acceptable wear rates are also achieved on soft shafts with heavy-duty pivoting of less than 100MPa.
Shaft materials, page 56

Installation tolerances

igutex® TX1 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance.

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Bearing technology | Plain bearings | igutex® TX1

Chemicals	Resistance
Alcohols	0
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating
Long-term	**m/s**	0.4	0.2
Short-term	**m/s**	0.9	0.5

Table 03: Maximum surface speeds

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		[mm]		h9 [mm]	
20-40	+0.000	+0.021	+0.020	+0.150	-0.052	+0.000
> 40-70	+0.000	+0.025	+0.025	+0.175	-0.062	+0.000
> 70-80	+0.000	+0.030	+0.050	+0.200	-0.074	+0.000

Table 04: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Hardness*	Roughness
> 55hrc	Ra 0.2 - 1.4µ

* Lower hardness can reduce the service life

Table 05: Hardness and roughness

igutex® TX1
+120°C
200MPa

Technical data

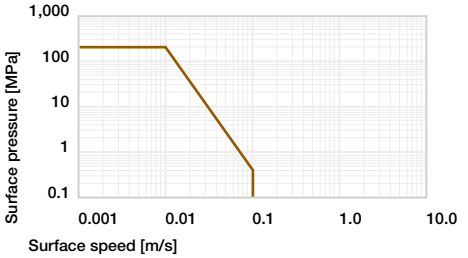


Diagram 01: Permissible pv values for igutex® TX1 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

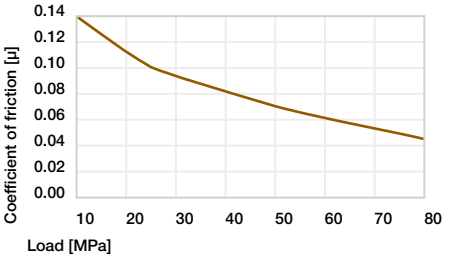


Diagram 03: Coefficient of friction as a function of the pressure, v = 0.01m/s

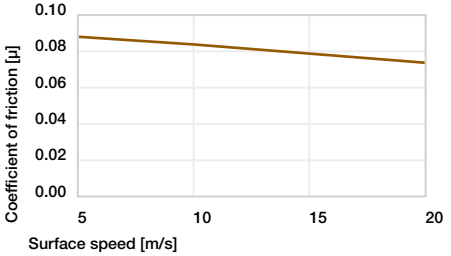


Diagram 02: Coefficient of friction as a function of the surface speed, p = 1MPa

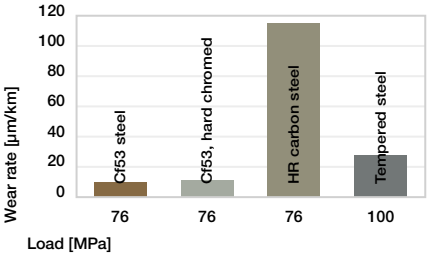


Diagram 04: Wear, rotating with different shaft materials, pressure, v = 0.01m/s

Bearing technology | Plain bearings | igutex® TX1

Sleeve bearings (form S)





Chamfer in relation to d1

d1 [mm]	Ø 12 – 30	Ø >30
f1 [mm]	0.8	1.2

[2] Thickness < 0.6mm: chamfer = 20°

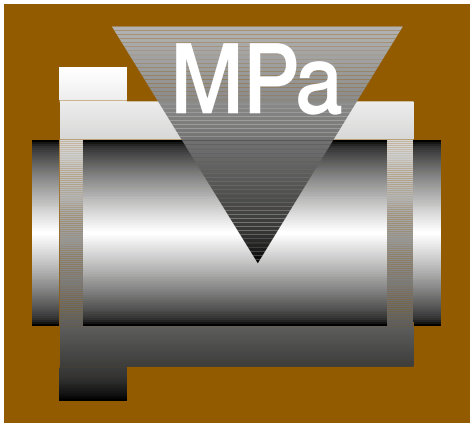
Dimensions according to ISO 2795 and special dimensions

Order example: TX1SM-2025-20 – no minimum order quantity.
TX1 igutex® material S Cylindrical M Metric 20 Inner Ø d1 25 Outer Ø d2 20 Total length b1

d1 [mm]	d1 Tolerance[38]	d2 [mm]	b1 h13 [mm]	Part No.
20.0		25.0	20.0	TX1SM-2025-20
20.0		25.0	30.0	TX1SM-2025-30
20.0		25.0	40.0	TX1SM-2025-40
20.0		30.0	30.0	TX1SM-2030-30
25.0		30.0	20.0	TX1SM-2530-20
25.0	+0.020 +0.150	30.0	30.0	TX1SM-2530-30
25.0		30.0	40.0	TX1SM-2530-40
30.0		35.0	30.0	TX1SM-3035-30
30.0		35.0	40.0	TX1SM-3035-40
30.0		40.0	40.0	TX1SM-3040-40
40.0		45.0	40.0	TX1SM-4045-40
40.0		50.0	50.0	TX1SM-4050-50
50.0		55.0	50.0	TX1SM-5055-50
50.0	+0.025 +0.175	60.0	60.0	TX1SM-5060-60
60.0		65.0	60.0	TX1SM-6065-60
60.0		70.0	80.0	TX1SM-6070-80
70.0		75.0	60.0	TX1SM-7075-60
70.0		80.0	100.0	TX1SM-7080-100
80.0	+0.050 +0.200	85.0	100.0	TX1SM-8085-100
80.0		90.0	100.0	TX1SM-8090-100

[38] After press-fit of the bearing in a housing with nominal dimension





The technical shafts specialist

Wear-resistant under extreme loads

igutex® TX2

When to use it?
- When very high permanent static loads occur
- For highly loaded pivoting movements
- When not only high loads but also high temperatures and media resistance are required

When not to use it?
- When loads of far less than 75MPa occur
  iglidur® G, iglidur® Q2, iglidur® Q
- For rotational movements during continuous operation
  iglidur® W300, iglidur® Z, iglidur® G
- For high-temperature applications with average load levels
  iglidur® X, iglidur® J350, iglidur® H

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Bearing technology | Plain bearings | igutex® TX2

Ø 20.0-80.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The technical shafts specialist
Wear-resistant under extreme loads

The new igutex® TX2 bearings were developed for use in particularly heavily loaded applications. The high-strength, wound structure with integrated solid lubricants ensures low-friction and maintenance-free operation - without any external lubrication.

- Particularly low wear in heavy-duty areas
- Up to three and a half times the wear resistance of igutex® TX1
- Good coefficient of wear and therefore a long service life

Typical application areas

- Agricultural engineering
- Utility and construction vehicles
- Heavy equipments

Online product finder
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Online service life calculation
www.igus.eu/iglidur-expert

igutex® TX2
+130°C
180MPa

Technical data

-60°C up to +130°C

180MPa

General properties			Testing method
Density	g/cm³	1.77	
Colour sliding layer		black	
Colour supporting layer		reddish brown	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.0	DIN 53495
Max. moisture absorption	% weight	1.3	
Mechanical properties			
Max. permissible surface pressure (+20°C)	MPa	180	
Shore D hardness		91	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+130	
Max. application temperature short-term	°C	+140	
Min. application temperature	°C	-60	
Electrical properties			
Specific transitional resistance	Ωcm	insulating	DIN IEC 93
Surface resistance	Ω	insulating	DIN 53482

Table 01: Material properties

igutex® TX2 plain bearings represent very high load capacity with high radial loads and good abrasion resistance. The special design not only ensures excellent dimensional stability due to the long-fibre winding but also allows lubrication and maintenance-free operation thanks to solid lubricants. Dirt and media resistance round off the list of properties.

Permissible surface speeds

Typical applications for igutex® TX2 plain bearings are pivoting movements under high loads at comparatively low speeds.
Table 03

Temperature

igutex® TX2 is an extremely temperature-resistant material. The long-term upper temperature limit of +130°C permits the broad use in applications typical for the agricultural, utility vehicle or construction equipment sectors. The press-in and press-out forces of igutex® TX2 plain bearings are very high over the entire temperature range. As a result, additional axial securing is usually not necessary. Although these forces remain very high, a certain decrease can be observed at temperatures above +100°C and, in some cases axial securing is therefore recommended above this temperature.

Friction and wear

Please note that a sliding surface with a rough surface finish will increase the friction. Shafts that are too smooth also increase the coefficient of friction of the bearing. Surface finishes (Ra) of the shaft between 0.4-0.7µm are ideal. Furthermore, the coefficient of friction of igutex® TX2 plain bearings largely depends on the speed and load. As the surface speed increases, the coefficient of friction will quickly increase as well. With increasing load, the coefficient of friction however decreases continuously.

Shaft materials

In high load applications, we generally recommend the use of hardened shafts. This particularly applies when using igutex® TX2. However, acceptable wear rates are also achieved on soft shafts with heavy-duty pivoting of less than 100MPa.
Shaft materials, page 56

Installation tolerances

igutex® TX2 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance.

Bearing technology | Plain bearings | igutex® TX2

igutex® TX2
+130°C
180MPa

Chemicals	Resistance
Alcohols	0
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating
Long-term	**m/s**	0.7	0.4
Short-term	**m/s**	1.0	0.7

Table 03: Maximum surface speeds

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		[mm]		h9 [mm]	
20-40	+0.000	+0.021	+0.020	+0.150	-0.052	+0.000
> 40-70	+0.000	+0.025	+0.025	+0.175	-0.062	+0.000
> 70-80	+0.000	+0.030	+0.050	+0.200	-0.074	+0.000

Table 04: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Hardness*	Roughness
> 55hrc	Ra 0.2 - 1.0µ

* Lower hardness can reduce the service life

Table 05: Hardness and roughness

Technical data

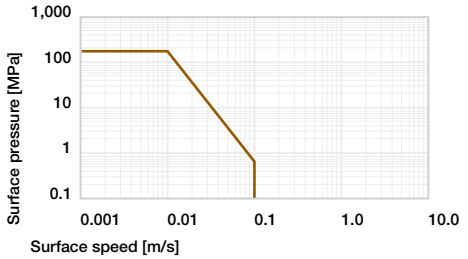


Diagram 01: Permissible pv values for igutex® TX2 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

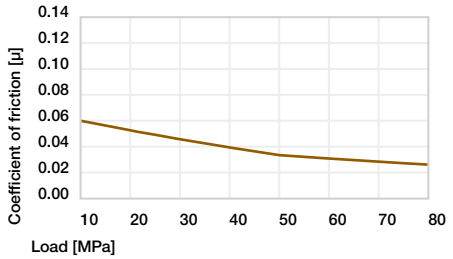


Diagram 03: Coefficient of friction as a function of the pressure, v = 0.01m/s

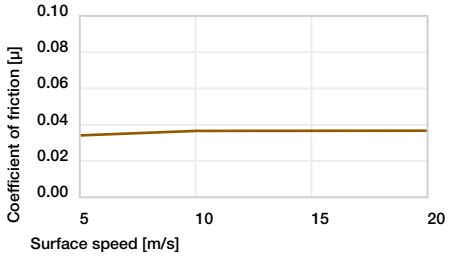


Diagram 02: Coefficient of friction as a function of the surface speed, p = 1MPa

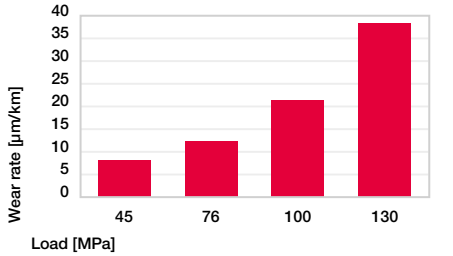
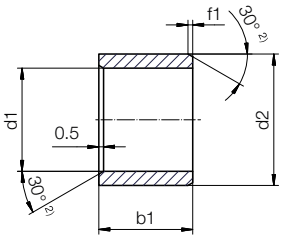


Diagram 04: Wear for oscillating applications with steel shaft material Cf53, hard-chromed, v = 0.01m/s

Bearing technology | Plain bearings | igutex® TX2

Sleeve bearings (form S)





2) Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 12 – 30	Ø >30
f1 [mm]	0.8	1.2

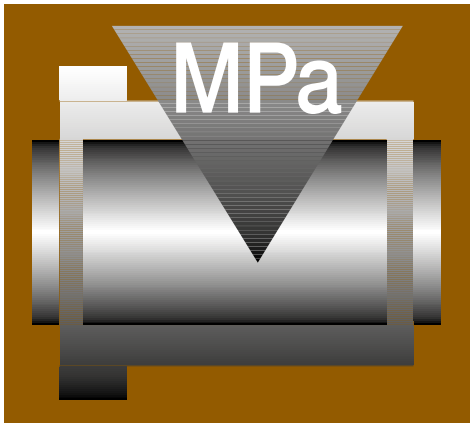
Dimensions according to ISO 2795 and special dimensions

Order example: TX2SM-2025-20 - no minimum order quantity.
TX2 igutex® material S Cylindrical M Metric 20 Inner Ø d1 25 Outer Ø d2 20 Total length b1

d1 [mm]	d1 Tolerance[38]	d2 [mm]	b1 h13 [mm]	Part No.
20.0		25.0	20.0	TX2SM-2025-20
20.0		25.0	30.0	TX2SM-2025-30
20.0		25.0	40.0	TX2SM-2025-40
20.0		30.0	30.0	TX2SM-2030-30
25.0		30.0	20.0	TX2SM-2530-20
25.0	+0.020 +0.150	30.0	30.0	TX2SM-2530-30
25.0		30.0	40.0	TX2SM-2530-40
30.0		35.0	30.0	TX2SM-3035-30
30.0		35.0	40.0	TX2SM-3035-40
30.0		40.0	40.0	TX2SM-3040-40
40.0		45.0	40.0	TX2SM-4045-40
40.0		50.0	50.0	TX2SM-4050-50
50.0		55.0	50.0	TX2SM-5055-50
50.0	+0.025 +0.175	60.0	60.0	TX2SM-5060-60
60.0		65.0	60.0	TX2SM-6065-60
60.0		70.0	80.0	TX2SM-6070-80
70.0		75.0	60.0	TX2SM-7075-60
70.0		80.0	100.0	TX2SM-7080-100
80.0	+0.050 +0.200	85.0	100.0	TX2SM-8085-100
80.0		90.0	100.0	TX2SM-8090-100

38) After press-fit of the bearing in a housing with nominal dimension





The endurance runner for the highest loads

For pivoting applications under extreme loads

igutex® TX3

When to use it?

- When very high permanent static loads occur
- For highly loaded pivoting movements
- When not only high loads but also high temperatures and media resistance are required

When not to use it?

- When loads of far less than 100MPa occur
  iglidur® G, iglidur® Q2, iglidur® Q
- For rotational movements during continuous operation
  iglidur® W300, iglidur® Z, iglidur® G
- For high-temperature applications with average load levels
  iglidur® X, iglidur® J350, iglidur® H

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Ø 20.0-80.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The endurance runner for the highest loads
For pivoting applications under extreme loads

Outstanding rigidity and durability especially under high radial loads during pivoting operations characterise the plain bearings in the new igutex® TX3 series. Thanks to the closed-loop wound structure, excellent dimensional stability is achieved in cases of major forces and impacts.

- Low wear rates in dry operation under extreme conditions
- No lubrication and maintenance
- Tested in the igus® test laboratory at up to 100MPa and pivoting of 0.01m/s
- Long service life due to low wear; no additional lubrication required

Typical application areas

- Agricultural engineering
- Utility and construction vehicles
- Heavy equipments

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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igutex® TX3
+130°C
180MPa

Technical data

General properties			Testing method
Density	g/cm³	1.9	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.1	
Mechanical properties			
Max. permissible surface pressure (+20°C)	MPa	180	
Shore D hardness		91	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+130	
Max. application temperature short-term	°C	+140	
Min. application temperature	°C	-60	
Electrical properties			
Specific transitional resistance	Ωcm	insulating	DIN IEC 93
Surface resistance	Ω	insulating	DIN 53482

Table 01: Material properties

-60°C up to +130°C

180MPa

igutex® TX3 plain bearings represent very high load capacity with high radial loads and good abrasion resistance. The special design not only ensures excellent dimensional stability due to the long-fibre winding but also allows lubrication and maintenance-free operation thanks to solid lubricants. Dirt and media resistance round off the list of properties.

Permissible surface speeds

Typical applications for igutex® TX3 plain bearings are pivoting movements under high loads at comparatively low speeds.
Table 03

Temperature

igutex® TX3 is an extremely temperature-resistant material. The long-term upper temperature limit of +130°C permits the broad use in applications typical for the agricultural, utility vehicle or construction equipment sectors. The press-in and press-out forces of igutex® TX3 plain bearings are very high over the entire temperature range. As a result, additional axial securing is usually not necessary. Although these forces remain very high, a certain decrease can be observed at temperatures above +100°C and, in some cases axial securing is therefore recommended above this temperature.

Friction and wear

Please note that a sliding surface with a rough surface finish will increase the friction. Shafts that are too smooth also increase the coefficient of friction of the bearing. Surface finishes (Ra) of the shaft between 0.4-0.7µm are ideal. Furthermore, the coefficient of friction of igutex® TX3 plain bearings largely depends on the speed and load. As the surface speed increases, the coefficient of friction will quickly increase as well. With increasing load, the coefficient of friction however decreases continuously.

Shaft materials

In high load applications, we generally recommend the use of hardened shafts. This particularly applies when using igutex® TX3. However, acceptable wear rates are also achieved on soft shafts with heavy-duty pivoting of less than 100MPa.
Shaft materials, page 56

Installation tolerances

igutex® TX3 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance.

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Bearing technology | Plain bearings | igutex® TX3

Chemicals	Resistance
Alcohols	0
Diluted acids	+
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating
Long-term	**m/s**	0.7	0.4
Short-term	**m/s**	1.0	0.7

Table 03: Maximum surface speeds

Ø d1 [mm]	Housing H7 [mm]		Plain bearings [mm]		Shaft h9 [mm]	
20-40	+0.000	+0.021	+0.020	+0.150	-0.052	+0.000
> 40-70	+0.000	+0.025	+0.025	+0.175	-0.062	+0.000
> 70-80	+0.000	+0.030	+0.050	+0.200	-0.074	+0.000

Table 04: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Hardness*	Roughness
> 55hrc	Ra 0.2 - 1.4µ

* Lower hardness can reduce the service life

Table 05: Hardness and roughness

igutex® TX3
+130°C
180MPa

Technical data

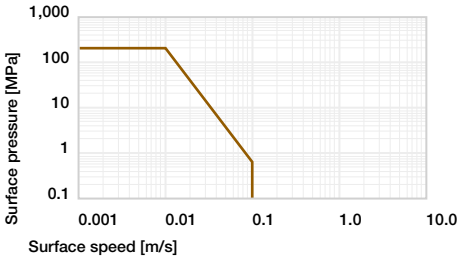


Diagram 01: Permissible pv values for igutex® TX3 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

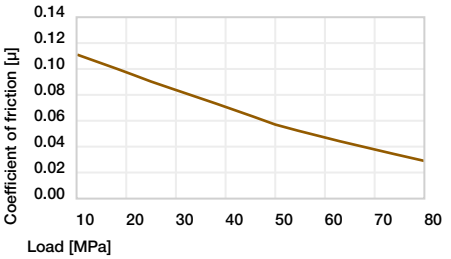


Diagram 03: Coefficient of friction as a function of the pressure, v = 0.01m/s

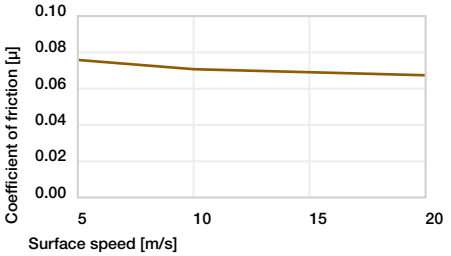


Diagram 02: Coefficient of friction as a function of the surface speed, p = 1MPa

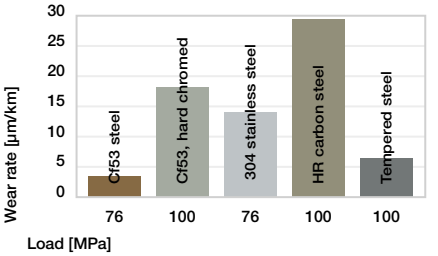
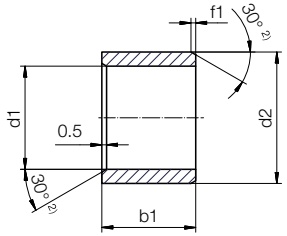


Diagram 04: Wear, rotating with different shaft materials, pressure, v = 0.01m/s

Bearing technology | Plain bearings | igutex® TX3

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 12 – 30	Ø >30
f1 [mm]	0.8	1.2

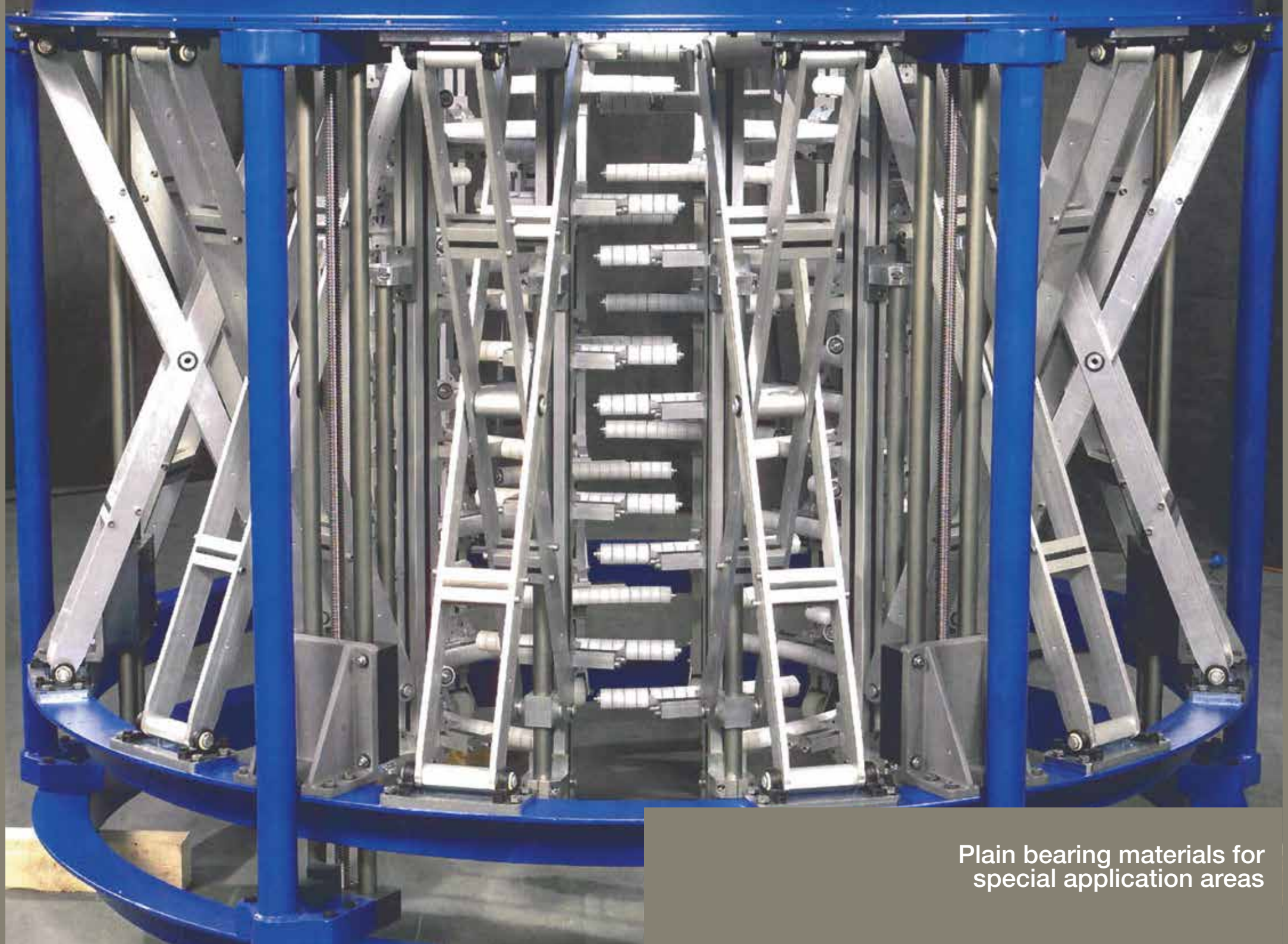
Dimensions according to ISO 2795 and special dimensions

Order example: TX3SM-2025-20 - no minimum order quantity.
TX3 igutex® material S Cylindrical M Metric 20 Inner Ø d1 25 Outer Ø d2 20 Total length b1

d1 [mm]	d1 Tolerance[38]	d2 [mm]	b1 h13 [mm]	Part No.
20.0		25.0	20.0	TX3SM-2025-20
20.0		25.0	30.0	TX3SM-2025-30
20.0		25.0	40.0	TX3SM-2025-40
20.0		30.0	30.0	TX3SM-2030-30
25.0		30.0	20.0	TX3SM-2530-20
25.0	+0.020 +0.150	30.0	30.0	TX3SM-2530-30
25.0		30.0	40.0	TX3SM-2530-40
30.0		35.0	30.0	TX3SM-3035-30
30.0		35.0	40.0	TX3SM-3035-40
30.0		40.0	40.0	TX3SM-3040-40
40.0		45.0	40.0	TX3SM-4045-40
40.0		50.0	50.0	TX3SM-4050-50
50.0		55.0	50.0	TX3SM-5055-50
50.0	+0.025 +0.175	60.0	60.0	TX3SM-5060-60
60.0		65.0	60.0	TX3SM-6065-60
60.0		70.0	80.0	TX3SM-6070-80
70.0		75.0	60.0	TX3SM-7075-60
70.0		80.0	100.0	TX3SM-7080-100
80.0	+0.050 +0.200	85.0	100.0	TX3SM-8085-100
80.0		90.0	100.0	TX3SM-8090-100

[38] After press-fit of the bearing in a housing with nominal dimension

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Plain bearing materials for special application areas

Plain bearing materials for special application areas

This group brings together the iglidur® materials for very special cases. Those who have not yet found a suitable bearing, will find it here.
Electrical conductivity, free from PTFE and silicone or fast rotation under water: one iglidur® material for all requirements.

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert



iglidur® F
Electrically conductive

Temperature [°C] [123]	+140	– +
Surface pressure [MPa] [124]	105	– +
Coefficient of friction [µ] [125]	0.37	– +
Wear [µm/km] [125]	1.00	– +
Price index		– +



iglidur® F2
ESD-compatible all-rounder

Temperature [°C] [123]	+120	– +
Surface pressure [MPa] [124]	47	– +
Coefficient of friction [µ] [125]	0.16	– +
Wear [µm/km] [125]	1.53	– +
Price index		– +



iglidur® H4
The automotive standard

Temperature [°C] [123]	+200	– +
Surface pressure [MPa] [124]	65	– +
Coefficient of friction [µ] [125]	0.21	– +
Wear [µm/km] [125]	2.10	– +
Price index		– +



iglidur® UW
For fast rotation under water

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	40	– +
Coefficient of friction [µ] [125]	0.24	– +
Wear [µm/km] [125]	1.80	– +
Price index		– +



iglidur® J UV
For continuous direct sunlight

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	34	– +
Coefficient of friction [µ] [125]	0.19	– +
Wear [µm/km] [125]	0.25	– +
Price index		– +

[123] Upper long-term application temperature [124] Max. recommended surface pressure at +20°C [125] Best pairing for p = 1 MPa, v = 0.3m/s, rotating

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iglidur® N54
The biopolymer

Temperature [°C] [123]	+80	– +
Surface pressure [MPa] [124]	36	– +
Coefficient of friction [µ] [125]	0.14	– +
Wear [µm/km] [125]	0.20	– +
Price index		– +



iglidur® G V0
Low-cost all-rounder for fire protection

Temperature [°C] [123]	+130	– +
Surface pressure [MPa] [124]	75	– +
Coefficient of friction [µ] [125]	0.20	– +
Wear [µm/km] [125]	2.10	– +
Price index		– +



iglidur® J2
Versatile and cost-effective

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	46	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	5.00	– +
Price index		– +



iglidur® AB
The first antibacterial iglidur® plain bearing

Temperature [°C] [123]	+70	– +
Surface pressure [MPa] [124]	25	– +
Coefficient of friction [µ] [125]	0.18	– +
Wear [µm/km] [125]	1.00	- +
Price index		– +



iglidur® RW370
For the rail industry, complies with DIN EN 45545 HL3, R22/R23

Temperature [°C] [123]	+170	– +
Surface pressure [MPa] [124]	75	– +
Coefficient of friction [µ] [125]	0.13	– +
Wear [µm/km] [125]	1.15	– +
Price index		– +



iglidur® B
The variable one

Temperature [°C] [123]	+100	– +
Surface pressure [MPa] [124]	40	– +
Coefficient of friction [µ] [125]	0.27	– +
Wear [µm/km] [125]	1.72	– +
Price index		– +



iglidur® C
Free from PTFE and silicone

Temperature [°C] [123]	+90	– +
Surface pressure [MPa] [124]	40	– +
Coefficient of friction [µ] [125]	0.23	– +
Wear [µm/km] [125]	1.73	– +
Price index		– +

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Electrically conductive
Pressure-resistant
iglidur® F

When to use it?

- When the bearing should be electrically conductive
- For high static loads

When not to use it?

- When mechanical reaming of the bore is necessary
  iglidur® M250
- When the highest wear resistance is required
  iglidur® W300
- When very low coefficient of friction in dry operation is required
  iglidur® J
- For underwater applications
  iglidur® H370
- When a universal plain bearing is required
  iglidur® G

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Bearing technology | Plain bearings | iglidur® F

Ø
2.0-70.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Electrically conductive
Pressure-resistant

Outstanding rigidity and hardness as well as high conductivity: iglidur® F plain bearings can only be used in dry operations to a limited extent, but offer their fully mechanical benefits when lubricated with oil and grease.

- Electrically conductive
- High compressive strength
- High temperature resistance
- High pv values
- Chemical-resistant

Typical application areas

- Textile industry
- Automotive industry

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® F
+140°C
105MPa

Technical data

General properties			Testing method
Density	g/cm³	1.25	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.8	DIN 53495
Max. moisture absorption	% weight	8.4	
Coefficient of friction, dynamic, against steel	µ	0.10-0.39	
pv value, max. (dry)	MPa · m/s	0.34	
Mechanical properties			
Flexural modulus	MPa	11,600	DIN 53457
Flexural strength at +20°C	MPa	260	DIN 53452
Compressive strength	MPa	98	
Max. permissible surface pressure (+20°C)	MPa	105	
Shore D hardness		84	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+140	
Max. application temperature short-term	°C	+180	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.65	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	12	DIN 53752
Electrical properties[5]			
Specific transitional resistance	Ωcm	$< 10^3$	DIN IEC 93
Surface resistance	Ω	$< 10^2$	DIN 53482

[5] The good conductivity of this material can favour the generation of corrosion on the metallic contact components.

Table 01: Material properties

-40°C up to +140°C

105MPa

When plain bearings need to be electrically conductive, especially in applications that should keep out static, iglidur® F is the right choice. Moreover, the iglidur® F plain bearings are extremely pressure-resistant. At room temperature, they could be statically loaded up to 105MPa.

Moisture absorption

The moisture absorption of iglidur® F plain bearings in ambient conditions is approximately 1.8% weight. The saturation limit submerged in water is 8.4% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® F bearings.

Radiation resistance

Plain bearings made from iglidur® F are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® F plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® F plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +140°C, the permitted surface pressure still amounts to 50MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

Diagram 03 shows the elastic deformation of iglidur® F at radial loads. At the recommended maximum surface pressure of 105MPa the deformation is less than 3% at room temperature. A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® F

Permissible surface speeds

The maximum permitted surface speeds are based on the operation period and the type of motion. A plain bearing is the most stressed in long-term rotating motions. Here, the maximum speed for iglidur® F plain bearings is 0.8 m/s. The speeds stated in table 03 are limit values for the lowest bearing loads. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The ambient temperatures strongly influence the properties of plain bearings. With increasing temperatures, the compressive strength of iglidur® F plain bearings decreases. The wear also increases. For temperatures over +105°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

In dry operation, the coefficient of friction of iglidur® F plain bearings is not as favourable as those of many other iglidur® materials. However iglidur® plain bearings can be lubricated without any problems, and iglidur® F bearings attain excellent results among the lubricated iglidur® bearings.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® F. In the lowest load range, the hard-chromed shafts prove to be the most suitable shaft in rotating applications with iglidur® F bearings.

Shaft materials, page 56

Installation tolerances

iglidur® F plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After being assembled into a nominal size housing, the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.6	3.0
Short-term	m/s	1.5	1.1	6.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.10-0.39	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.020	+0.080	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.030	+0.105	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.040	+0.130	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.050	+0.160	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.065	+0.195	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.080	+0.240	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.100	+0.290	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.120	+0.340	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.145	+0.395	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

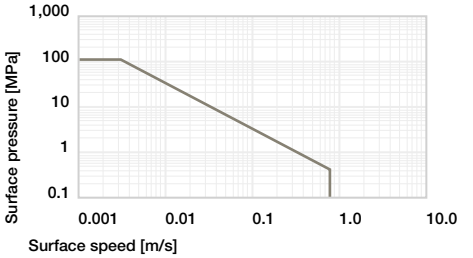


Diagram 01: Permissible pv values for iglidur® F plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

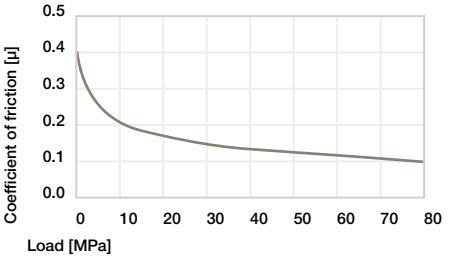


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

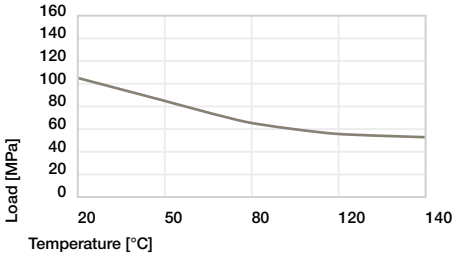


Diagram 02: Maximum recommended surface pressure as a function of temperature (150MPa at +20°C)

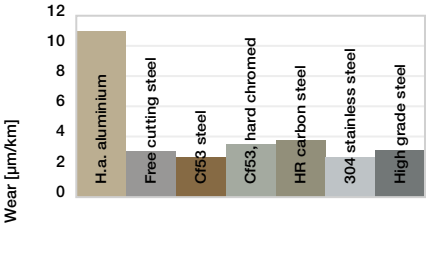


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

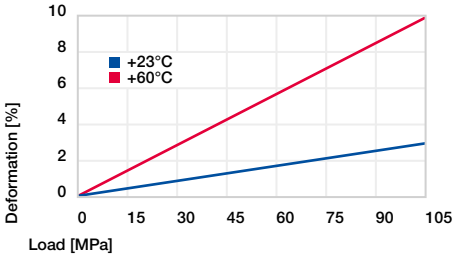


Diagram 03: Deformation under pressure and temperature

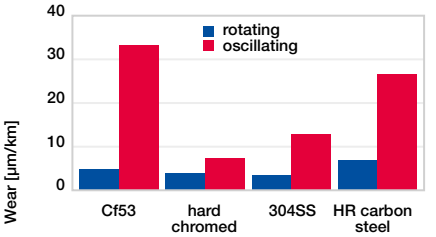


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

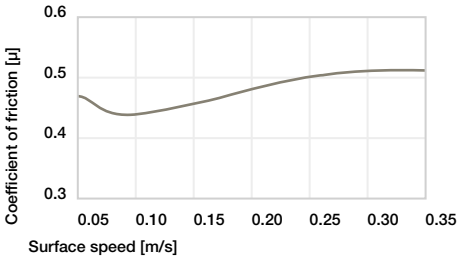
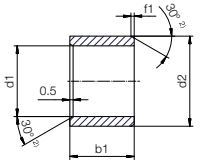


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® F

Sleeve bearings (form S)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: FSM-0203-03 – no minimum order quantity.
F iglidur® material S Cylindrical M Metric 02 Inner Ø d1 03 Outer Ø d2 03 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	b1 h13 [mm]	Part No.
2.0	+0.020 +0.080	3.5	3.0	FSM-0203-03
3.0		4.5	3.0	FSM-0304-03
4.0	+0.030 +0.105	5.5	4.0	FSM-0405-04
5.0		7.0	5.0	FSM-0507-05
5.0		7.0	8.0	FSM-0507-08
6.0		8.0	6.0	FSM-0608-06
6.0		8.0	8.0	FSM-0608-08
6.0		8.0	10.0	FSM-0608-10
6.0		8.0	13.8	FSM-0608-13
7.0	+0.040 +0.130	9.0	10.0	FSM-0709-10
7.0		9.0	12.0	FSM-0709-12
8.0		10.0	8.0	FSM-0810-08
8.0		10.0	10.0	FSM-0810-10
8.0		10.0	15.0	FSM-0810-15
10.0		12.0	6.0	FSM-1012-06
10.0		12.0	9.0	FSM-1012-09
10.0		12.0	10.0	FSM-1012-10
12.0	+0.050 +0.160	14.0	10.0	FSM-1214-10
12.0		14.0	15.0	FSM-1214-15
13.0		15.0	20.0	FSM-1315-20
14.0		16.0	15.0	FSM-1416-15
15.0		17.0	15.0	FSM-1517-15
15.0		17.0	20.0	FSM-1517-20
16.0		18.0	15.0	FSM-1618-15
18.0	+0.050 +0.160	20.0	12.0	FSM-1820-12
18.0		20.0	15.0	FSM-1820-15
18.0		20.0	20.0	FSM-1820-20
20.0	+0.065 +0.195	22.0	14.5	FSM-2022-14
20.0		22.0	20.0	FSM-2022-20
20.0		23.0	15.0	FSM-2023-15
20.0		23.0	20.0	FSM-2023-20
22.0		25.0	15.0	FSM-2225-15
25.0		28.0	20.0	FSM-2528-20
28.0		32.0	20.0	FSM-2832-20
28.0		32.0	30.0	FSM-2832-30
30.0		34.0	20.0	FSM-3034-20
30.0		34.0	30.0	FSM-3034-30
30.0		34.0	40.0	FSM-3034-40
32.0	+0.080 +0.240	36.0	30.0	FSM-3236-30
35.0		39.0	30.0	FSM-3539-30
35.0		39.0	40.0	FSM-3539-40
40.0		44.0	30.0	FSM-4044-30
40.0		44.0	50.0	FSM-4044-50
45.0		50.0	50.0	FSM-4550-50
50.0		55.0	40.0	FSM-5055-40
55.0	+0.100	60.0	50.0	FSM-5560-50
60.0	+0.290	65.0	60.0	FSM-6065-60

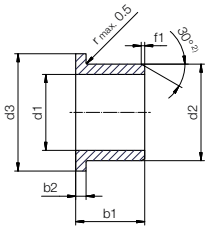
³⁾ After press-fit. *Testing methods, page 61*

iglidur® F
+140°C
105MPa

Bearing technology | Plain bearings | iglidur® F

Flange bearings (form F)





²⁾ Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: FFM-0405-04 – no minimum order quantity.
F iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	d3 d13³⁾ [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0	+0.030 +0.105	5.5	9.5	4.0	0.75	FFM-0405-04
4.0		5.5	9.5	6.0	0.75	FFM-0405-06
5.0		7.0	11.0	5.0	1.00	FFM-0507-05
6.0		8.0	12.0	6.0	1.00	FFM-0608-06
6.0		8.0	12.0	8.0	1.00	FFM-0608-08
8.0	+0.040 +0.130	10.0	15.0	6.0	1.00	FFM-0810-06
8.0		10.0	15.0	9.0	1.00	FFM-0810-09
10.0		12.0	18.0	6.0	1.00	FFM-1012-06
10.0		12.0	18.0	8.0	1.00	FFM-1012-08
10.0		12.0	18.0	9.0	1.00	FFM-1012-09
10.0		12.0	18.0	15.0	1.00	FFM-1012-15
10.0		12.0	18.0	18.0	1.00	FFM-1012-18
12.0	+0.050 +0.160	14.0	20.0	9.0	1.00	FFM-1214-09
12.0		14.0	20.0	12.0	1.00	FFM-1214-12
14.0		16.0	22.0	12.0	1.00	FFM-1416-12
14.0		16.0	22.0	17.0	1.00	FFM-1416-17
15.0		17.0	23.0	12.0	1.00	FFM-1517-12

d1 [mm]	d1 Tolerance³⁾	d2 [mm]	d3 d13³⁾ [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
15.0	+0.050 +0.160	17.0	23.0	17.0	1.00	FFM-1517-17
16.0		18.0	24.0	17.0	1.00	FFM-1618-17
18.0		20.0	26.0	12.0	1.00	FFM-1820-12
18.0		20.0	26.0	17.0	1.00	FFM-1820-17
20.0	+0.065 +0.195	23.0	30.0	21.0	1.50	FFM-2023-21
25.0		28.0	35.0	21.0	1.50	FFM-2528-21
30.0		34.0	42.0	26.0	2.00	FFM-3034-26
32.0	+0.080 +0.240	36.0	45.0	26.0	2.00	FFM-3236-26
35.0		39.0	47.0	6.0	2.00	FFM-3539-06
35.0		39.0	47.0	16.0	2.00	FFM-3539-16
35.0		39.0	47.0	26.0	2.00	FFM-3539-26
40.0		44.0	52.0	30.0	2.00	FFM-4044-30
40.0		44.0	52.0	40.0	2.00	FFM-4044-40
45.0		50.0	58.0	50.0	2.00	FFM-4550-50
50.0		55.0	63.0	10.0	2.00	FFM-5055-10
50.0		55.0	63.0	40.0	2.00	FFM-5055-40
60.0	+0.100	65.0	73.0	40.0	2.00	FFM-6065-40
70.0	+0.290	75.0	83.0	40.0	2.00	FFM-7075-40

³⁾ After press-fit. *Testing methods, page 61*





ESD-compatible all-rounder:
Electrically conductive
iglidur® F2

When to use it?

- When the bearing should be electrically discharging
- When a universal plain bearing is required

When not to use it?

- When a universal plain bearing without electrostatic discharge capacity is required
  iglidur® G, iglidur® P
- For underwater use
  iglidur® H370
- When the highest wear resistance is required
  iglidur® J, iglidur® W300

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Bearing technology | Plain bearings | iglidur® F2

Ø
5.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

ESD-compatible all-rounder:
Electrically conductive

iglidur® F2 helps to prevent the build-up of electrostatic charges. Good resistance to media and temperature, suitable even in wet conditions due to low moisture absorption and good universal coefficient of wear pave the way for a wide range of applications.

- Used to prevent electro-static charges
- Suitable for wet environments
- Lubrication-free
- Maintenance-free

Typical application areas

- Mechanical engineering
- Jig construction
- Industrial handling

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® F2
+120°C
47MPa

Technical data

General properties			Testing method
Density	g/cm³	1.52	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	0.4	
Coefficient of friction, dynamic, against steel	µ	0.16-0.22	
pv value, max. (dry)	MPa · m/s	0.31	
Mechanical properties			
Flexural modulus	MPa	7,418	DIN 53457
Flexural strength at +20°C	MPa	93	DIN 53452
Compressive strength	MPa	61	
Max. permissible surface pressure (+20°C)	MPa	47	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+120	
Max. application temperature short-term	°C	+165	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.61	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	5	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$< 10^9$	DIN IEC 93
Surface resistance	Ω	$< 10^9$	DIN 53482

-40°C up to +120°C

47MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

The prevention of electrostatic charge is an important requirement in many application areas. At the same time other technical application parameters such as wear resistance, media and temperature resistance, suitability in a wet environment etc. cannot be neglected. iglidur® F2 with its wide range of properties constitutes another universal bearing for numerous "ESD-suitable" applications.

Moisture absorption

The moisture absorption of iglidur® F2 plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 0.4% weight.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® F2 bearings.

Radiation resistance

Plain bearings made from iglidur® F2 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® F2 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® F2 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® F2 at radial loads. A plastic deformation can be negligible up to this value. However, it is also dependent on the service time.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® F2

Permissible surface speeds

The maximum permitted surface speeds are based on the operation period and the type of motion. A plain bearing is the most stressed in long-term rotating motions. Here, the maximum speed for iglidur® F2 plain bearings is 0.8m/s. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The ambient temperatures strongly influence the properties of plain bearings. With increasing temperatures, the compressive strength of iglidur® F2 plain bearings decreases. Diagram 02 shows this inverse relationship. For temperatures over +70°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Coefficient of friction and wear resistance are dependent on the application parameters (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 shows a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® F2. In the lower region of the load, free cutting steel and hard-anodised aluminium shafts, as well as HR carbon steel and hard-chromed steel shafts prove to be the most favourable in rotating applications with iglidur® F2 plain bearings with respect to wear. Diagram 07 shows significantly less wear in rotation compared to pivoting movements over the entire load range.

Shaft materials, page 56

Installation tolerances

iglidur® F2 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0
Diluted alkalines	–
Fuels	+
Greases, oils without additives	+
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.7	3.0
Short-term	m/s	1.4	1.1	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.16-0.22	0.01	0.05	0.03

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

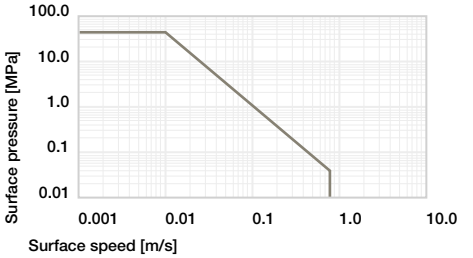


Diagram 01: Permissible pv values for iglidur® F2 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

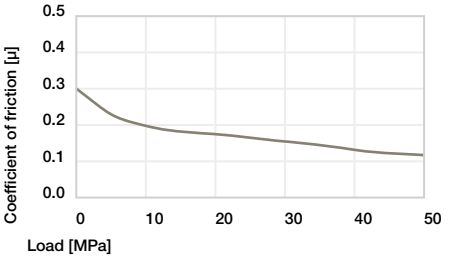


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

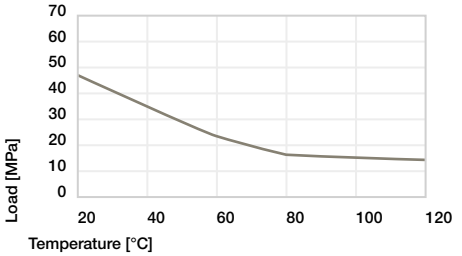


Diagram 02: Maximum recommended surface pressure as a function of temperature (47MPa at +20°C)

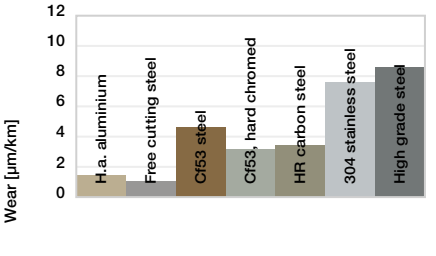


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

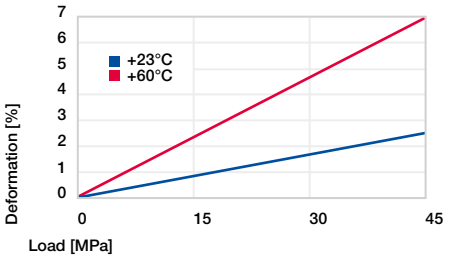


Diagram 03: Deformation under pressure and temperature

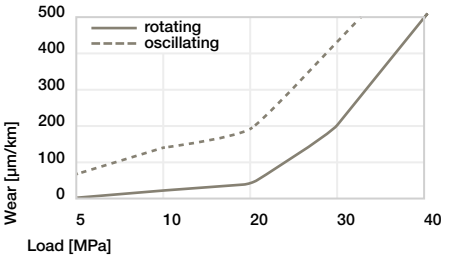


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

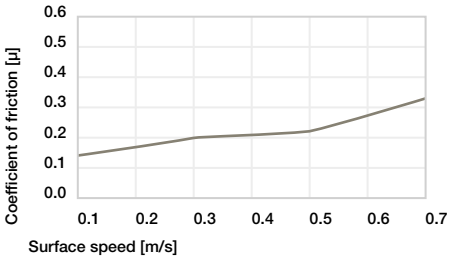
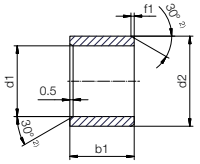


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® F2

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: F2SM-0507-10 – no minimum order quantity.
F2 iglidur® material S Cylindrical M Metric 05 Inner Ø d1 07 Outer Ø d2 10 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
5.0	+0.020 +0.068	7.0	10.0	**F2SM-0507-10**
6.0		8.0	6.0	**F2SM-0608-06**
7.0	+0.025 +0.083	9.0	10.0	**F2SM-0709-10**
8.0		10.0	10.0	**F2SM-0810-10**
10.0		12.0	10.0	**F2SM-1012-10**
10.0		12.0	15.0	**F2SM-1012-15**
12.0	+0.032 +0.102	14.0	12.0	**F2SM-1214-12**
16.0		18.0	15.0	**F2SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**F2SM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/F2

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

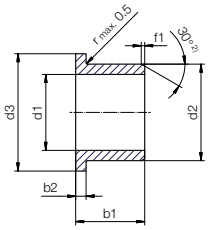
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iglidur® F2
+120°C
47MPa

Bearing technology | Plain bearings | iglidur® F2

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: F2FM-0608-06 – no minimum order quantity.
F2 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**F2FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**F2FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**F2FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**F2FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**F2FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**F2FM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
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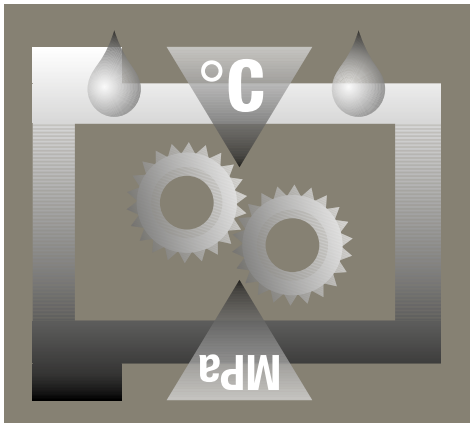
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25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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The automotive standard

Up to +200°C, media-resistant

iglidur® H4

When to use it?

- For application with fuels, oils, etc.
- When high wear resistance is required
- For low coefficient of friction
- For high temperature resistance from -40°C to +200°C
- For high chemical resistance

When not to use it?

- For underwater use
  iglidur® H370
- When a cost-effective universal plain bearing is required
  iglidur® G
- When a temperature and media-resistant plain bearing for static applications is required
  iglidur® H2

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Bearing technology | Plain bearings | iglidur® H4

Ø
4.0-40.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The automotive standard
Up to +200°C, media-resistant

Cost-effective high-temperature material with good dry-operation properties and "engine compartment resistance".

- Low coefficient of friction
- High wear resistance
- Temperature-resistant from -40°C to +200°C
- Chemical-resistant
- Lubrication-free
- Maintenance-free

Typical application areas

- Automotive industry
- Automation
- Packaging

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
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Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® H4
+200°C
65MPa

Technical data

General properties			Testing method
Density	g/cm³	1.79	
Colour		brown	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.2	
Coefficient of friction, dynamic, against steel	µ	0.08-0.25	
pv value, max. (dry)	MPa · m/s	0.70	
Mechanical properties			
Flexural modulus	MPa	7,500	DIN 53457
Flexural strength at +20°C	MPa	120	DIN 53452
Compressive strength	MPa	50	
Max. permissible surface pressure (+20°C)	MPa	65	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+200	
Max. application temperature short-term	°C	+240	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	5	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

-40°C up to +200°C

65MPa

V-0

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® H4 plain bearings stand for high carrying capacity, good abrasion resistance and good temperature resistance, besides the obvious economic factors. Temperatures up to +200°C, permitted surface pressure up to 65MPa, and excellent chemical resistance are only some of the essential attributes. Solid lubricants reduce the coefficient of friction and support the wear resistance, which has been significantly improved compared to the iglidur® H2 plain bearings, which are also very cost-effective. iglidur® H4 plain bearings are suitable for all sliding surfaces.

Moisture absorption

The moisture absorption of iglidur® H4 plain bearings is below 0.1% weight in ambient conditions. The saturation limit submerged in water is 0.2% weight. iglidur® H4 is therefore an ideal material for wet environments.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is generally possible.

Radiation resistance

Plain bearings made from iglidur® H4 are resistant up to a radiation intensity of $2 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® H4 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® H4 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® H4 at radial loads.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® H4

Permissible surface speeds

In contrast to the similarly cost-effective iglidur® H2 plain bearings, iglidur® H4 has a favourable coefficient of friction. This accounts for the higher permitted surface speeds that can be attained with these bearings. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 48

Temperature

iglidur® H4 is an extremely temperature-resistant material. With increasing temperatures, the compressive strength of iglidur® H4 plain bearings decreases. When considering temperatures, the additional frictional heat in the bearing system must be taken into account. For temperatures over +110°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of the iglidur® H4 plain bearings is very low (diagrams 04 and 05). Please note that a sliding surface with a rough surface finish will increase the friction.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

With many of the suitable shaft materials, iglidur® H4 is the economical alternative to many other high-temperature bearings. The important thing is however the selection of the suitable shaft material. It cannot be generally stated that iglidur® H4 is suitable for use with hard or soft shafts. Tests have however shown that pivoting applications yield better wear data. In rotating applications, the wear increases markedly from 10MPa.

Shaft materials, page 56

Installation tolerances

iglidur® H4 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	+ up to 0
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	0 up to –
Strong alkalines	+

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	1.0	0.7	1.0
Short-term	**m/s**	1.5	1.1	2.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.08-0.25	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

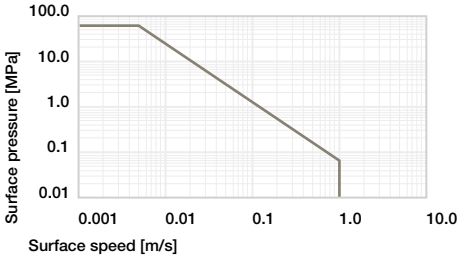


Diagram 01: Permissible pv values for iglidur® H4 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

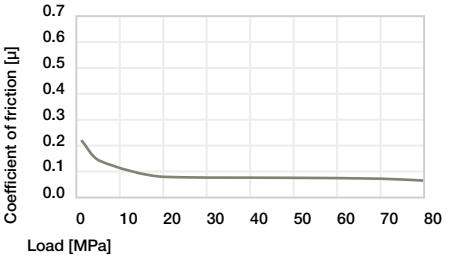


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

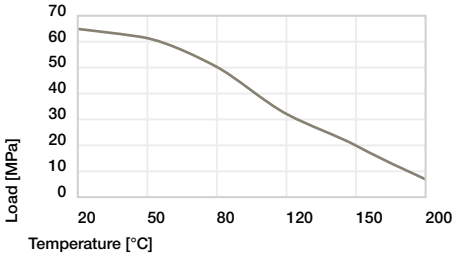


Diagram 02: Maximum recommended surface pressure as a function of temperature (65MPa at +20°C)

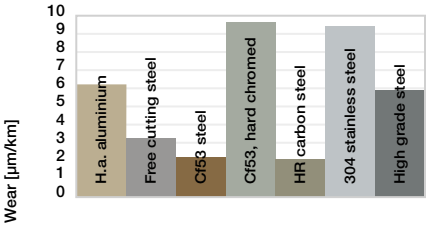


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

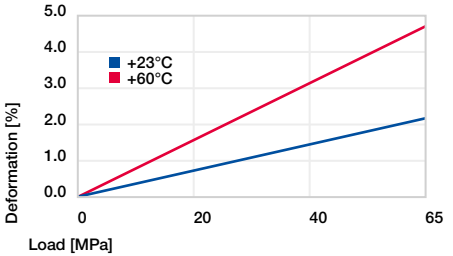


Diagram 03: Deformation under pressure and temperature

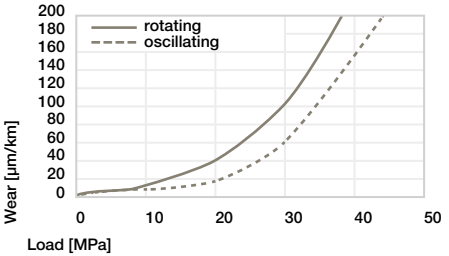


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

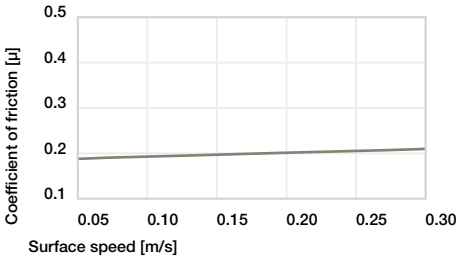
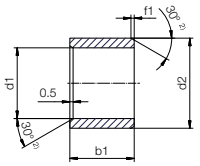


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® H4

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: H4SM-0405-04 – no minimum order quantity.
H4 iglidur® material S Cylindrical M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
4.0	+0.010 +0.058	5.5	4.0	**H4SM-0405-04**
6.0		8.0	8.0	**H4SM-0608-08**
8.0	+0.013 +0.071	10.0	10.0	**H4SM-0810-10**
8.0		10.0	20.0	**H4SM-0810-20**
16.0	+0.016 +0.086	18.0	20.0	**H4SM-1618-20**
18.0		20.0	15.0	**H4SM-1820-15**
20.0	+0.020 +0.104	22.0	15.0	**H4SM-2022-15**
39.0	+0.025 +0.125	43.0	40.0	**H4SM-3943-40**

[3] After press-fit. *Testing methods, page 61*

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Ordering note
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Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

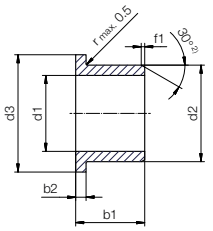
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iglidur® H4
+200°C
65MPa

Bearing technology | Plain bearings | iglidur® H4

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: H4FM-0405-04 – no minimum order quantity.
H4 iglidur® material F With flange M Metric 04 Inner Ø d1 05 Outer Ø d2 04 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
4.0	+0.010 +0.058	5.5	9.5	4.0	0.75	**H4FM-0405-04**
6.0		8.0	12.0	8.0	1.00	**H4FM-0608-08**
6.0		10.0	12.0	20.0	1.00	**H4FM-060810-20**
8.0	+0.013 +0.071	10.0	15.0	10.0	1.00	**H4FM-0810-10**
10.0		12.0	18.0	5.0	1.00	**H4FM-1012-05**
10.0		12.0	18.0	12.0	1.00	**H4FM-1012-12**
10.0		12.0	18.0	25.0	1.00	**H4FM-101218-25**
12.0	+0.016 +0.086	14.0	20.0	12.0	1.00	**H4FM-1214-12**
15.0		17.0	23.0	12.0	1.00	**H4FM-1517-12**
16.0		18.0	24.0	17.0	1.00	**H4FM-1618-17**
18.0		20.0	26.0	17.0	1.00	**H4FM-1820-17**
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	**H4FM-2023-21**
25.0		28.0	35.0	21.5	1.50	**H4FM-2528-21**
30.0		34.0	40.0	30.0	2.00	**H4FM-3034-30**
40.0	+0.030 +0.150	44.0	52.0	40.0	2.00	**H4FM-4044-40**

[3] After press-fit. *Testing methods, page 61*

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Detailed information about delivery time online.
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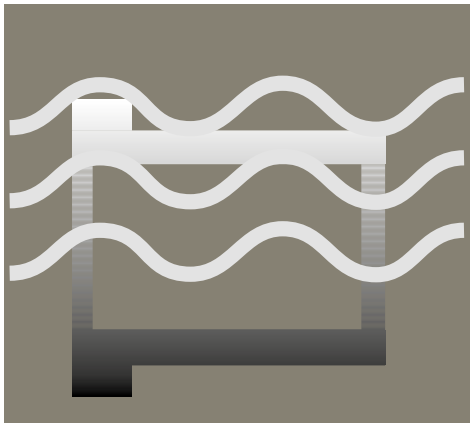
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25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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For fast rotation under water

Extreme wear resistance in liquid under continuous operation

iglidur® UW

When to use it?

- For underwater applications and in liquid media
- For low loads
- For high rotational speeds
- For extreme wear resistance in media-lubricated continuous operation

When not to use it?

- When continuous operating temperatures are higher than +90°C
  iglidur® UW500
- When high loads occur
  iglidur® H370, iglidur® UW500, iglidur® X
- When only dry operation is feasible
  iglidur® J

EN 09/2023

Bearing technology | Plain bearings | iglidur® UW

Ø
3.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
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tribo-tape liner
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Guide rings
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Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For fast rotation under water

Extreme wear resistance in liquid under continuous operation

The best iglidur® plain bearing for underwater applications. The first choice for pumping applications.

- Suitable for underwater applications
- For fast and constant rotation
- Long service life
- Lubrication-free
- Maintenance-free

Typical application areas

- Fluid technology
- Pumps

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

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Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® UW
+90°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.52	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption[6]	% weight	0.8	
Coefficient of friction, dynamic, against steel	µ	0.15-0.35	
pv value, max. (dry)	MPa · m/s	0.11	
Mechanical properties			
Flexural modulus	MPa	9,600	DIN 53457
Flexural strength at +20°C	MPa	90	DIN 53452
Compressive strength	MPa	70	
Max. permissible surface pressure (+20°C)	MPa	40	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.60	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	6	DIN 53752
Electrical properties[5]			
Specific transitional resistance	Ωcm	$< 10^5$	DIN IEC 93
Surface resistance	Ω	$< 10^5$	DIN 53482

[5] The good conductivity of this material can favour the generation of corrosion on the metallic contact components.

[6] All results were obtained under laboratory conditions with demineralised water. For application with direct water contact, we recommend tests under real application conditions.

Table 01: Material properties

-50°C up to +90°C

40MPa

HB

RoHS-II

ISO 3547-1

iglidur® UW was developed for underwater applications in which the maximum temperatures are lower than +100°C. For application temperatures above this limit, the plain bearings made from iglidur® UW500 are available. Though iglidur® UW was developed for application in liquids, it is also suitable for dry operation. This one is particularly important in applications that call for both dry and wet operations. These applications can be seen often in practice. The features of the bearings made from iglidur® UW described in this section apply to the dry operation. Unless it is expressly mentioned otherwise.

Moisture absorption

The moisture absorption of iglidur® UW plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 0.8% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® UW are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® UW plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® UW plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® UW under different loads. At the maximum recommended surface pressure of 40MPa, the deformation is less than 1%.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® UW

Permissible surface speeds

iglidur® UW is very good in both wet and dry operation. Due to hydrodynamic lubrication at high speeds, surface speeds far above 2m/s can be achieved. The iglidur® UW plain bearings can be used in dry operation at speeds of up to 1.5m/s for short periods.

Surface speed, page 48

Temperature

As stated earlier, iglidur® UW plain bearings are required for use in the low temperature range. As the liquid usually dissipates heat in underwater applications the temperature of the liquid is very important. For temperatures over +80°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The surface finish of the shafts should not be extremely smooth in order to prevent a high adhesion effect and the related increase of the coefficient of friction. Please contact us for the specifications of shaft surface finishes in underwater applications.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® UW. For low loads with rotation, the combinations achieve the best coefficient of wear with high grade steel and 304 stainless steel. The conditions shift with increasing loads. It is also important to note that the wear rate increases significantly from loads > 5MPa.

Shaft materials, page 56

Installation tolerances

iglidur® UW plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.5	0.4	2.0
Short-term	m/s	1.5	1.1	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.15-0.35	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

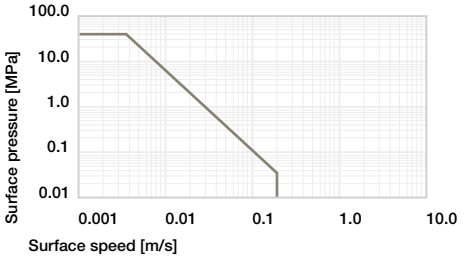


Diagram 01: Permissible pv values for iglidur® UW plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

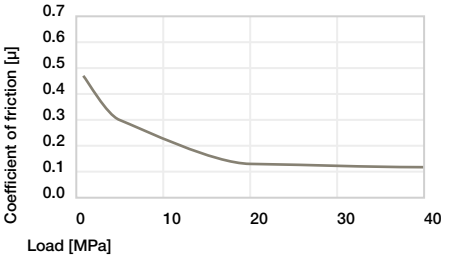


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

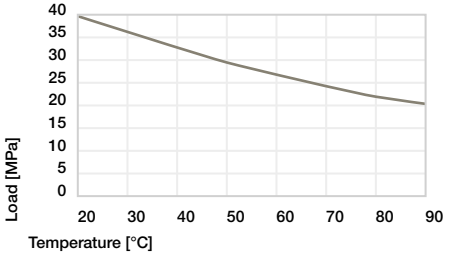


Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

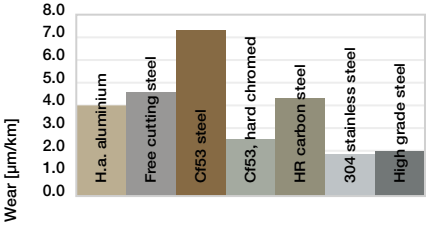


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

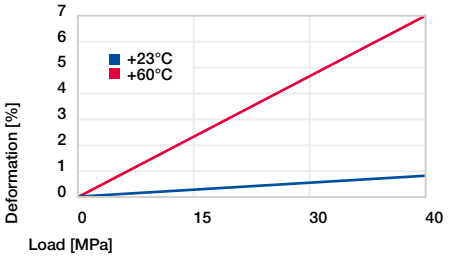


Diagram 03: Deformation under pressure and temperature

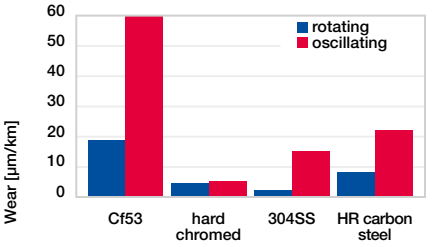


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

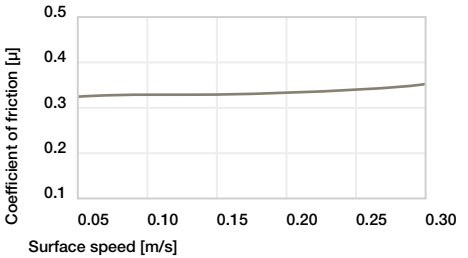
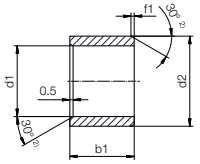


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® UW

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: UWSM-0304-05 **– no minimum order quantity.**
UW iglidur® material S Cylindrical M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
3.0	+0.014 +0.054	4.5	5.0	**UWSM-0304-05**
4.0	+0.020 +0.068	5.5	6.0	**UWSM-0405-06**
5.0		7.0	8.0	**UWSM-0507-08**
6.0		8.0	8.0	**UWSM-0608-08**
8.0	+0.025 +0.083	10.0	10.0	**UWSM-0810-10**
10.0		12.0	10.0	**UWSM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**UWSM-1214-12**
16.0		18.0	12.0	**UWSM-1618-12**
18.0		20.0	15.0	**UWSM-1820-15**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/UW

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

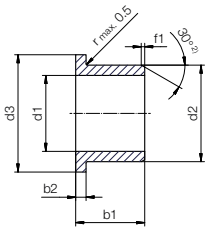
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iglidur® UW
+90°C
40MPa

Bearing technology | Plain bearings | iglidur® UW

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: UWFM-0304-05 **– no minimum order quantity.**
UW iglidur® material F With flange M Metric 03 Inner Ø d1 04 Outer Ø d2 05 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
3.0	+0.014 +0.054	4.5	7.5	5.0	0.75	**UWFM-0304-05**
4.0	+0.020 +0.068	5.5	9.5	6.0	0.75	**UWFM-0405-06**
5.0		7.0	11.0	5.0	1.00	**UWFM-0507-05**
6.0		8.0	12.0	6.0	1.00	**UWFM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**UWFM-0810-10**
10.0		12.0	18.0	10.0	1.00	**UWFM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**UWFM-1214-12**
16.0		18.0	24.0	17.0	1.00	**UWFM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**UWFM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/UW

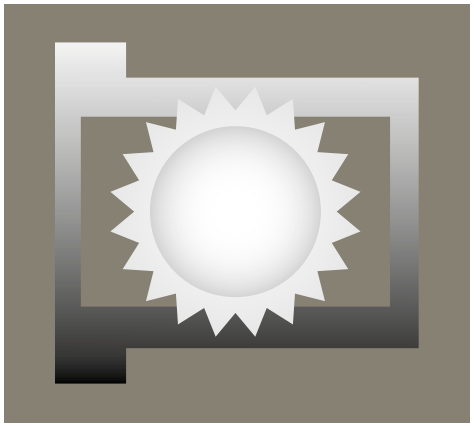
Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
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25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

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For continuous direct sunlight

Permanently UV-resistant with properties comparable to iglidur® J

iglidur® J UV

When to use it?

- When high UV resistance is required
- When a wear-resistant material is required
- When an optimisation of the long-term mechanical properties is required

When not to use it?

- When high pressures occur
  iglidur® G
- When temperatures higher than +120 °C occur
  iglidur® G, iglidur® X
- When a cost-effective plain bearing for occasional movements is necessary
  iglidur® G

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Bearing technology | Plain bearings | iglidur® J UV

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For continuous direct sunlight

Permanently UV-resistant with properties comparable to iglidur® J

Today, plain bearings appear as special shapes for special uses, in some instances of which they are exposed to UV radiation for long periods of time. igus® has therefore developed a new material: iglidur® J UV.

- UV-stabilised
- Long-term mechanical properties improved
- High wear resistance

Typical application areas

- Solar technology
- Outdoor applications

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® J UV
+90°C
35MPa

Technical data

General properties			Testing method
Density	g/cm³	1.49	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	µ	0.08-0.19	
pv value, max. (dry)	MPa · m/s	0.30	
Mechanical properties			
Flexural modulus	MPa	2,400	
Flexural strength at +20°C	MPa	72	
Compressive strength	MPa	n.s.	
Max. permissible surface pressure (+20°C)	MPa	34	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+120	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.30	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{13}$	DIN 53482

-50°C up to +90°C

35MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

One main advantage of iglidur® J UV plain bearings is the low coefficient of friction in dry operation. The material is resistant to UV radiation and retains its sliding properties.

Moisture absorption

The moisture absorption of iglidur® J UV plain bearings in ambient conditions is approximately 0.3% weight. The saturation limit submerged in water is 1.3% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J UV bearings.

Radiation resistance

Plain bearings made from iglidur® J UV are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® J UV plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

When temperatures increase, the compressive strength of iglidur® J UV plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.

With a maximum recommended surface pressure of 35MPa, iglidur® J UV plain bearings are not suitable for extreme loads. Diagram 03 shows the elastic deformation of iglidur® J UV at radial loads.

Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® J UV

Permissible surface speeds

The low coefficient of friction and no stick-slip tendency of iglidur® J UV plain bearings are particularly important at very low speeds. However, iglidur® J UV can also be used for high speeds of over 1m/s. In both cases the static friction is very low and stick slip does not occur. The maximum values shown in table 03 can only be achieved at low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

In the case of a permissible long-term application temperature of +90°C, iglidur® J UV will even withstand +120°C for short periods. The wear rises with increasing temperatures. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the surface speed and load (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. With increasing shaft surface finish, the coefficient of friction also increases. For iglidur® J UV a ground surface with an average surface finish Ra = 0.8μm is recommended. Diagram 06 and 07 display a summary of the results of tests with different shaft materials executed with plain bearings made of iglidur® J UV. When compared to most other iglidur® materials, iglidur® J UV plain bearings have very low wear results at low loads compared with all shaft materials tested. Also, for increasing loads up to 5 MPa, the wear resistance of iglidur® J UV plain bearings is excellent. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® J UV plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.5	1.1	8.0
Short-term	m/s	2.2	1.7	12.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.08-0.19	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

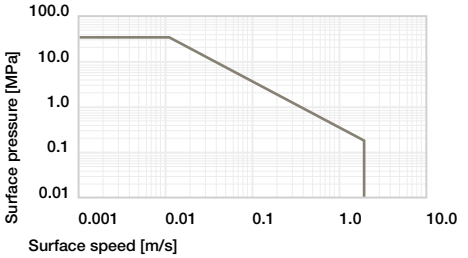


Diagram 01: Permissible pv values for iglidur® J UV plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

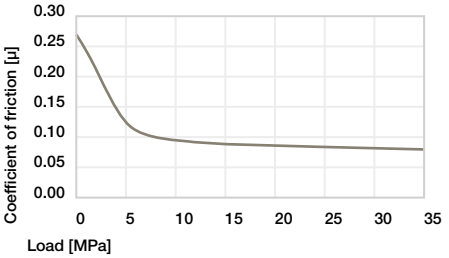


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

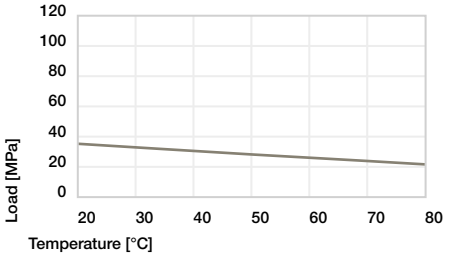


Diagram 02: Maximum recommended surface pressure as a function of temperature (35MPa at +20°C)

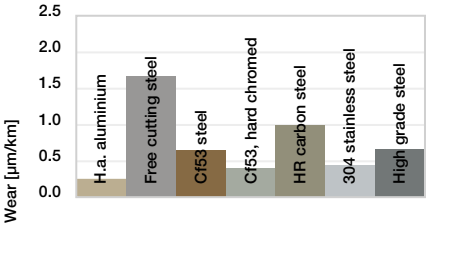


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

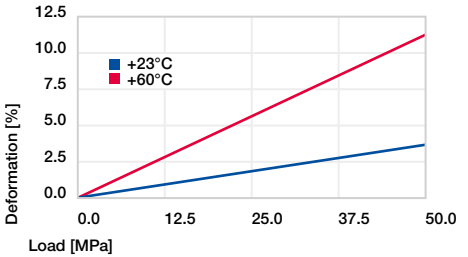


Diagram 03: Deformation under pressure and temperature

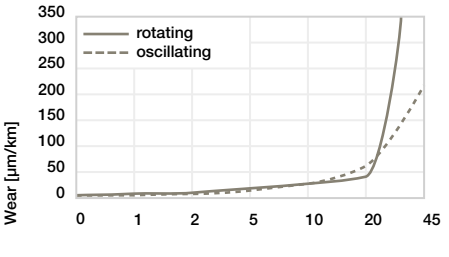


Diagram 07: Wear for rotating and oscillating applications with different shaft materials, p = 2MPa

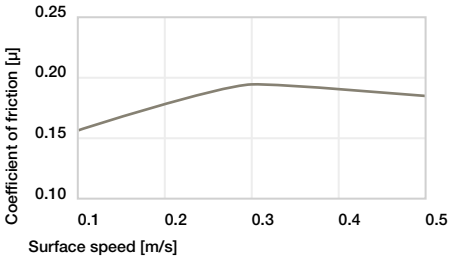
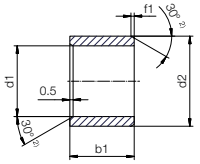


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

Bearing technology | Plain bearings | iglidur® J UV

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: JUVSM-0608-08 **– no minimum order quantity.**
J UV iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 08 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	8.0	**JUVSM-0608-08**
8.0		10.0	12.0	**JUVSM-0810-12**
10.0	+0.025 +0.083	12.0	12.0	**JUVSM-1012-12**
12.0	+0.030 +0.102	14.0	12.0	**JUVSM-1214-12**
16.0		18.0	15.0	**JUVSM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**JUVSM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/JUV

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

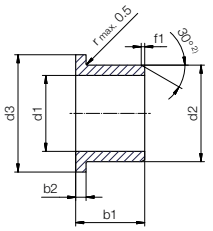
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iglidur® J UV
+90°C
35MPa

Bearing technology | Plain bearings | iglidur® J UV

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: JUVFM-0608-08 **– no minimum order quantity.**
J UV iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 08 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	8.0	1.00	**JUVFM-0608-08**
8.0		10.0	15.0	9.5	1.00	**JUVFM-0810-09**
10.0	+0.025 +0.083	12.0	18.0	12.0	1.00	**JUVFM-1012-12**
12.0	+0.030 +0.102	14.0	20.0	12.0	1.00	**JUVFM-1214-12**
16.0		18.0	24.0	17.0	1.00	**JUVFM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**JUVFM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
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Order online
including delivery times, prices, online tools
www.igus.eu/JUV

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





The biopolymer
Based on renewable resources
iglidur® N54

When to use it?

- For applications with infrequent movement at low to medium loads
- At static loads
- When the environmental impact of a product needs to be optimised

When not to use it?

- When a universal standard plain bearing is required
  iglidur® G
- When dealing with high motion frequencies and continuous operation
  iglidur® J
- When dealing with high temperatures
  iglidur® J350

EN 09/2023

Bearing technology | Plain bearings | iglidur® N54

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The biopolymer
Based on renewable resources

Based on 54 % renewable resources, this material also meets high technical requirements.

- Based on renewable resources
- Universal installation
- Lubrication-free
- Maintenance-free

Typical application areas

- Consumer products
- General mechanical engineering
- Furniture industry
- Industrial design

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	-	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® N54
+80°C
36MPa

Technical data

General properties			Testing method
Density	g/cm³	1.13	
Colour		green	
Max. moisture absorption at +23°C/50% r.h.	% weight	1.6	DIN 53495
Max. moisture absorption	% weight	3.6	
Coefficient of friction, dynamic, against steel	µ	0.15-0.23	
pv value, max. (dry)	MPa · m/s	0.50	
Mechanical properties			
Flexural modulus	MPa	1,800	DIN 53457
Flexural strength at +20°C	MPa	70	DIN 53452
Compressive strength	MPa	30	
Max. permissible surface pressure (+20°C)	MPa	36	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+80	
Max. application temperature short-term	°C	+120	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

-40 °C up to +80 °C

36MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® N54 is the first iglidur® material based largely on biopolymers. In addition to the proven lubrication-free properties of all iglidur® materials, this is one further contribution to positive environmental stewardship. The low coefficient of friction in conjunction with long service life ensure that this material has a permanent place in the iglidur® product range.

Moisture absorption

The moisture absorption of JUVFM-0608-08 plain bearings is below 1.6% weight in ambient conditions. The saturation limit submerged in water is 3.6% weight.

Vacuum

In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance

Plain bearings made from iglidur® N54 have limited use under radioactive radiation. They are resistant up to a radiation intensity of $1 \cdot 10^4$ Gy.

Resistance to weathering

iglidur® N54 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® N54 plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +80°C, the permitted surface pressure still amounts to 10MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® N54 at radial loads.
Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® N54

Permissible surface speeds

Although the typical applications of iglidur® N54 plain bearings are generally in the area of intermittent operation, the maximum attainable speeds can be quite high, depending on the type of motion. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 48

Temperature

The short-term permissible temperature limit is +120°C, which allows the use of iglidur® N54 plain bearings in all applications involving elevated ambient temperatures. With increasing temperatures, the compressive strength of iglidur® N54 plain bearings decreases. When considering temperatures, the additional frictional heat in the bearing system must be taken into account. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of iglidur® N54 is low. Please note that a sliding surface with a rough surface finish will increase the friction. Surface finishes (Ra) of the shaft between 0.1-0.4µm are ideal. The coefficient of friction of iglidur® N54 plain bearings is only marginally dependent on the surface speed. The influence of the load is greater; an increase in load lowers the coefficient of friction to as low as 0.8.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

It is important to select a suitable shaft material. As a rule, iglidur® N54 is suitable for use with hard or soft shafts, but "hard" shaft surfaces tend to give better service life. Starting at loads of 1MPa, wear increases measurably and continuously. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® N54 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to +
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	0.8	0.6	1.0
Short-term	**m/s**	1.5	1.1	2.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.15-0.23	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

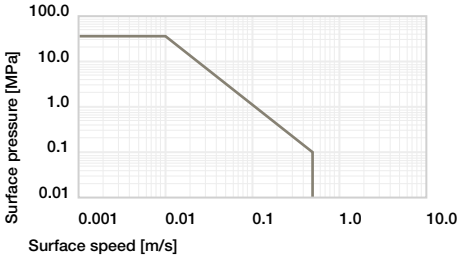


Diagram 01: Permissible pv values for iglidur® N54 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

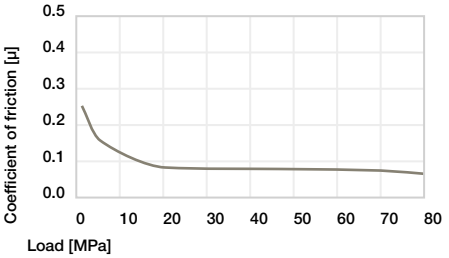


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

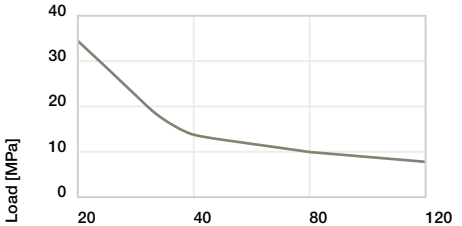


Diagram 02: Maximum recommended surface pressure as a function of temperature (36MPa at +20°C)

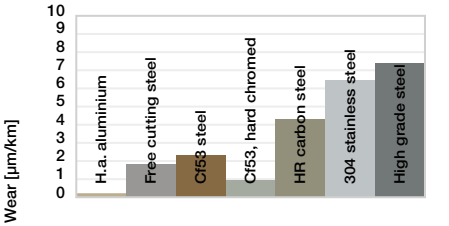


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

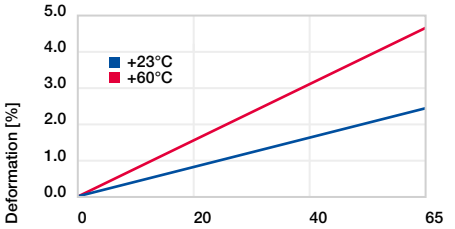


Diagram 03: Deformation under pressure and temperature

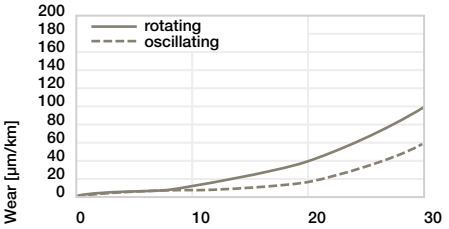


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

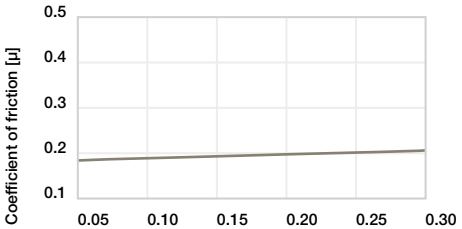
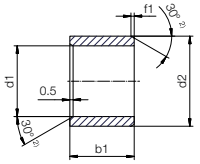


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® N54

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: N54SM-0608-06 **– no minimum order quantity.**
N54 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**N54SM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**N54SM-0810-10**
10.0		12.0	10.0	**N54SM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**N54SM-1214-12**
16.0		18.0	15.0	**N54SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**N54SM-2023-20**

[3] After press-fit. *Testing methods, page 61*

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www.igus.eu/24

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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

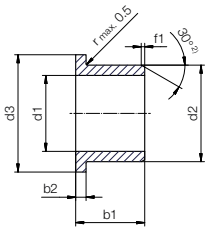
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iglidur® N54
+80°C
36MPa

Bearing technology | Plain bearings | iglidur® N54

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: N54FM-0608-06 **– no minimum order quantity.**
N54 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**N54FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**N54FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**N54FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**N54FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**N54FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**N54FM-2023-21**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

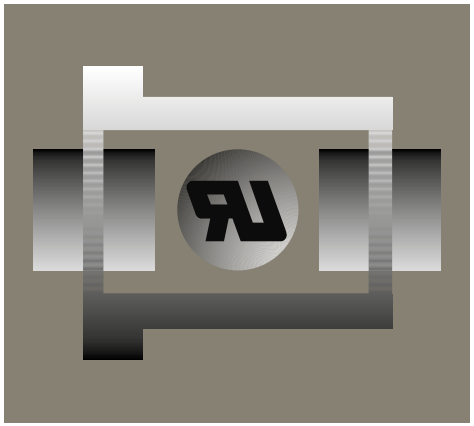
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Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Low-cost all-rounder for fire protection

UL94 V0 rating

iglidur® G V0

When to use it?

- When a UL94 V0 classified plain bearing for normal environmental conditions is required
- When an economic UL94 V0 classified plain bearing is required

When not to use it?

- When a UL94 V0 classified plain bearing for high-temperature applications is required
  iglidur® X
- When a standard plain bearing without having to meet special fire codes is required
  iglidur® G

EN 09/2023

Bearing technology | Plain bearings | iglidur® G V0

Ø
6.0-40.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Low-cost all-rounder for fire protection
UL94 V0 rating

The material achieves the UL94 V0 rating and is therefore perfectly suited for applications with stringent fire protection regulations (vehicle and aircraft interiors, building interior systems, etc.). Other properties are similar to the all-rounder material iglidur® G.

- UL94 V0-compliant
- High wear resistance
- Universal installation
- Lubrication-free
- Maintenance-free

Typical application areas

- Passenger seats
- Elevators
- Escalators
- Control cabinets
- Hinges

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

Online product finder
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Online service life calculation
www.igus.eu/iglidur-expert

iglidur® G V0
+130°C
75MPa

Technical data

General properties			Testing method
Density	g/cm³	1.53	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.7	DIN 53495
Max. moisture absorption	% weight	4.0	
Coefficient of friction, dynamic, against steel	µ	0.07-0.20	
pv value, max. (dry)	MPa · m/s	0.50	
Mechanical properties			
Flexural modulus	MPa	7,900	DIN 53457
Flexural strength at +20°C	MPa	140	DIN 53452
Compressive strength	MPa	100	
Max. permissible surface pressure (+20°C)	MPa	75	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+130	
Max. application temperature short-term	°C	+210	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	9	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

-40°C up to +130°C

75MPa

V-0

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® G V0 is the first iglidur® material with a UL94 V0 rating for universal use in the normal temperature range. All other iglidur® materials with V0 rating are part of the high-temperature segment. The general mechanical and thermal properties are largely comparable to the all-rounder, iglidur® G.

Moisture absorption
The moisture absorption of iglidur® G V0 plain bearings in ambient conditions is approximately 0.7% weight. The saturation limit submerged in water is 4.0% weight. This must be taken into account for these types of applications.

Vacuum
In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® G V0 bearings.

Radiation resistance
Plain bearings made from iglidur® G V0 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering
iglidur® G V0 plain bearings are resistant to weathering. The material properties are slightly affected. Discolouration occurs.

Mechanical properties
When temperatures increase, the compressive strength of iglidur® G V0 plain bearings decreases. Diagram 02 shows this inverse relationship. With the long-term permitted application temperature of +130°C, the permitted surface pressure still amounts to 35MPa. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® G V0 under different loads. The plastic deformation is minimal up to a pressure of approximately 100MPa. However, it is also dependent on the service time.
Surface pressure, page 45

Permissible surface speeds
iglidur® G V0 has been developed for low to medium surface speeds. The maximum values shown in table 03 can only be achieved at low pressures. In practice, though, this level is rarely reached due to varying application conditions.
Surface speed, page 48

Bearing technology | Plain bearings | iglidur® G V0

Temperature

The ambient temperatures strongly influence the properties of plain bearings. The short-term maximum temperature permitted is +210°C and allows the use of iglidur® G V0 plain bearings in applications where the bearings are not subjected to any additional load such as a paint drying process. The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +120°C. For temperatures over +100°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Similar to wear resistance, the coefficient of friction μ also changes with the load. The coefficient of friction decreases considerably with increasing loads, whereas a slight increase in surface speed causes an increase of the coefficient of friction. This relationship explains the excellent results of iglidur® G V0 plain bearings for high loads and low speeds (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. For iglidur® G V0 a ground surface with an average surface finish Ra = 0.6-0.8μm is recommended. Diagram 06 shows results of testing different shaft materials with plain bearings made from iglidur® G V0. It is important to notice that with increasing loads, the recommended hardness of the shaft increases. The "soft" shafts tend to wear themselves and thus increase the wear of the overall system. If the loads exceed 2MPa it is important to recognise that the wear rate (the gradient of the curves) clearly decreases with the hard shaft materials. The comparison of rotation and pivoting shows that iglidur® G V0 provides advantages in pivoting movements (diagram 07). If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® G V0 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	4.0
Short-term	m/s	2.0	1.4	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.07-0.20	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1μm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

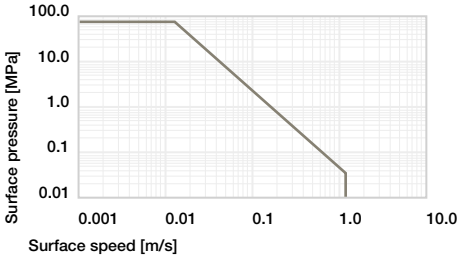


Diagram 01: Permissible pv values for iglidur® G V0 plain bearing with a wall thickness of 1 mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

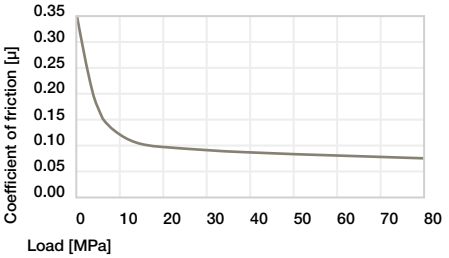


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

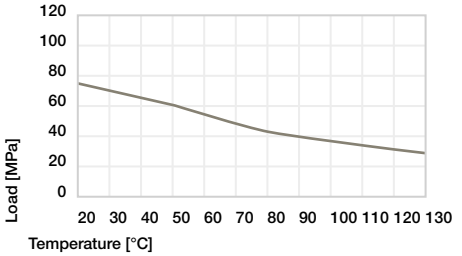


Diagram 02: Maximum recommended surface pressure as a function of temperature (75MPa at +20°C)

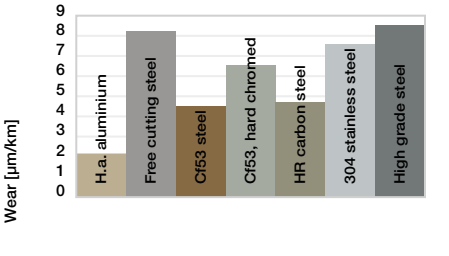


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

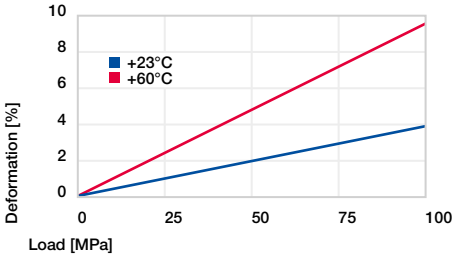


Diagram 03: Deformation under pressure and temperature

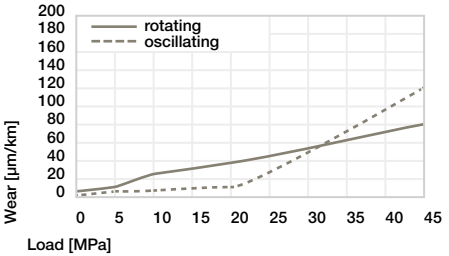


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

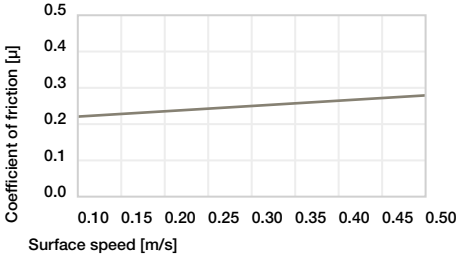
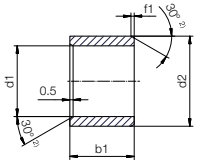


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® G V0

Sleeve bearings (form S)





2) Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: GV0SM-0608-06 – no minimum order quantity.
G V0 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**GV0SM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**GV0SM-0810-10**
10.0		12.0	8.0	**GV0SM-1012-08**
10.0		12.0	9.0	**GV0SM-1012-09**
10.0		12.0	10.0	**GV0SM-1012-10**
10.0		12.0	15.0	**GV0SM-1012-15**
10.0		12.0	17.0	**GV0SM-1012-17**
12.0	+0.032 +0.102	14.0	12.0	**GV0SM-1214-12**
16.0		18.0	15.0	**GV0SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**GV0SM-2023-20**
25.0		28.0	20.0	**GV0SM-2528-20**
30.0		34.0	30.0	**GV0SM-3034-30**
35.0	+0.050 +0.150	39.0	40.0	**GV0SM-3539-40**
40.0		44.0	40.0	**GV0SM-4044-40**

3) After press-fit. *Testing methods, page 61*

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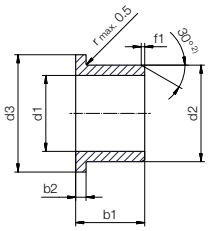
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iglidur® G V0
+130°C
75MPa

Bearing technology | Plain bearings | iglidur® G V0

Flange bearings (form F)





2) Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30	Ø > 30
f1 [mm]	0.3	0.5	0.8	1.2

Dimensions according to ISO 3547-1 and special dimensions

Order example: GV0FM-0608-06 – no minimum order quantity.
G V0 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**GV0FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**GV0FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**GV0FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**GV0FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**GV0FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**GV0FM-2023-21**
25.0		28.0	35.0	21.0	1.50	**GV0FM-2528-21**
30.0		34.0	42.0	37.0	2.00	**GV0FM-3034-37**
35.0	+0.050 +0.150	39.0	47.0	36.0	2.00	**GV0FM-3539-36**
40.0		44.0	52.0	40.0	2.00	**GV0FM-4044-40**

3) After press-fit. *Testing methods, page 61*

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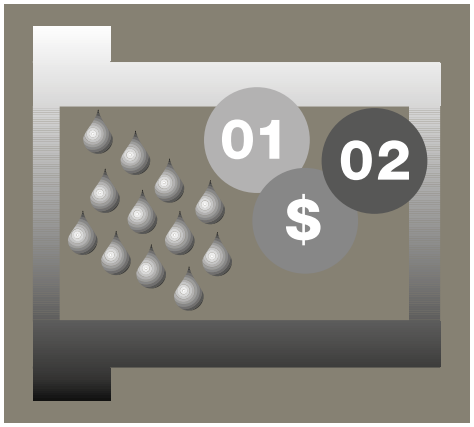
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No low-quantity surcharges.
Free shipping within Germany for orders above €150.





Versatile and cost-effective

For applications with infrequent movement or continuous lubrication

iglidur® J2

When to use it?

- When low moisture absorption and good media resistance is required for static load
- When a cost-effective plain bearing is required for use in a wet environment with low pv values
- When there is basic lubrication of the plain bearing

When not to use it?

- When a wear-resistant plain bearing is required for continuous dry operation
  iglidur® J3
- When low moisture absorption and media resistance play a minor role
  iglidur® M250
- When a resistance to high temperatures and chemicals is required
  iglidur® X

EN 09/2023

Bearing technology | Plain bearings | iglidur® J2

Ø
6.0-25.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Versatile and cost-effective

For applications with infrequent movement or continuous lubrication

iglidur® J2 has good universal media resistance, comparable to that of iglidur® J and similar materials. The mechanical specifications in sporadically moving applications are better, but in comparison there are significant reductions in friction and wear. Like all iglidur® materials, iglidur® J2 is PFOA-free.

- Robust
- Cost-effective
- High media resistance
- Lubrication-free
- Maintenance-free

Typical application areas

- Jig construction
- Industrial handling

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

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Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® J2
+90°C
46MPa

Technical data

General properties			Testing method
Density	g/cm³	1.44	
Colour		light yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of friction, dynamic, against steel	µ	0.11-0.27	
pv value, max. (dry)	MPa · m/s	0.23	
Mechanical properties			
Flexural modulus	MPa	3,605	DIN 53457
Flexural strength at +20°C	MPa	101	DIN 53452
Compressive strength	MPa	77	
Max. permissible surface pressure (+20°C)	MPa	46	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+110	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	7	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

-50°C up to +90°C

46MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

With respect to its general mechanical and thermal specifications, iglidur® J2 is directly comparable to our classic, iglidur® J. Therefore the iglidur® J2 is superior to iglidur® J with respect to the mechanical properties, such as maximum recommended surface pressure. However, wear resistance is reduced in dry operation.

Moisture absorption

The moisture absorption of iglidur® J2 plain bearings in ambient conditions is approximately 0.2% weight. The saturation limit submerged in water is 1.3% weight. These values are so low that a moisture expansion need to be considered only in extreme cases.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® J2 bearings.

Radiation resistance

Plain bearings made from iglidur® J2 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® J2 plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® J2 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® J2 at radial loads. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® J2

Permissible surface speeds

iglidur® J2 is mainly suitable for low surface speeds in dry operation, but the specified values shown in table 03 can only be achieved at very low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +90°C. For temperatures over +60°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Coefficient of friction and wear resistance are dependent on the application parameters (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. Diagram 06 shows results of testing different shafts. Diagram 06 shows that iglidur® J2 delivers good coefficient of wear especially with free cutting steel in rotation at 1MPa. In dry operation, the coefficient of wear is sometimes significantly higher on other shafts. Unlike many other iglidur® materials, the wear rate in pivoting is slightly higher compared to the rate in rotation with otherwise identical parameters (diagram 07).

Shaft materials, page 56

Installation tolerances

iglidur® J2 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. In relation to the installation tolerance, the inner diameter changes with the absorption of humidity.

Testing methods, page 61

Chemicals	Resistance
Alcohols	+
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	+ up to 0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.8	0.7	3.0
Short-term	m/s	1.9	1.1	5.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.11-0.27	0.08	0.07	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

Ø d1 [mm]	Housing H7 [mm]		Plain bearings E10 [mm]		Shaft h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

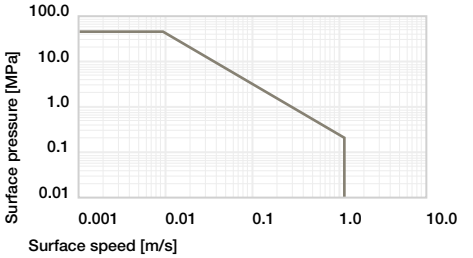


Diagram 01: Permissible pv values for iglidur® J2 plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

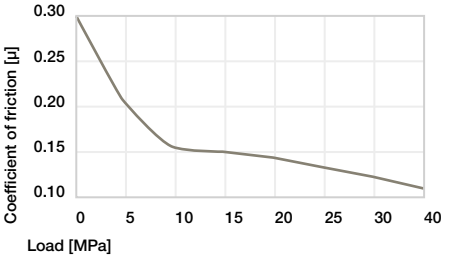


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

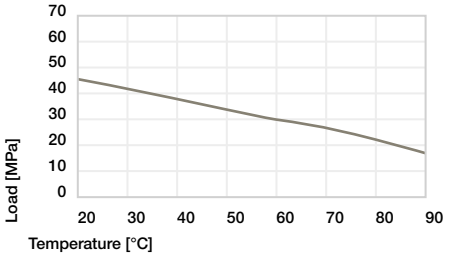


Diagram 02: Maximum recommended surface pressure as a function of temperature (46MPa at +20°C)

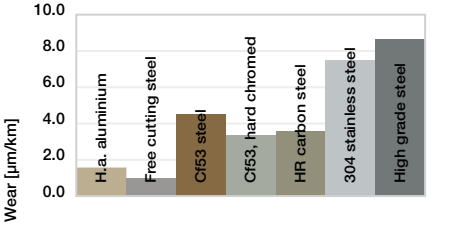


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

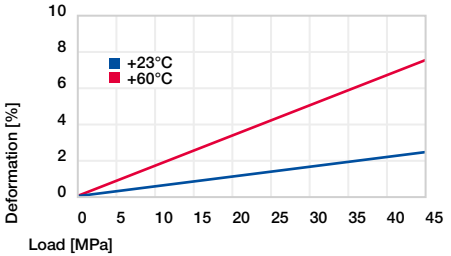


Diagram 03: Deformation under pressure and temperature

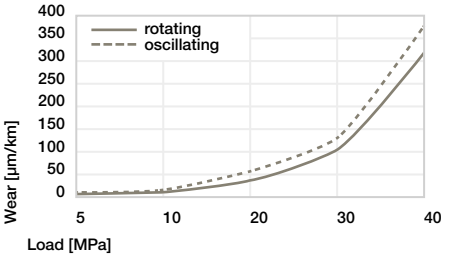


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

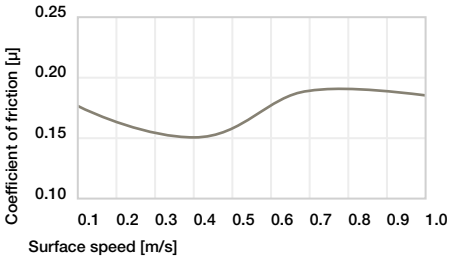
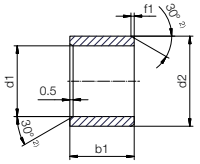


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® J2

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: J2SM-0608-06 – no minimum order quantity.
J2 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**J2SM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**J2SM-0810-10**
10.0		12.0	10.0	**J2SM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	**J2SM-1214-12**
16.0		18.0	15.0	**J2SM-1618-15**
20.0	+0.040 +0.124	23.0	20.0	**J2SM-2023-20**
25.0		28.0	20.0	**J2SM-2528-20**

[3] After press-fit. *Testing methods, page 61*

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Order online
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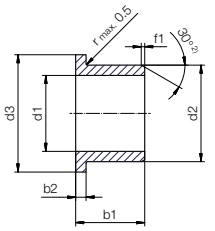
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iglidur® J2
+90°C
46MPa

Bearing technology | Plain bearings | iglidur® J2

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: J2FM-0608-06 – no minimum order quantity.
J2 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	6.0	1.00	**J2FM-0608-06**
8.0	+0.025 +0.083	10.0	15.0	10.0	1.00	**J2FM-0810-10**
10.0		12.0	18.0	10.0	1.00	**J2FM-1012-10**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**J2FM-1214-12**
16.0		18.0	24.0	17.0	1.00	**J2FM-1618-17**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**J2FM-2023-21**

[3] After press-fit. *Testing methods, page 61*

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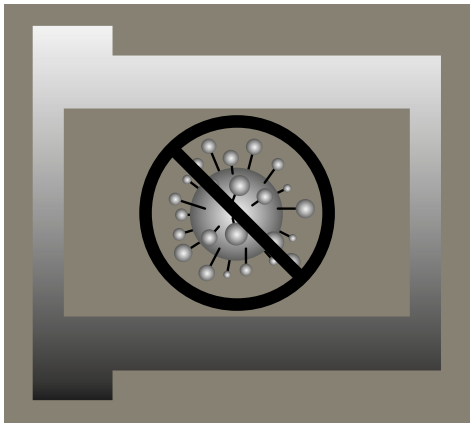
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Ordering note
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Discount scaling		
1-9	50-99	500-999
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No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





The first antibacterial iglidur® plain bearing

According to ISO 22 196:2011

iglidur® AB

When to use it?

- When bearing points must meet high hygienic standards
- When a universal plain bearing for manual applications is required
- When a plain bearing for low to medium loads is required

When not to use it?

- When a wear-resistant plain bearing is required for continuous dry operation
  iglidur® J3
- When a plain bearing that conforms with Regulation (EU) No. 10/2011 and/or the FDA requirements for repeated contact with food is required
  iglidur® A181, iglidur® A350
- When a plain bearing with the highest possible media resistance is required
  iglidur® X

EN 09/2023

EN 09/2023

Bearing technology | Plain bearings | iglidur® AB

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The first antibacterial iglidur® plain bearing
According to ISO 22 196:2011

Plain bearings made from iglidur® AB help to reduce the bacteria in bearing points that are difficult to access.

- Antibacterial
- Universal installation
- High media resistance
- Lubrication-free
- Maintenance-free

Typical application areas

- Medical technology
- Laboratory technology
- Ventilation systems
- Sanitary furniture and equipment
- Bearings of patient and care furniture

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

Online product finder
www.igus.eu/iglidur-finder

Online service life calculation
www.igus.eu/iglidur-expert

EN 09/2023

iglidur® AB
+70°C
25MPa

Technical data

General properties			Testing method
Density	g/cm³	1.11	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.8	ISO 175
Max. moisture absorption	% weight	1.6	ISO 62
Coefficient of friction, dynamic, against steel	µ	0.18-0.31	
pv value, max. (dry)	MPa · m/s	0.25	
Mechanical properties			
Flexural modulus	MPa	1,850	DIN EN ISO 178
Flexural strength at +20°C	MPa	50	DIN EN ISO 178
Compressive strength	MPa	40	
Max. permissible surface pressure (+20°C)	MPa	25	
Shore D hardness		70	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+70	
Max. application temperature short-term	°C	+140	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$>10^{12}$	DIN IEC 93
Surface resistance	Ω	$>10^{12}$	DIN 53482

-40°C up to +70°C

25MPa

HB

RoHS-II

ISO 3547-1

Table 01: Material properties

iglidur® AB was specifically developed for applications in areas with high hygiene requirements. Often such applications are manually operated pivots (doors, medical furniture, etc.). The material reduces the level of bacterial contamination but - like all "anti-bacterial" materials - is not a substitute for adequate hygienic measures.

Moisture absorption

The moisture absorption of iglidur® AB plain bearings in ambient conditions is approximately 0.8% weight. The saturation limit submerged in water is 1.6% weight.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® AB bearings.

Radiation resistance

Plain bearings made from iglidur® AB are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® AB plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® AB plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® AB at radial loads. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® AB

Permissible surface speeds

iglidur® AB is mainly suitable for low surface speeds in dry operation, but the specified values shown in table 03 can only be achieved at very low pressures. At the given speeds, friction can cause a temperature increase to maximum permissible levels. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The temperatures prevailing in the bearing system also have an influence on the wear. With increasing temperatures, the wear increases and this effect is significant when temperatures rise over +60°C. For temperatures over +50°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

Coefficient of friction and wear resistance are dependent on the application parameters (diagrams 04 and 05).

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The friction and wear are also dependent, to a large degree, on the mating partner. Shafts that are too smooth increase both the coefficient of friction and the wear of the bearing. Diagram 06 shows results of testing different shafts. When rotating at a load of 1MPa, the wear on all tested shafts is very similar. Only the hard-anodised aluminium shafts cause a noticeable increase in the wear. As illustrated in diagram 07, the wear rate from pivoting and rotational movements at loads in increasing levels is also quite similar if the remaining parameters are identical.

Shaft materials, page 56

Installation tolerances

iglidur® AB plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the E10 tolerances. In relation to the installation tolerance, the inner diameter changes with the absorption of humidity. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.7	0.5	1.0
Short-term	m/s	1.0	0.7	1.8

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.18-0.31	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		E10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.014	+0.054	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.020	+0.068	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.025	+0.083	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.032	+0.102	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.040	+0.124	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.050	+0.150	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.060	+0.180	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.072	+0.212	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.085	+0.245	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

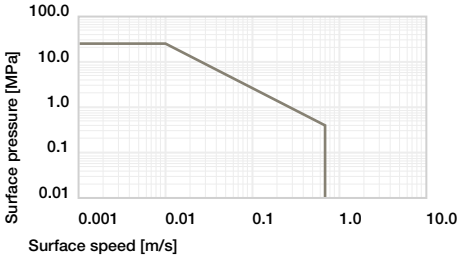


Diagram 01: Permissible pv values for iglidur® AB plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

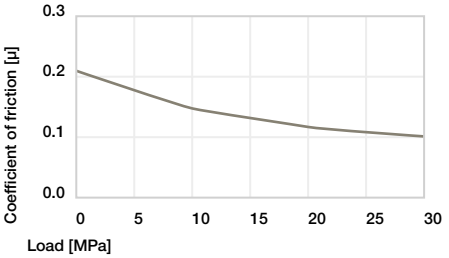


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

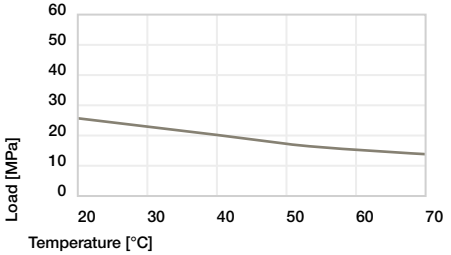


Diagram 02: Maximum recommended surface pressure as a function of temperature (25MPa at +20°C)

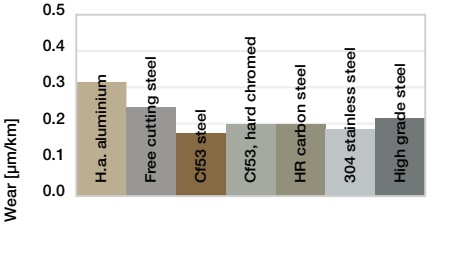


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

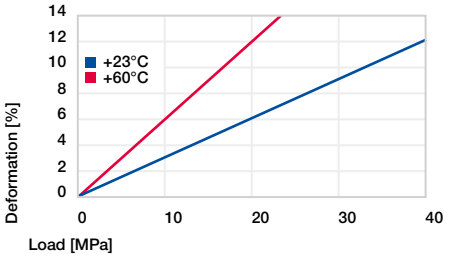


Diagram 03: Deformation under pressure and temperature

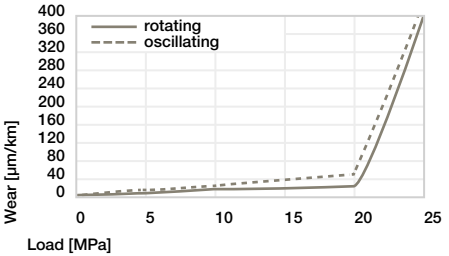


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

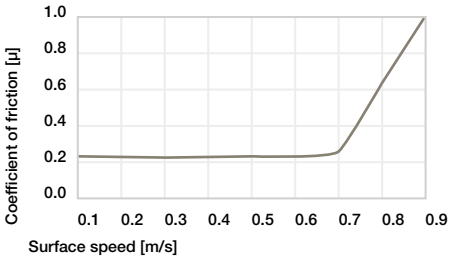
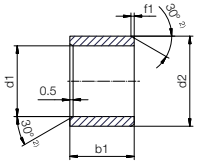


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® AB

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: ABSM-0608-06 – no minimum order quantity.
AB iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	6.0	**ABSM-0608-06**
8.0	+0.025 +0.083	10.0	10.0	**ABSM-0810-10**
10.0		12.0	10.0	**ABSM-1012-10**
12.0	+0.032 +0.102	14.0	15.0	**ABSM-1214-15**
15.0		17.0	15.0	**ABSM-1517-15**
20.0	+0.040 +0.124	23.0	20.0	**ABSM-2023-20**

[3] After press-fit. *Testing methods, page 61*

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Discount scaling		
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10-24	100-199	1,000-2,499
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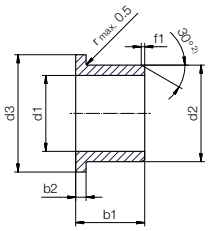
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iglidur® AB
+70°C
25MPa

Bearing technology | Plain bearings | iglidur® AB

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 1-6	Ø 6-12	Ø 12-30
f1 [mm]	0.3	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: ABFM-0608-08 – no minimum order quantity.
AB iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 08 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.020 +0.068	8.0	12.0	8.0	1.00	**ABFM-0608-08**
8.0	+0.025 +0.083	10.0	15.0	9.5	1.00	**ABFM-0810-09**
10.0		12.0	18.0	12.0	1.00	**ABFM-1012-12**
12.0	+0.032 +0.102	14.0	20.0	12.0	1.00	**ABFM-1214-12**
15.0		17.0	23.0	12.0	1.00	**ABFM-1517-12**
20.0	+0.040 +0.124	23.0	30.0	21.5	1.50	**ABFM-2023-21**

[3] After press-fit. *Testing methods, page 61*

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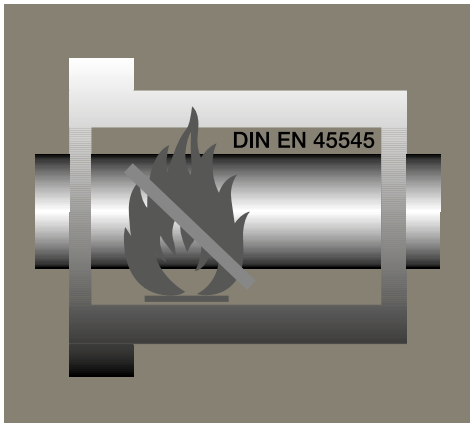
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10-24	100-199	1,000-2,499
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For the rail industry, complies with DIN EN 45545 HL3, R22/R23

Wear-resistant for rail technology

iglidur® RW370

When to use it?

- For applications in rail technology where suitability according to DIN EN 45545 is required
- For high wear resistance at low to medium pressures
- When a low coefficient of friction in dry operation is requested
- Low moisture absorption

When not to use it?

- When high pressure loads occur and suitability according to DIN EN 45545 is not required
  iglidur® G, iglidur® W300
- When temperatures higher than +190°C occur
  iglidur® G, iglidur® Z
- When a cost-effective plain bearing for occasional movements is necessary
  iglidur® G

EN 09/2023

Bearing technology | Plain bearings | iglidur® RW370

Ø
6.0-20.0mm



Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

For the rail industry, complies with DIN EN 45545 HL3, R22/R23

Wear-resistant for rail technology

The first iglidur® material that fulfills the European fire safety standard for rail vehicles is suitable for many wear-stressed applications in railway technology due to its very complete property profile.

- Complies with the European fire protection standard DIN EN 45545 HL3 requirement set R22/R23
- Flame-retardant
- High wear resistance
- Low coefficient of friction
- Lubrication and maintenance-free

Typical application areas

- Door guides and hinges
- Rotating joint
- Entrance staircases
- Seat table mechanisms

Descriptive technical specifications		
Wear resistance at +23°C	–	+
Wear resistance at +90°C	–	+
Wear resistance at +150°C	–	+
Slide property	–	+
Wear resistance under water	–	+
Media resistance	–	+
Resistant to edge pressures	–	+
Resistant to shock and impact loads	–	+
Dirt resistance	–	+

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Online service life calculation
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EN 09/2023

iglidur®
RW370
+170°C
75MPa

Technical data

General properties			Testing method
Density	g/cm³	1.34	
Colour		beige	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.25	ISO 175
Max. moisture absorption	% weight	1.2	ISO 62
Coefficient of friction, dynamic, against steel	µ	0.13-0.17	
pv value, max. (dry)	MPa · m/s	1.20	
Mechanical properties			
Flexural modulus	MPa	2,997	DIN EN ISO 178
Flexural strength at +20°C	MPa	100	DIN EN ISO 178
Compressive strength	MPa	129	
Max. permissible surface pressure (+20°C)	MPa	75	
Shore D hardness		80	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+170	
Max. application temperature short-term	°C	+190	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.22	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	5	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$>10^{12}$	DIN IEC 93
Surface resistance	Ω	$>10^{12}$	DIN 53482

Table 01: Material properties

-50 °C up to +170 °C

75MPa

V-0

RoHS-II

ISO 3547-1

iglidur® RW370 was specially developed for the fire protection requirements in railway technology. It fulfils the specification of DIN EN 45545. Plain bearings made of iglidur® RW370 are used primarily in door systems, seat adjustments and joints, as well as hinges.

Moisture absorption

The moisture absorption of iglidur® RW370 plain bearings is below 0.25% weight in ambient conditions. The saturation limit submerged in water is 1.2% weight.

Vacuum

In vacuum, the moisture content is released as vapour. Due to its low moisture absorption, use in a vacuum is possible.

Radiation resistance

Plain bearings made from iglidur® RW370 are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® RW370 plain bearings are continuously resistant to weathering. The material properties are only slightly affected. Possible discolourations are only superficial.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® RW370 plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® RW370 under different loads. A possible deformation could be, among others, dependant on the duty cycle of the load.
Surface pressure, page 45

EN 09/2023

Bearing technology | Plain bearings | iglidur® RW370

Permissible surface speeds

Although the typical applications of iglidur® RW370 plain bearings are generally in the area of intermittent operation, the maximum attainable speeds can be quite high, depending on the type of motion. The speeds stated in table 03 are limit values for the lowest bearing loads. With higher loads, the permitted speed drops with the extent of the load due to the limitations by the pv value.

Surface speed, page 48

Temperature

The short-term permissible temperature limit is +190°C, which allows the use of iglidur® RW370 plain bearings in all applications involving elevated ambient temperatures. With increasing temperatures, the compressive strength of iglidur® RW370 plain bearings decreases. When considering temperatures, the additional frictional heat in the bearing system must be taken into account. For temperatures over +120°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The excellent coefficient of friction level of iglidur® RW370 in dry operation decreases with speed, to a value of 1.1m/s. Diagram 04 shows this with respect to a steel shaft. Above a speed of 1.25 m/s the coefficient of friction increases significantly as the load limit of the material is reached.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 and 07 display a summary of the test results with different shaft materials conducted with plain bearings made from iglidur® RW370. At a surface pressure of 0.3m/s and 1MPa, shafts made of hard-anodised aluminium and hard-chromed Cf53 are the most suitable glide surfaces. Shafts made from 304 stainless steel or high grade steel also show good results. If the shaft material you plan on using is not shown in these test results, please contact us.

Shaft materials, page 56

Installation tolerances

iglidur® RW370 plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, in standard cases the inner diameter automatically adjusts to the F10 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	+
Diluted alkalines	+
Fuels	+ up to 0
Greases, oils without additives	+
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	**m/s**	0.9	0.6	2.5
Short-term	**m/s**	1.0	0.8	2.6

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.13-0.17	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		F10 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.006	+0.046	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.010	+0.058	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.013	+0.071	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.016	+0.086	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.020	+0.104	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.025	+0.125	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.030	+0.150	-0.074	+0.000
> 80-120	+0.000	+0.035	-0.036	+0.176	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.043	+0.203	+0.000	+0.100

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

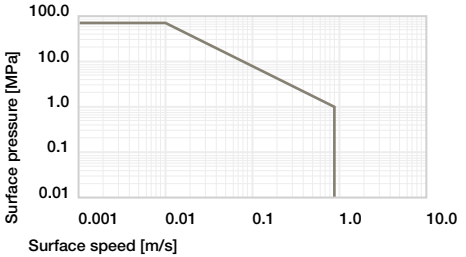


Diagram 01: Permissible pv values for iglidur® RW370 with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing

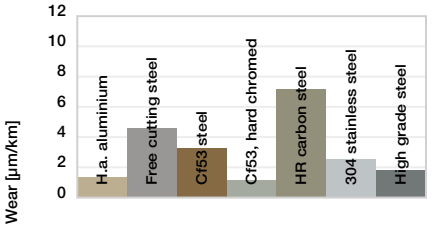


Diagram 05: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

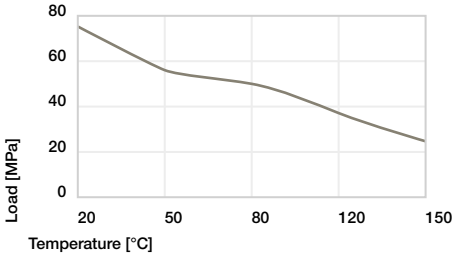


Diagram 02: Maximum recommended surface pressure as a function of temperature (75MPa at +20°C)

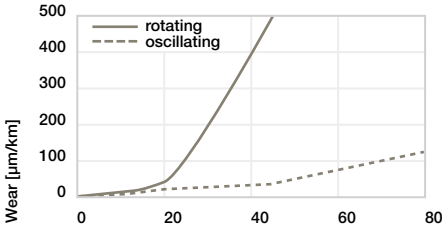


Diagram 06: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

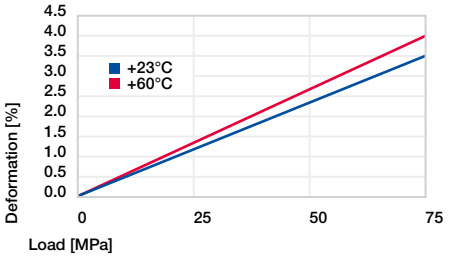


Diagram 03: Deformation under pressure and temperature

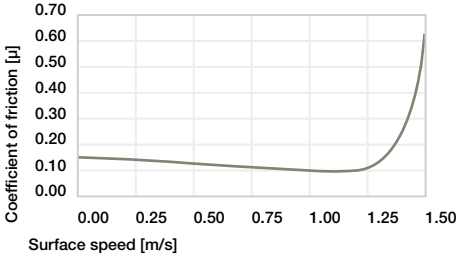
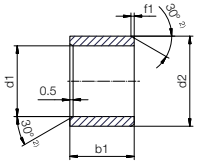


Diagram 04: Coefficient of friction as a function of the surface speed, p = 1MPa

Bearing technology | Plain bearings | iglidur® RW370

Sleeve bearings (form S)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: RW370SM-0608-06 **– no minimum order quantity.**
RW370 iglidur® material S Cylindrical M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	b1 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	6.0	**RW370SM-0608-06**
8.0	+0.013 +0.071	10.0	10.0	**RW370SM-0810-10**
10.0		12.0	10.0	**RW370SM-1012-10**
12.0	+0.016 +0.086	14.0	12.0	**RW370SM-1214-12**
16.0		18.0	15.0	**RW370SM-1618-15**
20.0	+0.020 +0.104	23.0	20.0	**RW370SM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

Order online
including delivery times, prices, online tools
www.igus.eu/RW370

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

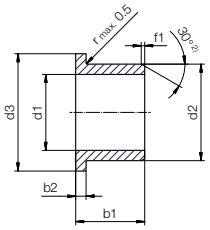
No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.

iglidur®
RW370
+170°C
75MPa

Bearing technology | Plain bearings | iglidur® RW370

Flange bearings (form F)





[2] Thickness < 0.6mm: chamfer = 20°

Chamfer in relation to d1

d1 [mm]	Ø 6-12	Ø 12-30
f1 [mm]	0.5	0.8

Dimensions according to ISO 3547-1 and special dimensions

Order example: RW370FM-0608-06 **– no minimum order quantity.**
RW370 iglidur® material F With flange M Metric 06 Inner Ø d1 08 Outer Ø d2 06 Total length b1

d1 [mm]	d1 Tolerance[3]	d2 [mm]	d3 d13[3] [mm]	b1 h13 [mm]	b2 h13 [mm]	Part No.
6.0	+0.010 +0.058	8.0	12.0	6.0	1.00	**RW370FM-0608-06**
8.0	+0.013 +0.071	10.0	15.0	9.5	1.00	**RW370FM-0810-09**
10.0		12.0	18.0	9.0	1.00	**RW370FM-1012-09**
12.0	+0.016 +0.086	14.0	20.0	12.0	1.00	**RW370FM-1214-12**
16.0		18.0	24.0	12.0	1.00	**RW370FM-1517-12**
20.0	+0.020 +0.104	23.0	30.0	21.5	1.50	**RW370FM-2023-20**

[3] After press-fit. *Testing methods, page 61*

Available from stock
Detailed information about delivery time online.
www.igus.eu/24

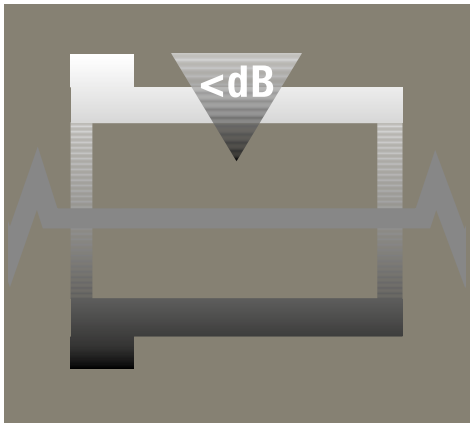
Order online
including delivery times, prices, online tools
www.igus.eu/RW370

Ordering note
Our prices are scaled according to order quantities, current prices can be found online.

Discount scaling		
1-9	50-99	500-999
10-24	100-199	1,000-2,499
25-49	200-499	2,500-4,999

No minimum order value.
No low-quantity surcharges.
Free shipping within Germany for orders above €150.





The variable one

For simple bearing applications

iglidur® B

When to use it?

- When maximum vibration dampening is required
- When sealing function has to be integrated
- When high edge loads occur

When not to use it?

- In applications with high atmospheric humidity
  iglidur® J
- When a cost-effective universal plain bearing is required
  iglidur® R
- When the highest wear resistance is required
  iglidur® J

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Bearing technology | Plain bearings | iglidur® B

Ø
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Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

The variable one
For simple bearing applications

Vibration dampening is the predominant feature of the iglidur® B material, which are also well-suited for edge loads at low pressure.

- Elimination of noise
- High flexibility
- Sealing function possible
- Lubrication-free
- Maintenance-free

Descriptive technical specifications			
Wear resistance at +23°C	–	■■	+
Wear resistance at +90°C	–	■	+
Wear resistance at +150°C	–	■	+
Slide property	–	■■	+
Wear resistance under water	–	■	+
Media resistance	–	■■	+
Resistant to edge pressures	–	■■■■■	+
Resistant to shock and impact loads	–	■■■■	+
Dirt resistance	–	■■■■	+

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Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® B
+100°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.15	
Colour		grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	1	DIN 53495
Max. moisture absorption	% weight	6.3	
Coefficient of friction, dynamic, against steel	µ	0.18-0.28	
pv value, max. (dry)	MPa · m/s	0.15	
Mechanical properties			
Flexural modulus	MPa	1,800	DIN 53457
Flexural strength at +20°C	MPa	55	DIN 53452
Compressive strength	MPa	20	
Max. permissible surface pressure (+20°C)	MPa	40	
Shore D hardness		69	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+100	
Max. application temperature short-term	°C	+130	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	12	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{9}$	DIN 53482

Table 01: Material properties

-40°C up to +100°C

40MPa

HB

RoHS-II

ISO 3547-1

The compressive strength of the iglidur® B plain bearings is on the one hand low, but on the other, is an important property of the bearing. They are mainly used where vibration dampening and acoustic separation are required.

Moisture absorption

The moisture absorption of iglidur® B plain bearings in ambient conditions is approximately 1% weight. The saturation limit submerged in water is 6.3% weight. This must be taken into account for these types of applications.

Vacuum

In vacuum, any present moisture is released as vapour. Use in vacuum is only possible with dehumidified iglidur® B bearings.

Radiation resistance

Plain bearings made from iglidur® B are resistant up to a radiation intensity of $3 \cdot 10^2$ Gy.

Resistance to weathering

iglidur® B plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties

With increasing temperatures, the compressive strength of iglidur® B plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® B at radial loads. At the maximum recommended surface pressure of 40MPa the deformation is about 5.3%.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® B

Permissible surface speeds

iglidur® B plain bearings can be continuously used up to 0.7m/s in rotating applications. The frictional heat provides the speed limits. In practice, though, this level is rarely reached due to varying application conditions.

Surface speed, page 48

Temperature

The maximum long-term application temperature is +100°C. For temperatures over +50°C an additional securing is required. The wear resistance also decreases exponentially from +70°C upwards.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction increases slightly with the speed and decreases with the load. Surface finishes (Ra) of the shaft between 0.4-0.6µm are ideal. As far as the bearing load is not too high, the attained coefficient of wear is pretty good. An increase in load results in a disproportionate increase in abrasion.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

The influence of the shaft is not very large on the wear resistance. Diagram 06 and 07 clarify that very similar wear data are attained with different shaft materials.

Shaft materials, page 56

Installation tolerances

iglidur® B plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® B plain bearings are manufactured to special order.

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	–
Fuels	–
Greases, oils without additives	–
Hydrocarbons	–
Strong acids	–
Strong alkalines	–

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	0.7	0.5	2.0
Short-term	m/s	1.0	0.7	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction µ	0.18-0.28	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.020	+0.080	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.030	+0.105	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.040	+0.130	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.050	+0.160	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.065	+0.195	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.080	+0.240	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.100	+0.290	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.120	+0.340	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.145	+0.395	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

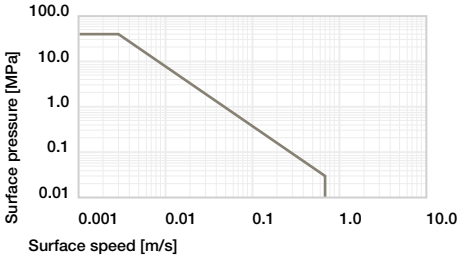


Diagram 01: Permissible pv values for iglidur® B plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

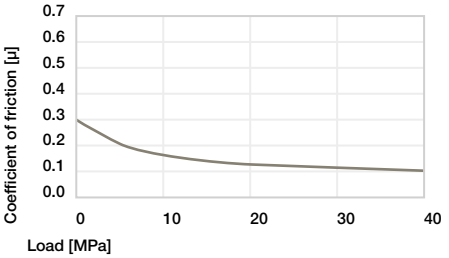


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

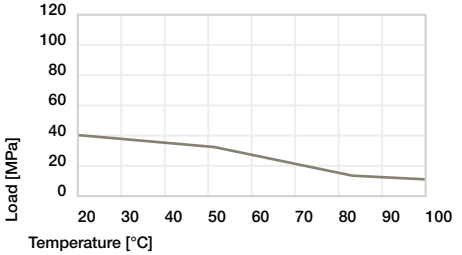


Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

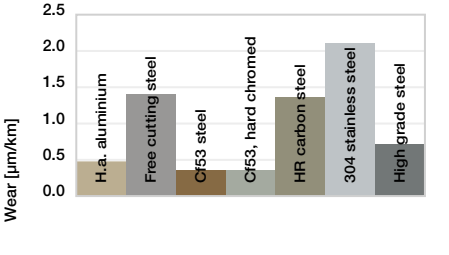


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

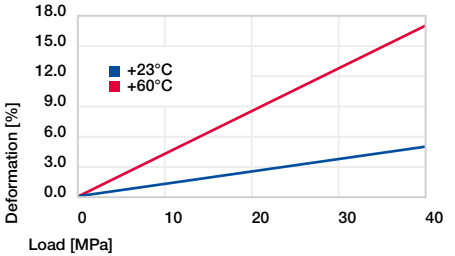


Diagram 03: Deformation under pressure and temperature

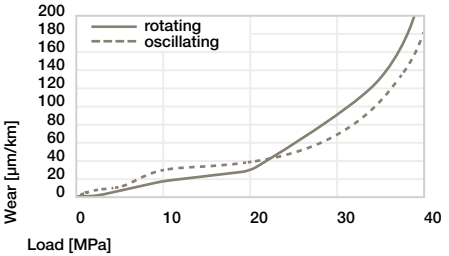


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

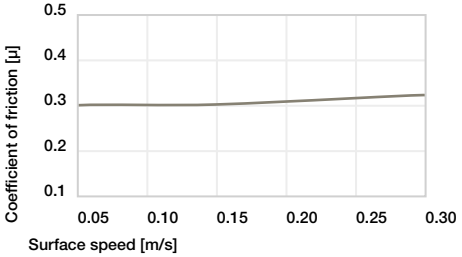
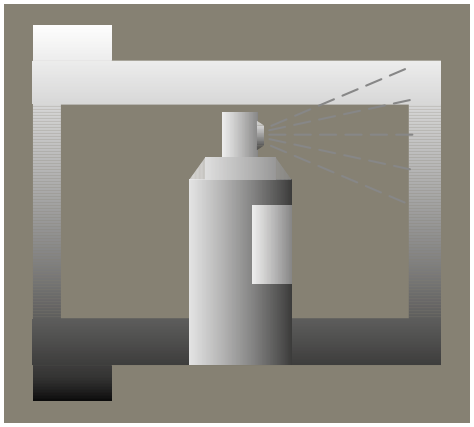


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa





Free from PTFE and silicone

For simple applications

iglidur® C

When to use it?

- When PTFE and silicone are not allowed in your application
- For applications with low speed
- When dirt-resistant bearings is required
- When maintenance-free, self-lubricating bearings is required

When not to use it?

- When the highest wear resistance is required
  iglidur® W300
- When lowest coefficient of friction is required
  iglidur® J, iglidur® L250
- When a cost-effective option is requested
  iglidur® M250
- When low moisture absorption is required
  iglidur® R

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Bearing technology | Plain bearings | iglidur® C

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Free from PTFE and silicone
For simple applications

Although iglidur® C dispenses with the use of PTFE and silicone as lubricants, the bearings still have excellent wear resistance under low loads.

- Maintenance-free dry operation
- High wear resistance
- Lubrication-free
- Maintenance-free

Also available as:

Bar stock, round bar
Page 743

Bar stock, plate
Page 773

tribo-tape liner
Page 781

Guide rings
Page 641

Two hole flange bearings
Page 667

Moulded special parts
Page 696

igubal® spherical balls
Page 993

Descriptive technical specifications			
Wear resistance at +23°C	–		+
Wear resistance at +90°C	–		+
Wear resistance at +150°C	–		+
Slide property	–		+
Wear resistance under water	–		+
Media resistance	–		+
Resistant to edge pressures	–		+
Resistant to shock and impact loads	–		+
Dirt resistance	–		+

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Online service life calculation
www.igus.eu/iglidur-expert

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iglidur® C
+90°C
40MPa

Technical data

General properties			Testing method
Density	g/cm³	1.10	
Colour		off white	
Max. moisture absorption at +23°C/50% r.h.	% weight	1	DIN 53495
Max. moisture absorption	% weight	6.9	
Coefficient of friction, dynamic, against steel	µ	0.17-0.25	
pv value, max. (dry)	MPa · m/s	0.10	
Mechanical properties			
Flexural modulus	MPa	1,900	DIN 53457
Flexural strength at +20°C	MPa	60	DIN 53452
Compressive strength	MPa	30	
Max. permissible surface pressure (+20°C)	MPa	40	
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. application temperature long-term	°C	+90	
Max. application temperature short-term	°C	+130	
Min. application temperature	°C	-40	
Thermal conductivity	W/m · K	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	15	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{10}$	DIN IEC 93
Surface resistance	Ω	$> 10^{9}$	DIN 53482

Table 01: Material properties

-40°C up to +90°C

40MPa

HB

RoHS-II

Plain bearings made from iglidur® C were developed especially for applications where the use of PTFE and silicon is not possible. Such applications can be found in electronics, tobacco and beverages industry and in many painting processes. Keywords like paint compatibility and silicon-free make the further employment of this material reasonable.

Moisture absorption
The moisture absorption of iglidur® C plain bearings is only 6.9% weight after saturation in water. This must be taken into account for these types of applications.

Vacuum
In vacuum, any present moisture is released as vapour. The use in vacuum is only possible to a limited extent.

Radiation resistance
Plain bearings made from iglidur® C are resistant up to a radiation intensity of $2 \cdot 10^4$ Gy.

Resistance to weathering
iglidur® C plain bearings have limited resistance to weathering. The material properties are affected. Discolouration occurs. Practical tests under real application conditions are recommended.

Mechanical properties
With increasing temperatures, the compressive strength of iglidur® C plain bearings decreases. Diagram 02 shows this inverse relationship. The maximum recommended surface pressure is a mechanical material parameter. No conclusions regarding the tribological properties can be drawn from this.
Diagram 03 shows the elastic deformation of iglidur® C at radial loads. The high flexibility makes the bearing suitable for vibrations and edge loads.
Surface pressure, page 45

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Bearing technology | Plain bearings | iglidur® C

Permissible surface speeds

Although important solid lubricants were intentionally not used in the development of iglidur® C, the plain bearings are very wear-resistant and are therefore also suitable for continuous movements at medium surface speeds. Despite it being possible to temporarily attain rotational speeds of up to 1.5m/s, the main applications should nevertheless involve speeds of less than 0.5m/s.

Surface speed, page 48

Temperature

The iglidur® C plain bearings can be used at temperatures up to +130°C for short periods. However no real loads are possible at this temperature. It therefore makes sense to limit the temperature to around +80°C to +90°C. For temperatures over +40°C an additional securing is required.

Application temperatures, page 53
Additional securing, page 53

Friction and wear

The coefficient of friction of the iglidur® C plain bearing is dependent to a large degree on the surface finish of the shaft. The wear of the bearing is very good in applications with rotating or pivoting movements with low loads.

Coefficient of friction and surfaces, page 51
Wear resistance, page 54

Shaft materials

Diagram 06 clearly shows how important the most "suitable" shaft can be. Although all shown results of these rotation experiments can be understood as very good, the difference is sometimes significant. This difference increases still further with increasing loads.

Shaft materials, page 56

Installation tolerances

iglidur® C plain bearings are standard bearings for shafts with h-tolerance (recommended minimum h9). The bearings are designed for press-fit into a housing machined to a H7 tolerance. After being assembled into a nominal size housing, the inner diameter automatically adjusts to the D11 tolerances. For particular dimensions the tolerance differs depending on the wall thickness (please see product range table).

Testing methods, page 61

Product range

iglidur® C plain bearings are manufactured to special order.

Chemicals	Resistance
Alcohols	+ up to 0
Diluted acids	0 up to –
Diluted alkalines	+
Fuels	+
Greases, oils without additives	+
Hydrocarbons	+
Strong acids	–
Strong alkalines	0

All data given at room temperature [+20°C]

Table 02: Chemical resistance

Chemical table, page 1170

		Rotating	Oscillating	linear
Long-term	m/s	1.0	0.7	2.0
Short-term	m/s	1.5	1.1	3.0

Table 03: Maximum surface speeds

	Dry	Greases	Oil	Water
Coefficient of friction μ	0.17-0.25	0.09	0.04	0.04

Table 04: Coefficient of friction against steel (Ra = 1µm, 50HRC)

	Housing		Plain bearings		Shaft	
Ø d1 [mm]	H7 [mm]		D11 [mm]		h9 [mm]	
0-3	+0.000	+0.010	+0.020	+0.080	-0.025	+0.000
> 3-6	+0.000	+0.012	+0.030	+0.105	-0.030	+0.000
> 6-10	+0.000	+0.015	+0.040	+0.130	-0.036	+0.000
> 10-18	+0.000	+0.018	+0.050	+0.160	-0.043	+0.000
> 18-30	+0.000	+0.021	+0.065	+0.195	-0.052	+0.000
> 30-50	+0.000	+0.025	+0.080	+0.240	-0.062	+0.000
> 50-80	+0.000	+0.030	+0.100	+0.290	-0.074	+0.000
> 80-120	+0.000	+0.035	+0.120	+0.340	-0.087	+0.000
> 120-180	+0.000	+0.040	+0.145	+0.395	-0.100	+0.000

Table 05: Important tolerances for plain bearings according to ISO 3547-1 after press-fit

Technical data

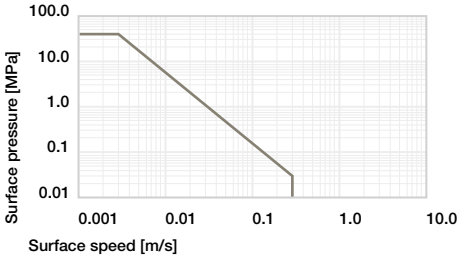


Diagram 01: Permissible pv values for iglidur® C plain bearing with a wall thickness of 1mm dry operation against a steel shaft at +20°C, mounted in a steel housing.

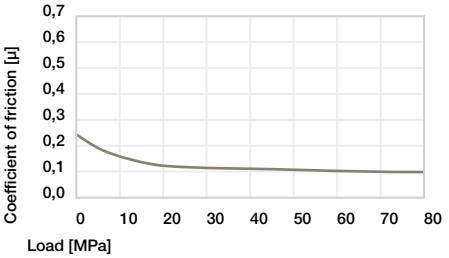


Diagram 05: Coefficient of friction as a function of the pressure, v = 0.01m/s

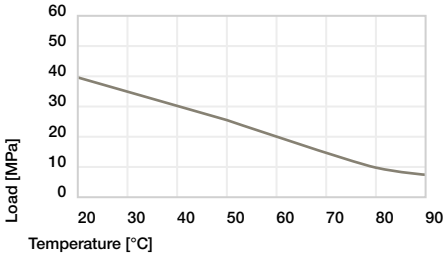


Diagram 02: Maximum recommended surface pressure as a function of temperature (40MPa at +20°C)

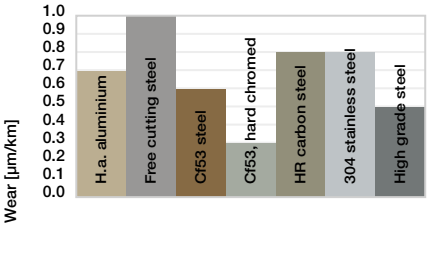


Diagram 06: Wear, rotating with different shaft materials, pressure, p = 1MPa, v = 0.3m/s

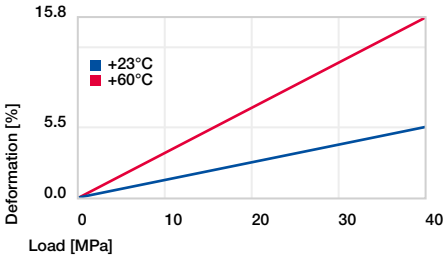


Diagram 03: Deformation under pressure and temperature

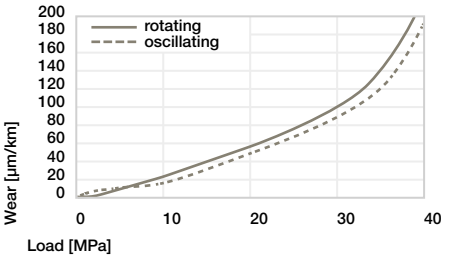


Diagram 07: Wear for oscillating and rotating applications with shaft material Cf53 hardened and ground steel, as a function of the load

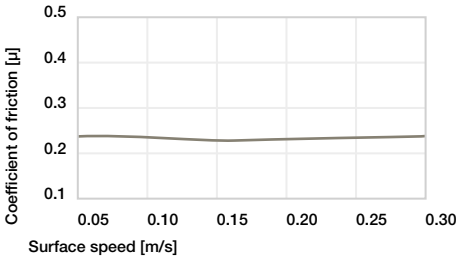
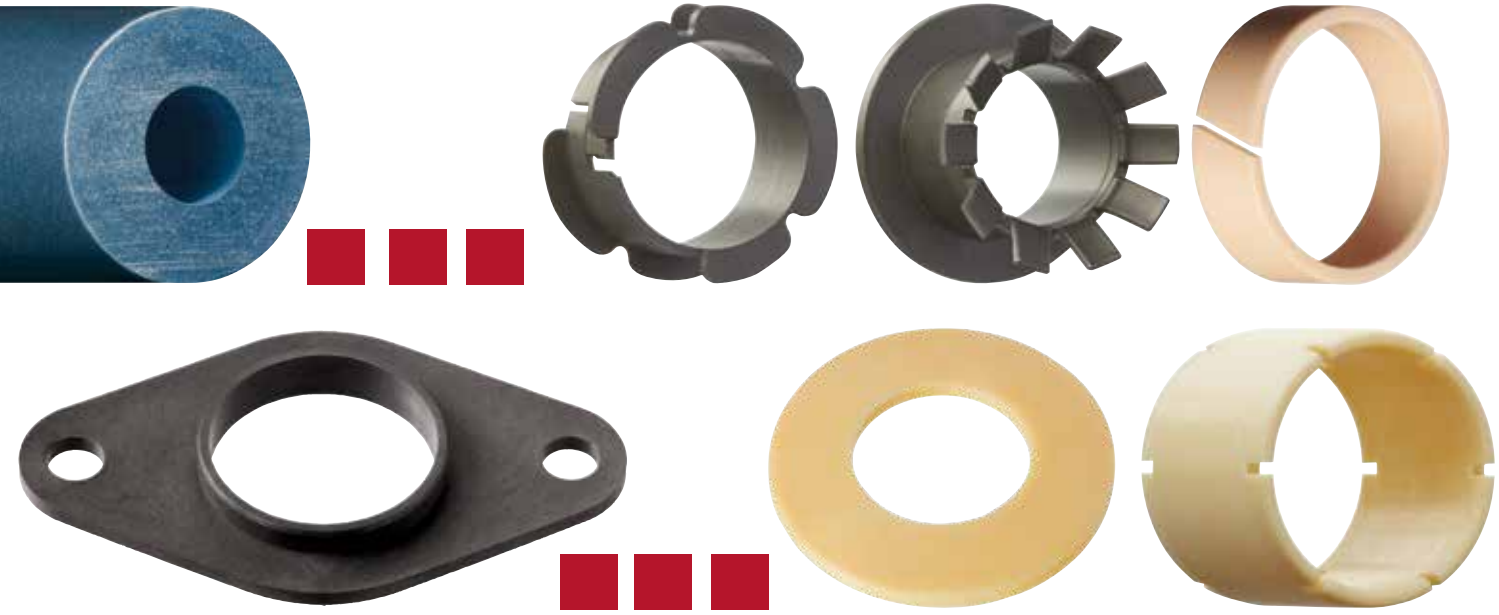


Diagram 04: Coefficient of friction as a function of the surface speed, p = 0.75MPa

iglidur®

Other products



...plastics

iglidur® - other designs | Product overview

iglidur® guide rings and clip bearings



An alternative to PTFE tape:
Guide rings
▶ **Page 641**



Easy to install, security with the double flange design:
Clip bearings
▶ **Page 645**



Easy to install due to split design:
Split bearings
▶ **Page 656**



With anti-rotation feature:
Split bearings
▶ **Page 657**

iglidur® guide rings and clip bearings



Press in and fold down:
Flanged bearings
▶ **Page 658**

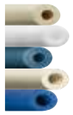


Press and plug:
Double flange bearings
▶ **Page 659**



Join and snap into place:
Special solution
Clip On
▶ **Page 660**

iglidur® solutions for special applications



For precise conveying:
Knife edge rollers
▶ **Page 661**



Secured by screws:
Two hole flange bearings
▶ **Page 667**



With pre-load:
Two hole flange bearings
▶ **Page 670**



Zero clearance and rattle-free: Pre-loaded plain bearings
▶ **Page 671**

iglidur® solutions for special applications



Cushion and dampen:
Disc springs polysorb
▶ **Page 675**



For all shaft surfaces and materials:
iglidur® PEP
▶ **Page 679**



Position and seal:
Lip seal bearings
▶ **Page 683**

New



Plain bearings with felt seal
▶ **Page 687**

igus® Service

New



iglidur® coatings:
High-performance polymers for coating
▶ **Page 691**



Quick and individual:
Customised special parts – print2mold®, FastLine
▶ **Page 695**

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iglidur® guide rings

- Easy installation
- Cost-effective
- More wear-resistant than PTFE strips
- Higher load capacity
- Standard range from stock



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iglidur® guide rings | Advantages

Easy and cost-effective: iglidur® guide rings



Easy installation

Cost-effective

More wear-resistant than PTFE strips

Higher load capacity

Maintenance-free

iglidur® guide rings

Some things can actually be very easy: replace complex stamped PTFE strips with a single clip-on ring, for example in cylinders, control valves and fittings. In addition to the standard iglidur® J range, it is also possible to configure your required guide ring from the entire iglidur® bearing range.

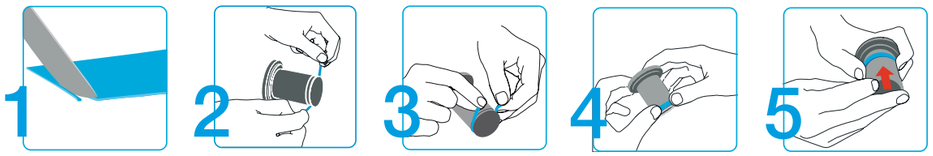
When to use it?

- When guide rings with excellent wear properties are required
- When simple assembly is of great importance
- When high edge loads occur
- When tailor-made solutions based on iglidur® materials are required

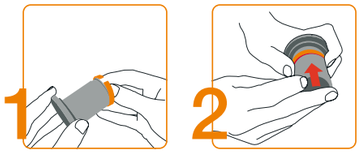
When not to use it?

- When the guide rings should also act as a seal
- When different diameters should be covered by one part

Alternative solutions:



With iglidur®:



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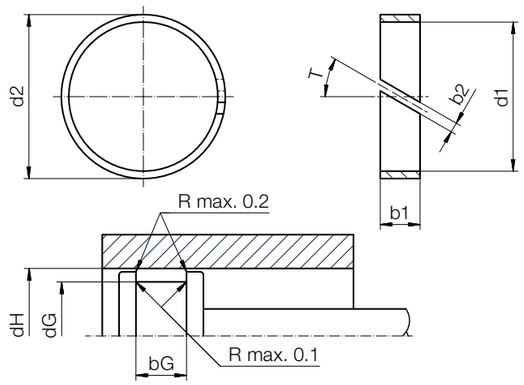
iglidur®
guide rings

iglidur® guide rings | Product range

iglidur® J guide rings, from stock

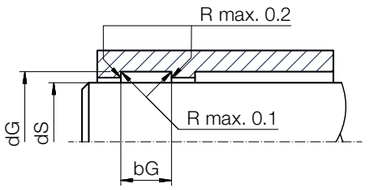
iglidur® J is our all-round material when it comes to an outstanding running performance and low coefficient of friction on the broadest range of shafts. The flexibility of iglidur® J enables the typical assembly expected with guide rings using the push over/clip on method. Good media resistance rounds off the range of properties.





Installation recommendation for piston

Dimensions [mm]	dG (h tolerance)	dH (H tolerance)	bG
Nominal size	dG = d1	dH = d2	bG = b1 +0.2



Installation recommendation for housing

Dimensions [mm]	dS (h tolerance)	dG (H tolerance)	bG
Nominal size	dS = d1	dG = d2	bG = b1 +0.2

Dimensions [mm]

d1	d2	b1 h13	b2 ±0.5	T [°]	Part No.
6	8	6	1.0	0	JPRM-0608-00-010-060[167]
8	10	10	1.0	0	JPRM-0810-00-010-100[167]
10	12	5.4	2.5	20	JPRM-1012-20-025-054
12	14	5.4	2.5	20	JPRM-1214-20-025-054
13	15	5.4	2.5	20	JPRM-1315-20-025-054
14	16	5.4	2.5	20	JPRM-1416-20-025-054
14	16	10	1.0	20	JPRM-1416-20-010-100
16	18	5.4	2.5	20	JPRM-1618-20-025-054
17	22	5.4	2.5	25	JPRM-1722-25-025-054
20	23	5.4	2.5	20	JPRM-2023-20-025-054
25	28	5.4	2.5	20	JPRM-2528-20-025-054
28	32	10	1.0	20	JPRM-2832-20-010-100
28	32	20	1.0	20	JPRM-2832-20-010-200
28	33	5.4	2.5	25	JPRM-2833-25-025-054
30	34	5.4	2.5	20	JPRM-3034-20-025-054
35	39	5.4	2.5	20	JPRM-3539-20-025-054
35	40	5.4	2.5	25	JPRM-3540-25-025-054

[167] Straight slot

d1	d2	b1 h13	b2 ±0.5	T [°]	Part No.
40	44	5.4	2.5	20	JPRM-4044-20-025-054
45	50	5.4	2.5	20	JPRM-4550-20-025-054
45	50	10	2.0	0	JPRM-4550-00-020-100[167]
50	55	5.4	2.5	20	JPRM-5055-20-025-054
50	55	10	2.0	0	JPRM-5055-00-020-100[167]
58	63	9.5 (–0.22)	2.5	25	JPRM-5863-25-025-095
60	65	5.4	2.5	20	JPRM-6065-20-025-054
70	75	5.4	2.5	20	JPRM-7075-20-025-054

Order key

Type			Dimensions [mm]					
iglidur® material	Guide ring	Metric	Inner Ø	Outer Ø	Slot angle	Slot width	Length
J	PRM	-06	08	-00	-010	-060

More Information about iglidur® material and technical data
iglidur® J ▶ Page 163

Max. +90°C
min. -50°C

Ø 6 - 70mm
More dimensions upon request

Available from stock
Detailed information about delivery time online.

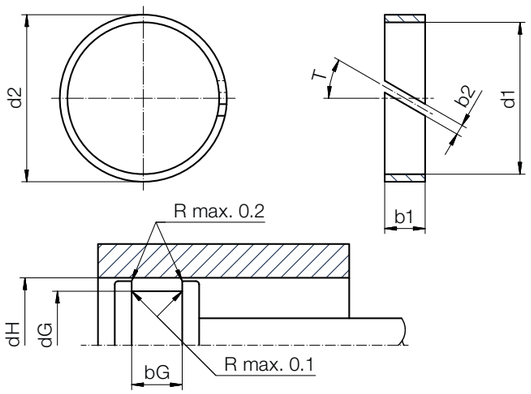
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iglidur® guide rings | Product range

Guide rings as desired

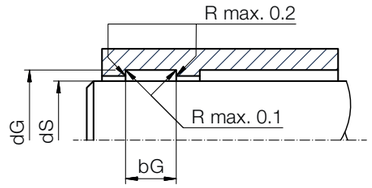
In addition to the stock range of iglidur® J guide rings, you can also select your required guide ring on the basis of the entire iglidur® bearing range.
Use the entire iglidur® plain bearing range and choose the material best suited to your application. Your guide ring will be delivered within 10 days - to your requirements.





Order key

Type	Dimensions [mm]				
☐ PRM-☐☐-☐					
iglidur® required material	Guide ring	Metric	Required inner Ø	Required outer Ø	Required length



Installation recommendation for piston

Dimensions [mm]	dG (h tolerance)	dH (H tolerance)	bG
Nominal size	dG = d1	dH = d2	bG = b1 +0.2

Installation recommendation for housing

Dimensions [mm]	dS (h tolerance)	dG (H tolerance)	bG
Nominal size	dS = d1	dG = d2	bG = b1 +0.2

Our material recommendations for special requirements:

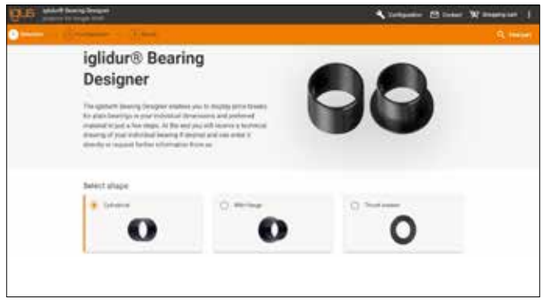
- **iglidur® A181: FDA-compliant ▶ Page 401**
- **iglidur® J350: >+90°C ▶ Page 203**
- **iglidur® H1: Temperatures up to +200°C ▶ Page 345**

In addition to mechanical processing of existing iglidur® plain bearings to guide rings, we also develop custom-made guide ring solutions for your volume requirements. Please contact us, we will support you with your design and create an appropriate proposal.

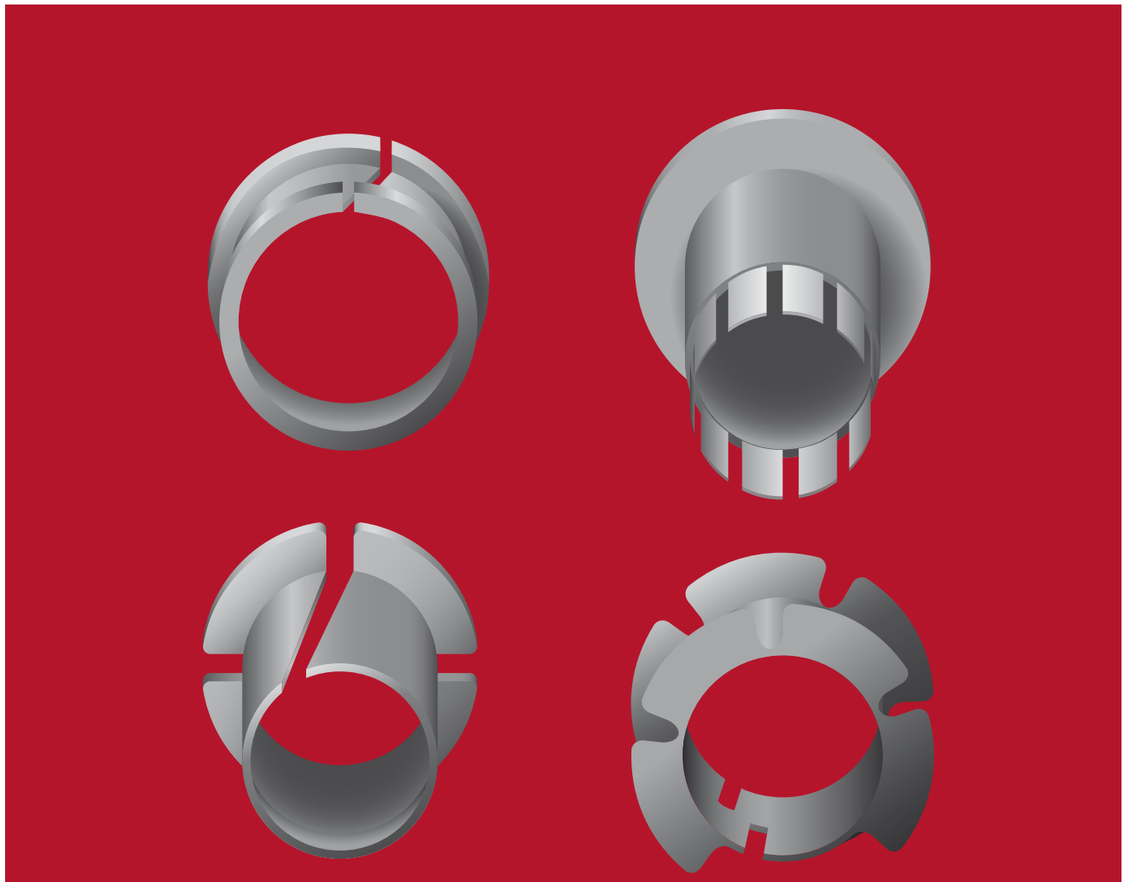
iglidur® guide rings product finder

Material selection and individual dimensions made easy. With just a few clicks, the guide ring finder can find the optimum iglidur® material and select the appropriate dimensions from the standard catalogue range in order to define a guide ring in a customised width.

▶ www.igus.eu/IBD



EN 09/2023



iglidur® - clip bearings

- Easy installation
- Abrasion-resistant
- Predictable service life
- Custom versions possible
- Lubrication and maintenance-free
- Standard range from stock



EN 09/2023

Solutions for stamped sheet metal



iglidur® clip bearings:
Captive with double flange
▶ From page 652



iglidur® split bearings:
Easy assembly due to lateral slot, also with anti-rotation feature
▶ From page 656



iglidur® flanged bearings:
Press in and fold down
▶ From page 658



iglidur® double flange bearings:
Press and plug
▶ From page 659



Special solution
iglidur® Clip On:
Join and snap into place
▶ From page 660

iglidur® clip bearings for fitting shafts

iglidur® clip bearings are designed specifically for fitting shafts through sheet metal. For this reason, the bearings have flanges located on both ends. The plain bearings are secured in the sheet metal plate on both sides after fitting.
The clip bearings have an angled slot which allows them to be fitted from one side. After fitting, the bearing expands and forms a lining for the hole in the metal plate. The shaft prevents the clip bearing from falling out the housing. Even during linear movement, the plain bearing cannot slide out.

- Lateral slot for easy installation
- Lubrication and maintenance-free
- Good adaptability to punched holes
- Abrasion-resistant
- Smooth operation
- For rotating and linear movements

Typical application areas

- Automotive industry
- Mechanical engineering
- Jig construction

Available from stock
Detailed information about delivery time online.

Max. +80°C
min. -40°C

Material: iglidur® M250
6 types
Ø 3 - 25mm
More dimensions upon request

Imperial dimensions available
▶ From page 1150

Material properties

General properties	Unit	iglidur® M250	iglidur® K230	iglidur® K250	iglidur® A230	Testing method
Density	g/cm³	1.14	1.36	1.19	1.20	
Colour		dark grey	dark grey	black	blue	
Max. moisture absorption at +23°C and 50% r.h.	% weight	1.4	0.8	0.3	0.3	DIN 53495
Max. moisture absorption	% weight	7.6	2.9	3.6	2.5	
Coefficient of sliding friction, dynamic against steel	µ	0.18 - 0.40	–	–	–	
pv value, max. (dry)	MPa · m/s	0.12	–	–	–	
Mechanical properties						
Flexural modulus	MPa	2,700	1,600	2,975	1,530	DIN 53457
Flexural strength at +20°C	MPa	112	40	79	53	DIN 53452
Compressive strength	MPa	52	40	–	–	
Max. recommended surface pressure (+20°C)	MPa	20	38	35	18	
Shore D hardness		79	68	70	73	DIN 53505
Physical and thermal properties						
Max. continuous application temperature	°C	+80	+110	+90	+110	
Max. short-term application temperature	°C	+170	+130	+110	+130	
Min. application temperature	°C	-40	-30	-50	-30	
Thermal conductivity	W/m · K	0.24	0.25	0.25	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	11	–	13	DIN 53752
Electrical properties						
Specific volume resistance	Ωcm	> 10^{13}	> 10^{12}	> 10^{12}	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	> 10^{12}	> 10^{12}	> 10^{12}	DIN 53482

Table 01: Material properties table

iglidur® clip bearings | Product overview



iglidur® clip bearings
- Easy to fit due to clip-on feature
- Increased security with the double flange design
- Abrasion-resistant

▶ **From page 652**



iglidur® split bearings (clips2)
- Easy to fit
- Tolerance compensation with angled slot
- Low bearing clearance, high precision

▶ **From page 656**



iglidur® flanged bearings
- Easy installation
- Press-fit
- Axial load on both sides
- Compensation of tolerances of the sheet metal

▶ **From page 658**



iglidur® double flange bearings
- Easy to fit due to clip-on feature
- Large flange surfaces
- Two identical large flange surfaces

▶ **From page 659**



Special solution iglidur® Clip On
- The disc is snapped onto the flanged bearing with undercuts
- Compensation of axial clearance
- Pre-assembly possible
- Combination of conductive and non-conductive materials

▶ **From page 660**

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iglidur® clip bearings | Application examples



Prescription printer: precise and effective
This prescription printer for pharmacies fits into the limited space in a cash register. Absolute accuracy is required for a precise typeface. The ink cartridge holder slides on the metal guide rod, using two iglidur® J plain bearings, and two additional guides on the sheet metal edge help keep the application parallel. The guide rod was mounted with igus® MCM clip bearings.



Sweet nectar with clip bearings
The honeycombs are pierced with needles so that the honey can flow out of them when they are spun around. To ensure that the needles hit all the combs, the frame must shift a few millimetres linearly. Easy-to-clean, cost-effective iglidur® clip bearings and iglidur® fixed flange bearings are used for this.



Weatherproof plain bearings for radiator mascot
By using wear-resistant iglidur® clip bearings, the lowering mechanism for radiator mascots on luxury cars could be improved. Their advantages are the consistent flange thickness and the high wear resistance in various environmental conditions such as cold, heat or fine sand.

General properties

The clip bearings have an angled slot which allows the bearings to be fitted from one side. After fitting, the bearing expands and forms a lining for the hole in the metal plate. The shaft prevents the clip bearing from falling out the housing. Even during linear movement, the bearing cannot slide out. iglidur® clip bearings are made from wear-resistant material iglidur® M250.
iglidur® M250 is a plain bearing material with strong wear resistance at average loads. The plain bearings are self-lubricating and can be used dry. If required the plain bearings can also be lubricated. The material iglidur® M250 is resistant to all common lubricants.

Mechanical properties

The permissible static surface pressure of iglidur® M250 at room temperature is 20MPa. Due to the possibility of high tolerances in the housing hole, the clip bearing has a high compressive strength even for punched holes.
For bearing surfaces that are very small, the vibration dampening properties and the resistance to edge pressure are especially important.

▶ iglidur® M250, **Page 111**

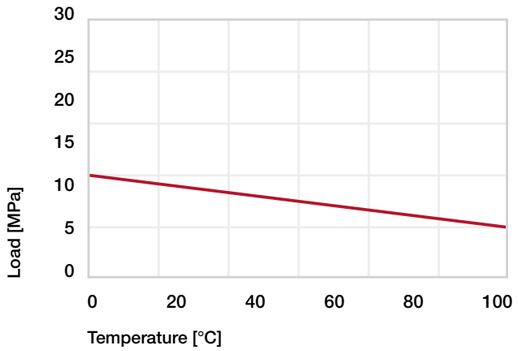


Diagram 01: Maximum recommended surface pressure as a function of temperature (20MPa at +20°C)

Permissible surface speeds

Clip bearings are extremely wear-resistant in slow rotating, oscillating, and linear movements. The maximum surface speeds for the different movements are the same as for the material iglidur® M250 (table 01).
With lubrication the permissible surface speeds can be increased.

▶ Surface speed, **page 48**

m/s	Rotating	Oscillating	linear
Long-term	0.8	0.6	2.5
Short-term	2	1.4	5

Table 01: Maximum surface speeds

Temperatures

For operating temperatures up to +80°C iglidur® clip bearings display high wear resistance. Even in the cold, the plain bearings remain elastic and abrasion-resistant.

▶ Application temperatures, **page 53**

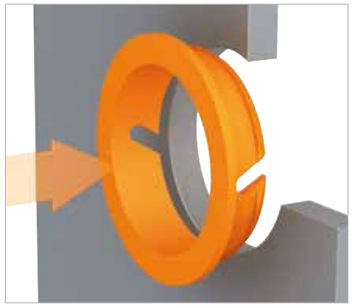
iglidur® M250	Application temperature
Minimum	-40°C
Max. long-term	+80°C
Maximum, short-term	+170°C

Table 02: temperature limits

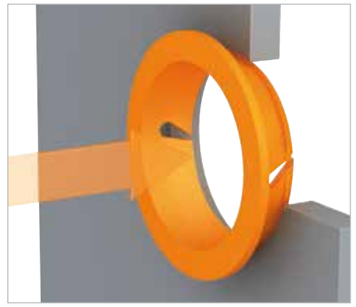
Assembly

For installation, the plain bearings are pressed together on the side with the large flange. The angled slot makes the bearing spiral shaped so that it can be placed easily into the metal plate. The slot also compensates for expansions of the circumference. In this way, a tight clearance is possible with the clip bearings. The bearing clearance is dimensioned in such a way that in a housing hole with a nominal diameter, a shaft made with the same nominal diameter turns easily. The clip bearings should be fitted into a housing with a "H" class tolerance, up to H13. The clip bearing can also rotate within the housing hole.

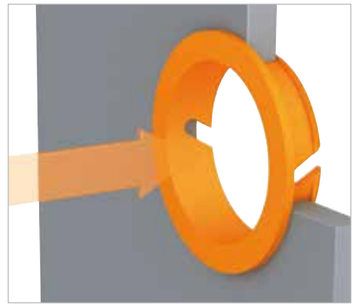
Fitting:



Simple axial press in



Axial safety through the second flange



Easy installation via clip on mechanism

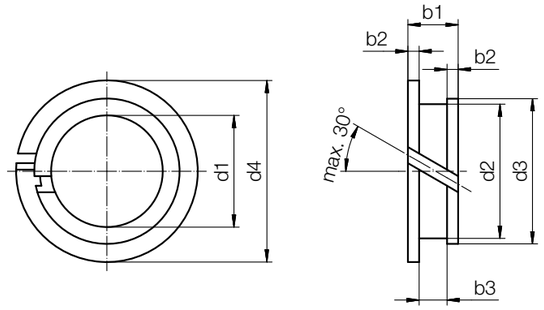
Please contact us if you need this special solution for your application. We will help you with your design, drawing on the experience that we have with a large number of custom bearing solutions.

iglidur® clip bearings | Product range

Clip bearings for sheet metals - captive with double flange



Image exemplary



Order key

Type	Dimensions [mm]

M C M -03-02

iglidur® material	Form	Metric	Inner Ø	Metal sheet thickness

Material:
iglidur® M250 ▶ Page 111

Imperial dimensions available
▶ From page 1149

Dimensions [mm]

d1 D11[7]	d2	d3	d4	b1 +0.20	b2 -0.10	b3	Part No.
3	4.2	4.8	6.0	3.2	0.6	2.0	**MCM-03-02**
3	4.2	4.8	6.0	4.2	0.6	3.0	**MCM-03-03**
4	5.2	5.9	7.0	3.2	0.6	2.0	**MCM-04-02**
4	5.2	5.9	7.0	4.2	0.6	3.0	**MCM-04-03**
5	6.2	6.8	8.0	3.2	0.6	2.0	**MCM-05-02**
5	6.2	6.8	8.0	4.2	0.6	3.0	**MCM-05-03**
6	7.2	7.8	11.0	2.7	0.6	1.5	**MCM-06-015**
6	7.2	7.8	11.0	3.2	0.6	2.0	**MCM-06-02**
6	7.2	7.8	11.0	4.2	0.6	3.0	**MCM-06-03**
6	7.2	7.8	11.0	5.2	0.6	4.0	**MCM-06-04**
7	9.0	9.8	13.0	4.6	0.8	3.0	**MCM-07-03**
8	9.6	10.4	13.0	3.6	0.8	2.0	**MCM-08-02**
8	9.6	10.4	13.0	4.6	0.8	3.0	**MCM-08-03**
8	9.6	13.0	10.4	5.6	0.8	4.0	**MCM-08-04**
9	10.6	11.4	14.0	3.6	0.8	2.0	**MCM-09-02**
10	11.6	12.4	15.0	3.6	0.8	2.0	**MCM-10-02**
10	11.6	12.4	15.0	4.1	0.8	2.5	**MCM-10-025**

d1 D11[7]	d2	d3	d4	b1 +0.20	b2 -0.10	b3	Part No.
10	11.6	12.4	15.0	4.6	0.8	3.0	**MCM-10-03**
10	11.6	12.4	15	5.6	0.8	4.0	**MCM-10-04**
10	11.6	12.4	15	9.6	0.8	8.0	**MCM-10-08**
12	13.6	14.4	17	3.6	0.8	2.0	**MCM-12-02**
12	13.6	14.4	17	4.35	0.8	2.75	**MCM-12-025**
12	13.6	14.4	17	4.6	0.8	3.0	**MCM-12-03**
12	13.6	14.4	17	5.1	0.8	3.5	**MCM-12-035**
12	13.6	14.4	17	5.6	0.8	4.0	**MCM-12-04**
12	13.6	14.4	17	6.4	0.8	4.8	**MCM-12-045**
14	15.6	16.4	19	4.6	0.8	3.0	**MCM-14-03**
16	17.6	18.4	21	3.6	0.8	2.0	**MCM-16-02**
16	17.6	18.4	21	4.6	0.8	3.0	**MCM-16-03**
18	20.0	21.0	23	4.0	1.0	2.4	**MCM-18-02**
18	20.0	21.0	23	5.0	1.0	3.0	**MCM-18-03**
20	22.0	23.0	25	5.0	1.0	3.0	**MCM-20-03**
25	27.0	28.0	30	5.0	1.0	3.0	**MCM-25-03**
25	27.0	28.0	30	8.0	1.0	6.0	**MCM-25-06**

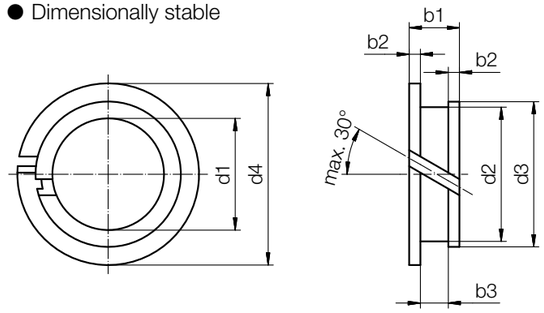
[7] d1 value is measured with a plug gauge after fitting into a reference housing d2 (+0.005). Please see D11 tolerances table ▶ Page 62

iglidur® clip bearings | Product range New

Clip bearings for e-coating processes



- High temperature resistance
- e-coating
- Dimensionally stable



Order key

Type	Dimensions [mm]

K250 C M -05-02

iglidur® material	Form	Metric	Inner Ø	Metal sheet thickness

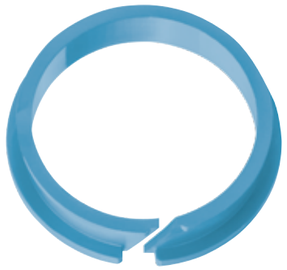
Material:
iglidur® K250 ▶ Page 1188

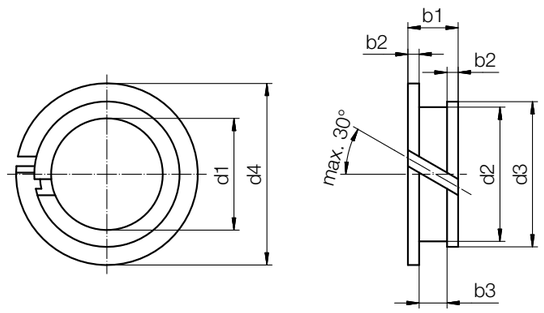
Dimensions [mm]

d1	d2 D11	d3	d4	b2	b1	Part No.
5	6.2	6.8	8.0	0.6	3.2	**K250CM-05-02** New
6	7.2	7.8	11.0	0.6	4.2	**K250CM-06-03** New
8	9.6	10.4	13.0	0.8	4.6	**K250CM-08-03** New
10	11.6	12.4	15.0	0.8	4.6	**K250CM-10-03** New
12	13.6	14.4	17.0	0.8	4.6	**K250CM-12-03** New

iglidur® clip bearings | Product range New

Clip bearings for sheet metal in the food industry





Order key

Type	Dimensions [mm]

A230 C M-05-02

iglidur® material	Form	Metric	Inner Ø	Metal sheet thickness

Material:
iglidur® A230 ▶ Page 1188

- FDA and EU10/2011 compliant
- Visually detectable
- Low moisture absorption
- Suitable for use in the food industry and medical technology

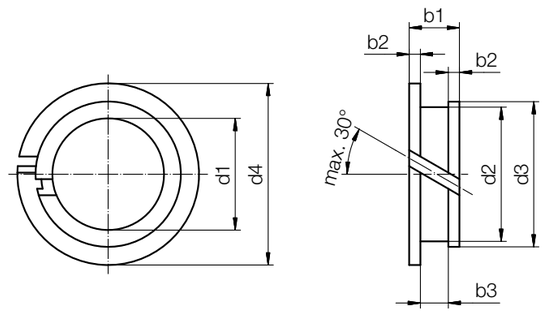
Dimensions [mm]

d1	d2 D11	d3	d4	b2	b1	Part No.
5	6.2	6.8	8.0	0.6	3.2	**A230CM-05-02** New
6	7.2	7.8	11.0	0.6	4.2	**A230CM-06-03** New
8	9.6	10.4	13.0	0.8	4.6	**A230CM-08-03** New
10	11.6	12.4	15.0	0.8	4.6	**A230CM-10-03** New
12	13.6	14.4	17.0	0.8	4.6	**A230CM-12-03** New

iglidur® clip bearings | Product range

Clip bearing with low coefficient of friction and wear





Order key

Type	Dimensions [mm]

K230 C M-05-02

iglidur® material	Form	Metric	Inner Ø	Metal sheet thickness

Material:
iglidur® K230 ▶ Page 1187

These clip bearings are made of wear-resistant iglidur® high-performance polymers and are designed specifically for fitting shafts through sheet metal. With this specific clip bearing design, a locating spigot is utilised to enable fitting into less precise holes and housings. The new iglidur® K230 material offers a lower moisture absorption and even more flexibility compared to the iglidur® M250 clip bearings.

- Lubrication and maintenance-free
- Low moisture absorption
- Temperature resistance
- Chemical resistance
- Corrosion-resistant

Dimensions [mm]

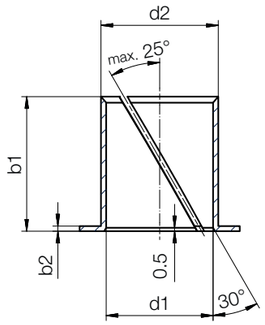
d1	d2 D11	d3	d4	b2	b1	Part No.
5	6.2	6.8	8.0	0.6	3.2	**K230CM-05-02** New
6	7.2	7.8	11.0	0.6	4.2	**K230CM-06-03** New
8	9.6	10.4	13.0	0.8	4.6	**K230CM-08-03** New
10	11.6	12.4	15.0	0.8	4.6	**K230CM-10-03** New
12	13.6	14.4	17.0	0.8	4.6	**K230CM-12-03** New

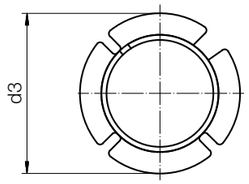
iglidur® clip bearings | Product range

Split bearings (clips2) - easy assembly



Image exemplary





r = max. 0.5mm

Order key

Type	Dimensions [mm]
M Y M-04-04	

iglidur® material | Form | Metric | Inner Ø | Total length

Material:
iglidur® M250 ▶ Page 111
With anti-rotation feature ▶ Page 657

Imperial dimensions available
▶ From page 1150

Dimensions [mm]

d1	d1 tolerance[7)]	d2[9)]	d3 ±0.40	b1 -0.40	b2 -0.13	Part No.
4	+0.025 +0.075	5.2	7.0	4.0	0.6	**MYM-04-04**
5	+0.025 +0.075	6.2	8.0	5.0	0.6	**MYM-05-05**
6	+0.025 +0.075	7.2	9.5	6.0	0.6	**MYM-06-06**
8	+0.025 +0.075	9.6	12.0	8.0	0.8	**MYM-08-08**
10	+0.025 +0.075	11.6	15.0	10.0	0.8	**MYM-10-10**
12	+0.025 +0.075	13.6	18.0	12.0	0.8	**MYM-12-12**
14	+0.025 +0.075	15.6	21.0	14.0	0.8	**MYM-14-14**
16	+0.025 +0.075	17.6	24.0	16.0	0.8	**MYM-16-16**
20	+0.025 +0.075	21.6	30.0	16.0	0.8	**MYM-20-16**
20	+0.025 +0.075	21.6	30.0	20.0	0.8	**MYM-20-20**
25	+0.025 +0.075	27.4	37.5	25.0	1.2	**MYM-25-25**

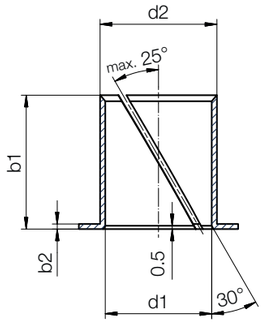
[7)] d1 value is measured with a plug gauge after fitting into a reference housing d2 (+0.005)
[9)] Recommended housing hole tolerance: H9

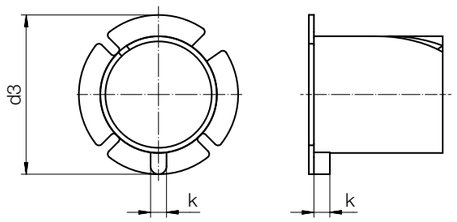
iglidur® clip bearings | Product range

Split bearings with anti-rotation feature



Image exemplary





Order key

Type	Dimensions [mm]	Option
M Y M- 04 - 04		-K

iglidur® material | Form | Metric | Inner Ø | Total length | Anti-rotation feature

Material:
iglidur® M250 ▶ Page 111

Imperial dimensions available
▶ From page 1150

Dimensions [mm]

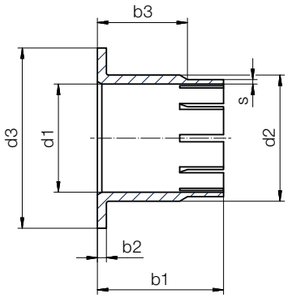
d1	d1 tolerance[8)]	d2[9)]	d3 ±0.40	b1 -0.40	b2 -0.13	k	Part No.
4	+0.025 +0.075	5.20	7.00	4.00	0.60	1.0	**MYM-04-04-K**
5	+0.025 +0.075	6.20	8.00	5.00	0.60	1.0	**MYM-05-05-K**
6	+0.025 +0.075	7.20	9.50	6.00	0.60	1.5	**MYM-06-06-K**
10	+0.025 +0.075	11.60	15.00	10.00	0.80	2.0	**MYM-10-10-K**
14	+0.025 +0.075	15.60	21.00	14.00	0.80	3.0	**MYM-14-14-K**

[8)] d1 value is measured with a plug gauge after fitting into a reference housing d2 (+0.005)
[9)] Recommended housing hole tolerance: H9

iglidur® clip bearings | Product range

Flanged bearings - press in and fold down





Order key

Type	Dimensions [mm]
M K M-1012-10	

iglidur® material | Form | Metric | Inner Ø | Outer Ø | Metal sheet thickness

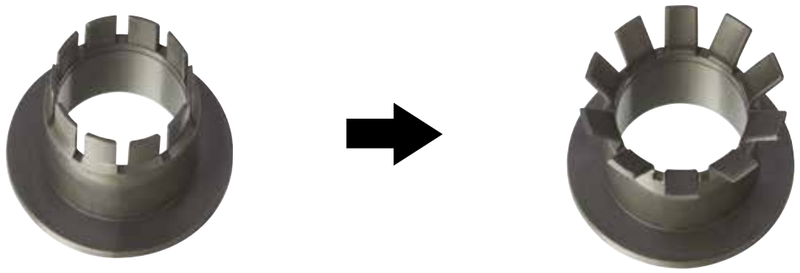
Material:
iglidur® M250 ▶ Page 111

Sample dimension [mm]

d1	d1 tolerance[3]	d2	d3	b1	b2	b3	Øs	Part No.
	E10		d13	h13	h13	+0.1/+0.7	±0.1	
10	+0.025 +0.083	12	18	14	1	10	0.4	**MKM-1012-10**

[3] After press-fit; testing methods ▶ Page 61

Fitting:



Press-fit, fold down, ready: axial load on both sides

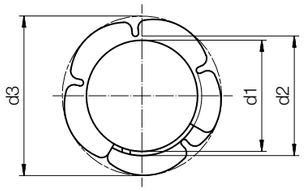


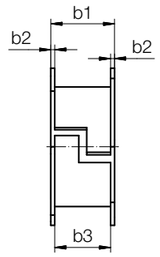
Please contact us if you need a custom-made double flange bearing for your application. We will help you with your design, drawing on the experience that we have with a large number of custom bearing solutions.

iglidur® clip bearings | Product range

Double flange bearings - press and plug







Order key

Type	Dimensions [mm]
M D M-1213-06	

iglidur® material | Form | Metric | Inner Ø | Outer Ø | Metal sheet thickness

Material:
iglidur® M250 ▶ Page 111

Sample dimension [mm]

d1	d1 tolerance[8]	d2	d3	b1	b2	b3	Part No.
12	+0.050 +0.160	13	16.5	7	0.5	6.0	**MDM-1213-06**

[8] d1 value is measured with a plug gauge after fitting into a reference housing d2 (+0.005)

Fitting:



Please contact us if you need a custom-made double flange bearing for your application. We will help you with your design, drawing on the experience that we have with a large number of custom bearing solutions.

iglidur® special solutions | Product range

iglidur® Clip On - Join and snap into place



The solution for all applications in stamped sheet metal retainers

iglidur® Clip On are frequently used in seat and convertible top systems and multi-joint hinges. iglidur® Clip On bearings facilitate captive assembly even in punched sheet metal/ steering arms with limited fine blanking content.

- Compensation of axial clearance
- Pre-assembly possible
- Electrically conductive materials are available
- Pressure-resistant materials up to 80MPa

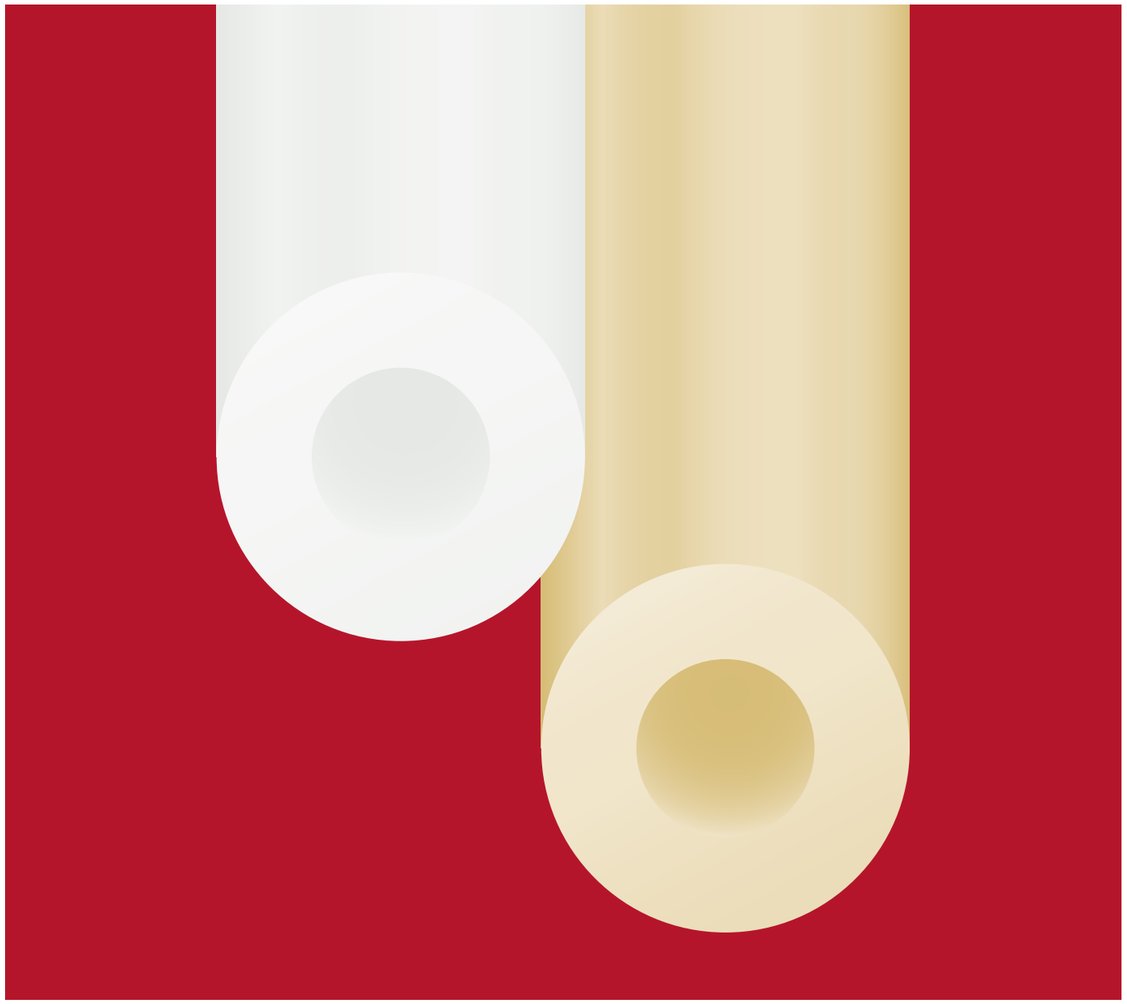
The Clip On bearings can also be produced from electrically conductive iglidur® RN89, thus permitting e-coating.

Material:
iglidur® M250 ▶ Page 111
iglidur® RN89 ▶ Page 1192

Fitting:
The disc is clipped onto the flange bushing with undercuts.



Please contact us if you need this special solution for your application. We will help you with your design, drawing on the experience that we have with a large number of custom bearing solutions.



iglidur® knife edge rollers

100% lubrication-free

Low drive power

Tight belt deflection

Long service life of the belt

Cost-effective

Long service life

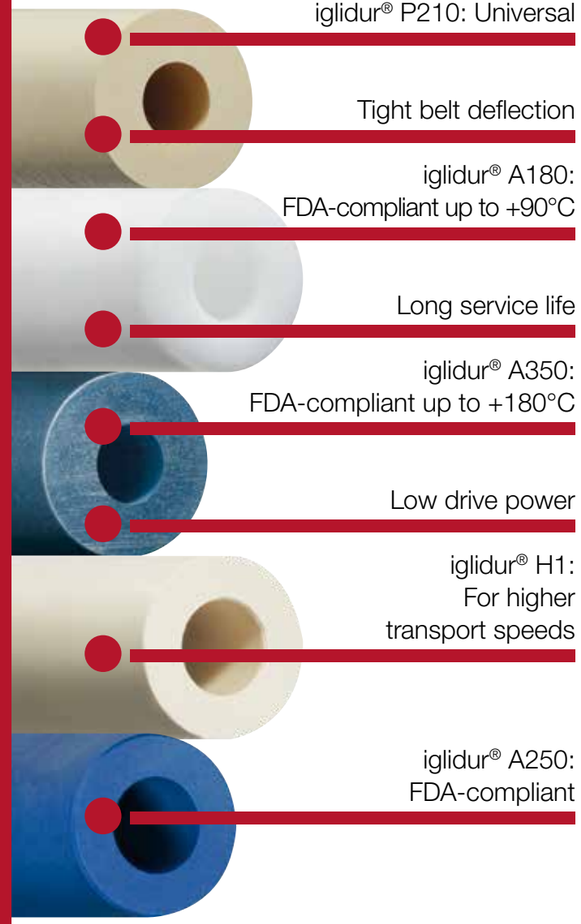
Standard range from stock



EN 09/2023

iglidur® knife edge rollers | Advantages

Lubrication-free and precise deflection of conveyor belts



iglidur® knife edge rollers

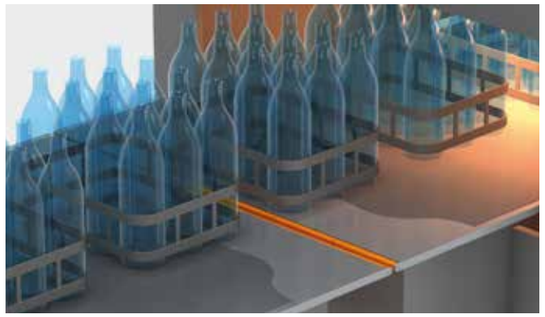
igus® has developed its own knife-edge rollers to deflect conveyor belts in materials handling applications. The iglidur® solution is characterised by tight belt deflection and a low level of required drive power.

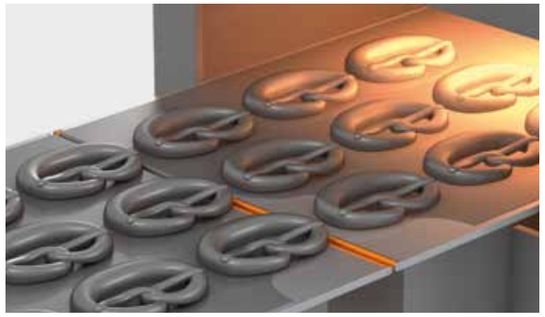
When to use it?

- When a lubrication-free deflection of conveyor belt is required
- When a precise guiding is required
- When a cost-effective and lightweight solution is required

When not to use it?

- In constant high speed belt
- When high forces are applied on the belts
- When a static knife edge is required





Available from stock
Detailed information about delivery time online.

Depending on material:
iglidur® P210: -40°C up to+100°C
iglidur® A180: -50°C up to+90°C
iglidur® A350: -100°C up to+180°C
iglidur® H1: -40°C up to+200°C

4 materials
Ø 9 - 20mm
More dimensions upon request

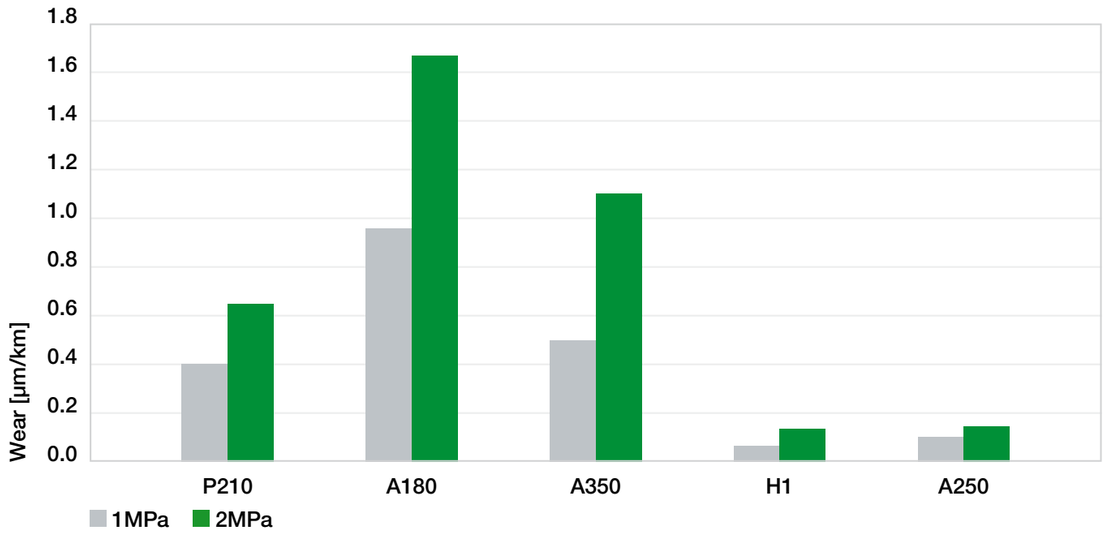
EN 09/2023

iglidur® knife edge rollers | Technical data

Material properties

General properties	Unit	iglidur® P210	iglidur® A180	iglidur® A350	iglidur® H1	iglidur® A250	Testing method
Density	g/cm³	1.40	1.46	1.42	1.53	1.34	
Colour		yellow	white	blue	cream	blue	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.3	0.2	0.6	0.1	0.3	DIN 53495
Max. moisture absorption	% weight	0.5	1.3	1.9	0.3	4.2	
Coefficient of sliding friction, dynamic against steel	µ	0.07 - 0.19	0.05 - 0.23	0.1 - 0.2	0.06 - 0.20	n.s.	
pv value, max. (dry)	MPa · m/s	0.4	0.31	0.4	0.8	n.s.	
Mechanical properties							
Flexural modulus	MPa	2,500	2,300	2,000	2,800	2,540	DIN 53457
Flexural strength at +20°C	MPa	70	88	110	55	84	DIN 53452
Compressive strength	MPa	50	78	78	78	n.s.	
Max. recommended surface pressure (+20°C)	MPa	50	28	60	80	34	
Shore D hardness		75	76	76	77	74	DIN 53505
Physical and thermal properties							
Max. long-term application temperature	°C	+100	+90	+180	+200	+90	
Max. short-term application temperature	°C	+160	+110	+210	+240	+180	
Min. application temperature	°C	-40	-50	-100	-40	-40	
Thermal conductivity	W/m · K	0.25	0.25	0.24	0.24	n.s.	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	8	11	8	6	n.s.	DIN 53752
Electrical properties							
Specific transitional resistance	Ωcm	> 10^{12}	> 10^{12}	> 10^{11}	> 10^{12}	> 10^{11}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	> 10^{11}	> 10^{11}	> 10^{11}	> 10^{11}	DIN 53482

Table 01: Material properties table

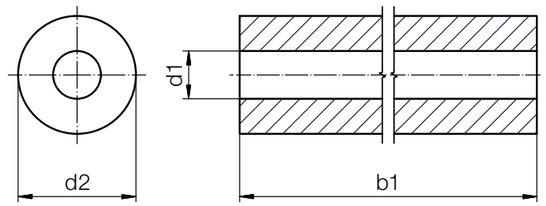


Wear comparison; 0.3m/s; 304 SS shaft; 1MPa and 2MPa

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iglidur® knife edge rollers | Product range





- For particularly tight belt deflection
- No production contamination caused by lubricants
- Hygienic design without ball or needle rollers
- Easy to clean
- Suitable for direct contact with food
- Resistant to temperature and chemicals

Order key

Type				Dimensions [mm]		
P210	RL	M	-03	09	-	50
iglidur® material	Roller	Metric		Inner Ø	Outer Ø	Total length

Options:
iglidur® material
P210: iglidur® P210
A180: iglidur® A180
A350: iglidur® A350
H1: iglidur® H1

Knife edge rollers made from iglidur® P210 - universal, up to +100°C

d1 +0.1 [mm]	d2[147] ±0.1 [mm]	b1 -0.3 [mm]	Part No.
3.1	9.0	50.0	P210RLM-0309-50
4.1	9.0	50.0	P210RLM-0409-50
5.1	11.0	70.0	P210RLM-0511-70
5.1	14.0	70.0	P210RLM-0514-70
6.1	12.0	70.0	P210RLM-0612-70
6.1	14.0	70.0	P210RLM-0614-70
8.1	12.0	70.0	P210RLM-0812-70
8.1	14.0	70.0	P210RLM-0814-70
8.1	16.0	77.0	P210RLM-0816-77
8.1	18.0	70.0	P210RLM-0818-70
10.1	20.0	70.0	P210RLM-1020-70

Knife edge rollers made from iglidur® A180 - FDA-compliant, up to +90°C

d1 +0.1 [mm]	d2[147] ±0.1 [mm]	b1 -0.3 [mm]	Part No.
3.1	9.0	50.0	A180RLM-0309-50
4.1	9.0	50.0	A180RLM-0409-50
5.1	11.0	70.0	A180RLM-0511-70
5.1	14.0	70.0	A180RLM-0514-70
6.1	12.0	70.0	A180RLM-0612-70
6.1	14.0	70.0	A180RLM-0614-70
8.1	12.0	70.0	A180RLM-0812-70
8.1	14.0	70.0	A180RLM-0814-70
8.1	18.0	70.0	A180RLM-0818-70
10.1	20.0	70.0	A180RLM-1020-70

[147] Measured with gauge

Knife edge rollers made from iglidur® A250 - wear-resistant conveyor belt support, up to +90°C

d1 +0.1 [mm]	d2[147] ±0.1 [mm]	b1 -0.3 [mm]	Part No.	
4.1	9.0	50.0	A250RLM-0409-50	New
6.1	12.0	70.0	A250RLM-0612-70	New
8.1	12.0	70.0	A250RLM-0812-70	New
8.1	14.0	70.0	A250RLM-0814-70	New
8.1	16.0	70.0	A250RLM-0816-70	New

Knife edge rollers made from iglidur® A350 - FDA-compliant, up to +180°C

d1 +0.1 [mm]	d2[147] ±0.1 [mm]	b1 -0.3 [mm]	Part No.
3.1	9.0	50.0	A350RLM-0309-50
6.1	12.0	70.0	A350RLM-0612-70
6.1	14.0	70.0	A350RLM-0614-70
8.1	18.0	70.0	A350RLM-0818-70

Knife edge rollers made from iglidur® H1 for higher transport speeds, up to +200°C

d1 +0.1 [mm]	d2[147] ±0.1 [mm]	b1 -0.3 [mm]	Part No.
3.1	9.0	50.0	H1RLM-0309-50
4.1	9.0	50.0	H1RLM-0409-50
5.1	11.0	70.0	H1RLM-0511-70
6.1	12.0	70.0	H1RLM-0612-70
6.1	14.0	70.0	H1RLM-0614-70
8.1	12.0	70.0	H1RLM-0812-70
8.1	14.0	70.0	H1RLM-0814-70

[147] Measured with gauge

Notes



iglidur® two hole flange bearing

- Very good wear resistance
- Maintenance-free dry operation
- Lightweight
- Standard range from stock



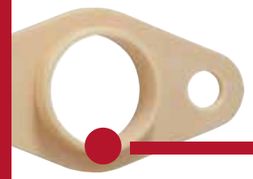
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iglidur® two hole flange bearings | Advantages

Maintenance-free dry operation



iglidur® G:
Standard material for all-round applications



iglidur® J:
Material for low wear



iglidur® X:
Material for high temperature applications



iglidur® A180
Material for use in the food sector



iglidur® J:
Two hole flanged bearing with preload

iglidur® - maintenance-free two hole flange bearings

With this design it is possible to use iglidur® high performance plain bearings in locations where recommended housing hole tolerances are not possible. Due to the design of the bearing, high loads are possible although there is a minimal precision requirement of the housing.

- Very good wear resistance
- Lightweight
- Lubrication-free

Assembly

For low radial loads, it is sufficient to mount iglidur® two hole flange bearings on one surface simply with two bolts. For higher radial loads, it advisable to support the iglidur® two hole flange bearing in a housing or boss. For this hole, large tolerances are permitted, since it serves only as additional support for the iglidur® two hole flange bearing. In order to achieve higher radial loads in the bearings, the iglidur® two hole flange bearing can be press-fit into a recommended housing hole with H7 tolerances. The additional bolts ensure the fit of the bearing in the housing.

Available from stock
Detailed information about delivery time online.

Depending on material:

iglidur® G:	-40°C up to+130°C
iglidur® J:	-50°C up to+90°C
iglidur® X:	-100°C up to+250°C
iglidur® A180:	-50°C up to+90°C

Material properties:

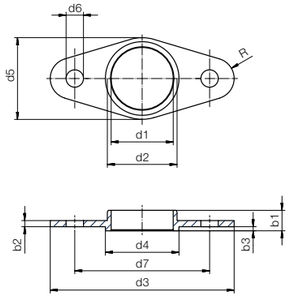
iglidur® G	▶ Page 85
iglidur® J	▶ Page 163
iglidur® X	▶ Page 291
iglidur® A180	▶ Page 425

Ø 10 - 35mm
More dimensions upon request

iglidur® two hole flange bearings | Product range

Two hole flange bearings





Order key

Type	Dimensions [mm]
G FL - 10	

iglidur® material | Two hole flange bearings | Inner Ø

Options:
iglidur® material
G: iglidur® G
J: iglidur® J
X: iglidur® X
A180: iglidur® A180

Dimensions [mm]

d1	d1 tolerance[3]	d2[13]	d3	d4	d5	d6	d7	b1	b2	b3	R (±0.2)	Part No.
10	+0.025 +0.083	12	30	14	15	4.5	22	6	2	1	4	**GFL-10**
12	+0.032 +0.102	14	36	16	18	4.5	26	6	2	1	4.5	**GFL-12**
14	+0.032 +0.102	16	42	18	21	5.5	30	6	2	1	5	**GFL-14**
16	+0.032 +0.102	18	48	20	24	5.5	34	6	2	1	5.5	**GFL-16**
18	+0.032 +0.102	20	54	22	27	6.5	39	6	2	1	7	**GFL-18**
20	+0.040 +0.124	23	60	26	30	6.5	44	10	3	2	7	**GFL-20**
25	+0.040 +0.124	28	75	30	35	6.5	55	10	3	2	8.5	**GFL-25**
30	+0.040 +0.124	34	90	36	40	8.5	66	10	3	2	10	**GFL-30**
35	+0.050 +0.150	39	95	41	55	8.5	77	10	3	2	12	**GFL-35**
10	+0.025 +0.083	12	30	14	15	4.5	22	6	2	1	4	**JFL-10**
12	+0.032 +0.102	14	36	16	18	4.5	26	6	2	1	4.5	**JFL-12**
14	+0.032 +0.102	16	42	18	21	5.5	30	6	2	1	5	**JFL-14**
16	+0.032 +0.102	18	48	20	24	5.5	34	6	2	1	5.5	**JFL-16**
20	+0.040 +0.124	23	60	26	30	6.5	44	10	3	2	7	**JFL-20**
25	+0.040 +0.124	28	75	30	35	6.5	55	10	3	2	8.5	**JFL-25**
30	+0.040 +0.124	34	90	36	40	8.5	66	10	3	2	10	**JFL-30**
35	+0.050 +0.150	39	95	41	55	8.5	77	10	3	2	12	**JFL-35**
10	+0.013 +0.071	12	30	14	15	4.5	22	6	2	1	4	**XFL-10**
12	+0.016 +0.086	14	36	16	18	4.5	26	6	2	1	4.5	**XFL-12**
14	+0.016 +0.086	16	42	18	21	5.5	30	6	2	1	5	**XFL-14**
16	+0.016 +0.086	18	48	20	24	5.5	34	6	2	1	5.5	**XFL-16**
20	+0.020 +0.104	23	60	26	30	6.5	44	10	3	2	7	**XFL-20**
25	+0.020 +0.104	28	75	30	35	6.5	55	10	3	2	8.5	**XFL-25**
30	+0.020 +0.104	34	90	36	40	8.5	66	10	3	2	10	**XFL-30**
35	+0.025 +0.125	39	95	41	55	8.5	77	10	3	2	12	**XFL-35**
10	+0.025 +0.083	12	30	14	15	4.5	22	6	2	1	4	**A180FL-10**
12	+0.032 +0.102	14	36	16	18	4.5	26	6	2	1	4.5	**A180FL-12**
16	+0.032 +0.102	18	48	20	24	5.5	34	6	2	1	5.5	**A180FL-16**
20	+0.040 +0.124	23	60	26	30	6.5	44	10	3	2	7	**A180FL-20**
25	+0.040 +0.124	28	75	30	35	6.5	55	10	3	2	8.5	**A180FL-25**
30	+0.040 +0.124	34	90	36	40	8.5	66	10	3	2	10	**A180FL-30**
35	+0.050 +0.150	39	95	41	55	8.5	77	10	3	2	12	**A180FL-35**

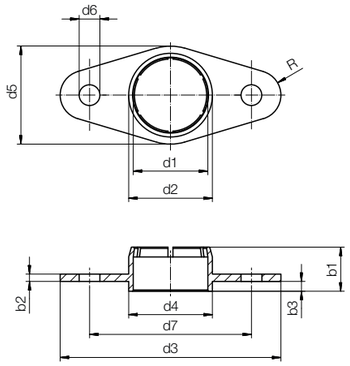
[3] After press-fit. Testing methods ▶ Page 57 [13] Press-fit in H7 tolerance housing hole

iglidur® two hole flange bearings | Advantages

Two hole flanged bearing with preload



- Corrosion-resistant
- Self-lubricating due to incorporated solid lubricants
- Long service life thanks to high-performance polymers



Order key

Type	Dimensions [mm]

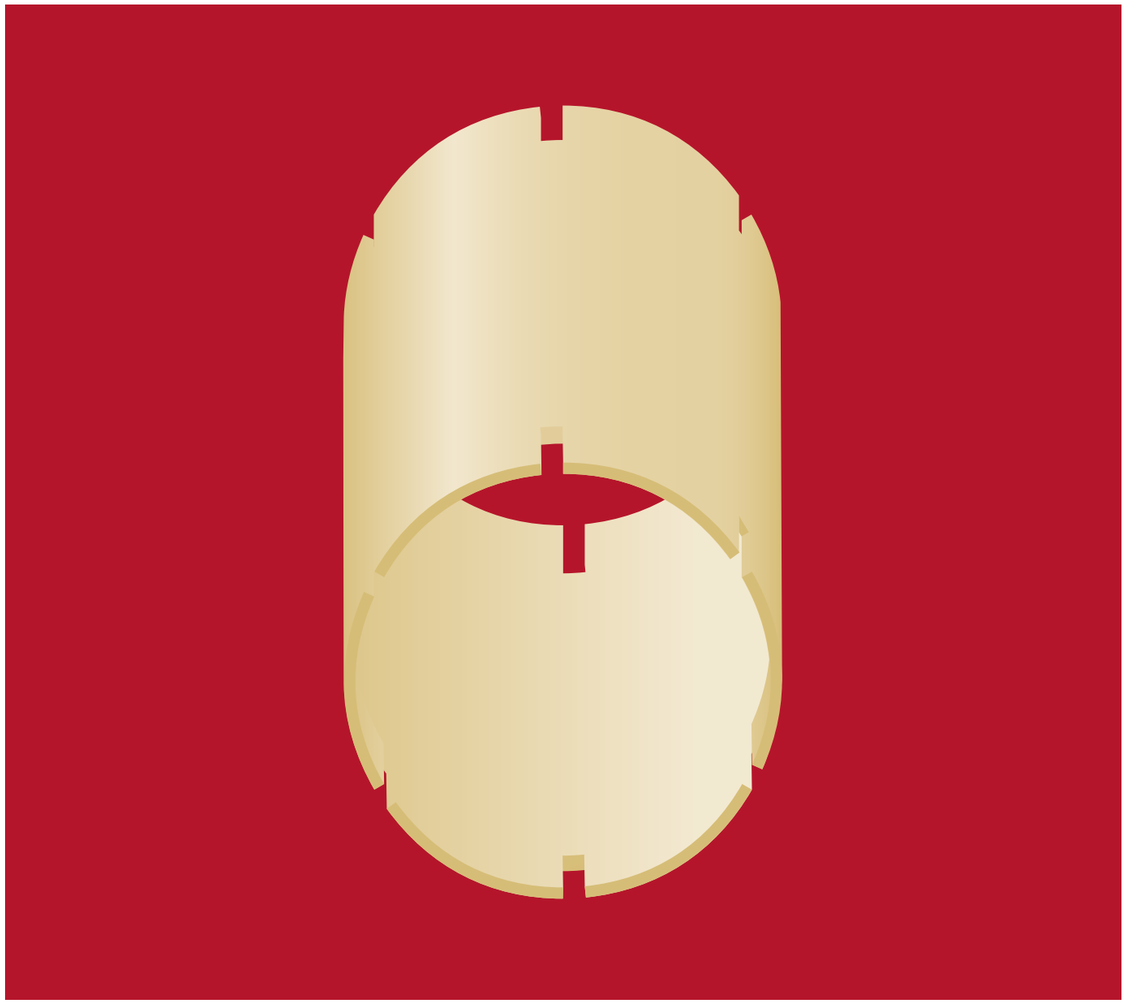
J V FL - 10

iglidur® material	Pre-loaded	Two hole flange bearings	Inner Ø

iglidur® material
iglidur® J

Dimensions [mm]

d1	d1 tolerance	d2	d3	d4	d5	d6	d7	b1	b2	b3	R (±0.2)	Part No.
10	+0.025 +0.083	12	30	12	15	4.5	22	9	2.0	3	4.0	**JVFL-10**
12	+0.032 +0.102	14	36	14	18	4.5	26	10	2.0	4	4.5	**JVFL-12**
16	+0.032 +0.102	18	48	18	24	5.5	34	11	2.5	4	5.5	**JVFL-16**
20	+0.040 +0.124	23	60	23	30	6.5	44	13	3.0	5	7.0	**JVFL-20**



iglidur® clearance-free pre-loaded plain bearings

Radial and axial pre-load

Zero clearance in unloaded condition

Material: iglidur® J

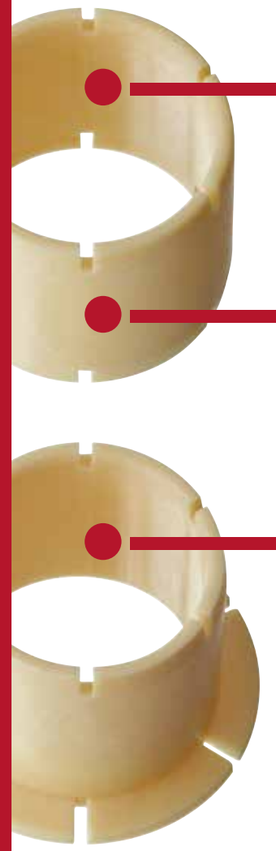
Maintenance-free and predictable service life



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iglidur® JVSM/JVFM | Advantages

Zero-clearance and rattle-free - pre-loaded iglidur® J plain bearing



Clearance-free and pre-loaded bearings

Zero clearance in unloaded condition

Maintenance-free and predictable service life

iglidur® clearance-free pre-loaded plain bearings

iglidur® JVSM and JVFM plain bearings are clearance-free in unloaded condition due to the axial and/or radial pre-load. The iglidur® J material possesses extremely low coefficient of friction in dry operation and a very low stick-slip effect. Ideal for "antivibration mounting" of pedal box bearings, etc.

When to use it?

- When a radial and/or axial pre-load of plain bearings is required
- When a rattle-free bearing in the unloaded state is required
- When you need a clearance-free feel

When not to use it?

- When a plain bearing solution with reduced clearance is needed ▶ Please contact us
- When the pre-load has to withstand high radial forces
- When total zero clearance feature is required at high loads

Available from stock
Detailed information about delivery time online.

Material:
iglidur® J ▶ Page 163

Max. +90°C
min. -50°C

2 types
Ø 6 - 20mm
More dimensions upon request

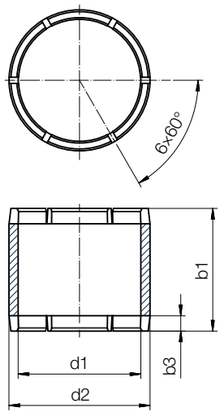
Imperial dimensions available
▶ From page 1151

EN 09/2023

iglidur® JVSM/JVFM | Product range

Pre-loaded sleeve plain bearings





Order key

Type				Dimensions [mm]			
J	V	S	M-	06	08	-	06
iglidur® material	pre-tensioned	Form	Metric	Inner Ø	Outer Ø		Total length

Options:
Form:
S: sleeve
F: with flange

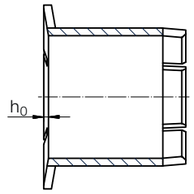
Dimensions [mm]

d1	d1 tolerance[14] E10	d2	b1 h13	b3	Part No.
6.0	+0.020 +0.068	8.0	6.0	2.0	**JVSM-0608-06**
8.0	+0.025 +0.083	10.0	8.0	2.0	**JVSM-0810-08**
10.0	+0.025 +0.083	12.0	10.0	2.0	**JVSM-1012-10**
12.0	+0.032 +0.102	14.0	12.0	2.0	**JVSM-1214-12**
14.0	+0.032 +0.102	16.0	14.0	2.0	**JVSM-1416-14**
15.0	+0.032 +0.102	17.0	15.0	2.5	**JVSM-1517-15**
18.0	+0.032 +0.102	20.0	18.0	2.5	**JVSM-1820-18**
20.0	+0.040 +0.124	23.0	20.0	2.5	**JVSM-2023-20**

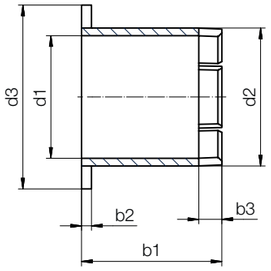
[14] d1 measured after press-fit in housing hole. d2 H7 within the measurement plane

Pre-loaded sleeve plain bearings with flange





r = max. 0.5mm



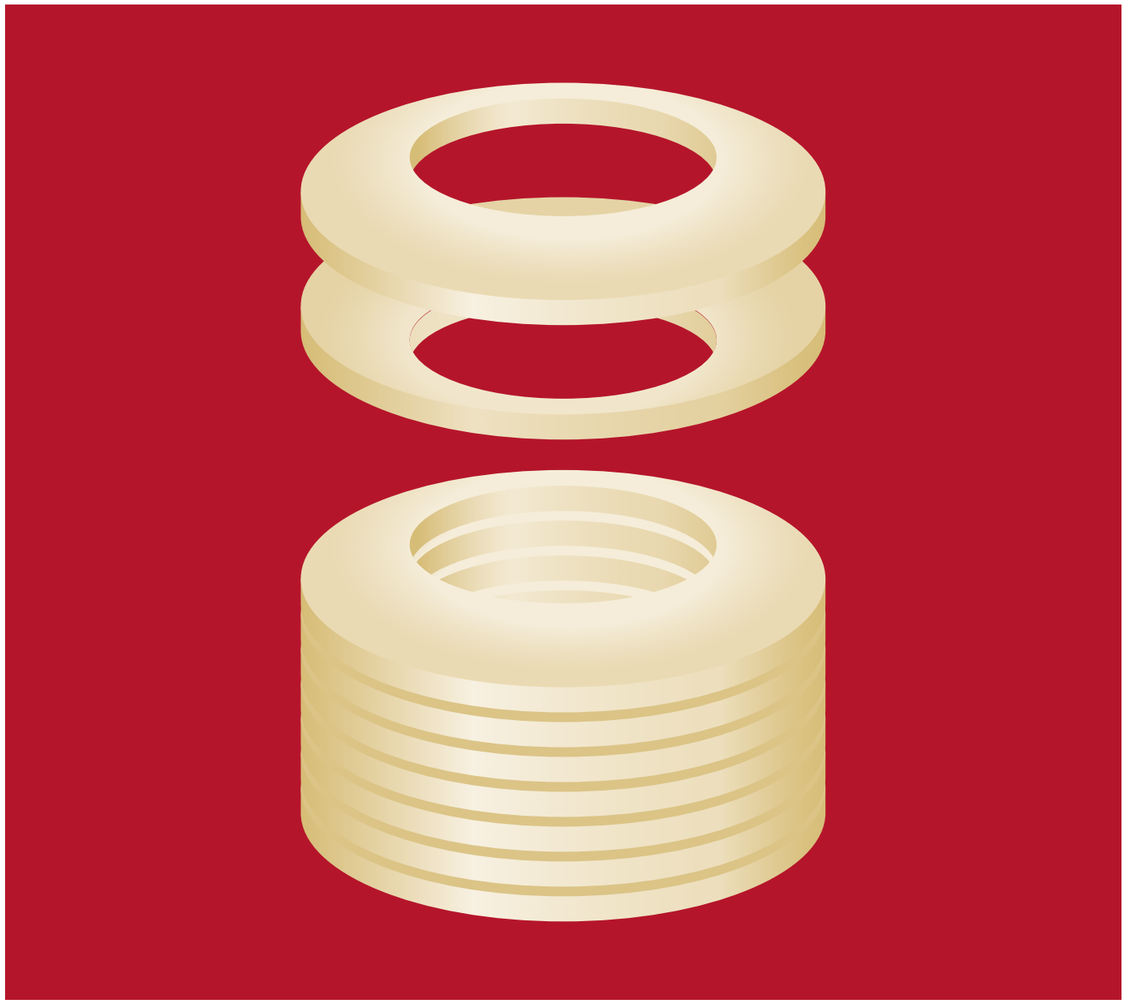
Dimensions [mm]

d1	d1 tolerance[14] E10	d2	d3	b1 h13	b2	b3	h_0 ±0.1	Part No.
8	+0.025 +0.083	10	15	10	1.0	2.0	0.44	**JVFM-0810-10**
10	+0.025 +0.083	12	18	10	1.0	2.0	0.53	**JVFM-1012-10**
12	+0.032 +0.102	14	20	12	1.0	2.0	0.53	**JVFM-1214-12**
14	+0.032 +0.102	16	22	12	1.0	2.0	0.53	**JVFM-1416-12**
15	+0.032 +0.102	17	23	15	1.0	2.5	0.53	**JVFM-1517-15**
18	+0.032 +0.102	20	26	11	1.0	2.5	0.53	**JVFM-1820-11**
18	+0.032 +0.102	20	26	18	1.0	2.5	0.53	**JVFM-1820-18**
20	+0.040 +0.124	23	30	20	1.5	2.5	0.62	**JVFM-2023-20**

[14] d1 measured after press-fit in housing hole. d2 H7 within the measurement plane

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Notes



polysorb disc springs



- Compensation for axial clearances and manufacturing tolerances
- Vibration dampening
- Noise dampening
- Corrosion-free
- Lightweight
- Electrical and thermal insulation
- Standard range from stock

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polysorb | Advantages

Cushion and dampen: plastic disc springs



iglidur® J: standard material for many applications

Compensation of axial clearance and manufacturing tolerances

Vibration dampening

iglidur® A500: High temperature material

Lightweight

polysorb disc springs

Disc springs are discs that can be axially loaded, which are concave in the axial direction. Disc springs require less space than other spring types and are especially suitable for designs that do not require a high spring length.

When to use it?

- When an application requires disc spring characteristics which are only possible in metal at a considerable expense (slot design)
- For compensation of axial clearances and manufacturing tolerances
- For vibration dampening
- For noise reduction
- When a non-magnetic material is required
- For electrical and thermal insulation

When not to use it?

- When constant spring forces are necessary over a wide temperature range
- When high spring forces are required

Available upon request
Detailed information about delivery time online.

Material properties:
iglidur® J **▶ Page 163**
iglidur® A500 **▶ Page 417**

Depending on material:
iglidur® J: -50°C up to+90°C
iglidur® A500: -100°C up to+250°C

1 type, 2 materials
Ø 5 - 20mm
More dimensions upon request

polysorb | Technical data

General properties

The spring deflection of the disc spring is relatively small. Therefore a number of disc springs are combined in practice. Disc springs that are alternately stacked increase the spring length proportionally to the amount of springs. In order to increase the force, the disc springs can be parallel stacked to form a spring unit.

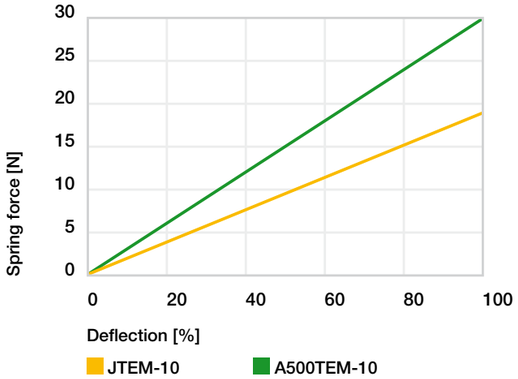


Diagram 01: Spring force [N] as a function of percental deflection measured with size 10

The force-deformation curves of polysorb disc springs are approximately linear.

Chemical resistance

polysorb disc springs are resistant to a variety of chemicals. iglidur® A500 has a higher resistance than iglidur® J.

Chemicals	Resistance	
	iglidur® J	iglidur® A500
Alcohols	+	+
Hydrocarbons	+	+
Greases, oils without additives	+	+
Fuels	+	+
Diluted acids	0 to –	+
Strong acids	–	+
Diluted alkalines	+	+
Strong alkalines	+ to 0	+

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20°C]
Table 01: Chemical resistance

Moisture absorption

Low humidity absorption means that they can be used in wet or humid environments.
polysorb disc springs absorb moisture and in the process the mechanical properties change. However, in the worst application case – a long-term use in water – polysorb disc springs still have a high spring force.

iglidur®	Standard environment 20°C/50% r.h.	Saturated in water
J	18	15
A500	24	23

Table 02: Spring force [N] as a function of the absorbed moisture

Temperatures

Increased temperatures reduce the rigidity of polymers. polysorb disc springs made from iglidur® J (JTEM-10) still have a maximum spring force of 8N at the maximum permissible temperature of +90°C. The spring force against ambient temperature is shown in diagram 02.

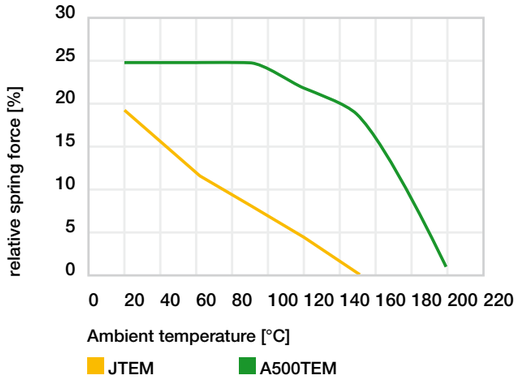


Diagram 02: Effect of ambient temperature on the spring force

polysorb | Product range

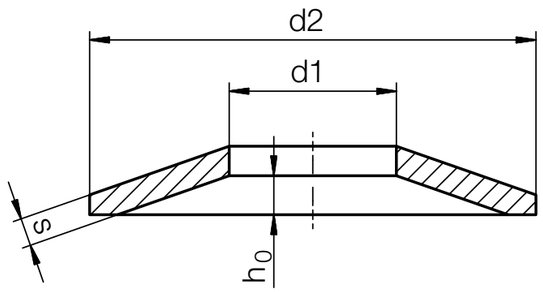
Plastic disc springs



iglidur® J



iglidur® A500



Dimensions based on DIN 2093

Order key

Type	Dimensions [mm]
☐ T E M	-05

iglidur® material	Thrust washer style	"Elastic spring"	Metric	Inner Ø

Options:
iglidur® material
iglidur® J
for low wear
iglidur® A500
for high temperature applications
requiring FDA-compliance

Material:
iglidur® J ▶ Page 163
iglidur® A500 ▶ Page 417

Dimensions [mm]

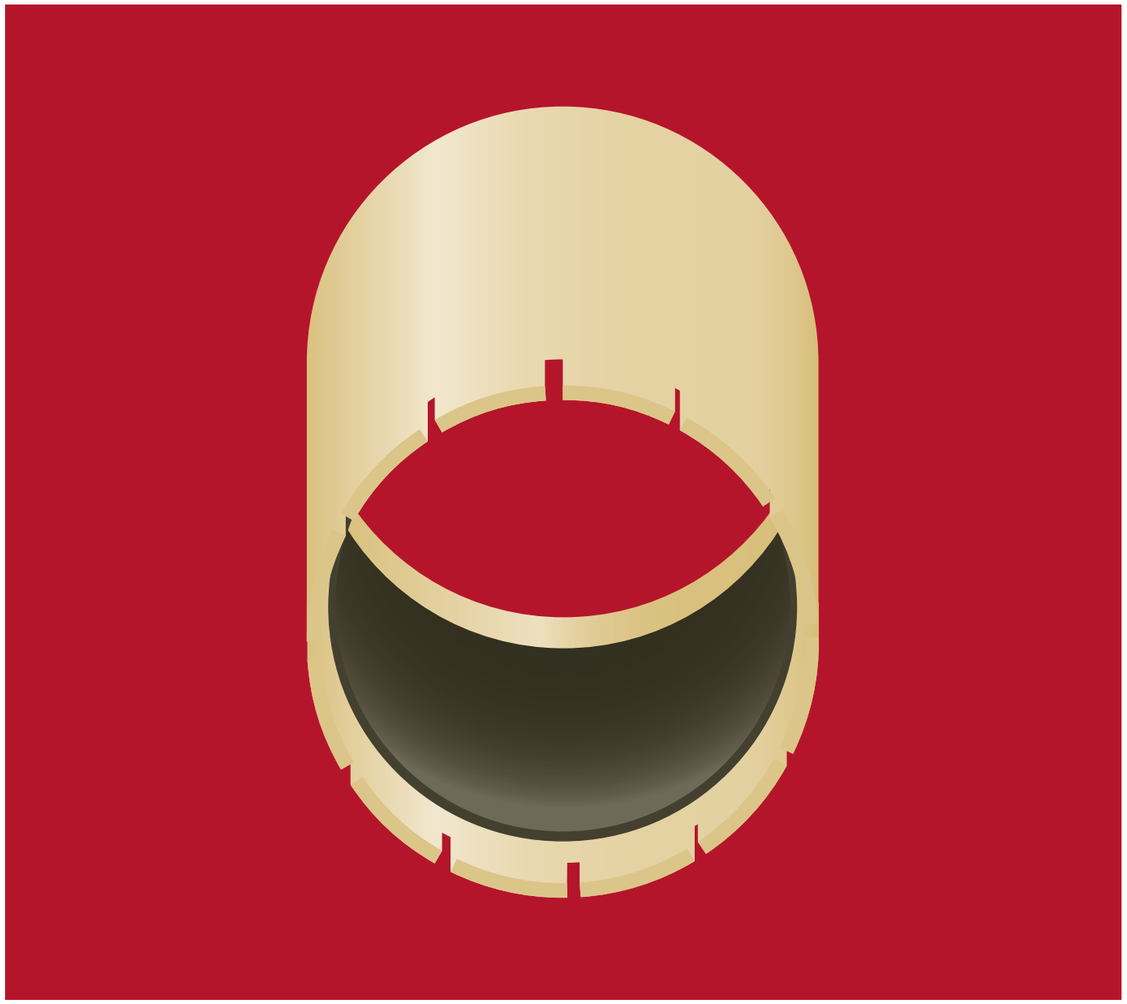
d1	d2	Øs	h_0	Standard values: Spring lengths and forces		Weight	Part No.[15)]
				$F_{1.0}$ iglidur® J	$F_{1.0}$ iglidur® A500		
				[N]	[N]	[g]	
5.2	10.0	0.5	0.25	5	8	0.04	☐ TEM-05
6.2	12.5	0.7	0.30	10	15	0.11	☐ TEM-06
8.2	16.0	0.9	0.35	16	24	0.20	☐ TEM-08
10.2	20.0	1.1	0.45	24	35	0.33	☐ TEM-10
12.2	25.0	1.5	0.55	45	70	0.85	☐ TEM-12
16.3	31.5	1.75	0.70	65	85	1.44	☐ TEM-16
20.4	40.0	2.25	0.90	130	150	3.10	☐ TEM-20

The standard values for the spring lengths and forces are rounded mean values.

[15)] Material: iglidur® J: JTEM, standard
iglidur® A500: A500TEM, high temperature and chemical resistance

Symbols and units:

F	=	Force [N]
h_0	=	Maximum spring displacement [mm]
$F_{1.0}$	=	Spring force 100% displacement [N]



iglidur® PEP multi-component bearings

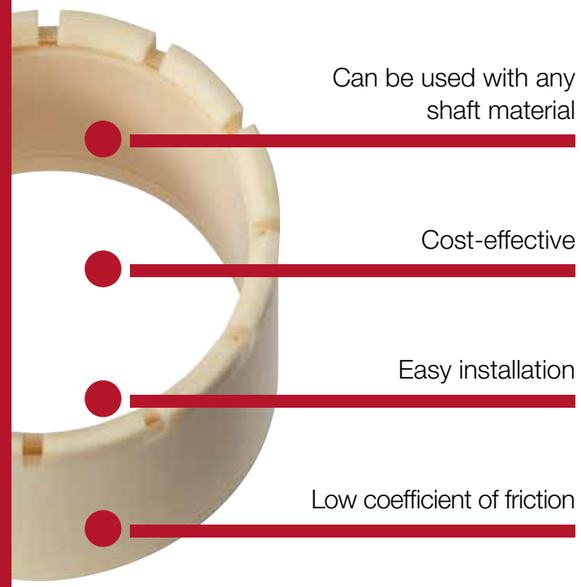
- Can be used with any shaft material
- Cost-effective
- Easy installation
- Low coefficient of friction
- Standard range from stock



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iglidur® PEP | Advantages

For all shaft surfaces and materials



iglidur® PEP multi-component bearings

In standard plain bearing solutions, the shaft has a critical part to play, as important as the bearing itself. With the iglidur® PEP bearings, igus® is forging new trail with this enclosed and maintenance-free plain bearing design.

When to use it?

- When a cost-effective plastic plain bearing system is required
- When independence from the shaft material and shaft surface is required
- For the protection of expensive and sensitive shafts

When not to use it?

- For high surface speeds
  ▶iglidur® J, page163
- At high loads
  ▶ iglidur® G, page 85
  ▶ iglidur® Q, page 491
- At high temperatures
  ▶ iglidur® V400, page 319
  ▶ iglidur® X, page 291
  ▶ iglidur® Z, page 301
- When low clearance bearings are required
  ▶ iglidur® P, page 135
  ▶ iglidur® X, page 291

Available from stock
Detailed information about delivery time online.

Material:
iglidur® J ▶ Page 163

Max. +90°C
min. -50°C

1 type
Ø 6 - 20mm
More dimensions upon request

Imperial dimensions available
▶ From page 1151

iglidur® PEP | Technical data

General properties

Maintenance-free plain bearings are generally described as being able to slide on the shaft without any additional coating and/or lubrication. It is evident that shaft materials are as important as the plain bearing itself. igus® is forging a new path with a plain bearing that is self-contained and maintenance-free.
iglidur® PEP is an innovative design for lubrication-free plastic plain bearing systems with an inner and outer ring. The special feature; the sliding surface is the inner ring, and for the first, time shaft materials and shaft surfaces are not a concern. Even threads, rust and scratches do not affect the performance or reliability. With the control over the sliding surface and through considerable testing, the long-term behaviour of the bearing system can be predicted precisely. Similar to ball bearings, the inner ring turns with the shaft in the plastic PEP plain bearing.Relative movements of the shaft with respect to the bearing are eliminated. This protects the shaft surface from wear and saves costs. An additional benefit; even the most sensitive or unusual materials can be used as the rotating shaft with this polymer plain bearing. Due to the bearing materials used, the PEP plastic bearing is totally corrosion-free.

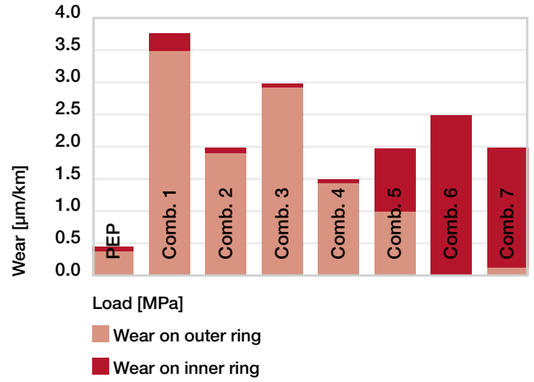


Diagram 01: Wear experiments of different material combinations, p = 0.75MPa, v = 0.3m/s

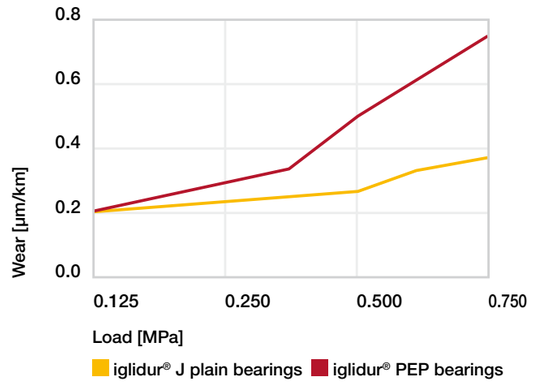


Diagram 02: Wear of iglidur® PEP bearings as a function of the load, v = 0.3m/s

Wear resistance

For loads up to 5N/mm² the wear test results are compelling. Here PEP plastic bearings obtain values that are comparable to most wear-resistant metal-backed bearing systems. This is a very positive result, when you consider the reduced costs compared with the required shaft surface finish which is demanded by traditional bearings. The consistently low coefficient of friction is also an advantage to the user. Since the running surfaces are fixed, the tribological data can be calculated. The coefficient of friction of the lubrication-free PEP bearings is no longer based on the shaft materials or surface properties. If necessary, the coefficient of friction can be reduced further with a small amount of lubricant.

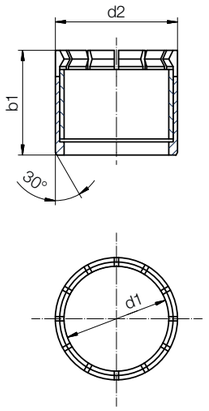
Assembly

The installation of the PEP plain bearing could not be easier or faster. The bearings are manufactured to be press-fitted into a recommended housing hole of H7 tolerance. Then, the shaft is inserted and fits tightly onto the inner ring. The inner bearing is clipped into the outer ring. This design makes it possible to pull the shaft out without removing the inner ring.

iglidur® PEP | Product range

Sleeve bearings





Order key

Type	Dimensions [mm]				
PEP S M-	06	10-	10		
iglidur® material	Form	Metric	Inner Ø	Outer Ø	Total length

Material:
iglidur® J ▶ Page 163

Imperial dimensions available
▶ From page 1151

Dimensions [mm]

d1	d2	b1	Part No.
6	10	10	PEPSM-0610-10
8	12	12	PEPSM-0812-12
10	14	12	PEPSM-1014-12
12	16	15	PEPSM-1216-15
16	20	20	PEPSM-1620-20
20	23	20	PEPSM-2023-20



iglidur® lip seal bearings

- Polymer bearing with integrated radial shaft seal
- Seals against the rotating shaft
- Reduced space requirement and easy, fast installation
- Can be manufactured with different types of seal
- High temperature option available (VDSM)



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iglidur® lip seal bearings | Advantages

Position and seal: plastic bearing with clip-on shaft seal



Seals against the rotating shaft

Reduced space requirement

Quick, simple assembly

Can be manufactured with different types of seal

High temperature option available (made of iglidur® V400)

iglidur® lip seal bearings

Easy and quick to fit polymer plain bearing made of iglidur® J (JDSM) or iglidur® V400 (VDSM) with an integrated rotary lip seal, which protects against dust, dirt, and all depressurised liquids.

When to use it?

- When the ingress of dirt and water spray should be prevented
- When only a small installation space is available in the axial direction
- When an existing seal should be integrated in a plain bearing

When not to use it?

- When pressurised media should be sealed
- When a permanent tensioned seal is required

Available upon request
Detailed information about delivery time online.

Material properties:
iglidur® J ▶ Page 163
iglidur® V400 ▶ Page 319

Depending on material:
iglidur® J: -50°C up to +90°C
iglidur® V400: -50°C up to +200°C

1 type, 2 materials
Ø 10mm
More dimensions upon request

iglidur® lip seal bearings | Product range

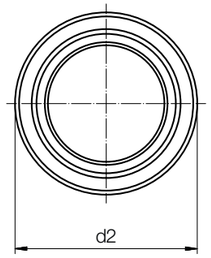
Lip seal sleeve bearings (form S)

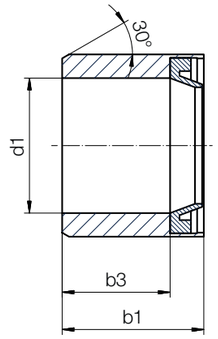


JDSM



VDSM





Order key

Type	Dimensions [mm]					
☐ D	S	M	-1015	-14		
iglidur® material	Seal	Form	Metric	Inner Ø	Outer Ø	Total length

Material:
iglidur® J ▶ Page 163
iglidur® V400 ▶ Page 319

Dimensions [mm]

d1 E11	d1 tolerance[3]	d2 Ø	b1 h13	b3	f	Part No.
10	+0.025 +0.135	15	14	10	1	**JDSM-1015-14**
10	+0.025 +0.135	15	14	10	1	**VDSM-1015-14**

[3] **After press-fit. Testing methods ▶ Page 61**

Please contact us if you want to combine your seal with an iglidur® plain bearing.
We will support you with the design, will check the integration and create an appropriate proposal.

Notes



Plain bearings with felt seal

Maintenance-free

High running performance

Shafts are protected against wear even more effectively as dirt cannot ingress the bearing point



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iglidur® SG03 | Advantages New

Clean bearings even in applications with dirt and dust



Maintenance-free

High running performance

The shaft is protected against wear even more effectively as dirt cannot ingress the bearing point



Sleeve heavy-duty plain bearing iglidur® TX2

Plain bearings with felt seal

The felt seal for SG03 plain bearing prevents the ingress of dirt and dust into the bearing point and thus protects the bearing itself and the shaft against wear and premature failure.

When to use it?

- When the ingress of dirt should be prevented
- When a 2 in 1 solution (bearing and seal) is required

When not to use it?

- When liquid seal is required
- When high axial forces act on the flange

Available from stock
Detailed information about delivery time online.
Sleeve bearing upon request

Material properties:
iglidur® G ▶ Page 85
iglidur® P210 ▶ Page 121
iglidur® Q2 ▶ Page 477

iglidur® SG03 | Product range New

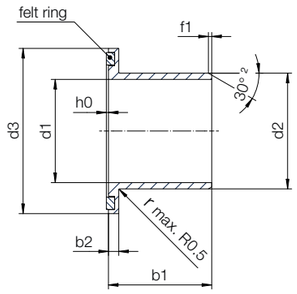
For flanged bearings and thrust washers

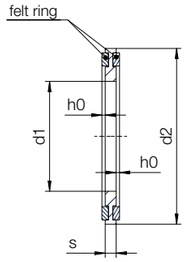


Flanged bearings



Thrust washers





Order key

Type	Dimensions [mm]						
☐ F	M-	20	26-	20-	SG03-	050	
iglidur® material	Form	Metric	Inner Ø	Outer Ø	Total length	Felt seal	Cap

Options:
☐ = iglidur® material
iglidur® G - the classic all-rounder
iglidur® P210 - specialist for pivoting etc.
iglidur® Q2 - the durable heavy-duty bearing

Flanged bearings dimensions [mm]

d1	d2	d3	b2	b1	Part No.
20	26	34	1.5	20	☐ FM-2026-20-SG03-050 New
25	28	40	2.5	25	☐ FM-2528-25-SG03-050 New
30	34	45	2.5	30	☐ FM-3034-30-SG03-050 New
35	39	50	2.5	35	☐ FM-3539-35-SG03-050 New
40	44	55	2.5	40	☐ FM-4044-40-SG03-050 New

Thrust washers dimensions [mm]

d1	d2	b1	Part No.
20	26	20	☐ TM-2036-025-SG03-050 New
25	28	25	☐ TM-2540-025-SG03-050 New
30	34	30	☐ TM-3045-025-SG03-050 New
35	39	35	☐ TM-3550-025-SG03-050 New
40	44	40	☐ TM-4055-025-SG03-050 New

Notes



iglidur® coatings

Easy coating of metallic components

Good coefficient of wear and therefore a long service life

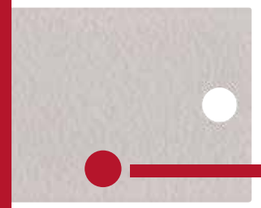
The perfect coating for your application



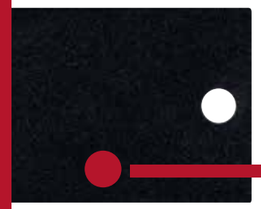
EN 09/2023

iglidur® IC | Advantages New

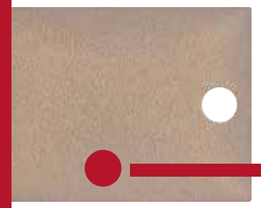
iglidur® IC coating materials



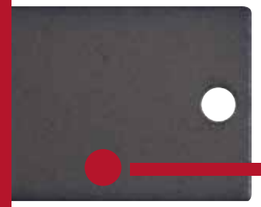
IC-01:
High wear resistance and durability in white



IC-02:
High wear resistance and durability in black



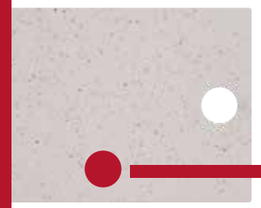
IC-03:
Good wear resistance



IC-04:
For high temperatures up to +300°C



IC-05:
Food approved, compliant within FDA and EU10/2011



IC-06:
Low coefficient of friction

iglidur® coatings

iglidur® coating is a tribologically optimised polymer in powder form that can be applied to electrically conductive components by means of powder coating. Like all iglidur® materials, iglidur® coating powders are tribologically optimised and offer excellent coefficient of friction and wear. With this method, you also protect heavily stressed surfaces from wear – without any additional components.

- Reduced friction coefficients
- Abrasion-resistant surface
- Self-lubricating due to incorporated solid lubricants

When to use it?

- For a simple and flexible way to reduce friction
- To protect the surface
- To avoid additional lubrication

When not to use it?

- In unprotected outdoor application
- In an underwater application
- For a thick wear layer

Available from stock
Detailed information about delivery time online.

iglidur® IC | Product range New

Coating materials iglidur® IC



Available as powder from stock



Coated with iglidur® IC-05
Image exemplary

Order key

Type

IC-01-☐

iglidur® coating	Material	Package size

Options:
☐ = Available packaging sizes, 1kg, 2kg, 10kg

Technical data

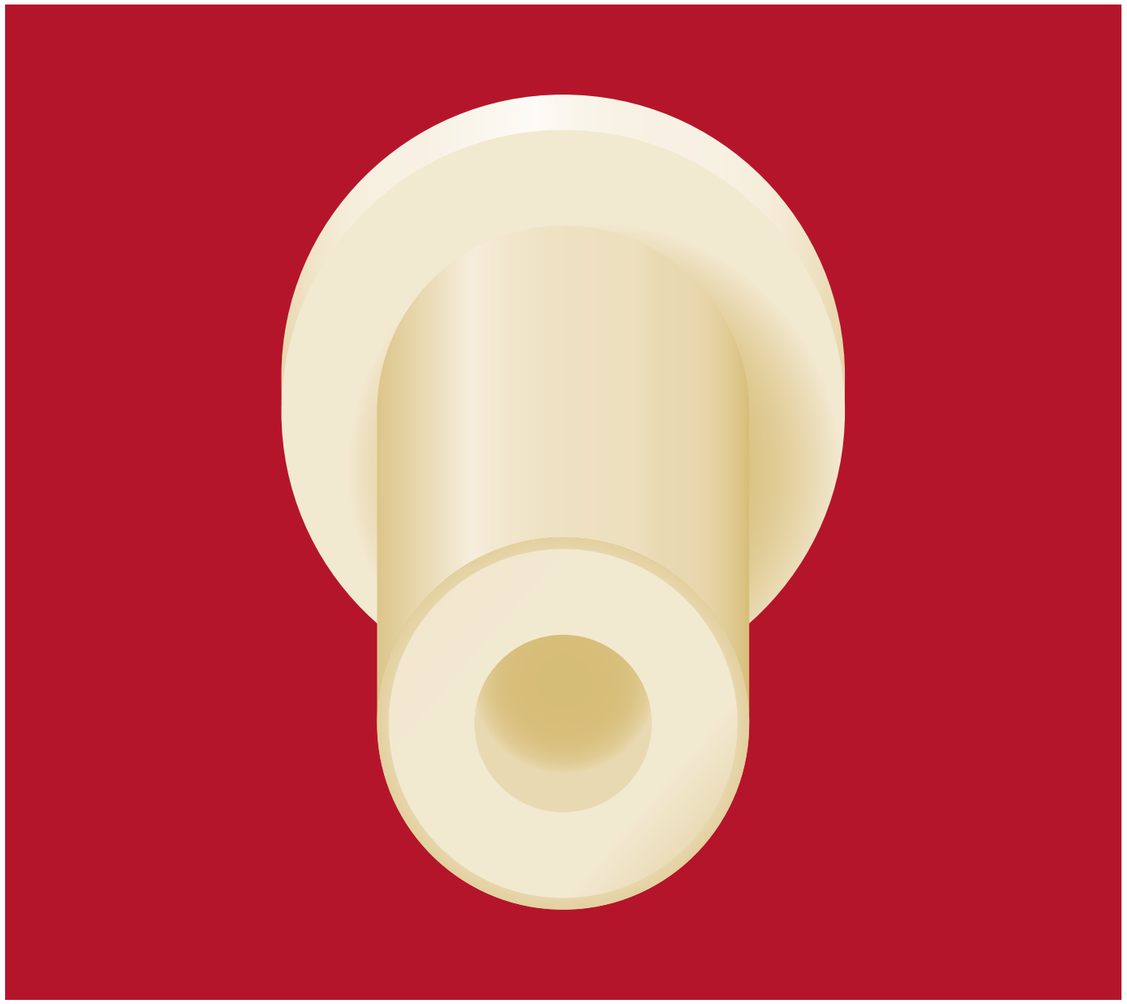
iglidur®	Colour	Max. application temperature [°C]	Part No.
IC-01	white	+90	IC-01-☐ New
IC-02	black	+90	IC-02-☐ New
IC-03	yellow	+140	IC-03-☐ New
IC-04	grey	+300	IC-04-☐ New
IC-05	blue	+80	IC-05-☐ New
IC-06	cream	+140	IC-06-☐ New

Order example: IC-01-10KG - high-performance polymer iglidur® IC-01 in a 10kg bag



We will coat your component for you
Send us your metallic component. We will coat it for you with our iglidur® high-performance polymers and send it back to you.
▶ www.igus.eu/coating-tool

Notes



print2mold® - custom-made parts manufactured by injection moulding

- Cost-effective prototypes and series production
- Original iglidur® tribo materials
- Tailored to your application
- Delivery time from 3 days
- For quantities ranging from a few hundred to several million



EN 09/2023

Plain bearings | Customised injection-moulded parts

Customised & cost-effective: Your plastic plain bearing in the required design, material and quantity



"Show me the plastic part that gives you a problem. I'll provide you with a solution!"

With this idea, Günter Blase founded igus® over 50 years ago, and it still holds true today: hence, customer-specific series solutions are part of our daily work just like catalogue parts.

Your igus® plastic plain bearings:

- Customised parts from 3 days delivery time
- Service life predicted in advance
- From 1 piece to several million pieces: Always the appropriate manufacturing process
- All iglidur® materials possible
- New development of specific materials possible
- Joint dimensioning and design coordination

▶ **www.igus.eu/special-design**

Custom manufactured

With this service, there are two different methods: first, custom-made plastic parts can be produced with 3D-printed injection moulds and second, with the aid of machined aluminium tools.
In the 3D printing process, users can choose their custom-made part from over 50 different iglidur® tribological materials optimised for friction and wear. The material of the 3D-printed mould is tailored to withstand the high temperatures and pressure prevailing in injection moulding. You can produce from just one piece up to 500 parts, prototypes or small batches from a 3D-printed injection mould.
For batches between 200 and 2,000 pieces, the injection moulded part can also be produced with an aluminium tool. This lean manufacturing method also saves the user time and money here: aluminium tools are also lower cost and faster to produce than steel moulds, as no lengthy hardening is required.

In 3 steps to your individual plain bearing

1. Submit an enquiry
Fill in the form with some basic information: quantity and requirement, such as food contact, dirt resistance, low wear etc. and upload the CAD files, for example. After one of our specialists has contacted you for a consultation, you will receive a quotation.

2. We produce your required component
Upon order, igus® starts the production process.

3. You receive your product
Your required component is ready to ship and delivered quickly.

Send a request: ▶ **www.igus.eu/specialbearings-enquiry**

Plain bearings | iglidur® FastLine service New

Configured in seconds, injection-moulded within seven days

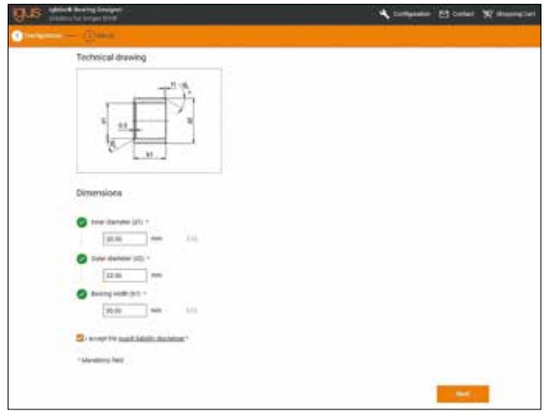
With the igus® FastLine service, you receive customised injection-moulded plain bearings and thrust washers in a maximum of seven days. Apart from the immediate price indication, the iglidur® plain bearing designer shows you the manufacturing costs of our other production methods. Should your desired plain bearings already be available in our standard product range, they will be included in the price comparison as well. That way, you can always keep an eye on the best price.

- Receive injection-moulded plain bearings with special dimensions in a maximum of 7 days
- Everything from one source: from the injection mould to the completed plain bearing

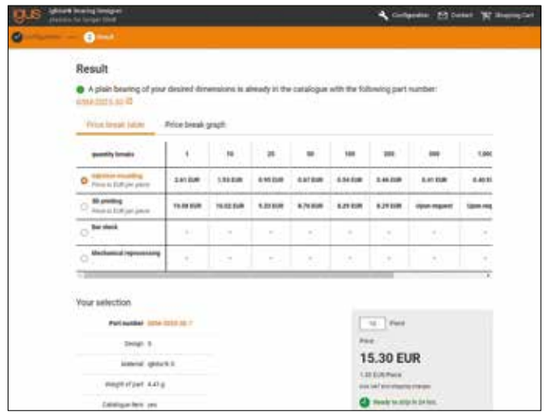
Immediately available: sleeve bearings, flanged bearings, thrust washers, guide rings, clip bearings and knife edge rollers



Select the design



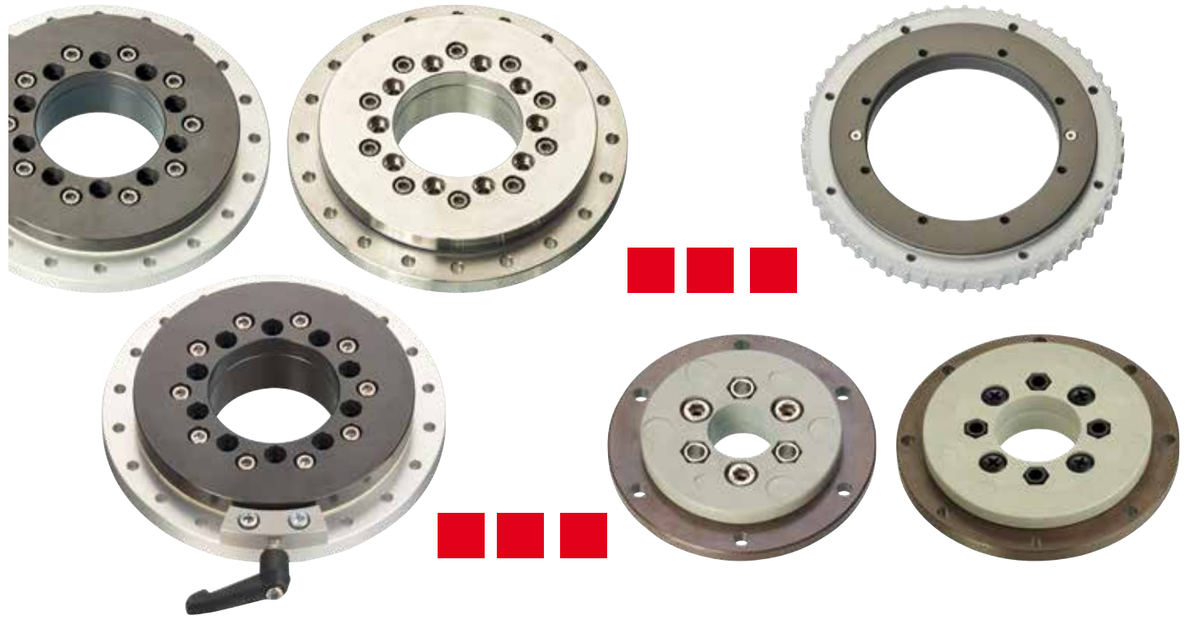
Enter the dimensions



Order

iglidur®

Slewing rings



...plastics

iglidur® PRT | Product overview

iglidur® PRT - polymer slewing rings, standard



High torsional rigidity:

Type 01
▶ **Page 710**



Compact, lightweight and cost-effective:

Type 04
▶ **Page 711**

iglidur® PRT - polymer slewing rings, tooth profile



With outer drive ring:

Type 01
▶ **Page 712**



With tooth profile:

Type 04
▶ **Page 713**

New



With inner drive ring:

Type 04
▶ **Page 714**

iglidur® PRT - polymer slewing rings



With angle stop:

Type 01
▶ **Page 716**

New



With angle stop:

Type 04
▶ **Page 717**



Manual clamp:

Type 01
▶ **Page 718**

New



Manual clamp:

Type 04
▶ **Page 719**

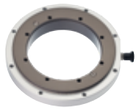
New



With snap mechanism:

Type 04
▶ **Page 720**

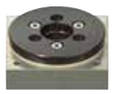
New



With locking device:

Type 04
▶ **Page 721**

iglidur® PRT - polymer slewing rings, modular system



Special geometries and accessories

▶ **Page 722**



With assembled drive pin:

Type 04
▶ **Page 724**

New



With switching sensor:

Type 01 i.Sense
▶ **Page 725**



Spacer rings:

Type 01
▶ **Page 726**

New



Spacer rings:

Type 04
▶ **Page 727**

New



Black Edition:

Type 04
▶ **Page 728**



Slot nut profile:

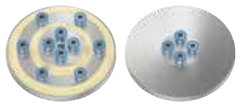
Type 04
▶ **Page 729**



Installation solutions:

Type 04
▶ **Page 730**

iglidur® PRT - polymer slewing rings, modular system



Hygienic design:

Type 04
▶ **Page 731**

New



Felt cover:

Type 04
▶ **Page 732**

New



Position indicator:

Type 04
▶ **Page 733**

New



For the smallest applications:

Type 04
▶ **Page 734**



Lightweight:

Type 02
▶ **Page 735**



Low-cost:

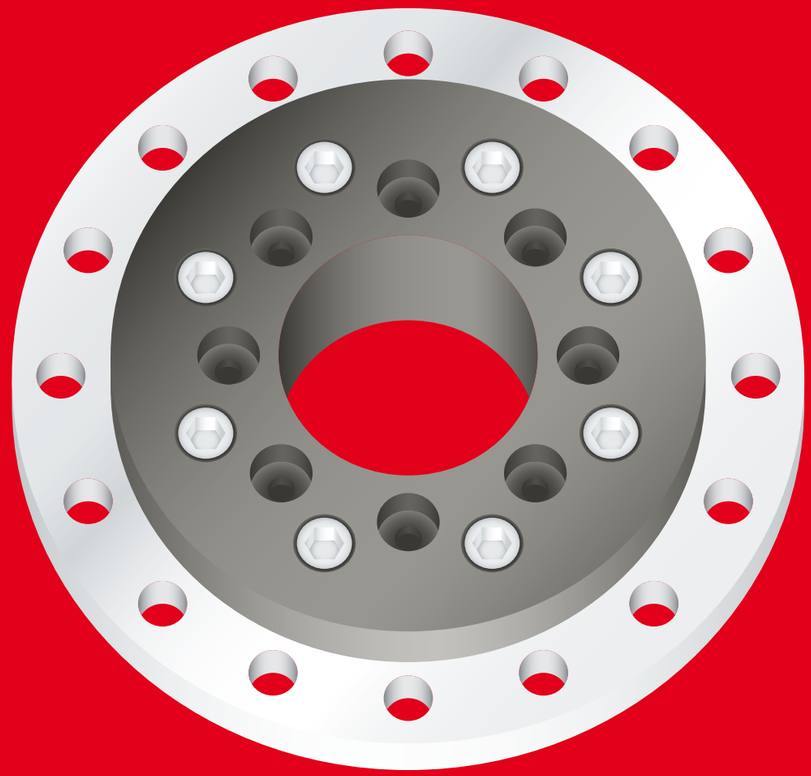
Type 03
▶ **Page 736**

New



Sliding element replacement kits:

Type 01 and 04
▶ **Page 737**



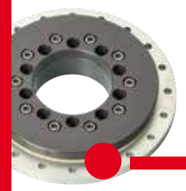
iglidur® PRT - polymer slewing rings

- Completely maintenance-free
- Easy to install replaceable sliding pads
- High wear resistance
- For high loads and high stiffness
- Stainless steel versions available
- Extensive accessories
- Standard range from stock



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Maintenance-free slewing rings



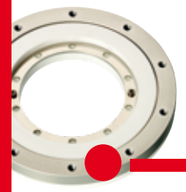
Type 01:
High torsional rigidity



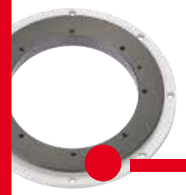
Type 01 with gear teeth:
With outer drive ring



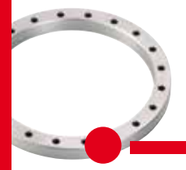
Type 02:
Lightweight



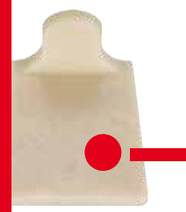
Type 03:
Cost-effective



Type 04:
Compact, lightweight and cost-effective



Extensive accessories:
Special geometries and accessories



Universal sliding elements:
Customise your own slewing ring systems

Polymer slewing ring bearings

iglidur® PRT slewing rings are ready-to-install rotary joints for lubrication-free dry operation. The design is not based on metallic rollers or balls, but on maintenance-free sliding elements made of the proven tribologically optimised iglidur® materials in combination with rings made of lightweight anodised aluminium or stainless steel. These iglidur® materials are universally applicable. They can be used in applications with high temperatures, moisture or chemical contact, for example.

- Completely maintenance-free
- Easy to install replaceable sliding pads
- High wear resistance
- For high loads and high stiffness
- Stainless steel versions available
- Extensive accessories

Typical application areas

- Conveyors and automation
- Stage and lighting technology
- Assembly stations

Available from stock
Stainless steel version upon request
Detailed information about delivery time online.

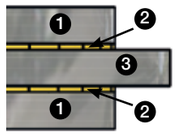
Price breaks online
No minimum order value. No minimum order quantity

Max. +180°C
min. -50°C

4 types
Ø 20 - 300mm

Service life calculation
▶ www.igus.eu/prt-expert

Design slewing ring



❶ **Type 01 and 04:** Hard anodised aluminium, or 316 stainless steel
Type 02: iglidur® J4 or A180
❷ **Type 01 and 04:** iglidur® J or H1
❸ **Type 01, 02 and 04:** Anodised aluminium or 316 stainless steel

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Rotating digital flip chart
The compact design of the PRT-02-30 makes it the ideal solution for the rotating digital flip chart. Thanks to ready-to-install delivery and easy assembly. In addition, due to the plastic sliding elements made of iglidur® material, maintenance work is no longer necessary after installation.

Personal robot
The PRT slewing ring bearing makes the robot's rear axis lubrication-free and maintenance-free. In addition, the service life of the PRT for use in robots was calculated in advance and far exceeds the design requirements.





Assembly table with slewing ring bearing
The PRT-01-30-TO-AT10 has proven to be the optimum solution due to its ready-to-install delivery with the AT10 belt profile. Precise and automatic rotation of the assembly table is made possible. Due to the plastic sliding elements made of iglidur® material, no maintenance work is required after installation.

Slewing ring general properties

Type 01

Properties	Unit	-20	-30	-50	-60	-100	-150	-200	-300
Weight	[kg]	0.2	0.4	1.0	1.1	1.3	2.2	3.2	7.6
Axial load, static	[N]	15,000	27,000	40,000	50,000	55,000	80,000	100,000	150,000
Axial load, dynamic	[N]	4,000	7,000	10,000	15,000	16,000	25,000	30,000	90,000
Radial load, static	[N]	2,300	5,000	8,000	10,000	16,000	25,000	35,000	45,000
Radial load, dynamic	[N]	600	1,500	2,500	3,000	5,000	8,000	10,000	27,000
Rotating speed, dry operation	[1/min]	300	250	200	200	150	100	80	50
Max. permissible tilting moment	[Nm]	100	200	600	800	1,500	2,000	3,800	5,000

Type 02

Properties	Unit	-20-AL	-20-ES	-20-LC	-20-P	-30-AL	-30-ES	-30-LC	-30-P
Weight	[g]	105	202	87	72	200	363	167	145
Axial load, static	[N]	13,000	13,000	13,000	13,000	25,000	25,000	25,000	25,000
Axial load, dynamic	[N]	4,000	4,000	4,000	4,000	7,000	7,000	7,000	7,000
Radial load, static	[N]	2,000	2,000	2,000	2,000	2,500	2,500	2,500	2,500
Radial load, dynamic	[N]	500	500	500	500	700	700	700	700
Rotating speed, dry operation	[1/min]	250	250	250	250	200	200	180	180
Max. permissible tilting moment	[Nm]	60	60	40	40	100	100	50	50

Properties	Unit	-50-AL	-50-ES	-50-LC	-50-P	-60-AL	-60-ES
Weight	[g]	440	747	380	338	700	1,322
Axial load, static	[N]	35,000	35,000	35,000	35,000	45,000	45,000
Axial load, dynamic	[N]	9,000	9,000	9,000	9,000	12,000	12,000
Radial load, static	[N]	5,000	5,000	5,000	5,000	10,000	10,000
Radial load, dynamic	[N]	1,200	1,200	1,200	1,200	2,800	2,800
Rotating speed, dry operation	[1/min]	120	120	120	120	120	120
Max. permissible tilting moment	[Nm]	120	120	100	100	200	200

Type 03

Properties	Unit	-80
Weight	[kg]	0.47
Axial load, static (compressive force direction)	[N]	45,000
Axial load, static (tensile force direction) [154)]	[N]	5,000
Axial load, dynamic (compressive force direction)	[N]	12,000
Axial load, dynamic (tensile force direction) [154)]	[N]	1,200
Radial load, static	[N]	4,000
Radial load, dynamic	[N]	1,000
Rotating speed, dry operation	[1/min]	120
Max. permissible tilting moment [154)]	[Nm]	120

Axial clearance 0.7mm, radial clearance 0.9mm

[154)] Only when the PRT is fitted onto a flat, stable surface

Type 04

Properties	Unit	-20	-30	-50	-60	-100	-150	-200	-300
Weight	[g]	n.s.	n.s.	225	250	370	530	680	990
Axial load, static	[N]	5,000	8,000	12,000	14,000	20,000	27,000	35,000	48,000
Axial load, dynamic	[N]	1,500	2,000	3,000	4,000	5,000	7,500	9,000	12,000
Radial load, static	[N]	1,000	1,500	2,500	3,000	5,500	6,500	8,000	10,000
Radial load, dynamic	[N]	300	400	750	900	1,500	1,900	2,500	3,500
Rotating speed, dry operation	[1/min]	300	250	200	190	135	100	80	50
Max. permissible tilting moment	[Nm]	30	60	200	250	450	650	875	1,200

Assembly data type 01 - 04

	Unit	Surface in the bolting area
Flatness	[mm]	0.05
Hardness	HBW[185)]	Min. 50

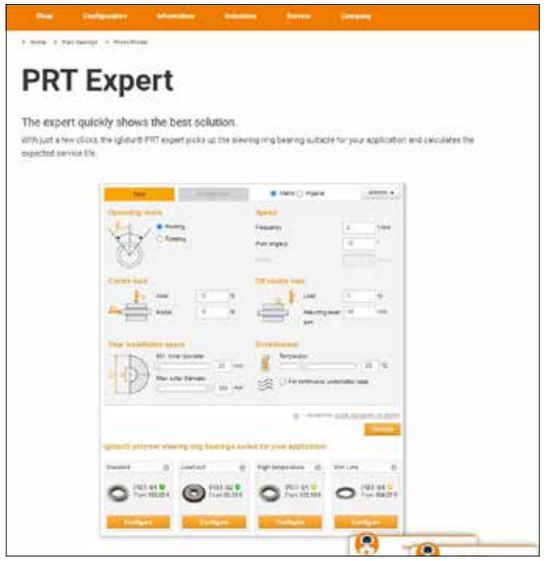
[185)] Valid at max. load

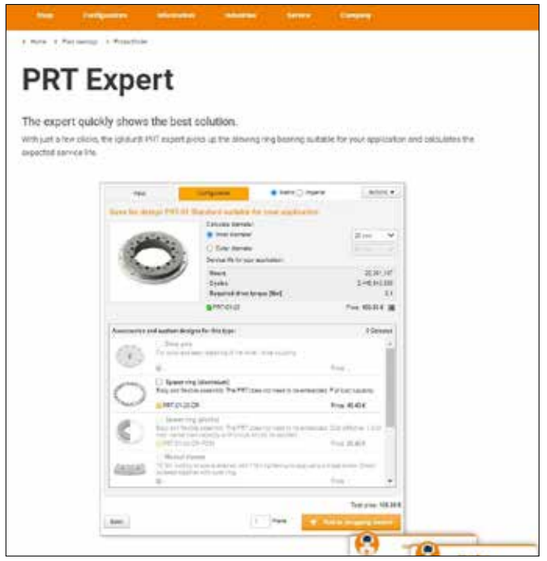
Configurator for slewing rings

The most common criteria for selecting an iglidur® PRT slewing ring bearing are firstly the loads and torques to be supported and secondly the installation space available and the minimum central implementation distance required.

The suitable sizes and types are selected on the basis of this data and the speed and their service life is calculated.

▶ www.igus.eu/prt-expert





Type 01

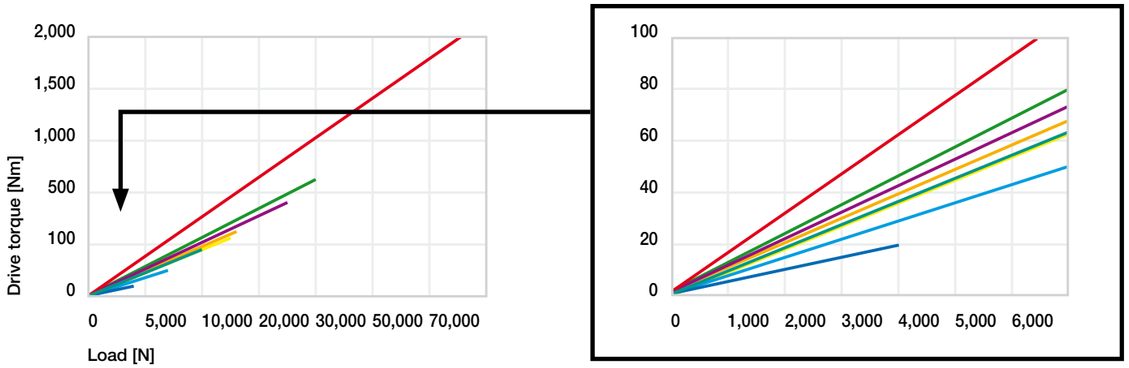


Diagram 01: Required drive torque versus applied load

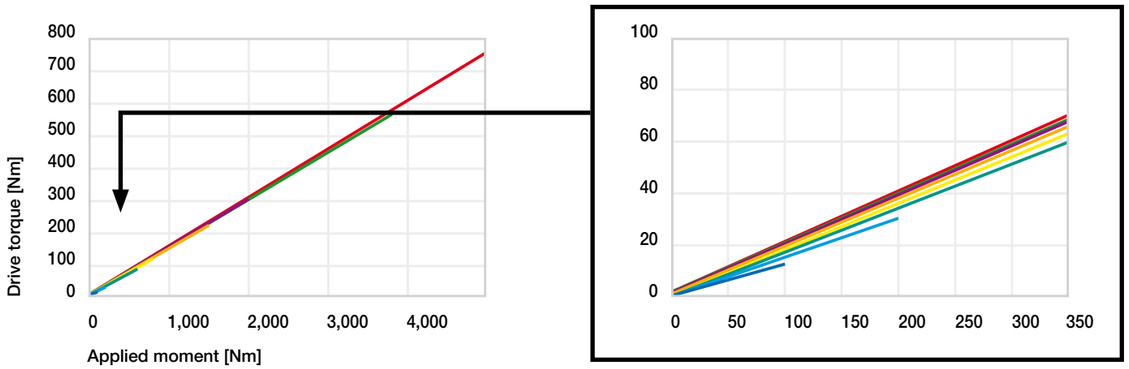


Diagram 02: Required drive torque versus applied moment

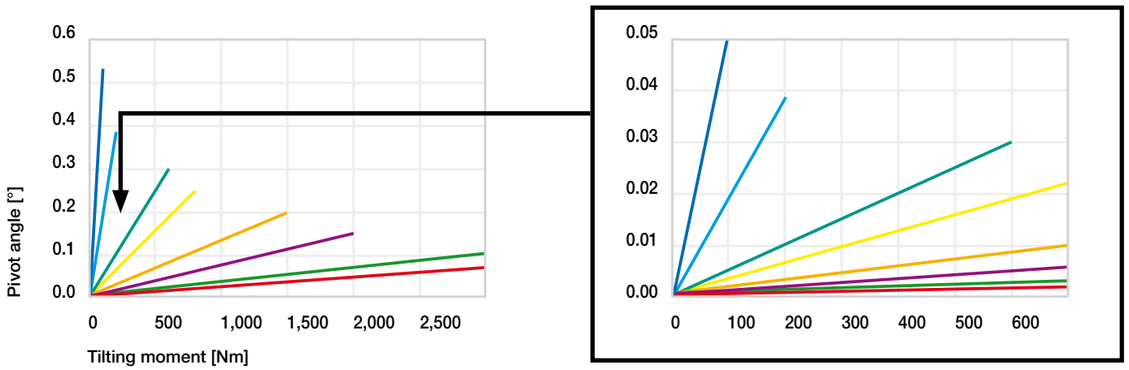


Diagram 03: Deflection versus applied tilting moment

PRT-01-20 PRT-01-30 PRT-01-50 PRT-01-60
PRT-01-100 PRT-01-150 PRT-01-200 PRT-01-300

All load values assume the PRT is assembled with cap head screws (strength class 8.8) on the outside pitch circle diameter of the collar clamp. For the assembly (using strength class 8.8 screws) of the PRT, the screws have to be inserted to a minimum thread depth of 2xd in every hole location in the outer ring. All data can be used for both lateral and horizontal assembly (including overhead installation).

Type 04

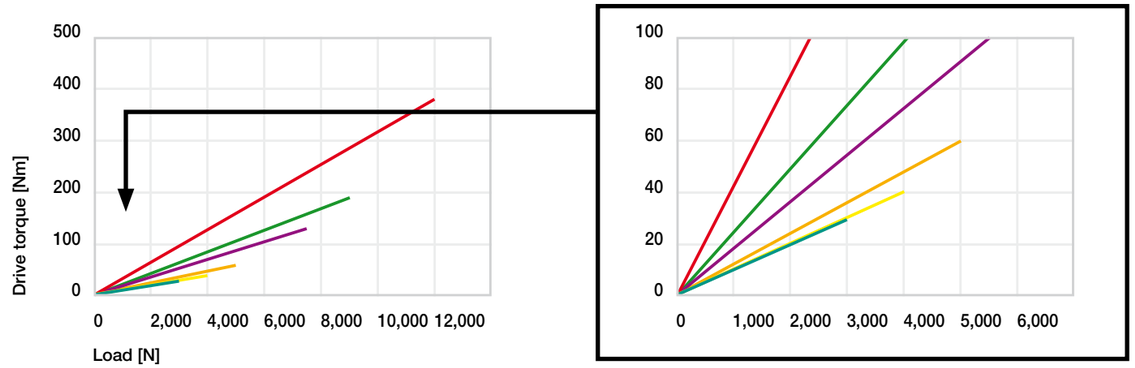


Diagram 01: Required drive torque versus applied load

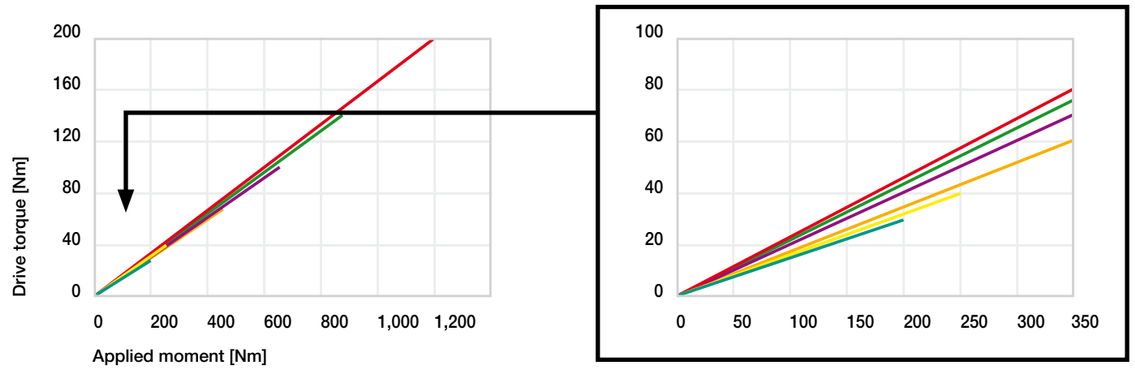


Diagram 02: Required drive torque versus applied moment

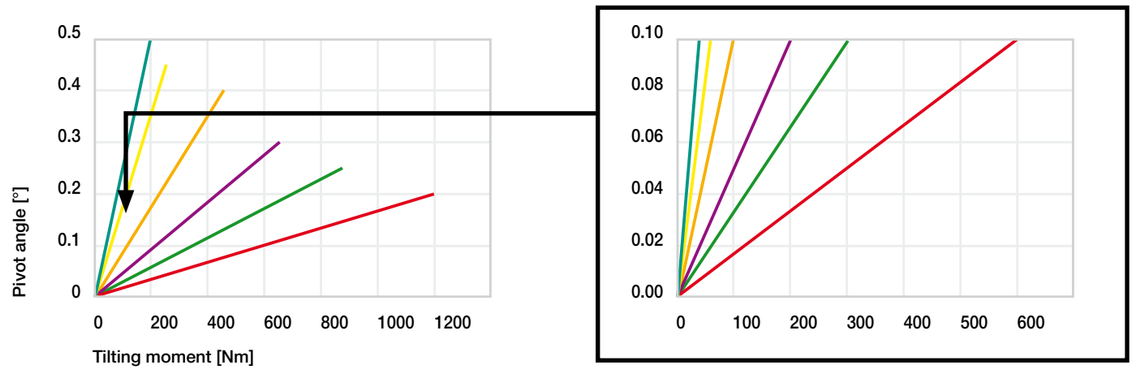
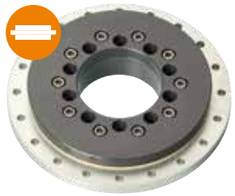


Diagram 03: Deflection versus applied tilting moment

PRT-04-50 PRT-04-60 PRT-04-100
PRT-04-150 PRT-04-200 PRT-04-300

iglidur® PRT | Product range

Slewing rings, high rigidity - type 01



Standard



Stainless steel version

- Aluminium or stainless steel body (upon request)
- Replaceable maintenance-free sliding elements made of iglidur® J (Standard) ▶ **Page 163**, iglidur® H1 (for temperatures up to +180°C) ▶**Page 345**, iglidur® F2 (ESD-compliant) ▶**Page 553** or iglidur® A180 (FDA-compliant) ▶**Page 425**

Order key

Type	Size	Options
PRT-01-	30	-ES-H1

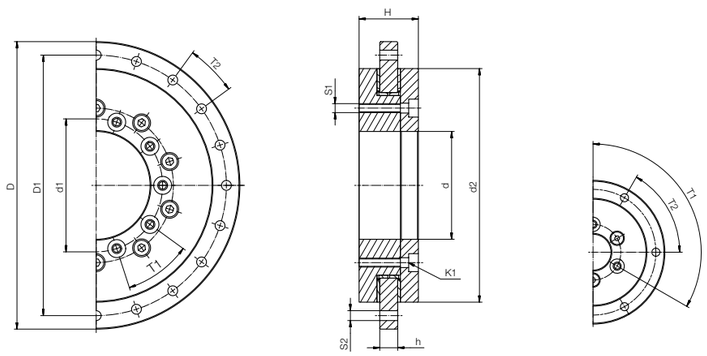
Slewing ring | Type | Inner Ø [mm] | Housing material | Sliding elements

Options:

Housing material
Blank: Aluminium
ES: 316 stainless steel

Sliding elements
Blank: iglidur® J
H1: iglidur® H1, high temperature
F2: iglidur® F2, ESD-compliant (only in conjunction with stainless steel)
A180: iglidur® A180, FDA-compliant

Accessories
▶ From page 718



Dimensions [mm]

D[10]	D1	d1	d	d2 ±0.2	H	h	T1	T2	S1	S2	K1 for screw	R1	R2	B	Part No.
80	70	31	20	60	24	8	6 x 60°	6 x 60°	M4	4.5	DIN 7984 M4	30	20	3.5	**PRT-01-20-☐**
100	91	42.5	30	82	29	10	8 x 45°	8 x 45°	M4	4.5	DIN 7984 M4	41	29	4.5	**PRT-01-30-☐**
150	135	65	50	120	33	10	8 x 45°	16 x 22,5°	M6	6.6	ISO 4762 M6	60	46.5	4.5	**PRT-01-50-☐**
160	145	74	60	130	33	10	10 x 36°	20 x 18°	M5	5.5	ISO 4762 M5	65	51.5	4.5	**PRT-01-60-☐**
185	170	112	100	160	34	12	12 x 30°	16 x 22,5°	M5	5.5	ISO 4762 M5	80	69	5.5	**PRT-01-100-☐**
250	235	165	150	220	35	12	12 x 30°	16 x 22,5°	M5	5.5	ISO 4762 M5	110	96.5	5.5	**PRT-01-150-☐**
300	285	215	200	274	38	15	12 x 30°	16 x 22,5°	M6	6.6	ISO 4762 M6	137	124	7.0	**PRT-01-200-☐**
450	430	320	300	410	42	15	12 x 30°	16 x 22,5°	M8	9.0	DIN 7984 M8	205	186.6	7.0	**PRT-01-300-☐**

[10] Tolerance according to DIN ISO 2768 mK

All stainless steel versions upon request

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iglidur® PRT | Product range

Slewing rings, compact, lightweight and cost-effective - type 04



Standard



Stainless steel version

- Available with diameters from 20mm to 300mm
- 60% lighter and 50% more compact compared to PRT-01
- 20% more cost-effective compared to PRT-01
- Wear-resistant, lubrication-free and maintenance-free iglidur® sliding elements

Order key

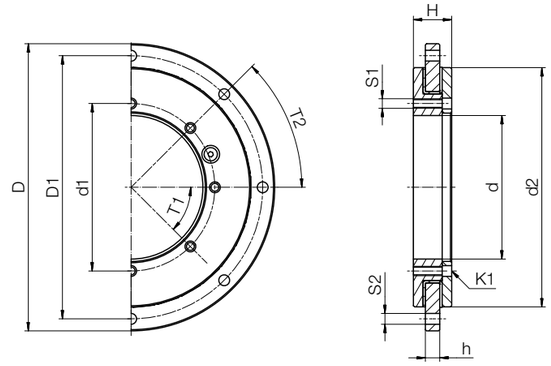
Type	Size	Options
PRT-04-	50	-ES-H1

Slewing ring | Type | Inner Ø [mm] | Housing material | Sliding elements

Options:

Housing material
Blank: Aluminium
ES: 316 stainless steel

Sliding elements
Blank: iglidur® J
H1: iglidur® H1, high temperature
F2: iglidur® F2, ESD-compliant (only in conjunction with stainless steel)
A180: iglidur® A180, FDA-compliant



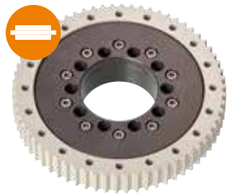
Dimensions [mm]

D	D1	d1	d	d2	H	h	T1	T2	S1	S2	K1 for screw	Part No.	
80	70	30	20	60	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-20-☐**	New
90	80	40	30	70	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-30-☐**	New
110	100	60	50	90	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-50-☐**	
120	110	70	60	100	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-60-☐**	
160	150	110	100	140	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-100-☐**	
210	200	160	150	190	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-150-☐**	
260	250	210	200	240	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-200-☐**	
360	350	310	300	340	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-300-☐**	

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iglidur® PRT | Product range

Slewing rings with gear teeth - type 01



Standard



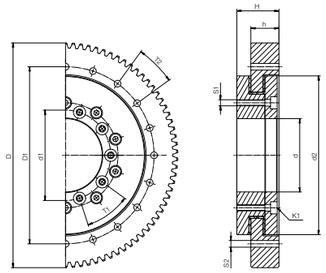
Stainless steel version

- 4 standards for outer rings are available
  - A classic spur gearing according to DIN3967
  - Commercially available belt profiles: T10, AT10, HTD8M
- The inner ring is fixed and the outer ring is driven
- The specially widened outer ring supports product transport
- Outer ring available in stainless steel as an option (suffix "-ES")

Order key

Type	Size	Options
PRT-01-	30	-TO-...-ES

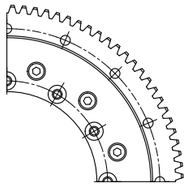
Slewing ring | Type | Inner Ø [mm] | Outer drive ring | Tooth profile type | Stainless steel version



Dimensions [mm]

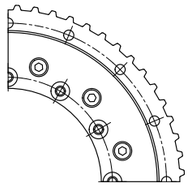
D1	d1	d	d2	h	T1	T2	S1	S2	K1 for screw	R1	R2	B	H	Part No.
70	31.0	20	60	18	6x60°	6x60°	M4	4.5	DIN 7984 M4	30	20.0	3.5	(26.0)	**PRT-01-20-TO-...**
91	42.5	30	82	21	8x45°	8x45°	M4	4.5	DIN 7984 M4	41	29.0	4.5	(30.5)	**PRT-01-30-TO-...**
135	65.0	50	120	10	8x45°	16x22.5°	M6	6.6	ISO 4762 M6	60	46.5	4.5	(33.0)	**PRT-01-50-TO-...**
145	74.0	60	130	23	10x36°	20x18°	M5	5.5	ISO 4762 M5	65	51.5	4.5	(34.5)	**PRT-01-60-TO-...**
170	112.0	100	160	25	12x30°	16x22.5°	M5	5.5	ISO 4762 M5	80	69.0	5.5	(36.0)	**PRT-01-100-TO-...**
235	165.0	150	220	25	12x30°	16x22.5°	M5	5.5	ISO 4762 M5	110	96.5	5.5	(36.5)	**PRT-01-150-TO-...**
285	215.0	200	274	30	12x30°	16x22.5°	M6	7.0	ISO 4762 M6	137	124.0	7.0	(41.5)	**PRT-01-200-TO-...**
430	320.0	300	410	30	12x30°	16x22.5°	M8	9.0	DIN 7984 M8	205	186.5	8.5	(43.5)	**PRT-01-300-TO-...**

Spur gearing ST



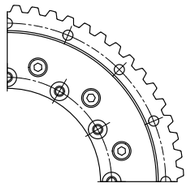
D	m Module	z Number of teeth	Part No. add-on
(88)	–	42	**...-ST**
(112)	2	54	**...-ST**
(160)	2	78	**...-ST**
(184)	2	90	**...-ST**
(196)	2	96	**...-ST**
(256)	2	126	**...-ST**
(308)	2	152	**...-ST**
(462)	3	152	**...-ST**

Toothed belt profile AT10



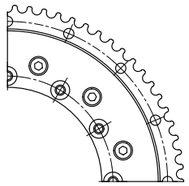
D	z Number of teeth	Part No. add-on
(87.25)	28	**...-AT10**
(106.4)	34	**...-AT10**
(157.3)	50	**...-AT10**
(163.8)	52	**...-AT10**
(189.2)	60	**...-AT10**
(252.9)	80	**...-AT10**
(303.9)	96	**...-AT10**
(456.7)	144	**...-AT10**

Toothed belt profile T10



D	z Number of teeth	Part No. add-on
(87.25)	28	**...-T10**
(106.4)	34	**...-T10**
(157.3)	50	**...-T10**
(163.8)	52	**...-T10**
(189.2)	60	**...-T10**
(252.9)	80	**...-T10**
(303.9)	96	**...-T10**
(456.7)	144	**...-T10**

Toothed belt profile HTD5M (-20)/HTD8M



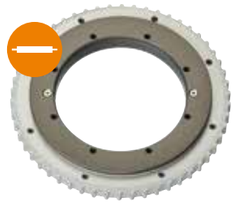
D	z Number of teeth	Part No. add-on
(81.25)	52	**...-HTD5M**
(110.7)	44	**...-HTD8M**
(161.6)	64	**...-HTD8M**
(166.7)	66	**...-HTD8M**
(187.1)	74	**...-HTD8M**
(253.3)	100	**...-HTD8M**
(304.3)	120	**...-HTD8M**
(457.1)	180	**...-HTD8M**

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Slewing rings with gear teeth - type 04



AT10



T10



HTD5M



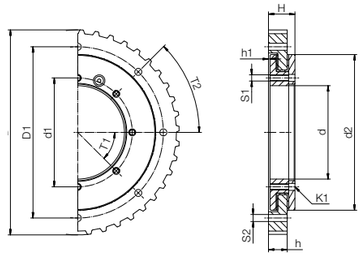
ST

- Easy replacement and extension: modular construction kit design
- Driving the easy way with gear profiles
- Adjustable with manual clamps

Order key

Type	Size	Options
PRT-04-	50	-TO-...

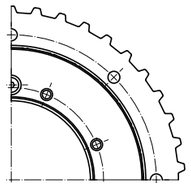
Slewing ring | Type | Inner Ø [mm] | Outer drive ring | Tooth profile type



Dimensions [mm]

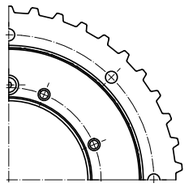
D1	d1	d	d2	H	h1	h	T1	T2	S1	S2	K1 for screw	Part No.
With gear profile												
100	60	50	90	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-50-TO-...**
110	70	60	100	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-60-TO-...**
150	110	100	140	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-100-TO-...**
200	160	150	190	17	1	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-150-TO-...**
250	210	200	240	17	1	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-200-TO-...**
350	310	300	340	17	1	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-300-TO-...**

Toothed belt profile AT10



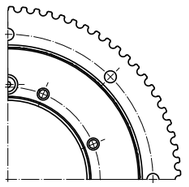
D	z Number of teeth	Part No. add-on
118.9	38	**...-AT10**
131.7	42	**...-AT10**
169.9	54	**...-AT10**
220.8	70	**...-AT10**
271.7	86	**...-AT10**
370.4	117	**...-AT10**

Toothed belt profile T10



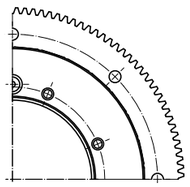
D	z Number of teeth	Part No. add-on
118.9	38	**...-T10**
131.7	42	**...-T10**
169.9	54	**...-T10**
220.8	70	**...-T10**
271.7	86	**...-T10**
370.4	117	**...-T10**

Toothed belt profile HTD5M



D	z Number of teeth	Part No. add-on
120	38	**...-HTD5M**
131	42	**...-HTD5M**
170.9	54	**...-HTD5M**
221.8	70	**...-HTD5M**
271.2	86	**...-HTD5M**
371.4	117	**...-HTD5M**

Spur gearing ST

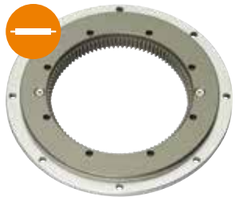


D	z Number of teeth	Module	Part No. add-on
120	118	1	**...-ST**
130	128	1	**...-ST**
170	168	1	**...-ST**
220	218	1	**...-ST**
270	268	1	**...-ST**
370	368	1	**...-ST**

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Slewing rings with inner drive ring - type 04



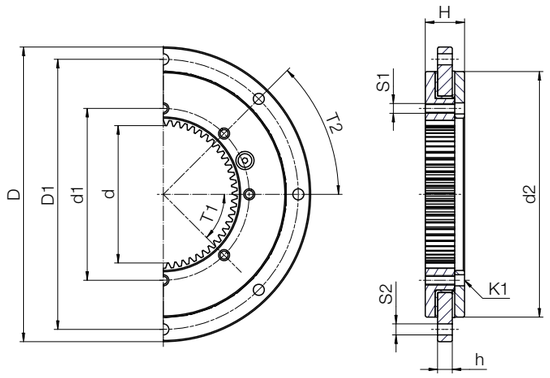
TI-ST

Order key

Type	Size	Options
PRT-04-	50	- TI -ST

Slewing ring	Type	Inner Ø [mm]	Inner gear teeth	Tooth profile type

- Easy replacement and extension: modular construction kit design
- Inner drive teeth



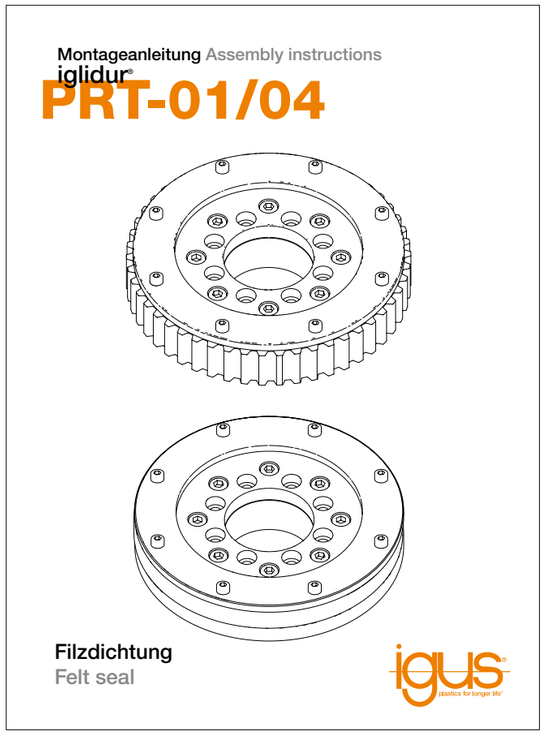
Dimensions [mm]

D	D1	d1	d	d2	H	h	z	Part No.	
110	100	60	46	90	16	6	48	PRT-04-50-TI-ST	New
120	110	70	56	100	16	6	58	PRT-04-60-TI-ST	New
160	150	110	96	140	16	6	98	PRT-04-100-TI-ST	New
210	200	160	146	190	16	6	148	PRT-04-150-TI-ST	New
260	250	210	196	240	16	6	198	PRT-04-200-TI-ST	New
360	350	310	296	340	16	6	298	PRT-04-300-TI-ST	New

T1	T2	S1	S2	K1 for screw	Module	Part No.	
8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	1	PRT-04-50-TI-ST	New
8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	1	PRT-04-60-TI-ST	New
8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	1	PRT-04-100-TI-ST	New
16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	1	PRT-04-150-TI-ST	New
16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	1	PRT-04-200-TI-ST	New
16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	1	PRT-04-300-TI-ST	New

iglidur® PRT | Product range New

Felt Cover - high efficient sealing



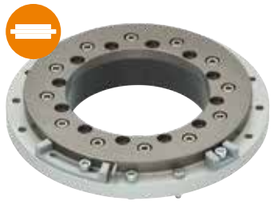
The felt cover was developed for applications in particularly harsh environments where heavy loads, dirt and dust occur. The felt cover extends the PRT slewing ring service life.

PRT felt seal ▶ **Page 732**

Assembly instructions available in the download area ▶ www.igus.eu/prt-assembly

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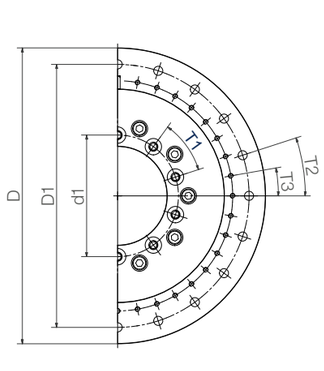
Slewing rings with angle stop - type 01

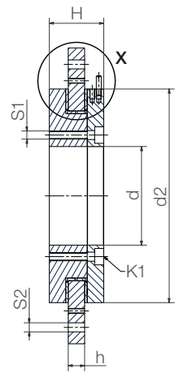


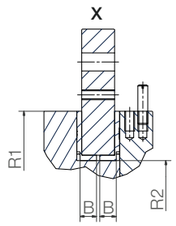
- Quick adjustment of the stop
- Load ratings identical to standard type 01

Order key

Type	Size	Options
PRT-01-	20	-AA
Slewing ring	Type	Inner Ø [mm]	Angle stop







Dimensions [mm]

D[10]	D1	d1	d	d2 ±0.2	H	h	T1	T2	S1	S2	K1 for screw	R1	R2	B	Part No.
80	70	31.0	20	60	24	8	6 x 60°	6 x 60°	M4	4.5	DIN 7984 M4	30	20	3.5	**PRT-01-20-AA**
100	91	42.5	30	82	29	10	8 x 45°	8 x 45°	M4	4.5	DIN 7984 M4	41	29	4.5	**PRT-01-30-AA**
150	135	65.0	50	120	33	10	8 x 45°	16 x 22,5°	M6	6.6	ISO 4762 M6	60	46.5	4.5	**PRT-01-50-AA**
160	145	74.0	60	130	33	10	10 x 36°	20 x 18°	M5	5.5	ISO 4762 M5	65	51.5	4.5	**PRT-01-60-AA**
185	170	112.0	100	160	34	12	12 x 30°	16 x 22,5°	M5	5.5	ISO 4762 M5	80	69	5.5	**PRT-01-100-AA**
250	235	165.0	150	220	35	12	12 x 30°	16 x 22,5°	M5	5.5	ISO 4762 M5	110	96.5	5.5	**PRT-01-150-AA**
300	285	215.0	200	274	38	15	12 x 30°	16 x 22,5°	M6	6.6	ISO 4762 M6	137	124	7.0	**PRT-01-200-AA**
450	430	320.0	300	410	42	15	12 x 30°	16 x 22,5°	M8	9.0	DIN 7984 M8	205	186.6	7.0	**PRT-01-300-AA**

[10] Tolerance according to DIN ISO 2768 mK

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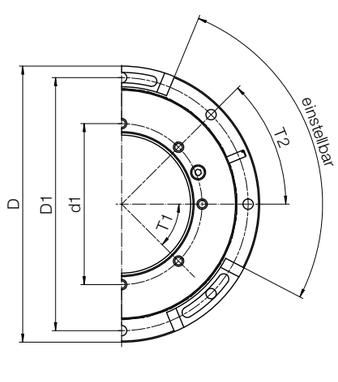
Slewing rings with angle stop - type 04

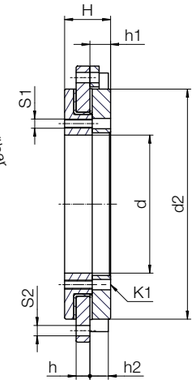


- Already successfully in use for years with PRT-01
- Compact design means 60% less weight compared to the PRT-01 series

Order key

Type	Size	Options
PRT-04-	50	-TS
Slewing ring	Type	Inner Ø [mm]	Angle stop





Dimensions [mm]

D	D1	d1	d	d2	H	h	h1	h2	Part No.	
110	100	60	50	90	20	6	9	8	**PRT-04-50-TS**	New
120	110	70	60	100	20	6	9	8	**PRT-04-60-TS**	New
160	150	110	100	140	20	6	9	8	**PRT-04-100-TS**	New
210	200	160	150	190	20	6	9	8	**PRT-04-150-TS**	New
260	250	210	200	240	20	6	9	8	**PRT-04-200-TS**	New
360	350	310	300	340	20	6	9	8	**PRT-04-300-TS**	New

T1	T2	S1	S2	K1 for screw	Part No.	
8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-50-TS**	New
8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-60-TS**	New
8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-100-TS**	New
16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-150-TS**	New
16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-200-TS**	New
16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-300-TS**	New

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Manual clamp - type 01



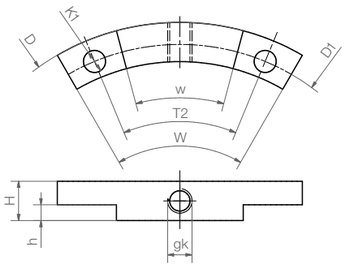
- With 1Nm screw torque, a holding torque up to 10Nm is possible
- Easy to screw onto outer ring

Order key

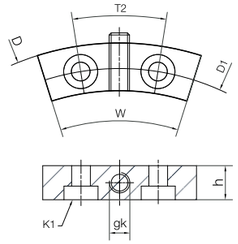
Type	Size
PRT-HK-	30-K

Slewing ring | Manual clamp | Inner Ø [mm] | Manual clamp

Options:
Blank: Threaded pin
K: Manual clamp



PRT-HK-20/30



PRT-HK-50/60/100/150/200/300



PRT-HK-60



PRT-HK-60-K

PRT with fitted manual clamp

Dimensions [mm]

D	D1	T2	K1 for screw	H	h	gk	W	Part No.
80	70	60.0°	Ø 4.5	7	3.2	M5	90°	**PRT-HK-20**
100	91	45.0°	Ø 4.5	8	3.2	M5	60°	**PRT-HK-30**
150	135	22.5°	Ø 11.0	–	10	M6	40°	**PRT-HK-50**
160	145	18.0°	Ø 10.0	–	10	M6	35°	**PRT-HK-60**
205	185	22.5°	Ø 10.0	–	10	M6	40°	**PRT-HK-100**[12)]
210	200	22.5°	Ø 10.0	–	10	M6	35°	**PRT-HK-150**
320	300	22.5°	Ø 11.0	–	10	M6	40°	**PRT-HK-200**[12)]
360	350	22.5°	Ø 15.0	–	12	M6	30°	**PRT-HK-300**

[12)] To be connected only with enlarged outer ring

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Manual clamp - type 04

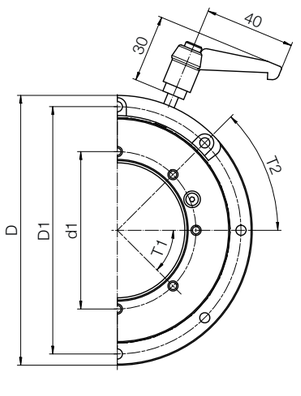


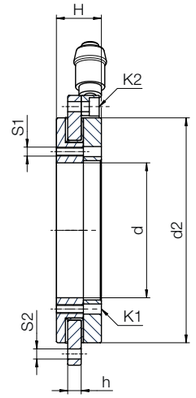
- Securing against unintentional adjustment
- Easy to fit
- Part of the extensive PRT modular system
- With 1Nm screw torque, a holding torque up to 10Nm is possible

Order key

Type	Size	Options
PRT-04-	20	-HK

Slewing ring | Type | Inner Ø [mm] | Manual clamp





Dimensions [mm]

D	D1	d	d1	d2	H	h	T1	T2	S1	S2 H13	K1 H13	Part No.	
80	70	20	30	60	20	6	8 x 45°	8 x 45°	M4	4.5	4.5	**PRT-04-20-HK**	New
90	80	30	40	70	20	6	8 x 45°	8 x 45°	M4	4.5	4.5	**PRT-04-30-HK**	New
110	100	50	60	90	20	6	8 x 45°	8 x 45°	M4	4.5	4.5	**PRT-04-50-HK**	New
120	110	60	70	100	20	6	8 x 45°	8 x 45°	M4	4.5	4.5	**PRT-04-60-HK**	New
160	150	100	110	140	20	6	8 x 45°	8 x 45°	M4	4.5	4.5	**PRT-04-100-HK**	New
210	200	150	160	190	20	6	16 x 22,5°	16 x 22,5°	M4	4.5	4.5	**PRT-04-150-HK**	New
260	250	200	210	240	20	6	16 x 22,5°	16 x 22,5°	M4	4.5	4.5	**PRT-04-200-HK**	New
360	350	300	310	340	20	6	16 x 22,5°	16 x 22,5°	M4	4.5	4.5	**PRT-04-300-HK**	New

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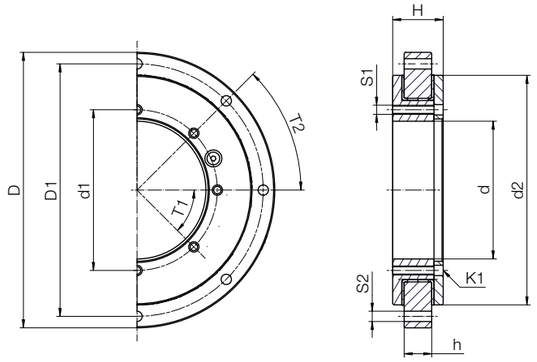
Slewing rings with snap mechanism - type 04



- Repeatable defined location points
- Can also be ideally combined with the optional T-slot plate for your assembly table, for example
- Slewing ring with defined latching points; can be released with a force of 30N (+-2N)
- Standard versions have locking points every 90°
- Locking points can be individually defined

Order key

Type	Size	Options
PRT-04-	50	-R
Slewing ring	Type	Inner Ø [mm]	Locking mechanism



Dimensions [mm]

D	D1	d1	d	d2 -0.1/-0.5	H	h	T1	T2	S1	S2	K1 for screw	Part No.	
80	70	30	20	60	22	12	8 × 45°	8 × 45°	M4	Ø 4.5	M4	**PRT-04-20-R**	New
90	80	40	30	70	22	12	8 × 45°	8 × 45°	M4	Ø 4.5	M4	**PRT-04-30-R**	New
110	100	60	50	90	22	12	8 × 45°	8 × 45°	M4	Ø 4.5	M4	**PRT-04-50-R**	New
120	110	70	60	100	22	12	8 × 45°	8 × 45°	M4	Ø 4.5	M4	**PRT-04-60-R**	New
160	150	110	100	140	22	12	8 × 45°	8 × 45°	M4	Ø 4.5	M4	**PRT-04-100-R**	New
210	200	160	150	190	22	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	M4	**PRT-04-150-R**	New
260	250	210	200	240	22	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	M4	**PRT-04-200-R**	New
360	350	310	300	340	22	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	M4	**PRT-04-300-R**	New

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Slewing rings with locking device - type 04



PRT-04_xx_ART



PRT-04_xx_ART-PD



PRT-04_xx_ART-U



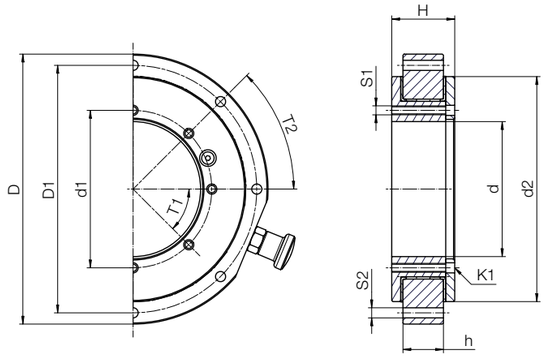
PRT-04_xx_ART-RC

Order key

Type	Size	Options
PRT-04-	50	-ART-☐
Slewing ring	Type	Inner Ø [mm]	Locking device	Design

Options:
☐ = Suffix
PD: With locking mechanism and position monitoring
U: With locking mechanism and universal adapter
RC: With locking mechanism and remote trigger

- Easy and quick release by hand or remote trigger
- Available with electronic closing control mechanism or with universal adapter for custom solutions



Dimensions [mm]

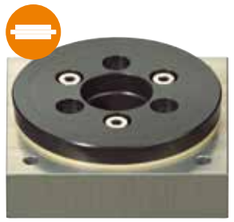
D1	D1	d	d1	Ø d2	H	h	T1	T2	S1	S2 H13	K1 H13	Part No.	
80	70	20	30	60	28	6	8 × 45°	8 × 45°	M4	Ø 4.5	4.5	**PRT-04-20-ART-☐**	New
90	80	30	40	70	28	6	8 × 45°	8 × 45°	M4	Ø 4.5	4.5	**PRT-04-30-ART-☐**	New
110	100	50	60	90	28	6	8 × 45°	8 × 45°	M4	Ø 4.5	4.5	**PRT-04-50-ART-☐**	New
120	110	60	70	100	28	6	8 × 45°	8 × 45°	M4	Ø 4.5	4.5	**PRT-04-60-ART-☐**	New
160	150	100	110	140	28	6	8 × 45°	8 × 45°	M4	Ø 4.5	4.5	**PRT-04-100-ART-☐**	New
210	200	150	160	190	28	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	4.5	**PRT-04-150-ART-☐**	New
260	250	200	210	240	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	4.5	**PRT-04-200-ART-☐**	New
360	350	300	310	340	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	4.5	**PRT-04-300-ART-☐**	New

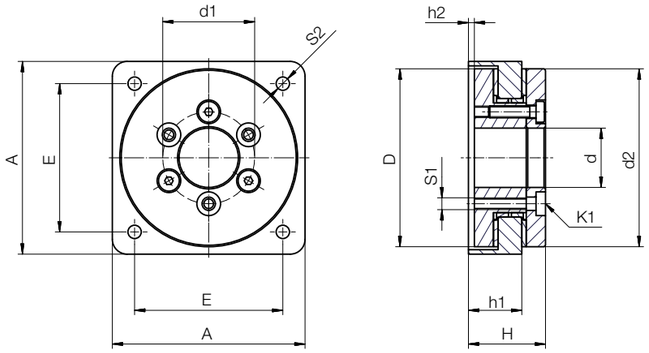
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Type 01

Slewing rings with square flange for direct mounting on flat surfaces





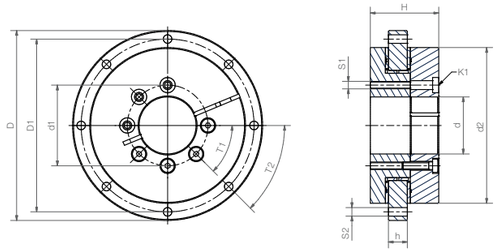
- No through-hole necessary
- No separate spacer ring
- Fix with only 4 screws

Dimensions [mm]

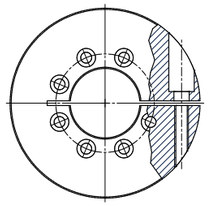
d	d1	d2	D	A	E	H	h1	h2	T1	S1	S2	K1 for screw	Part No.
20	31.0	60	62	65	50	26.0	18	2.0	6 x 60°	M4	4.5	DIN 7984 M4	**PRT-01-20-SQ**
30	42.5	82	84	85	65	30.5	21	1.5	8 x 45°	M4	4.5	DIN 7984 M4	**PRT-01-30-SQ**
50	65.0	120	122	125	100	34.5	23	1.5	8 x 45°	M6	6.6	ISO 4762 M6	**PRT-01-50-SQ**

Slewing rings with collar clamp





Slewing ring with PRT-01-30-C collar clamp



Collar clamp for PRT-01-30-C

Slewing ring PRT-01-30 with collar clamp for 30h7 tolerance shafts.

- For simple handling designs
- Quick and easy assembly
- Max. tightening torque: 5Nm

Dimensions [mm]

D	D1	d1	d	d2	H	h	T1	T2	S1	S2	K1 for screw	Part No.
80	70	31	20	60	32.5	8	4 x 60°	6 x 60°	M4	4.5	DIN 7984 M4	**PRT-01-20-C**
100	91	42.5	30	82	36.0	10	6 x 45°	8 x 45°	M4	4.5	DIN 7984 M4	**PRT-01-30-C**

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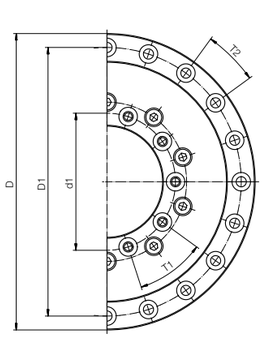
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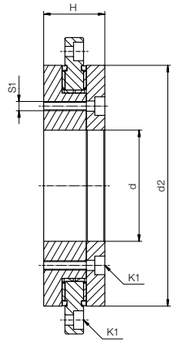
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Type 01

Slewing rings with seal (-D: one-sided, -DD: both-sided)







- For use in extremely dirty environments
- High wear resistance
- For high loads and high stiffness

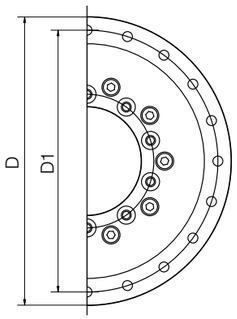
Dimensions [mm]

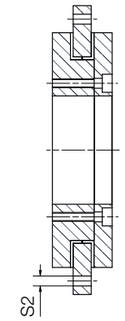
D[10]	D1	d1	d	d2 ±0.2	H	h	T1	T2	S1	S2	K1 for screw	R1	R2	B	Part No.
160	145	74	60	130	33	10	10 x 36°	20 x 18°	M5	5.5	ISO 4762 M5	65	51.5	4.5	**PRT-01-60-D/DD**
185	170	112	100	160	34	12	12 x 30°	16 x 22,5°	M5	5.5	ISO 4762 M5	80	69	5.5	**PRT-01-100-D/DD**

[10] **Tolerance according to DIN ISO 2768 mK**

Slewing rings with enlarged outer ring







- Easy to install replaceable sliding pads
- High wear resistance
- For high loads and high stiffness

Dimensions [mm] - other dimensions similar to standard type PRT-01 ▶ Page 710

D	D1	S2	Part No.[11]
205	185	5.5	**PRT-01-100-M-ARG**
205	185	M6	**PRT-01-100-M-ARGG**
205	185	5.5	**PRT-01-100-M-ARGS**
320	300	7.0	**PRT-01-200-M-ARG**
320	300	M8	**PRT-01-200-M-ARGG**
320	300	7.0	**PRT-01-200-M-ARGS**

[11] **Ending: -G standard hole, -GG threaded hole or -GS counterbore**

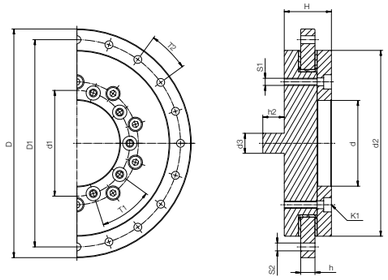
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PRT with assembled drive pin - type 04



- Easy to install and replaceable sliding elements
- High wear resistance
- For high loads and high stiffness
- Housing made of aluminium



Order key

Type	Size	Options
PRT - 01 -	60	- DP

Slewing ring | Type | Inner Ø [mm] | Drive pin

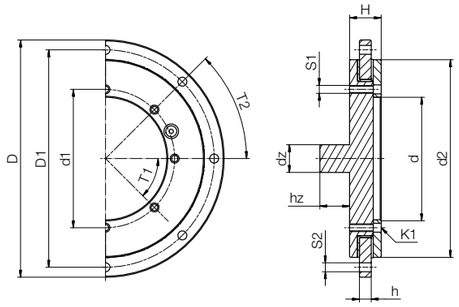
Dimensions [mm]

D	D1	d1	d	d2	d2- Tolerance	H	h	T1	T2	S1	S2	K1	R1	R2	B	h2	Part No.
160	145	74	60	130	±0.2	33	10	10 x 36°	20 x 18°	M5	5.5	M5	65	51.5	4.5	15	**PRT-01-60-DP**

PRT with assembled drive pin - type 04



- Easy replacement and extension: modular construction kit design
- Driving the easy way with drive pin for couplings
- Adjustable with manual clamps



Dimensions [mm]

D	D1	d1	d	d2	dz	hz	H	h	T1	T2	S1	S2	K1 for screw	Part No.	
With DrivePin															
80	70	30	22	60	14 h6	15	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-20-DP**	New
90	80	40	32	70	14 h6	15	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-30-DP**	New
110	100	60	52	90	14 h6	15	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-50-DP**	
120	110	70	62	100	14 h6	15	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-60-DP**	
160	150	110	102	140	14 h6	15	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-100-DP**	
210	200	160	152	190	14 h6	15	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-150-DP**	
260	250	210	202	240	14 h6	15	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-200-DP**	
360	350	310	302	340	14 h6	15	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-300-DP**	

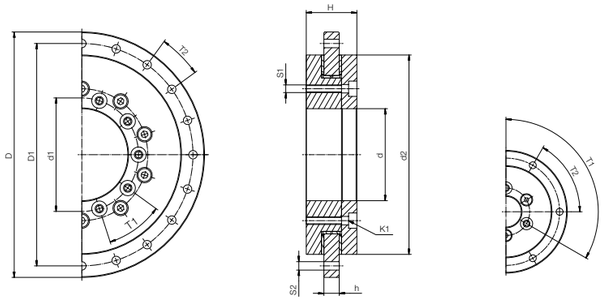
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iglidur® PRT | Product range New

Slewing ring bearing with switching sensor - type 01 i.Sense



- No unplanned machine downtime
- Early information about bearing wear prevents the assembly from damage



Order key

Type	Size	Options
PRT - 01 -	30	- PR.W - DS

Slewing ring | Type | Inner Ø [mm] | Wear monitoring

Dimensions [mm]

D[10]	D1	d1	d	d2 ±0.2	H	h	T1	T2	Part No.	
80	70	31	20	60	24	8	3 x 120°	6 x 60°	**PRT-01-20-PR.W-DS**	New
100	91	42.5	30	82	29	10	4 x 90°	8 x 45°	**PRT-01-30-PR.W-DS**	New
150	135	65	50	120	33	10	8 x 45°	16 x 22,5°	**PRT-01-50-PR.W-DS**	New
160	145	74	60	130	33	10	10 x 36°	20 x 18°	**PRT-01-60-PR.W-DS**	New
185	170	112	100	160	34	12	12 x 30°	16 x 22,5°	**PRT-01-100-PR.W-DS**	New
250	235	165	150	220	35	12	12 x 30°	16 x 22,5°	**PRT-01-150-PR.W-DS**	New
300	285	215	200	274	38	15	12 x 30°	16 x 22,5°	**PRT-01-200-PR.W-DS**	New
450	430	320	300	410	42	15	12 x 30°	16 x 22,5°	**PRT-01-300-PR.W-DS**	New

S1	S2	K1 for screw	R1	R2	B	Part No.	
M4	4.5	DIN 7984 M4	30	20.0	3.5	**PRT-01-20-PR.W-DS**	New
M4	4.5	DIN 7984 M4	41	29.0	4.5	**PRT-01-30-PR.W-DS**	New
M6	6.6	ISO 4762 M6	60	46.5	4.5	**PRT-01-50-PR.W-DS**	New
M5	5.5	ISO 4762 M5	65	51.5	4.5	**PRT-01-60-PR.W-DS**	New
M5	5.5	ISO 4762 M5	80	69.0	5.5	**PRT-01-100-PR.W-DS**	New
M5	5.5	ISO 4762 M5	110	96.5	5.5	**PRT-01-150-PR.W-DS**	New
M6	6.6	ISO 4762 M6	137	124.0	7.0	**PRT-01-200-PR.W-DS**	New
M8	9.0	DIN 7984 M8	205	186.6	7.0	**PRT-01-300-PR.W-DS**	New

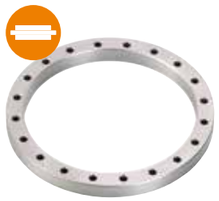
[10] Tolerance according to DIN ISO 2768 mK

Available upon request

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iglidur® PRT | Product range

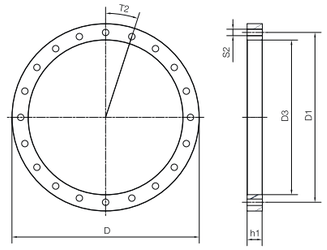
Spacer rings made from anodised aluminium or polymer - type 01



Aluminium



Plastic (POM)





PRT with mounted spacer ring

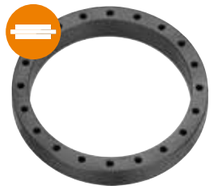
- Easy installation
- Can be combined with all sizes

Dimensions [mm]

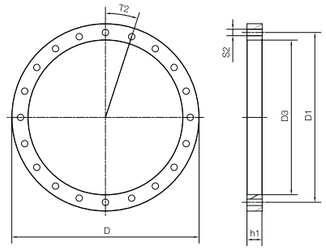
D	D1	T2	S2	D3	h1	Part No.[39)]
80	70	6 x 60°	4.5	62	10	**PRT-01-20-DR**
100	91	8 x 45°	4.5	84	11	**PRT-01-30-DR**
150	135	16 x 22,5°	6.6	122	13	**PRT-01-50-DR**
160	145	20 x 18°	5.5	132	13	**PRT-01-60-DR**
185	170	16 x 22,5°	5.5	162	13	**PRT-01-100-DR**
250	235	16 x 22,5°	5.5	222	13	**PRT-01-150-DR**
300	285	16 x 22,5°	7.0	276	13	**PRT-01-200-DR**
450	430	16 x 22,5°	9.0	412	15	**PRT-01-300-DR**

[39)] **Please add suffix "-POM" for plastic version (not available for sizes 150 and 300)**

Spacer ring for heavy duty applications - type 01



- Steel version to avoid distortion during installation
- iglidur® PRT modular system: can be combined with all sizes
- Corrosion-resistant





PRT with mounted HD spacer ring

Dimensions [mm]

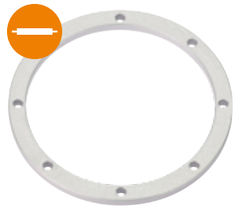
D	D1	T2	S2	D3 ±0.2	h1	Part No.
80	70	6 × 60°	4.5	62	20	**PRT-01-20-DR-HD**
100	91	8 × 45°	4.5	84	22	**PRT-01-30-DR-HD**
150	135	16 x 22,5°	6.6	122	26	**PRT-01-50-DR-HD**
160	145	20 × 18°	5.5	132	26	**PRT-01-60-DR-HD**
185	170	16 × 22.5°	5.5	162	26	**PRT-01-100-DR-HD**
250	235	16 × 22.5°	5.5	222	26	**PRT-01-150-DR-HD**
300	285	16 × 22.5°	7.0	276	26	**PRT-01-200-DR-HD**
450	430	16 × 22.5°	9.0	412	30	**PRT-01-300-DR-HD**

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PRT

iglidur® PRT | Product range New

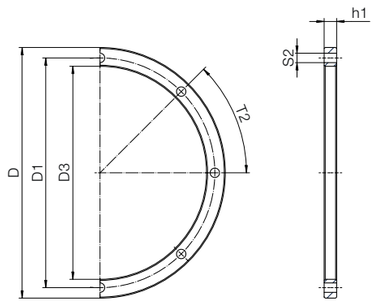
Spacer rings made from anodised aluminium or polymer - type 01



- Allows easy installation of slewing ring bearings on surfaces
- Part of the extensive modular system

Order key

Type	Size	Options
PRT	-04- 20	-DR
Slewing ring	Type	Inner Ø [mm]	Spacer ring



Dimensions [mm]

D	D1	T2	S2	D3	h1	Part No.
80	70	8 x 45°	4.5	62	6	**PRT-04-20-DR** New
90	80	8 x 45°	4.5	72	6	**PRT-04-30-DR** New
110	100	8 x 45°	4.5	92	6	**PRT-04-50-DR** New
120	110	8 x 45°	4.5	102	6	**PRT-04-60-DR** New
160	150	8 x 45°	4.5	142	6	**PRT-04-100-DR** New
210	200	16 x 22,5°	4.5	192	6	**PRT-04-150-DR** New
260	250	16 x 22,5°	4.5	242	6	**PRT-04-200-DR** New
360	350	16 x 22,5°	4.5	342	6	**PRT-04-300-DR** New

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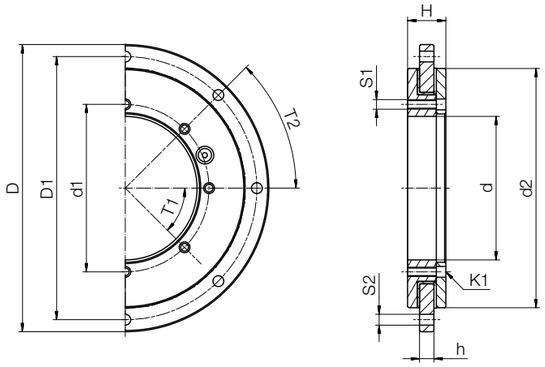
Black Edition - type 04



- Available with diameters from 20mm to 300mm
- 60% lighter and 50% more compact compared to PRT-01
- 20% more cost-effective compared to PRT-01
- Wear-resistant, lubrication-free and maintenance-free iglidur® sliding elements
- Black anodised coating anti-reflect. Black Edition for visible parts

Order key

Type	Size	Options
PRT-04-	50	-BE
Slewing ring	Type	Inner Ø [mm]	Black Edition



Dimensions [mm]

D	D1	d1	d	d2	H	h	T1	T2	S1	S2	K1 for screw	Part No.	
80	70	30	20	60	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-20-BE**	New
90	80	40	30	70	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-30-BE**	New
110	100	60	50	90	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-50-BE**	
120	110	70	60	100	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-60-BE**	
160	150	110	100	140	16	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-100-BE**	
210	200	160	150	190	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-150-BE**	
260	250	210	200	240	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-200-BE**	
360	350	310	300	340	16	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-300-BE**	

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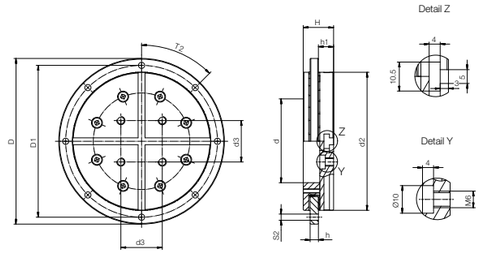
Slot nut profile - type 04



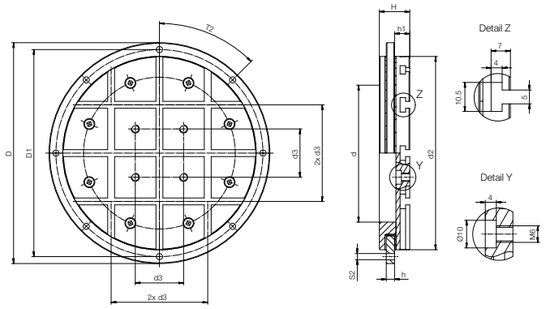
- Fast assembly
- Easy positioning with no additional holes

Order key

Type	Size	Options
PRT-04-	50	-T
Slewing ring	Type	Inner Ø [mm]	Slot nuts



Slot nut profile up to size 60



Slot nut profile from size 100

Dimensions [mm]

D	D1	d1	d	d2	H	h	h1	T2	S2	Part No.	
80	70	30	20	60	22	6	11	8 × 45°	Ø 4.5	**PRT-04-20-T**	New
90	80	40	30	70	22	6	11	8 × 45°	Ø 4.5	**PRT-04-30-T**	New
110	100	60	50	90	22	6	11	8 × 45°	Ø 4.5	**PRT-04-50-T**	
120	110	70	60	100	22	6	11	8 × 45°	Ø 4.5	**PRT-04-60-T**	
160	150	110	100	140	22	6	11	8 × 45°	Ø 4.5	**PRT-04-100-T**	
210	200	160	150	190	22	6	11	16 × 22.5°	Ø 4.5	**PRT-04-150-T**	
260	250	210	200	240	22	6	11	16 × 22.5°	Ø 4.5	**PRT-04-200-T**	
360	350	310	300	340	22	6	11	16 × 22.5°	Ø 4.5	**PRT-04-300-T**	

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iglidur® PRT | Product range

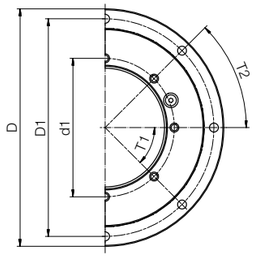
Installation solutions - type 04

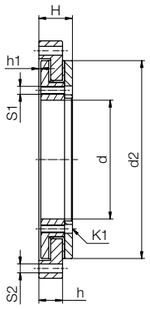


With outer spacer ring



With large outer support ring





Order key

Type	Size	Options
PRT-04-	50	-M4
Slewing ring	Type	Inner Ø [mm]	Thread

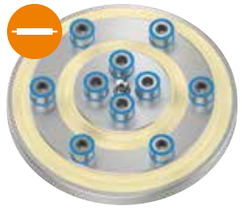
- Maintenance-free and wear-resistant
- Easy installation
- Replaceable sliding elements

Dimensions [mm]

D	D1	d1	d	d2	H	h1	h	T1	T2	S1	S2	K1 for screw	Part No.	
With M4 thread in outer ring														
80	70	30	20	60	16	–	6	8 × 45°	8 × 45°	M4	M4	Ø 4.5	**PRT-04-20-M4**	New
90	80	40	30	70	16	–	6	8 × 45°	8 × 45°	M4	M4	Ø 4.5	**PRT-04-30-M4**	New
110	100	60	50	90	16	–	6	8 × 45°	8 × 45°	M4	M4	Ø 4.5	**PRT-04-50-M4**	
120	110	70	60	100	16	–	6	8 × 45°	8 × 45°	M4	M4	Ø 4.5	**PRT-04-60-M4**	
160	150	110	100	140	16	–	6	8 × 45°	8 × 45°	M4	M4	Ø 4.5	**PRT-04-100-M4**	
210	200	160	150	190	16	–	6	16 × 22.5°	16 × 22.5°	M4	M4	Ø 4.5	**PRT-04-150-M4**	
260	250	210	200	240	16	–	6	16 × 22.5°	16 × 22.5°	M4	M4	Ø 4.5	**PRT-04-200-M4**	
360	350	310	300	340	16	–	6	16 × 22.5°	16 × 22.5°	M4	M4	Ø 4.5	**PRT-04-300-M4**	
With enlarged outer ring														
80	70	30	20	60	16	–	6	8 × 45°	6 × 60°	M4	Ø 4.5	Ø 4.5	**PRT-04-20-G**	New
100	91	40	30	70	16	–	6	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-30-G**	New
150	135	60	50	90	16	–	6	8 × 45°	16 × 22.5°	M4	Ø 6.6	Ø 4.5	**PRT-04-50-G**	
160	145	70	60	100	16	–	6	8 × 45°	20 × 18°	M4	Ø 5.5	Ø 4.5	**PRT-04-60-G**	
185	170	110	100	140	16	–	6	8 × 45°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-100-G**	
250	235	160	150	190	16	–	6	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-150-G**	
300	285	210	200	240	16	–	6	16 × 22.5°	16 × 22.5°	M4	Ø 5.5	Ø 4.5	**PRT-04-200-G**	
450	430	310	300	340	16	–	6	16 × 22.5°	16 × 22.5°	M4	Ø 9.0	Ø 4.5	**PRT-04-300-G**	
With outer spacer ring														
80	70	30	20	60	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-20-DRI**	New
90	80	40	30	70	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-30-DRI**	New
110	100	60	50	90	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-50-DRI**	
120	110	70	60	100	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-60-DRI**	
160	150	110	100	140	17	1	12	8 × 45°	8 × 45°	M4	Ø 4.5	Ø 4.5	**PRT-04-100-DRI**	
210	200	160	150	190	17	1	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-150-DRI**	
260	250	210	200	240	17	1	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-200-DRI**	
360	350	310	300	340	17	1	12	16 × 22.5°	16 × 22.5°	M4	Ø 4.5	Ø 4.5	**PRT-04-300-DRI**	

iglidur® PRT | Product range New

Hygienic design





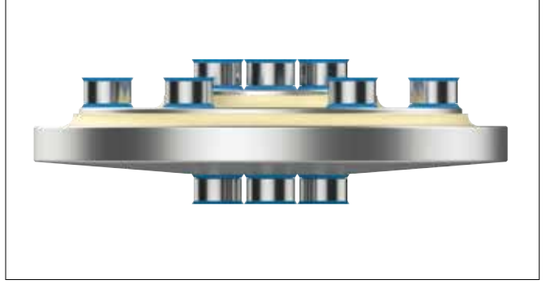
- Easy to clean according to hygienic design guidelines
- With certified hygienic design screws
- Low dead space design, even on the seals
- FDA-compliant seals

The slewing rings with hygienic design are used in special machine construction and designed to your requirements. Contact us!

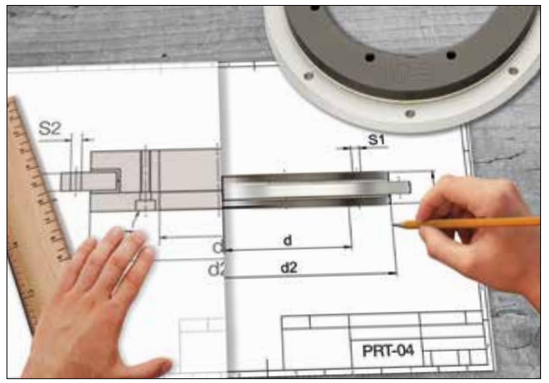
▶ **www.igus.eu/prt-enquiry**



Easy to clean: PRT hygienic design for the beverage industry



PRT made of stainless steel with hygienic design seals

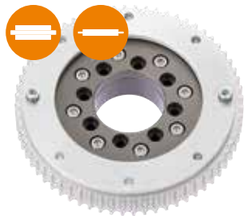


If you cannot find the right product in our constantly growing range, simply contact us. We would be happy to help you designing your slewing ring bearing.

By entering a few parameters regarding installation space, load, speed and environment, we configure the right bearing for your application.

iglidur® PRT | Product range New

Felt cover for PRT slewing ring bearing - type 01 and 04



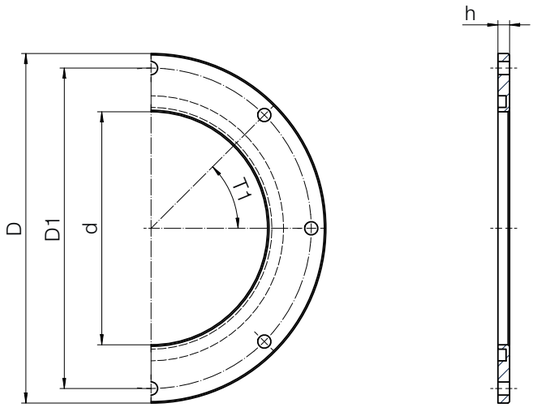
- Prevents dirt from reaching the sliding elements
- For all 01 and 04 series sizes
- Part of the extensive PRT modular system
- No additional lubricants necessary
- For all PRT series

Order key

Type	Size	Options
PRT-□-	20	-SG

Slewing ring | Type | Inner Ø [mm] | Felt seal

Options:
01: Type 01
04: Type 04



Dimensions [mm]

D	D1	d	h	T1	Part No.	
80	70	20	4	8 x 45°	**PRT-□-20-SG**	New
90	80	30	4	8 x 45°	**PRT-□-30-SG**	New
110	100	50	4	8 x 45°	**PRT-□-50-SG**	New
120	110	60	4	8 x 45°	**PRT-□-60-SG**	New
160	150	100	4	8 x 45°	**PRT-□-100-SG**	New
210	200	150	4	16 x 22,5°	**PRT-□-150-SG**	New
260	250	200	4	16 x 22,5°	**PRT-□-200-SG**	New
360	350	300	4	16 x 22,5°	**PRT-□-300-SG**	New

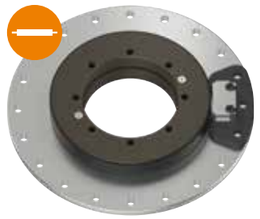
Assembly instructions available in the download area ▶ www.igus.eu/prt-assembly

EN 09/2023

iglidur® PRT

iglidur® PRT | Product range New

PRT with position indicator - type 04

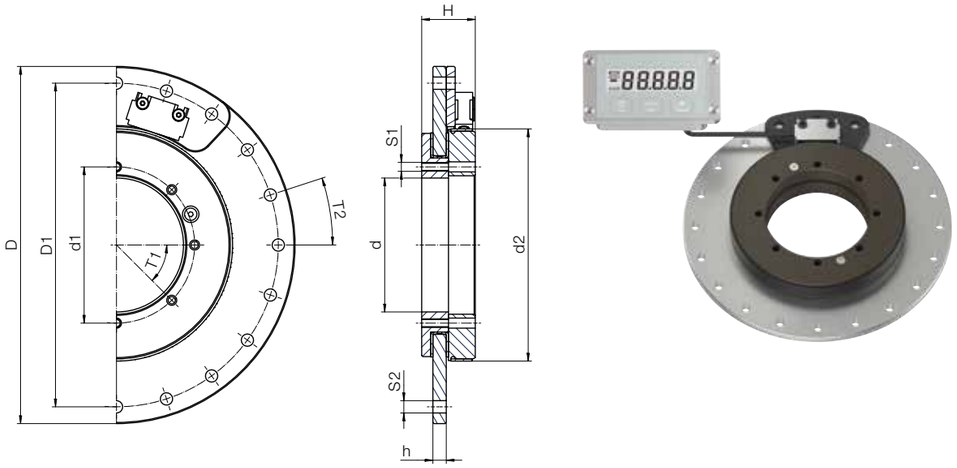


- Exact detection of the rotation angle
- Part of the extensive PRT modular system

Order key

Type	Size	Options
PRT-04-	60	-AM

Slewing ring | Type | Inner Ø [mm] | Position indicator



Dimensions [mm]

D	D1	d	d1	d2	H	h	T1	T2	S1	S2 H13	K1 H13	Weight [g]	Part No.	
150	135	70	70	104	24	6	8 x 45°	8 x 45°	M4	4.5	4.5	4.5	**PRT-04-60-AM**	New

iglidur® PRT | Product range New

Slewing rings for the smallest applications - type 04



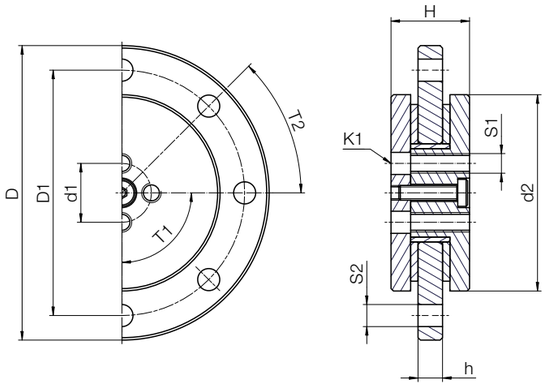
- Tight tolerances
- Suitable for smallest installation space
- Robust and lightweight

Order key

Type	Size	Options
PRT-04-	00	-PL

Slewing ring	Type	Inner Ø [mm]	Preload

Option:
PL:
Pre-load version



Dimensions [mm]

D	D1	d1	Ø d2	H	h	T1	T2	S1	S2 H13	K1 H13	Part No.
60	50	12	40	16	5	90°	8 x 45°	M4	4.5	4.5	**PRT-04-00-PL** New

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iglidur® PRT | Product range

Slewing rings, lightweight - type 02



Standard



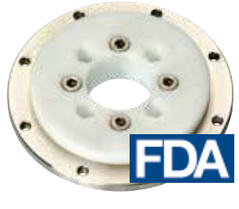
Stainless steel version



Low-cost version



Solid plastic design



FDA-compliant

- Slewing rings with extremely light weight
- Outer ring made from anodised aluminium, 316 stainless steel (upon request) or iguton G
- Collar clamps made from iglidur® J4 or FDA-compliant iglidur® A180
- 30% lighter than standard -AL type

Order key

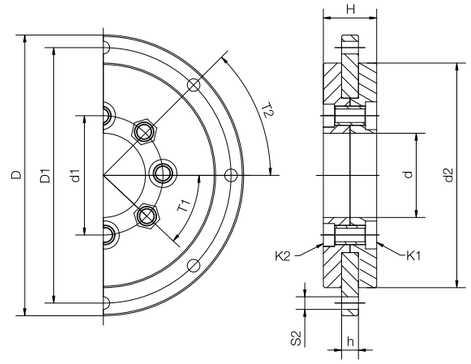
Type	Size	Options
PRT-02-	20	-AL -A180

Slewing ring	Type	Inner Ø [mm]	Housing material	Collar clamps

Options:

Housing material
AL: Aluminium
ES: 316 stainless steel
LC: Low-cost
P: Solid plastic

Collar clamps
Blank: iglidur® J4
A180: iglidur® A180, FDA-compliant



Dimensions [mm]

D[10]	D1	d1	d	d2	H	h	T1	T2	S2	K1 for screw	K2 for screw nut	Part No.
80	70	31	20	60	16	5	6 x 60°	6 x 60°	4.5	DIN 6912 M5	ISO 4035 M5	**PRT-02-20-** ☐
100	91	42.5	30	80	19	6	8 x 45°	8 x 45°	4.5	DIN 7984 M5	ISO 4035 M5	**PRT-02-30-** ☐
150	135	65	50	120	20	6	16 x 22,5°	8 x 45°	6.6	Through hole 6.5 mm		**PRT-02-50-** ☐
160	145	86.0	60	130	30	10	12 x 30°	20 x 18°	5.5	Counterbore Ø16 and 6.5 deep		**PRT-02-60-** ☐ [116]

[10] **Tolerance according to DIN ISO 2768 mK**

[116] **Only available with body made from aluminium and stainless steel**

Please add suffix "-A180" for FDA-compliant version

All stainless steel versions upon request

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iglidur® PRT | Product range

Slewing rings in low-cost design - type 03



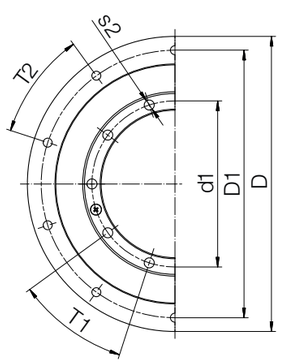
Order key

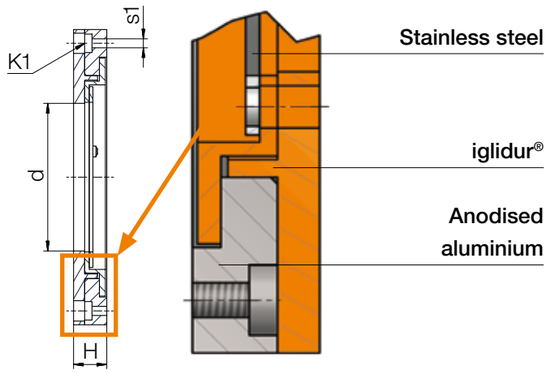
Type	Size
PRT-03-	80

Slewing ring | Type | Inner Ø [mm]

iglidur® PRT slewing rings in a low-cost design. Through consistent downsizing, an additional design has been created that relies even more on plastic.

- Maintenance-free and lubrication-free
- Cost-effective and lightweight
- Reduced space requirement
- Ready-to-fit
- For temperatures from 0 to +60°C





Dimensions [mm]

D	D1	d1	d	H	T1	T2	s1	s2	K1 for screw	Part No.
160	145	90	80	18	10 x 36°	10 x 36°	M6	5.5	DIN 7984 M5	**PRT-03-80**

iglidur® PRT | Product range

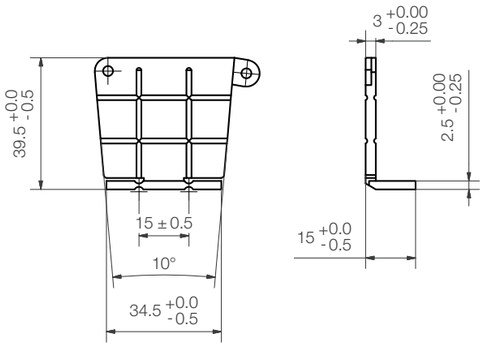
Universal sliding elements for type 01 and 04

Customise your own slewing ring systems

Using the versatile iglidur® PRT universal sliding elements, large slewing ring systems can be tailored to the type 01.

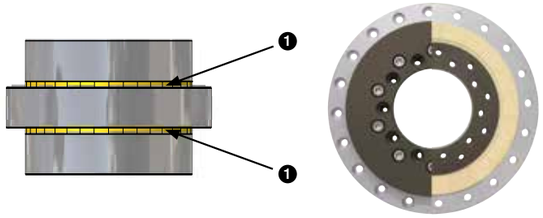


- Made from the proven iglidur® J ▶ **Page 163**
- Slewing ring bearings possible from 0.5 up to 5 metres
- Robust and resistant to dirt
- Corrosion-free and resistant to liquids



Part No.
JRS-500S/45S

Basic structure of type 01:



1 Sliding elements made from iglidur® J

Replacement kit for type 01 and 04

Wear-resistant parts easily replaceable

The PRT sliding element replacement kit for the PRT-01 and PRT-04 series allows you to replace worn sliding elements with new ones. They extend the service life of your PRT slewing ring bearings and protect the environment. Assembly instructions available in the download area ▶ **www.igus.eu/prt-assembly**

Order example:
PRT-01-20-KIT-J: Replacement kit for PRT slewing rings, type 01, inner diameter 20mm, sliding elements material iglidur® J

iglidur® A180
- Complies with Food and Drug Administration (FDA) regulations for contact with food



iglidur® F2
- ESD-compliant
- Electrically conductive



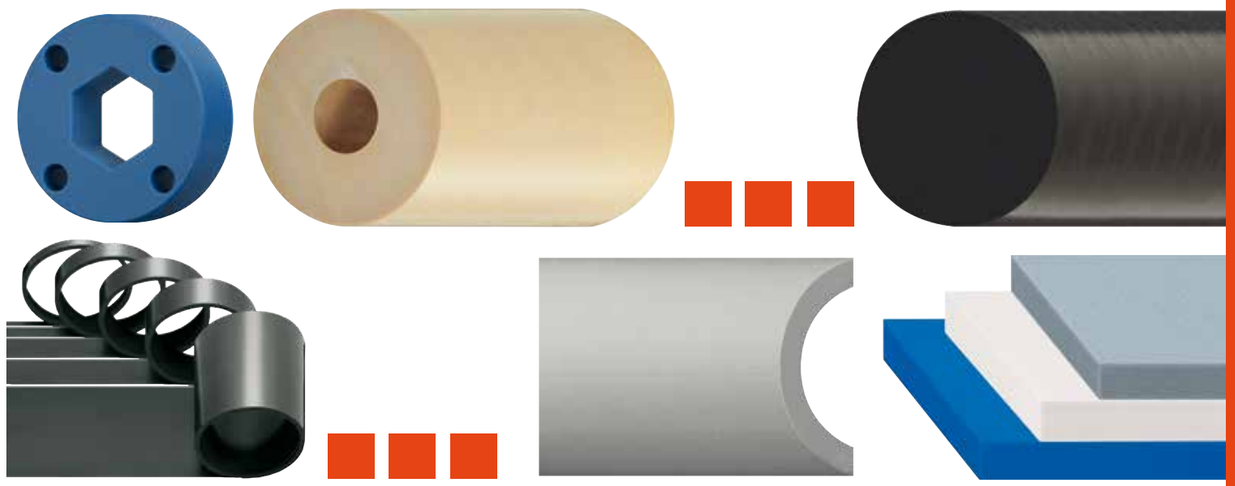
iglidur® H1
- Resistance to chemicals and high temperatures
- Well suited to pivoting movements



iglidur® J
- Low coefficient of friction during dry operation
- Low moisture absorption
- Low particle emission

iglidur®

Plastic rod, CNC service,
profiles and liners



...plastics

iglidur® bar stock | Product overview

iglidur® round bars - all-rounder



iglidur® M250:
Excellent vibration dampening
▶ Page 754



iglidur® P210: Good coefficient of friction and wear: on almost every shaft
▶ Page 754



iglidur® J4:
Cost-effective and wear-resistant
▶ Page 755



New

iglidur® RN289: Impact-resistant, media-resistant and good for edge loads
▶ Page 755



New

iglidur® B160:
Low coefficient of friction
▶ Page 756

Endurance runner



iglidur® J:
The versatile endurance runner
▶ Page 756



iglidur® W300:
The classic endurance runner up to 30MPa
▶ Page 757



iglidur® J3:
Specialist for pivoting and pulsating loads
▶ Page 757

Endurance runner



iglidur® J350: Endurance runner with high dimensional stability at high temperature
▶ Page 758



iglidur® J260:
Ideal for plastic shafts
▶ Page 758



iglidur® R:
Low-cost material
▶ Page 759



iglidur® J200:
Specially for aluminium shafts
▶ Page 759



iglidur® E7:
Ideal for pivoting movement
▶ Page 760



iglidur® JB:
Extremely wear-resistant in black
▶ Page 760



New

iglidur® RN44:
Cost-effective and wear-resistant
▶ Page 761

High temperatures



iglidur® X:
The chemical and temperature specialist
▶ Page 761

High temperatures



iglidur® HSD350:
All-rounder for steam sterilisation
▶ Page 762

High media resistance



iglidur® H1:
Endurance runner with high media resistance
▶ Page 762



iglidur® H3: Tough, wear-resistant, durable
▶ Page 763



iglidur® C500:
For extreme ambient conditions
▶ Page 763

Contact with food



iglidur® A181: The all-rounder for food, FDA and EU 10/2011-compliant
▶ Page 764



iglidur® A350: The FDA-compliant endurance runner at high temperatures
▶ Page 764



iglidur® A500:
The media and temperature specialist in the food sector
▶ Page 765



iglidur® A180:
The all-rounder for food
▶ Page 765

Contact with food



iglidur® A160: "Food" material with high media resistance up to +90°C
▶ Page 766



New

iglidur® A250:
Wear-resistant for the food industry
▶ Page 766



New

iglidur® AC500:
For high temperatures up to +250°C
▶ Page 767



iglidur® UW160:
For contact with drinking water
▶ Page 767



iglidur® T220:
For the tobacco industry
▶ Page 768

Special application areas



iglidur® J2:
Versatile and cost-effective
▶ Page 768



iglidur® RW370: For the rail industry, flame-retardant, complies with DIN EN 45545 HL3, R22/R23
▶ Page 769

iglidur® hollow bars



iglidur® J:
The versatile endurance runner
▶ Page 770

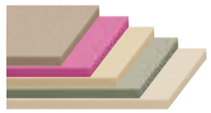
iglidur® sheets, plates, plate strips



iglidur® sheets
in thicknesses of 2-6mm
▶ Page 772

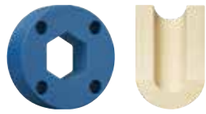


iglidur® plates
in thicknesses of 10-40mm
▶ Page 774



iglidur® plate strips with a fixed width of 160mm
▶ Page 776

Special parts & profiles



Special parts & profiles:
Online services
▶ Page 779

iglidur® tribo-tape



Material iglidur® A160:
FDA-compliant
▶ Page 786



Material iglidur® B160:
For use in visible areas
▶ Page 787



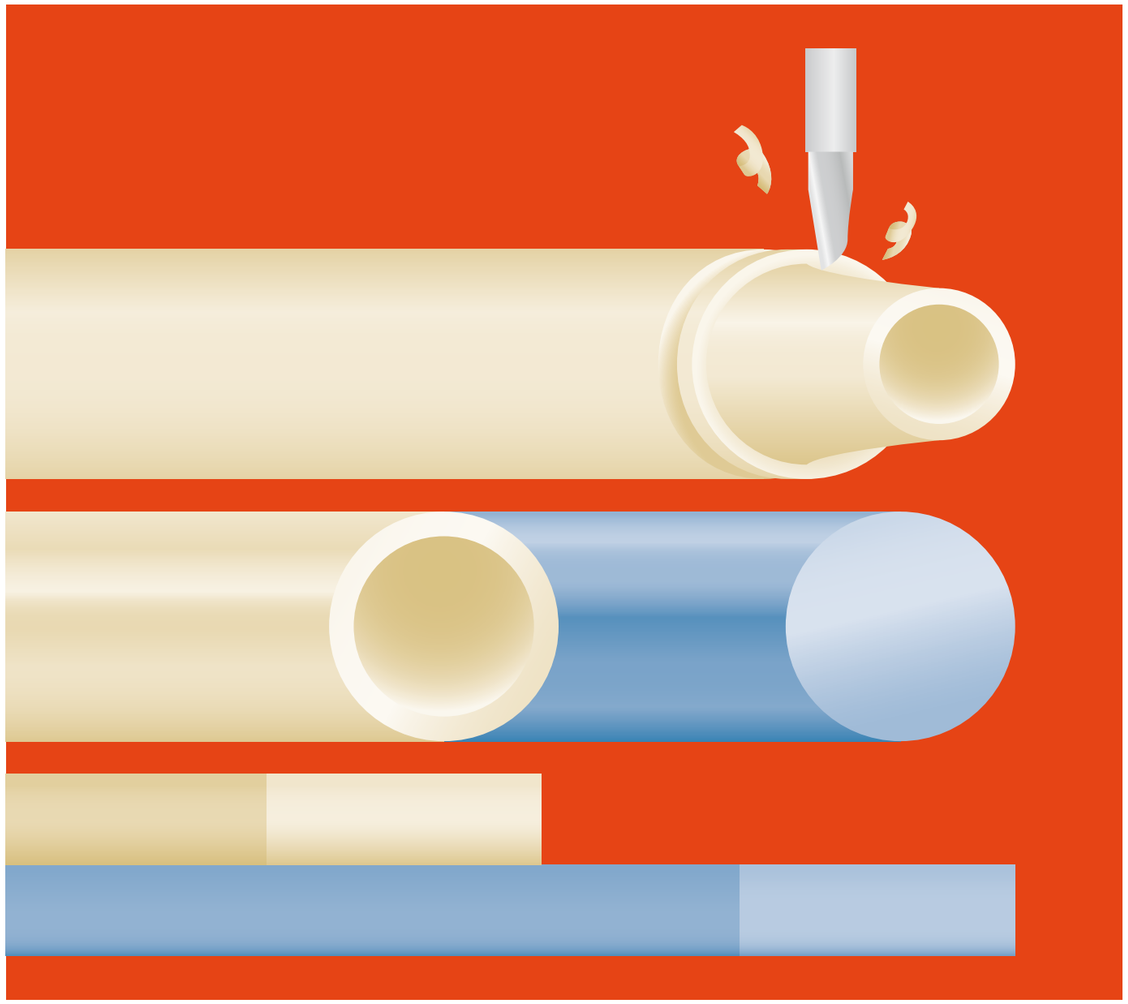
Material iglidur® W160:
Lubrication-free tribo-tape in white - hardly any wear
▶ Page 788



Material iglidur® V400:
Extremely high wear resistance
▶ Page 789

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iglidur® bar stock

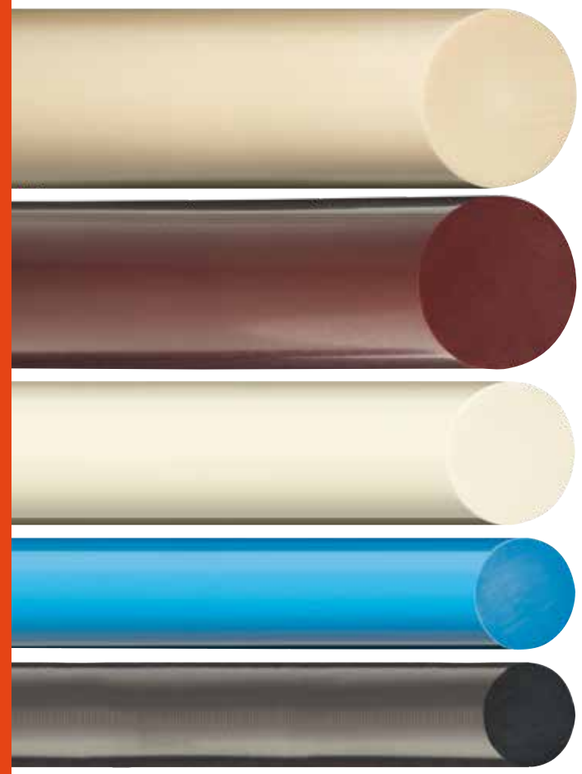
- Round bars, hollow bars, plates and sheets
- Standard range from stock
- Cut to required size
- CNC components with no minimum order quantity
- Maintenance-free and predictable
- Profiles to your specifications



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Large selection for all applications



Bar made of technical plastics

All iglidur® materials have been specially developed for dynamic applications. They are self-lubricating and characterised by a low coefficient of friction. Due to its properties, every material becomes a specialist for a specific application. For example, there is suitable iglidur® bar material for almost every application from high-temperature to seawater, from food to automotive.
The selection of available bar is as diverse as the selection of materials. A wide range of plates, round and hollow bars in various dimensions is available from stock. You can either machine our bar yourself or you can use our CNC service and we will produce high-precision CNC components for you according to your specifications. Use our express service and your components will be ready to ship within three days.
Another service is the extrusion of customer-specific profiles from a wide variety of iglidur® high-performance polymers. Talk to us, and we would be happy to advise you on your project.

- Wide range of tribologically optimised plastic bar stock
- Bar stock from stock or customer-specific CNC components in 3 to 5 days
- Easy to machine - ask for our machining tips
- Lubrication and maintenance-free
- Service life can now also be calculated for machined plain bearings
- No minimum order value
- No minimum order quantity

Available from stock
Detailed information about delivery time online. Further materials and dimensions upon request.

Operation temperatures:
-50°C up to +90°C (standard iglidur® J)
-100°C up to +250°C (depending on material)

igus® is constantly expanding its range of available materials and dimensions. The current range can be found here:
▶ **www.igus.eu/barstock**

Online CNC service for individual turned and machined parts:
▶ **www.igus.eu/cnc-service**

Service life calculation
▶ **www.igus.eu/barstock-expert**

Round bars and plates for free design



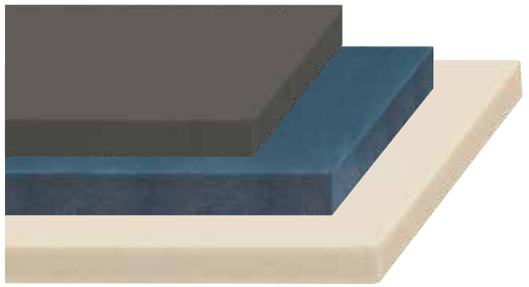
iglidur® round bars
- Currently 28 iglidur® materials to choose from
- Outer diameter 10-100mm
- Excellent wear rates and coefficient of friction

▶ **From page 754**



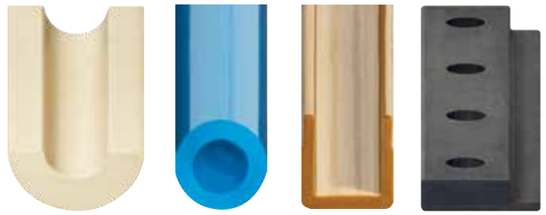
iglidur® hollow bars
- Large outer diameters 110-150mm
- Low wear against different shaft materials

▶ **From page 770**



iglidur® plates
- Versatile application options
- Plate thickness 2-40mm

▶ **From page 776**



iglidur® profiles
- Wear-resistant industrial profiles according to customer specifications

▶ **From page 780**



Online CNC service
- Improved calculation, ease of use and new features
- Multi-part upload, graduated pricing, feasibility analysis and a much simplified order processing

▶ **From page 779**

iglidur® materials | Technical properties - quick selection

iglidur®	M250	P210	J4	RN289	B160	J	W300	J3	J350	J260	R	J200	E7	JB	RN44	X	HSD350
Descriptive technical specifications																	
Wear resistance at +23°C	●●○	●●●○	●●○	●●○	●●●○	●●●●	●●●●	●●●●	●●●○	●●○	●●○	●●○	●●●●	●●●●	●●○	●○	●●●○
Wear resistance at +90°C	●●●○	●●●○	●●○	●●○	●●○	●●●●	●●●●	●●●●	●●●●	●●○	●○	●●○	●●●●	●●●●	●○	●●○	●●●●
Wear resistance at +150°C	●○	●●○	●○	●○	●○	●○	●○	●○	●●●	●●○	●○	●●○	●○	●○	●○	●●●●	●●○
Slide property	●●○	●●●●	●●●●	●○	●●●●	●●●●	●●●○	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●●●	●●○	●●●●
Wear resistance under water	●○	●●○	●●○	●○	●●●○	●●○	●○	●●●○	●●●○	●○	●○	●○	●●○	●●○	●○	●●●●	●●○
Media resistance	●●●○	●●●○	●●●●	●●●●	●●●●	●●●○	●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●●	●●●●
Resistant to edge pressures	●●●●	●●●●	●●●●	●●●●	●●○	●●●○	●●●●	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●○	●●●○
Resistant to shock and impact loads	●●●●	●●●●	●●●●	●●●●	●●●●	●●●○	●●●●	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●○	●●●●
Dirt resistance	●●●●	●●●○	●●○	●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●●●○	●○	●●○
Price index[141)]	■□□	■□□	■□□	■□□	■□□	■■□	■■□	■■□	■■■	■■□	■□□	■■□	■■□	■□□	■□□	■■■■	■■□
For high loads (>60MPa)									●							●	
Electrically conductive																●	
Approvals and standards																	
FDA-compliant																	
EU 10/2011-compliant																	
Fire class in accordance with UL-94	V-2	HB	F	HB	HB	HB	HB	HB	V-0	V-2	HB	HB	HB	HB	HB	V-0	V-0
Mould test DIN EN ISO 846									●							●	
Fogging DIN 75201-B	●																
Availabilities / variants																	
Bar stock, round material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bar stock, hollow bars						●											
Bar stock, sheet						●											
Bar stock, plate				●	●	●								●	●		
Bar stock, plate strips			●			●	●		●				●			●	

[141)] **Price index** ■□□ **Low price category** ■■□ **Medium price category** ■■■ **Highest price category**

iglidur® materials | Technical properties - quick selection

iglidur®	H1	H3	C500	A181	A350	A500	A180	A160	A250	AC500	AD500	UW160	T220	J2	RW370
Descriptive technical specifications															
Wear resistance at +23°C	●●●●●	●●●●●	●●●●○	●●●●○	●●●○○	●●○○○	●●●○○	●●●○○	●●●●○	●●●●○	●●○○○	●●●○○	●●○○○	●●○○○	●●●○○
Wear resistance at +90°C	●●●●●	●●●●●	●●●●○	●●○○○	●●●○○	●●○○○	●○○○○	●○○○○	●●○○○	●●●●○	●●○○○	●○○○○	●○○○○	●○○○○	●●●○○
Wear resistance at +150°C	●●●●●	●●●●●	●●●●●	●○○○○	●●●○○	●●●○○	●○○○○	●○○○○	●○○○○	●●●●●	●●●○○	●○○○○	●○○○○	●○○○○	●●●○○
Slide property	●●●●○	●●●●○	●●●●●	●●●○○	●●●●○	●●○○○	●●●○○	●●●●○	●●●○○	●●●●●	●●○○○	●●○○○	●●○○○	●●●○○	●●●●○
Wear resistance under water	●●●●○	●●●●○	●●●●○	●●●○○	●●●●○	●●●●○	●●○○○	●●●○○	●○○○○	●●●●○	●●●●○	●●●●●	●●○○○	●●○○○	●●○○○
Media resistance	●●●●●	●●●●●	●●●●●	●●●●○	●●●●○	●●●●●	●●●●○	●●●●○	●●●●○	●●●●●	●●●●●	●●●●○	●●●○○	●●●○○	●●●○○
Resistant to edge pressures	●○○○○	●●○○○	●●○○○	●●●●●	●●●○○	●●●●○	●●●●○	●●●○○	●●●●●	●●●○○	●●●●○	●●●○○	●●●○○	●●○○○	●●●●○
Resistant to shock and impact loads	●●○○○	●●●○○	●●●○○	●●●●●	●●●○○	●●●●○	●●●●○	●●●●○	●●●●●	●●●○○	●●●●○	●●●○○	●●●○○	●●●○○	●●●●○
Dirt resistance	●●○○○	●●○○○	●●○○○	●●●●○	●●●○○	●●●○○	●●●●○	●●●●○	●●●●●	●●●○○	●●●○○	●●●○○	●●●●○	●●○○○	●●●○○
Price index[141)]	●●●○○	●●●○○	●●●●●	●●○○○	●●●●○	●●●●●	●○○○○	●○○○○	●●○○○	●●●●●	●●●●●	●○○○○	●●○○○	●○○○○	●●●○○
For high loads (>60MPa)	●	●	●		●	●				●	●				●
Electrically conductive															
Approvals and standards															
FDA-compliant				●	●	●	●	●	●		●		●		
EU 10/2011-compliant				●	●	●	●	●	●		●				
Fire class in accordance with UL-94	V-0	V-0	V-0	HB	V-0	V-1	HB	HB	V-2	V-0	V-1	HB	HB	HB	V-0
Mould test DIN EN ISO 846	●	●													
Fogging DIN 75201-B									●						
Availabilities / variants															
Bar stock, round material	●	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Bar stock, hollow bars															
Bar stock, sheet															
Bar stock, plate					●		●	●							
Bar stock, plate strips			●		●	●				●	●				●

[141)] **Price index**

Low price category

Medium price category

Highest price category

iglidur® bar stock | Material properties

iglidur®	Unit	M250	P210	J4	RN289	B160	J
General properties							
Density	**[g/cm³]**	1.14	1.40	1.48	1.24	1.00	1.49
Colour							
Max. moisture absorption at +23 °C/50% r.h.	**[% weight]**	1.4	0.3	0.3	0.8	0.1	0.3
Max. moisture absorption	**[% weight]**	7.6	0.5	1.3	2.9	0.1	1.3
Coefficient of sliding friction, dynamic against steel	**[µ]**	0.18 - 0.40	0.07 - 0.19	0.06 - 0.20	0.45 - 0.57	0.13 - 0.20	0.06 - 0.18
pv value, max. (dry)	**[MPa·m/s]**	0.12	0.4	0.30	–	0.25	0.34
Mechanical properties							
Flexural modulus	**[MPa]**	2,700	2,500	2,350	1,600	852	2,400
Flexural strength at +20°C	**[MPa]**	112	70	70	60	14	73
Compressive strength	**[MPa]**	52	50	55	–	37	60
Max. permissible surface pressure at +20°C	**[MPa]**	20	50	35	26	11	35
Shore D hardness		79	75	74	74	59	74
Physical and thermal properties							
Max. continuous operating temperature	**[°C]**	+80	+100	+90	+110	+90	+90
Max. short-term operating temperature	**[°C]**	+170	+160	+120	+130	+100	+120
Min. continuous operating temperature	**[°C]**	-40	-40	-50	-30	-50	-50
Thermal conductivity	**[W/m · K]**	0.24	0.25	0.25	–	0.32	0.25
Coefficient of thermal expansion at +23°C	**[$K^{-1} \cdot 10^{-5}$]**	10	8	10	9.7	11	10
Electrical properties							
Specific contact resistance	**[Ωcm]**	> 10^{13}	> 10^{12}	> 10^{13}	> 10^{12}	> 10^{12}	> 10^{13}
Surface resistance	**[Ω]**	> 10^{11}	> 10^{11}	> 10^{13}	> 10^{12}	> 10^{12}	> 10^{12}
Page		**754**	**754**	**755**	**755**	**756**	**756**

W300	J3	J350	J260	R	J200	E7	JB	RN44	X	HSD350
1.24	1.42	1.44	1.35	1.39	1.72	1.05	1.49	1.42	1.44	1.39
1.3	0.3	0.3	0.2	0.2	0.2	0.1	0.3	0.4	0.1	0.6
6.5	1.3	1.6	0.4	1.1	0.7	0.1	1.3	1.2	0.5	1.2
0.08 - 0.23	0.06 - 0.20	0.10 - 0.20	0.06 - 0.20	0.09 - 0.25	0.11 - 0.17	0.08 - 0.17	0.06 - 0.18	0.31 - 0.36	0.09 - 0.27	0.07 - 0.23
0.23	0.5	0.45	0.35	0.27	0.3	0.22	0.34	0.27	1.32	0.3
3,500	2,700	2,000	2,200	1,950	2,800	1,477	2,400	2,000	8,100	2,150
125	70	55	60	70	58	22	73	75	170	67
61	60	60	50	68	43	18	60	–	100	44
60	45	60	40	23	23	18	35	25	150	30
77	73	80	77	77	70	61	74	78	85	77
+90	+90	+180	+120	+90	+90	+70	+90	+90	+250	+180
+180	+120	+220	+140	+110	+120	+90	+120	+110	+315	+210
-40	-50	-100	-100	-50	-50	-50	-50	-50	-100	-40
0.24	0.25	0.24	0.24	0.25	0.24	0.24	0.25	–	0.60	0.24
9	13	7	13	11	8	25	10	16	5	7
> 10^{13}	> 10^{12}	> 10^{13}	> 10^{12}	> 10^{12}	> 10^{8}	> 10^{9}	> 10^{13}	> 10^{12}	< 10^{5}	> 10^{13}
> 10^{12}	> 10^{12}	> 10^{10}	> 10^{10}	> 10^{12}	> 10^{8}	> 10^{9}	> 10^{12}	> 10^{12}	< 10^{3}	> 10^{14}
757	**757**	**758**	**758**	**759**	**759**	**760**	**760**	**761**	**761**	**762**

iglidur® bar stock | Material properties

iglidur®	Unit	H1	H3	C500	A181	A350	A500	A180	A160	A250	AC500	AD500	UW160	T220	J2	RW370
General properties																
Density	**[g/cm³]**	1.53	1.41	1.37	1.38	1.42	1.28	1.46	1.00	1.34	1.38	1.31	1.04	1.28	1.44	1.34
Colour																
Max. moisture absorption at +23 °C/50% r.h.	**[% weight]**	0.1	0.2	0.3	0.2	0.6	0.3	0.2	0.1	0.7	0.1	0.3	0.1	0.3	0.2	0.25
Max. moisture absorption	**[% weight]**	0.3	0.5	0.5	1.3	1.9	0.5	1.3	0.1	4.2	0.4	0.5	0.1	0.5	1.3	1.2
Coefficient of sliding friction, dynamic against steel	**[µ]**	0.06 - 0.20	0.16 - 0.19	0.07 - 0.19	0.10 - 0.21	0.10 - 0.20	0.26 - 0.41	0.05 - 0.23	0.09 - 0.19	0.16 - 0.21	0.19 - 0.22	0.36 - 0.43	0.17 - 0.31	0.20 - 0.32	0.11 - 0.27	0.13 - 0.17
pv value, max. (dry)	**[MPa·m/s]**	0.80	0.70	0.70	0.31	0.40	0.28	0.31	0.25	0.30	0.70	0.50	0.22	0.28	0.23	1.2
Mechanical properties																
Flexural modulus	**[MPa]**	2,800	2,760	3,300	1,913	2,000	3,600	2,300	1,151	2,540	2,776	3,700	1,349	1,800	3,605	2,997
Flexural strength at +20°C	**[MPa]**	55	68	100	48	110	140	88	19	84	127	139	22	65	101	100
Compressive strength	**[MPa]**	78	n.s.	110	60	78	118	78	37	n.s.	n.s.	110	32	55	77	129
Max. permissible surface pressure at +20°C	**[MPa]**	80	40	80	31	60	120	28	15	34	45	72	15	40	46	75
Shore D hardness		77	75	80	76	76	83	76	60	74	85	81	60	76	n.s.	80
Physical and thermal properties																
Max. continuous operating temperature	**[°C]**	+200	+200	+250	+90	+180	+250	+90	+90	+90	+250	+250	+90	+100	+90	+170
Max. short-term operating temperature	**[°C]**	+240	+240	+300	+110	+210	+300	+110	+100	+180	+300	+300	+100	+160	+110	+190
Min. continuous operating temperature	**[°C]**	-40	-40	-100	-50	-100	-100	-50	-50	-40	-100	-100	-50	-40	-50	-50
Thermal conductivity	**[W/m · K]**	0.24	n.s.	0.24	0.25	0.24	0.24	0.25	0.30	0.24	0.24	0.24	0.50	0.24	0.25	0.22
Coefficient of thermal expansion at +23°C	**[$K^{-1} \cdot 10^{-5}$]**	6	5	9	11	8	9	11	11	10	9	9	18	11	7	5
Electrical properties																
Specific contact resistance	**[Ωcm]**	$> 10^{12}$	$> 10^{12}$	$> 10^{14}$	$> 10^{12}$	$> 10^{11}$	$> 10^{14}$	$> 10^{12}$	$> 10^{12}$	$> 10^{11}$	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	$> 10^{10}$	$> 10^{13}$	$> 10^{12}$
Surface resistance	**[Ω]**	$> 10^{11}$	$> 10^{12}$	$> 10^{13}$	$> 10^{12}$	$> 10^{11}$	$> 10^{13}$	$> 10^{11}$	$> 10^{12}$	$> 10^{11}$	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	$> 10^{10}$	$> 10^{12}$	$> 10^{12}$
Page		762	763	763	764	764	765	765	766	766	767	776	767	768	768	769

iglidur® round bars | Product range

Excellent vibration dampening - iglidur® M250



Order key for round bars

Type			Dimensions [mm]		
SF	R	M250	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRM250-1000-☐
15	100 - 1,000	SFRM250-1500-☐
20	100 - 1,000	SFRM250-2000-☐
25	100 - 1,000	SFRM250-2500-☐
30	100 - 1,000	SFRM250-3000-☐
35	100 - 1,000	SFRM250-3500-☐
40	100 - 1,000	SFRM250-4000-☐
45	100 - 1,000	SFRM250-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRM250-5000-☐
55	100 - 1,000	SFRM250-5500-☐
60	100 - 1,000	SFRM250-6000-☐
65	100 - 1,000	SFRM250-6500-☐
70	100 - 1,000	SFRM250-7000-☐
80	100 - 1,000	SFRM250-8000-☐
90	100 - 1,000	SFRM250-9000-☐
100	100 - 1,000	SFRM250-10000-☐

Good coefficient of friction and wear on almost every shaft - iglidur® P210



Order key for round bars

Type			Dimensions [mm]		
SF	R	P210	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRP210-1000-☐
15	100 - 1,000	SFRP210-1500-☐
20	100 - 1,000	SFRP210-2000-☐
25	100 - 1,000	SFRP210-2500-☐
30	100 - 1,000	SFRP210-3000-☐
35	100 - 1,000	SFRP210-3500-☐
40	100 - 1,000	SFRP210-4000-☐
45	100 - 1,000	SFRP210-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRP210-5000-☐
55	100 - 1,000	SFRP210-5500-☐
60	100 - 1,000	SFRP210-6000-☐
65	100 - 1,000	SFRP210-6500-☐
70	100 - 1,000	SFRP210-7000-☐
80	100 - 1,000	SFRP210-8000-☐
90	100 - 1,000	SFRP210-9000-☐
100	100 - 1,000	SFRP210-10000-☐

Available from stock

Upon request/check availability

EN 09/2023

iglidur® bar stock

iglidur® round bars | Product range

Cost-effective and wear-resistant - iglidur® J4



Order key for round bars

Type			Dimensions [mm]		
SF	R	J4	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRJ4-1000-☐
15	100 - 1,000	SFRJ4-1500-☐
20	100 - 1,000	SFRJ4-2000-☐
25	100 - 1,000	SFRJ4-2500-☐
30	100 - 1,000	SFRJ4-3000-☐
35	100 - 1,000	SFRJ4-3500-☐
40	100 - 1,000	SFRJ4-4000-☐
45	100 - 1,000	SFRJ4-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRJ4-5000-☐
55	100 - 1,000	SFRJ4-5500-☐
60	100 - 1,000	SFRJ4-6000-☐
65	100 - 1,000	SFRJ4-6500-☐
70	100 - 1,000	SFRJ4-7000-☐
80	100 - 1,000	SFRJ4-8000-☐
90	100 - 1,000	SFRJ4-9000-☐
100	100 - 1,000	SFRJ4-10000-☐

Impact-resistant and media-resistant - iglidur® RN289 New



Order key for round bars

Type			Dimensions [mm]		
SF	R	RN289	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRJ-1000-☐
15	100 - 1,000	SFRJ-1500-☐
20	100 - 1,000	SFRJ-2000-☐
25	100 - 1,000	SFRJ-2500-☐
30	100 - 1,000	SFRJ-3000-☐
35	100 - 1,000	SFRJ-3500-☐
40	100 - 1,000	SFRJ-4000-☐
45	100 - 1,000	SFRJ-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRJ-5000-☐
55	100 - 1,000	SFRJ-5500-☐
60	100 - 1,000	SFRJ-6000-☐
65	100 - 1,000	SFRJ-6500-☐
70	100 - 1,000	SFRJ-7000-☐
80	100 - 1,000	SFRJ-8000-☐
90	100 - 1,000	SFRJ-9000-☐
100	100 - 1,000	SFRJ-10000-☐

igus® constantly expands its range of available materials and dimensions. Please contact us in case the required diameter is not available.

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iglidur® round bars | Product range

Excellent vibration dampening - iglidur® B160



Order key for round bars

Type	Dimensions [mm]				
SF R	B160	-30	00-	☐	
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRM250-1000-☐
15	100 - 1,000	SFRB160-1500-☐
20	100 - 1,000	SFRB160-2000-☐
25	100 - 1,000	SFRB160-2500-☐
30	100 - 1,000	**SFRB160-3000-☐**
35	100 - 1,000	SFRB160-3500-☐
40	100 - 1,000	SFRB160-4000-☐
45	100 - 1,000	SFRB160-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRB160-5000-☐
55	100 - 1,000	SFRB160-5500-☐
60	100 - 1,000	SFRB160-6000-☐
65	100 - 1,000	SFRB160-6500-☐
70	100 - 1,000	SFRB160-7000-☐
80	100 - 1,000	SFRB160-8000-☐
90	100 - 1,000	SFRB160-9000-☐
100	100 - 1,000	SFRB160-10000-☐

The versatile endurance runner - iglidur® J



Order key for round bars

Type	Dimensions [mm]				
SF R	J	-30	00-	☐	
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	**SFRJ-1000-☐**
15	100 - 1,000	**SFRJ-1500-☐**
20	100 - 1,000	**SFRJ-2000-☐**
25	100 - 1,000	**SFRJ-2500-☐**
30	100 - 1,000	**SFRJ-3000-☐**
35	100 - 1,000	**SFRJ-3500-☐**
40	100 - 1,000	**SFRJ-4000-☐**
45	100 - 1,000	**SFRJ-4500-☐**

Ø	Lengths	Part No.
50	100 - 1,000	**SFRJ-5000-☐**
55	100 - 1,000	**SFRJ-5500-☐**
60	100 - 1,000	**SFRJ-6000-☐**
65	100 - 1,000	**SFRJ-6500-☐**
70	100 - 1,000	**SFRJ-7000-☐**
80	100 - 1,000	**SFRJ-8000-☐**
90	100 - 1,000	**SFRJ-9000-☐**
100	100 - 1,000	**SFRJ-10000-☐**

Available from stock

Upon request/check availability

igus EN 09/2023

iglidur® bar stock

iglidur® round bars | Product range

The classic endurance runner up to 30MPa - iglidur® W300



Order key for round bars

Type	Dimensions [mm]				
SF R	W	-30	00-	☐	
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRW-1000-☐
15	100 - 1,000	SFRW-1500-☐
20	100 - 1,000	**SFRW-2000-☐**
25	100 - 1,000	SFRW-2500-☐
30	100 - 1,000	**SFRW-3000-☐**
35	100 - 1,000	SFRW-3500-☐
40	100 - 1,000	**SFRW-4000-☐**
45	100 - 1,000	SFRW-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	**SFRW-5000-☐**
55	100 - 1,000	SFRW-5500-☐
60	100 - 1,000	**SFRW-6000-☐**
65	100 - 1,000	**SFRW-6500-☐**
70	100 - 1,000	SFRW-7000-☐
80	100 - 1,000	**SFRW-8000-☐**
90	100 - 1,000	SFRW-9000-☐
100	100 - 1,000	SFRW-10000-☐

Specialist for pivoting and pulsating loads - iglidur® J3



Order key for round bars

Type	Dimensions [mm]				
SF R	J3	-30	00-	☐	
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	**SFRJ3-1000-☐**
15	100 - 1,000	**SFRJ3-1500-☐**
20	100 - 1,000	**SFRJ3-2000-☐**
25	100 - 1,000	SFRJ3-2500-☐
30	100 - 1,000	**SFRJ3-3000-☐**
35	100 - 1,000	SFRJ3-3500-☐
40	100 - 1,000	**SFRJ3-4000-☐**
45	100 - 1,000	SFRJ3-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	**SFRJ3-5000-☐**
55	100 - 1,000	SFRJ3-5500-☐
60	100 - 1,000	**SFRJ3-6000-☐**
65	100 - 1,000	SFRJ3-6500-☐
70	100 - 1,000	SFRJ3-7000-☐
80	100 - 1,000	**SFRJ3-8000-☐**
90	100 - 1,000	SFRJ3-9000-☐
100	100 - 1,000	**SFRJ3-10000-☐**

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iglidur® round bars | Product range

Endurance runner with high dimensional stability at high temperature - iglidur® J350



Order key for round bars

Type			Dimensions [mm]		
SF	R	J350	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRJ350-1000-☐
15	100 - 1,000	SFRJ350-1500-☐
20	100 - 1,000	SFRJ350-2000-☐
25	100 - 1,000	SFRJ350-2500-☐
30	100 - 1,000	SFRJ350-3000-☐
35	100 - 1,000	SFRJ350-3500-☐
40	100 - 1,000	SFRJ350-4000-☐
45	100 - 1,000	SFRJ350-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRJ350-5000-☐
55	100 - 1,000	SFRJ350-5500-☐
60	100 - 1,000	SFRJ350-6000-☐
65	100 - 1,000	SFRJ350-6500-☐
70	100 - 1,000	SFRJ350-7000-☐
80	100 - 1,000	SFRJ350-8000-☐
90	100 - 1,000	SFRJ350-9000-☐
100	100 - 1,000	SFRJ350-10000-☐

Ideal for plastic shafts - iglidur® J260



Order key for round bars

Type			Dimensions [mm]		
SF	R	J260	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRJ260-1000-☐
15	100 - 1,000	SFRJ260-1500-☐
20	100 - 1,000	SFRJ260-2000-☐
25	100 - 1,000	SFRJ260-2500-☐
30	100 - 1,000	SFRJ260-3000-☐
35	100 - 1,000	SFRJ260-3500-☐
40	100 - 1,000	SFRJ260-4000-☐
45	100 - 1,000	SFRJ260-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRJ260-5000-☐
55	100 - 1,000	SFRJ260-5500-☐
60	100 - 1,000	SFRJ260-6000-☐
65	100 - 1,000	SFRJ260-6500-☐
70	100 - 1,000	SFRJ260-7000-☐
80	100 - 1,000	SFRJ260-8000-☐
90	100 - 1,000	SFRJ260-9000-☐
100	100 - 1,000	SFRJ260-10000-☐

Available from stock

Upon request/check availability

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iglidur® bar stock

iglidur® round bars | Product range

Low-cost - iglidur® R



Order key for round bars

Type			Dimensions [mm]		
SF	R	R	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRR-1000-☐
15	100 - 1,000	SFRR-1500-☐
20	100 - 1,000	SFRR-2000-☐
25	100 - 1,000	SFRR-2500-☐
30	100 - 1,000	SFRR-3000-☐
35	100 - 1,000	SFRR-3500-☐
40	100 - 1,000	SFRR-4000-☐
45	100 - 1,000	SFRR-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRR-5000-☐
55	100 - 1,000	SFRR-5500-☐
60	100 - 1,000	SFRR-6000-☐
65	100 - 1,000	SFRR-6500-☐
70	100 - 1,000	SFRR-7000-☐
80	100 - 1,000	SFRR-8000-☐
90	100 - 1,000	SFRR-9000-☐
100	100 - 1,000	SFRR-10000-☐

Specially for aluminium shafts - iglidur® J200



Order key for round bars

Type			Dimensions [mm]		
SF	R	J200	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRJ200-1000-☐
15	100 - 1,000	SFRJ200-1500-☐
20	100 - 1,000	SFRJ200-2000-☐
25	100 - 1,000	SFRJ200-2500-☐
30	100 - 1,000	SFRJ200-3000-☐
35	100 - 1,000	SFRJ200-3500-☐
40	100 - 1,000	SFRJ200-4000-☐
45	100 - 1,000	SFRJ200-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRJ200-5000-☐
55	100 - 1,000	SFRJ200-5500-☐
60	100 - 1,000	SFRJ200-6000-☐
65	100 - 1,000	SFRJ200-6500-☐
70	100 - 1,000	SFRJ200-7000-☐
80	100 - 1,000	SFRJ200-8000-☐
90	100 - 1,000	SFRJ200-9000-☐
100	100 - 1,000	SFRJ200-10000-☐

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iglidur® round bars | Product range

Ideal for pivoting movement - iglidur® E7



Order key for round bars

Type	Dimensions [mm]

SF R E7 -30 00-☐

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRE7-1000-☐
15	100 - 1,000	SFRE7-1500-☐
20	100 - 1,000	SFRE7-2000-☐
25	100 - 1,000	SFRE7-2500-☐
30	100 - 1,000	**SFRE7-3000-☐**
35	100 - 1,000	SFRE7-3500-☐
40	100 - 1,000	**SFRE7-4000-☐**
45	100 - 1,000	SFRE7-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRE7-5000-☐
55	100 - 1,000	SFRE7-5500-☐
60	100 - 1,000	SFRE7-6000-☐
65	100 - 1,000	SFRE7-6500-☐
70	100 - 1,000	SFRE7-7000-☐
80	100 - 1,000	SFRE7-8000-☐
90	100 - 1,000	SFRE7-9000-☐
100	100 - 1,000	SFRE7-10000-☐

Extremely wear-resistant in black - iglidur® JB



Order key for round bars

Type	Dimensions [mm]

SF R JB -30 00-☐

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRJB-1000-☐
15	100 - 1,000	SFRJB-1500-☐
20	100 - 1,000	**SFRJB-2000-☐**
25	100 - 1,000	SFRJB-2500-☐
30	100 - 1,000	**SFRJB-3000-☐**
35	100 - 1,000	SFRJB-3500-☐
40	100 - 1,000	**SFRJB-4000-☐**
45	100 - 1,000	SFRJB-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	**SFRJB-5000-☐**
55	100 - 1,000	SFRJB-5500-☐
60	100 - 1,000	**SFRJB-6000-☐**
65	100 - 1,000	SFRJB-6500-☐
70	100 - 1,000	SFRJB-7000-☐
80	100 - 1,000	SFRJB-8000-☐
90	100 - 1,000	SFRJB-9000-☐
100	100 - 1,000	SFRJB-10000-☐

Available from stock

Upon request/check availability

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iglidur® bar stock

iglidur® round bars | Product range

Cost-effective and wear-resistant - iglidur® RN44 New



Order key for round bars

Type	Dimensions [mm]

SF R RN44 -30 00-☐

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRRN44-1000-☐
15	100 - 1,000	SFRRN44-1500-☐
20	100 - 1,000	**SFRRN44-2000-☐**
25	100 - 1,000	SFRRN44-2500-☐
30	100 - 1,000	**SFRRN44-3000-☐**
35	100 - 1,000	SFRRN44-3500-☐
40	100 - 1,000	SFRRN44-4000-☐
45	100 - 1,000	SFRRN44-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRRN44-5000-☐
55	100 - 1,000	SFRRN44-5500-☐
60	100 - 1,000	**SFRRN44-6000-☐**
65	100 - 1,000	SFRRN44-6500-☐
70	100 - 1,000	SFRRN44-7000-☐
85	100 - 1,000	**SFRRN44-8500-☐**
90	100 - 1,000	**SFRRN44-9000-☐**
100	100 - 1,000	**SFRRN44-10000-☐**

The chemical and temperature specialist - iglidur® X



Order key for round bars

Type	Dimensions [mm]

SF R X -30 00-☐

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	**SFRX-1000-☐**
15	100 - 1,000	**SFRX-1500-☐**
20	100 - 1,000	**SFRX-2000-☐**
25	100 - 1,000	**SFRX-2500-☐**
30	100 - 1,000	**SFRX-3000-☐**
35	100 - 1,000	**SFRX-3500-☐**
40	100 - 1,000	**SFRX-4000-☐**
45	100 - 1,000	**SFRX-4500-☐**

Ø	Lengths	Part No.
50	100 - 1,000	**SFRX-5000-☐**
55	100 - 1,000	**SFRX-5500-☐**
60	100 - 1,000	**SFRX-6000-☐**
65	100 - 1,000	**SFRX-6500-☐**
70	100 - 1,000	SFRX-7000-☐
80	100 - 1,000	SFRX-8000-☐
90	100 - 1,000	SFRX-9000-☐
100	100 - 1,000	SFRX-10000-☐

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iglidur® round bars | Product range

All-rounder for steam sterilisation - iglidur® HSD350



Order key for round bars

Type	Dimensions [mm]
SF R HSD350-30 00-☐	

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRHSD350-1000-☐
15	100 - 1,000	SFRHSD350-1500-☐
20	100 - 1,000	SFRHSD350-2000-☐
25	100 - 1,000	SFRHSD350-2500-☐
30	100 - 1,000	**SFRHSD350-3000-☐**
35	100 - 1,000	SFRHSD350-3500-☐
40	100 - 1,000	**SFRHSD350-4000-☐**
45	100 - 1,000	SFRHSD350-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRHSD350-5000-☐
55	100 - 1,000	SFRHSD350-5500-☐
60	100 - 1,000	SFRHSD350-6000-☐
65	100 - 1,000	SFRHSD350-6500-☐
70	100 - 1,000	SFRHSD350-7000-☐
80	100 - 1,000	SFRHSD350-8000-☐
90	100 - 1,000	SFRHSD350-9000-☐
100	100 - 1,000	SFRHSD350-10000-☐

Endurance runner with high media resistance - iglidur® H1



Order key for round bars

Type	Dimensions [mm]
SF R H1-30 00-☐	

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRH1-1000-☐
15	100 - 1,000	**SFRH1-1500-☐**
20	100 - 1,000	**SFRH1-2000-☐**
25	100 - 1,000	SFRH1-2500-☐
30	100 - 1,000	**SFRH1-3000-☐**
35	100 - 1,000	**SFRH1-3500-☐**
40	100 - 1,000	**SFRH1-4000-☐**
45	100 - 1,000	**SFRH1-4500-☐**

Ø	Lengths	Part No.
50	100 - 1,000	**SFRH1-5000-☐**
55	100 - 1,000	SFRH1-5500-☐
60	100 - 1,000	SFRH1-6000-☐
65	100 - 1,000	SFRH1-6500-☐
70	100 - 1,000	SFRH1-7000-☐
80	100 - 1,000	SFRH1-8000-☐
90	100 - 1,000	SFRH1-9000-☐
100	100 - 1,000	SFRH1-10000-☐

Available from stock

Upon request/check availability

EN 09/2023

iglidur® bar stock

iglidur® round bars | Product range

Tough, wear-resistant, durable - iglidur® H3 New



Order key for round bars

Type	Dimensions [mm]
SF R H3-30 00-☐	

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRH1-1000-☐
15	100 - 1,000	SFRH3-1500-☐
20	100 - 1,000	SFRH3-2000-☐
25	100 - 1,000	SFRH3-2500-☐
30	100 - 1,000	**SFRH3-3000-☐**
35	100 - 1,000	SFRH3-3500-☐
40	100 - 1,000	SFRH3-4000-☐
45	100 - 1,000	SFRH3-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRH3-5000-☐
55	100 - 1,000	SFRH3-5500-☐
60	100 - 1,000	SFRH3-6000-☐
65	100 - 1,000	SFRH3-6500-☐
70	100 - 1,000	SFRH3-7000-☐
80	100 - 1,000	**SFRH3-8000-☐**
90	100 - 1,000	SFRH3-9000-☐
100	100 - 1,000	SFRH3-10000-☐

For extreme environmental conditions - iglidur ® C500



Order key for round bars

Type	Dimensions [mm]
SF R C500-30 00-☐	

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	**SFRC500-1000-☐**
15	100 - 1,000	**SFRC500-1500-☐**
20	100 - 1,000	**SFRC500-2000-☐**
25	100 - 1,000	SFRC500-2500-☐
30	100 - 1,000	**SFRC500-3000-☐**
35	100 - 1,000	SFRC500-3500-☐
40	100 - 1,000	**SFRC500-4000-☐**
45	100 - 1,000	SFRC500-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	**SFRC500-5000-☐**
55	100 - 1,000	**SFRC500-5500-☐**
60	100 - 1,000	**SFRC500-6000-☐**
65	100 - 1,000	SFRC500-6500-☐
70	100 - 1,000	SFRC500-7000-☐
80	100 - 1,000	SFRC500-8000-☐
90	100 - 1,000	SFRC500-9000-☐
100	100 - 1,000	SFRC500-10000-☐

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iglidur® round bars | Product range

The all-rounder for food, FDA and EU 10/2011-compliant - iglidur® A181



Order key for round bars

Type			Dimensions [mm]		
SF	R	A181	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRA181-1000-☐
15	100 - 1,000	SFRA181-1500-☐
20	100 - 1,000	SFRA181-2000-☐
25	100 - 1,000	SFRA181-2500-☐
30	100 - 1,000	SFRA181-3000-☐
35	100 - 1,000	SFRA181-3500-☐
40	100 - 1,000	SFRA181-4000-☐
45	100 - 1,000	SFRA181-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRA181-5000-☐
55	100 - 1,000	SFRA181-5500-☐
60	100 - 1,000	SFRA181-6000-☐
65	100 - 1,000	SFRA181-6500-☐
70	100 - 1,000	SFRA181-7000-☐
80	100 - 1,000	SFRA181-8000-☐
90	100 - 1,000	SFRA181-9000-☐
100	100 - 1,000	SFRA181-10000-☐

The FDA-compliant endurance runner at higher temperatures - iglidur® A350



Order key for round bars

Type			Dimensions [mm]		
SF	R	A350	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRA350-1000-☐
15	100 - 1,000	SFRA350-1500-☐
20	100 - 1,000	SFRA350-2000-☐
25	100 - 1,000	SFRA350-2500-☐
30	100 - 1,000	SFRA350-3000-☐
35	100 - 1,000	SFRA350-3500-☐
40	100 - 1,000	SFRA350-4000-☐
45	100 - 1,000	SFRA350-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRA350-5000-☐
55	100 - 1,000	SFRA350-5500-☐
60	100 - 1,000	SFRA350-6000-☐
65	100 - 1,000	SFRA350-6500-☐
70	100 - 1,000	SFRA350-7000-☐
80	100 - 1,000	SFRA350-8000-☐
90	100 - 1,000	SFRA350-9000-☐
100	100 - 1,000	SFRA350-10000-☐

Available from stock

Upon request/check availability

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iglidur® bar stock

iglidur® round bars | Product range

The media and temperature specialist in the food sector - iglidur® A500



Order key for round bars

Type			Dimensions [mm]		
SF	R	A500	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRA500-1000-☐
15	100 - 1,000	SFRA500-1500-☐
20	100 - 1,000	SFRA500-2000-☐
25	100 - 1,000	SFRA500-2500-☐
30	100 - 1,000	SFRA500-3000-☐
35	100 - 1,000	SFRA500-3500-☐
40	100 - 1,000	SFRA500-4000-☐
45	100 - 1,000	SFRA500-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRA500-5000-☐
55	100 - 1,000	SFRA500-5500-☐
60	100 - 1,000	SFRA500-6000-☐
65	100 - 1,000	SFRA500-6500-☐
70	100 - 1,000	SFRA500-7000-☐
80	100 - 1,000	SFRA500-8000-☐
90	100 - 1,000	SFRA500-9000-☐
100	100 - 1,000	SFRA500-10000-☐

The all-rounder for food - iglidur® A180



Order key for round bars

Type			Dimensions [mm]		
SF	R	A180	-30	00	-☐
Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRA180-1000-☐
15	100 - 1,000	SFRA180-1500-☐
20	100 - 1,000	SFRA180-2000-☐
25	100 - 1,000	SFRA180-2500-☐
30	100 - 1,000	SFRA180-3000-☐
35	100 - 1,000	SFRA180-3500-☐
40	100 - 1,000	SFRA180-4000-☐
45	100 - 1,000	SFRA180-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRA180-5000-☐
55	100 - 1,000	SFRA180-5500-☐
60	100 - 1,000	SFRA180-6000-☐
65	100 - 1,000	SFRA180-6500-☐
70	100 - 1,000	SFRA180-7000-☐
80	100 - 1,000	SFRA180-8000-☐
90	100 - 1,000	SFRA180-9000-☐
100	100 - 1,000	SFRA180-10000-☐

igus® constantly expands its range of available materials and dimensions. Please contact us in case the required diameter is not available.

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iglidur® round bars | Product range

"Food" material with high media resistance up to +90°C - iglidur® A160



Order key for round bars

Type	Dimensions [mm]

SF R A160-30 00-☐

Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRA160-1000-☐
15	100 - 1,000	SFRA160-1500-☐
20	100 - 1,000	SFRA160-2000-☐
25	100 - 1,000	SFRA160-2500-☐
30	100 - 1,000	SFRA160-3000-☐
35	100 - 1,000	SFRA160-3500-☐
40	100 - 1,000	SFRA160-4000-☐
45	100 - 1,000	SFRA160-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRA160-5000-☐
55	100 - 1,000	SFRA160-5500-☐
60	100 - 1,000	SFRA160-6000-☐
65	100 - 1,000	SFRA160-6500-☐
70	100 - 1,000	SFRA160-7000-☐
80	100 - 1,000	SFRA160-8000-☐
90	100 - 1,000	SFRA160-9000-☐
100	100 - 1,000	SFRA160-10000-☐

Wear-resistant in the food industry - iglidur® A250 New



Order key for round bars

Type	Dimensions [mm]

SF R A250-30 00-☐

Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRA250-1000-☐
15	100 - 1,000	SFRA250-1500-☐
20	100 - 1,000	SFRA250-2000-☐
25	100 - 1,000	SFRA250-2500-☐
30	100 - 1,000	SFRA250-3000-☐
35	100 - 1,000	SFRA250-3500-☐
40	100 - 1,000	SFRA250-4000-☐
45	100 - 1,000	SFRA250-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRA250-5000-☐
55	100 - 1,000	SFRA250-5500-☐
60	100 - 1,000	SFRA250-6000-☐
65	100 - 1,000	SFRA250-6500-☐
70	100 - 1,000	SFRA250-7000-☐
80	100 - 1,000	SFRA250-8000-☐
90	100 - 1,000	SFRA250-9000-☐
100	100 - 1,000	SFRA250-10000-☐

Available from stock

Upon request/check availability

iglidur® round bars | Product range

For high temperatures up to +250°C - iglidur® AC500 New



Order key for round bars

Type	Dimensions [mm]

SF R AC500-30 00-☐

Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRAC500-1000-☐
15	100 - 1,000	SFRAC500-1500-☐
20	100 - 1,000	SFRAC500-2000-☐
25	100 - 1,000	SFRAC500-2500-☐
30	100 - 1,000	SFRAC500-3000-☐
35	100 - 1,000	SFRAC500-3500-☐
40	100 - 1,000	SFRAC500-4000-☐
45	100 - 1,000	SFRAC500-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRAC500-5000-☐
55	100 - 1,000	SFRAC500-5500-☐
60	100 - 1,000	SFRAC500-6000-☐
65	100 - 1,000	SFRAC500-6500-☐
70	100 - 1,000	SFRAC500-7000-☐
80	100 - 1,000	SFRAC500-8000-☐
90	100 - 1,000	SFRAC500-9000-☐
100	100 - 1,000	SFRAC500-10000-☐

For contact with drinking water - iglidur® UW160



Order key for round bars

Type	Dimensions [mm]

SF R UW160-30 00-☐

Bar stock	Round bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRUW160-1000-☐
15	100 - 1,000	SFRUW160-1500-☐
20	100 - 1,000	SFRUW160-2000-☐
25	100 - 1,000	SFRUW160-2500-☐
30	100 - 1,000	SFRUW160-3000-☐
35	100 - 1,000	SFRUW160-3500-☐
40	100 - 1,000	SFRUW160-4000-☐
45	100 - 1,000	SFRUW160-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRUW160-5000-☐
55	100 - 1,000	SFRUW160-5500-☐
60	100 - 1,000	SFRUW160-6000-☐
65	100 - 1,000	SFRUW160-6500-☐
70	100 - 1,000	SFRUW160-7000-☐
80	100 - 1,000	SFRUW160-8000-☐
90	100 - 1,000	SFRUW160-9000-☐
100	100 - 1,000	SFRUW160-10000-☐

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iglidur® round bars | Product range

For the tobacco industry - iglidur® T220



Order key for round bars

Type	Dimensions [mm]

SF R T220 - 30 00 - ☐

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRT220-1000-☐
15	100 - 1,000	SFRT220-1500-☐
20	100 - 1,000	SFRT220-2000-☐
25	100 - 1,000	SFRT220-2500-☐
30	100 - 1,000	**SFRT220-3000-☐**
35	100 - 1,000	SFRT220-3500-☐
40	100 - 1,000	**SFRT220-4000-☐**
45	100 - 1,000	SFRT220-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	**SFRT220-5000-☐**
55	100 - 1,000	SFRT220-5500-☐
60	100 - 1,000	**SFRT220-6000-☐**
65	100 - 1,000	SFRT220-6500-☐
70	100 - 1,000	SFRT220-7000-☐
80	100 - 1,000	SFRT220-8000-☐
90	100 - 1,000	SFRT220-9000-☐
100	100 - 1,000	SFRT220-10000-☐

Versatile and cost-effective - iglidur® J2



Order key for round bars

Type	Dimensions [mm]

SF R J2 - 30 00 - ☐

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRJ2-1000-☐
15	100 - 1,000	SFRJ2-1500-☐
20	100 - 1,000	SFRJ2-2000-☐
25	100 - 1,000	SFRJ2-2500-☐
30	100 - 1,000	**SFRJ2-3000-☐**
35	100 - 1,000	SFRJ2-3500-☐
40	100 - 1,000	SFRJ2-4000-☐
45	100 - 1,000	SFRJ2-4500-☐

Ø	Lengths	Part No.
50	100 - 1,000	SFRJ2-5000-☐
55	100 - 1,000	SFRJ2-5500-☐
60	100 - 1,000	SFRJ2-6000-☐
65	100 - 1,000	SFRJ2-6500-☐
70	100 - 1,000	SFRJ2-7000-☐
80	100 - 1,000	SFRJ2-8000-☐
90	100 - 1,000	SFRJ2-9000-☐
100	100 - 1,000	SFRJ2-10000-☐

Available from stock

Upon request/check availability

iglidur® round bars | Product range

For the rail industry, flame-retardant, complies with DIN EN 45545 HL3, R22/R23 - iglidur® RW370



Order key for round bars

Type	Dimensions [mm]

SF R RW370 - 30 00 - ☐

Bar stock | Round bar | iglidur® material | Outer Ø | Inner Ø | Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Ø	Lengths	Part No.
10	100 - 1,000	SFRRW370-1000-☐
15	100 - 1,000	SFRRW370-1500-☐
20	100 - 1,000	SFRRW370-2000-☐
25	100 - 1,000	SFRRW370-2500-☐
30	100 - 1,000	**SFRRW370-3000-☐**
35	100 - 1,000	SFRRW370-3500-☐
40	100 - 1,000	SFRRW370-4000-☐
45	100 - 1,000	**SFRRW370-4500-☐**

Ø	Lengths	Part No.
50	100 - 1,000	SFRRW370-5000-☐
55	100 - 1,000	SFRRW370-5500-☐
60	100 - 1,000	SFRRW370-6000-☐
65	100 - 1,000	SFRRW370-6500-☐
70	100 - 1,000	SFRRW370-7000-☐
80	100 - 1,000	**SFRRW370-8000-☐**
90	100 - 1,000	SFRRW370-9000-☐
100	100 - 1,000	SFRRW370-10000-☐

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iglidur® hollow bars | Product range

The versatile endurance runner - iglidur® J



Order key hollow bars

Type	Dimensions [mm]

SF T J -110 70-☐

Bar stock	Hollow bar	iglidur® material	Outer Ø	Inner Ø	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

Inner Ø	Inner diameter tolerance	Outer Ø	Outer diameter tolerance	Length	Part No.
70	-2.0 / -6.5	110	+1.5 / +4.5	100 - 1,000	**SFTJ-11070-☐**
70	-2.0 / -6.5	125	+1.5 / +4.5	100 - 1,000	**SFTJ-12570-☐**
100	-2.0 / -6.5	150	+1.5 / +4.5	100 - 1,000	**SFTJ-150100-☐**

Available from stock

Upon request/check availability

Notes

iglidur® sheets | Product range

The versatile endurance runner - iglidur® J

Plastic sheets (thickness: 2 to 6mm) and plates (thickness: 10 to 40mm) made from iglidur® can be supplied as blanks or finished parts and are offered in up to seven standard sizes.



Order key

Type				Dimensions [mm]		
SF	P	J	- □	- 500	- 240	
Bar stock	Sheet	iglidur® material	Material thickness	Length	Width	

Dimensions (L x W)	Material thickness s	Part No.
500x240	02 / 03 / 04 / 05 / 06	**SFPJ-□-500-240**
500x500	02 / 03 / 04 / 05 / 06	**SFPJ-□-500-500**
1,000x500	02 / 03 / 04 / 05 / 06	**SFPJ-□-1000-500**
1,000x1,000	02 / 03 / 04 / 05 / 06	**SFPJ-□-1000-1000**

Tolerances	
Material thickness	Tolerance
02	+0.050 +0.150
03	+0.200 +0.200
04	+0.200 +0.200
05	+0.250 +0.250
06	+0.250 +0.250

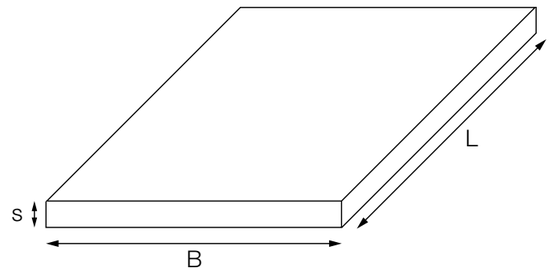
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iglidur® bar stock

iglidur® plates | Product range

The versatile endurance runner - iglidur® J





Dimensions (L x W)	Material thickness s	Part No.
500x300	10 / 15 / 20 / 25 / 30 / 40	**SFPJ-□-500-300**
500x610	10 / 15 / 20 / 25 / 30 / 40	**SFPJ-□-500-610**
1,000x610	10 / 15 / 20 / 25 / 30 / 40	**SFPJ-□-1000-610**

Tolerances	
Material thickness	Tolerance
10	+0.200 +1.100
15	+0.300 +1.500
20	+0.300 +1.500
25	+0.300 +1.500
30	+0.500 +2.500
40	+0.500 +2.500

Extremely wear-resistant in black - iglidur® JB



Dimensions (L x W)	Material thickness s	Part No.
500x300	10 / 25	**SFPJB-□-500-300**
500x610	10 / 25	**SFPJB-□-500-610**
1,000x610	10 / 25	**SFPJB-□-1000-610**

Tolerances	
Material thickness	Tolerance
10	+0.200 +1.100
25	+0.300 +1.500

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iglidur® plates | Product range

The FDA-compliant endurance runner at higher temperatures - iglidur® A350



Order key

Type	Dimensions [mm]

SF P A350-□-500-300

Bar stock	Plate	iglidur® material	Material thickness	Length	Width

Dimensions (L x W)	Material thickness s	Part No.
500x300	15 / 20 / 25 / 30	**SFPA350-□-500-300**
500x610	15 / 20 / 25 / 30	**SFPA350-□-500-610**
1,000x610	15 / 20 / 25 / 30	**SFPA350-□-1000-610**

Tolerances	
Material thickness	Tolerance
15	+0.300 +1.500
20	+0.300 +1.500
25	+0.300 +1.500
30	+0.500 +2.500

FDA and EU 10/2011-compliant - iglidur® A160



Dimensions (L x W)	Material thickness s	Part No.
500x300	10 / 20	**SFPA160-□-500-300**
500x610	10 / 20	**SFPA160-□-500-610**
1,000x610	10 / 20	**SFPA160-□-1000-610**

Tolerances	
Material thickness	Tolerance
10	+0.200 +1.100
20	+0.300 +1.500

FDA-compliant - iglidur® A180



Dimensions (L x W)	Material thickness s	Part No.
500x300	10 / 20	**SFPA180-□-500-300**
500x610	10 / 20	**SFPA180-□-500-610**
1,000x610	10 / 20	**SFPA180-□-1000-610**

Tolerances	
Material thickness	Tolerance
10	+0.200 +1.100
20	+0.300 +1.500

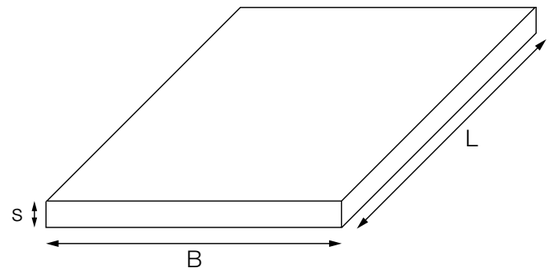
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iglidur® bar stock

iglidur® plates | Product range

Impact-resistant, strong and media-resistant - RN326





Dimensions (L x W)	Material thickness s	Part No.
500x300	15	**SFPRN326-□-500-300**
500x610	15	**SFPRN326-□-500-610**
1,000x610	15	**SFPRN326-□-1000-610**

Tolerances	
Material thickness	Tolerance
15	+0.300 +1.500

With a low coefficient of friction - iglidur® B160 New



Dimensions (L x W)	Material thickness s	Part No.
500x300	40	**SFPB160-□-500-300**
500x610	40	**SFPB160-□-500-610**
1,000x610	40	**SFPB160-□-1000-610**

Tolerances	
Material thickness	Tolerance
40	+0.500 +2.500

Cost-effective and wear-resistant - iglidur® RN44 New



Dimensions (L x W)	Material thickness s	Part No.
1,000x610	45	**SFPRN44-□-1000-610**

Tolerances	
Material thickness	Tolerance
45	+0.500 +2.500

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iglidur® plate strips | Product range

Solve wear problems quickly with iglidur® plate strips



Order key for plate strips

Type	Dimensions [mm]
SF P ☐-15-160-☐	

Bar stock	Plate	iglidur® material	Material thickness	Width	Length

In your required length, freely selectable between 100 and 1,000mm. Cut-to-size parts are delivered oversized.

Dimensions [mm]

iglidur® material	Material thickness Øs	Material thickness Tolerance	Width	Part No.	
A500	15	+0.300 +1.500	160	**SFPA500-15-160-☐**	
A500	30	+0.500 +2.500	160	**SFPA500-30-160-☐**	
A500	50	+0.500 +2.500	160	**SFPA500-50-160-☐**	
AD500	06	+0.200 +0.700	160	**SFPAD500-06-160-☐**	New
AD500	10	+0.200 +1.100	160	**SFPAD500-10-160-☐**	New
C500	15	+0.300 +1.500	160	**SFPC500-15-160-☐**	
E7	30	+0.500 +2.500	160	**SFPE7-30-160-☐**	
HSD350	50	+0.500 +2.500	160	**SFPHSD350-50-160-☐**	
J350	15	+0.300 +1.500	160	**SFPJ350-15-160-☐**	
J4	15	+0.300 +1.500	160	**SFPJ4-15-160-☐**	
J4	30	+0.500 +2.500	160	**SFPJ4-30-160-☐**	
J4	50	+0.500 +2.500	160	**SFPJ4-50-160-☐**	
RW370	15	+0.300 +1.500	160	**SFPRW370-15-160-☐**	
W300	15	+0.300 +1.500	160	**SFPW-15-160-☐**	
X	15	+0.300 +1.500	160	**SFPX-15-160-☐**	

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iglidur® bar stock | Processing information

Processing information for iglidur® bar stock

General information for achieving good results when processing iglidur® bar stock:

- Use tools made from high-speed steels (HSS) and hard metal (HM)
- Always ensure the tools are extremely sharp and in perfect condition
- In view of the far greater thermal expansion compared to metals and the dimensional changes caused by absorbed water, larger production tolerances are required for plastics than for metal parts
- To reduce any retrospective warping as a result of machining stresses, if large material volumes are to be machined, interim tempering should be used before the refined finishing stage

	Sawing	Turning	Milling	Drilling
Tool made of	HM with alternate teeth or trapezoidal flat teeth	HSS	HSS	HSS
Clearance angle	5 - 30°	2 - 10°	2 - 30°	3 - 16°
Rake angle	0 - 15°	0 - 8°	0 - 15°	5 - 30°
Tooth pitch	2 - 14 mm	–	–	–
Setting angle	–	45 - 60°	–	–
Tip angle	–	–	–	90 - 130°
Cutting speed	max. 300 m/min.	100 - 500m/min.	80 - 500m/min.	20 - 200m/min.
Feed rate	–	0.05 - 0.5mm/rpm	0.02 - 0.3mm/rpm	

Table: General processing information

Machining guidelines

	Unit	iglidur® material							
		A160, B160, W160, E7, RN326, RN289	J, J2, J4, JB, A180, A181, J200, R, RN44	J260	W300 M250 A250	P210 T220	A350 J350	H1 H3	X A500 C500 AC500 AD500
Turning									
Clearance angle	[°]	6 - 10	6 - 8	5 - 10	6 - 10	5 - 10	6	6	6
Rake angle	[°]	0 - 5	0 - 5	6 - 8	0 - 5	0 - 5	0	0 - 5	0 - 5
Setting angle	[°]	45 - 60	45 - 60	45 - 60	45 - 60	45 - 60	45 - 60	45 - 60	45 - 60
Cutting speed	[m/min]	250 - 500	300 - 600	300	250 - 500	300 - 400	350 - 400	250 - 500	250 - 500
Feed rate	[mm/rpm]	0.1 - 0.5	0.1 - 0.4	0.1 - 0.5	0.1 - 0.5	0.2 - 0.4	0.1 - 0.3	0.1 - 0.5	0.1 - 0.5
Milling									
Number of teeth		Z1 - Z2	Z1 - Z2	Z1 - Z2	Z1 - Z2	Z1 - Z2	Z1 - Z2	Z1 - Z2	Z1 - Z2
Cutting speed	[m/min]	250 - 500	300	300	250 - 500	300	250 - 500	250 - 500	250 - 500
Feed rate	[mm/rpm]	0.1 - 0.45	0.15 - 0.5	0.15 - 0.4	0.1 - 0.45	0.15 - 0.5	0.1 - 0.45	0.1 - 0.45	0.1 - 0.45
Drilling									
Number of teeth		Z2	Z2	Z2	Z2	Z2	Z2	Z2	Z2
Angle of twist	[°]	25	25	25	25	25	25	25	25
Acute angle	[°]	90	90	90	90	90	90	90	90
Cutting speed	[m/min]	50 - 150	50 - 150	50 - 100	50 - 150	50 - 100	20 - 80	50 - 200	50 - 200
Feed rate	[mm/rpm]	0.1 - 0.3	0.1 - 0.3	0,2 - 0,3	0.1 - 0.3	0,2 - 0,3	0.1 - 0.3	0.1 - 0.3	0.1 - 0.3

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iglidur® bar stock | Processing information

Processing information for iglidur® bar stock

igus® subjects its bar stock to a material-specific tempering process so that they remain dimensionally stable during and after machining. All bar stock from 25mm thickness are tempered, regardless of the respective iglidur® material. For materials that are suitable for use at high temperatures such as iglidur® X, C500 or A500, all bar stock are basically tempered.

What is tempering and how does it work?

During tempering, a material is subjected to a heat treatment for a prolonged period, during which the melting temperature is not exceeded. The selected temperature and the duration of the treatment vary depending on the material, material thickness and shape. It is crucial that the material is completely heated up and cooled slowly and evenly to room temperature after the holding time of the temperature. Tempering is particularly effective only with a slow cooling.

Tempering specifications for iglidur® materials

	iglidur® material					
	E7, RN326, A160, B160, RN289	**J, J2, J3, J4, J200, JB, A180, A181, B180, RN44**	**J260**	**W300, M250, P210, T220, A250**	**A350, J350, H1, H3**	**X A500 C500 AC500 AD500**
Heat up	1 hour per cm diameter to					
	+80°C	+120°C	+130°C	+180 °C	+200°C	+220 °C
Maximum temperature/ holding time	1 hour per cm diameter at					
	+80°C	+120°C	+130°C	+180 °C	+200°C	+220 °C
Cooling down	Cool down to maximum +20°C per hour until room temperature					

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iglidur® plastic rod | Online service

CNC online service and tolerance check

Clear user interface and new features

Improved calculation, ease of use and new features. Multi-part upload, graduated pricing, feasibility analysis and a much simplified order processing.



Express options:

- CNC online service: up to ten machined parts ready to ship in three days
- IBD iglidur® bearing designer: up to 500 bearings, thrust washers or knife edge rollers ready to ship in five days







For general design tips and guidance on our manufacturing processes, please refer to the Design Guide.

▶ **www.igus.eu/cnc-design-guide**

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iglidur® plastic rod | Online service

Profiles according to customer specifications

Wear-resistant industrial profiles









With igus® you have the option of having industrial profiles manufactured according to individual specifications. Various profile geometries can be implemented according to your specifications and requirements. Choose from a variety of our wear-resistant iglidur® materials.

Due to its properties, every material becomes suitable for a specific application. For example, there is suitable bar stock for almost every application from high-temperature to seawater, from food to automotive. All iglidur® materials have been specially developed for dynamic applications, and have low coefficient of friction and wear.

Simply request your individual profile from us now. We would be happy to advise you on your project.
▶ **www.igus.eu/profile-enquiry**



iglidur® tribo-tape liners

Choice of 4 materials

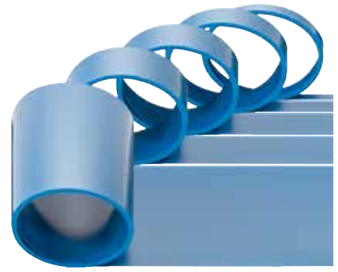
Wear-resistant

With and without adhesive back

Standard widths from stock

Special widths to your specifications

Special cuts according to drawings



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iglidur® tribo-tape | Advantages

Versatile: iglidur® tribo-tape



Material: iglidur® A160

- Low coefficient of friction
- Wear resistance: ++
- Up to +90°C

▶ Page 786



Material: iglidur® B160

- For use in visible areas
- Wear resistance: ++++
- Up to +90°C

▶ Page 787



Material: iglidur® W160

- White and UV-stabilised
- Wear resistance: +++
- Up to +90°C

▶ Page 788



Material: iglidur® V400

- High media resistance
- Wear resistance: +++++
- Up to +200°C (with adhesive back, see product page)

▶ Page 789

Easy-to-fit protection for all surfaces: iglidur® tribo-tape

igus® tribo-tape is designed for lining areas of wear and where frequent maintenance is required, an example is for machine beds etc. At just 0.5mm thick (0.71mm including the adhesive back), the space requirement is extremely low. The ease of use (the tape can simply be cut using scissors) and optional self-adhesive back open up almost endless possibilities for the product's use.

- Lubrication and maintenance-free
- Easy to cut
- For compact areas
- With or without self-adhesive back
- Standard widths from stock
- Individual required widths in continuous range from 10-500mm

Available from stock

Detailed information about delivery time online.

Operation temperatures:

iglidur® A160: -50°C up to +90°C
iglidur® B160: -50°C up to +90°C
iglidur® W160: -50°C up to +90°C
iglidur® V400: -50°C up to +200°C

Differing temperatures with adhesive back (see product page)

Product film

▶ www.igus.eu/tape-film

Cutting service

Whether as a specially tailored by-the-metre product or freely designed pre-cut parts: We produce your required product in required width from our iglidur® tribo-tape. Please contact us.

▶ www.igus.eu/tape-cut-to-size

iglidur® tribo-tape | Technical data

Material properties

General properties	Unit	iglidur® A160	iglidur® B160	iglidur® W160	iglidur® V400	Testing method
Density	g/cm³	1.00	1.00	0.95	1.51	
Colour		blue	black	white	cream-white	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.1	0.1	0.1	0.1	DIN 53495
Max. moisture absorption	% weight	0.1	0.1	0.1	0.2	
Coefficient of sliding friction, dynamic against steel	μ	0.09 - 0.19	0.13 - 0.20	0.12 - 0.20	0.15 - 0.20	
Mechanical properties						
Flexural modulus	MPa	1,151	852	799	4,500	DIN 53457
Flexural strength at +20°C	MPa	19	14	14	95	DIN 53452
Shore D hardness		60	59	58	74	DIN 53505
Physical and thermal properties						
Max. long-term application temperature	°C	+90	+90	+90	+200	
Max. short-term application temperature	°C	+100	+100	+100	+240	
Min. application temperature	°C	-50	-50	-50	-50	
Thermal conductivity	W/m · K	0.30	0.32	0.30	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	11	11	11	3	DIN 53752
Electrical properties						
Specific transitional resistance	Ωcm	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	$> 10^{12}$	DIN 53482

Table: Material properties table

Chemical resistance (at +20°C)

Chemical resistance	iglidur® A160	iglidur® B160	iglidur® W160	iglidur® V400
Alcohols	+	+	+	+
Hydrocarbons	+	+	+	+
Greases, oils without additives	+	+	+	+
Fuels	+ to 0	+ to 0	+ to 0	+
Diluted acids	+	+	+	+
Strong acids	+	+	+	+
Diluted alkalines	+	+	+	+
Strong alkalines	+	+	+	–
Radiation Resistance [Gy] up to	$1 \cdot 10^5$	$1 \cdot 10^5$	$1 \cdot 10^5$	$2 \cdot 10^4$

+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20°C]

Unknown factors, temperatures, wet weather and many other ambient conditions impair the adhesion. It is therefore essential that the use of iglidur® tribo-tape be tested under realistic conditions. We are happy to provide you with samples for tests. All recommendations, as well as suggestions regarding use that are made, are based on experience gained in practice and tests where the basic conditions cannot be applied to other conditions of use. They are therefore not binding and do not release the buyer from the obligation to carry out his/her own tests. We always recommend application-specific tests under real conditions of use.

iglidur® liners | Selection according to main criteria

iglidur®	A160	B160	W160	V400
Descriptive technical specifications				
Wear resistance at +23°C	●●●○○	●●●●○	●●●○○	●●●○○
Wear resistance at +90°C	●○○○○	●●○○○	●○○○○	●●●●○
Wear resistance at +150°C	●○○○○	●○○○○	●○○○○	●●●●●
Slide property	●●●●○	●●●●●	●●●●○	●●●○○
Wear resistance under water	●●●○○	●●●●○	●●●○○	●●●●○
Media resistance	●●●●○	●●●●○	●●●●○	●●●●●
Resistant to edge pressures	●●●○○	●●●○○	●●●○○	●●●○○
Resistant to shock and impact loads	●●●●○	●●●●○	●●●●○	●●●○○
Dirt resistance	●●●●○	●●●●○	●●●●○	●●○○○
Price index[141)]	●○○○○	●○○○○	●○○○○	●●●●●
For high loads (>60MPa)				
Electrically conductive				
Approvals and standards				
FDA-compliant	●			
EU 10/2011-compliant	●			
Fire class in accordance with UL-94	HB	HB	HB	V-0
Mould test DIN EN ISO 846				
Fogging DIN 75201-B				
Availabilities / variants				
Bar stock, round material	●			
Bar stock, hollow bars				
Bar stock, sheet				
Bar stock, plate	●			
Bar stock, plate strips				
Machined made from bar stocks	●			

[141)] **Price index** ●○○○○ **Low price category** ●●●○○ **Medium price category** ●●●●● **Highest price category**

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iglidur® liners | Material properties table

iglidur®	Unit	A160	B160	W160	V400
General properties					
Density	**[g/cm³]**	1.00	1.00	0.95	1.51
Colour					
Max. moisture absorption at +23 °C/50% r.h.	**[% weight]**	0.1	0.1	0.1	0.1
Max. moisture absorption	**[% weight]**	0.1	0.1	0.1	0.2
Coefficient of sliding friction, dynamic against steel	**[µ]**	0.09 - 0.19	0.13 - 0.20	0.12 - 0.20	0.15 - 0.20
Mechanical properties					
Flexural modulus	**[MPa]**	1,151	852	799	4,500
Flexural strength at +20°C	**[MPa]**	19	14	14	95
Compressive strength	**[MPa]**	37	37	37	47
Max. permissible surface pressure at +20°C	**[MPa]**	15	11	11	45
Shore D hardness		60	59	58	74
Physical and thermal properties					
Max. continuous operatingtemperature	**[°C]**	+90	+90	+90	+200
Max. short-term operating temperature	**[°C]**	+100	+100	+100	+240
Min. continuous operating temperature	**[°C]**	-50	-50	-50	-50
Thermal conductivity	**[W/m · K]**	0.30	0.32	0.30	0.24
Coefficient of thermal expansion at +23°C	**[$K^{-1} \cdot 10^{-5}$]**	11	11	11	3
Electrical properties					
Specific contact resistance	**[Ωcm]**	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{12}
Surface resistance	**[Ω]**	> 10^{12}	> 10^{12}	> 10^{12}	> 10^{12}
Page		**786**	**787**	**788**	**789**

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iglidur® tribo-tape | Product range

FDA-compliant - iglidur® A160



Order key

Type	Dimensions [mm]	Options
A160 - T - 005 - 0020 - G		

iglidur® material	Tape	Thickness	Width	Adhesive back
	T	005	0020	G = Optional self-adhesive back

The low-cost iglidur® A160 tribo-tape has high wear resistance compared to similar, thin plastic products.

tribo-tape from iglidur® A160 with adhesive back
Temperature -40°C up to +90°C

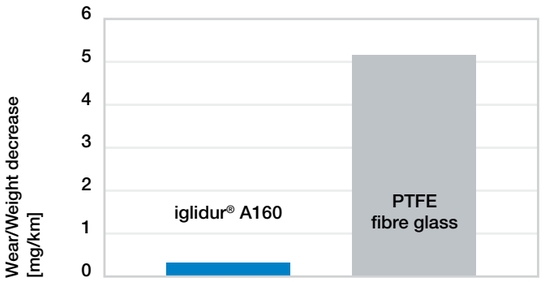
Dimensions [mm]

Material thickness without adhesive back ±0.1	Material thickness with adhesive back ±0.121	Width ±1.0	Part No. without adhesive back	Part No. with adhesive back
0.5	0.71	20	**A160-T-005-0020**	**A160-T-005-0020-G**
0.5	0.71	50	**A160-T-005-0050**	**A160-T-005-0050-G**
0.5	0.71	100	**A160-T-005-0100**	**A160-T-005-0100-G**
0.5	0.71	500	**A160-T-005-0500**	**A160-T-005-0500-G**
1.0	1.21	500	**A160-T-010-0500**	**A160-T-010-0500-G**

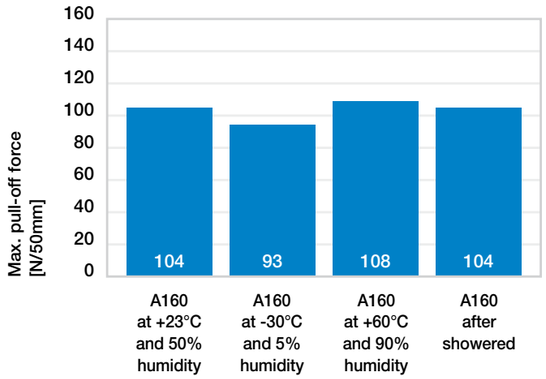
Cuts from standard widths are manufactured with excess dimensions.

Individual widths upon request
Continuously from 10-500mm

Cutting service
Design tribo-tape flexibly
▶ www.igus.eu/tape-cut-to-size



Linear wear against stainless steel pin (AISI 303)
F = 10N, v = 9,600mm/min



180° pull-off test after various exposure conditions

This material complies with EU directive 10/2011 and also with FDA (Food and Drug Administration) specifications for repeated contact with food.

iglidur® tribo-tape | Product range

For use in visible areas - iglidur® B160



Order key

Type	Dimensions [mm]	Options
B160 - T - 005 - 0020 - G		

iglidur® material	Tape	Thickness	Width	Adhesive back
	T	005	0020	G = Optional self-adhesive back

Especially where the iglidur® tribo-tape is a visible part, the new black option now offers even more creative freedom. In addition the wear resistance has been improved once again compared to iglidur® A160.

tribo-tape from iglidur® B160 with adhesive back
Temperature -40°C up to +90°C

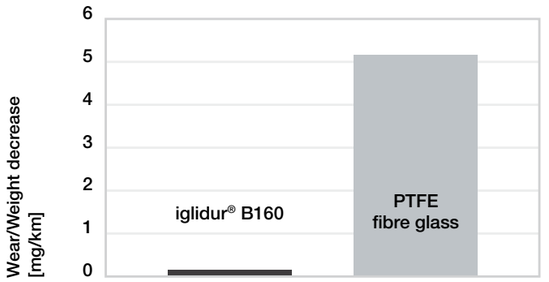
Dimensions [mm]

Material thickness without adhesive back ±0.1	Material thickness with adhesive back ±0.121	Width ±1.0	Part No. without adhesive back	Part No. with adhesive back
0.5	0.71	20	**B160-T-005-0020**	**B160-T-005-0020-G**
0.5	0.71	50	**B160-T-005-0050**	**B160-T-005-0050-G**
0.5	0.71	100	**B160-T-005-0100**	**B160-T-005-0100-G**
0.5	0.71	500	**B160-T-005-0500**	**B160-T-005-0500-G**
1.0	1.21	500	**B160-T-010-0500**	**B160-T-010-0500-G**

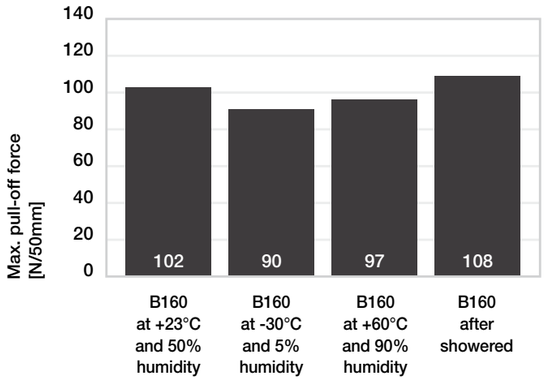
Cuts from standard widths are manufactured with excess dimensions.

Individual widths upon request
Continuously from 10-500mm

Cutting service
Design tribo-tape flexibly
▶ www.igus.eu/tape-cut-to-size



Linear wear against stainless steel pin (AISI 303)
F = 10N, v = 9,600mm/min



180° pull-off test after various exposure conditions

iglidur® tribo-tape | Product range

White and UV-stabilised - iglidur® W160



Order key

Type	Dimensions [mm]	Options
W160 - T - 005 - 0020 - G		

iglidur® material | Tape | Thickness | Width | Adhesive back

G = Optional self-adhesive back

With its white colour and UV-stabilised additives, iglidur® W160 tribo-tape offers even more design freedom.[148)]

tribo-tape from iglidur® W160 with adhesive back
Temperature -40°C up to +90°C

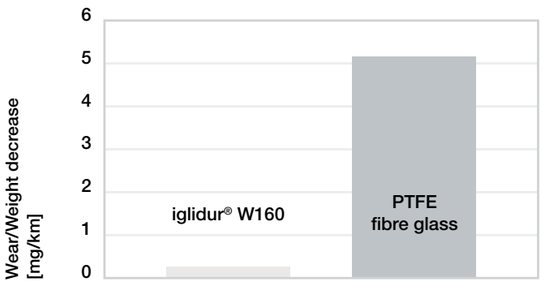
Dimensions [mm]

Material thickness without adhesive back ±0.1	Material thickness with adhesive back ±0.121	Width ±1.0	Part No. without adhesive back	Part No. with adhesive back
0.5	0.71	20	**W160-T-005-0020**	**W160-T-005-0020-G**
0.5	0.71	50	**W160-T-005-0050**	**W160-T-005-0050-G**
0.5	0.71	100	**W160-T-005-0100**	**W160-T-005-0100-G**
0.5	0.71	500	**W160-T-005-0500**	**W160-T-005-0500-G**
1.0	1.21	500	**W160-T-010-0500**	**W160-T-010-0500-G**

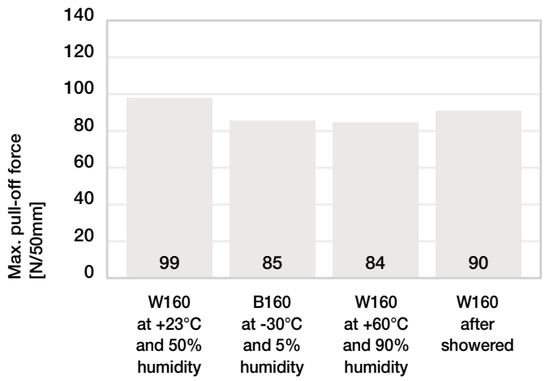
Cuts from standard widths are manufactured with excess dimensions.

Individual widths upon request
Continuously from 10-500mm

Cutting service
Design tribo-tape flexibly
▶ www.igus.eu/tape-cut-to-size



Linear wear against stainless steel pin (1.4305)
F = 10N, v= 9600mm/min



180° pull-off test after various exposure conditions

iglidur® tribo-tape | Product range

High media resistance - iglidur® V400



Order key

Type	Dimensions [mm]	Options
V400 - T - 005 - 0120 - G		

iglidur® material | Tape | Thickness | Width | Adhesive back

G = Optional self-adhesive back

iglidur® V400 tribo-tape is not only extremely wear-resistant but also extremely media and temperature-resistant. In fact, it has been proven in tests to be up to 10 times more wear-resistant than special products for machine beds.

tribo-tape from iglidur® V400 with adhesive back
Temperature -40°C up to +160°C

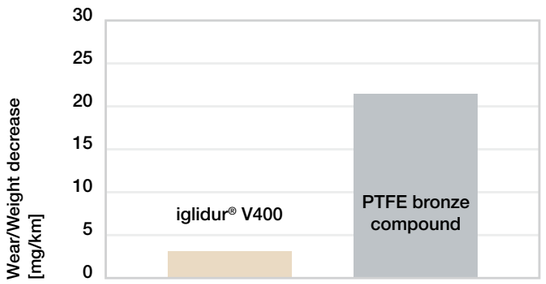
Dimensions [mm]

Material thickness without adhesive back ±0.1	Material thickness with adhesive back ±0.121	Width ±1.0	Part No. without adhesive back	Part No. with adhesive back
0.5	0.71	120	**V400-T-005-0120**	**V400-T-005-0120-G**

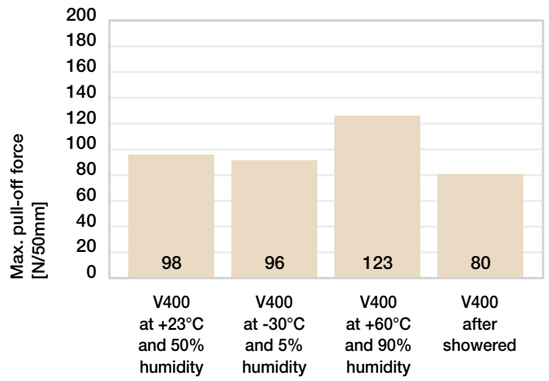
Cuts from standard widths are manufactured with excess dimensions.

Individual widths upon request

Cutting service
Design tribo-tape flexibly
▶ www.igus.eu/tape-cut-to-size



Linear wear against stainless steel pin (AISI 303)
F = 35N, v = 0.5m/min



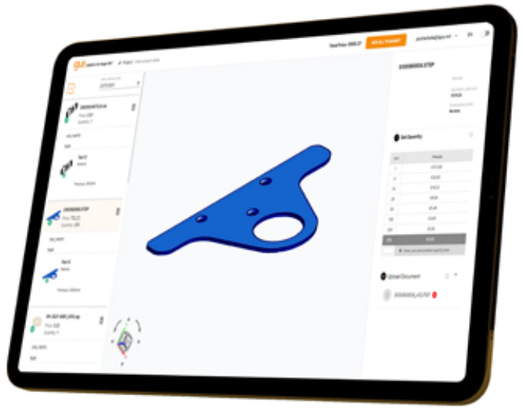
180° pull-off test after various exposure conditions

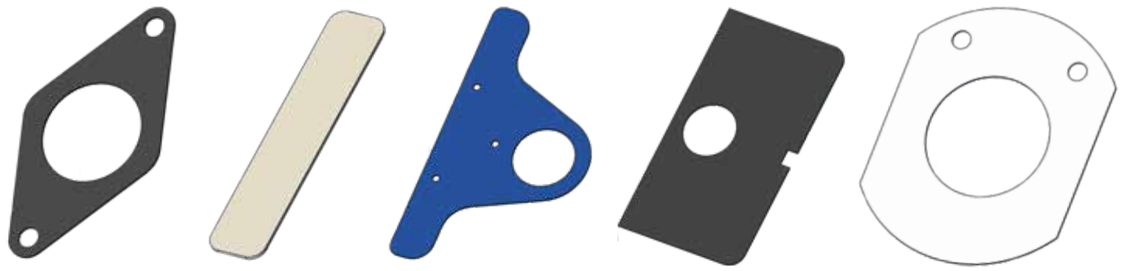
iglidur® tribo-tape | Online service

Online calculator

Calculate tribo-tape special parts online

Calculate plotted tribo-tape custom parts quickly and easily with our new online pricing tool.



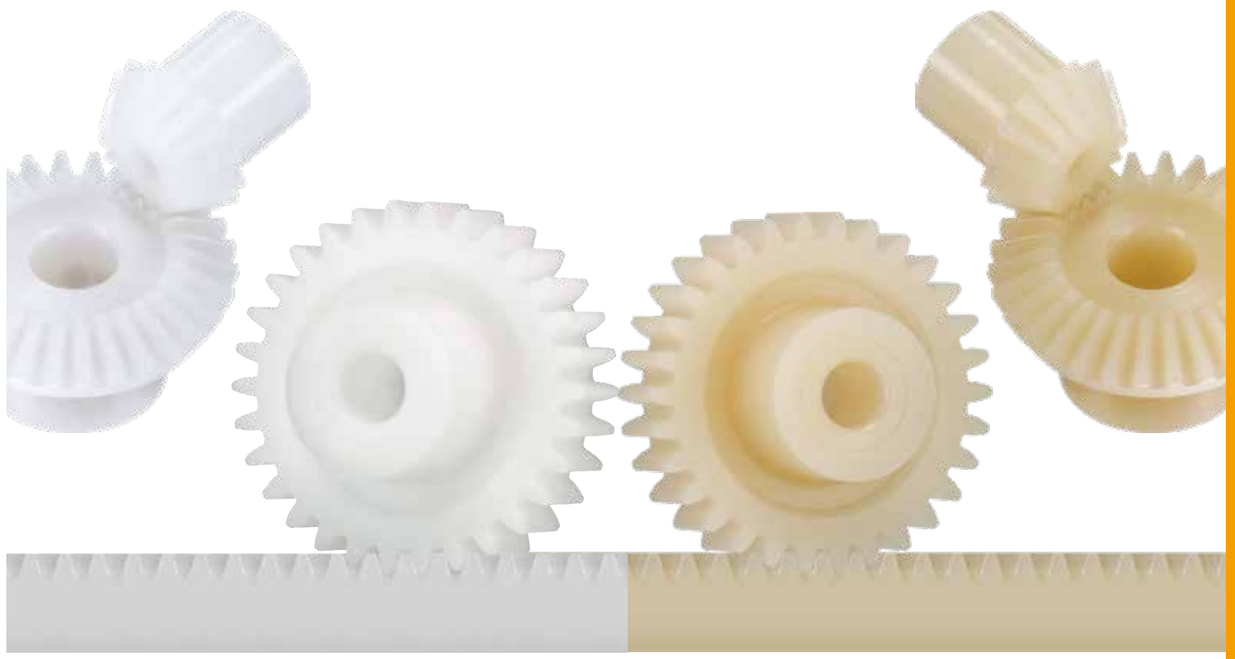


Blanks in desired geometry
▶ **www.igus.eu/tribo-tape-tool**

Notes

iglidur®

Gears



...plastics

Injection-moulded gears made of iglidur® high-performance polymers



Gears
8 different modules
12-150 teeth
▶ From page 800



Racks
8 different modules
250mm
▶ From page 816



Gear wheels
6 transmission ratios
7 different modules
▶ From page 818



Angular gearbox
Module 1
5 transmission ratios
▶ From page 820

Lubrication-free iglidur® gears

The gears made of the tribologically optimised iglidur® high-performance polymers prove that a significantly longer service life is possible over gears made of commercially available plastics. By precisely adding reinforcing materials and solid lubricants, you can completely dispense with additional lubricants.

- Maintenance-free dry operation
- Quiet
- Corrosion-free
- Resistant to dirt

Typical application areas

- Rail industry
- Automotive industry
- Medical technology
- Food/beverage industry
- Vending machinery
- Packaging industry

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

Max. +250°C
min. -100°C

Service life calculation
▶ www.igus.eu/gear-expert

Post processing possible

Tolerances for plastic gears
The hole diameters d1 for cylindrical gears made of plastic are machined with reamers. It should be noted that due to the behaviour of the material, as well as temperature influences, the holes of the gears may change by 0.02-0.04. The tolerance for the bore diameter d1 is given as H10.

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iguform S270 gears
- Low coefficient of friction
- Low moisture absorption
- Quiet

▶ From page 800



igutek P360 gears
- Increased wear resistance
- Good tribological specifications
- Tough
- Resistant to shock loads

▶ From page 800



iguform S270 gear racks
- Low coefficient of friction
- Low moisture absorption
- Quiet

▶ From page 816



igutek P360 gear racks
- Increased wear resistance
- Good tribological specifications
- Tough
- Resistant to shock loads

▶ From page 816



iguform S270 and igutek P360 bevel gears
- iguform S270 convinces with a low coefficient of friction and low moisture absorption.
- igutek P360 offers increased wear resistance, good tribological properties and high toughness.

▶ From page 818



iguform S270 and igutek P360 bevel gear angle gearboxes
- iguform S270 convinces with a low coefficient of friction and low moisture absorption.
- igutek P360 offers increased wear resistance, good tribological properties and high toughness.

▶ From page 820

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iglidur® gears | Materials

From a single part to high-volume production of up to several millions

The expert at higher temperatures with chemical resistance



Max. +250°C
min. -100°C

Lubrication-free

iglidur® A500

- The endurance runner at higher temperatures in the food sector
- Compliant with EU Regulation 10/2011 EC
- FDA-compliant
- Temperature-resistant from -100°C to +250°C

The endurance runner with ESD conformity



Max. +140 °C
min. -40°C

Lubrication-free

iglidur® F

- Electrically conductive
- High compressive strength
- Good temperature resistance
- Available in 3 hub designs

The all-rounder with FDA conformity



Max. +80°C
min. -40°C

Lubrication-free

xirodur® B180

- Low coefficient of friction
- Wear-resistant material for continuous operation
- Vibration-dampening
- Available in 3 hub designs

The cost-effective standard with low moisture absorption



Max. +90°C
min. -40°C

Lubrication-free

iguform S270

- Low coefficient of friction
- Low moisture absorption
- Quiet

The robust all-rounder with high toughness



Max. +110°C
min. -30°C

Lubrication-free

igutek P360

- Increased wear resistance
- Good tribological specifications
- Tough
- Resistant to shock loads

igus EN 09/2023

iglidur® gears | Material properties

Technical data

General properties	Unit	iguform S270	igutek P360	iglidur® A500	iglidur® F	xirodur® B180
Density	[g/cm³]	1.41	1.24	1.28	1.25	1.41
Colour		white	light beige	brown	black	white
Max. moisture absorption at +23°C and 50% relative humidity	[% weight]	0.20	0.50	0.30	1.80	0.2
Max. waterabsorption	[% weight]	0.65	2.10	0.50	8.40	0.7
Mechanical properties						
Flexural modulus	[MPa]	2,400	1,300	3,600	11,600	2,500
Flexural strength	[MPa]	65	50	140	260	68
Shore D hardness		–	–	83	84	77
Physical and thermal properties						
Max. continuous operatingtemperature	[°C]	+90	+110	+250	+140	+80
Max. short-term operating temperature	[°C]	+100	+130	+300	+180	+110
Min. continuous operating temperature	[°C]	-40	-30	-100	-40	-40
Electrical properties						
Specific contact resistance	[Ωcm]	> 10^{12}	> 10^{13}	> 10^{14}	> 10^{3}	> 10^{14}
Surface resistance	[Ω]	> 10^{14}	> 10^{13}	> 10^{13}	> 10^{2}	> 10^{14}
FDA-compliant		Possible upon request	–	●	–	●

Other materials and desired dimensions upon request

Chemicals	Resistance				
	iguform S270	igutek P360	iglidur® A500	iglidur® F	xirodur® B180
Alcohols	+	+	+	+ up to 0	+
Diluted acids	0 up to –	+	+	0 up to –	0 up to –
Diluted alkalines	+	+	+	+	+
Fuels	+	+	+	+	+
Greases, oils without additives	+	+	+	+	+
Strong acids	–	–	+	–	–
Strong alkalines	+ up to 0	+ up to 0	+	+ up to 0	+ up to 0

+ resistant **0 conditionally resistant** **– unstable** **All data at room temperature [+20°C]**

Further information on chemicals can be found in the shop ▶ www.igus.eu/gear-shop

EN 09/2023 igus

iglidur® gears | Application examples

Gears in actuators

The application areas are diverse, actuators can be found in all areas of the vehicle. Through the innovative formulations of the iglidur® high-performance plastics, we achieve smoother operation, lower torque and thus lower power consumption in the drive unit with improved material properties.
The aim is to eliminate the greases used in the assembly process. This is to prevent failures due to missing or incorrectly dosed grease. The manufacturing process of an actuator is simplified and less expensive.





Gears in planetary systems

The requirements for eBikes are high, especially the planetary gear located in the drive unit which must transmit high torque. For example, with cargo bikes this load is particularly high.
The gears used here made of the iglidur® high-performance plastics convince with a long service life. Depending on the requirement, it is our goal to find the suitable material for the required parameters together with our customers. Other aspects such as noise emissions to be avoided also play an important role for us.

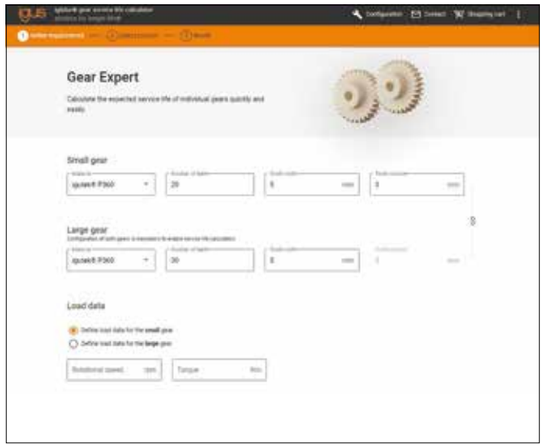
Gears in a railway switch

The metal gears used in railway switches require the use of external lubricants. As a result, regular maintenance has to be carried out, costing both time and money. There is a risk that inadequate lubrication can lead to failures. With the help of 3D-printed gears made of iglidur® i3, the downtime is reduced, as they have very good emergency operation properties and can be used without external lubricants. Another advantage is that the iglidur® gears are corrosion-resistant.



iglidur® gears | Online tools

iglidur® gear expert



Gear service life calculator

Enter the application parameters of your gear and calculate the expected service life with just a few clicks.

▶ **www.igus.eu/gear-expert**

Gear/rack configurator

Gear configurator online for single and double gears from 8 teeth. No CAD software or knowledge required.

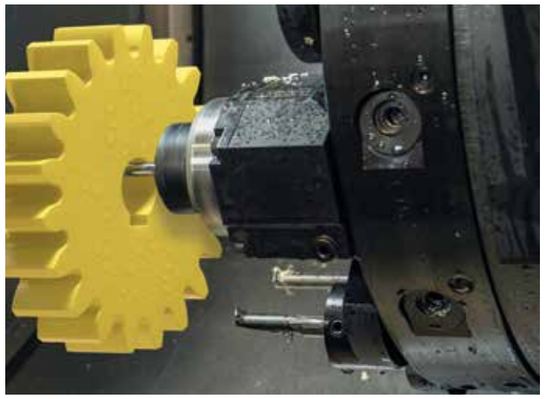
▶ **www.igus.eu/gear-configurator**
▶ **www.igus.eu/gear-rack**



Special parts

Do you need gears with special geometries? We will be happy to work with you to find the right manufacturing process and the right material for your project. From a single part to high-volume production of up to several millions.

▶ **www.igus.eu/gear-special-parts**



Post-processing

Our standard gears can be individually adapted to your requirements, e.g.:

- Hole diameter
- Hub design (key, D-Cut, etc.)
- Cross holes, grooves
- Thread
- …

▶ **www.igus.eu/gears**

EN 09/2023

iglidur® gears | Product range

iguform S270 and igutek P360 gears



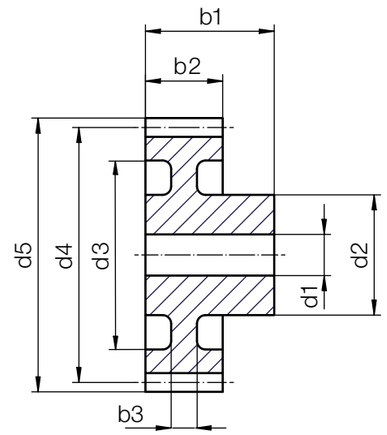
iguform S270



igutek P360

- Low coefficient of friction
- Low moisture absorption
- Quiet

- Increased wear resistance
- Good tribological specifications
- Tough
- Resistant to shock loads



Order key

Part number

□ G M-ST-050-012-00-020-R

Material	Gear	Metric	Spur gear	Module	Number of teeth	Helix angle	Hole diameter	Hub design round

S270	Low coefficient of friction
P360	Good tribological specifications

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
0.5	12	0	Round
0.5	13	0	Round
0.5	14	0	Round
0.5	15	0	Round
0.5	16	0	Round
0.5	17	0	Round
0.5	18	0	Round
0.5	19	0	Round
0.5	20	0	Round
0.5	21	0	Round
0.5	22	0	Round
0.5	23	0	Round
0.5	24	0	Round
0.5	25	0	Round
0.5	26	0	Round
0.5	27	0	Round
0.5	28	0	Round
0.5	30	0	Round
0.5	32	0	Round
0.5	35	0	Round
0.5	36	0	Round
0.5	38	0	Round
0.5	40	0	Round
0.5	42	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
2	7.0	3	6.0	7	4.0	3.0	–	□GM-ST-050-012-00-020-R
2	7.5	3	6.5	7	4.0	3.0	–	□GM-ST-050-013-00-020-R
2	8.0	3	7.0	7	5.0	3.0	–	□GM-ST-050-014-00-020-R
3	8.5	3	7.5	10	6.0	3.0	–	□GM-ST-050-015-00-030-R
3	9.0	3	8.0	10	6.0	3.0	–	□GM-ST-050-016-00-030-R
3	9.5	3	8.5	10	6.0	3.0	–	□GM-ST-050-017-00-030-R
4	10.0	3	9.0	10	7.8	3.0	–	□GM-ST-050-018-00-040-R
4	10.5	3	9.5	10	7.8	3.0	–	□GM-ST-050-019-00-040-R
4	11.0	3	10.0	10	7.9	3.0	–	□GM-ST-050-020-00-040-R
4	11.5	3	10.5	10	8.0	3.0	–	□GM-ST-050-021-00-040-R
4	12.0	3	11.0	10	10.0	3.0	–	□GM-ST-050-022-00-040-R
4	12.5	3	11.5	10	9.9	3.0	–	□GM-ST-050-023-00-040-R
4	13.0	3	12.0	10	9.9	3.0	–	□GM-ST-050-024-00-040-R
4	13.5	3	12.5	10	9.9	3.0	–	□GM-ST-050-025-00-040-R
4	14.0	3	13.0	10	9.9	3.0	–	□GM-ST-050-026-00-040-R
4	14.5	3	13.5	10	9.9	3.0	–	□GM-ST-050-027-00-040-R
4	15.0	3	14.0	10	10.0	3.0	–	□GM-ST-050-028-00-040-R
4	16.0	3	15.0	10	11.9	3.0	–	□GM-ST-050-030-00-040-R
4	17.0	3	16.0	10	12.0	3.0	–	□GM-ST-050-032-00-040-R
4	18.5	3	17.5	10	12.0	3.0	–	□GM-ST-050-035-00-040-R
4	19.0	3	18.0	10	11.9	3.0	–	□GM-ST-050-036-00-040-R
4	20.0	3	19.0	10	12.0	3.0	–	□GM-ST-050-038-00-040-R
4	21.0	3	20.0	10	12.0	2.0	14.8	□GM-ST-050-040-00-040-R
4	22.0	3	21.0	10	12.15	2.0	17.0	□GM-ST-050-042-00-040-R

Order example:

S270GM-ST-050-012-00-020-R: material iguform S270, G gear, M metric, -ST spur gear, -050 module 0.5, -012 number of teeth 12, -00 helix angle 0°, -020 hole diameter Ø2mm, -R hub design round

iglidur® gears | Product range

iguform S270 and igutek P360 gears

iglidur® gears

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
0.5	45	0	Round
0.5	48	0	Round
0.5	50	0	Round
0.5	52	0	Round
0.5	54	0	Round
0.5	55	0	Round
0.5	56	0	Round
0.5	60	0	Round
0.5	64	0	Round
0.5	65	0	Round
0.5	70	0	Round
0.5	72	0	Round
0.5	75	0	Round
0.5	80	0	Round
0.5	90	0	Round
0.5	96	0	Round
0.5	100	0	Round
0.5	120	0	Round
0.7	12	0	Round
0.7	13	0	Round
0.7	14	0	Round
0.7	15	0	Round
0.7	16	0	Round
0.7	17	0	Round
0.7	18	0	Round
0.7	19	0	Round
0.7	20	0	Round
0.7	21	0	Round
0.7	22	0	Round
0.7	23	0	Round
0.7	24	0	Round
0.7	25	0	Round
0.7	26	0	Round
0.7	27	0	Round
0.7	28	0	Round
0.7	30	0	Round
0.7	32	0	Round
0.7	35	0	Round
0.7	36	0	Round
0.7	38	0	Round
0.7	40	0	Round
0.7	42	0	Round
0.7	45	0	Round
0.7	48	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
4	23.5	3	22.5	10	12.15	2.0	18.0	☐GM-ST-050-045-00-040-R
6	25.0	3	24.0	10	15.0	2.0	19.0	☐GM-ST-050-048-00-060-R
6	26.0	3	25.0	10	15.0	2.0	20.0	☐GM-ST-050-050-00-060-R
6	27.0	3	26.0	10	15.0	2.0	21.0	☐GM-ST-050-052-00-060-R
6	28.0	3	27.0	10	15.0	2.0	21.0	☐GM-ST-050-054-00-060-R
6	28.5	3	27.5	10	15.0	2.0	23.0	☐GM-ST-050-055-00-060-R
6	29.0	3	28.0	10	15.0	2.0	23.0	☐GM-ST-050-056-00-060-R
6	31.0	3	30.0	10	15.0	2.0	23.0	☐GM-ST-050-060-00-060-R
6	33.0	3	32.0	10	15.0	2.0	23.0	☐GM-ST-050-064-00-060-R
6	33.5	3	32.5	10	15.0	2.0	23.0	☐GM-ST-050-065-00-060-R
6	36.0	3	35.0	10	15.0	2.0	29.0	☐GM-ST-050-070-00-060-R
6	37.0	3	36.0	10	15.0	2.0	30.0	☐GM-ST-050-072-00-060-R
6	38.5	3	37.5	10	15.0	2.0	33.0	☐GM-ST-050-075-00-060-R
6	41.0	3	40.0	10	15.0	2.0	33.0	☐GM-ST-050-080-00-060-R
6	46.0	3	45.0	10	15.0	2.0	39.0	☐GM-ST-050-090-00-060-R
6	49.0	3	48.0	10	15.0	2.0	42.0	☐GM-ST-050-096-00-060-R
6	51.0	3	50.0	10	15.0	2.0	44.0	☐GM-ST-050-100-00-060-R
6	61.0	3	60.0	10	15.0	2.0	54.0	☐GM-ST-050-120-00-060-R
3	9.8	6	8.4	15	6.0	6.0	–	☐GM-ST-070-012-00-030-R
3	10.5	6	9.1	15	6.0	6.0	–	☐GM-ST-070-013-00-030-R
3	11.2	6	9.8	15	6.0	6.0	–	☐GM-ST-070-014-00-030-R
3	11.9	6	10.5	15	6.0	6.0	–	☐GM-ST-070-015-00-030-R
4	12.6	6	11.2	15	9.0	6.0	–	☐GM-ST-070-016-00-040-R
4	13.3	6	11.9	15	9.0	6.0	–	☐GM-ST-070-017-00-040-R
4	14.0	6	12.6	15	9.0	6.0	–	☐GM-ST-070-018-00-040-R
4	14.7	6	13.3	15	9.0	6.0	–	☐GM-ST-070-019-00-040-R
4	15.4	6	14.0	15	9.0	6.0	–	☐GM-ST-070-020-00-040-R
4	16.1	6	14.7	15	9.0	6.0	–	☐GM-ST-070-021-00-040-R
4	16.8	6	15.4	15	9.0	6.0	–	☐GM-ST-070-022-00-040-R
4	17.5	6	16.1	15	9.0	6.0	–	☐GM-ST-070-023-00-040-R
4	18.2	6	16.8	15	9.0	3.0	13.0	☐GM-ST-070-024-00-040-R
6	18.9	6	17.5	15	9.0	3.0	13.0	☐GM-ST-070-025-00-060-R
6	19.6	6	18.2	15	9.0	3.0	13.0	☐GM-ST-070-026-00-060-R
6	20.3	6	18.9	15	9.0	3.0	13.0	☐GM-ST-070-027-00-060-R
6	21.0	6	19.6	15	9.0	3.0	13.0	☐GM-ST-070-028-00-060-R
6	22.4	6	21.0	15	12.0	3.0	16.0	☐GM-ST-070-030-00-060-R
6	23.8	6	22.4	15	12.0	3.0	16.0	☐GM-ST-070-032-00-060-R
6	25.9	6	24.5	15	15.0	3.0	18.5	☐GM-ST-070-035-00-060-R
6	26.6	6	25.2	15	15.0	3.0	18.5	☐GM-ST-070-036-00-060-R
6	28.0	6	26.6	15	15.0	3.0	21.0	☐GM-ST-070-038-00-060-R
6	29.4	6	28.0	15	15.0	3.0	21.0	☐GM-ST-070-040-00-060-R
6	30.8	6	29.4	15	18.0	2.0	24.0	☐GM-ST-070-042-00-060-R
6	32.9	6	31.5	15	18.0	2.0	24.0	☐GM-ST-070-045-00-060-R
8	35.0	6	33.6	15	18.0	2.0	24.0	☐GM-ST-070-048-00-080-R

Dimension description see page 801

iglidur® gears | Product range

iguform S270 and igutek P360 gears

iglidur® gears

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
0.7	50	0	Round
0.7	52	0	Round
0.7	54	0	Round
0.7	55	0	Round
0.7	56	0	Round
0.7	60	0	Round
0.7	64	0	Round
0.7	65	0	Round
0.7	70	0	Round
0.7	72	0	Round
0.7	75	0	Round
0.7	80	0	Round
0.7	90	0	Round
0.7	96	0	Round
0.7	100	0	Round
0.7	120	0	Round
1.0	12	0	Round
1.0	13	0	Round
1.0	14	0	Round
1.0	15	0	Round
1.0	16	0	Round
1.0	17	0	Round
1.0	18	0	Round
1.0	19	0	Round
1.0	20	0	Round
1.0	21	0	Round
1.0	22	0	Round
1.0	23	0	Round
1.0	24	0	Round
1.0	25	0	Round
1.0	26	0	Round
1.0	27	0	Round
1.0	28	0	Round
1.0	30	0	Round
1.0	32	0	Round
1.0	35	0	Round
1.0	36	0	Round
1.0	38	0	Round
1.0	40	0	Round
1.0	42	0	Round
1.0	45	0	Round
1.0	48	0	Round
1.0	50	0	Round
1.0	52	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
8	36.4	6	35.0	15	18.0	2.0	27.5	GM-ST-070-050-00-080-R
8	37.8	6	36.4	15	18.0	2.0	27.5	GM-ST-070-052-00-080-R
8	39.2	6	37.8	15	18.0	2.0	27.5	GM-ST-070-054-00-080-R
8	39.9	6	38.5	15	18.0	2.0	30.0	GM-ST-070-055-00-080-R
8	40.6	6	39.2	15	18.0	2.0	30.0	GM-ST-070-056-00-080-R
8	43.4	6	42.0	15	18.0	2.0	30.0	GM-ST-070-060-00-080-R
8	46.2	6	44.8	15	18.0	2.0	37.0	GM-ST-070-064-00-080-R
8	46.9	6	45.5	15	18.0	2.0	37.0	GM-ST-070-065-00-080-R
8	50.4	6	49.0	15	18.0	2.0	37.0	GM-ST-070-070-00-080-R
8	51.8	6	50.4	15	18.0	2.0	37.0	GM-ST-070-072-00-080-R
10	53.9	6	52.5	15	18.0	2.0	37.0	GM-ST-070-075-00-100-R
10	57.4	6	56.0	15	21.0	2.0	46.5	GM-ST-070-080-00-100-R
10	64.4	6	63.0	15	21.0	2.0	57.0	GM-ST-070-090-00-100-R
10	68.6	6	67.2	15	21.0	2.0	57.0	GM-ST-070-096-00-100-R
10	71.4	6	70.0	15	21.0	2.0	57.0	GM-ST-070-100-00-100-R
10	85.4	6	84.0	15	21.0	2.0	77.0	GM-ST-070-120-00-100-R
4	14.0	9	12.0	17	9.0	9.0	–	GM-ST-100-012-00-040-R
4	15.0	9	13.0	17	9.0	9.0	–	GM-ST-100-013-00-040-R
4	16.0	9	14.0	17	9.0	9.0	–	GM-ST-100-014-00-040-R
4	17.0	9	15.0	17	9.0	9.0	–	GM-ST-100-015-00-040-R
4	18.0	9	16.0	17	9.0	9.0	–	GM-ST-100-016-00-040-R
4	19.0	9	17.0	17	9.0	6.0	12.0	GM-ST-100-017-00-040-R
4	20.0	9	18.0	17	9.0	6.0	13.0	GM-ST-100-018-00-040-R
4	21.0	9	19.0	17	9.0	6.0	13.0	GM-ST-100-019-00-040-R
4	22.0	9	20.0	17	9.0	6.0	13.0	GM-ST-100-020-00-040-R
5	23.0	9	21.0	17	12.0	6.0	16.0	GM-ST-100-021-00-050-R
5	24.0	9	22.0	17	12.0	6.0	16.0	GM-ST-100-022-00-050-R
5	25.0	9	23.0	17	12.0	6.0	16.0	GM-ST-100-023-00-050-R
6	26.0	9	24.0	18	15.0	6.0	18.5	GM-ST-100-024-00-060-R
6	27.0	9	25.0	18	15.0	6.0	18.5	GM-ST-100-025-00-060-R
6	28.0	9	26.0	18	15.0	6.0	18.5	GM-ST-100-026-00-060-R
6	29.0	9	27.0	18	15.0	6.0	18.5	GM-ST-100-027-00-060-R
6	30.0	9	28.0	18	15.0	6.0	21.0	GM-ST-100-028-00-060-R
6	32.0	9	30.0	18	15.0	6.0	21.0	GM-ST-100-030-00-060-R
6	34.0	9	32.0	18	18.0	4.6	23.5	GM-ST-100-032-00-060-R
8	37.0	9	35.0	18	18.0	4.6	23.5	GM-ST-100-035-00-080-R
8	38.0	9	36.0	18	18.0	4.6	27.0	GM-ST-100-036-00-080-R
8	40.0	9	38.0	18	18.0	4.6	27.0	GM-ST-100-038-00-080-R
8	42.0	9	40.0	18	18.0	4.6	27.0	GM-ST-100-040-00-080-R
8	44.0	9	42.0	18	18.0	4.6	27.0	GM-ST-100-042-00-080-R
8	47.0	9	45.0	18	18.0	4.6	36.5	GM-ST-100-045-00-080-R
8	50.0	9	48.0	18	18.0	4.6	36.5	GM-ST-100-048-00-080-R
8	52.0	9	50.0	18	18.0	4.6	36.5	GM-ST-100-050-00-080-R
8	54.0	9	52.0	18	21.0	4.6	46.0	GM-ST-100-052-00-080-R

Dimension description see page 801

iglidur® gears | Product range

iguform S270 and igutek P360 gears

iglidur® gears

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
1.0	54	0	Round
1.0	55	0	Round
1.0	56	0	Round
1.0	58	0	Round
1.0	60	0	Round
1.0	64	0	Round
1.0	65	0	Round
1.0	70	0	Round
1.0	72	0	Round
1.0	75	0	Round
1.0	80	0	Round
1.0	85	0	Round
1.0	90	0	Round
1.0	100	0	Round
1.0	110	0	Round
1.0	120	0	Round
1.0	130	0	Round
1.0	140	0	Round
1.25	12	0	Round
1.25	13	0	Round
1.25	14	0	Round
1.25	15	0	Round
1.25	16	0	Round
1.25	17	0	Round
1.25	18	0	Round
1.25	19	0	Round
1.25	20	0	Round
1.25	21	0	Round
1.25	22	0	Round
1.25	23	0	Round
1.25	24	0	Round
1.25	25	0	Round
1.25	26	0	Round
1.25	27	0	Round
1.25	28	0	Round
1.25	30	0	Round
1.25	32	0	Round
1.25	35	0	Round
1.25	36	0	Round
1.25	38	0	Round
1.25	40	0	Round
1.25	42	0	Round
1.25	45	0	Round
1.25	48	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
8	56.0	9	54.0	18	21.0	4.6	46.0	☐GM-ST-100-054-00-080-R
8	57.0	9	55.0	18	21.0	4.6	46.0	☐GM-ST-100-055-00-080-R
8	58.0	9	56.0	18	21.0	4.6	46.0	☐GM-ST-100-056-00-080-R
8	60.0	9	58.0	18	21.0	4.6	46.0	☐GM-ST-100-058-00-080-R
8	62.0	9	60.0	18	21.0	4.6	46.0	☐GM-ST-100-060-00-080-R
10	66.0	9	64.0	18	21.0	4.6	56.5	☐GM-ST-100-064-00-100-R
10	67.0	9	65.0	18	21.0	4.6	56.5	☐GM-ST-100-065-00-100-R
10	72.0	9	70.0	18	21.0	4.6	56.5	☐GM-ST-100-070-00-100-R
10	74.0	9	72.0	18	21.0	4.6	66.0	☐GM-ST-100-072-00-100-R
10	77.0	9	75.0	18	21.0	4.6	66.0	☐GM-ST-100-075-00-100-R
10	82.0	9	80.0	18	21.0	4.6	66.0	☐GM-ST-100-080-00-100-R
10	87.0	9	85.0	18	21.0	4.6	66.0	☐GM-ST-100-085-00-100-R
10	92.0	9	90.0	18	21.0	4.6	76.0	☐GM-ST-100-090-00-100-R
12	102.0	9	100.0	18	24.0	4.6	86.0	☐GM-ST-100-100-00-120-R
12	112.0	9	110.0	18	24.0	4.6	96.0	☐GM-ST-100-110-00-120-R
12	122.0	9	120.0	18	24.0	4.6	105.5	☐GM-ST-100-120-00-120-R
12	132.0	9	130.0	18	24.0	4.6	115.0	☐GM-ST-100-130-00-120-R
12	142.0	9	140.0	18	24.0	4.6	125.0	☐GM-ST-100-140-00-120-R
5	17.5	10	15.0	19	9.0	10.0	–	☐GM-ST-125-012-00-050-R
5	18.75	10	16.25	19	9.0	10.0	–	☐GM-ST-125-013-00-050-R
5	20.0	10	17.5	19	9.0	10.0	–	☐GM-ST-125-014-00-050-R
5	21.25	10	18.75	19	9.0	7.0	13.0	☐GM-ST-125-015-00-050-R
5	22.5	10	20.0	19	9.0	7.0	13.0	☐GM-ST-125-016-00-050-R
5	23.75	10	21.25	19	9.0	7.0	13.0	☐GM-ST-125-017-00-050-R
5	25.0	10	22.5	19	12.0	7.0	16.0	☐GM-ST-125-018-00-050-R
5	26.25	10	23.75	19	12.0	7.0	16.0	☐GM-ST-125-019-00-050-R
5	27.5	10	25.0	19	12.0	7.0	16.0	☐GM-ST-125-020-00-050-R
6	28.75	10	26.25	19	15.0	7.0	18.5	☐GM-ST-125-021-00-060-R
6	30.0	10	27.5	19	15.0	7.0	18.5	☐GM-ST-125-022-00-060-R
6	31.25	10	28.75	19	15.0	7.0	18.5	☐GM-ST-125-023-00-060-R
6	32.5	10	30.0	19	15.0	7.0	21.0	☐GM-ST-125-024-00-060-R
6	33.75	10	31.25	19	15.0	7.0	21.0	☐GM-ST-125-025-00-060-R
6	35.0	10	32.5	19	18.0	5.5	23.5	☐GM-ST-125-026-00-060-R
6	36.25	10	33.75	19	18.0	5.5	23.5	☐GM-ST-125-027-00-060-R
8	37.5	10	35.0	19	18.0	5.5	23.5	☐GM-ST-125-028-00-080-R
8	40.0	10	37.5	19	18.0	5.5	27.0	☐GM-ST-125-030-00-080-R
8	42.5	10	40.0	19	18.0	5.5	27.0	☐GM-ST-125-032-00-080-R
8	46.25	10	43.75	19	18.0	5.5	27.0	☐GM-ST-125-035-00-080-R
8	47.5	10	45.0	19	18.0	5.5	36.0	☐GM-ST-125-036-00-080-R
8	50.0	10	47.5	19	18.0	5.5	36.0	☐GM-ST-125-038-00-080-R
8	52.5	10	50.0	19	18.0	5.5	36.0	☐GM-ST-125-040-00-080-R
8	55.0	10	52.5	19	18.0	5.5	36.0	☐GM-ST-125-042-00-080-R
8	58.75	10	56.25	19	21.0	5.5	46.0	☐GM-ST-125-045-00-080-R
8	62.5	10	60.0	19	21.0	5.5	46.0	☐GM-ST-125-048-00-080-R

Dimension description see page 801

iglidur® gears | Product range

iguform S270 and igutek P360 gears

iglidur® gears

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
1.25	50	0	Round
1.25	52	0	Round
1.25	54	0	Round
1.25	55	0	Round
1.25	56	0	Round
1.25	60	0	Round
1.25	64	0	Round
1.25	65	0	Round
1.25	70	0	Round
1.25	72	0	Round
1.25	75	0	Round
1.25	80	0	Round
1.25	90	0	Round
1.25	100	0	Round
1.25	110	0	Round
1.5	12	0	Round
1.5	13	0	Round
1.5	14	0	Round
1.5	15	0	Round
1.5	16	0	Round
1.5	17	0	Round
1.5	18	0	Round
1.5	19	0	Round
1.5	20	0	Round
1.5	21	0	Round
1.5	22	0	Round
1.5	23	0	Round
1.5	24	0	Round
1.5	25	0	Round
1.5	26	0	Round
1.5	27	0	Round
1.5	28	0	Round
1.5	30	0	Round
1.5	32	0	Round
1.5	35	0	Round
1.5	36	0	Round
1.5	38	0	Round
1.5	40	0	Round
1.5	42	0	Round
1.5	43	0	Round
1.5	45	0	Round
1.5	48	0	Round
1.5	50	0	Round
1.5	52	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
8	65.0	10	62.5	19	21.0	5.5	46.0	**GM-ST-125-050-00-080-R**
10	67.5	10	65.0	19	21.0	5.5	56.0	**GM-ST-125-052-00-100-R**
10	70.0	10	67.5	19	21.0	5.5	56.0	**GM-ST-125-054-00-100-R**
10	71.25	10	68.75	19	21.0	5.5	56.0	**GM-ST-125-055-00-100-R**
10	72.5	10	70.0	19	21.0	5.5	56.0	**GM-ST-125-056-00-100-R**
10	77.5	10	75.0	19	21.0	5.5	66.0	**GM-ST-125-060-00-100-R**
10	82.5	10	80.0	19	21.0	5.5	66.0	**GM-ST-125-064-00-100-R**
10	83.75	10	81.25	19	21.0	5.5	66.0	**GM-ST-125-065-00-100-R**
10	90.0	10	87.5	19	21.0	5.5	76.0	**GM-ST-125-070-00-100-R**
12	92.5	10	90.0	19	21.0	5.5	76.0	**GM-ST-125-072-00-120-R**
10	96.25	10	93.75	19	21.0	5.5	76.0	**GM-ST-125-075-00-100-R**
12	102.5	10	100.0	19	24.0	5.5	86.0	**GM-ST-125-080-00-120-R**
12	115.0	10	112.5	19	24.0	5.5	95.0	**GM-ST-125-090-00-120-R**
12	127.5	10	125.0	19	24.0	5.5	105.5	**GM-ST-125-100-00-120-R**
12	140.0	10	137.5	19	24.0	5.5	115.0	**GM-ST-125-110-00-120-R**
6	21.0	12	18.0	23	14.0	12.0	–	**GM-ST-150-012-00-060-R**
6	22.5	12	19.5	23	14.0	12.0	–	**GM-ST-150-013-00-060-R**
6	24.0	12	21.0	23	14.0	10.5	13.0	**GM-ST-150-014-00-060-R**
6	25.5	12	22.5	23	14.0	10.5	16.0	**GM-ST-150-015-00-060-R**
6	27.0	12	24.0	23	14.0	10.5	16.0	**GM-ST-150-016-00-060-R**
6	28.5	12	25.5	23	14.0	10.5	16.0	**GM-ST-150-017-00-060-R**
8	30.0	12	27.0	23	17.0	10.5	18.5	**GM-ST-150-018-00-080-R**
8	31.5	12	28.5	23	17.0	10.5	18.5	**GM-ST-150-019-00-080-R**
8	33.0	12	30.0	23	17.0	9.0	22.5	**GM-ST-150-020-00-080-R**
8	34.5	12	31.5	23	17.0	5.0	22.5	**GM-ST-150-021-00-080-R**
8	36.0	12	33.0	23	17.0	5.0	22.5	**GM-ST-150-022-00-080-R**
8	37.5	12	34.5	23	17.0	5.0	22.5	**GM-ST-150-023-00-080-R**
8	39.0	12	36.0	23	19.0	5.0	26.5	**GM-ST-150-024-00-080-R**
8	40.5	12	37.5	23	19.0	5.0	26.5	**GM-ST-150-022-00-080-R**
8	42.0	12	39.0	23	19.0	5.0	26.5	**GM-ST-150-022-00-080-R**
8	43.5	12	40.5	23	19.0	5.0	25.5	**GM-ST-150-027-00-080-R**
8	45.0	12	42.0	23	19.0	5.0	25.5	**GM-ST-150-028-00-080-R**
10	48.0	12	45.0	23	24.0	5.0	33.5	**GM-ST-150-030-00-100-R**
10	51.0	12	48.0	23	24.0	5.0	33.5	**GM-ST-150-032-00-100-R**
10	55.5	12	52.5	23	24.0	5.0	41.5	**GM-ST-150-035-00-100-R**
10	57.0	12	54.0	23	24.0	5.0	41.5	**GM-ST-150-036-00-100-R**
10	60.0	12	57.0	23	24.0	5.0	41.5	**GM-ST-150-038-00-100-R**
10	63.0	12	60.0	23	24.0	5.0	48.5	**GM-ST-150-040-00-100-R**
10	66.0	12	63.0	23	24.0	5.0	48.5	**GM-ST-150-042-00-100-R**
10	67.5	12	64.5	23	24.0	5.0	48.5	**GM-ST-150-043-00-100-R**
10	70.5	12	67.5	23	24.0	5.0	48.5	**GM-ST-150-045-00-100-R**
10	75.0	12	72.0	23	24.0	5.0	48.5	**GM-ST-150-048-00-100-R**
12	78.0	12	75.0	23	27.0	5.0	63.0	**GM-ST-150-050-00-120-R**
12	81.0	12	78.0	23	27.0	5.0	63.0	**GM-ST-150-052-00-120-R**

Dimension description see page 801

iglidur® gears | Product range

iguform S270 and igutek P360 gears

iglidur® gears

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
1.5	54	0	Round
1.5	55	0	Round
1.5	60	0	Round
1.5	70	0	Round
1.5	80	0	Round
1.5	90	0	Round
1.5	100	0	Round
1.5	110	0	Round
1.5	120	0	Round
1.5	130	0	Round
1.5	140	0	Round
1.5	150	0	Round
2.0	12	0	Round
2.0	13	0	Round
2.0	14	0	Round
2.0	15	0	Round
2.0	16	0	Round
2.0	17	0	Round
2.0	18	0	Round
2.0	19	0	Round
2.0	20	0	Round
2.0	21	0	Round
2.0	22	0	Round
2.0	23	0	Round
2.0	24	0	Round
2.0	25	0	Round
2.0	26	0	Round
2.0	27	0	Round
2.0	28	0	Round
2.0	30	0	Round
2.0	32	0	Round
2.0	35	0	Round
2.0	36	0	Round
2.0	38	0	Round
2.0	40	0	Round
2.0	42	0	Round
2.0	45	0	Round
2.0	48	0	Round
2.0	50	0	Round
2.0	55	0	Round
2.0	60	0	Round
2.0	70	0	Round
2.0	75	0	Round
2.0	80	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
12	84.0	12	81.0	23	27.0	5.0	63.0	**GM-ST-150-054-00-120-R**
12	85.5	12	82.5	23	27.0	5.0	63.0	**GM-ST-150-055-00-120-R**
12	93.0	12	90.0	23	27.0	5.0	63.0	**GM-ST-150-060-00-120-R**
14	108.0	12	105.0	23	30.0	5.0	88.0	**GM-ST-150-070-00-140-R**
14	123.0	12	120.0	23	30.0	5.0	104.0	**GM-ST-150-080-00-140-R**
14	138.0	12	135.0	23	30.0	5.0	116.0	**GM-ST-150-090-00-140-R**
20	153.0	19	150.0	34	40.0	8.0	133.0	**GM-ST-150-100-00-200-R**
20	168.0	19	165.0	34	40.0	8.0	148.0	**GM-ST-150-110-00-200-R**
20	183.0	19	180.0	34	40.0	8.0	163.0	**GM-ST-150-120-00-200-R**
20	198.0	19	195.0	34	40.0	8.0	178.0	**GM-ST-150-130-00-200-R**
20	213.0	19	210.0	34	40.0	8.0	193.0	**GM-ST-150-140-00-200-R**
20	228.0	19	225.0	34	40.0	8.0	208.0	**GM-ST-150-150-00-200-R**
8	28.0	15	24.0	27	18.5	13.5	16.0	**GM-ST-200-012-00-080-R**
8	30.0	15	26.0	27	18.5	13.5	18.5	**GM-ST-200-013-00-080-R**
8	32.0	15	28.0	27	18.5	13.5	18.5	**GM-ST-200-014-00-080-R**
8	34.0	15	30.0	27	18.5	12.0	22.0	**GM-ST-200-015-00-080-R**
8	36.0	15	32.0	27	17.5	6.0	22.0	**GM-ST-200-016-00-080-R**
8	38.0	15	34.0	27	17.5	6.0	24.0	**GM-ST-200-017-00-080-R**
8	40.0	15	36.0	27	17.5	6.0	25.0	**GM-ST-200-018-00-080-R**
8	42.0	15	38.0	27	17.5	6.0	27.0	**GM-ST-200-019-00-080-R**
10	44.0	15	40.0	27	20.0	6.0	28.0	**GM-ST-200-020-00-100-R**
10	46.0	15	42.0	27	20.0	6.0	28.0	**GM-ST-200-021-00-100-R**
10	48.0	15	44.0	27	20.0	6.0	28.0	**GM-ST-200-022-00-100-R**
10	50.0	15	46.0	27	24.0	6.0	35.0	**GM-ST-200-023-00-100-R**
10	52.0	15	48.0	27	24.0	6.0	35.0	**GM-ST-200-024-00-100-R**
10	54.0	15	50.0	27	24.0	6.0	35.0	**GM-ST-200-025-00-100-R**
10	56.0	15	52.0	27	24.0	6.0	38.5	**GM-ST-200-026-00-100-R**
10	58.0	15	54.0	27	24.0	6.0	38.5	**GM-ST-200-027-00-100-R**
10	60.0	15	56.0	27	24.0	6.0	38.5	**GM-ST-200-028-00-100-R**
10	64.0	15	60.0	27	24.0	6.0	43.5	**GM-ST-200-030-00-100-R**
10	68.0	15	64.0	27	26.0	6.0	44.0	**GM-ST-200-032-00-100-R**
12	74.0	15	70.0	27	26.0	6.0	54.0	**GM-ST-200-035-00-120-R**
12	76.0	15	72.0	27	26.0	6.0	54.0	**GM-ST-200-036-00-120-R**
12	80.0	15	76.0	27	26.0	6.0	61.5	**GM-ST-200-038-00-120-R**
12	84.0	15	80.0	27	26.0	6.0	61.5	**GM-ST-200-040-00-120-R**
12	88.0	15	84.0	27	26.0	6.0	61.5	**GM-ST-200-042-00-120-R**
14	94.0	15	90.0	27	30.0	6.0	68.0	**GM-ST-200-045-00-140-R**
14	100.0	15	96.0	27	30.0	6.0	74.0	**GM-ST-200-048-00-140-R**
14	104.0	15	100.0	27	30.0	6.0	78.0	**GM-ST-200-050-00-140-R**
14	114.0	15	110.0	27	30.0	6.0	87.5	**GM-ST-200-055-00-140-R**
14	124.0	15	120.0	27	30.0	6.0	97.5	**GM-ST-200-060-00-140-R**
14	144.0	15	140.0	27	30.0	6.0	117.0	**GM-ST-200-070-00-140-R**
20	154.0	19	150.0	34	40.0	8.0	133.0	**GM-ST-200-075-00-200-R**
20	164.0	19	160.0	34	40.0	8.0	133.0	**GM-ST-200-080-00-200-R**

Dimension description see page 801

iglidur® gears | Product range

iguform S270 and igutek P360 gears

iglidur® gears

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
2.0	85	0	Round
2.0	90	0	Round
2.0	95	0	Round
2.0	100	0	Round
2.0	110	0	Round
2.5	10	0	Round
2.5	12	0	Round
2.5	13	0	Round
2.5	14	0	Round
2.5	15	0	Round
2.5	16	0	Round
2.5	17	0	Round
2.5	18	0	Round
2.5	19	0	Round
2.5	20	0	Round
2.5	21	0	Round
2.5	22	0	Round
2.5	23	0	Round
2.5	24	0	Round
2.5	25	0	Round
2.5	26	0	Round
2.5	27	0	Round
2.5	28	0	Round
2.5	30	0	Round
2.5	32	0	Round
2.5	35	0	Round
2.5	36	0	Round
2.5	38	0	Round
2.5	40	0	Round
2.5	42	0	Round
2.5	45	0	Round
2.5	48	0	Round
2.5	50	0	Round
2.5	55	0	Round
2.5	60	0	Round
2.5	65	0	Round
2.5	70	0	Round
2.5	75	0	Round
2.5	80	0	Round
2.5	85	0	Round
2.5	90	0	Round
2.5	95	0	Round
3.0	12	0	Round
3.0	13	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
20	174.0	19	170.0	34	40.0	8.0	148.0	**GM-ST-200-085-00-200-R**
20	184.0	19	180.0	34	40.0	8.0	163.0	**GM-ST-200-090-00-200-R**
20	194.0	19	190.0	34	40.0	8.0	163.0	**GM-ST-200-095-00-200-R**
20	204.0	19	200.0	34	40.0	8.0	178.0	**GM-ST-200-100-00-200-R**
20	224.0	19	220.0	34	40.0	8.0	193.0	**GM-ST-200-110-00-200-R**
10	30.0	17	25.0	30	20.0	–	–	**GM-ST-250-010-00-100-R**
10	35.0	17	30.0	30	20.0	–	–	**GM-ST-250-012-00-100-R**
10	37.5	17	32.5	30	20.0	–	–	**GM-ST-250-013-00-100-R**
10	40.0	17	35.0	30	20.0	–	–	**GM-ST-250-014-00-100-R**
10	42.5	17	37.5	30	20.0	7.0	27.0	**GM-ST-250-015-00-100-R**
10	45.0	17	40.0	30	20.0	7.0	27.0	**GM-ST-250-016-00-100-R**
10	47.5	17	42.5	30	20.0	7.0	27.0	**GM-ST-250-017-00-100-R**
10	50.0	17	45.0	30	20.0	7.0	34.0	**GM-ST-250-018-00-100-R**
10	52.5	17	47.5	30	20.0	7.0	34.0	**GM-ST-250-019-00-100-R**
10	55.0	17	50.0	30	20.0	7.0	34.0	**GM-ST-250-020-00-100-R**
12	57.5	17	52.5	30	24.0	7.0	41.0	**GM-ST-250-021-00-120-R**
12	60.0	17	55.0	30	24.0	7.0	41.0	**GM-ST-250-022-00-120-R**
12	62.5	17	57.5	30	24.0	7.0	41.0	**GM-ST-250-023-00-120-R**
12	65.0	17	60.0	30	24.0	7.0	49.0	**GM-ST-250-024-00-120-R**
12	67.5	17	62.5	30	24.0	7.0	49.0	**GM-ST-250-025-00-120-R**
12	70.0	17	65.0	30	24.0	7.0	49.0	**GM-ST-250-026-00-120-R**
12	72.5	17	67.5	30	24.0	7.0	56.0	**GM-ST-250-027-00-120-R**
12	75.0	17	70.0	30	24.0	7.0	56.0	**GM-ST-250-028-00-120-R**
12	80.0	17	75.0	30	24.0	7.0	56.0	**GM-ST-250-030-00-120-R**
14	85.0	17	80.0	30	30.0	7.0	68.0	**GM-ST-250-032-00-140-R**
14	92.5	17	87.5	30	30.0	7.0	68.0	**GM-ST-250-035-00-140-R**
14	95.0	17	90.0	30	30.0	7.0	72.0	**GM-ST-250-036-00-140-R**
14	100.0	17	95.0	30	30.0	7.0	72.0	**GM-ST-250-038-00-140-R**
14	105.0	17	100.0	30	30.0	7.0	84.0	**GM-ST-250-040-00-140-R**
16	110.0	17	105.0	30	30.0	7.0	84.0	**GM-ST-250-042-00-160-R**
16	117.5	17	112.5	30	30.0	7.0	84.0	**GM-ST-250-045-00-160-R**
16	125.0	17	120.0	30	30.0	7.0	100.0	**GM-ST-250-048-00-160-R**
16	130.0	17	125.0	30	30.0	7.0	100.0	**GM-ST-250-050-00-160-R**
20	142.5	17	137.5	30	30.0	7.0	100.0	**GM-ST-250-055-00-200-R**
20	155.0	19	150.0	34	40.0	8.0	133.0	**GM-ST-250-060-00-200-R**
20	167.5	19	162.5	34	40.0	8.0	133.0	**GM-ST-250-065-00-200-R**
20	180.0	19	175.0	34	40.0	8.0	148.0	**GM-ST-250-070-00-200-R**
20	192.5	19	187.5	34	40.0	8.0	163.0	**GM-ST-250-075-00-200-R**
20	205.0	19	200.0	34	40.0	8.0	178.0	**GM-ST-250-080-00-200-R**
20	217.5	19	212.5	34	40.0	8.0	178.0	**GM-ST-250-085-00-200-R**
20	230.0	19	225.0	34	40.0	8.0	193.0	**GM-ST-250-090-00-200-R**
20	242.5	19	237.5	34	40.0	8.0	208.0	**GM-ST-250-095-00-200-R**
12	42.0	19	36.0	34	24.0	19.0	–	**GM-ST-300-012-00-120-R**
12	45.0	19	39.0	34	24.0	19.0	–	**GM-ST-300-013-00-120-R**

Dimension description see page 801

iglidur® gears | Product range

iguform S270 and igutek P360 gears

iglidur® gears

Technical data

Module	Number of teeth	Helix angle [°]	Hub design
3.0	14	0	Round
3.0	15	0	Round
3.0	16	0	Round
3.0	17	0	Round
3.0	18	0	Round
3.0	19	0	Round
3.0	20	0	Round
3.0	21	0	Round
3.0	22	0	Round
3.0	23	0	Round
3.0	24	0	Round
3.0	25	0	Round
3.0	26	0	Round
3.0	27	0	Round
3.0	28	0	Round
3.0	30	0	Round
3.0	32	0	Round
3.0	33	0	Round
3.0	34	0	Round
3.0	35	0	Round
3.0	38	0	Round
3.0	40	0	Round
3.0	45	0	Round
3.0	48	0	Round
3.0	50	0	Round
3.0	55	0	Round
3.0	60	0	Round
3.0	65	0	Round
3.0	70	0	Round
3.0	75	0	Round

iguform S270 and igutek P360 are available in over 300 variants and customisable according to your requirements

Dimensions [mm]

d1 H10	d5	b2	d4	b1	d2	b3	d3	Part No.
12	48.0	19	42.0	34	24.0	19.0	–	**GM-ST-300-014-00-120-R**
12	51.0	19	45.0	34	24.0	8.0	30.5	**GM-ST-300-015-00-120-R**
12	54.0	19	48.0	34	24.0	8.0	30.5	**GM-ST-300-016-00-120-R**
12	57.0	19	51.0	34	24.0	8.0	30.5	**GM-ST-300-017-00-120-R**
12	60.0	19	54.0	34	24.0	8.0	38.0	**GM-ST-300-018-00-120-R**
12	63.0	19	57.0	34	24.0	8.0	38.0	**GM-ST-300-019-00-120-R**
12	66.0	19	60.0	34	24.0	8.0	38.0	**GM-ST-300-020-00-120-R**
12	69.0	19	63.0	34	24.0	8.0	45.0	**GM-ST-300-021-00-120-R**
12	72.0	19	66.0	34	24.0	8.0	45.0	**GM-ST-300-022-00-120-R**
12	75.0	19	69.0	34	24.0	8.0	52.0	**GM-ST-300-023-00-120-R**
12	78.0	19	72.0	34	24.0	8.0	52.0	**GM-ST-300-024-00-120-R**
14	81.0	19	75.0	34	28.0	8.0	58.0	**GM-ST-300-025-00-140-R**
14	84.0	19	78.0	34	28.0	8.0	58.0	**GM-ST-300-026-00-140-R**
14	87.0	19	81.0	34	28.0	8.0	58.0	**GM-ST-300-027-00-140-R**
14	90.0	19	84.0	34	28.0	8.0	65.0	**GM-ST-300-028-00-140-R**
14	96.0	19	90.0	34	28.0	8.0	68.0	**GM-ST-300-030-00-140-R**
16	102.0	19	96.0	34	32.0	8.0	69.0	**GM-ST-300-032-00-160-R**
16	105.0	19	99.0	34	32.0	8.0	69.0	**GM-ST-300-033-00-160-R**
16	108.0	19	102.0	34	32.0	8.0	78.0	**GM-ST-300-034-00-160-R**
16	111.0	19	105.0	34	32.0	8.0	78.0	**GM-ST-300-035-00-160-R**
16	120.0	19	114.0	34	32.0	8.0	87.0	**GM-ST-300-038-00-160-R**
16	126.0	19	120.0	34	32.0	8.0	93.0	**GM-ST-300-040-00-160-R**
16	141.0	19	135.0	34	32.0	8.0	108.0	**GM-ST-300-045-00-160-R**
16	150.0	19	144.0	34	32.0	8.0	123.0	**GM-ST-300-048-00-160-R**
20	156.0	19	150.0	34	40.0	8.0	133.0	**GM-ST-300-050-00-200-R**
20	171.0	19	165.0	34	40.0	8.0	148.0	**GM-ST-300-055-00-200-R**
20	186.0	19	180.0	34	40.0	8.0	163.0	**GM-ST-300-060-00-200-R**
20	201.0	19	195.0	34	40.0	8.0	178.0	**GM-ST-300-065-00-200-R**
20	216.0	19	210.0	34	40.0	8.0	193.0	**GM-ST-300-070-00-200-R**
20	231.0	19	225.0	34	40.0	8.0	208.0	**GM-ST-300-075-00-200-R**

Dimension description see page 801

iglidur® racks | Product range

iguform S270 and igutek P360 racks

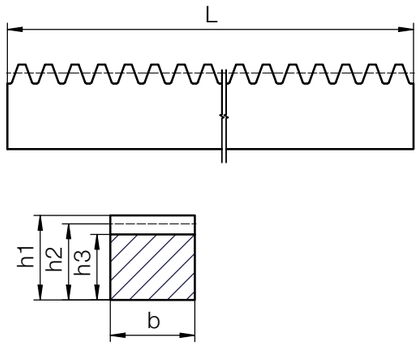
iguform S270



igutek P360

- Low coefficient of friction
- Low moisture absorption
- Quiet

- Increased wear resistance
- Good tribological specifications
- Tough
- Resistant to shock loads



Order key

Part number							Dimensions [mm]		
☐ G	M	GR	050	00	250	040	045		
Material	Gear	Metric	Rack	Module	Helix angle	Length	Width	Height	

S270	Low coefficient of friction
P360	Good tribological specifications

Technical data and dimensions [mm]

Module	Helix angle [°]	h1	h2	h3	b	L	Part No.
0.5	0	4.5	4.0	3.4	4.0	250	☐**GM-GR-050-00-250-040-045**
0.5	0	6.0	5.5	4.9	4.0	250	☐**GM-GR-050-00-250-040-060**
0.7	0	6.7	6.0	5.1	6.0	250	☐**GM-GR-070-00-250-060-067**
1.0	0	9.0	8.0	6.8	9.0	250	☐**GM-GR-100-00-250-090-090**
1.25	0	11.0	9.75	8.3	10.0	250	☐**GM-GR-125-00-250-100-110**
1.5	0	12.0	10.5	8.75	12.0	250	☐**GM-GR-150-00-250-120-120**
2.0	0	11.0	9.0	6.6	15.4	250	☐**GM-GR-200-00-250-154-110**
2.5	0	13.0	10.5	7.7	17.0	250	☐**GM-GR-250-00-250-170-130**
3.0	0	15.0	12.0	8.5	19.4	250	☐**GM-GR-300-00-250-194-150**

The actual length depends on the module and is a multiple of the pitch. The racks start and end with a full tooth and can therefore be paired for the desired length.

The exact length can be found in the CAD data. These are freely available for download at ▶ www.igus-cad.com.

Order example:
S270GM-GR-125-00-250-100-110: material iguform S270, G gear, M metric, -GR gear rack, -125 module 1.25, -00 helix angle 0°, -250 length 250mm, -100 width 10.0mm, -110 height 11.0mm

iglidur® bevel gears | Product range

iguform S270 and igutek P360 bevel gears

Transmission ratio 1:1



iguform S270 igutek P360

Transmission ratio 1:2

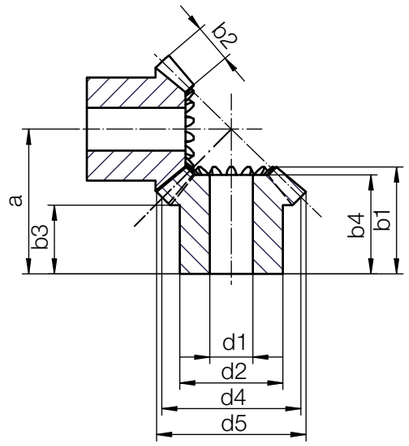


iguform S270 igutek P360

iguform S270 convinces with a low coefficient of friction and low moisture absorption. igutek P360 offers increased wear resistance, good tribological properties and high toughness.

- 6 transmission ratios
- 7 different modules
- Transmission ratios 1:1 to 1:5 available

Please note: the bevel gears are sold individually. In order to achieve the desired transmission ratio, two bevel gears must be ordered. The gears need to have the same transmission ratio and the same module to be compatible.



Order key

Part number										Dimensions [mm]
☐ G	M	- BG	- 050	- 016	- 00	- 030	- R	- 10		
Material	Gear	Metric	Bevel gear	Module	Number of teeth	Helix angle	Hole diameter	Hub design round	Transmission ratio	

S270	Low coefficient of friction
P360	Good tribological specifications

Technical data and dimensions [mm]

Module	Number of teeth	b2	d1	d4	d5	d2	b1	b4	b3	a	Part No.
Transmission ratio 1:1											
0.5	16	2.0	3	8.0	8.7	7.0	8.1	8.1	6.0	10.5	☐**GM-BG-050-016-00-030-R-10**
1.0	16	4.7	5	16.0	17.6	12.0	13.6	13.6	8.0	18.4	☐**GM-BG-100-016-00-050-R-10**
1.0	30	7.0	6	30.0	31.0	15.0	15.4	13.3	7.6	25.1	☐**GM-BG-100-030-00-060-R-10**
1.5	16	7.0	8	24.0	26.4	18.5	18.4	16.2	10.0	25.8	☐**GM-BG-150-016-00-080-R-10**
2.0	16	10.0	10	32.0	34.9	21.9	21.2	18.3	9.7	30.4	☐**GM-BG-200-016-00-100-R-10**
2.5	16	12.3	12	40.0	43.5	25.2	25.5	22.9	11.5	37.0	☐**GM-BG-250-016-00-120-R-10**
3.0	16	13.8	14	48.0	52.3	28.8	29.2	25.7	13.2	43.0	☐**GM-BG-300-016-00-140-R-10**
3.5	16	15.8	18	56.0	61.4	33.3	33.1	28.0	14.6	49.5	☐**GM-BG-350-016-00-180-R-10**
Transmission ratio 1:1.5											
1.5	16	8.0	8	24.0	26.0	20.0	18.8	17.8	10.8	30.0	☐**GM-BG-150-016-00-080-R-15**
1.5	24	8.0	10	36.0	37.0	24.0	19.5	18.0	11.3	26.6	☐**GM-BG-150-024-00-100-R-15**
Transmission ratio 1:2											
1.0	15	6.4	5	15.0	16.6	12.2	17.1	17.1	10.5	26.3	☐**GM-BG-100-015-00-050-R-20**
1.5	15	10.5	8	22.5	25.0	17.0	22.8	22.8	11.7	35.8	☐**GM-BG-150-015-00-080-R-20**
2.0	15	14.5	10	30.0	33.3	22.6	27.0	26.0	12.0	44.0	☐**GM-BG-200-015-00-100-R-20**
2.5	15	17.1	12	37.5	42.0	26.5	31.1	29.5	12.7	53.3	☐**GM-BG-250-015-00-120-R-20**
3.0	15	20.2	14	45.0	50.0	31.2	36.4	34.8	15.3	63.3	☐**GM-BG-300-015-00-140-R-20**
1.0	30	6.9	8	30.0	31.0	18.0	16.0	14.7	9.0	20.8	☐**GM-BG-100-030-00-080-R-20**
1.5	30	10.7	10	45.0	46.3	23.4	19.6	17.5	9.6	25.9	☐**GM-BG-150-030-00-100-R-20**
2.0	30	14.2	12	60.0	62.0	30.2	24.5	22.4	12.0	32.9	☐**GM-BG-200-030-00-120-R-20**
2.5	30	17.4	16	75.0	77.2	35.8	29.6	27.6	15.2	40.8	☐**GM-BG-250-030-00-160-R-20**
3.0	30	20.3	18	90.0	92.5	45.0	37.5	33.8	19.0	49.9	☐**GM-BG-300-030-00-180-R-20**
Transmission ratio 1:3											
1.0	15	9.0	5	15.0	16.4	12.3	20.5	–	11.4	34.5	☐**GM-BG-100-015-00-050-R-30**
1.5	15	14.0	8	22.5	25.1	17.2	26.6	–	12.3	47.3	☐**GM-BG-150-015-00-080-R-30**
2.0	10	12.2	6	20.0	23.6	15.5	25.0	–	12.0	433.	☐**GM-BG-200-010-00-060-R-30**
2.5	10	15.2	8	25.0	29.6	18.8	28.7	–	13.0	52.4	☐**GM-BG-250-010-00-080-R-30**
1.0	45	8.8	10	45.0	45.7	23.4	17.9	16.2	9.6	22.4	☐**GM-BG-100-045-00-100-R-30**
1.5	45	14.0	12	67.5	68.5	30.4	23.2	21.4	11.8	29.7	☐**GM-BG-150-045-00-120-R-30**
2.0	30	12.5	12	60.0	61.7	30.3	22.5	19.8	11.8	28.0	☐**GM-BG-200-030-00-120-R-30**
2.5	30	15.7	18	75.0	77.2	36.0	29.0	25.0	15.9	35.8	☐**GM-BG-250-030-00-180-R-30**
Transmission ratio 1:4											
1.0	10	8.0	4	10.0	12.0	7.9	17.7	–	9.6	30.2	☐**GM-BG-100-010-00-040-R-40**
1.5	10	12.2	5	15.0	18.0	11.3	23.2	–	11.0	41.5	☐**GM-BG-150-010-00-050-R-40**
2.0	10	16.0	6	20.0	23.7	14.0	28.7	–	12.8	53.5	☐**GM-BG-200-010-00-060-R-40**
1.0	40	8.4	10	40.0	41.0	23.4	16.9	15.5	10.8	20.2	☐**GM-BG-100-040-00-100-R-40**
1.5	40	12.3	12	60.0	60.7	30.4	21.0	19.0	12.8	25.2	☐**GM-BG-150-040-00-120-R-40**
2.0	40	16.2	18	80.0	81.2	36.1	27.0	24.4	17.0	32.5	☐**GM-BG-200-040-00-180-R-40**
Transmission ratio 1:5											
1.0	12	9.9	4	12.0	13.7	9.5	20.2	–	10.1	40.6	☐**GM-BG-100-012-00-040-R-50**
1.0	60	9.5	10	60.0	60.3	20.5	17.4	15.3	11.2	21.2	☐**GM-BG-100-060-00-100-R-50**

Order example:
S270GM-BG-100-016-00-050-R-10: material iguform S270, G gear metrical, BG bevel gear, -100 module, -016 number of teeth 16, -00 helix angle 0°, -050 hole diameter 5mm, -R hole diameter round, -10 transmission ratio 1:1

iglidur® angular gearboxes | Product range

iguform S270 and igutek P360 angular gearboxes with bevel gears

Transmission ratio 1:1



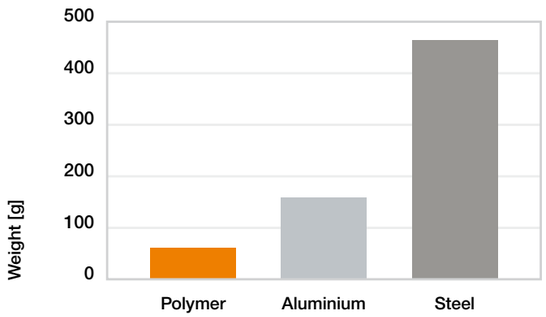
iguform S270 igutek P360

Transmission ratio 1:5

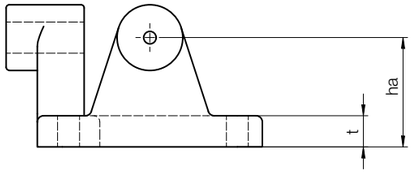


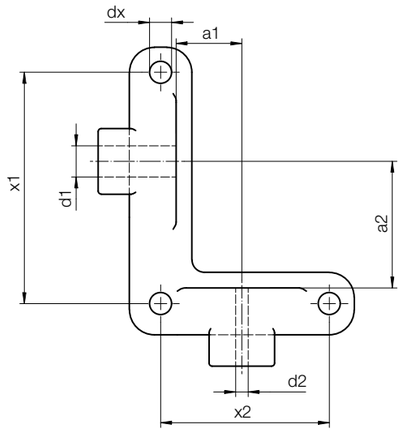
iguform S270 igutek P360

- Module 1
- 5 transmission ratios
- Transmission ratios 1:1 to 1:5 available
- The bevel gears are pinned and interchangeable
- When mounting the shafts in the housing, no external lubricants are required



Weight savings of up to a factor of 7 with housings made of plastic compared to steel and aluminium





Order key

Part number	Dimensions [mm]

☐ G M-AG-100-016-016-10-SL-BK

Material	Gear	Metric	Angular gearbox	Module	Number of teeth 1	Number of teeth 2	Transmission ratio	Shaft material	Colour: black

S270	Low coefficient of friction
P360	Good tribological specifications

Housing material:
Laser sintering material
Colour: black
Shaft material:
SL: corrosion-free steel

Technical data and dimensions [mm]

Module	a1	a2	d1	d2	dx	x1	x2	ha	L
1.0	18.4	18.4	5	5	5	34	34	15	47
1.0	20.9	26.4	8	5	5	54	44	20	68
1.0	22.7	34.3	10	5	7	64	54	25	82
1.0	20.1	30.1	10	4	7	64	54	25	82
1.0	21.0	40.5	10	4	7	74	54	35	92

B	t	Transmission ratio	Number of teeth of bevel gears		Part No.
			Number of teeth 1	Number of teeth 2	
47	6	1:1	16	16	☐**GM-AG-100-016-016-10-SL-BK**
58	8	1:2	15	30	☐**GM-AG-100-015-030-20-SL-BK**
72	10	1:3	15	45	☐**GM-AG-100-015-045-30-SL-BK**
72	10	1:4	10	40	☐**GM-AG-100-010-040-40-SL-BK**
72	10	1:5	12	60	☐**GM-AG-100-012-060-50-SL-BK**

Order example:
S270GM-AG-100-016-016-10-SL-BK: material iguform S270, G gear, M metrical, -AG angular gearbox, -100 module 1, -016 number of teeth bevel gear 1, -016 number of teeth bevel gear 2, -10 transmission ratio 1:1, -SL steel shaft, -BK laser sintering material black

iglidur®

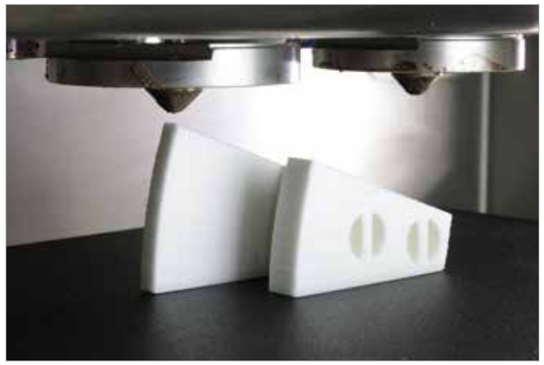
Tribo 3D printing



...plastics

iglidur® tribo 3D printing | Advantages

Parts as required - everything a question of quantity

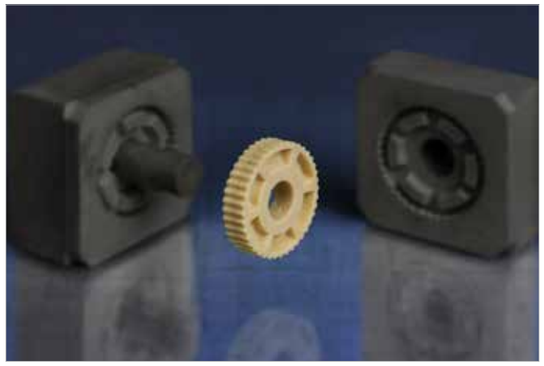


3D printing/SLS/DLP

For prototypes or small quantities made from tribofilaments® with resin or the laser sintering method

Wear-resistant materials for 3D printing, Digital Light Processing (DLP) and the laser sintering method - print parts yourself or have igus® print them for you.

- Up to 50-times more abrasion-resistant than normal 3D printing materials
- Various iglidur® materials available for FDM/FFF (filament), SLS (powder) and DLP (resin)
- No tool costs, cost-effective, no minimum order quantity



Printed tools

For small quantities made from iglidur® granules

3D printed mould tools to produce wear-resistant injection-moulded parts made in all available iglidur® materials.

- Customised parts delivered from 2 weeks
- Up to 80% more cost-effective than conventional injection mould tools
- For prototypes and small volumes
- Check price and manufacturability online ▶ **www.igus.eu/idd**

Lubrication-free printing

Abrasion and wear-resistant tribo-plastics for additive manufacturing via selective laser sintering (SLS), with filament (FDM/FFF) or resin (DLP) allow you to use the printed component or to test the function of the part reliably and completely from the prototype or production batch onward.

- Abrasion-resistant
- Lubrication and maintenance-free
- No tooling costs
- Design freedom
- 3D printing of parts on site
- Can be processed by commercially available 3D printers
- Predictable service life
- 3D printing service in 1 to 3 days

Typical application areas

- Special wear-resistant parts
- Jig construction
- Single pieces and small volumes

Available from stock
Detailed information about delivery time online.

More information about 3D printing
▶ **www.igus.eu/3d**

Get 3D printing prices and calculate the service life online
▶ **www.igus.eu/idd**

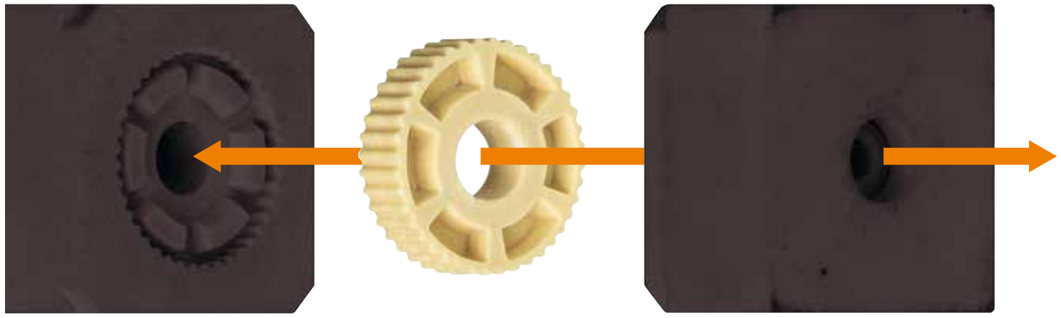
Calculate service life for 3D printed gears online
▶ **www.igus.eu/gear-expert**

Create a 3D model of the gear, roller, and much more within one minute
▶ **www.igus.eu/cad-configurators**

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iglidur® | Injection moulding tools

Making tools quickly and at low cost

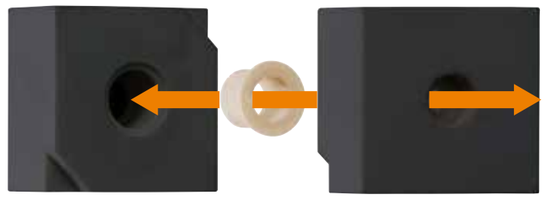


Injection moulding with 3D printed tools
Due to 3D printing, igus® is able to make customised injection moulds in a short time with up to 80% lower costs. Maintenance-free plastic plain bearings in the required shape can be made quickly and, above all, cost-effectively from all iglidur® materials.

- High variety of materials: all iglidur® plain bearing materials can be requested as samples
- Cost-efficient and delivered quickly
- No minimum order quantity
- For simple geometries
- For large quantities and recurring projects, metal 3D-printed moulds can also be provided.
- Prices online ▶ **www.igus.eu/idd**

The manufacture of maintenance-free plastic components from 3D printed injection moulds is worthwhile compared to direct 3D printing of the iglidur® materials especially if:

- Special material characteristics are needed, such as conductivity, high temperature, underwater use, KTW compliance
- Small volumes in the same iglidur® material are to be sampled as is a later high volume from a classic injection moulding tool





Delivery time
from 2 weeks

Information
▶ **www.igus.eu/print2mold**

Prices
▶ **www.igus.eu/idd**

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iglidur® tribo 3D printing | 3D printing service

Individual wear-resistant parts in 3 days - order online

Wear-resistant parts from the 3D printing service: online and extremely fast

Printed parts extremely wear-resistant- as prototype or in small series. Simply upload your required part, determine the price and order online (or ask for a quotation). Thanks to the iglidur® 3D printing service, from now on 2 quick and easy steps will complete your customised component made of lubrication-free and abrasion-resistant iglidur® plastics. The service life of the 3D printed components is comparable to igus® injection moulded parts. In the online 3D printing calculation, you can not only receive 3D printing, but also analyse feasibility and prices of injection-moulded parts made with 3D-printed moulds (print2mold).

1. Go to **www.igus.eu/idd** and upload the 3D model in the STEP format. The manufacturability (wall thickness and component size) is analysed automatically
2. Select material and quantity and order the component or ask for a quotation.

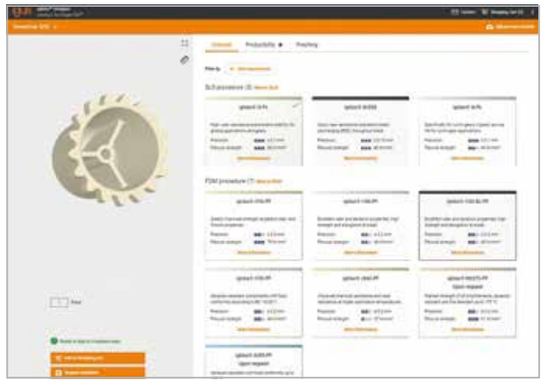
▶ **Your individual wear-resistant part will be shipped in 72 hours**

Delivery time
72hrs

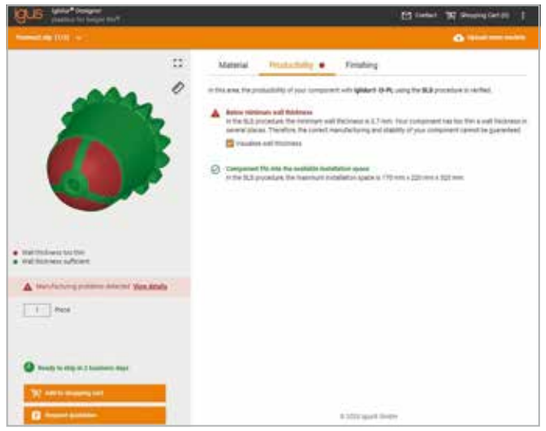
New: Calculate the service life of sliding surfaces

With the new service life calculator, you can determine the service life of individual components. Simply click on sliding surface and enter the parameters.

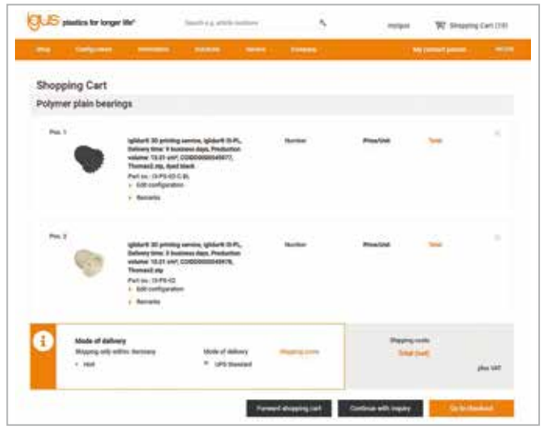
Try it out now:
▶ www.igus.eu/idd



Material selection



Wall thickness analyses



Shopping cart

igus EN 09/2023

iglidur® tribo 3D printing

iglidur® tribo 3D printing | 3D printing service

SLS can also be used to make wear-resistant parts

The 3D printing service is also available with all of our SLS powders. Laser sintering (SLS) is used to make parts of these materials. With this method even more plain bearing applications are therefore possible with 3D-printed parts, strength and precision are considerably greater and the price per component is lower.

Additional laser sintering services

In the 3D printing service, more services for laser sintering materials can now be selected and their prices easily defined.

- Black colouring for visible parts
- Polish surfaces using vibratory finishing or chemical polishing

New: Multi-material print (FDM/FFF)

Workpieces with up to four components made from proven tribofilaments® and other plastics.
One possible combination would be intelligent bearings for predictive maintenance: with a fibre-reinforced housing, tribofilament® and integrated conductor tracks to warn of bearing wear.



New: Digital Light Processing (DLP)

In the DLP 3D printing service, igus® processes its own iglidur® i3000 resin in the classic DLP process with a high resolution that allows precision components to be manufactured. In addition, the UV wavelength of 385nm can reduce excessive curing and ensure a more precise shape.

Dimensional stability and size of installation space

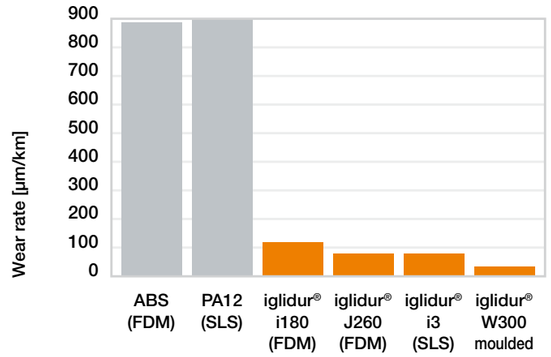
The precision of the printed parts in the case of the iglidur® tribofilaments® is ±0.2mm (up to an edge length of 50mm, above this ±0.4%). In the case of parts made using the laser sintering process the precision is ±0.1mm (up to an edge length of 50mm, above this ±0.2 %).
The space used for processing the iglidur® tribofilaments® measures 135x145x200mm. In the case of laser sintering the space used measures 170x220x300mm. The following applies to both processes: larger parts may have to be made of several pieces.

Large-format 3D printing

Up to 3 metres-large components made of iglidur® i150 and iglidur® i151 in a 3D printing process. The space of the large-format printer measures 1,000x500x500mm. Larger parts may have to be made of several pieces

In order to ensure that the 3D-printed components function correctly, the following should be included in the 3D model:

- The 3D model should be at the centre of tolerance; e.g. for a tolerance of 16mm to 0.2mm, the 3D model should correspond to 15.9mm to
- In the case of clearance fits, a play of approx. 0.1mm should be planned
- Minimum wall thickness: SLS 0.7mm, FDM/FFF 1mm



Wear, rotating p =20MPa; v = 0.01m/s, 304 stainless steel

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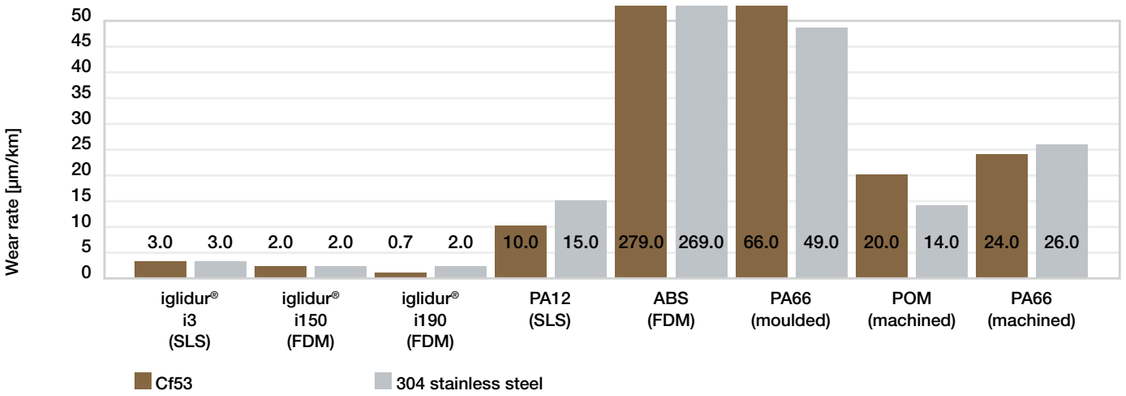
iglidur® tribo 3D printing | Tested

Printed as good as injection-moulded

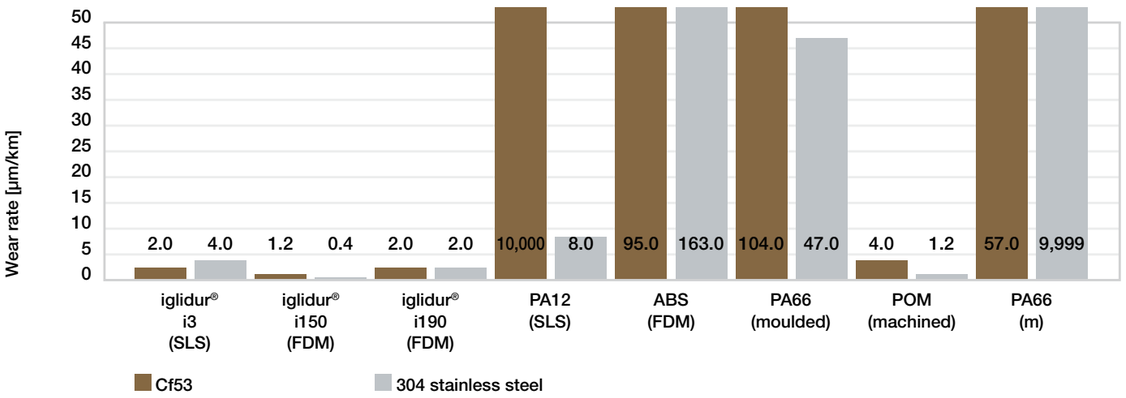


iglidur® 3D printing materials impress in testing with injection-moulded quality

The igus® test series prove that 3D-printed bearings made from iglidur® tribo materials are just as wear-resistant as injection-moulded and machined parts. The tests have also shown that iglidur® 3D printing filaments, 3D printing resins and SLS materials have significantly lower coefficient of friction and up to 50 times higher abrasion resistance than conventional 3D printing materials. This makes igus® 3D printing materials the only ones that are convincing even in moving applications. You can directly install printed parts such as plain bearings, drive nuts or worm gears and use them as wear-resistant parts - from the prototype phase to series production.



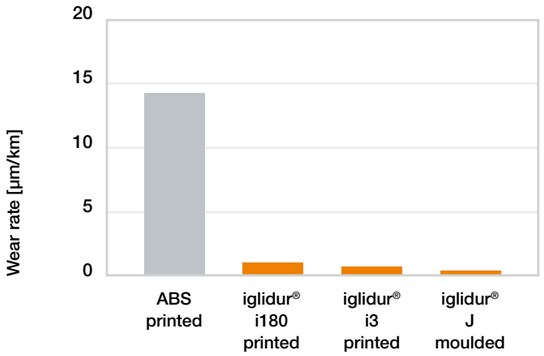
Wear, 60° pivoting, p = 2MPa; v = 0.01m/s



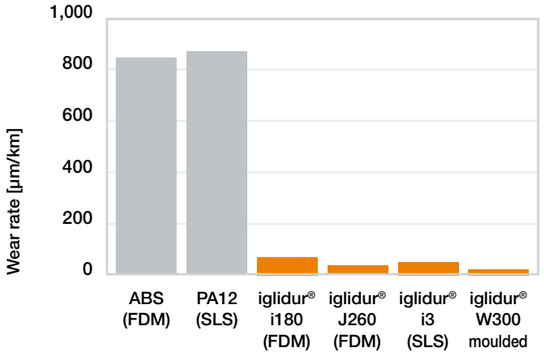
Wear, linear p = 1MPa; v = 0.01m/s

iglidur® tribofilament® | Test results

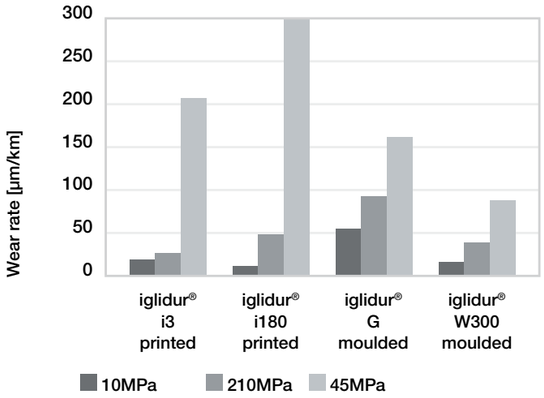
Wear-resistant parts made of iglidur® tribofilament® with the 3D printing method or parts made of iglidur® i3 with the SLS method are much more wear-resistant than standard 3D printing materials.



Linear wear: p = 0.11MPa; v = 0.34m/s; l = 370mm



Wear, rotating p =20MPa; v = 0.01m/s, 304 stainless steel



Wear, pivoting shaft: 304 stainless steel, v = 0.01m/s; ß = 60°



ABS printed



iglidur® i180 printed



ABS

PA12



iglidur® i3



iglidur® i180



iglidur® i3



iglidur® i180



iglidur® G

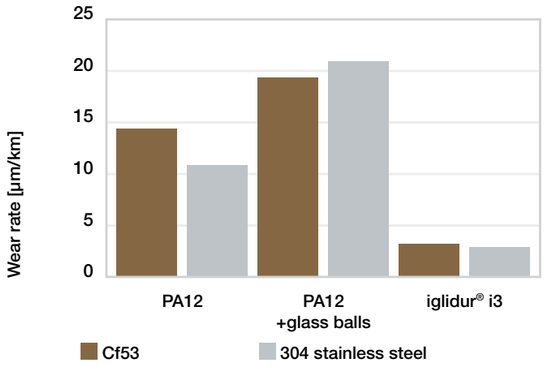


iglidur® W300

iglidur® SLS | Laser sintering

iglidur® i3 for 3D printing via SLS





Wear, rotating p = 1MPa; v = 0.3m/s

Delivery time
72hrs

At least 3 times more wear-resistant: iglidur® i3 for 3D printing via SLS

The material iglidur® i3, which was specially developed for laser sintering, showed a 3 to 30 times better abrasion resistance than conventional materials in the igus® test lab. This further increases design freedom of sliding components prone to wear. iglidur® i3 is also suitable for regular gears such as spur gears, bevel gears, and planetary gears.

- Lubrication and maintenance-free
- Wear-resistant
- Good mechanical properties
- Accurate surface details
- Can be processed using the standard parameter set
- Refresh rate: 75%
- Automotive-compliant according to FMV SS 302
- Most-popular igus® 3D-printing material (more than 100,000 parts per year)
- 3D printing service ▶ **www.igus.eu/idd**
- Gear service life calculation ▶ **www.igus.eu/gear-expert**

Material properties

General properties	Unit	iglidur® i3	Testing method
Density	g/cm³	1.05	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.8	DIN 53495
Max. moisture absorption	% weight	1.9	
Mechanical properties			
Flexural modulus	MPa	1,400	DIN 53457
Flexural strength at +20°C	MPa	68/61[130)]	DIN 53452
Shore D hardness		70	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+80	
Max. short-term application temperature	°C	+140	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	DIN 53482

[130)] **Printed flat/upright**

▶ Chemical table, **page 1170**

Part No. raw material (10kg)
I3-PL-10000

Part No. component
I3-PS-02

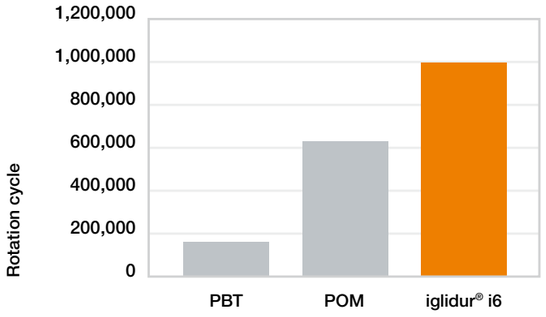
igus EN 09/2023

iglidur®
tribo
3D printing

iglidur® SLS | Laser sintering

iglidur® i6 for 3D printing via SLS





Service life test worm wheel. 12rpm; 4.9Nm

Delivery time
72hrs

Durable worm wheels made of iglidur® i6 via laser sintering

The material iglidur® i6 was specifically developed for laser sintering and is especially suited for worm wheels. The tests in the igus® test laboratory showed a longer service life than conventional machined POM worm wheels. This greatly increases the flexibility in the design of gears, since no tools are necessary due to the laser sintering process and gears can be produced efficiently without minimum order quantity.

- **New:** Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Excellent abrasion resistance
- Extremely long operating times
- Lubrication and maintenance-free
- Cost-effective, no minimum order quantity
- No tooling costs
- Accurate surface details
- 3D printing service ▶ **www.igus.eu/idd**
- Also suitable for medium-sized series, e.g. 5,000 pieces ▶ **www.igus.eu/gears**

Material properties

General properties	Unit	iglidur® i6	Testing method
Density	g/cm³	1.06	
Colour		white	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.8	DIN 53495
Max. moisture absorption	% weight	1.9	
Mechanical properties			
Flexural modulus	MPa	1,100	DIN 53457
Flexural strength at +20°C	MPa	49/38[130)]	DIN 53452
Shore D hardness		67	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+80	
Max. short-term application temperature	°C	+140	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	DIN 53482

[130)] **Printed flat/upright**

▶ Chemical table, **page 1170**

Part No. raw material (10kg)
I6-PL-10000

Part No. component
I6-PS-02

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iglidur® SLS | Laser sintering New

iglidur® i6-BLUE for 3D printing via SLS



Food safe and in blue

The laser sintering material iglidur® i6-BLUE complies with the food-specific regulations of the FDA and of EU 10/2011 and can therefore be used in numerous applications in the food and beverage industry.

- Easy to detect due to its blue colour
- Abrasion-resistant: at least 9x more abrasion-resistant than PA12 (SLS) in rotation test
- Longer service life in worm gear test than if machined with POM
  ▶ **www.igus.eu/gear**
- Can be processed on regular laser sintering systems
- Available with the 3D printing service from 7 days
  ▶**www.igus.eu/3d-printing-request**

Delivery time
7 business days

Material properties

General properties	Unit	iglidur® i6-BLUE	Testing method
Density	g/cm³	1.06	
Colour		light blue	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.8	DIN 53495
Max. moisture absorption	% weight	1.9	
Mechanical properties			
Flexural modulus	MPa	1,100	DIN 53457
Flexural strength at +20°C	MPa	49/38[130)]	DIN 53452
Shore D hardness		67	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+80	
Max. short-term application temperature	°C	+140	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	DIN 53482

[130)] **Printed flat/upright**

▶ Chemical table, **page 1170**

Part No. raw material (10kg)
I6-BLUE-PL-10000

Part No. component
I6-BLUE-PS-02

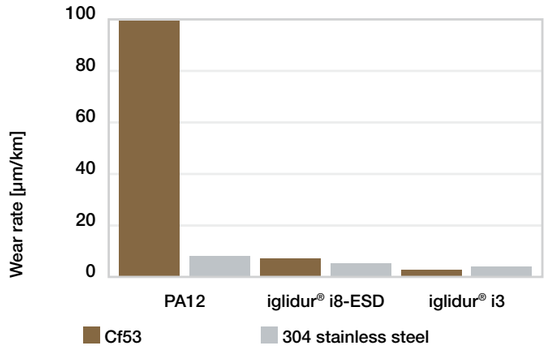
EN 09/2023

iglidur® SLS | Laser sintering New

iglidur® i8 for 3D printing via SLS

iglidur®
tribo
3D printing





Wear, linear p = 1MPa; v = 0.01m/s

Components with ESD properties

iglidur® i8 is an electrostatically dissipative SLS material for long-lasting and abrasion-resistant 3D printed components. Ideal for applications where ESD properties are essential to operate within electronic components: also the perfect choice for the manufacture of anti-static parts for machines that require ATEX certification.

- Electrostatically dissipative (ESD) and black
- Excellent service life – for example, a pivoting abrasion resistance factor of 2 compared to PA 12, can be calculated online
- Can be processed on regular and low-cost laser sintering systems
- 3D printing service: ▶ **www.igus.eu/idd**
- Gear service life calculation
  ▶ **www.igus.eu/gear-expert**

Delivery time
4 business days

Material properties

General properties	Unit	iglidur® i8-ESD	Testing method
Density	g/cm³	1.03	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.8	DIN 53495
Max. moisture absorption	% weight	1.9	
Mechanical properties			
Flexural modulus	MPa	2,200	DIN 53457
Flexural strength at +20°C	MPa	63/42[130)]	DIN 53452
Shore D hardness		72	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+80	
Max. short-term application temperature	°C	+140	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	2.8 x 10^{7}	DIN IEC 93
Surface resistance	Ω	3.6 x 10^{7}	DIN 53482

[130)] **Printed flat/upright**

▶ Chemical table, **page 1170**

Part No. raw material (10kg)
I8-ESD-PL-10000

Part No. raw material (1kg)
I8-ESD-PL-1000

Part No. component
I8-ESD-PS-02

EN 09/2023

iglidur® SLS | Laser sintering New

iglidur® i10 for 3D printing via SLS



Chemical-resistant and food-compatible special parts printed via SLS

The laser sintering material iglidur® i10 is ideal for applications in the food and electroplating industries because of its chemical resistance.

- Chemical-resistant
- Food-compatible
- Lubrication and maintenance-free
- Tough
- Available with the 3D printing service from 7 days

▶ **www.igus.eu/idd**

Delivery time
7 business days

Material properties

General properties[178)]	Unit	iglidur® i10	Testing method
Density	g/cm³	0.85	
Colour		off white	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.1	DIN 53495
Max. moisture absorption	% weight	0.2	
Mechanical properties[178)]			
Flexural modulus	MPa	800/750[130)]	DIN 53457
Flexural strength at +20°C	MPa	20[130)]	DIN 53452
Shore D hardness		66	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+60[176), 177)]	
Max. short-term application temperature	°C	+80[176), 177)]	
Min. application temperature	°C	0	
Electrical properties			
Specific transitional resistance	Ωcm	> 10¹²	DIN IEC 93
Surface resistance	Ω	> 10¹¹	DIN 53482

[130)] Printed flat/upright; [176)] Relaxation not excluded; [177)] Without additional load; no sliding movement;
[178)] Depending on the printing parameters and building direction

▶ Chemical table, **page 1170**

Part No. raw material (10kg)
I10-PL-10000

Part No. component
I10-PS-02

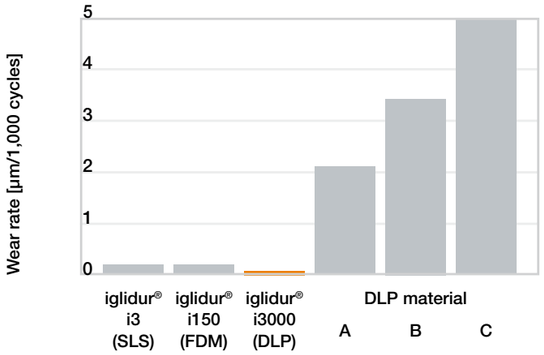
EN 09/2023

iglidur® triboresin | Product range New

iglidur® i3000-PR for DLP and LCD printers

iglidur®
tribo
3D printing





Wear in µm/1,000 cycles p = 0.42N/mm²; v = 0.32m/s

First 3D printing resin for wear-resistant parts and gears

The DLP 3D printing resin iglidur® i3000 is suitable for DLP and LCD printers and was specifically developed for printing gears and wear-resistant parts. With a service life of at least 30 to 60 times longer than conventional 3D printing resins, iglidur® i3000 is suitable for all types of applications. The high resolution of up to 35µm enables the print of very delicate components with the finest details. The mechanical properties are largely isotropic due to the photopolymerisation process. Start of the beta test phase: please contact igus® if you would like to test individual wear-resistant parts made from iglidur® i3000.

- Self-lubricating and low maintenance
- Fine details, 35µm and 43µm resolution
- Inner channels possible
- Fine tooth module of 0.2 possible
- Available with the 3D printing service from 5 days

▶ **igus.eu/3d-printing-request**

Processing instructions:
Since skin contact with the liquid resin must be avoided, personal protective equipment is absolutely necessary during processing.

Material properties

General properties	Unit	iglidur® i3000
Density	g/cm³	1.3
Colour		grey
Max. moisture absorption at +23°C and 50% r.h.	% weight	1.8
Max. moisture absorption	% weight	3.2
Mechanical properties		
Flexural modulus	MPa	2,610
Flexural strength at +20°C	MPa	90
Shore D hardness		78
Physical and thermal properties		
Max. long-term application temperature	°C	+80
Max. short-term application temperature	°C	+100
Min. application temperature	°C	-20
Electrical properties		
Specific transitional resistance	Ωcm	> 10¹²
Surface resistance	Ω	> 10¹¹

[130)] Printed flat/upright



For parts with the finest details

Part No. raw material (1kg)
I3000-PR-1000

Part No. component
I3000-PS-06

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iglidur® tribofilament® | Advantages



3D printing with tribofilament®

50 times more abrasion-resistant than standard materials for maximum service life

Wear-resistant parts made of igus® tribofilaments® are up to 50 times more wear-resistant than standard materials for 3D printing and therefore achieve a long service life. Due to their tribological properties, they are ideal for 3D printing spare wear-resistant parts for e.g. plain bearings, drive nuts, gears and other wear-resistant parts.
The igus® tribofilaments® can be processed on 3D printers that are based on the fused-deposition-modelling method (FDM/FFF) and that allow the nozzle temperature to be set as required.

Find and order the appropriate tribofilament® online
▶ www.igus.eu/tribofilament

Recommended iglidur® tribofilament® according to application temperature and printers

Ambient temperature of application	All printer types (also open installation space)	Closed installation space	Heatable installation space approx. +100°C	Heatable installation space approx. +160°C
-30 °C to +65 °C	iglidur® i150 iglidur® i151 igumid® P150[183)]	iglidur® i150 iglidur® i151 igumid® P150[184), 183)]		
-40 °C to +80 °C	iglidur® i190[183)]	iglidur® i190[183)]		
-30 °C to +100 °C	igumid® P190[183)]	iglidur® i180 iglidur® i180-BL igumid® P190[183)]	iglidur® i180[184)] iglidur® i180-BL[184)]	iglidur® J260
-100 °C to +120 °C			iglidur® J260	iglidur® J260
-50 °C to +170 °C				iglidur® RW370
-100 °C to +180 °C				iglidur® A350

[183)] **This 3D printer is only needed for larger parts (> 100mm), the previous printer is suitable for smaller parts**
[184)] **The material is abrasive, therefore a wear-resistant nozzle and drive wheel is required**

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iglidur® tribofilament® | Product overview



Material: iglidur® i150
Wear-resistant parts printed the easy way
- High abrasion resistance at low speeds
- Good mechanical properties
- Easiest to process tribofilament® (also without heated print bed)
- Food-compatible according to EU10/2011 regulation
- Nozzle temperature: +240°C up to +250°C

▶ Page 838



New Material: iglidur® i151
For contact with food
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Easy to detect due to its blue colour

▶ Page 845



New Material: igumid® P150
Rigid and tough
- The first igus® tribofilament® specially developed for multi-material 3D printing together with iglidur® i150
- Extremely robust and rigid with fibre reinforcement

▶ Page 844



Material: iglidur® i180
Best combination of ability to be processed and service life
- Excellent abrasion resistance
- Good mechanical properties
- Nozzle temperature: +250°C up to +260°C
- Also in black (iglidur® i180-BL)

▶ Page 839



New Material: iglidur® i190
Strong and abrasion-resistant
- Flexural strength 80MPa, the best iglidur® tribofilament® for regular 3D printers
- Excellent service life - 50 times higher abrasion resistance than ABS

▶ Page 842



New Material: igumid® P190
Rigid and tough
- Specially developed for multi-material 3D printing together with iglidur® i190
- Extremely robust and rigid with carbon fibre reinforcement

▶ Page 843



Material: iglidur® J260
Extremely long service life and excellent coefficient of friction
- Outstanding abrasion resistance of tribofilaments®
- Application temperature from -100°C to +120°C
- High-quality processing
- Nozzle temperature: +260°C up to +270°C

▶ Page 840



Material: iglidur® RW370
Ideal for rail technology
- Flame-retardant and high strength
- Application temperature from -50°C to +170°C
- High temperature printer necessary
- Nozzle temperature: +350°C up to +360°C

▶ Page 846



Material: iglidur® A350
For the food industry
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Application temperature from -100°C to +180°C
- High temperature printer necessary
- Nozzle temperature: +360°C up to +370°C

▶ Page 847

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iglidur® tribofilament® | Product range



iglidur® i150



Order key

tribofilament®	Diameter	Weight
I150-PF-	0175	-0750

iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

iglidur® i150 - makes printing even easier

- High abrasion resistance at low speeds
- Good mechanical properties
- The tribofilament® that is easiest to process
- Compliant with food requirements according to (EU) No 10/2011
- Recommended printing surface: igus® adhesive film or glue-stick on glass
- Also to be processed without a heated print bed (prerequisite: igus® adhesive film ▶ **Page 848**)

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.	
1.75	200	52	55	750	**I150-PF-0175-0750**	
1.75	335	51	220	8,000	**I150-PF-0175-8000**	New
3.00	200	52	55	750	**I150-PF-0300-0750**	
3.00	335	51	220	8,000	**I150-PF-0300-8000**	New

Material properties

General properties	Unit	iglidur® i150	iglidur® i180	iglidur® i180-BL
Density	g/cm³	1.30	1.21	1.21
Colour		white	white	black
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.3	0.3	0.3
Max. moisture absorption	% weight	0.7	0.9	0.9
Mechanical properties				
Flexural modulus	MPa	1,700	1,700	1,700
Flexural strength at +20°C	MPa	54/37[130)]	46/33[130)]	46/33[130)]
Shore D hardness		62	66	66
Physical and thermal properties				
Max. long-term application temperature	°C	+65	+80	+80
Max. short-term application temperature	°C	+75	+90	+90
Min. application temperature	°C	-30	-40	-40
Electrical properties				
Specific transitional resistance	Ωcm	> 10^{13}	> 10^{12}	> 10^{12}
Surface resistance	Ω	> 10^{12}	> 10^{11}	> 10^{11}

[130)] Printed flat/upright

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iglidur® tribofilament® | Product range



iglidur® i180





iglidur® i180-BL

Order key

tribofilament®	Diameter	Weight
I180-PF-	0175	-0250

iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

iglidur® i180 - flexible

- High degree of abrasion resistance, even in the case of dynamic applications
- Good mechanical properties
- Max. application temperature: +80°C
- Recommended printing surface: igus® adhesive film ▶ **Page 848**

iglidur® i180-BL - for visible parts

- In black for visible parts
- Same mechanical and tribological properties as iglidur® i180 in white

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.
1.75	200	52	55	250	**I180-PF-0175-0250**
1.75	200	52	67	750	**I180-PF-0175-0750**
3.00	200	52	55	250	**I180-PF-0300-0250**
3.00	200	52	67	750	**I180-PF-0300-0750**
1.75	200	52	55	250	**I180-BL-PF-0175-0250**
1.75	200	52	67	750	**I180-BL-PF-0175-0750**
3.00	200	52	55	250	**I180-BL-PF-0300-0250**
3.00	200	52	67	750	**I180-BL-PF-0300-0750**

Processing and accessories
▶ **Page 848**

Part No. Adhesive film for the print bed
PF-01-0203-0203 (203 x 203mm)
PF-01-0254-0228 (254 x 228mm)

Complete processing instructions online (in the download area of the respective material)
▶ **www.igus.eu/tribofilament**

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iglidur® tribofilament® | Product range



iglidur® J260



Order key

tribofilament®	Diameter	Weight
J260 - PF -	0175	- 0250
iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

iglidur® J260 - long service life

- Outstanding abrasion resistance of tribofilaments®
- Application temperature from -100°C to +120°C
- For experts: high-quality processing
- Recommended printing surface:
  igus® adhesive film ▶ **Page 848**

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.
1.75	200	52	55	250	**J260-PF-0175-0250**
1.75	200	52	67	750	**J260-PF-0175-0750**
3.00	200	52	55	250	**J260-PF-0300-0250**
3.00	200	52	67	750	**J260-PF-0300-0750**

Material properties

General properties	Unit	iglidur® J260
Density	g/cm³	1.35
Colour		yellow
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.2
Max. moisture absorption	% weight	0.4
Mechanical properties		
Flexural modulus	MPa	1,000
Flexural strength at +20°C	MPa	41/13[130)]
Shore D hardness		66
Physical and thermal properties		
Max. long-term application temperature	°C	+120
Max. short-term application temperature	°C	+140
Min. application temperature	°C	-100
Electrical properties		
Specific transitional resistance	Ωcm	> 10^{12}
Surface resistance	Ω	> 10^{10}

[130)] Printed flat/upright

Notes

iglidur® tribofilament® | Product range New



iglidur® i190



Order key

tribofilament®	Diameter	Weight
I190-PF-	0175	-0750

iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

iglidur® i190 - strong and abrasion-resistant

- Flexural strength 80MPa, the best iglidur® tribofilament® for regular 3D printers
- Excellent service life - 50 times higher abrasion resistance than ABS
- Can be processed by commercially available 3D printers
- Max. application temperature: +90°C
- igus® bonding agent for tribofilament® or glue stick in glass ▶ **Page 848**

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.	
1.75	200	52	55	750	**I190-PF-0175-0750**	New
3.00	200	52	55	750	**I190-PF-0300-0750**	New

Material properties

General properties	Unit	iglidur® i190	igumid® P190
Density	**g/cm³**	1.30	1.25
Colour		beige	black
Max. moisture absorption at +23°C and 50% r.h.	**% weight**	1.4	1.4
Max. moisture absorption	**% weight**	6.0	3.7
Mechanical properties			
Flexural modulus	**MPa**	2,400	6.34/11.55/2.86GPa[130)]
Flexural strength at +20°C	**MPa**	75[130)]	163/237/70[189)]
Shore D hardness		71	83
Physical and thermal properties			
Max. long-term application temperature	**°C**	+90	+120
Max. short-term application temperature	**°C**	+120	+140
Min. application temperature	**°C**	-40	-40
Electrical properties			
Specific transitional resistance	**Ωcm**	> 10^{12}	> 10^{10}
Surface resistance	**Ω**	> 10^{11}	> 10^{10}

[130)] **Printed flat/upright**

[189)] **Printed flat, printing lines aligned 45°/-45°; printing lines aligned according to optimum strength/printed upright**

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iglidur®
tribo
3D printing

iglidur® tribofilament® | Product range New



igumid® P190



Order key

tribofilament®	Diameter	Weight
P190-PF-	0175	-0750

iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

igumid® P190 - rigid and tough

- Specially developed for multi-material 3D printing together with iglidur® i190
- Extremely robust and rigid with carbon fibre reinforcement
- Suitable for structural components and multi-material components
- igus® bonding agent for tribofilament® or glue stick in glass ▶ **Page 848**

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.	
1.75	200	52	55	750	**P190-PF-0175-0750**	New
3.00	300	52	100	750	**P190-PF-0300-0750**	New

Processing and accessories
▶ **Page 848**

Part No. Bonding agent for tribofilaments®
PF-ADHESIVE-01

Complete processing instructions online (in the download area of the respective material)
▶ **www.igus.eu/tribofilament**

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iglidur® tribofilament® | Product range New



igumid® P150



Order key

tribofilament®	Diameter	Weight
P150-PF-	0175	-0750

iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

igumid® P150 - rigid and tough

- igumid® P150 is the first igus® tribofilament® specially developed for multi-material 3D printing together with iglidur® i150
- igumid® P150: robust and rigid with fibre reinforcement
- Also suitable for structural components: flexural strength 95MPa, flexural modulus 5GPa (optimised filling direction)
- igus® bonding agent for tribofilament® or glue stick in glass ▶ **Page 848**

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.	
1.75	200	52	55	750	**P150-PF-0175-0750**	New
3.00	200	52	55	750	**P150-PF-0300-0750**	New

Material properties

General properties	Unit	igumid® P150	iglidur® i151
Density	**g/cm³**	1.40	1.42
Colour		black	light blue
Max. moisture absorption at +23°C and 50% r.h.	**% weight**	n.s.	n.s.
Max. moisture absorption	**% weight**	0.3	n.s.
Mechanical properties			
Flexural modulus	**MPa**	4,700	1,400
Flexural strength at +20°C	**MPa**	87[130)]	43[130)]
Shore D hardness		n.s.	69
Physical and thermal properties			
Max. long-term application temperature	**°C**	+100	+65
Max. short-term application temperature	**°C**	+125	+75
Min. application temperature	**°C**	-30	-30
Electrical properties			
Specific transitional resistance	**Ωcm**	n.s.	n.s.
Surface resistance	**Ω**	n.s.	n.s.

[130)] **Printed flat/upright**

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iglidur® tribofilament® | Product range New

iglidur®
tribo
3D printing



iglidur® i151



Order key

tribofilament®	Diameter	Weight
I151-PF-	0175	-0750

iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

iglidur® i151 - for contact with food

- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Easy to detect due to its blue colour
- Can be processed easily on any commercially available 3D printers
- Long service life - up to 50x more abrasion-resistant than ABS, PETG and PLA in 3D printing
- igus® bonding agent for tribofilament® or glue stick in glass ▶ **Page 848**

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.	
1.75	200	52	55	750	**I151-PF-0175-0750**	New
3.00	200	52	55	750	**I151-PF-0300-0750**	New

Processing and accessories
▶ **Page 848**

Part No. Bonding agent for tribofilaments®
PF-ADHESIVE-01

Complete processing instructions online (in the download area of the respective material)
▶ **www.igus.eu/tribofilament**

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iglidur® tribofilament® | Product range



iglidur® RW370



Order key

tribofilament®	Diameter	Weight
RW370-PF-	0175	-0750
iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

iglidur® RW370 - ideal for the rail industry

- Flame-retardant according to UL94-V0 and DIN EN 45545
- 91MPa flexural strength
- High wear resistance
- Can be processed with high-temperature 3D printer
- Max. application temperature: +170°C
- Available for 3D printing (Ø 1.75mm), as bar stock and as injection-moulding material
- Lubrication and maintenance-free
- Recommended printing surface: PET film

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.
1.75	200	52	55	750	**RW370-PF-0175-0750**

Material properties

General properties	Unit	iglidur® RW370	iglidur® A350
Density	g/cm³	1.34	1.42
Colour		beige	blue
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.25	0.6
Max. moisture absorption	% weight	1.2	1.9
Mechanical properties			
Flexural modulus	MPa	2,100	1,250/1,390[130)]
Flexural strength at +20°C	MPa	91/30[130)]	50/46[130)]
Shore D hardness		80	76
Physical and thermal properties			
Max. long-term application temperature	°C	+170	+180
Max. short-term application temperature	°C	+190	+210
Min. application temperature	°C	-50	-100
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	> 10^{11}
Surface resistance	Ω	> 10^{12}	> 10^{10}

[130)] Printed flat/upright

iglidur®
tribo
3D printing

iglidur® tribofilament® | Product range



iglidur® A350



Order key

tribofilament®	Diameter	Weight
A350-PF-	0175	-0750
iglidur® material	tribofilament®	Ø [mm · 100]	Spool weight [g]

iglidur® A350 - for the food industry

- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Available as 3D print filament, bar stock and for injection moulding
- In industry-standard blue
- Max. application temperature: +180°C
- Complies with the fire prevention requirements of the Federal Aviation Administration of the USA (FAA) for aircraft interiors
- Suitable for autoclave
- Recommended bonding surface: PET film

Dimensions [mm]

Filament diameter	Outer Ø spool	Inner Ø spool	Spool width	Weight [g]	Part No.
1.75	200	52	55	750	**A350-PF-0175-0750**

Processing and accessories
▶ Page 848

Complete processing instructions online (in the download area of the respective material)
▶ www.igus.eu/tribofilament

iglidur® tribofilament® | Processing and accessories

Processing instructions

iglidur® tribofilaments® can be processed on any 3D printer that is equipped with a heated print bed on which temperatures are adjustable. The igus® adhesive film allows a good adhesion between the iglidur® tribofilament® and the print bed.

- Good ventilation should be provided during processing
- When heated above +300°C, hazardous fumes are produced
- For iglidur® A350 and iglidur® RW370, a high-temperature printer is necessary

Example: Part No. tribofilaments®
I150-PF-0175-0750
for 750g spool with a diameter of 1.75mm made of the iglidur® material i150

Complete processing instructions online (in the download area of the respective material)
▶ **www.igus.eu/tribofilament**

New: igus® bonding agent for tribofilament®

The igus® bonding agent for iglidur® tribofilaments® ensures reliable adhesion of the component to the print bed but also easy removal after printing. The bonding agent (powered by Magigoo) was developed as a simple solution specifically for iglidur® tribofilaments® to improve the adhesion of these filaments to various printing plates. It is easy to apply and can be removed at any time with warm water without leaving any residue.

- Ideal for tribofilaments® iglidur® i150, iglidur® i180 and iglidur® i180-BL
- Good adhesion of the parts on the print bed
- Easy detachment



Part No. Bonding agent for tribofilaments®
PF-ADHESIVE-01

igus EN 09/2023

iglidur® tribofilament® | Processing and accessories

iglidur®
tribo
3D printing

igus® print bed film for your print bed

Thanks to the film available from igus® for the print bed, there is very good adhesion between the iglidur® tribofilament® and the print bed.

- Useable up to approximately 20 times
- "Set" the degree of adhesion by means of print bed temperature
- 3D printer without heating bed? The combination of iglidur® I150 with this print bed film also makes it possible to make wear-resistant parts oneself with such 3D printers



Part No. Adhesive film for the print bed
PF-01-0203-0203 (203 x 203mm)
PF-01-0254-0228 (254 x 228mm)

Spool

iglidur® tribofilaments® weighing up to 750g are wound onto a spool. Larger dimensions are available upon request.

Filament thickness

The iglidur® tribofilaments® are available with 1.75mm and 3mm thickness. The 3mm filaments can be used without problems in 3D printers that need a 2.85mm filament.

Test kits
for 25g of filament, loose with 1.75mm diameter made of the iglidur® material i150



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iglidur® tribo 3D printing | Gear configurator

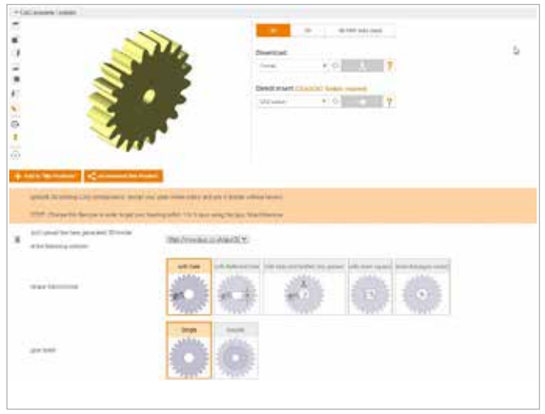
Wear-resistant gears in 60 seconds using the new igus® gear configurator

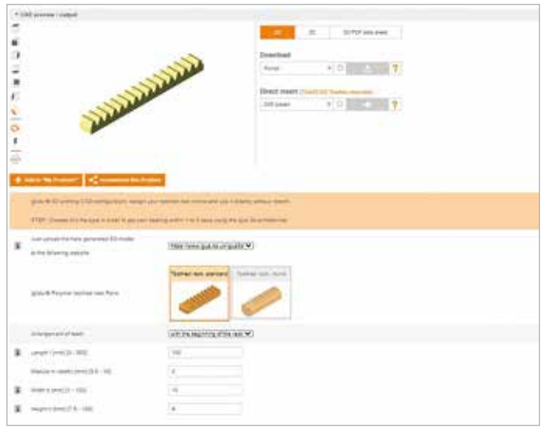
Configure individual gears and racks in 60 seconds, shipped within 3 days

In order to facilitate the work of designers, igus® has now developed a simple and practical tool with the gear configurator. This allows each customer to configure their own component even in special dimensions. In a few steps, the user only needs to enter the specifications of the required gear; such as the tooth module, number of teeth, width and inner diameter or select the suitable rack profile. This automatically displays a 3D model that can be exported as a STEP file. By uploading the file in the igus® 3D printing service, ▶**www.igus.eu/3d-print-service** the configured gear made from the new laser sintering material iglidur® i3 for gears can be ordered immediately.With one click, the user can order their own wear-resistant gear with no minimum order quantity or request a quotation. Within 3 days the custom-made gear is ready for shipment. iglidur® i3 is well suited for straight and helical spur gears, racks and bevel gears.

Gear service life calculator

▶ **www.igus.eu/gear-expert**





iglidur® i6 for worm gears: double the service life

In the test, iglidur® i6 showed itself to be considerably better than machined worm wheels. Worm wheels made of POM had total wear after 621,000 cycles, whereas worm wheels made of iglidur® i6 continued to be functional after more than 1 million cycles.





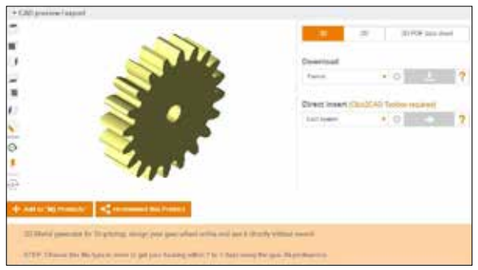


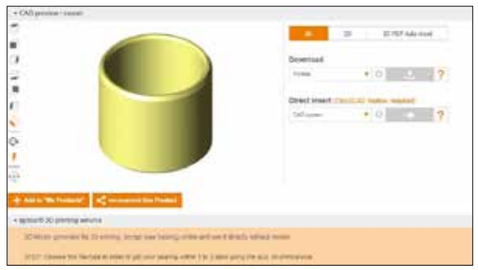
POM	POM	iglidur® i6
321,000 cycles	621,000 cycles	1 million cycles
High wear	Failed	Low wear

Delivery time
24-72hrs

Online CAD configurator for gears
▶ **www.igus.eu/gear-configurator**

Online CAD configurator for plain bearings
▶ **www.igus.eu/3d-model**





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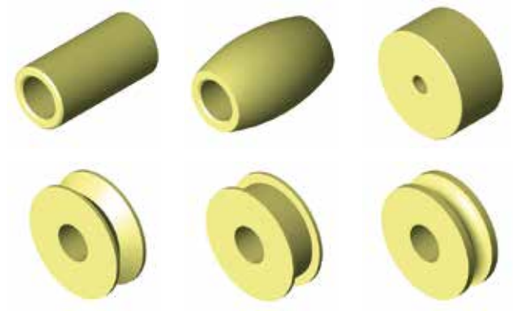
iglidur® tribo 3D printing | Configurators

Individual rollers, lead screw nuts, sliding plates and toothed belts

Configure rollers in the desired shape online, delivered in only 24hrs

Create and download your individual 3D model with the roller configurator. Then order it from the 3D printing service (shipped in one to three days). Rollers with different shapes are possible with any dimensions between 1 and 170mm. The rollers can be used immediately without any further machining.



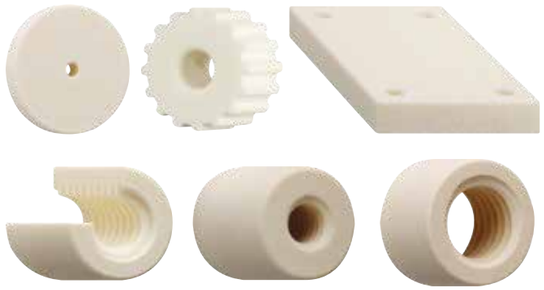


Delivery time
24-72hrs

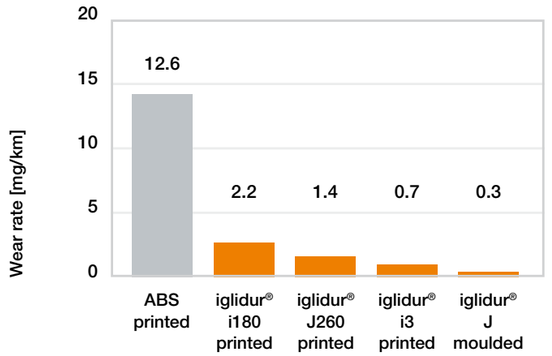
Configure rollers
▶ **www.igus.eu/roller-configurator**

Configure custom lead screw nuts, plain bearings, sliding plates and toothed belts in 60 seconds and they will be ready for shipment within 3 days

In addition to individually configurable sliding plates and plain bearings, lead screw nuts with trapezoidal threads can be manufactured from a 3D model. Eliminating costly, time-consuming design and rework. Lead screw nuts, plain bearing and sliding plates are manufactured via laser sintering.



Lead screw nut wear test



F = 129N; l = 370mm; n = 290rpm



Delivery time
24-72hrs

The configurators
▶ **www.igus.eu/cad-configurators**

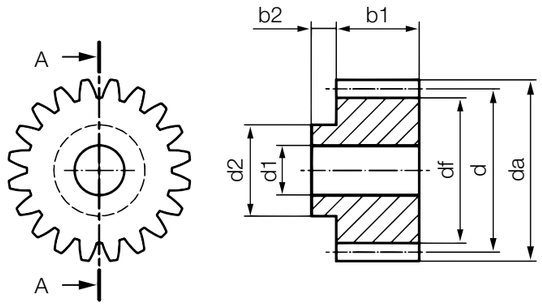
EN 09/2023

iglidur® tribo 3D printing | Gears

Configure gear with and without keyway



Image exemplary



Configuration key

Part type	Options

OC-GEAR-01-1.00-18-10.0-6.1-20.0-8.0

Configurator | Gear type | Tooth module | Number of teeth | Width b1 | Inner diameter d1 | Diameter outlet b2 | Width outlet b2

Configuration limits:

Gear type 01: gear with hole, keyway optional
Tooth module: 0.50 to 10.0mm
Number of teeth: 17 to 100
Width: 1.0 to 200mm

Dimensions [mm] - example gear configuration with and without keyway

Part No.	Configuration number	Tooth module	Number of teeth	Width b1	Inner Ø d1	Keyway Ø b2	Width outlet b2
I3-PS-02	OC-GEAR-01-1.00-☐-10-6-15	1.00	17 - 100	10	6	15	8
I3-PS-02	OC-GEAR-01-1.50-☐-10-10-25	1.50	17 - 100	10	10	25	10
I3-PS-02	OC-GEAR-01-2.00-☐-12-10	2.00	17 - 100	12	10	–	–
I3-PS-02	OC-GEAR-01-2.50-☐-14-12	2.50	17 - 100	14	12	–	–



Many other gear types, including double gears, can be configured online: download the STEP model and determine the price online ▶ www.igus.eu/gear-configurator

Delivery time
72hrs

EN 09/2023

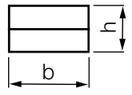
iglidur® tribo 3D printing

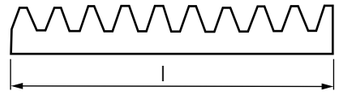
iglidur® tribo 3D printing | Racks

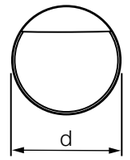
Configure flat and round racks

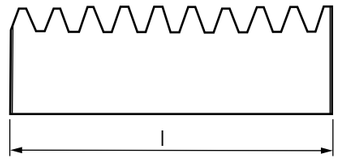


Image exemplary









Configuration key rack, flat

Part type	Options

OC-GEAR-RACK-01-1.00-10.0-4.5-60.0- S

Configurator | Rack type | Tooth module | Width b | Height h | Length l | Arrangement

Configuration limits:

Rack type 01: flat rack
Tooth module: 0.50 to 10.0mm
Width: 1.0 to 100mm
Height: up to 100mm
Length: 3 to 300mm[173]
Arrangement S: Symmetrical end separation

Configuration key rack, round

Part type	Options

OC-GEAR-RACK-02-1.00-10.0-60.0- S

Configurator | Rack type | Tooth module | Diameter d | Length l | Arrangement

Configuration limits:

Rack type 02: round rack
Tooth module: 0.50 to 10.0mm
Diameters: 3.0mm up to 100mm
Length: 3 to 300mm[173]
Arrangement S: Symmetrical end separation

Dimensions [mm] - example configuration of rack (flat)

Part No.	Configuration number	Tooth module	Width b	Height h	Length l	Arrangement
I3-PS-02	OC-GEAR-RACK-01-1.00-10.0-10.0-☐-S	1.00	10.0	10.0	3 - 300	S
I3-PS-02	OC-GEAR-RACK-01-1.50-15.0-15.0-☐-S	1.50	15.0	15.0	3 - 300	S
I3-PS-02	OC-GEAR-RACK-01-2.00-20.0-20.0-☐-S	2.00	20.0	20.0	3 - 300	S
I3-PS-02	OC-GEAR-RACK-01-2.50-20.0-20.0-☐-S	2.50	20.0	20.0	3 - 300	S

[173] Also has multiple parts

Configure an individual rack, download the STEP model, and determine the price online ▶ www.igus.eu/rack-configurator

Delivery time
72hrs

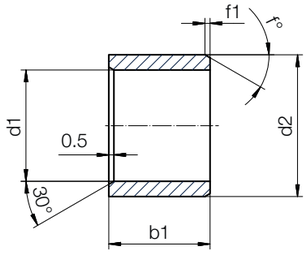
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iglidur® tribo 3D printing | Plain bearings

Configure plain bearings with and without flange

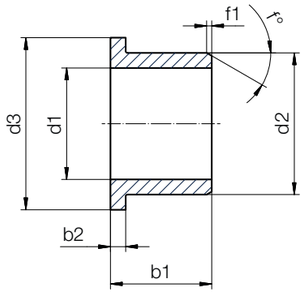
Sleeve bearing





Flanged bearings





Configuration key Sleeve bearing

Part type	Options
OC-BRG- S	-10.0-12.0-10.0

Configurator	Plain bearing type	Inner Ø d1	Outer Ø d2	Length b1

Configuration limits:

Plain bearing type S:	sleeve bearing
Inner diameter:	up to 195mm
Outer diameter:	up to 200mm
Bearing length:	up to 300mm

Configuration key Flanged bearings

Part type	Options
OC-BRG- F	-10.0-12.0-10.0-16.0-1.0

Configurator	Plain bearing type	Inner Ø d1	Outer Ø d2	Length b1	Flange Ø d3	Flange thickness b2

Configuration limits:

Plain bearing type F:	flanged bearing
Inner diameter:	up to 195mm
Outer diameter:	up to 200mm
Bearing length:	up to 300mm
Flange diameter:	up to 200mm
Flange thickness:	up to 20mm

Dimensions [mm] - example plain bearing configuration with and without flange

Part No.	Configuration number	Inner Ø d1	Outer Ø d2	Total length b1	Flange Ø d3	Flange thickness b2
I3-PS-02	OC-BRG-S-50.0-60.0-30.0	50.0	60.0	30.0	–	–
I3-PS-02	OC-BRG-S-18.0-20.0-16.0	18.0	20.0	16.0	–	–
I3-PS-02	OC-BRG-F-18.0-22.0-18.0-30.0-1.0	18.0	22.0	18.0	30.0	1.0
I3-PS-02	OC-BRG-F-50.0-60.0-31.0-66.0-1.0	50.0	60.0	31.0	66.0	1.0



Configure an individual plain bearing, download the STEP model, and determine the price online, including special shapes with slot ▶ www.igus.eu/3d-model

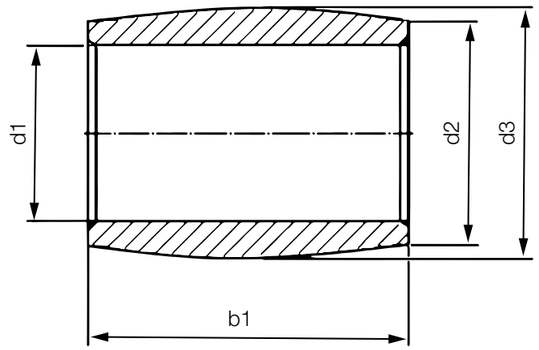
Delivery time
72hrs

EN 09/2023

iglidur® tribo 3D printing | Rollers

Configure convex rollers





Configuration key

Part type	Options
OC-ROLLER- 02	-10.0-15.0-30.0-20.0

Configurator	Roller type	Inner Ø d1	Outer Ø d2	Spherical outer Ø d3	Roller length b1

Configuration limits:

Roller type 02:	convex roller
Inner diameter:	1 up to 190mm
Outer diameter:	up to 195mm
Roller length:	up to 300mm

Dimensions [mm] - example configuration of convex rollers

Part No.	Configuration number	Inner Ø d1	Outer Ø d2	Spherical Outer Ø d3	Max. Roller length b1
I3-PS-02	OC-ROLLER-02-4.0-8.0-8.2-☐	4.0	8.0	8.2	300
I3-PS-02	OC-ROLLER-02-10.0-15.0-20-☐	10.0	15.0	20	300
I3-PS-02	OC-ROLLER-02-10.0-50.0-55.0-☐	10.0	50.0	55.0	300
I3-PS-02	OC-ROLLER-02-14.0-60.0-61.0-☐	14.0	60.0	61.0	300
I3-PS-02	OC-ROLLER-02-20.0-100.0-120.0-☐	20.0	100.0	120.0	300



Many other roller types can be configured online: download the STEP model and determine the price online ▶ www.igus.eu/roller-configurator

Delivery time
72hrs

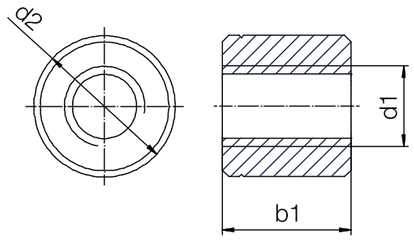
EN 09/2023

iglidur® tribo 3D printing | Lead screw nuts

Configure lead screw nuts



Image exemplary



Configuration key

Part type	Options
OC-NUT-	S -18.0-12.0-TR10X2- R

Configurator | Lead screw nut type | Outer Ø d2 | Width b1 | Thread | Thread direction

Configuration limits:

Lead screw nut type S:	cylindrical
Outer diameter:	up to 150mm
Width:	3 to 200mm
Thread:	32 types to select from
Thread direction:	R = Right hand L = Left

Dimensions [mm] - example configuration of cylindrical lead screw nut

Part No.	Configuration number	Outer Ø	Width	Thread	Thread direction	
		d2	b1		Right	left
I3-PS-02	OC-NUT-S-15.0-☐-TR8X1.5-R	15.0	3 - 200	TR8X1.5	●	–
I3-PS-02	OC-NUT-S-16.0-☐-TR10X2-L	16.0	3 - 200	TR10X2	–	●
I3-PS-02	OC-NUT-S-18.0-☐-TR11X5-R	18.0	3 - 200	TR11X5	●	–
I3-PS-02	OC-NUT-S-22.0-☐-TR16X2-R	22.0	3 - 200	TR16X2	●	–
I3-PS-02	OC-NUT-S-26.0-☐-TR20X2-L	26.0	3 - 200	TR20X2	–	●
I3-PS-02	OC-NUT-S-50,0-☐-TR30X3-R	50.0	3 - 200	TR30X3	●	–



Configure individual trapezoidal lead screw nuts, download the STEP model and determine the price online ▶ www.igus.eu/lead-screw-nut-configurator

Delivery time
72hrs

EN 09/2023

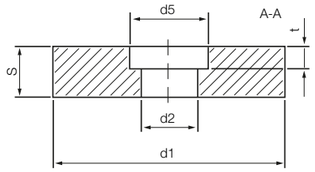
iglidur® tribo 3D printing | Sliding elements

Configure sliding elements

Round sliding element with central hole



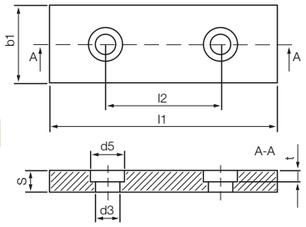
Image exemplary



Rectangular sliding element with 2 holes



Image exemplary



Configuration key
Round sliding element with central hole

Part type	Options
OC-SLIDER-	01 - 6.4 - 30.0 - 10.0 - 13.0 - 5.0

Configurator | Glider type | Inner Ø d1 | Outer Ø d2 | Thickness s | Flat sink d5 | Flat sink depth t

Configuration limits:

Glider Type 01:	round with central hole
Inner diameter:	up to 195mm
Outer diameter:	up to 200mm
Height 2 :	up to 100mm
Flat sink:	optional

Configuration key
Rectangular sliding element with 2 holes

Part type	Options
OC-SLIDER-	04 - 20.0-40.0-20.0-10.0-6.4-13.0-5.0

Configurator | Glider type | Width b1 | Length l1 | Pitch l2 | Thickness s | Hole d3 | Flat sink d5 | Flat sink depth t

Configuration limits:

Glider Type 04:	Rectangle with two holes
Width:	10 to 200mm
Length:	10 to 200mm
Flat sink:	optional

Glider type:
01: Round with central hole
02 Round with 4 holes
03 Round with 5 holes
04 Rectangle with 2 holes
05 Rectangle with 4 holes

Dimensions [mm] - example plain bearing configuration with and without flange

Part No.	Configuration number	Width	Length	Pitch	Height	Bore	Flat sink	Flat sink
		b1	l1	l2	Øs	d3	d5	depth t
I3-PS-02	OC-SLIDER-04-20.0-40.0-20.0-10.0-6.4-13.0-5.0	20.0	40.0	20.0	10.0	6.4	13.0	5.0
I3-PS-02	OC-SLIDER-04-30.0-60.0-40.0-8.0-4.3-9.0-4.4	30.0	60.0	40.0	8.0	4.3	9.0	4.4
I3-PS-02	OC-SLIDER-04-50.0-100.0-60.0-11.0-8.2	50.0	100.0	60.0	11.0	8.2	–	–

Many other glider types can be configured online: download the STEP model and determine the price online ▶ www.igus.eu/glider-configurator

Delivery time
72hrs

EN 09/2023

igubal®

Polymer spherical bearings



...plastics

igubal® bearing elements | Application examples

Tech up ... Cost down

For years the igus® motto has been "plastics for longer life®". By this we mean the production of innovative plastic products which reduce maintenance work, achieve technical improvements, at the same time as reducing costs and increasing service life, everything delivered immediately from stock. Our references from the practice show the proven employment from igubal® spherical bearings in a wide variety of applications.



Inspection trolley for seedlings
Students at France's Institut catholique d'arts et métiers have developed an automated solution for manufacturers of agricultural machinery.
▶ **www.igus.eu/manus-2021-seedling**



Robotics chassis
To research technologies such as machine learning, engineer Josh Bowen has developed a robotics chassis. It drives autonomously over harsh, dirty terrain. One challenge was the robot axes, which must adjust independently of one another to the terrain height. For this, Bowen uses igubal® ball and socket joints. They ensure reliable, smooth operation - even in dusty or damp environments.
▶ **www.igus.eu/igubal-applications**

Race car with igubal® rod end bearings
University students on the Arrabona Racing Team, based in Hungary, are building a race car that is to be especially reliable and lightweight.
▶ **www.igus.eu/manus-2021-racecar**





Sun protection
Arcora, a French company, is developing a system for moving sun protection fins on facades.
▶ **www.igus.eu/manus-2021-bronze**



igubal® pillow block bearings in a catamaran
Recreative Electric Vehicles, a shipyard in southern France, is building an electric catamaran that is 80% recyclable.
▶ **www.igus.eu/manus-2021-catamaran**

igubal® bearing elements | Product overview

igubal® rod end bearings with female thread



Selectable spherical ball material:
KCRM/KCLM
▶ Page 878



Integrated lock nut for easy assembly:
KBRM-CL/KBLM-CL
▶ Page 880



Classic design:
KBRM/KBLM
▶ Page 882



Space-saving, selectable spherical ball material:
EBRM/EBLM
▶ Page 888



For temperatures up to +200°C:
EBRM-HT/EBLM-HT
▶ Page 892



Suitable for food contact:
EBRM-FC/KCRM-FC
▶ Page 894

New



Metallic housing with maintenance-free inner ring:
KCRM-S/KCLM-S
▶ Page 896

igubal® rod end bearings with male thread



For higher loads:
KARM-CL/KALM-CL
▶ Page 884



Classic design:
KARM/KALM
▶ Page 886



Space-saving, selectable spherical ball material:
EARM/EALM
▶ Page 890



For temperatures up to +200°C:
EARM-HT/EALM-HT
▶ Page 893

New



Metallic housing with maintenance-free inner ring:
KARM-S/KALM-S
▶ Page 897

igubal® angled and in-line ball and socket joints



Angled ball and socket joints:
WGRM/WGLM
▶ Page 898



Angled ball and socket joints, low-cost:
WGRM-LC/WGLM-LC
▶ Page 899



Easy assembly and disassembly:
WGRM-DE/WGLM-DE
▶ Page 900



In-line ball and socket joint:
AGRM/AGLM
▶ Page 901



In-line ball and socket joints, low-cost:
AGRM-LC/AGLM-LC
▶ Page 902

igubal® clevis joint combinations



Clevis joints with clevis pin and circlip:
GERMK/GELMK
▶ Page 912



Clevis joints with spring-loaded fixing clip:
GERMF/GELMF
▶ Page 913

igubal® clevis joints combinations and single components



Clevis joint combination:
GERMKE/GELMKE
▶ Page 914



Clevis joints with spring-loaded fixing clip:
GERMFE/GELMFE
▶ Page 915



Clevis joint, high rigidity:
GERM/GELM
▶ Page 908



Spring-loaded fixing clip:
GEFM
▶ Page 916



Clevis pin and circlips:
GBM/GSR
▶ Page 917



Clevis joints with spring-loaded fixing pin, detectable, FDA and EU10/2011-compliant:
GERMF-FC ▶ Page 918

igubal® pillow block bearings - standard design



Clip-on version:
KSTM-CL
▶ Page 928



Compensation of misalignment errors:
KSTM
▶ Page 928

igubal® pillow block bearings for high radial loads



Easy to disassemble, split housing and ball:
KSTM-GT
▶ Page 930



Easy installation:
ESTM
▶ Page 931



For quick assembly and low total moisture absorption:
ESTM-GT-GT
▶ Page 932



Split housings with parallel hole:
ESTM-GT
▶ Page 933



Extremely light, compact design:
ESTM-SL
▶ Page 934

New

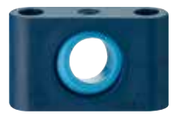


Space-saving:
PA-KS-JEM-SP
▶ Page 935



Split pillow block bearings for square profiles:
ESQM
▶ Page 936

New



Pillow block bearings for contact with food:
ESTM-FC
▶ Page 937

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igubal® bearing elements | Product overview

... for high radial loads


New

Pillow block bearings with polymer housing:
P-KS-JEM-SP
▶ Page 938


New

Pillow block bearings with cast iron housing:
P-JEM-SP
▶ Page 939

igubal® pillow block bearings - low-cost design



Pillow block bearings with cost-effective metallic housing:
PP-JEM-SP
▶ Page 940

igubal® fixed flange bearings for supporting the centre or ends of shafts



Easy installation:
EFOM
▶ Page 946



For high radial loads:
EFSM
▶ Page 948



Universal and quick assembly, female thread:
GFSM-IG
▶ Page 950



Universal and quick assembly, female thread:
GFSM-AG
▶ Page 951

igubal® fixed flange bearings for supporting the centre or ends of shafts



High static load, split housing:
KFSM-GT
▶ Page 952



For temperatures up to +200°C:
EFSM-HT
▶ Page 953



For temperatures up to +200°C:
EFOM-HT
▶ Page 954



Suitable for food contact:
EFOM-FC
▶ Page 955


New

With polymer housing:
FL-KS-JEM-SP
▶ Page 956


New

With polymer housing:
F-KS-JEM-SP
▶ Page 957


New

Compact fixed flange bearing: FL208-30-KS
F208-30-KS
▶ Page 958


New

With cast iron housing:
FL-JEM-SP
▶ Page 960

igubal® spherical bearings


New

With cast iron housing:
F-JEM-SP
▶ Page 961



With cost-effective metallic housing:
PFL-JEM-SP
▶ Page 962



Standard, easy to fit:
KGLM
▶ Page 970



Easy to fit, cost-effective:
KGLM-LC
▶ Page 968



For extremely narrow installation space:
KGLM-SL
▶ Page 969



Cost-effective, selectable spherical ball material:
EGLM-LC
▶ Page 971



Space-saving:
EGLM
▶ Page 972


New

FC spherical bearings:
EGLM-FC
▶ Page 973

igubal® clip bearings



Simply snap into sheet metal:
ECLM
▶ Page 974



For high axial and radial loads:
ECLM-HD
▶ Page 975



For tolerance compensation, selectable spherical ball material: EGFM-T
▶ Page 976



Clip into sheet metal, can be assembled on both sides:
ZCLM
▶ Page 977

igubal® double joints and coupling joints



Robust plastic:
EGZM
▶ Page 978



Selectable materials, individual dimensions:
KDGM
▶ Page 980



Selectable materials, individual dimensions:
WDGM
▶ Page 982



Removable, selectable materials:
WDGM-DE
▶ Page 984

igubal® spherical thrust bearings



Resistant to edge loads:
SAM
▶ Page 992


New

Variable coupling joint for dirty environments:
WDGM-FX
▶ Page 985



Crimped coupling joints with clevis joints:
GDGM-V
▶ Page 986


New

Crimped threaded inserts:
TDGM
▶ Page 987

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igubal® bearing elements | Product overview

igubal® spherical balls - different material options



Standard, low coefficient of friction:
WKM/WEM
▶ Page 997



Cost-effective, good wear resistance:
RKM/REM
▶ page 998



For temperatures up to +250°C:
XKM/XEM
▶ page 999



Low moisture absorption:
JKM/JEM
▶ page 1000



Low moisture absorption:
JKM
▶ Page 1001



Low moisture absorption:
JKM-GT
▶ Page 1002



Low moisture absorption, split design:
JEM-GT
▶ Page 1002



Cost-effective and low total moisture absorption:
J4KM/J4EM
▶ Page 1003

igubal® spherical balls - different material options



Stainless steel spherical ball:
EK
▶ Page 1004



For underwater applications:
UWEM
▶ page 1005



Clearance-free, pre-loaded:
J4VEM
▶ page 1006



For the food industry:
A181/FC180
▶ page 1007



Spherical insert bearings for metallic bearing housings:
JEM/A180EM/A350EM/J3EM
▶ Page 1009



Cost-effective alternative to machined options:
JEM-SP/J4EM-SP/A350EM-SP/J3EM-SP
▶ Page 1010

igubal® accessories



Fixing collar, galvanised steel:
SRM-ES
▶ Page 1012



Fixing collar, polymer:
SRM-KS
▶ Page 1012



Ball stud, Female thread:
GZRM-IG
▶ Page 1013



Ball stud, Male thread:
GZRM-AG
▶ Page 1014



Adapter screws with circlip:
PKRM/PKLM
▶ Page 1015



End caps for fixed flange bearings with spherical insert bearings:
EC-208/EC-208-CLEAR
▶ Page 1016

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Self-aligning maintenance-free spherical bearings made from high-performance polymers

igubal® is a system of self-aligning bearing elements completely made from plastic. igubal® puts a complete system of self-aligning bearings - rod end bearings, clevis joints, fixed flange bearings, spherical bearings and pillow block bearings - at the developer's fingertips.

Self-aligning bearings are easy to fit, adapt to all angular deviations and replace special housings in many cases.

With igubal®, the user can take advantage of all the benefits of high performance polymers. They can be used in dry operation and have excellent vibration dampening properties. They are resistant to dirt, can operate in liquids and even in chemicals and are completely resistant to corrosion.

The weight of the igubal® parts is approximately 80% lighter than comparable steel parts. Additional savings are cost-savings at the time of purchasing and during operation. igubal® bearings are also extremely cost-effective due to the elimination of maintenance and installation costs.

The installation space can also be reduced due to their small dimensions. igubal® self-aligning spherical bearings are made from a polymer housing for high strengths and a spherical ball made from maintenance-free self-lubricating high-performance polymers allowing low wear and long service life.

The benefits of igubal®

- Especially cost-effective
- Maintenance-free
- Lubrication-free
- Insensitive to dust and dirt
- Corrosion-free
- Can be used in liquid media
- Vibration-dampening
- Spherical ball set in housings with very low clearance
- No ingress of dirt
- Lightweight
- Temperature resistance up to +200°C, depending on the material



Picture 01: igus® test lab: More than 13,000 tribological tests (friction and wear) each year in 300 test rigs in the industry's largest laboratory (3,800m²). View inside igubal® test rigs.

igubal® spherical balls

In standard spherical bearings, the spherical ball is made of iglidur® W300 material, which is known for its low coefficient of friction in dry operation and extremely low tendency to stick-slip. This is especially important for low loads and very slow movements.

▶ More information about iglidur® W300, **page 175**

Taking advantage of its long experience in polymers and based on several tests, igus® decided in the last years to respond more precisely to the different applications and customer requests by developing spherical balls in other materials.

Further to the standard material iglidur® W300, spherical balls are now available in nine other materials presenting particular advantages:

- iglidur® X for high temperatures
- iglidur® J for low moisture absorption
- iglidur® J4 for low moisture absorption at lower costs
- iglidur® R as a low-cost alternative
- iglidur® UW for underwater applications
- iglidur® J4V as pre-loaded spherical ball
- iglidur® FC180, the detectable material
- iglidur® A350 for food applications
- iglidur® A181 for food applications

▶ Spherical balls, **page 993**

Do not hesitate to ask for technical support concerning the choice of the material.

igubal® housing

There are different housing materials available, each of them offering particular properties:

- Standard housings made from igumid® G, an extremely shock-resistant, long-fibre reinforced polymer. Temperatures from -30°C to +80°C
- High temperature housings are made from iguton G. This material has a high chemical resistance and is suitable for temperatures from -40°C to +200°C.
- Detectable housings made from RN246 material. Temperatures from -30°C to +80°C
- Housings made from igumid® FC material suitable for food contact. This material is FDA and EU10/2011-compliant and suitable for temperatures from -30°C to +100°C
- Zinc die-casting and stainless steel for metallic rod ends. Temperatures from -30°C to +80°C
- Painted cast iron and galvanised steel for pillow block bearing and fixed flange bearings. Temperatures from -30°C to +80°C

▶ Material properties, **page 1190**

Application areas

igubal® bearing elements can be used without problems even in harsh environments. In moist or wet environments, the bearings are corrosion-free, and resistant to weak acids and alkalis. The operating temperatures range from -30°C to +200°C. The insensitivity to dirt should also be emphasised, because even under extreme soiling, the plain bearings of the igubal® bearing elements do not require a seal. This is true for fine dust as well as coarse dirt.

Detectable

Made from the special materials iglidur® FC180 for the spherical ball and igumid® FC for the housing, the parts of metal detectable igubal® polymer bearings can be verified as foreign particles with all common parameters used in the metal detection technology and thus ensure safe food.

▶ Material properties, **page 1186**

Loads

The load capacity of the maintenance-free igubal® bearing element parts is very high at normal ambient temperatures. igubal® bearings absorb high forces and weigh only one fifth of traditional, metal bearing housings. The excellent dampening properties are based on the fact that the polymer material of the two part bearing can absorb vibrations differently than steel.

However, plastic specific properties, such as dependence on temperature and behaviour under long-term stress, must be taken into consideration when using igubal® bearings. The load capacity of the rod end should therefore be checked in a practical test, particularly if it will be used under continuous high loads and at elevated temperatures.

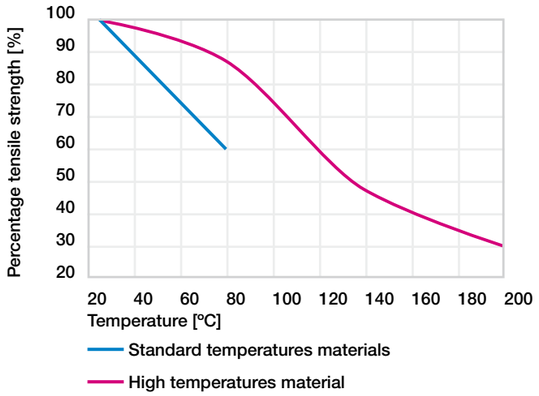


Diagram 01: Trends indicate the effect of temperature on the max. tensile strength of igubal® rod end bearings.

Coefficient of sliding friction and speed

One important advantage of igubal® spherical bearings is that rapid, shaft rotation takes place directly within the spherical portion, made of iglidur® W300. The advantage therefore lies in the plastic vs. steel relationship. Polymer produces lower friction and permits high speeds, even in dry operation. Taking the radial loads into account, maximum surface speeds up to 0.5m/s rotating can be attained.

By contrast, rotations of the shaft are supported directly in the inner diameter of the spherical portion. The maintenance-free igubal® bearing elements also permit linear movements of the shaft.

Application temperatures

igubal® standard bearing elements can be used in temperatures from -30°C to +80°C. The high temperatures versions can be used at continuous temperatures up to +200°C. Diagram 01 trends indicate the effect of temperature on the maximum tensile strength of igubal® rod end bearings.

igubal®	Application temperature		
	Standard	HT version	FC version
Minimum	-30°C	-40°C	-30°C
Max. long-term	+80°C	+200°C	+90°C
Maximum, short-term	+120°C	+240°C	+110°C

Table 01: Temperature limits of igubal® bearing elements

Thread type	Pitch [mm]
M2	0.40
M3	0.50
M4	0.70
M5	0.80
M6	1.00
M8	1.25
M10	1.50
M10 F	1.25
M12	1.75
M12 F	1.25
M14	2.00
M16	2.00
M16 F	1.50
M18	1.50
M20	1.50
M20 M20	2.50
M22	1.50
M24	2.00
M27	2.00
M30	2.00

Table 02: Thread pitches of igubal® rod ends and clevis joints

Chemical resistance of igubal® bearing elements

The spherical balls made from iglidur® W300 and the housing made from igumid® G are resistant to weak alkalis, weak acids and fuels, as well as all types of lubricants. The HT versions can be used for applications with a higher chemical demand. The moisture absorption of igubal® spherical bearings is about 1.3% by weight in normal climate. The saturation limit submerged in water is 6.5%. This must be taken into evaluation for applications. If a lower moisture absorption is essential, a look on to the different materials is helpful.

▶ Chemical table, **page 1170**

igubal® bearing elements | Technical data

Medium	Resistance	
	Standard	HT version
Alcohols	+ to 0	+
Hydrocarbons	+	+
Greases, oils without additives	+	+
Fuels	+	+
Diluted acids	0 to –	+ to 0
Strong acids	–	+ to –
Diluted alkalines	+	+
Strong alkalines	0	+

Table 03: Chemical resistance of igubal® bearing elements
+ resistant 0 conditionally resistant – not resistant
All data given at room temperature [+20°C]

Radiation resistance

Self-aligning igubal® bearings are resistant to radiation up to an intensity of $3 \cdot 10^2$Gy.

UV resistance

The corrosion resistance of igubal® bearings gives them special value for outside applications.

igubal® bearings are permanently resistant to UV radiation. A small change in colour (dark colouration) of the spherical ball due to UV radiation does not affect the mechanical, electrical or thermal properties.

Tolerances

igubal® bearing elements can be used with different tolerances according to each application. They are designed with a large bearing clearance in the standard product range, which enables a secure operation even under high peripheral speeds. The inner ring inner diameter has a tolerance of E10. The shaft tolerance should be manufactured between h6 and h9. The tolerances are provided in the table below. Please contact us in case you require lower or other bearing tolerances.

Nominal size [mm]	Tolerance	
	Plug gauge falls	Plug gauge sticks
to 3	x.01	x.05
> 3 to 6	x.02	x.07
> 6 to 10	x.02	x.08
> 10 to 18	x.03	x.10
> 18 to 30	x.04	x.12
> 30 to 50	x.05	x.15

Table 04: Tolerances of inner diameter (spherical balls)

Check the inner diameter



Inadequate test equipment; plug gauge too short



Wrong test equipment; caliper



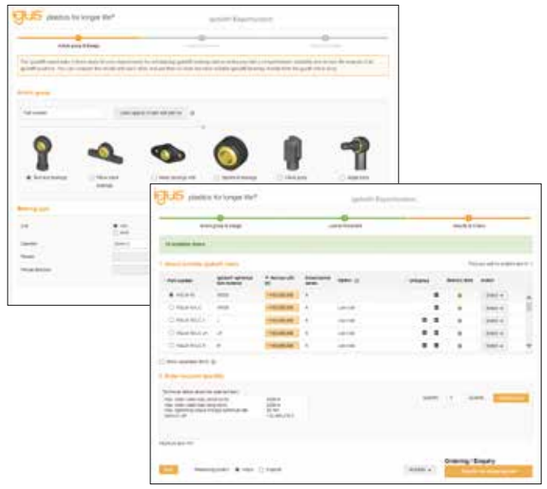
Tolerance test with plug gauge

Service life calculation

The igubal® expert allows to check the suitability of igubal® bearings for every application. You can choose from different igubal® bearings and specific load (radial, axial or static, cyclic and dynamic).

The expert system will calculate from these input data:

- The bearing wear
- The theoretical service life



igubal® expert system
www.igus.eu/igubal-expert

igubal® product finder
▶ www.igus.eu/igubal-finder

Notes



igubal® rod ends

- Maintenance-free dry operation
- High rigidity
- Durable
- Compensation of misalignment
- Compensation of edge loads
- Lightweight



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igubal® rod ends

igubal® rod ends can also be used in rough environments. They are corrosion-resistant in humid environments and resistant to weak acids and media. Depending on the version (HT) the operation temperature is from -40°C to +200°C. Rod ends are also resistant to dirt and dust, they are also available as detectable version.



Maintenance-free dry operation

High rigidity

Durable



Compensation of misalignment errors

Compensation of edge loads

Lightweight

When do I take them?

- If you want to save weight
- For rotating, oscillating and linear movements
- If high-frequency oscillations/vibrations occur
- If silent operation is required
- If you need an electrically insulating part
- If corrosion resistance is required
- In combination with pneumatic cylinders and gas struts
- When chemical resistance is required
- If high rigidity is required
- If they should be detectable

When do I not take them?

- When temperatures are higher than +80°C
  ▶ HT version, page 892-893
- If rotation speeds of more than 0.5 m/s are to be achieved
- When really high tensile and axial forces occur
- When applications must be implemented with hydraulic cylinders
- If diameters above 30 mm are required

Max. +200 °C
min. -40°C
(depending on material: standard from -30°C to +80°C; HT from -40°C to +200°C)

18 types
Ø 2 - 30mm

Available from stock
Detailed information about delivery time online.

Imperial dimensions available
▶ From page 1152

Price breaks online
No minimum order value. No minimum order quantity

Online product finder
▶ www.igus.eu/igubal-finder

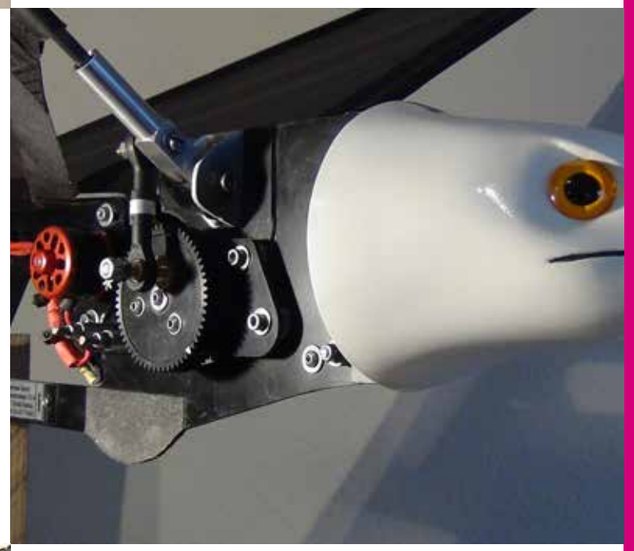
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igubal® rod ends | Application examples



Exoskeleton
The Jožef Stefan Institute in Slovenia is building an exoskeleton to physically assist warehouse workers with lifting. It must be lightweight to be successful. That is why the engineers are using lightweight, maintenance-free igubal® polymer plain bearings to connect the exoskeleton frame and iglidur® tribo-tape for several sliding surfaces.

Ornithopter
The ornithopter from the company citrusträume in Groß-Gerau has two flapping wings with the wingspan of an eagle (190cm), which generate the forward and upward thrust. To keep its weight as minimal as possible, the engineers rely on igubal® polymer rod end bearings (KBRM-03-MH) in the joints of the wings.





Mini car
IBR, a Brazilian company, is developing a petrol-driven mini car boasting 6.5 horsepower which will excite the kids. Because it is a recreational vehicle for children, all components must be as durable and low-maintenance as possible. That is why the design engineers are using iglidur® W300 rod ends (KBRM-12) in the steering rods, igubal® pillow block bearings (ESTM-08) in the front suspension and igubal® fixed flange bearings (EFOM-15) in the steering column.

igubal® rod ends | Technical data

Benefits

- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional K and E series, according to standard DIN ISO 12240
- Available with stainless steel sleeve for higher tightening torque

Product range

igubal® rod ends are available in the dimensional K and E series for shaft diameters of 2 to 30mm according to standard DIN ISO 12240

- Form A - with male thread and
- Form B - with female thread

Stainless steel sleeve

The dimensional K and partially E series are available in imperial dimensions, as well as a special version containing a stainless steel sleeve in the spherical ball. This allows a significantly higher tightening torque than for the standard polymer race. Please contact us if you need other dimensions.

Loads

igubal® rod ends handle high loads at ambient temperatures, have excellent dampening properties and weigh only a fifth of traditional metallic bearing housings. In applications with high continuous loads and high temperatures, the load capacity of igubal® rod ends should be tested in an experiment that simulates the application.

▶ **www.igus.eu/igubal-finder**

Coefficient of sliding friction and speed

Shaft rotation takes place directly within the spherical ball made of iglidur® W300. The advantage therefore lies in the plastic vs. steel relationship. Polymer produces lower friction and permits high speeds, even in dry operation. Taking the radial loads into account, maximum surface speeds up to 0.5m/s rotating can be attained.
The maintenance-free igubal® rod end bearings permit linear and oscillating movements of the shaft.

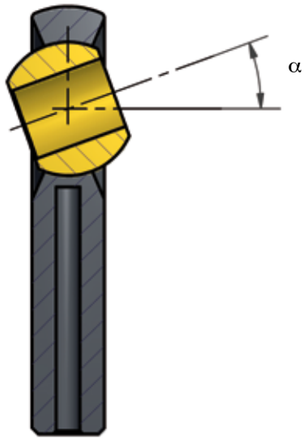
Temperatures

The igubal® rod ends can be used in temperatures from -30°C up to +80°C. The igubal® rod ends made from HT material are suitable for temperatures up to +200°C (E series, female and male threads).

Tolerances

igubal® rod ends can be used with different tolerances according to each application. They are designed with a large bearing clearance in the standard product range, which enables a secure operation even under high peripheral speeds. The hole of the spherical ball is produced to a standard tolerance range E10. The shaft tolerance should be manufactured between h6 and h9. All values and tolerances according to ISO 2768-m. Please contact us in case you require lower or other bearing tolerances.

pivot angle



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igubal® rod ends | Product overview

igubal® rod end bearings with female thread



Selectable spherical ball material

K series

▶ **Page 878**



Easy assembly

K series

▶ **Page 880**



Classic design

K series

▶ **From page 882**



Space-saving

E series

▶ **Page 888**



For temperatures up to +200°C

E series

▶ **Page 892**



Suitable for food contact

E series

▶ **Page 894**

New



Suitable for food contact

K series

▶ **Page 894**

New



Metallic housing

K series

▶ **Page 896**

igubal® rod end bearings with male thread



For higher loads

K series

▶ **Page 884**



Classic design

K series

▶ **From page 886**



Space-saving

E series

▶ **From page 890**



For temperatures up to +200°C

E series

▶ **Page 893**

New



Metallic housing

K series

▶ **From page 897**

igubal® angled and in-line ball and socket joints



Angled ball and socket joints

▶ **Page 898**



Angled ball and socket joints, low-cost

▶ **Page 899**



Easy assembly and disassembly

▶ **Page 900**

igubal® angled and in-line ball and socket joints



In-line ball and socket joint

▶ **Page 901**



In-line ball and socket joints, low-cost

▶ **Page 902**

igubal® accessories for rod ends



Clevis joints with clevis pin and circlip

E series

▶ **Page 912**



Clevis joints with spring-loaded fixing clip

E series

▶ **Page 913**

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igubal® rod ends | Product range

Rod ends with female thread: KCRM and KCLM



- Successor model of KBRM
- New design resists dirt
- Spherical ball is clipped in
- Choice of iglidur® spherical ball materials
- Compensation of misalignment errors
- Lightweight
- Absolute corrosion resistance
- Available with stainless steel sleeve for higher tightening torque
- Dimensional series K following DIN ISO 12240
- Adapter screw with circlip available

▶ Accessories, **page 1015**

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Min. thread depth	Max. tightening torque	Max. tightening torque through ball		Weight
	Short-term	Long-term	Short-term	Long-term	Thread	Female thread	without stainless steel sleeve	with stainless steel sleeve	
	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[Nm]	[g]
KC□M-05	1,200	600	180	90	7	1.00	5	12	4.0
KC□M-06	1,400	700	300	150	8	0.75	10	15	4.2
KC□M-08	2,100	1,050	500	250	11	2.00	12	40	7.6
KC□M-10	3,100	1,550	800	400	13	3.00	20	50	12.8
KC□M-10-F	3,100	1,550	800	400	13	3.00	20	50	12.8
KC□M-12	3,560	1,780	750	375	15	15.0	30	70	19.0
KC□M-12-F	3,560	1,780	750	375	15	15.0	30	70	19.0
KC□M-16	3,800	1,900	800	400	19	15.0	40	110	34.0
KC□M-16-F	3,800	1,900	800	400	19	15.0	40	110	34.0
KC□M-20	4,550	2,275	400	200	22	20.0	55	200	55.0
KC□M-20-M20	4,550	2,275	400	200	22	20.0	55	200	55.0

Alternative spherical ball materials ▶ Page 993



RKM: Low-cost



JKM: Low moisture absorption



WKM-MH: Standard spherical ball with stainless steel sleeve



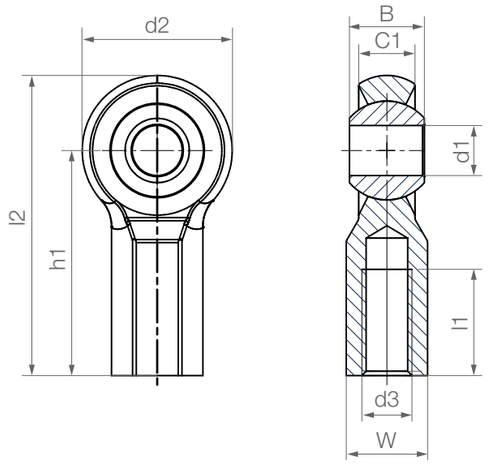
J4KM: Low-cost and low moisture absorption

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igubal® rod ends

igubal® rod ends | Product range

Rod ends with female thread: KCRM and KCLM



Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Order key

Type				Size	Options
K	C □	M	- 06		- MH
K series	Housing (female thread)	Thread	Metric	Inner Ø [mm]	

Options:

Thread		Spherical ball material	
L	: Left-hand thread	**Blank**	: iglidur® W300
R	: Right-hand thread	**R**	: iglidur® R
Add-on:		**J**	: iglidur® J
MH	: With stainless steel sleeve	**J4**	: iglidur® J4
		EK	: Stainless steel (AISI 303)

Dimensions [mm]

Part No.	d1	d2	d3	W	B		C1	h1	l1	l2	Max. pivot angle
	E10				without stainless steel sleeve	with stainless steel sleeve +0.2					
KC□M-05	5	18	M5	SW9	8	8.2	6.0	27	12.0	36	43°
KC□M-06	6	20	M6	SW10	9	9.2	7.0	30	13.5	40	40°
KC□M-08	8	24	M8	SW13	12	12.2	9.0	36	17.0	48	35°
KC□M-10	10	30	M10	SW15	14	14.2	10.5	43	22.0	58	35°
KC□M-10-F	10	30	M10 x 1.25	SW15	14	14.2	10.5	43	22.0	58	35°
KC□M-12	12	34	M12	SW17	16	16.2	12.0	50	25.0	67	35°
KC□M-12-F	12	34	M12 x 1.25	SW17	16	16.2	12.0	50	25.0	67	35°
KC□M-16	16	42	M16	SW20	21	21.2	15.0	64	30.0	85	35°
KC□M-16-F	16	42	M16 x 1.5	SW20	21	21.2	15.0	64	30.0	85	35°
KC□M-20	20	50	M20 x 1.5	SW24	25	25.2	18.0	77	35.0	102	35°
KC□M-20-M20	20	50	M20 x 2.5	SW24	25	25.2	18.0	77	35.0	102	35°

Rod ends can be ordered in metric dimensions **with stainless steel sleeve** with the addition of **MH** after the part numbers listed here. Example: KCRM-10-**MH (Inner Ø: 10mm).**
For another spherical bearing material than iglidur® W300, please add "**J**" to the part number. Example: KCRM-05-**J**.

Alternative spherical ball materials ▶ Page 993



EK: Stainless steel spherical ball

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igubal® rod ends | Product range

Rod ends, female thread; 2nd generation: KBRM CL and KBLM CL



- Available with stainless steel sleeve for higher tightening torque
- Dimensional series K following DIN ISO 12240
- Adapter screw with circlip available
  ▶ Accessories, **page 1015**



Simple assembly due to the hexagonal body and the integrated lock nut

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Min. thread depth	Max. tightening torque	Max. tightening torque through ball		Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Thread [mm]	Female thread [Nm]	without stainless steel sleeve [Nm]	with stainless steel sleeve [Nm]	[g]
KB□M-06-CL	1,400	700	300	150	8	0.75	10	15	4.5
KB□M-08-CL	2,100	1,050	500	250	11	2	12	40	8.6
KB□M-10-CL	3,100	1,550	800	400	13	3	20	50	14.1

Alternative spherical ball materials ▶ Page 993

RKM: Low-cost

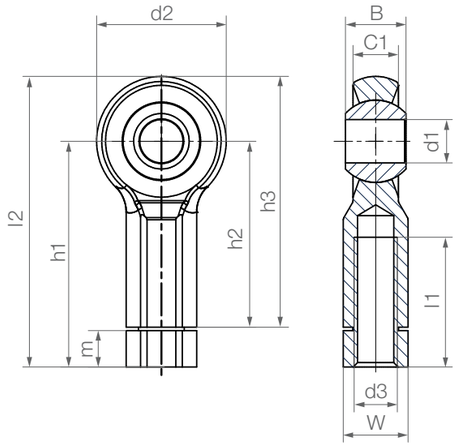
JKM: Low moisture absorption

WKM-MH: Standard spherical ball with stainless steel sleeve

J4KM: Low-cost and low moisture absorption

igubal® rod ends | Product range

Rod ends, female thread; 2nd generation: KBRM CL and KBLM CL



Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Order key

Type				Size	Version
K	B	□	M-	06	-CL-MH
K series	Housing (female thread)	Thread	Metric	Inner Ø [mm]	2nd generation

Options:

Thread	Spherical ball material
L : Left-hand thread	Blank : iglidur® W300
R : Right-hand thread	R : iglidur® R
Add-on:	J : iglidur® J
MH : With stainless steel sleeve	J4 : iglidur® J4

Dimensions [mm]

Part No.	d1 E10	d2	d3	W	B without stainless steel sleeve	B with stainless steel sleeve +0.2	C1	h3	h1	h2	l1	l2	m	Max. pivot angle
KB□M-06-CL	6	20	M6	SW10	9	9.2	7	40	36.5	30	20	46.5	5.7	40°
KB□M-08-CL	8	24	M8	SW13	12	12.2	9	48	44.3	36	25	56.3	7.5	35°
KB□M-10-CL	10	30	M10	SW15	14	14.2	10.5	58	52.2	43	30	67.2	8.4	35°

Rod ends can be ordered in metric dimensions with stainless steel sleeve with the addition of **MH** after the part numbers listed here. Example: KBRM-10-CL-**MH (Inner Ø: 10mm).**
For another spherical bearing material than iglidur® W300, please add "**J**" to the part number. Example: KBRM-10-CL-**J**

Rod ends with female thread: KBRM and KBLM



Standard design



Stainless steel sleeve version (MH)

- Predecessor model of KCRM
- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series K following DIN ISO 12240
- Available with stainless steel sleeve for higher tightening torque
- Adapter screw with circlip available
  ▶ Accessories, **page 1015**

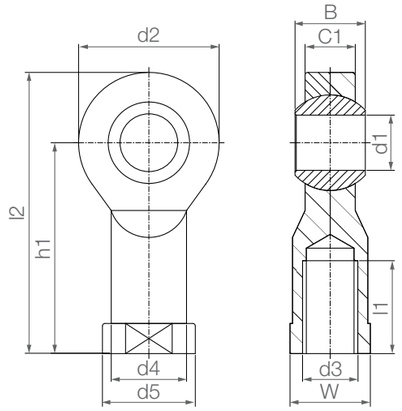
Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial load		Min. thread depth	Max. tightening torque	Max. tightening torque through ball		Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Threads [mm]	Female thread [Nm]	without stainless steel sleeve [Nm]	with stainless steel sleeve [Nm]	[g]
KB□M-02	200	100	50	25	4	0.30	1	–	0.4
KB□M-03	800	400	100	50	5	0.50	2	4	2.7
KB□M-05-M4	1,000	500	250	125	7	0.75	5	12	3.5
KB□M-05	1,000	500	250	125	7	1.00	5	12	3.4
KB□M-06	1,400	700	400	200	8	1.50	10	15	4.7
KB□M-08	2,100	1,050	700	350	11	5.00	12	40	8.6
KB□M-10	3,100	1,550	800	400	13	15.00	20	50	14.6
KB□M-10-F	3,100	1,550	800	400	13	6.00	20	50	14.6
KB□M-12[129)]	3,600	1,800	900	450	15	20.00	30	70	22.0
KB□M-12-F	3,600	1,800	900	450	15	15.00	30	70	22.0
KB□M-14	4,000	2,000	1,000	500	17	25.00	35	75	30.9
KB□M-14-F	4,000	2,000	1,000	500	17	25.00	35	75	30.9
KB□M-16	4,200	2,100	1,300	650	19	30.00	40	110	39.6
KB□M-16-F	4,200	2,100	1,300	650	19	27.50	40	110	39.6
KB□M-18	4,600	2,300	1,600	800	21	45.00	45	150	55.0
KB□M-20	5,400	2,700	2,100	1,050	22	60.00	55	200	73.5
KB□M-20-M20	5,400	2,700	2,100	1,050	22	60.00	55	200	73.5
KB□M-22	7,000	3,500	2,200	1,100	25	75.00	60	–	94.8
KB□M-25	8,500	4,250	2,300	1,150	28	120.00	60	–	119.8
KB□M-30	10,500	5,250	2,500	1,250	34	135.00	60	–	177.0
KB□M-30-M27x2	10,500	5,250	2,500	1,250	34	135.00	60	–	189.6

[129)] **Integrated lock nut. Drawing as for KCRM, page 879**

Rod ends with female thread: KBRM and KBLM



Order key

Type				Size	Options
K	B	□	M-	02	- MH

K series	Housing (female thread)	Thread	Metric	Inner Ø [mm]

Thread
L : Left-hand thread
R : Right-hand thread

Add-on:
MH : With stainless steel sleeve
F : Fine thread

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Imperial dimensions available
▶ Page 1154

Dimensions [mm]

Part No.	d1	d2	d3	d4	d5	C1	B		h1	l1	l2	W	Max. pivot angle
	E10						without stainless steel sleeve	with stainless steel sleeve +0.2					
KB□M-02	2	9	M2	4.0	4.6	3.0	4	–	12.5	6	17	SW4	30°
KB□M-03	3	13	M3	6.5	8.0	4.5	6	6.2	18.5	8	25	SW6	30°
KB□M-05-M4	5	18	M4	9.0	12.0	6.0	8	8.2	27	10	36	SW9	30°
KB□M-05	5	18	M5	9.0	12.0	6.0	8	8.2	27	10	36	SW9	30°
KB□M-06	6	20	M6	10.0	13.0	7.0	9	9.2	30	12	40	SW11	29°
KB□M-08	8	24	M8	13.0	16.0	9.0	12	12.2	36	16	48	SW14	25°
KB□M-10	10	30	M10	15.0	19.0	10.5	14	14.2	43	20	58	SW17	25°
KB□M-10-F	10	30	M10 x 1.25	15.0	19.0	10.5	14	14.2	43	20	58	SW17	25°
KB□M-12	12	34	M12	–	–	12.0	16	16.2	50	25	67	SW17	25°
KB□M-12-F	12	34	M12 x 1.25	18.0	22.0	12.0	16	16.2	50	22	67	SW19	25°
KB□M-14	14	38	M14	20.0	25.0	13.5	19	19.2	57	25	76	SW22	25°
KB□M-14-F	14	38	M14 x 1.5	20.0	25.0	13.5	19	19.2	57	25	76	SW22	25°
KB□M-16	16	42	M16	22.0	27.0	15.0	21	21.2	64	28	85	SW22	23°
KB□M-16-F	16	42	M16 x 1.5	22.0	27.0	15.0	21	21.2	64	28	85	SW22	23°
KB□M-18	18	46	M18 x 1.5	25.0	31.0	16.5	23	23.2	71	32	94	SW27	23°
KB□M-20	20	50	M20 x 1.5	28.0	34.0	18.0	25	25.2	77	33	102	SW30	23°
KB□M-20-M20	20	50	M20 x 2.5	28.0	34.0	18.0	25	25.2	77	33	102	SW30	23°
KB□M-22	22	56	M22 x 1.5	30.0	37.0	20.0	28	–	84	37	112	SW32	22°
KB□M-25	25	60	M24 x 2.0	32.0	41.0	22.0	31	–	94	42	124	SW36	22°
KB□M-30	30	70	M30 x 2.0	37.0	50.0	25.0	37	–	110	50	145	SW41	22°
KB□M-30-M27x2	30	70	M27 x 2.0	37.0	50.0	25.0	37	–	110	50	145	SW41	22°

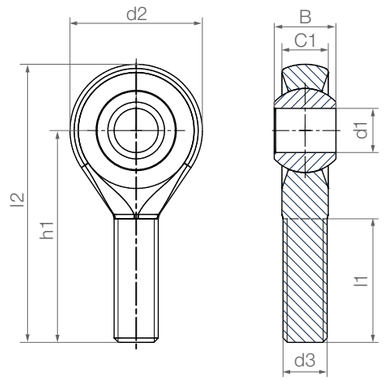
Rod ends can be ordered in metric dimensions with stainless steel sleeve with the addition of MH after the part numbers listed here. Example: KRBM-10-**MH (Inner Ø: 10mm).**

Rod ends, male thread; 2nd generation: KARM CL



- New design resists dirt
- Compensation of misalignment errors
- Lightweight
- Absolute corrosion resistance
- Available with stainless steel sleeve for higher tightening torque
- Dimensional series K following DIN ISO 12240
- Adapter screw with circlip available

▶ Accessories, **page 1015**



Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Order key

Type				Size	Version
K	A □	M	- 06	- CL	- MH
K series	Housing (male thread)	Thread	Metric	Inner Ø [mm]	2nd generation

Options:

Thread		Spherical ball material	
L	: Left-hand thread	Blank	: iglidur® W300
R	: Right-hand thread	R	: iglidur® R
Add-on:		J	: iglidur® J
MH	: With stainless steel sleeve	J4	: iglidur® J4
		EK	: Stainless steel (AISI 303)

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball		Weight
	Short-term	Long-term	Short-term	Long-term	Thread	Male thread	without stainless steel sleeve	with stainless steel sleeve	
	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[Nm]	[g]
KA□M-05-CL	800	400	80	40	13	0.4	5	12	2.3
KA□M-06-CL	1,000	500	100	50	15	0.5	10	15	3.5
KA□M-08-CL	1,700	850	200	100	18	2.0	12	40	6.2
KA□M-10-CL	2,500	1,250	300	150	20	5.0	20	50	11.2
KA□M-12-CL	2,700	1,350	400	200	22	6.0	30	70	15.6

Dimensions [mm]

Part No.	d1 E10	d2	d3	C1	B without stainless steel sleeve	B with stainless steel sleeve +0.2	h1	l1	l2	Max. pivot angle
KA□M-05-CL	5	18	M5	6.0	8	8.2	33	19	42	43°
KA□M-06-CL	6	20	M6	7.0	9	9.2	36	21	46	40°
KA□M-08-CL	8	24	M8	9.0	12	12.2	42	25	55	35°
KA□M-10-CL	10	30	M10	10.5	14	14.2	48	28	63	35°
KA□M-12-CL	12	34	M12	12.0	16	16.2	54	32	71	35°

Rod ends can be ordered in metric dimensions with stainless steel sleeve with the addition of **MH** after the part numbers listed here. Example: KARM-10-CL-**MH (Inner Ø: 10mm).**
For another spherical bearing material than iglidur® W300, please add "**J**" to the part number. Example: KARM-10-CL-**J**.

Alternative spherical ball materials ▶ Page 993


RKM: Low-cost


JKM: Low moisture absorption


WKM-MH: Standard spherical ball with stainless steel sleeve


J4KM: Low-cost and low moisture absorption

Alternative spherical ball materials ▶ Page 993


EK: Stainless steel spherical ball

igubal® rod ends | Product range

Rod ends with male thread: KARM and KALM



Standard design



Stainless steel sleeve version (MH)

- Predecessor model of KARM-CL
- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series K following DIN ISO 12240
- Available with stainless steel sleeve for higher tightening torque
- Adapter screw with circlip available
  ▶ Accessories, **page 1015**

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

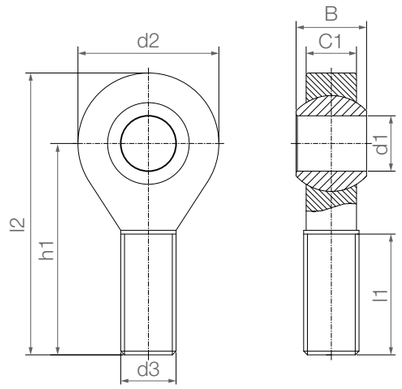
Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball		Weight
	Short-term	Long-term	Short-term	Long-term	Threads	Male thread	without stainless steel sleeve	with stainless steel sleeve	
	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[Nm]	[g]
KA□M-05	800	400	80	40	13	0.4	5	12	2.7
KA□M-06	1,000	500	100	50	15	0.5	10	15	3.9
KA□M-08	1,700	850	200	100	18	2.0	12	40	7.1
KA□M-10	2,500	1,250	300	150	20	5.0	20	50	12.5
KA□M-10-F	2,500	1,250	300	150	20	3.0	20	50	12.5
KA□M-12	3,400	1,700	400	200	22	6.0	30	70	18.0
KA□M-12-F	3,400	1,700	400	200	22	6.0	30	70	18.0
KA□M-14	3,400	1,700	700	350	25	12.0	35	75	25.0
KA□M-16	3,900	1,950	800	400	26	17.0	40	110	34.0
KA□M-16-F	3,900	1,950	800	400	26	17.0	40	110	34.0
KA□M-18	4,200	2,100	1,000	500	29	20.0	45	150	45.9
KA□M-20	6,000	3,000	1,300	650	32	25.0	55	200	58.0
KA□M-20-M20	6,000	3,000	1,300	650	32	25.0	55	200	58.0
KA□M-22	7,200	3,600	1,500	750	34	25.0	60	–	86.2
KA□M-25	7,500	3,750	1,900	950	39	45.0	65	–	99.1
KA□M-30	8,800	4,400	2,300	1,150	46	85.0	70	–	160.4

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igubal® rod ends

igubal® rod ends | Product range

Rod ends with male thread: KARM and KALM



Order key

Type				Size	Options
K	A	□	M-	05	- MH

K series | Housing (male thread) | Thread | Metric | Inner Ø [mm]

Thread
L : Left-hand thread
R : Right-hand thread

Add-on:
MH : With stainless steel sleeve
F : Fine thread

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Imperial dimensions available
▶ Page 1153

Dimensions [mm]

Part No.	d1	d2	d3	C1	B		h1	l1	l2	Max. pivot angle
	E10				without stainless steel sleeve	with stainless steel sleeve +0.2				
KA□M-05	5	18	M5	6.0	8	8.2	33	19	42	30°
KA□M-06	6	20	M6	7.0	9	9.2	36	21	46	29°
KA□M-08	8	24	M8	9.0	12	12.2	42	25	55	25°
KA□M-10	10	30	M10	10.5	14	14.2	48	28	63	25°
KA□M-10-F	10	30	M10 x 1.25	10.5	14	14.2	48	28	63	25°
KA□M-12	12	34	M12	12.0	16	16.2	54	32	71	25°
KA□M-12-F	12	34	M12 x 1.25	12.0	16	16.2	54	32	71	25°
KA□M-14	14	38	M14	13.5	19	19.2	61	36	79	25°
KA□M-16	16	42	M16	15.0	21	21.2	66	37	88	23°
KA□M-16-F	16	42	M16 x 1.5	15.0	21	21.2	66	37	88	23°
KA□M-18	18	46	M18 x 1.5	16.5	23	23.2	72	41	96	23°
KA□M-20	20	50	M20 x 1.5	18.0	25	25.2	78	45	104	23°
KA□M-20-M20	20	50	M20 x 2.5	18.0	25	25.2	78	45	104	23°
KA□M-22	22	56	M22 x 1.5	20.0	28	–	84	48	112	22°
KA□M-25	25	61	M24 x 2.0	22.0	31	–	95	55	126	22°
KA□M-30	30	71	M30 x 2.0	25.0	37	–	112	66	147	22°

Rod ends can be ordered in metric dimensions **with stainless steel sleeve** with the addition of **MH** after the part numbers listed here. Example: KABM-10-**MH (Inner Ø: 10mm).**

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igubal® rod ends | Product range

Rod ends with female thread: EBRM and EBLM



- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240
- For temperatures up to +200°C we recommend EBRM-HT and EBLM-HT ▶ **Page 892**
- Version for contact with food ▶ **Page 894**

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
	Short-term	Long-term	Short-term	Long-term	Thread	Female thread		
	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[g]
EB□M-04[17]	800	400	100	50	7	0.4	2.0	1.8
EB□M-05	1,300	650	150	75	8	0.5	2.0	3.2
EB□M-06	1,500	750	200	100	8	1.5	2.5	4.0
EB□M-08	2,000	1,000	450	225	11	5.0	7.0	6.9
EB□M-10	2,300	1,150	500	250	13	15.0	14.0	11.2
EB□M-10-F	2,300	1,150	500	250	13	6.0	14.0	11.2
EB□M-12	3,300	1,650	550	275	14	20.0	25.0	17.1
EB□M-12-F	3,300	1,650	550	275	14	15.0	25.0	17.1
EB□M-15	4,800	2,400	800	400	18	25.0	30.0	28.9
EB□M-16[17]	5,000	2,500	850	425	18	20.0	32.0	32.6
EB□M-16-F[17]	5,000	2,500	850	425	18	15.0	32.0	32.6
EB□M-17	5,300	2,650	1,100	550	19	30.0	35.0	42.4
EB□M-17-F	5,300	2,650	1,100	550	19	27.5	35.0	42.4
EB□M-20	7,200	3,600	1,800	900	22	60.0	40.0	65.8
EB□M-20-M20	7,200	3,600	1,800	900	22	60.0	40.0	65.8
EB□M-25	10,000	5,000	2,600	1,300	27	115.0	55.0	125.9
EB□M-30	10,500	5,250	3,000	1,500	33	130.0	70.0	184.1

Alternative spherical ball materials ▶ Page 993



J4VEM: Clearance-free, pre-loaded



JEM: Low moisture absorption



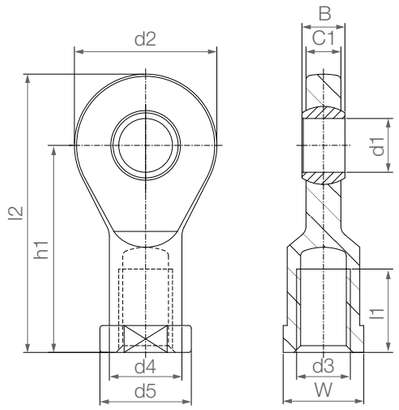
REM: Low-cost



J4EM: Low-cost and low moisture absorption

igubal® rod ends | Product range

Rod ends with female thread: EBRM and EBLM



Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Order key

Type					Size	
E	B	□	M	-	04	
E series	Housing (female thread)	Thread	Metric		Inner Ø [mm]	

Options:
Thread
L : Left-hand thread
R : Right-hand thread
Add-on:
F : Fine thread

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4
J4V : iglidur® J4V
EK : Stainless steel (AISI 303)

Dimensions [mm]

Part No.	d1	d2	d3	d4	d5	C1	B	h1	l1	l2	W	Max. pivot angle
	E10											
EB□M-04[17]	4	15	M4	–	–	3.5	5	22.5	9.5	30.0	SW8	33°
EB□M-05	5	19	M5	9.0	11	4.4	6	30	12.0	39.5	SW9	33°
EB□M-06	6	21	M6	11.0	13	4.4	6	30	12.0	40.5	SW11	27°
EB□M-08	8	24	M8	13.0	16	6.0	8	36	14.0	48.0	SW14	24°
EB□M-10	10	29	M10	15.0	19	7.0	9	43	18.0	57.5	SW17	24°
EB□M-10-F	10	29	M10 x 1.25	15.0	19	7.0	9	43	18.0	57.5	SW17	24°
EB□M-12	12	34	M12	18.0	22	8.0	10	50	20.0	67.0	SW19	21°
EB□M-12-F	12	34	M12 x 1.25	18.0	22	8.0	10	50	20.0	67.0	SW19	21°
EB□M-15	15	40	M14	21.0	26	10.0	12	61	26.0	81.0	SW22	21°
EB□M-16[17]	16	43	M16	–	–	10.5	13	64.5	26.5	86.0	SW22	21°
EB□M-16-F[17]	16	43	M16 x 1.5	–	–	10.5	13	64.5	26.5	86.0	SW22	21°
EB□M-17	17	46	M16	24.0	30	11.0	14	67	27.0	90.0	SW27	18°
EB□M-17-F	17	46	M16 x 1.5	24.0	30	11.0	14	67	27.0	90.0	SW27	18°
EB□M-20	20	53	M20 x 1.5	27.0	34	13.0	16	77	31.0	103.5	SW30	16°
EB□M-20-M20	20	53	M20 x 2.5	27.0	34	13.0	16	77	31.0	103.5	SW30	16°
EB□M-25	25	64	M24 x 2.0	34.0	41	17.0	20	94	38.0	126.5	SW36	16°
EB□M-30	30	73	M30 x 2.0	41.0	48	19.0	22	110	47.0	146.5	SW41	13°

[17] Special design with hexagonal foot

For another spherical bearing material than iglidur® W300, please add "**J**" to the part number. Example: EBRM-05-**J**.

Alternative spherical ball materials ▶ Page 993



EK: Stainless steel spherical ball

Imperial dimensions available
▶ Page 1152

igubal® rod ends | Product range

Rod ends with male thread: EARM and EALM



- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment errors
- Compensation of edge loads
- Resistant to dirt, dust and lint
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240
- For temperatures up to +200°C we recommend EARM-HT and EALM-HT ▶ **Page 893**

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
	Short-term	Long-term	Short-term	Long-term	Thread	Male thread		
	[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[g]
EA□M-05	550	275	50	25	14	0.4	2.0	2.2
EA□M-06	850	425	80	40	14	0.5	2.5	2.7
EA□M-08	1,600	800	160	80	17	2.0	7.0	5.1
EA□M-10	2,600	1,300	250	125	19	5.0	14.0	8.4
EA□M-10-F	2,600	1,300	250	125	19	3.0	14.0	8.4
EA□M-12	3,100	1,550	300	150	20	6.0	25.0	14.3
EA□M-12-F	3,100	1,550	300	150	20	6.0	25.0	14.3
EA□M-15	3,400	1,700	600	300	24	12.5	30.0	21.1
EA□M-17	3,600	1,800	900	450	26	17.5	35.0	30.2
EA□M-17-F	3,600	1,800	900	450	26	21.0	35.0	30.2
EA□M-20	6,800	3,400	1,700	850	30	25.0	40.0	57.3
EA□M-20-M20	6,800	3,400	1,700	850	30	25.0	40.0	57.3
EA□M-25	7,000	3,500	1,000	500	37	45.0	55.0	94.8
EA□M-30	7,000	3,500	2,000	1,000	46	85.0	70.0	156.4

Alternative spherical ball materials ▶ Page 993



J4VEM: Clearance-free, pre-loaded



JEM: Low moisture absorption



REM: Low-cost



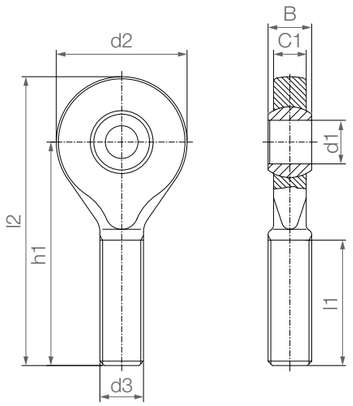
J4EM: Low-cost and low moisture absorption

EN 09/2023

igubal® rod ends

igubal® rod ends | Product range

Rod ends with male thread: EARM and EALM



Material:
Housing: **igumid® G** ▶ **Page 1190**
Spherical ball: **iglidur® W300** ▶ **Page 175**

Order key

Type				Size	
E	A	□	M-		05
E series	Housing (male thread)	Thread	Metric		Inner Ø [mm]

Options:

Thread
L : Left-hand thread
R : Right-hand thread

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4
J4V : iglidur® J4V
EK : Stainless steel (AISI 303)

Dimensions [mm]

Part No.	d1 E10	d2	d3	C1	B	h1	l1	l2	Max. pivot angle
EA□M-05	5	19	M5	4.4	6	36.0	20	45.5	33°
EA□M-06	6	21	M6	4.4	6	36.0	20	46.5	27°
EA□M-08	8	24	M8	6.0	8	41.0	24	53.0	24°
EA□M-10	10	29	M10	7.0	9	47.5	27	62.0	24°
EA□M-10-F	10	29	M10 x 1.25	7.0	9	47.5	27	62.0	24°
EA□M-12	12	34	M12	8.0	10	54.0	29	71.0	21°
EA□M-12-F	12	34	M12 x 1.25	8.0	10	54.0	29	71.0	21°
EA□M-15	15	40	M14	10.0	12	63.0	34	83.0	21°
EA□M-17	17	46	M16	11.0	14	69.0	37	92.0	18°
EA□M-17-F	17	46	M16 x 1.5	11.0	14	69.0	37	92.0	18°
EA□M-20	20	53	M20 x 1.5	13.0	16	80.0	43	106,5	16°
EA□M-20-M20	20	53	M20 x 2.5	13.0	16	80.0	43	106,5	16°
EA□M-25	25	64	M24 x 2.0	17.0	20	97.0	53	129.0	16°
EA□M-30	30	73	M30 x 2.0	19.0	22	113.0	65	149.5	13°

For another spherical bearing material than iglidur® W300, please add "**J**" to the part number. Example: EARM-05-**J**.

Alternative spherical ball materials ▶ Page 993

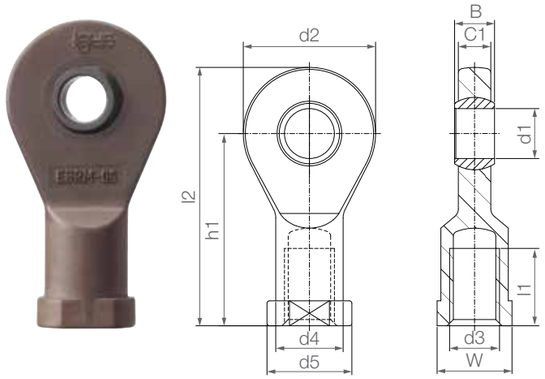


EK: Stainless steel spherical ball

EN 09/2023

igubal® rod ends | Product range

High temperature rod ends with female thread: EBRM-HT and EBLM-HT



- Applicable up to +200°C
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment and edge loads
- Resistant to corrosion and chemicals (chemical table ▶ **Page 1170**)
- Can be used underwater
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240

Order key

Type				Size	Version
E	B	□	M-	05	-HT
E series	Housing (female thread)	Thread	Metric	Inner Ø [mm]	High temperature

Options:

Thread

L : Left-hand thread

R : Right-hand thread

Material:

Housing: **iguton G ▶ Page 1191**

Spherical ball: **iglidur® X ▶ Page 291**

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Thread [mm]	Female thread [Nm]	[Nm]	[g]
EB□M-05-HT	625	313	140	70	8	0.4	2.0	3.8
EB□M-06-HT	832	416	172	86	8	0.5	2.5	5.0
EB□M-08-HT	1,317	658	175	88	11	2.0	7.0	8.5
EB□M-10-HT	1,470	735	253	126	13	5.0	14.0	13.7
EB□M-12-HT	1,600	800	279	139	14	6.0	25.0	21.4

Dimensions [mm]

Part No.	d1 E10	d2	d3	d4	d5	C1	B	h1	l1	l2	W	Max. pivot angle
EB□M-05-HT	5	19	M5	9.0	11	4.4	6	30	12	39.5	SW9	33°
EB□M-06-HT	6	21	M6	11.0	13	4.4	6	30	12	40.5	SW11	27°
EB□M-08-HT	8	24	M8	13.0	16	6.0	8	36	14	48.0	SW14	24°
EB□M-10-HT	10	29	M10	15.0	19	7.0	9	43	18	57.5	SW17	24°
EB□M-12-HT	12	34	M12	18.0	22	8.0	10	50	20	67.0	SW19	21°

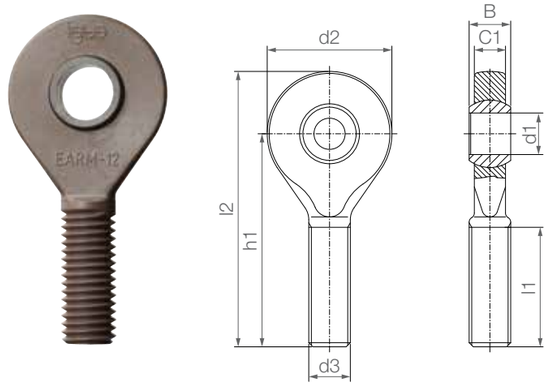
Other dimensions available upon request

EN 09/2023

igubal®
rod ends

igubal® rod ends | Product range

High temperature rod ends with male thread: EARM-HT and EALM-HT



- Applicable up to +200°C
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment and edge loads
- Resistant to corrosion and chemicals (chemical table ▶ **Page 1170**)
- Can be used underwater
- Suitable for rotating, oscillating and linear movements
- Lightweight
- Dimensional series E following DIN ISO 12240

Order key

Type				Size	Version
E	A	□	M-	05	-HT
E series	Housing (male thread)	Thread	Metric	Inner Ø [mm]	High temperature

Options:

Thread

L : Left-hand thread

R : Right-hand thread

Material:

Housing: **iguton G ▶ Page 1191**

Spherical ball: **iglidur® X ▶ Page 291**

Technical data

Part No.	Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Thread [mm]	Male thread [Nm]	[Nm]	[g]
EA□M-05-HT	380	190	20	10	14	0.4	2.0	2.8
EA□M-06-HT	600	300	30	15	14	0.5	2.5	3.4
EA□M-08-HT	931	465	48	24	17	2.0	7.0	6.1
EA□M-10-HT	1,125	563	57	28	19	5.0	14.0	10.2
EA□M-12-HT	1,200	600	65	33	20	6.0	25.0	15.7

Dimensions [mm]

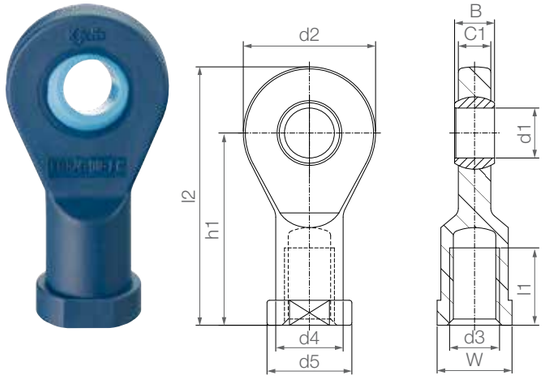
Part No.	d1 E10	d2	d3	C1	B	h1	l1	l2	Max. pivot angle
EA□M-05-HT	5	19	M5	4.4	6	36.0	20	45.5	33°
EA□M-06-HT	6	21	M6	4.4	6	36.0	20	46.5	27°
EA□M-08-HT	8	24	M8	6.0	8	41.0	24	53.0	24°
EA□M-10-HT	10	29	M10	7.0	9	47.5	27	62.0	24°
EA□M-12-HT	12	34	M12	8.0	10	54.0	29	71.0	21°

Other dimensions available upon request

EN 09/2023

igubal® rod ends | Product range

Rod ends with female thread, suitable for food contact: EBRM-FC



- Complies with FDA and EU 10/2011
- Lubrication and maintenance-free
- Visually and magnetically detectable (FC180)
- In industry-standard blue
- Corrosion and media-resistant
- Vibration-dampening

Order key

Type				Size	Version
E	B	R	M-	06	- FC
E series	Housing (female thread)	Thread	Metric	Inner Ø [mm]	Suitable for food contact

Material:
Housing: **igumid® FC ▶ Page 1191**
Spherical ball: **iglidur® A181 ▶ Page 401**
iglidur® FC180 ▶ upon request

- Cost-effective
- Left-hand thread upon request

Technical data

Part No.		Max. static tensile strain		Max. static axial force		min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
		Short-term	Long-term	Short-term	Long-term	Thread	Female thread		
		[N]	[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[g]
EBRM-04-FC	New	700	350	100	50	7.0	0.4	1.5	1.9
EBRM-05-FC	New	1,100	550	150	75	8.0	0.5	1.5	3.9
EBRM-06-FC		1,300	650	300	150	8.0	1.5	2.0	4.0
EBRM-08-FC		1,900	950	500	250	11.0	5.0	4.0	7.0
EBRM-10-FC		2,220	1,100	500	250	13.0	10.0	6.0	11.4
EBRM-10-FC-F		2,220	1,100	500	250	13.0	10.0	6.0	11.4
EBRM-12-FC		3,000	1,500	800	400	14.0	15.0	6.0	17.4

Dimensions [mm]

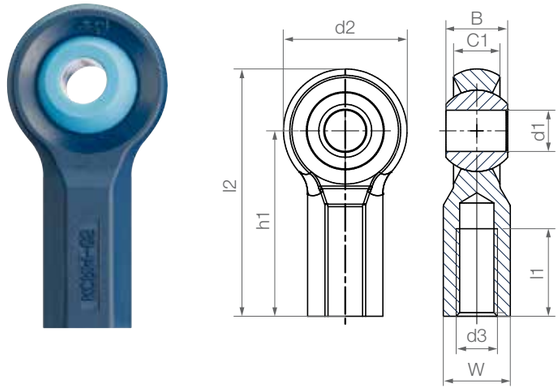
Part No.		d1 E10	d2	d3	d4	d5	C1	B	h1	l1	l2	W	Max. pivot angle
EBRM-04-FC	New	4	15	M4	–	–	3.5	5	22.5	9.5	30.0	SW8	33°
EBRM-05-FC	New	5	19	M5	9.0	11	4.4	6	30	12	40.5	SW9	33°
EBRM-06-FC		6	21	M6	11.0	13	4.4	6	30	12	40.5	SW11	27°
EBRM-08-FC		8	24	M8	13.0	16	6.0	8	36	14	48.0	SW14	24°
EBRM-10-FC		10	29	M10	15.0	19	7.0	9	43	18	57.5	SW17	24°
EBRM-10-FC-F		10	29	M10 x 1.25	15.0	19	7.0	9	43	18	57.5	SW17	24°
EBRM-12-FC		12	34	M12	18.0	22	8.0	10	50	20	67.0	SW19	21°

Left-hand thread and other dimensions available upon request

igubal®
rod ends

igubal® rod ends | Product range

Rod ends with female thread, suitable for food contact: KCRM-FC



- Complies with FDA and EU 10/2011
- Lubrication and maintenance-free
- Visually and magnetically detectable (FC180)
- In industry-standard blue
- Corrosion and media-resistant
- Vibration-dampening

Order key

Type				Size	Version
K	C	R	M-	06	- FC
K series	Housing (female thread)	Thread	Metric	Inner Ø [mm]	Suitable for food contact

Material:
Housing: **igumid® FC ▶ Page 1191**
Spherical ball: **iglidur® A181 ▶ Page 401**
iglidur® FC180 ▶ upon request

- Cost-effective
- Left-hand thread upon request

Technical data

Part No.		Max. static tensile strain		Max. static axial force	min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
		Short-term	Long-term	Short-term	Thread	Male thread		
		[N]	[N]	[N]	[mm]	[Nm]	[Nm]	[g]
KCRM-05-FC	New	1,000	500	170	7.0	1.0	2.0	3.5
KCRM-06-FC		1,300	650	400	8.0	1.0	2.0	4.3
KCRM-12-FC	New	3,200	1,600	600	15.0	12.0	20.0	21.0

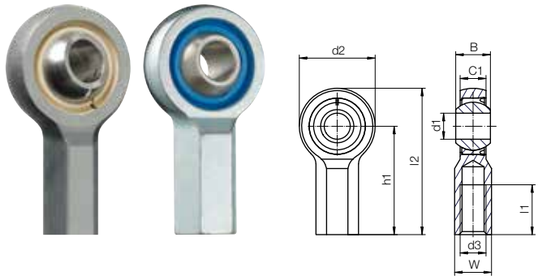
Dimensions [mm]

Part No.		d1 E10	d2	d3	C1	B without stainless steel sleeve	h1	l1	l2	W	Max. pivot angle
KCRM-05-FC	New	5	18	M5	6.0	8.0	27	12.0	36.0	SW9	43°
KCRM-06-FC		6	20	M6	7.0	9.0	30	13.5	40.0	SW10	40°
KCRM-12-FC	New	12	34	M12	7.0	12.0	50	25.0	67.0	SW17	35°

Left-hand thread and other dimensions available upon request

igubal® rod ends | Product range

Rod ends with female thread, metallic housing with maintenance-free inner ring: KCRM-ES/S



- Metallic housing: higher breaking strength than igumid® G
- 10 times more abrasion-resistant against metallic spherical balls than polyamide
- Inner ring made of FDA-compliant material (iglidur® A181)

Material:
Housing: **Stainless steel, zinc die-casting**
Inner ring: **iglidur® J ▶ Page 163**
iglidur® A181 ▶ Page 401
Spherical ball: **Stainless steel**

Order key

Type				Size	Version
K	C ☐	M- ☐	-	06	- ☐ - EK
K series	Housing (female thread)	Thread	Metric	Housing material	Inner Ø [mm]	iglidur® material	Spherical ball material

Options:

Thread
L : Left-hand thread
R : Right-hand thread

Housing material
S : Zinc die-casting
ES : Stainless steel

iglidur® material
J : iglidur® J
A181 : iglidur® A181

Spherical ball material
EK : Stainless steel

192) **The weight refers to a zinc die-cast housing with iglidur® J inner ring**

Technical data

Part No.	Max. tensile strain		Max.	Max.	min. thread depth	Weight192)
	Short-term	Long-term	axial force	axial load	Thread	
	[N]	[N]	[N]	[N]	[mm]	[g]
KC☐M-☐-06-☐-EK	1,900	1,100	600	110	14	22.8
KC☐M-☐-08-☐-EK	3,750	1,825	1,150	270	16	43.2
KC☐M-☐-10-☐-EK	4,500	2,250	2,100	500	18	67.4
KC☐M-☐-12-☐-EK	5,500	3,625	2,500	475	20	98.3
KC☐M-☐-16-☐-EK	7,000	6,000	2,600	1,250	23	179.4
KC☐M-☐-20-☐-EK	10,000	8,950	3,300	2,000	27	309.5
KC☐M-☐-20-M20-☐-EK	10,000	8,950	3,300	2,000	27	309.5

All values refer to KC☐M-S-XX-J-EK

Dimensions [mm]

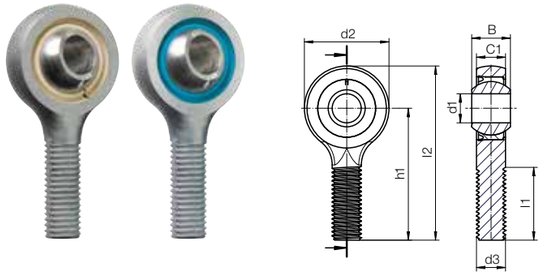
Part No.	d1	d2	d3	h1	l1	l2	B	C1	W	Max. pivot angle
KC☐M-☐-06-☐-EK	6	22.0	M6	30.0	13	41.00	9	7.0	10	29°
KC☐M-☐-08-☐-EK	8	26.5	M8	36.0	16	49.25	12	9.0	13	25°
KC☐M-☐-10-☐-EK	10	31.0	M10	43.0	19	58.50	14	10.5	15	25°
KC☐M-☐-12-☐-EK	12	35.0	M12	50.0	23	67.50	16	12.0	17	25°
KC☐M-☐-16-☐-EK	16	44.0	M16	64.0	28	86.00	21	15.0	20	23°
KC☐M-☐-20-☐-EK	20	53.0	M20 x 1.5	77.0	33	103.50	25	18.0	24	23°
KC☐M-☐-20-M20-☐-EK	20	53.0	M20 x 2.5	77.0	33	103.50	25	18.0	24	23°

EN 09/2023

igubal®
rod ends

igubal® rod ends | Product range

Rod ends with male thread, metallic housing with maintenance-free inner ring: KARM-ES/S



- Metallic housing: higher breaking strength than igumid® G
- 10 times more abrasion-resistant against metallic spherical balls than polyamide
- Inner ring made of FDA-compliant material (iglidur® A181)

Material:
Housing: **Stainless steel, zinc die-casting**
Inner ring: **iglidur® J ▶ Page 163**
iglidur® A181 ▶ Page 401
Spherical ball: **Stainless steel, aluminium, steel, iglidur® materials**

Order key

Type				Size	Version
K	A ☐	M- ☐	-	06	- ☐ - EK
K series	Housing (male thread)	Thread	Metric	Housing material	Inner Ø [mm]	iglidur® material	Spherical ball material

Options:

Thread
L : Left-hand thread
R : Right-hand thread

Housing material
S : Zinc die-casting
ES : Stainless steel

iglidur® material
J : iglidur® J
A181 : iglidur® A181

Spherical ball material
EK : Stainless steel

192) **The weight refers to a zinc die-cast housing with iglidur® J inner ring**

Technical data

Part No.	Max. tensile strain		Max.	Max.	min. thread depth	Weight192)
	Short-term	Long-term	axial force	axial load	Thread	
	[N]	[N]	[N]	[N]	[mm]	[g]
KA☐M-☐-06-☐-EK	1,900	1,100	160	110	14	18.2
KA☐M-☐-08-☐-EK	3,750	1,825	330	270	16	34.4
KA☐M-☐-10-☐-EK	4,500	2,250	500	500	18	56.3
KA☐M-☐-12-☐-EK	5,500	3,625	750	475	20	85.5
KA☐M-☐-16-☐-EK	7,000	6,000	1,500	1,250	23	179.3
KA☐M-☐-20-☐-EK	10,000	8,950	2,000	2,000	27	309.0
KA☐M-☐-20-M20-☐-EK	10,000	8,950	2,000	2,000	27	309.0

All values refer to KA☐MS-XX-J-EK

Dimensions [mm]

Part No.	d1	d2	d3	h1	l1	l2	B	C1	Max. pivot angle
KA☐M-☐-06-☐-EK	6	22.0	M6	36.0	21	47.00	9	7.0	29°
KA☐M-☐-08-☐-EK	8	26.5	M8	42.0	24	55.25	12	9.0	25°
KA☐M-☐-10-☐-EK	10	31.0	M10	48.0	27	63.50	14	10.5	25°
KA☐M-☐-12-☐-EK	12	35.0	M12	54.5	30	72.00	16	12.0	25°
KA☐M-☐-16-☐-EK	16	44.0	M16	66.0	34	88.50	21	15.0	23°
KA☐M-☐-20-☐-EK	20	53.0	M20 x 1.5	78.0	40	104.50	25	18.0	23°
KA☐M-☐-20-M20-☐-EK	20	53.0	M20 x 2.5	78.0	40	104.50	25	18.0	23°

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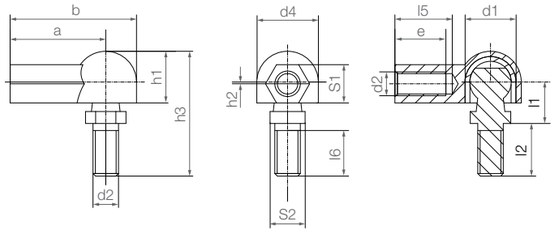
igubal® angled ball and socket joints | Product range

Angled ball and socket joints: WGRM and WGLM



- Connection for rotating and pivoting movements
- Lightweight
- Easy and quick assembly
- Vibration-dampening
- Insensitive to dirt and dust
- Ball studs made of plastic, galvanised steel and stainless steel[19)]

▶ Accessories, **page 1011**



Order key

Type	Size
WG □ M-	05 - MS

Angled ball and socket joint	Thread (housing)	Metric	Thread size M ... [mm]

Options:

Thread (housing)
L : Left-hand thread
R : Right-hand thread

Ball stud[19)]
Blank : Made of plastic
MS : Made of galvanised steel
ES : Made of stainless steel[28)]

Online service life calculation
▶ www.igus.eu/igubal-expert

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical cap: **iglidur® W300 ▶ Page 175**

Technical data

Part No.	Max. static tensile force (Ball stud axis)		Max. static compressive strength (Ball stud axis)		Max. axial tensile force (Housing axis)		Max. axial tensile force steel stud (Housing axis)		Weight
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
WG□M-05-MS	30	15	200	100	100	50	600	300	2.6
WG□M-06-MS	35	17.5	300	150	140	70	800	400	3.8
WG□M-08-MS	250	125	500	250	200	100	1,500	750	8.0
WG□M-10-MS	250	125	900	450	400	200	1,900	950	13.7

Dimensions [mm]

Part No.	d1 ±0.1	d2	d4 ±0.5	l1 ±0.2	l2 ±0.3	l5	l6 min.	h1 ±0.4	h2 ±0.5	h3 ±0.5	a ±0.3	b ±0.5	e ±1.0	S1	S2	Max. pivot angle
WG□M-05-MS	8	M5	12.8	9	10.2	14	6.2	10.8	0.65	24.9	22	28.4	11	SW8	SW7	25°
WG□M-06-MS	10	M6	14.8	11	12.5	16	9.0	12.3	0.70	30.9	25	32.4	13	SW9	SW8	25°
WG□M-08-MS	13	M8	19.3	13	16.5	18	11.2	16.2	1.15	39.15	30	39.7	16	SW12	SW11	25°
WG□M-10-MS	16	M10	24.0	16	20.0	20	12.7	20.0	1.15	48.0	35	47.0	18	SW14	SW13	25°

[19)] Ball stud with right-hand thread; left-hand thread upon request
[28)] Stainless steel ball stud upon request

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igubal® angled ball and socket joint

igubal® angled ball and socket joints | Product range

Angled ball and socket joints (low-cost): WGRM-LC and WGLM-LC





- Housing with ball stud
- Lightweight
- Maintenance-free
- Ball studs made of plastic, galvanised steel and stainless steel[19)]

▶ Accessories, **page 1011**

Order key

Type	Size	Version
WG □ M-	05 -	LC - MS

Angled ball and socket joint	Thread (housing)	Metric	Thread size M ... [mm]	Low-cost

Options:

Thread (housing)
L : Left-hand thread
R : Right-hand thread

Ball stud[19)]
Blank : Made of plastic
MS : Made of galvanised steel
ES : Made of stainless steel[28)]

Online service life calculation
▶ www.igus.eu/igubal-expert

Material:
Housing: **igumid® G ▶ Page 1190**

Technical data

Part No.	Max. static tensile force (Ball stud axis)		Max. static compressive strength (Ball stud axis)		Max. axial tensile force (Housing axis)		Max. axial tensile force steel stud (Housing axis)		Weight
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
WG□M-04-LC-MS[20)]	100	50	150	75	–	–	500	250	2.4
WG□M-05-LC-MS	150	75	200	100	100	50	600	300	2.6
WG□M-06-LC-MS	200	100	300	150	140	70	800	400	4.0
WG□M-08-LC-MS	250	125	500	250	200	100	1,500	750	8.2
WG□M-10-LC-MS	250	125	900	450	400	200	1,900	950	13.8

Dimensions [mm] - technical drawing ▶ Page 898

Part No.	d1 ±0.1	d2	d4 ±0.5	l1 ±0.2	l2 ±0.3	l5	l6 min.	h1 ±0.4	h2 ±0.5	h3 ±0.5	a ±0.3	b ±0.5	e ±1.0	S1	S2	Max. pivot angle
WG□M-04-LC-MS[20)]	6	M4	10.6	8.5	8.0	11.9	6.8	9.0	0.20	21.8	18	23.3	10.5	SW7	SW5	20°
WG□M-05-LC-MS	8	M5	12.8	9.0	10.2	14.0	6.2	10.8	0.65	24.9	22	28.4	11.0	SW8	SW7	25°
WG□M-06-LC-MS	10	M6	14.8	11.0	12.5	16.0	9.0	12.3	0.70	30.9	25	32.4	13.0	SW9	SW8	25°
WG□M-08-LC-MS	13	M8	19.3	13.0	16.5	18.0	11.2	16.2	1.15	39.15	30	39.7	16.0	SW12	SW11	25°
WG□M-10-LC-MS	16	M10	24.0	16.0	20.0	20.0	12.7	20.0	1.15	48.0	35	47.0	18.0	SW14	SW13	25°

[19)] Ball stud with right-hand thread; left-hand thread upon request
[20)] Only available with galvanised steel stud
[28)] Stainless steel ball stud upon request

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igubal® angled ball and socket joints | Product range

Ball joints, removable: WGRM-DE and WGLM-DE



- Cost-effective ball joint
- Lightweight
- Absolute corrosion resistance
- Easy assembly and disassembly
- High holding strength when assembled (260N)
- Ball studs made of plastic, galvanised steel and stainless steel[19] ▶ Accessories, **page 1011**

Material:
Housing: **igumid® G ▶ Page 1190**

Order key

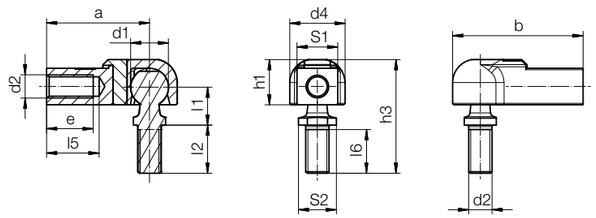
Type	Size	Version
WG☐M-	05	-DE-MS

Angled ball and socket joint | Thread (housing) | Metric | Thread size M ... [mm] | Disassembly

Options:

Thread (housing)
L : Left-hand thread
R : Right-hand thread

Ball stud[19]
Blank : Made of plastic
MS : Made of galvanised steel
ES : Made of stainless steel[28]



Technical data and dimensions [mm]

Part No.	Assembly force and disassembly force[176]	Max. static tensile force[180]		Max. static compressive force[180]		Max. axial tensile force[180]		Max. pivot angle	Weight
		Short-term	Long-term	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[N]	[N]	[N]		[g]
WG☐M-05-DE-MS	40	120	60	360	180	1,200	600	23°	3.4
WG☐M-06-DE-MS	55	160	80	460	230	1,400	700	25°	5.5
WG☐M-08-DE-MS New	45	400	200	1,000	500	2,200	1,100	25°	8.4
WG☐M-10-DE-MS New	85	400	200	1,400	700	3,800	1,900	25°	16.0

Dimensions [mm]

Part No.	d1	d2	d4	l1	l2	l5	l6	h1	h3	S1	S2	a	b	e
	±0.1		±0.5	±0.2	±0.5	min.	min.	±0.4	±0.5			±0.3	±0.5	±1.0
WG☐M-05-DE-MS	8.0	M5	12.8	9	10.2	13.0	6.2	10.8	25.6	SW9	SW7	25.0	31.4	11
WG☐M-06-DE-MS	10.0	M6	16.0	11	12.5	15.0	9.0	13.0	32.0	SW11	SW8	30.0	38.0	13.5
WG☐M-08-DE-MS New	13.0	M8	19.0	13	16.5	18.0	15.0	15.75	39.0	SW14	SW11	35.3	44.8	16
WG☐M-10-DE-MS New	16.0	M10	23.0	16	20.0	20.0	16.0	19.0	47.25	SW17	SW13	42.0	53.5	18

[19] Ball stud with right-hand thread; left-hand thread upon request
[28] Stainless steel ball stud upon request
[175] Measured values for variant with steel pin (-MS) with open pin
[180] Measured values for variant with steel pin (-MS) with closed pin

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igubal® in-line ball and socket joints | Product range

In-line ball and socket joints: AGRM and AGLM



- For all mechanical combinations
- Easy to assemble
- Maintenance-free, predictable service life
- Resistant to corrosion and chemicals
- Vibration-dampening
- Ball studs made of plastic, galvanised steel and stainless steel[19] ▶ Accessories, **page 1011**

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical cap: **iglidur® W300 ▶ Page 175**

Order key

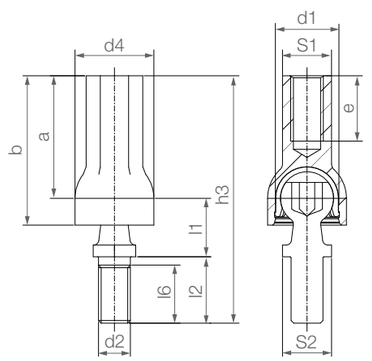
Type	Size
AG☐M-	08 -MS

In-line ball and socket joint | Thread (housing) | Metric | Thread size M ... [mm]

Options:

Thread (housing)
L : Left-hand thread
R : Right-hand thread

Ball stud[19]
Blank : Made of plastic
MS : Made of galvanised steel
ES : Made of stainless steel[28]



Technical data

Part No.	Max. static axial tensile force		Max. static axial compressive strength		Max. assembly force	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[N]	[g]
AG☐M-08-MS	250	125	1,000	500	110	7.8

Dimensions [mm]

Part No.	d1	d2	d4	l1	l2	l6	h3	S1	S2	a	b	e	pivot angle	
	±0.1		±0.5	±0.2	±0.3	min.	±0.5			±0.3	±0.5	min.	Recom.	max.
AG☐M-08-MS	13.0	M8	19.3	13	16.5	11.2	59.5	SW12	SW11	30	36.5	16	18°	25°

[19] Ball stud with right-hand thread; left-hand thread upon request
[28] Stainless steel ball stud upon request

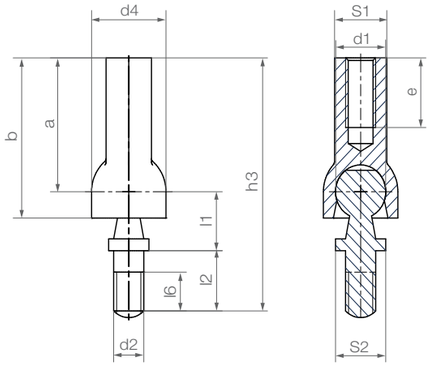
EN 09/2023

igubal® in-line ball and socket joints | Product range

In-line ball and socket joints (low-cost): AGRM-LC and AGLM-LC







Order key

Type	Size	Version
AG □ M-	06	-LC- MS

In-line ball and socket joint	Thread (housing)	Metric	Inner Ø [mm]	Low-cost

Options:

Thread (housing)
L : Left-hand thread
R : Right-hand thread

Ball stud[19)]
Blank : Made of plastic
MS : Made of galvanised steel
ES : Made of stainless steel[28)]

Material:
Housing: **igumid® G ▶ Page 1190**

- Housing with ball stud
- Lightweight
- Maintenance-free
- Ball studs made of plastic, galvanised steel and stainless steel[19)] ▶ Accessories, **page 1011**

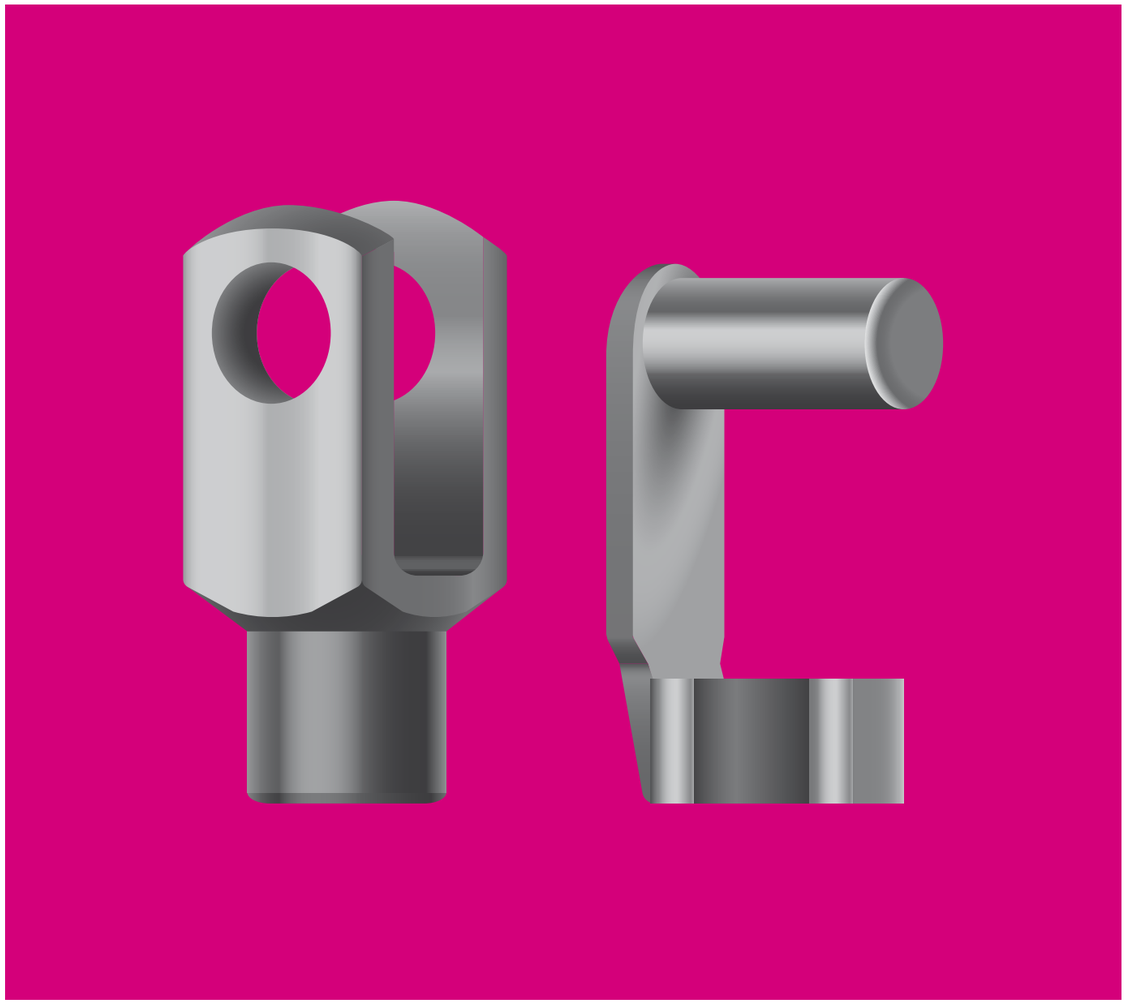
Technical data

Part No.	Max. static tensile strain		Max. static compressive force (with steel stud)		Max. static compressive force (with plastic stud)		Max. assembly force	Weight
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
AG□M-04-LC-MS[20)] New	120	60	1,600	800	–	–	280	3.3
AG□M-06-LC-MS	100	50	2,000	1,000	800	400	320	10.8
AG□M-08-LC-MS	150	75	2,800	1,400	1,400	700	430	23.1

Dimensions [mm]

Part No.	d1	d2	d4	l1	l2	l6	h3	S1	S2	a	b	e	Max. pivot angle	
	±0.1		±0.5	±0.2	±0.3	min.	±0.5			±0.3	±0.5	min.	Recom.	max.
AG□M-04-LC-MS[20)] New	6	M4	10.6	8.5	8.0	6.8	36.5	SW7	SW5	20	23.0	10.25	18°	25°
AG□M-06-LC-MS	10	M6	14.8	11	12.5	9.0	48.5	SW9	SW8	25	29.9	13	18°	25°
AG□M-08-LC-MS	13	M8	19.3	13	16.5	11.2	59.5	SW12	SW11	30	35.0	16	18°	25°

[19)] Ball stud with right-hand thread; left-hand thread upon request
[20)] Only available with galvanised steel stud
[28)] Stainless steel ball stud upon request



igubal® clevis joints

High tensile force

Vibration-dampening

Noise-dampening

Can be combined with rod ends of the dimensional series E

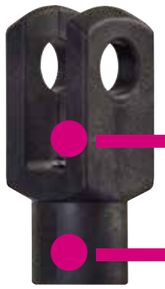
Lightweight



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igubal® clevis joints

igubal® clevis joints are all made from solid plastic igumid® G to DIN 71752, which can be combined with E series rod ends. Available components are clevis joint, clevis pin and circlip or as an alternative, spring-loaded fixing clip.



High tensile force

Vibration-dampening



Noise-dampening



Can be combined with rod ends of the dimensional series E



Lightweight

When do I take them?

- If high rigidity is required
- If corrosion resistance is required
- If no lubrication is to be used
- If you want to save weight
- If maintenance-free, dry operation is required
- If simple assembly is required
- In combination with pneumatic cylinders and gas struts

When do I not take them?

- When temperatures are higher than +200°C
- When diameters above 20mm are required

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

Max. +80°C
min. -30°C

4 types
Ø 4 - 20mm

Online product finder
▶ www.igus.eu/igubal-finder

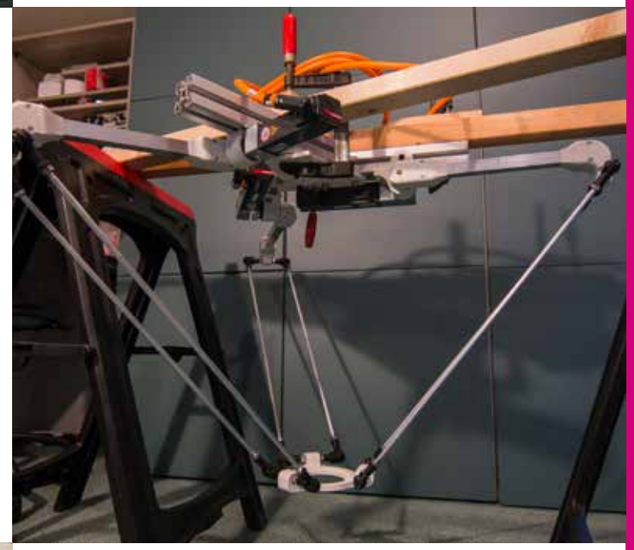
igus EN 09/2023

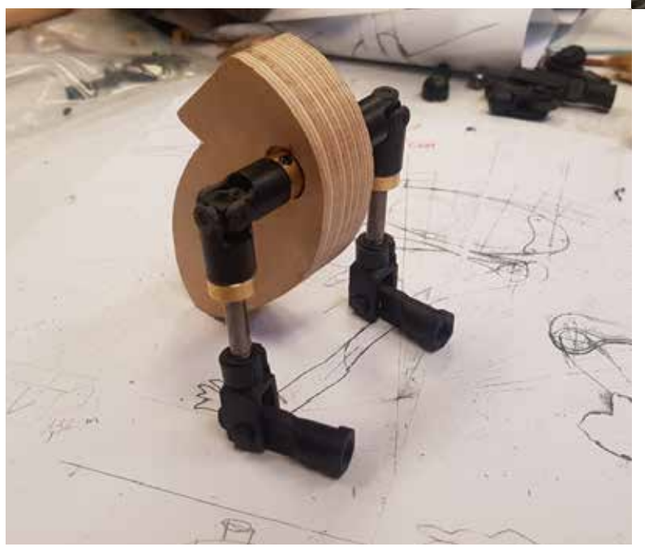
igubal® clevis joints | Application examples



Table
Klaus Thiesler from Bad Pyrmont, Germany is building a table without legs that can be folded out from a kitchen unit when needed. Thiesler is using igubal® spherical thrust bearings (SAM-08) for the swivel axes, iglidur® M250 polymer plain bearings (M250-MFM-06) and igubal® double joints (EGZM-06-25) for the aluminium retaining pins in the support.

Asparagus-harvesting robot
Slovenia's University of Ljubljana is developing a robotic system for automated asparagus harvesting. To ensure that the vision system can operate in wet and dusty environments, the design engineers are using iglidur® polymer plain bearings (GFM-0810-03) and drylin® aluminium shafts (AWMP-08). The components are lightweight, so the robot's mechanical system achieves good dynamics. They require no maintenance, so the system is easy for the end user to handle.





Rabbit puppet
Lutkovno Gledalisce Ljubljana, a Slovenian company, has designed a cute bunny for a puppet theatre. To optimise its joints' flexibility and minimise their weight, the company uses lightweight, maintenance-free igubal® angled ball and socket joints.

igubal® clevis joints | Product overview

igubal® - clevis joint combinations



Clevis joints with clevis pin and circlip
E series
▶ Page 912



Clevis joints with spring-loaded fixing clip
E series
▶ Page 913



Combination, easy to fit
E series
▶ Page 914



Combination, easy to fit
E series
▶ Page 915

igubal® component parts



Clevis joints, high strength
E series
▶ From page 908



Clevis joint with male thread
E series
▶ From page 910



Clevis joint combination
▶ Page 911



Spring-loaded fixing clip
▶ Page 916



Clevis pin and circlip
GBM - Clevis pin
GSR - Circlip
▶ Page 917



Clevis joints, detectable, FDA and EU10/2011-compliant
E series
▶ Page 918



Spring-loaded pin, detectable, FDA and EU10/2011-compliant
E series
▶ Page 919



Clevis joints with spring-loaded pin, detectable; FDA and EU10/2011-compliant
E series
▶ Page 920

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Notes

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igubal® clevis joints | Product range

Clevis joints: GERM and GELM



- Lightweight
- High rigidity
- Absolute corrosion resistance
- High tensile force
- Can be combined with rod ends of the dimensional series E
- Vibration-dampening
- Noise-dampening
- Available with left- (GELM) and right-hand-thread (GERM)

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

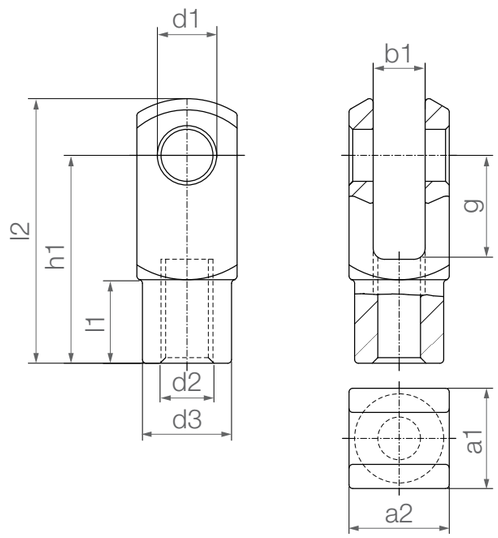
Part No.	Max. static tensile strain		Max. static axial force		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[Nm]	[g]
GE□M-04-M3.5	650	325	250	125	0.4	0.9
GE□M-04	650	325	250	125	0.4	0.9
GE□M-05-DIN-M4	1,000	500	250	125	0.4	1.5
GE□M-05-DIN-M5	1,000	500	250	125	0.5	1.5
GE□M-05	1,200	600	250	125	0.5	2.7
GE□M-05-DIN-M5-LS[22)]	1,000	500	130	65	0.5	2.3
GE□M-06	1,400	700	300	150	1.5	2.5
GE□M-06-LS[22)]	1,400	700	130	65	1.5	3.6
GE□M-08	2,700	1,350	650	325	5.0	6.3
GE□M-10	4,700	2,350	800	400	15.0	13.2
GE□M-10-F	4,700	2,350	800	400	6.0	13.2
GE□M-12	5,700	2,850	900	450	20.0	20.2
GE□M-12-F	5,700	2,850	900	450	15.0	20.2
GE□M-14	6,600	3,300	1,000	500	25.0	29.9
GE□M-14-F	6,600	3,300	1,000	500	20.0	29.9
GE□M-15	3,200	1,600	1,000	500	25.0	30.0
GE□M-16	7,500	3,750	1,200	600	30.0	49.9
GE□M-16-F	7,500	3,750	1,200	600	27.5	49.9
GE□M-17	3,600	1,800	1,200	600	30.0	50.0
GE□M-17-F	3,600	1,800	1,200	600	27.5	50.0
GE□M-20	9,500	4,750	3,000	1,500	60.0	105.0
GE□M-20-M20	9,500	4,750	3,000	1,500	80.0	105.0

[22)] LS = longer shank

igubal® clevis joints

igubal® clevis joints | Product range

Clevis joints: GERM and GELM



Order key

Type				Size	Options
G	E	□	M-	04	- LS
Clevis joint	E series	Thread	Metric	Inner Ø [mm]	

Thread
L : Left-hand thread
R : Right-hand thread

Add-on:
LS : Longer shank
F : Fine thread

Material:
igumid® G ▶ Page 1190

Imperial dimensions available
▶ Page 1156

Dimensions [mm]

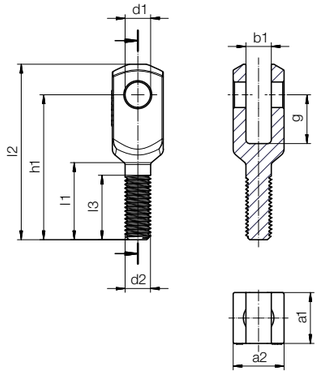
Part No.	d1	g	a1	a2	b1	d2	d3	l2	h1	l1
	+0.1	h11	+0.3 -0.16	+0.3 -0.16	B13		±0.3	±0.5	±0.3	±0.2
GE□M-04-M3.5	4	8	8	8	4	M3.5	8	21.0	16	6.0
GE□M-04	4	8	8	8	4	M4	8	21.0	16	6.0
GE□M-05-DIN-M4	5	10	10	10	5	M4	9	24.5	20	7.5
GE□M-05-DIN-M5	5	10	10	10	5	M5	9	24.5	20	7.5
GE□M-05	5	12	12	12	6	M5	10	31.0	24	9.0
GE□M-05-DIN-M5-LS[22)]	5	20	10	10	5	M5	9	36.0	30	7.5
GE□M-06	6	12	12	12	6	M6	10	31.0	24	9.0
GE□M-06-LS[22)]	6	24	12	12	6	M6	10	43.0	36	9.0
GE□M-08	8	16	16	16	8	M8	14	42.0	32	12.0
GE□M-10	10	20	20	20	10	M10	18	52.0	40	15.0
GE□M-10-F	10	20	20	20	10	M10 x 1.25	18	51.3	40	15.0
GE□M-12	12	24	24	24	12	M12	20	61.3	48	18.0
GE□M-12-F	12	24	24	24	12	M12 x 1.25	20	61.3	48	18.0
GE□M-14	14	28	27	27	14	M14	24	71.3	56	22.5
GE□M-14-F	14	28	27	27	14	M14 x 1.5	24	71.3	56	22.5
GE□M-15	15	28	27	27	14	M14	24	71.3	56	22.5
GE□M-16	16	32	32	32	16	M16	26	81.9	64	24.0
GE□M-16-F	16	32	32	32	16	M16 x 1.5	26	81.9	64	24.0
GE□M-17	17	32	32	32	16	M16	26	83.0	64	24.0
GE□M-17-F	17	32	32	32	16	M16 x 1.5	26	83.0	64	24.0
GE□M-20	20	40	40	40	20	M20 x 1.5	34	105.0	80	30.0
GE□M-20-M20	20	40	40	40	20	M20 x 2.5	34	105.0	80	30.0

[22)] LS = longer shank

igubal® clevis joints | Product range

Clevis joints with male thread: GARM-10





- Available from stock in thread size M10 (M8 and M12 in preparation)
- For direct connection to, for example, igubal® rod end bearings
- Lightweight
- Lubrication and maintenance-free
- Absolute corrosion resistance
- Available for right-hand thread (left-hand thread upon request)

Order key

Type				Size
G	A	R	M	-10
Clevis joint	Male thread	Thread	Metric	Inner Ø [mm]

Material:
igumid® G ▶ Page 1190

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[Nm]	[g]
GARM-10	3,000	1,500	200	100	5.0	12.5

Dimensions [mm]

Part No.	d1	g	a1	a2	b1	d2	l2	l3	h1	l1
	+0.1	h11	+0.3 -0.16	+0.3 -0.16	B13		±0.5	±0.3	±0.3	±0.2
GARM-10	10	19	20	20	10	M10	69	25	57	30.3

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igubal® clevis joints

igubal® clevis joints | Product range

Clevis joint combination: GARMK-10



Can be combined with:
- Safety bolt GBM-10 and circlip GSR-10 - part number GARMK-10
- As clevis joint combination with rod end bearing EARM-10 - part number GARMKE-10
- All igubal® parts with female thread M10

Order key

Type					Size
G	A	R	M	K	-10
Clevis joint	Male thread	Thread	Metric	With clevis pin and circlip	Inner Ø [mm]

Material:
igumid® G ▶ Page 1190

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GARMK-10	3,000	1,500	200	100	15.7

Clevis joints with spring-loaded fixing clip in combination with E series rod ends, EARM ▶ Page 890

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igubal® clevis joints | Product range

Clevis joints with clevis pin and circlip: GERMK and GELMK



- Lightweight
- Absolute corrosion resistance
- High tensile force
- Can be combined with rod ends of the dimensional series E

Online service life calculation
▶ www.igus.eu/igubal-expert

Order key

Type						Size	Options
G	E	□	M	K	-	04	- LS

Clevis joint | E series | Thread | Metric | Clevis pin and circlip | Inner Ø [mm]

Thread
L : Left-hand thread
R : Right-hand thread

Add-on:
LS : Longer shank
F : Fine thread

Material:
igumid® G ▶ Page 1190

Imperial dimensions available
▶ Page 1157

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MK-04-M3.5	500	250	250	125	1.3
GE□MK-04	500	250	250	125	1.3
GE□MK-05-DIN-M4	800	400	250	125	2.1
GE□MK-05-DIN-M5	800	400	250	125	2.1
GE□MK-05	900	450	250	125	3.3
GE□MK-05-DIN-M5-LS[22)]	800	400	130	65	2.9
GE□MK-06	1,300	650	300	150	3.3
GE□MK-06-LS[22)]	1,300	650	130	65	4.4
GE□MK-08	2,100	1,050	650	325	7.9
GE□MK-10	3,000	1,500	800	400	16.4
GE□MK-10-F	3,000	1,500	800	400	16.4
GE□MK-12	3,500	1,750	900	450	25.3
GE□MK-12-F	3,500	1,750	900	450	25.3
GE□MK-14	6,100	3,050	1,000	500	31.2
GE□MK-15	2,800	1,400	1,000	500	38.9
GE□MK-16	7,000	3,500	1,200	600	60.8
GE□MK-16-F	7,000	3,500	1,200	600	60.8
GE□MK-17	3,600	1,800	1,200	600	62.3
GE□MK-17-F	3,600	1,800	1,200	600	62.3
GE□MK-20	9,000	4,500	3,000	1,500	125.2
GE□MK-20-M20	9,000	4,500	3,000	1,500	125.2

[22)] LS = longer shank




Single components: clevis pin GBM and circlip GSR
▶ Page 917

igubal® clevis joints

igubal® clevis joints | Product range

Clevis joints with spring-loaded fixing clip: GERMF and GELMF



- One-piece design
- Easy assembly/disassembly
- Easy assembly also for use in hard to reach locations
- Can be combined with rod ends of the dimensional series E
- Corrosion-resistant and lightweight

Order key

Type						Size	Options
G	E	□	M	F	-	04	- LS

Clevis joint | E series | Thread | Metric | Spring-loaded fixing clip | Inner Ø [mm]

Thread
L : Left-hand thread
R : Right-hand thread

Add-on:
LS : Longer shank
F : Fine thread

Material:
igumid® G ▶ Page 1190

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MF-04-M3.5	500	250	250	125	1.3
GE□MF-04	500	250	250	125	1.3
GE□MF-05-DIN-M4	800	400	250	125	2.3
GE□MF-05-DIN-M5	800	400	250	125	2.3
GE□MF-05-DIN-M5-LS[22)]	800	400	130	65	2.3
GE□MF-05	900	450	250	125	3.8
GE□MF-06	1,300	650	300	150	3.9
GE□MF-06-LS[22)]	1,300	650	130	65	3.9
GE□MF-08	2,100	1,050	650	325	9.1
GE□MF-10	3,000	1,500	800	400	18.2
GE□MF-10-F	3,000	1,500	800	400	18.2
GE□MF-12	3,500	1,750	900	450	28.6
GE□MF-12-F	3,500	1,750	900	450	28.6
GE□MF-16	7,000	3,500	1,200	600	61.8
GE□MF-16-F	7,000	3,500	1,200	600	61.8

[22)] LS = longer shank



Single components: spring-loaded fixing clip GEFM
▶ Page 916

igubal® clevis joints | Product range

Clevis joint combination: GERMKE and GELMKE



- Lightweight
- Absolute corrosion resistance
- High tensile force
- Can be combined with E series rod end

Order key

Type						Size	Options
G	E	□	M	KE	-	05	

Clevis joint	E series	Thread	Metric	With clevis pin, circlip and rod end	Inner Ø [mm]

Thread
L : Left-hand thread
R : Right-hand thread
F : Fine thread

Material:
igumid® G ▶ Page 1190

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MKE-05	900	450	150	75	6.4
GE□MKE-06	1,300	650	200	100	7.3
GE□MKE-08	2,000	1,000	450	225	14.6
GE□MKE-10	2,300	1,150	500	250	27.1
GE□MKE-10-F	2,300	1,150	500	250	27.1
GE□MKE-12	3,300	1,650	550	275	42.7
GE□MKE-12-F	3,300	1,650	550	275	42.7
GE□MKE-15	2,800	1,400	800	400	68.4
GE□MKE-16	5,000	2,500	850	425	86.9
GE□MKE-16-F	5,000	2,500	850	425	86.9
GE□MKE-17	3,600	1,800	1,100	550	98.3
GE□MKE-17-F	3,600	1,800	1,100	550	98.3
GE□MKE-20	7,200	3,600	1,800	900	175.2
GE□MKE-20-M20	7,200	3,600	1,800	900	175.2

Clevis joints with spring-loaded fixing clip in combination with E series rod ends, EBRM and EARM ▶ Page 888-891

igubal® clevis joints

igubal® clevis joints | Product range

Clevis joint combination: GERMFE and GELMFE



- Lightweight
- Absolute corrosion resistance
- High tensile force
- Can be combined with E series rod end

Order key

Type						Size	Options
G	E	□	M	FE	-	05	

Clevis joint	E series	Thread	Metric	With spring-loaded fixing clip and rod end	Inner Ø [mm]

Thread
L : Left-hand thread
R : Right-hand thread
F : Fine thread

Material:
igumid® G ▶ Page 1190

Online service life calculation
▶ www.igus.eu/igubal-expert

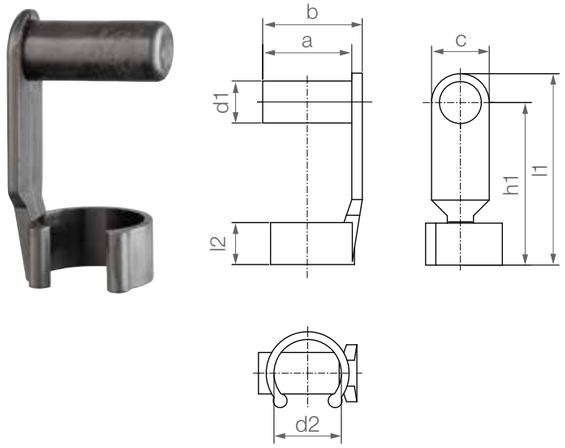
Technical data

Part No.	Max. static tensile strain		Max. static axial force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GE□MFE-05	900	450	150	75	7.0
GE□MFE-06	1,300	650	200	100	7.9
GE□MFE-08	2,000	1,000	450	225	15.9
GE□MFE-10	2,300	1,150	500	250	29.2
GE□MFE-10-F	2,300	1,150	500	250	29.2
GE□MFE-12	3,300	1,650	550	275	46.0
GE□MFE-12-F	3,300	1,650	550	275	46.0
GE□MFE-16	5,000	2,500	850	425	94.4
GE□MFE-16-F	5,000	2,500	850	425	94.4

Clevis joints with spring-loaded fixing clip in combination with E series rod ends, EBRM and EARM ▶ Page 888-891

igubal® clevis joints | Product range

Spring-loaded fixing clips: GEFM



Material:
igumid® G ▶ Page 1190

Dimensions [mm]

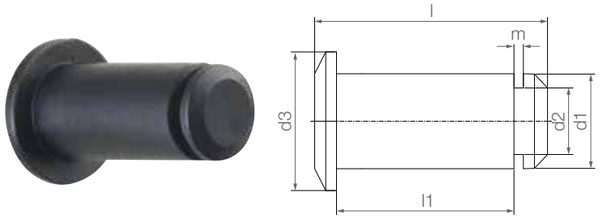
Part No.	d1	d2	a	b	C	l1 ±0.5	h1	l2	Weight [g]
GEFM-04	4	8	9.5	10.5	8	19.0	15	4.5	0.5
GEFM-05-DIN	5	9	12.0	13.5	8	23.0	19	5.5	0.8
GEFM-05-DIN-M5-LS[22)]	5	9	12.0	13.5	8	33.0	29	5.5	1.0
GEFM-05	5	10	14.0	15.5	8	27.0	23	6.5	1.1
GEFM-06-LS[22)]	6	10	14.0	15.5	8	39.0	35	6.5	1.0
GEFM-06	6	10	14.0	15.5	8	27.0	23	6.5	1.2
GEFM-08	8	14	19.0	21.0	11	35.5	30	8.0	2.8
GEFM-10	10	18	23.0	25.5	14	45.0	38	10.0	5.0
GEFM-12	12	20	28.0	31.0	16	53.0	45	12.0	8.3
GEFM-16	16	26	36.0	40.0	22	73.0	62	16.0	18.3

[22)] LS = longer shank

igubal® clevis joints

igubal® clevis joints | Product range

Clevis pins: GBM



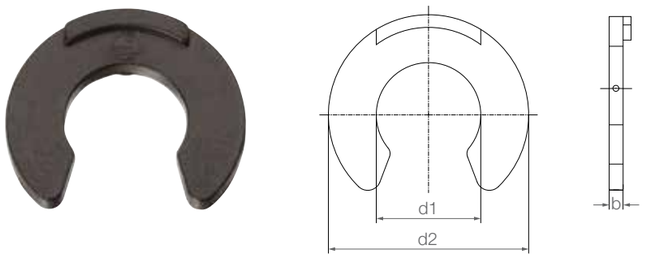
Material:
igumid® G ▶ Page 1190

Imperial dimensions available
▶ Page 1157

Dimensions [mm]

Part No.	d1	d2	d3	l	l1	m	Clip	Weight [g]
GBM-04	4	3.2	7	12.5	8	1.05	GSR-04	0.3
GBM-05	5	4.0	8	16.5	12	1.15	GSR-06	0.5
GBM-05-DIN	5	4.0	8	14.5	10	1.15	GSR-06	0.5
GBM-06	6	4.0	9	16.5	12	1.15	GSR-06	0.7
GBM-08	8	5.0	12	21.5	16	1.15	GSR-08	1.5
GBM-10	10	7.0	15	27.0	20	1.35	GSR-10	3.0
GBM-12	12	9.0	18	31.5	24	1.50	GSR-12	4.8
GBM-14	14	12.0	22	36.0	27	1.70	GSR-16	5.7
GBM-15	15	12.0	23	36.0	27	1.70	GSR-16	8.3
GBM-16	16	12.0	24	42.0	32	1.70	GSR-16	10.4
GBM-17	17	12.0	25	42.0	32	1.70	GSR-16	12.3
GBM-20	20	15.0	30	51.0	40	2.00	GSR-20	19.2

Circlips: GSR



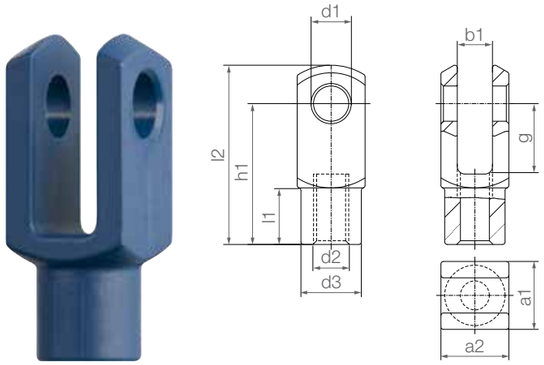
Material:
POM ▶ Page 1192

Dimensions [mm]

Part No.	d1	d2	b	Weight [g]
GSR-04	3.2	7.0	1.0	0.05
GSR-06	4.0	9.0	1.1	0.06
GSR-08	5.0	11.0	1.1	0.12
GSR-10	7.0	14.0	1.3	0.16
GSR-12	9.0	18.5	1.4	0.31
GSR-16	12.0	23.0	1.6	0.58
GSR-20	15.0	28.0	1.9	0.96

igubal® clevis joints | Product range

Clevis joints, detectable, FDA and EU10/2011-compliant: GERM-FC



Order key

Type	Size	Version
G E R M-	04	- FC

Type: Clevis joint | E series | Thread | Metric
Size: Inner Ø [mm]
Version: Suitable for food contact

- Lubrication and maintenance-free
- Visually and magnetically detectable
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Left-hand thread upon request
- Corrosion and media-resistant
- Vibration-dampening
- Cost-effective

Material:
igumid® FC ▶ Page 1191

Technical data

Part No.	Max. static tensile strain		Max. static axial force		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[Nm]	[g]
GERM-04-FC	600	300	200	100	1.0	0.8
GERM-05-DIN-M5-FC	800	400	250	125	1.5	1.5
GERM-05-FC New	900	450	250	125	0.5	3.0
GERM-06-FC	1,400	700	250	125	1.5	2.5
GERM-08-FC	2,300	1,150	650	325	5.0	6.4
GERM-10-FC	4,000	2,000	800	400	10.0	13.2
GERM-10-FC-F	4,000	2,000	800	400	10.0	13.2
GERM-12-FC	5,000	2,500	900	450	15.0	20.7
GERM-12-FC-F	5,000	2,500	900	450	15.0	20.7

Dimensions [mm]

Part No.	d1	g	a1 +0.3 -0.16	a2 +0.3 -0.16	b1	d2	d3 ±0.3	l2 ±0.5	h1 ±0.3	l1 ±0.2
GERM-04-FC	4	8.0	8.0	8.0	4.1	M4	8	21.0	16.0	6.0
GERM-05-DIN-M5-FC	5	10.0	9.9	9.9	5.3	M5	9	24.5	20.0	7.5
GERM-05-FC New	5	12.0	12.0	12.0	6.0	M5	10	31.0	24.0	9.0
GERM-06-FC	6	12.0	12.0	12.0	6.2	M6	10	31.0	24.0	9.0
GERM-08-FC	8	15.9	15.8	15.8	8.2	M8	14	42.0	32.0	12.0
GERM-10-FC	10	19.5	19.9	19.9	9.5	M10	18	51.3	39.5	14.8
GERM-10-FC-F	10	19.5	19.9	19.9	9.5	M10 x 1.25	18	51.3	39.5	14.8
GERM-12-FC	12	24.0	23.7	23.7	12.2	M12	20	61.3	48.0	18.0
GERM-12-FC-F	12	23.5	23.7	23.7	12.2	M12 x 1.25	20	61.3	48.0	18.0

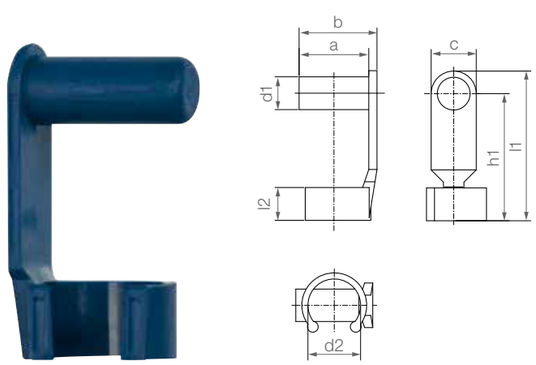
Left-hand thread and other dimensions available upon request

EN 09/2023

igubal® clevis joints

igubal® clevis joints | Product range

Spring-loaded fixing clips, detectable, FDA and EU10/2011-compliant: GEFM-FC



Order key

Type	Size	Version
G E F M-	04	- FC

Type: Clevis joint | E series | Spring-loaded fixing clip | Metric
Size: Inner Ø [mm]
Version: Suitable for food contact

- Lubrication and maintenance-free
- Visually and magnetically detectable
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines
- Corrosion and media-resistant
- Vibration-dampening
- Cost-effective

Material:
igumid® FC ▶ Page 1191

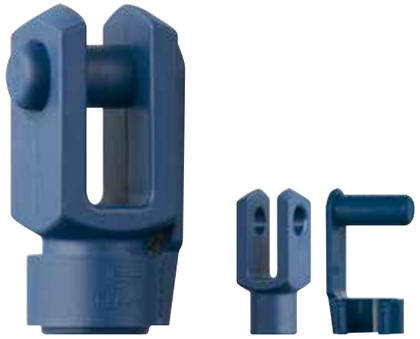
Dimensions [mm]

Part No.	d1	d2	a	b	C	l1 ±0.5	h1	l2	Weight [g]
GEFM-04-FC	4	8.0	9.5	10.5	8	19	15	4.5	0.5
GEFM-05-DIN-M5-FC	5	9.0	12.0	13.5	8	23	19	5.5	0.8
GEFM-05-FC New	5	10.0	14.0	15.5	8	27	23	6.5	0.9
GEFM-06-FC	6	10.0	14.0	15.5	8	27	23	6.5	1.2
GEFM-08-FC	8	14.0	19.0	21.0	11	36	30	8.0	2.7
GEFM-10-FC	10	17.5	23.0	25.5	14	45	38	10.5	5.1
GEFM-12-FC	12	20.2	27.5	30.5	16	53	45	12.0	8.3

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igubal® clevis joints | Product range

Clevis joints with spring-loaded fixing clips, detectable, FDA and EU10/2011-compliant: GERMF-FC



- Lubrication and maintenance-free
- Visually and magnetically detectable
- Compliant with Regulation (EU) No. 10/2011 and FDA guidelines

Order key

Type					Size	Version
G	E	R	M	F	- 04	- FC
Clevis joint	E series	Thread	Metric	Spring-loaded fixing clip	Inner Ø [mm]	Suitable for food contact

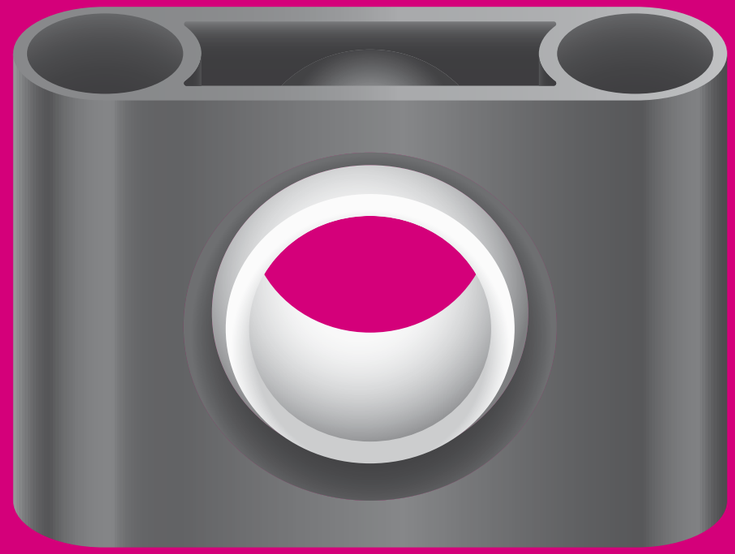
- Corrosion and media-resistant
- Vibration-dampening
- Cost-effective

Material:
igumid® FC ▶ Page 1191

Technical data

Part No.		Max. static tensile strain		Max. static axial force		Weight
		Short-term	Long-term	Short-term	Long-term	
		[N]	[N]	[N]	[N]	[g]
GERMF-04-FC		400	200	200	100	1.3
GERMF-05-DIN-M5-FC		700	350	250	125	2.3
GERMF-05-FC	New	800	450	250	125	3.9
GERMF-06-FC		1,200	600	250	125	3.9
GERMF-08-FC		2,000	1,000	650	325	9.1
GERMF-10-FC		3,000	1,500	800	400	18.3
GERMF-10-FC-F		3,000	1,500	800	400	18.3
GERMF-12-FC		3,000	1,500	900	450	29.0
GERMF-12-FC-F		3,000	1,500	900	450	29.0

Left-hand thread upon request



igubal® pillow block bearing

Maintenance-free dry operation

High rigidity

Durable

Media-resistant

High radial loads



EN 09/2023

igubal® pillow block bearing

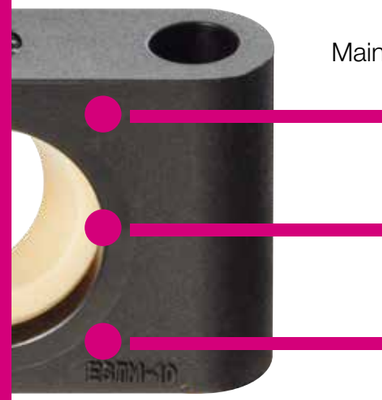
igubal® pillow block bearings are bearing units especially easy to install and which are able to compensate alignment errors and prevent edge pressure.



Maintenance-free dry operation

High rigidity

Durable



Maintenance-free and lubrication-free

Media-resistant

High radial loads

When do I take them?

- When chemical resistance is required
- If a cost-effective alternative is needed
- When dirt-resistant bearings are required
- To adjust misalignment
- If you need split components

When do I not take them?

- When temperatures are higher than +80°C
- When an integrated fixing collar is required
- When dimensions above 50mm are required
- If rotation speeds of more than 0.5 m/s are to be achieved

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

Max. +80°C
min. -30°C

6 types
Ø 5 - 150mm

Imperial dimensions available
▶ Page 1155

Online product finder
▶ www.igus.eu/igubal-finder

igus EN 09/2023



Pedal boat
The Polish company P.P.H. Samar manufactures pedal boats. The drive system bearings must be waterproof, robust and wear-resistant - and lubrication-free so that the operator does not need to maintain the boats during the season and that oil does not contaminate the water. The engineers therefore chose igubal® pillow block bearings for the drive rotor and drive shafts. (KSTM) of the igubal® series.



Drone
Mo Team, a UK-based company, is developing a drone that is to be lightweight and low-maintenance. That is why the design engineers are using plain bearings, pillow block bearings and rod ends made of igus® high-performance polymer. The components are lightweight and, thanks to the self-lubricating effect, maintenance-free.



Hydro generator
Sailing yachts use so-called hydro-generators, which use the water flow to generate electricity for the on-board battery. The engineers of the company Ocean Power GbR from Eldingen (Germany) use ESTM-30 pillow block bearings from igus® for linear movement of the generator. In order to be able to follow the flow of the sea more effectively, the polymer bearings also enable low-friction rotation by up to 20 degrees in the water.

igubal® pillow block bearings | Technical data

Benefits

- Maintenance-free dry operation
- High rigidity
- Durable in varying loads
- Compensation of misalignment errors
- Compensation of edge loads
- Corrosion-resistant
- Chemical resistance
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight
- High radial loads
- Media-resistant
- Space-saving
- Easy to fit
- Predictable service life
- Maintenance-free and lubrication-free

Product range

igubal® pillow block bearings are available in the dimensional K and E series for shaft diameters from 5 to 150mm. The dimensional K series is available in imperial dimensions. Please ask us for other dimensions.

Application areas

igubal® pillow block bearings ideally compensate for shaft misalignment, tilts and bends through their spherical movement. Applications in which these effects cannot be prevented are suitable for igubal® pillow block bearings.

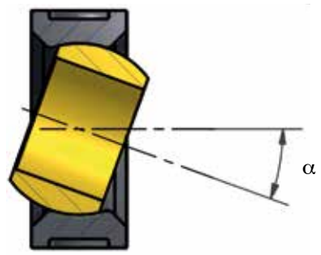
Tolerances

Maintenance-free igubal® pillow block bearings are designed with an inner diameter tolerance according to E10. The shaft tolerance should be between h6 and h9. The bearing clearance compensates for bearing expansion due to warming. All values and tolerances according to ISO 2768-m.

Assembly

igubal® pillow block bearings are designed for mounting with two or four bolts. An exact positioning of the bearing housing is not necessary, since the spherical bearing compensates for alignment errors. Special adjusting rings can be used to fix the shaft.

pivot angle



igubal® pillow block bearings | Product overview

igubal® pillow block bearing



Clip-on version:
KSTM-CL

K series
▶ Page 926



Compensation of misalignment errors

K series
▶ Page 928



Easy to disassemble, split housing and ball

K series
▶ Page 930



Easy installation

E series
▶ Page 931



For quick assembly and low total moisture absorption
E series
▶ Page 932



Split housing with parallel hole

E series
▶ Page 933



Extremely light, compact design

E series
▶ Page 934

New



Space-saving

E series
▶ Page 935



Split pillow block bearings for square profiles
E series
▶ Page 936

New



Pillow block bearings for contact with food
E series
▶ Page 937

New



Pillow block bearing with polymer housing

▶ Page 938

New



Pillow block bearing with cast iron housing

▶ Page 939



Pillow block bearings with cost-effective metallic housing

▶ Page 940

igubal® combination with xiros® ball bearings



Low coefficient of friction, fixed and pivoting version
E series
▶ From page 1086

igubal® pillow block bearings | Product range New

Pillow block bearings: KSTM-CL



- 30% higher strength due to optimised housing (bio-mechanic design) compared to standard KSTM
- Can be combined with all materials for spherical balls for a wide range of requirements
- Fast delivery time
- More even movement of the spherical ball in the housing
- 10% more cost-effective than the overmoulded previous version KSTM

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. radial load		Max. axial load		Max. tightening torque for longitudinal holes[144)]	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]	[Nm]	[g]
KSTM-06-CL-☐ New	950	475	250	125	1.3	2.9
KSTM-08-CL-☐ New	1,400	700	230	115	1.3	4.8
KSTM-10-CL-☐ New	2,150	1,075	500	250	2.5	9.0
KSTM-12-CL-☐ New	2,300	1,150	350	175	2.5	12.1
KSTM-16-CL-☐ New	3,200	1,600	620	310	4.5	23.6
KSTM-20-CL-☐ New	6,000	3,000	730	365	10.5	40.7
KSTM-25-CL-☐ New	7,200	3,600	850	425	10.5	73.3
KSTM-30-CL-☐ New	8,800	4,400	1,200	600	21.5	115.4

[144)] **To achieve the max. tightening torque, we recommend the use of washers.**

Alternative spherical ball materials ▶ Page 993

RKM: Low-cost

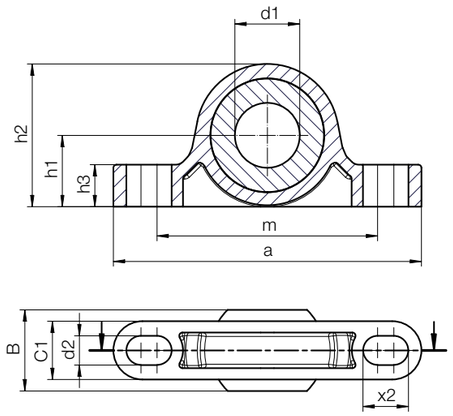
JKM: Low moisture absorption

J4KM: Low-cost and low moisture absorption

igubal® pillow block bearings

igubal® pillow block bearings | Product range New

Pillow block bearings: KSTM-CL



Order key

Type	Size
K STM -06-CL	

K series | Pillow block bearing | Metric | Inner Ø [mm] | 2nd generation

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Dimensions [mm]

Part No.	d1	B	C1	h1	h2	m	a	h3	d2	x2	Max.
	E10										pivot angle
KSTM-06-CL-☐ New	6	9	7.0	10	18	33	43	5.5	4.5	6.0	36°
KSTM-08-CL-☐ New	8	12	9.0	10	20	33	47	6.0	4.5	7.0	33°
KSTM-10-CL-☐ New	10	14	10.5	14	26	46	62	7.5	5.5	8.0	33°
KSTM-12-CL-☐ New	12	16	12.0	14	28	46	65	8.5	5.5	9.0	33°
KSTM-16-CL-☐ New	16	21	15.0	18	36	60	86	10.5	6.6	12.0	32°
KSTM-20-CL-☐ New	20	25	18.0	22	44	68	95	13.0	9.0	14.0	31°
KSTM-25-CL-☐ New	25	31	22.0	27	54	86	121	16.0	9.0	17.0	31°
KSTM-30-CL-☐ New	30	37	25.0	32	64	96	139	17.0	11.0	20.0	31°

igubal® pillow block bearings | Product range

Pillow block bearings: KSTM



- Maintenance-free dry operation
- High rigidity
- Very high durability under alternating loads
- Compensation of misalignment and edge loads
- Resistant to corrosion and chemicals
- Vibration-dampening
- Suitable for rotating, oscillating and linear movements
- Lightweight

Imperial dimensions available
▶ Page 1155

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

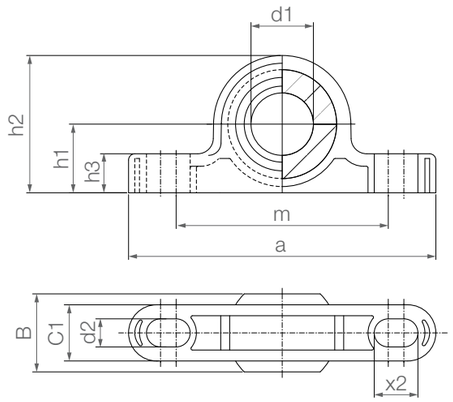
Part No.	Max. static tensile strain		Max. axial static compressive force	Max. tightening torque for longitudinal holes[144)]	Weight
	Short-term	Long-term			
	[N]	[N]	[N]	[Nm]	[g]
KSTM-05	700	350	300	0.6	1.7
KSTM-06	1,100	550	300	1.3	2.9
KSTM-08	1,300	650	400	1.3	4.6
KSTM-10	1,500	750	500	2.5	8.6
KSTM-12	2,200	1,100	600	2.5	11.8
KSTM-14	2,400	1,200	600	4.5	18.4
KSTM-16	3,000	1,500	1,800	4.5	23.7
KSTM-18	3,500	1,750	1,200	10.5	32.2
KSTM-20	4,700	2,350	1,300	10.5	40.0
KSTM-22	6,100	3,050	1,400	10.5	54.0
KSTM-25	6,600	3,300	1,600	10.5	75.3
KSTM-30	8,100	4,050	2,100	21.5	116.8

144) To achieve the max. tightening torque, we recommend the use of washers.

igubal® pillow block bearings

igubal® pillow block bearings | Product range

Pillow block bearings: KSTM



Order key

Type	Size
K STM	-05

K series | Pillow block bearing | Metric | Inner Ø [mm]

Material:
Housing: **igumid® G** ▶ Page 1190
Spherical ball: **iglidur® W300** ▶ Page 175

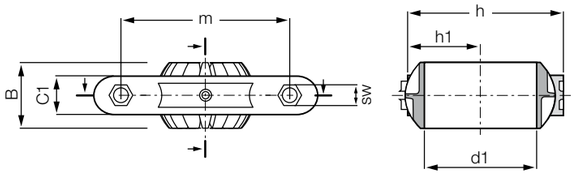
Dimensions [mm]

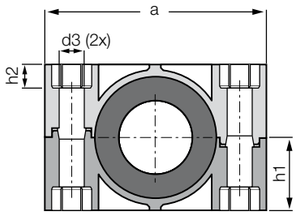
Part No.	d1	B	C1	h1	h2	m	a	h3	d2	x2	Max. pivot angle
	E10										
KSTM-05	5	8	6.0	7	14	25	34	4.0	3.3	4.6	30°
KSTM-06	6	9	7.0	10	18	33	43	5.5	4.5	6.0	29°
KSTM-08	8	12	9.0	10	20	33	47	6.0	4.5	7.0	25°
KSTM-10	10	14	10.5	14	26	46	62	7.5	5.5	8.0	25°
KSTM-12	12	16	12.0	14	28	46	65	8.5	5.5	9.0	25°
KSTM-14	14	19	13.5	18	34	60	82	9.5	6.6	11.0	23°
KSTM-16	16	21	15.0	18	36	60	86	10.5	6.6	12.0	23°
KSTM-18	18	23	16.5	22	42	68	93	11.5	9.0	13.0	23°
KSTM-20	20	25	18.0	22	44	68	98	13.0	9.0	14.0	23°
KSTM-22	22	28	20.0	24	48	74	108	14.0	9.0	16.0	22°
KSTM-25	25	31	22.0	27	54	86	124	16.0	9.0	17.0	22°
KSTM-30	30	37	25.0	32	64	96	139	17.0	11.0	20.0	22°

igubal® pillow block bearings | Product range

Pillow block bearings with split housing: KSTM-GT







Order key

Type	Size	Version
K STM-GT	40	-GT

K series | Pillow block bearing | Metric | Split housing | Inner Ø [mm] | Split ball

Material:
Housing: **RN33** ▶ **Page 1192**
Spherical ball: **iglidur® J** ▶ **Page 163**

Online service life calculation
▶ **www.igus.eu/igubal-expert**

- Fitting is easy and does not require shaft removal
- Maintenance-free, dry operation
- For high static loads
- Mounting: M12
- Lightweight
- High rigidity and durability
- Predictable service life
- Dimensional series K following DIN ISO 12240

Technical data

Part No.	Max. radial tensile/ compressive strength		Max. axial tensile/ compressive strength		Max. Tightening torque through ball fixing holes		Weight
	Short-term	Long-term	Short-term	Long-term			
	[N]	[N]	[N]	[N]	[Nm]	[Nm]	[g]
KSTM-GT35[23]	11,000	5,500	2,500	1,250	5	15	250.3
KSTM-GT40	11,000	5,500	2,500	1,250	5	15	235.0
KSTM-GT40-GT[24]	11,000	5,500	2,500	1,250	5	15	235.0
KSTM-GT45[23]	15,000	7,500	3,000	1,500	5	20	405.2
KSTM-GT50	15,000	7,500	3,000	1,500	5	20	389.2
KSTM-GT50-GT[24]	15,000	7,500	3,000	1,500	5	20	389.2

Dimensions [mm]

Part No.	d1 E10	d3	h	h1	h2	SW	a	m	C1	B	Max. pivot angle
KSTM-GT35[23]	35.0	13.5	79.0	39.5	12.6	19.0	120.5	91.0	29.5	48.5	24°
KSTM-GT40	40.0	13.5	79.0	39.5	12.6	19.0	120.5	91.0	29.5	48.5	24°
KSTM-GT40-GT[24]	40.0	13.5	79.0	39.5	12.6	19.0	120.5	91.0	29.5	48.5	24°
KSTM-GT45[23]	45.0	13.5	100.0	50.0	12.6	19.0	149.0	114.0	35.0	60.0	24°
KSTM-GT50	50.0	13.5	100.0	50.0	12.6	19.0	149.0	114.0	35.0	60.0	24°
KSTM-GT50-GT[24]	50.0	13.5	100.0	50.0	12.6	19.0	149.0	114.0	35.0	60.0	24°

[23] Diameter reduced by plain bearing; [24] Split housing and split ball

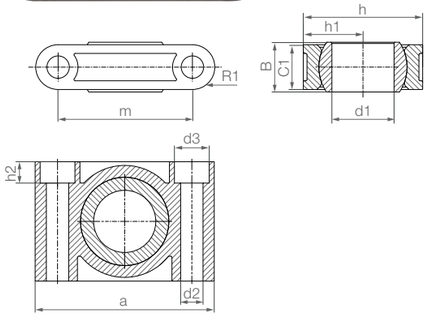
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igubal® pillow block bearings

igubal® pillow block bearings | Product range

Pillow block bearings: ESTM





Order key

Type	Size
E STM-	08

E series | Pillow block bearing | Metric | Inner Ø [mm]

Spherical ball material
Blank : iglidur® W300
J4V : iglidur® J4V
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4

Material:
Housing: **igumid® G** ▶ **Page 1190**
Spherical ball: **iglidur® W300** ▶ **Page 175**
Combination with xiros® ball bearings
▶ **From page 1086**

- High radial loads
- Media-resistant
- Space-saving design, easy to fit
- Predictable service life
- Maintenance-free and lubrication-free
- Dimensional series E following DIN ISO 12240

Technical data

Part No.	Max. radial tensile force		Max. radial compressive strength		Max. axial strength		Max. tightening torque fixing holes	Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	[Nm]	[g]
ESTM-08	2,500	1,250	4,300	2,150	600	300	1.3	5.0
ESTM-10	3,400	1,700	5,300	2,650	700	350	2.5	7.1
ESTM-12	4,500	2,250	6,500	3,250	750	375	2.5	9.0
ESTM-16	6,700	3,350	8,500	4,250	1,100	550	4.5	17.5
ESTM-20	8,500	4,250	11,000	5,750	1,400	700	4.5	27.4
ESTM-25	13,500	6,750	18,500	9,250	2,300	1,150	10.5	50.8
ESTM-30[25]	10,000	5,000	16,500	8,250	2,500	1,250	10.5	79.7

[25] Lower values loads due to different manufacturing method

Dimensions [mm]

Part No.	d1, E10	d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivot angle
ESTM-08	8	4.5	–	19	9.5	–	31	22	9	8	4.5	22°
ESTM-10	10	5.5	–	22	11.0	–	36	26	10	9	5.0	22°
ESTM-12	12	5.5	–	26	13.0	–	38	28	10	10	5.0	22°
ESTM-16	16	6.6	10.6	34	17.0	6.4	50	37	13	13	6.5	22°
ESTM-20	20	9.0	14.0	40	20.0	8.6	62	46	16	16	8.0	22°
ESTM-25	25	9.0	14.0	48	24.0	8.6	72	54	18	20	9.0	20°
ESTM-30	30	11.0	17.0	56	28.0	10.6	86	64	22	22	11.0	20°

Alternative spherical ball materials ▶ Page 993



J4VEM: Clearance-free, pre-loaded



JEM: Low moisture absorption



REM: Low-cost



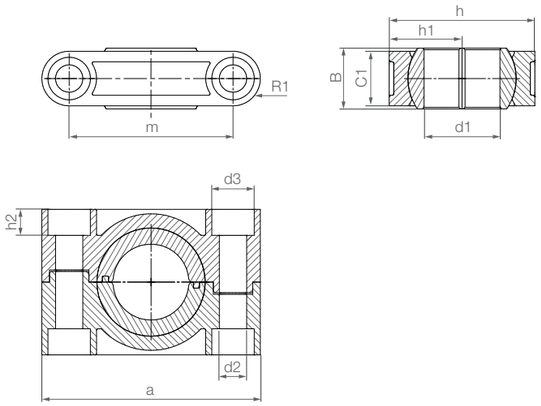
J4EM: Low-cost and low moisture absorption

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igubal® pillow block bearings | Product range

Pillow block bearings with split housing and split ball: ESTM-GT-GT





Order key

Type				Size	Version
E	ST	M-GT	16	-GT	
E series	Pillow block bearing	Metric	Split housing	Inner Ø [mm]	Split ball

Material:
Housing: **RN33 ▶ Page 1192**
Spherical ball: **iglidur® J ▶ Page 163**

- Save time during assembly and disassembly
- Lightweight
- High rigidity and durability
- Spherical ball material iglidur® J for low moisture absorption
- Ideal for outdoor use
- Dimensional series E following DIN ISO 12240

Technical data

Part No.	Max. static radial tensile strain		Max. static radial compressive force		Max. tightening torque fixing holes	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]		[g]
ESTM-GT16-GT	2,500	1,250	8,500	4,250	4.5	18
ESTM-GT20-GT	5,000	2,500	11,000	5,750	4.5	28
ESTM-GT25-GT	5,000	2,500	18,500	9,250	10.5	52
ESTM-GT30-GT	8,000	2,500	16,500	8,250	10.5	84

Dimensions [mm]

Part No.	d1	d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivot angle
	E10											
ESTM-GT16-GT	16	6.6	10.6	34	17	6.4	50	37	13	13	6.5	22°
ESTM-GT20-GT	20	9.0	14.0	40	20	8.6	62	46	16	16	8.0	22°
ESTM-GT25-GT	25	9.0	14.0	48	24	8.6	72	54	18	20	9.0	22°
ESTM-GT30-GT	30	11.0	17.0	56	28	10.6	86	64	22	22	11.0	22°

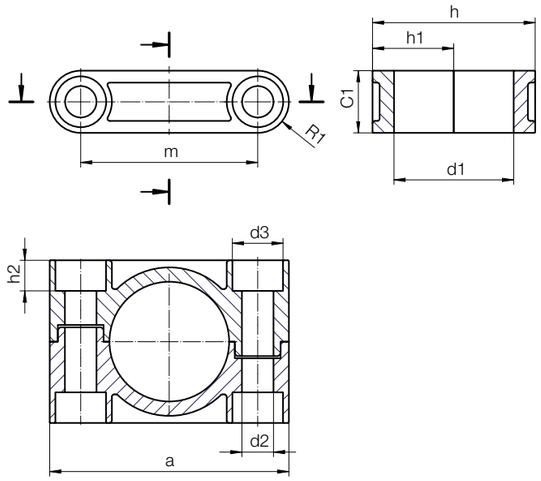
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igubal® pillow block bearings

igubal® pillow block bearings | Product range

Split housings with parallel holes: ESTM-GT





Order key

Type				Size	Version
E	ST	M-GT	16	-25	
E series	Pillow block bearing	Metric	Split housing	Dimensions [mm]	Inner Ø

Material:
igumid® G ▶ Page 1190

- Easy to assemble and disassemble
- Perfect for outdoor applications
- High loads
- Dimensional series E following DIN ISO 12240

Technical data

Part No.	Max. static radial tensile strain		Max. static radial compressive force		Max. tightening torque fixing holes	Weight
	Short-term	Long-term	Short-term	Long-term		
	[N]	[N]	[N]	[N]		[g]
ESTM-GT16-25	3,600	1,800	7,000	3,500	4.5	12.6
ESTM-GT20-30	4,800	2,400	9,000	4,500	4.5	21.1
ESTM-GT25-35	8,500	4,250	15,000	7,500	10.5	39.9
ESTM-GT30-40	9,500	4,750	18,500	9,250	10.5	66.5

Dimensions [mm]

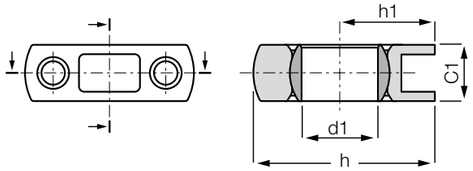
Part No.	d1	d2	d3	h	h1	h2	a	m	C1	R1
	E10									
ESTM-GT16-25	25	6.6	10.6	34	17	6.4	50	37	13	6.5
ESTM-GT20-30	30	9.0	14.0	40	20	8.6	62	46	16	8.0
ESTM-GT25-35	35	9.0	14.0	48	24	8.6	72	54	18	9.0
ESTM-GT30-40	40	11.0	17.0	56	28	10.6	86	64	22	11.0

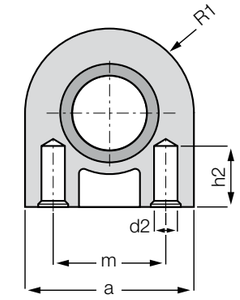
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igubal® pillow block bearings | Product range

Pillow block bearings Slim Line: ESTM SL







Online service life calculation
▶ www.igus.eu/igubal-expert

Order key

Type	Size	Version
E STM-	05	- SL - M3

E series	Pillow block bearing	Metric	Inner Ø [mm]	Slim Line

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**

- Extremely lightweight
- Space-saving
- Cost-effective
- Predictable service life
- Maintenance-free and lubrication-free
- With M3 thread, e. g. ESTM-10-SL-M3
- For self tapping screw with outer diameter 3.5mm
- Dimensional series E following DIN ISO 12240

Technical data

Part No.	Max. radial tensile force		Max. radial compressive strength		Max. lateral strength		Max. axial strength		Weight
	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[N]	[g]
ESTM-05-SL-M3	1,500	750	1,400	700	900	450	150	75	1.6
ESTM-06-SL-M3	1,500	750	1,400	700	900	450	150	75	1.7
ESTM-08-SL-M3	1,600	800	1,400	700	950	475	100	50	1.7
ESTM-10-SL-M3	1,600	800	1,400	700	1,000	500	100	50	1.9

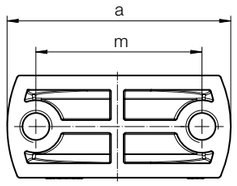
Dimensions [mm]

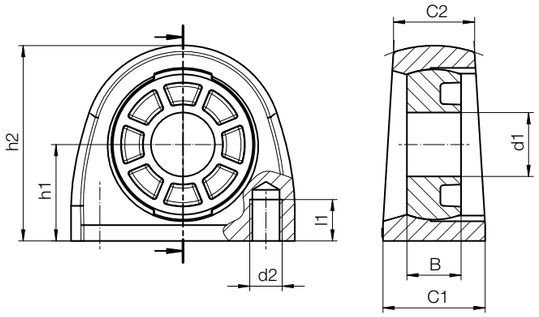
Part No.	d1 E10	d2	h	h1	h2	a	m	C1	R1	Max. pivot angle
ESTM-05-SL-M3	5	2.5	18	10	6.5	16	10	6	8	17°
ESTM-06-SL-M3	6	2.5	18	10	6.5	16	10	6	8	17°
ESTM-08-SL-M3	8	2.5	19	10	6.5	18	12	6	9	17°
ESTM-10-SL-M3	10	2.5	20	10	6.5	20	14	6	10	17°

igubal® pillow block bearings | Product range New

Compact pillow block bearings: PA-KS-JEM-SP







Order key

Type	Size	Version
PA203-KS- J	E	M-17-17-SP

Pillow block bearing	Polymer	Spherical ball material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**

- Extremely lightweight
- Space-saving
- Cost-effective
- Predictable service life
- Maintenance-free and lubrication-free
- Dimensional series E following DIN ISO 12240

Technical data

Part No.	Max. static radial tensile strain		Max. static axial compressive force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
PA203-KS-JEM-17-17-SP New	7,500	3,750	1,100	550	85.3
PA204-KS-JEM-20-17-SP New	7,500	3,750	1,100	550	85.3
PA205-KS-JEM-25-17-SP New	8,000	4,000	2,300	1,150	103.6
PA206-KS-JEM-30-19-SP New	13,500	6,750	2,500	1,250	164.0
PA207-KS-JEM-35-20-SP New	–	–	–	–	219.3
PA208-KS-JEM-40-21-SP New	–	–	–	–	217.4
PA210-KS-JEM-50-24-SP New	–	–	–	–	284.1

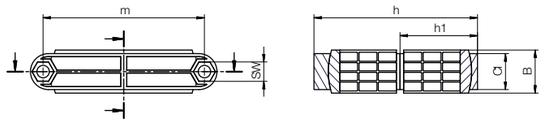
Dimensions [mm]

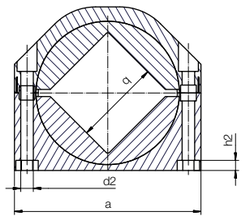
Part No.	d1	d2	h1	h2	l1	B	C1	C2	m	a
PA203-KS-JEM-17-17-SP New	17	M10	30.2	31.2	13	17	32	25.4	52	70
PA204-KS-JEM-20-17-SP New	20	M10	30.2	31.2	13	17	32	25.4	52	70
PA205-KS-JEM-25-17-SP New	25	M10	36.5	70.6	15	17	34	27.5	56	74
PA206-KS-JEM-30-19-SP New	30	M14	42.9	82.9	18	19	38	30.0	66	89
PA207-KS-JEM-35-20-SP New	35	M14	47.6	92.6	21	20	38	30.0	80	103
PA208-KS-JEM-40-21-SP New	40	M14	49.2	97.2	21	21	39	31.0	84	107
PA210-KS-JEM-50-24-SP New	50	M16	57.2	110.2	26	24	41	33.0	94	119

igubal® pillow block bearings | Product range

Split pillow block bearings for square profiles: ESQM







- Profile 100x100mm, 110x110mm, 120x120mm 140x140mm or 150x150mm
- Split version of housing and spherical balls
- Easy assembly and disassembly
- High loads
- Lightweight
- Compensation of misalignment errors
- Mounting: M16 screw
- Recommended tightening torque: 50Nm

Order key

Type	Size
E SQ M-	110

E series	Pillow block bearing for square profiles	Metric	Edge length [mm]

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J4 ▶ Page 1186**

More materials for special parts:
Spherical ball: **iglidur® P UV ▶ Page 1189**

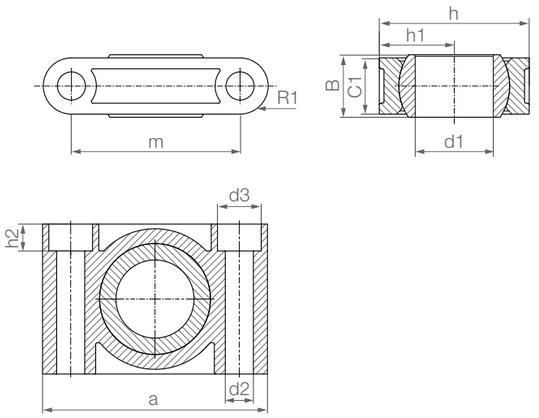
Dimensions [mm]

Part No.		q +1	SW	d2	h	h1	h2	a	m	B	C1	Weight [g]
ESQM-100		100.5	24	17.5	228	108	13.6	260	225	60	50	1,295
ESQM-110		110.5	24	17.5	228	108	13.6	260	225	60	50	1,255
ESQM-120		120.0	24	17.5	228	108	13.6	260	225	60	50	1,210
ESQM-125	New	125.0	24	17.5	228	108	13.6	260	225	60	50	1,210
ESQM-140		140.5	24	17.5	266	130	15.0	307	269	60	50	1,670
ESQM-150		150.5	24	17.5	266	–	15.0	307	268	60	50	1,640

igubal® pillow block bearings | Product range New

Pillow block bearings for contact with food: ESTM-FC





Order key

Type	Size	Version
E STM-	10	- FC

E series	Pillow block bearing	Metric	Inner Ø [mm]	Suitable for food contact (Food Contact)

Material:
Housing: **igumid® FC ▶ Page 1191**
Spherical ball: **iglidur® A181 ▶ Page 401**
iglidur® FC180 ▶ upon request

- Solid polymer solution: corrosion-free, lightweight and still detectable
- Lubrication-free: No lubricants to washout
- For contact with food: FDA and EU 10/2011 compliant

Technical data

Part No.		Max. radial tensile force		Max. radial compressive strength		Max. axial strength		Max. tightening torque fixing holes	Weight
		Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	[N]	[g]
ESTM-10-FC	New	2,600	1,300	3,400	1,700	460	230	1.5	7.5
ESTM-20-FC	New	6,800	3,400	8,000	4,000	1,800	900	3.5	31.0

Dimensions [mm]

Part No.		d1	d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivot angle
ESTM-10-FC	New	10	5.5	–	22	11	–	36	26	10	9	5	22°
ESTM-20-FC	New	20	9.0	14.0	40	20	8.6	62	46	16	16	8	22°

igubal® pillow block bearings | Product range New

Pillow block bearings with polymer housing: P-KS-JEM-SP

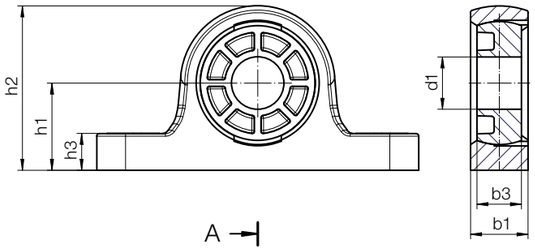


- Dimensionally interchangeable with cast iron housings
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads

Order key

Type					Size		Version
P204	-KS-	J	E	M	-20	-17	-SP
Pillow block bearing	Polymer	Spherical ball material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**



Technical data

Part No.		Max. static radial tensile strain		Max. static axial compressive force		Weight
		Short-term	Long-term	Short-term	Long-term	
		[N]	[N]	[N]	[N]	[g]
P204-KS-JEM-20-17-SP	New	7,500	3,750	1,100	550	77.9
P205-KS-JEM-25-17-SP	New	8,300	4,150	800	400	86.4
P206-KS-JEM-30-19-SP	New	9,400	4,700	1,200	600	135.2
P207-KS-JEM-35-20-SP	New	–	–	–	–	162.1
P208-KS-JEM-40-21-SP	New	–	–	–	–	181.0
P209-KS-JEM-45-22-SP	New	–	–	–	–	209.7
P210-KS-JEM-50-24-SP	New	–	–	–	–	265.2

Dimensions [mm]

Part No.		d1	b1	b2	b3	h1	a	h2	h3	m1	m2
P204-KS-JEM-20-17-SP	New	20	22	12	17	33.3	123	62.3	14	89	101
P205-KS-JEM-25-17-SP	New	25	22	12	17	36.5	133	68.0	14	99	111
P206-KS-JEM-30-19-SP	New	30	26	16	19	42.9	151	79.9	19	117	125
P207-KS-JEM-35-20-SP	New	35	26	16	20	47.6	157	89.6	19	123	131
P208-KS-JEM-40-21-SP	New	40	26	16	21	49.2	167	95.2	19	133	141
P209-KS-JEM-45-22-SP	New	45	26	16	22	54.0	178	103.0	19	140	152
P210-KS-JEM-50-24-SP	New	50	30	20	24	57.2	194	108.7	21	154	164

igubal® pillow block bearings

igubal® pillow block bearings | Product range New

Pillow block bearings with cast iron housing: P-JEM-SP

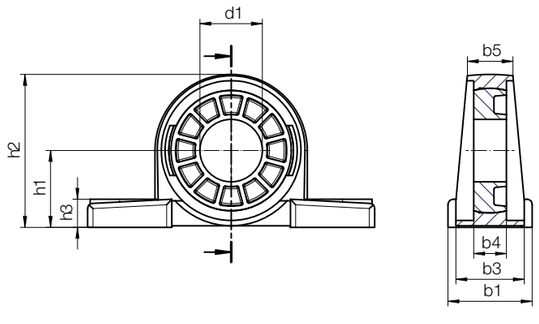


- Service life in dirty environment longer than with ball bearings by up to a factor of 8
- For higher static loads
- No costs due to maintenance or failure times (e.g. due to lack of lubrication)
- Save up to 25% thanks to easy bearing replacement

Order key

Type					Size		Version
P204	-	J	E	M	- 20	- 17	-SP
Pillow block bearing with cast iron housing		Spherical ball material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **Cast iron**
Spherical ball: **iglidur® J ▶ Page 163**



Technical data and dimensions [mm]

Part No.		Max. static radial load	Max. static axial load	d1	b1	b2
		[N]	[N]			
P204-JEM-20-17-SP	New	8,000	4,000	20	38	13
P205-JEM-25-17-SP	New	9,000	3,500	25	38	13
P206-JEM-30-19-SP	New	13,500	5,000	30	48	17
P208-JEM-40-21-SP	New	21,000	6,000	40	54	17
P210-JEM-50-24-SP	New	25,000	5,500	50	60	20

Dimensions [mm]

Part No.		b3	b4	b5	h1	a	h2	h3	m1	m2
P204-JEM-20-17-SP	New	30.9	17	22.7	33.3	127	65	14	89	101
P205-JEM-25-17-SP	New	30.9	17	23.3	36.5	140	71	15	99	111
P206-JEM-30-19-SP	New	39.0	19	25.3	42.9	165	83	17	117	125
P208-JEM-40-21-SP	New	43.9	21	29.2	49.2	184	98	18	133	141
P210-JEM-50-24-SP	New	48.8	24	31.2	57.2	206	114	21	154	164

Can be combined with accessories ▶ Page 1012



SRM-ES:
Steel fixing collar (galvanised)



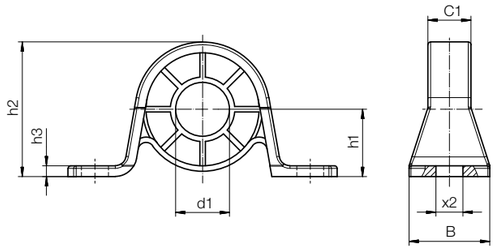
SRM-KS:
Polymer fixing collar

igubal® pillow block bearings | Product range

Pillow block bearings with cost-effective metallic housing: PP-JEM-SP



- Lubrication and maintenance-free
- Cost-effective
- Resistant to dirt
- Cost-effective spherical ball material iglidur® J4 available (order example: PP204-J4EM-20-14-SP)



Order key

Type	Size	Version

PP204 - J E M - 20 - 14 - SP

Pillow block bearing	Spherical ball material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **Galvanised steel (stainless steel upon request)**
Spherical ball: **iglidur® J (alternative iglidur® J4)**



Technical data

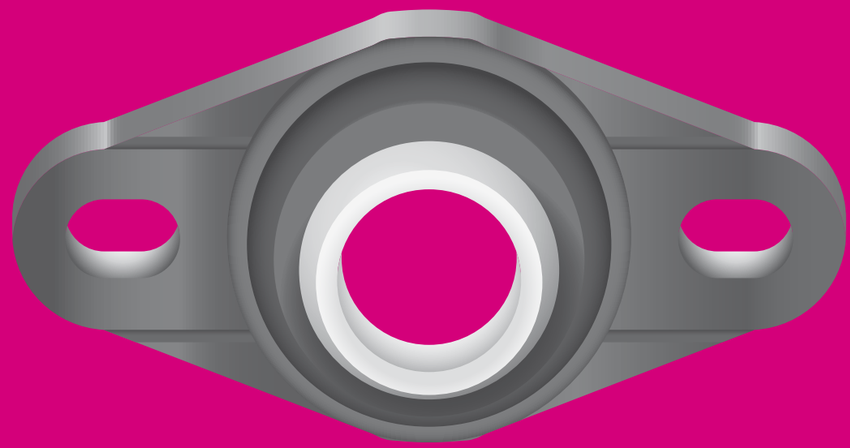
Part No.	Max. static radial tensile strain [N]	Max. static axial compressive force [N]	Weight [g]
PP203-J4EM-17-12-SP New	1,800	600	68
PP204-□EM-20-14-SP	1,000	3,000	140
PP205-□EM-25-15-SP	1,800	5,000	164
PP206-□EM-30-16-SP	1,800	6,000	206
PP207-JEM-35-17-SP New	2,500	7,000	292
PP208-JEM-40-18-SP New	2,000	5,000	378

Dimensions [mm]

Part No.	d1 E10	h1	h2	h3	a	m	C1	B	x2
PP203-J4EM-17-12-SP New	17	22.2	43.8	3.0	86	68	21.0	25	9.5
PP204-□EM-20-14-SP	20	25.4	50.5	3.0	98	76	22.0	32	9.5
PP205-□EM-25-15-SP	25	28.6	56.6	4.0	108	86	24.0	32	11.5
PP206-□EM-30-16-SP	30	33.3	66.3	4.0	117	95	26.5	38	11.5
PP207-JEM-35-17-SP New	35	39.7	78.0	4.6	129	106	27.5	42	11.5
PP208-JEM-40-18-SP New	40	43.6	86.0	5.0	148	120	29.0	44	12.5

Can be combined with SRM fixing collars ▶ Page 1012

EN 09/2023



igubal® fixed flange bearings

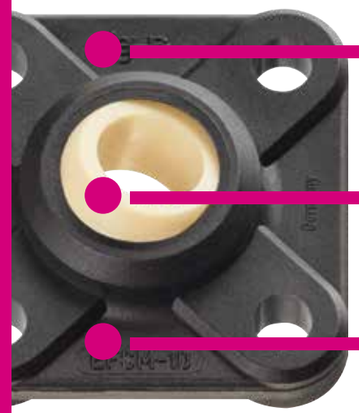
- Maintenance-free dry operation
- High rigidity
- Durable
- Compensation of misalignment errors
- Compensation of edge loads
- Lightweight



EN 09/2023

igubal® fixed flange bearings

igubal® fixed flange bearings have been developed for supporting the centre or ends of shafts. Like all standard igubal® products, these bearings consist of an igumid® G housing and an iglidur® W300 spherical ball. For temperatures up to +200°C please select the HT version (High Temperature). igubal® fixed flange bearings are made to the dimensional E series and are offered with two or four mounting holes.



Maintenance-free dry operation

High rigidity

Durable



Lightweight

Low installation space

When do I take them?

- When chemical resistance is required
- If a cost-effective alternative is needed
- When dirt-resistant bearings are required
- To adjust misalignment
- If you need split components
- If temperatures higher than +200°C are required

When do I not take them?

- When temperatures are higher than +200°C
  ▶ HT version, page 953-954
- When an integrated fixing collar is required
- When dimensions above 50mm are required
- If rotation speeds of more than 0.5 m/s are to be achieved

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

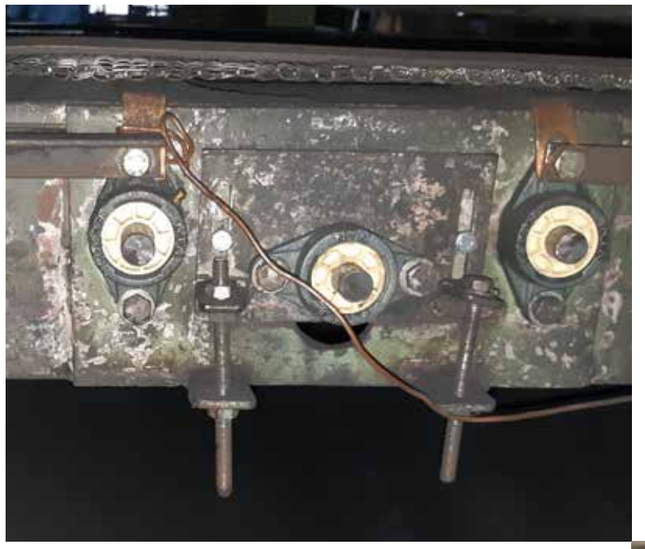
Max. +200 °C
min. -40°C
(depending on material: standard from -30°C to +80°C; HT from -40°C to +200°C)

5 types
Ø 4 - 50mm

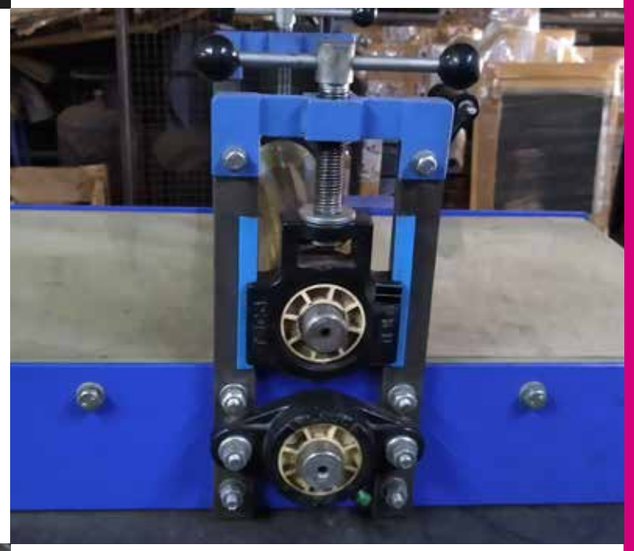
Online product finder
▶ www.igus.eu/igubal-finder

igus EN 09/2023

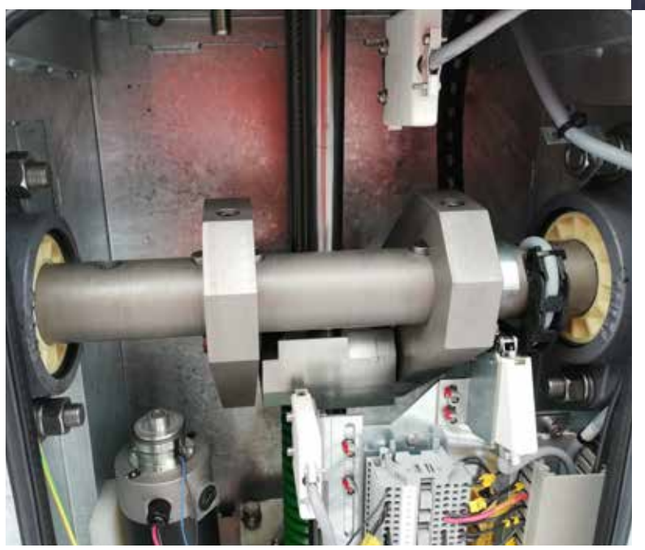
igubal®
fixed flange
bearings



Powder coating system
The Indian company Brakes India manufactures a powder coating system that works with spray booths and drying ovens. In the past, the paint powder was deposited in the difficult-to-reach rolling bearings of the system and resulted in a lot of maintenance work having to be done. The engineers solved the problem by replacing the metal rolling bearings with lubrication-free polymer bearings from igus®.



Printing machine
If manual printing machines for the gravure printing process are not used for a long period of time, the roller bearings will rust in humid environments. Rotating and sliding movements are blocked and uniform printing is almost impossible. That is why the manufacturer Ravi Engineering Works from India switched from metal bearings to spherical bearings and plain bearings made from high-performance plastic from igus®. The bearings now operate reliably in damp environments without a single drop of lubricant.



Railway barrier
The company Bombardier Transportation from Poland is continuously looking for components that function reliably even under the most difficult environmental conditions - in cold, hot and dusty environments alike. For the 90-degree pivoting movement of the barrier, the engineers use weather-resistant and maintenance-free igubal® polymer bearings (JEM-50-24-SP) and iglidur® X linear guide lead screws.

igubal® fixed flange bearings | Technical data

Application areas

Since igubal® fixed flange bearings are made for maintenance-free dry operation, they are especially suitable for applications in which access to the bearing is limited, in wet environments or cleanroom environments.igubal® fixed flange bearings are also found in electric brushes, awnings, conveyor technology, and bakery machines.

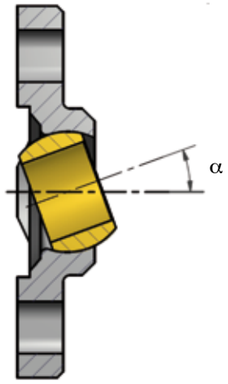
Tolerances

Maintenance-free igubal® fixed flange bearings have an inner diameter tolerance according to E10. The shaft tolerance should be between h6 and h9. The bearing clearance compensates for bearing expansion due to warming. All values and tolerances according to ISO 2768-m. Please contact us if you require lower or other bearing tolerances.

Assembly

igubal® fixed flange bearings are designed for mounting with two or four bolts, depending on the design. The 2-hole types are provided with elongated holes, which allow easy and flexible installation. An exact positioning of the bearing housing is not necessary, since the fixed flange bearing compensates for alignment errors.Special adjusting rings can be used to fix the shaft.

pivot angle



igus EN 09/2023

igubal® fixed flange bearings | Product overview

igubal® fixed flange bearings - for temperatures up to +80 °C



Easy installation

E series

▶ From page 946



For high radial loads

E series

▶ From page 948



Universal and quick assembly

Female thread

▶ Page 950



Universal and quick assembly

Male thread

▶ Page 951

igubal® fixed flange bearings - for temperatures up to +200°C



High static load, split housing

K series

▶ Page 952



For high radial loads

E series

▶ Page 953



Easy installation

E series

▶ Page 954

igubal® fixed flange bearings for contact with food



Suitable for food contact

E series

▶ Page 955

igubal® fixed flange bearing with plastic housing - dimensionally interchangeable with cast iron housings

New



Easy installation

E series

▶ Page 956

New



Completely corrosion-free

E series

▶ Page 957

igubal® fixed flange bearing with cast iron housing - for high static loads

New



High static loads

E series

▶ Page 960

New



Low coefficient of friction

E series

▶ Page 961

igubal® fixed flange bearings with cost-effective metallic housing



Easy replacement of the spherical ball

▶ Page 962

igubal® combination with xiros® ball bearings



Low coefficient of friction, pivoting version

E series

▶ Page 1088



Low coefficient of friction, pivoting version

E series

▶ Page 1089

EN 09/2023 igus

igubal® fixed flange bearings | Product range

Fixed flange bearings with 2 mounting holes: EFOM



- iglidur® W300 extremely wear-resistant spherical ball
- Easy installation
- Compensation of misalignment errors
- Absolute corrosion resistance
- Lightweight
- Maintenance-free dry operation

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. permissible axial load		Max. permissible radial load		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term	Holes	
	[N]	[N]	[N]	[N]	[Nm]	[g]
EFOM-04	400	200	750	375	0.6	1.9
EFOM-05	400	200	750	375	0.6	2.3
EFOM-06	500	250	800	400	0.6	1.8
EFOM-08	700	350	1,100	550	1.3	4.1
EFOM-10	850	425	2,000	1,000	2.5	6.8
EFOM-12	1,100	550	2,200	1,100	2.5	8.9
EFOM-15	1,300	650	2,400	1,200	4.5	15.0
EFOM-16	1,400	700	2,800	1,400	4.5	17.7
EFOM-17	1,800	900	3,200	1,600	4.5	24.9
EFOM-20	1,800	900	5,500	2,750	10.5	32.8
EFOM-25	3,000	1,500	6,000	3,000	10.5	58.5
EFOM-30	3,500	1,750	6,500	3,250	21.5	78.9

Alternative spherical ball materials ▶ Page 993



J4VEM: Clearance-free, pre-loaded



JEM: low moisture absorption



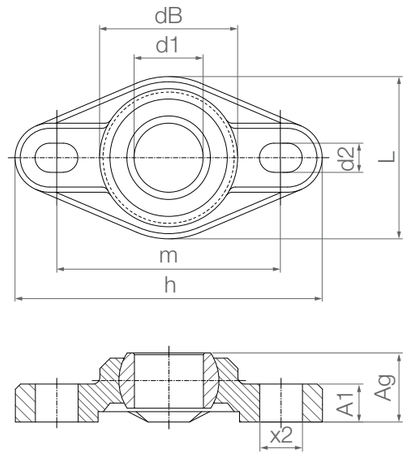
REM: Low-cost



J4EM: Low-cost and low moisture absorption

igubal® fixed flange bearings | Product range

Fixed flange bearings with 2 mounting holes: EFOM



Order key

Type				Size	
E	F	O	M	-04	

E series | Fixed flange bearing | 2 holes | Metric | Inner Ø [mm]

Spherical ball material
Blank : iglidur® W300
J4V : iglidur® J4V
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**
Combination with xiros® ball bearings **▶ Page 1089**

Imperial dimensions available
▶ Page 1158

Dimensions [mm]

Part No.	d1	dB	h	L	m	A1	Ag	d2	x2	Max. pivot angle
	E10		Length	Width	Hole pitch	Height of plate	Total height	Elongated hole		
					±0.1	+1.0				
EFOM-04	4	14.0	33.8	16.0	24.0	4.5	8.0	3.2	5.0	28°
EFOM-05	5	14.0	33.8	16.0	24.0	4.5	8.5	3.2	5.0	29°
EFOM-06	6	14.0	33.8	16.0	24.0	4.5	8.5	3.2	5.0	25°
EFOM-08	8	18.0	44.2	22.0	31.0	5.5	10.5	4.3	6.5	25°
EFOM-10	10	22.0	52.0	26.0	36.0	6.5	12.0	5.3	8.0	25°
EFOM-12	12	25.0	56.7	31.0	41.0	7.0	13.0	5.3	8.0	21°
EFOM-15	15	29.8	68.6	36.0	50.0	8.5	15.5	6.4	10.0	20°
EFOM-16	16	32.0	72.6	38.0	53.0	10.0	17.5	6.4	10.1	27°
EFOM-17	17	34.8	74.6	41.0	55.0	10.0	18.0	6.4	10.2	21°
EFOM-20	20	40.0	89.0	47.0	65.0	11.0	20.0	8.4	12.5	19°
EFOM-25	25	48.5	101.0	58.5	75.0	14.0	25.0	8.4	12.6	15°
EFOM-30	30	55.0	118.0	65.0	87.5	15.0	26.0	10.5	16.0	14°

Standard tolerances:
from 0.5 to 6mm: ±0.1mm
from 6 to 30mm: ±0.2mm
from 30 to 120mm: ±0.3mm

igubal® fixed flange bearings | Product range

Fixed flange bearings with 4 mounting holes: EFSM



- iglidur® W300 extremely wear-resistant spherical ball
- Easy installation
- Compensation of misalignment errors
- Absolute corrosion resistance
- Lightweight
- Maintenance-free dry operation

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. permissible axial load		Max. permissible radial load		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term	Holes	
	[N]	[N]	[N]	[N]	[Nm]	[g]
EFSM-04	200	100	1,000	500	0.6	2.6
EFSM-05	300	150	1,000	500	0.6	2.7
EFSM-06	300	150	1,000	500	0.6	2.8
EFSM-08	450	225	1,400	700	1.3	5.9
EFSM-10	700	350	2,000	1,000	2.5	9.1
EFSM-12	850	425	2,500	1,250	2.5	11.0
EFSM-15	1,100	550	3,000	1,500	4.5	20.2
EFSM-16	1,350	675	3,200	1,600	4.5	23.3
EFSM-17	1,600	800	3,400	1,700	4.5	27.9
EFSM-20	2,000	1,000	4,000	2,000	10.5	45.0
EFSM-25	2,400	1,200	5,600	2,800	10.5	76.0
EFSM-30	2,800	1,400	6,000	3,000	21.5	100.7

Alternative spherical ball materials ▶ Page 993



J4VEM: Clearance-free, pre-loaded



JEM: low moisture absorption



REM: Low-cost

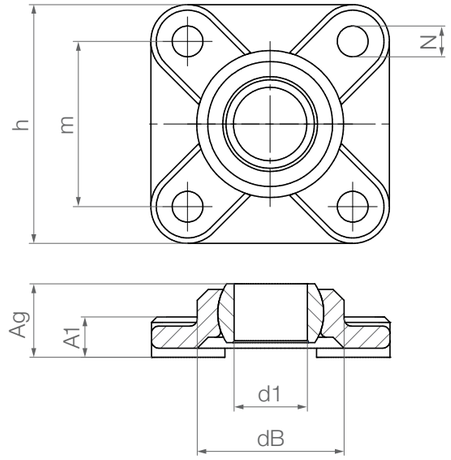


J4EM: Low-cost and low moisture absorption

igubal® fixed flange bearings

igubal® fixed flange bearings | Product range

Fixed flange bearings with 4 mounting holes: EFSM



Order key

Type				Size	
E	F	S	M	-04	
E series	Fixed flange bearing	4 holes	Metric	Inner Ø [mm]	Spherical ball material

Spherical ball material
Blank : iglidur® W300
J4V : iglidur® J4V
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**
Combination with xiros® ball bearings **▶ Page 1088**

Imperial dimensions available
▶ Page 1159

Dimensions [mm]

Part No.	d1	dB	h	m	A1	Ag	N	Max.
	E10		Width	Hole pitch	Height of plate	Total height	Hole Ø	pivot angle
				±0.1				
EFSM-04	4	14.0	25	17	4.5	8.5	3.2	28°
EFSM-05	5	14.0	25	17	4.5	8.5	3.2	29°
EFSM-06	6	14.0	25	17	4.5	8.5	3.2	25°
EFSM-08	8	18.0	33	22	5.5	10.5	4.3	25°
EFSM-10	10	21.9	38	26	6.5	12.0	5.3	25°
EFSM-12	12	25.0	40	28	7.0	13.0	5.3	21°
EFSM-15	15	30.0	49	34	8.5	15.5	6.4	20°
EFSM-16	16	32.0	52	36	9.0	16.5	6.4	27°
EFSM-17	17	35.0	54	38	10.0	18.0	6.4	21°
EFSM-20	20	40.0	65	45	11.0	20.0	8.4	19°
EFSM-25	25	48.5	74	52	14.0	25.0	8.4	15°
EFSM-30	30	54.5	85	60	15.0	26.0	10.5	14°

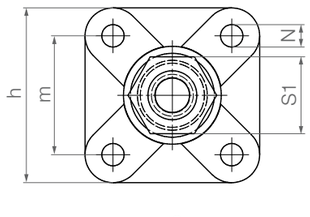
Standard tolerances:
from 0.5 to 6mm: ±0.1mm
from 6 to 30mm: ±0.2mm
from 30 to 120mm: ±0.3mm

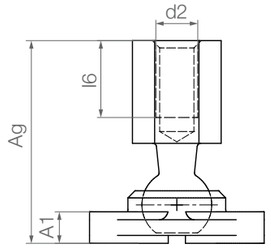
igubal® fixed flange bearings | Product range

Complete housing with ball stud, female thread: GFSM-IG



- Maintenance and corrosion-free
- Easy connection - easy assembly
- Compensation of misalignment errors





Order key

Type	Size	Version
GF	S	M- 06 - IG - ES

Flange mounted	4 holes	Metric	Inner Ø [mm]	Female thread
GF	S	M	06	IG

Options:

Ball stud

Blank : Galvanised steel

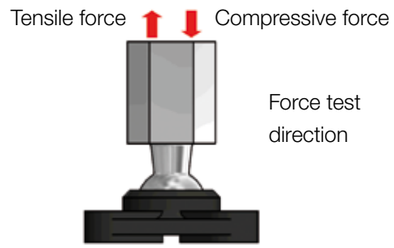
ES : Made of stainless steel[28)]

Material:

Housing: **igumid® G ▶ Page 1190**

Ball stud: galvanised and stainless steel[28)]

▶ Accessories, **page 1013**



Technical data

Part No.	Max. static tensile strain		Max. static compressive force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GFSM-06-IG	150	75	350	175	16.4
GFSM-08-IG	250	125	750	375	34.0
GFSM-10-IG	140	70	1,200	600	61.1

Dimensions [mm]

Part No.	d2	m	h	Ag	A1	l6	N	S1	Max. pivot angle
GFSM-06-IG	M6	17	25	29.0	4.5	11	3.2	SW11	32°
GFSM-08-IG	M8	22	33	36.0	5.5	12	4.3	SW14	40°
GFSM-10-IG	M10	26	38	43.5	6.5	16	5.3	SW17	34°

[28)] Stainless steel ball stud upon request

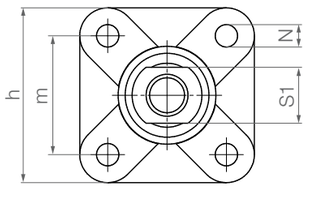
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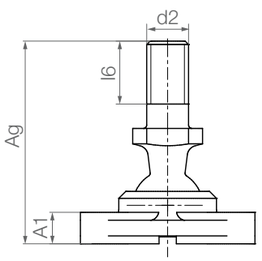
igubal® fixed flange bearings | Product range

Complete housing with ball stud, male thread: GFSM-AG



- Maintenance and corrosion-free
- Easy connection - easy assembly
- Compensation of misalignment errors





Order key

Type	Size	Version
GF	S	M- 06 - AG- ES

Flange mounted	4 holes	Metric	Inner Ø [mm]	Male thread
GF	S	M	06	AG

Options:

Ball stud[19)]

Blank : Galvanised steel

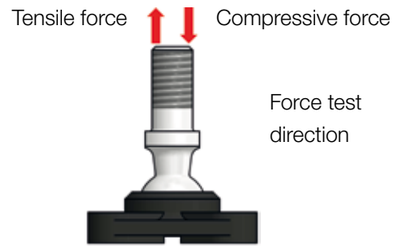
PZ : Made of plastic

ES : Made of stainless steel[28)]

Material:

Housing: **igumid® G ▶ Page 1190**

Ball studs: plastic, galvanised steel and stainless steel[28)] ▶ Accessories, **page 1014**



Technical data

Part No.	Max. static tensile strain		Max. static compressive force		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
GFSM-06-AG	150	75	350	175	10.6
GFSM-08-AG	250	125	750	375	23.1
GFSM-10-AG	140	70	1,200	600	41.2

Dimensions [mm]

Part No.	d2	m	h	Ag	A1	l6	N	S1	Max. pivot angle
GFSM-06-AG	M6	17	25	29.0	4.5	10.5	3.2	SW8	32°
GFSM-08-AG	M8	22	33	36.0	5.5	13.5	4.3	SW11	34°
GFSM-10-AG	M10	26	38	43.5	6.5	16.0	5.3	SW13	34°

[19)] Ball stud with right-hand thread; left-hand thread upon request

[28)] Stainless steel ball stud upon request

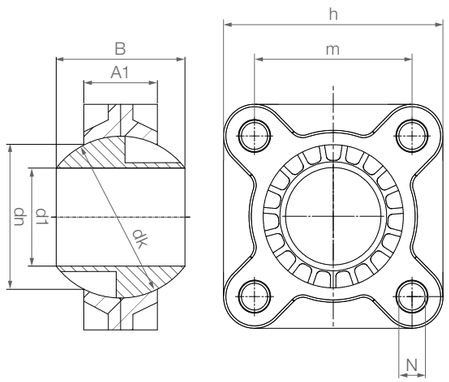
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igubal® fixed flange bearings | Product range

Fixed flange bearings with 4 mounting holes and split housing: KFSM-GT



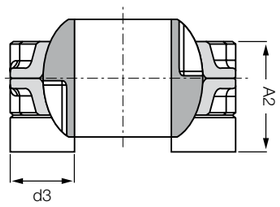
- Pre-assembled
- Option with push-in feet
- Resistant to dirt
- Lightweight
- Low installation space
- For high static loads
- High rigidity and durability
- Predictable service life
- Maintenance-free dry operation
- Mounting: with push-in feet M10, without push-in feet M12



Order key

Type					Size	Options
K	F	S	M	-GT	35	-A
K series	Fixed flange bearing	4 holes	Metric	Split housing	Inner Ø [mm]	With push-in feet

Material:
Housing: **RN33** ▶ **Page 1192**
Spherical ball: **iglidur® J** ▶ **Page 163**



Example: KFSM-GT-40-A

Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
KFSM-GT35-A[23]	5,000	2,500	4,500	2,250	183.5
KFSM-GT40-A	5,000	2,500	4,500	2,250	161.6
KFSM-GT45-A[23]	6,000	3,000	5,000	2,500	294.6
KFSM-GT50-A	6,000	3,000	5,000	2,500	260.1

Max. tightening torque for fixing: 30Nm

Dimensions [mm]

Part No.	d1	dn	d3	dk	A1	A2	B	m	h	N	Max.
	E10										pivot angle
KFSM-GT35-A[23]	35.0	59.0	26.0	66.0	30.0	45.0	48.5	66.0	92.0	13.5	24°
KFSM-GT40-A	40.0	59.0	26.0	66.0	30.0	45.0	48.5	66.0	92.0	13.5	24°
KFSM-GT45-A[23]	45.0	72.0	26.0	82.0	40.0	60.0	60.0	78.0	104.0	13.5	24°
KFSM-GT50-A	50.0	72.0	26.0	82.0	40.0	60.0	60.0	78.0	104.0	13.5	24°

For KFSM with distance pieces, please add an "A" to the Part No. Example: KFSM-GT-50-A

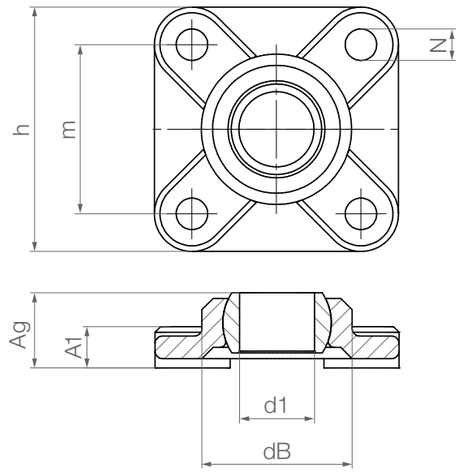
[23] Diameter given by iglidur® J bore reducer

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igubal® fixed flange bearings | Product range

High-temperature fixed flange bearings with 4 mounting holes: EFSM-HT





Order key

Type					Size	Version
E	F	S	M	- 05		-HT
E series	Fixed flange bearing	4 holes	Metric		Inner Ø [mm]	High temperature

Material:
Housing: **iguton G** ▶ **Page 1191**
Spherical ball: **iglidur® X** ▶ **Page 291**

- Applicable up to +200°C
- Easy installation
- Compensation of misalignment errors
- Absolute corrosion resistance
- Lightweight
- Chemical-resistant (chemical table ▶ **Page 1170**)
- Can be used underwater

Technical data

Part No.	Max. permissible axial load		Max. permissible radial load		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term	Holes	
	[N]	[N]	[N]	[N]	[Nm]	[g]
EFSM-05-HT	275	138	440	220	0.6	3.5
EFSM-06-HT	339	170	523	262	0.6	3.3
EFSM-08-HT	412	206	713	356	1.3	7.1
EFSM-10-HT	864	432	1,202	601	2.5	11.2
EFSM-12-HT	1,024	512	1,347	674	2.5	13.3

Dimensions [mm]

Part No.	d1	dB	h	m	A1	Ag	N	Max.
	E10		Width	Hole pitch ±0.1	Height of plate	Total height	Bore d	pivot angle
EFSM-05-HT	5	14	25	17	4.5	8.5	3.2	29°
EFSM-06-HT	6	14	25	17	4.5	8.5	3.2	25°
EFSM-08-HT	8	18	33	22	5.5	10.5	4.3	25°
EFSM-10-HT	10	22	38	26	6.5	12.0	5.3	25°
EFSM-12-HT	12	25	40	28	7.0	13.0	5.3	21°

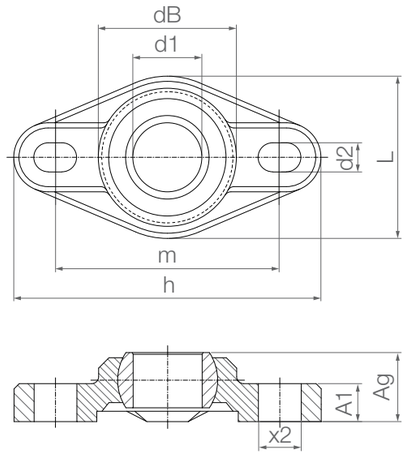
Other dimensions available upon request

EN 09/2023

igubal® fixed flange bearings | Product range

High-temperature fixed flange bearings with 2 mounting holes: EFOM-HT





Order key

Type	Size	Version
E F O M-	06	-HT

- E series
- Fixed flange bearing
- 2 holes
- Metric
- Inner Ø [mm]
- High temperature

Material:
Housing: **iguton G ▶ Page 1191**
Spherical ball: **iglidur® X ▶ Page 291**

- Applicable up to +200°C
- Easy installation
- Compensation of misalignment errors
- Absolute corrosion resistance
- Lightweight
- Chemical-resistant (chemical table ▶ **Page 1170**)
- Can be used underwater

Technical data

Part No.	Max. permissible axial load		Max. permissible radial load		Max. tightening torque	Weight
	Short-term	Long-term	Short-term	Long-term	Holes	
	[N]	[N]	[N]	[N]	[Nm]	[g]
EFOM-05-HT	275	138	460	230	0.6	2.5
EFOM-06-HT	300	150	611	305	0.6	2.3
EFOM-08-HT	644	322	934	467	1.3	5.0
EFOM-10-HT	764	382	1,000	500	2.5	8.3
EFOM-12-HT	874	437	1,290	645	2.5	10.7

Dimensions [mm]

Part No.	d1	dB	h	L	m	A1	Ag	d2	x2	Max. pivot angle
	E10		Length	Width	Hole pitch ±0.1	Height of plate	Total height	Elongated hole		
EFOM-05-HT	5	14	33.8	16	24	4.5	8.5	3.2	5.0	29°
EFOM-06-HT	6	14	33.8	16	24	4.5	8.5	3.2	5.5	27°
EFOM-08-HT	8	18	44.2	22	31	5.5	10.5	4.3	6.5	24°
EFOM-10-HT	10	22	52.0	26	36	6.5	12.0	5.3	8.0	24°
EFOM-12-HT	12	25	56.7	31	41	7.0	13.0	5.3	8.0	21°

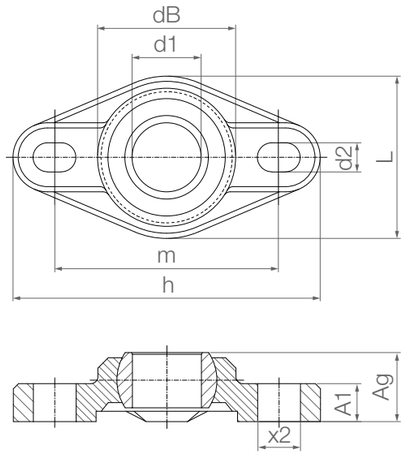
Other dimensions available upon request

igubal® fixed flange bearings

igubal® fixed flange bearings | Product range

Fixed flange bearings for contact with food: EFOM-FC





Order key

Type	Size	Version
E F O M-	20	- FC

- E series
- Fixed flange bearing
- 2 holes
- Metric
- Inner Ø [mm]
- Suitable for food contact

Material:
Housing: **igumid® FC ▶ Page 1191**
Spherical ball: **iglidur® A181 ▶ Page 401**
iglidur® FC180 ▶ upon request

- Complies with FDA and EU 10/2011
- Lubrication and maintenance-free
- Visually and magnetically detectable
- In industry-standard blue
- Corrosion and media-resistant
- Vibration-dampening
- Cost-effective

Technical data

Part No.		Max. permissible axial load		Max. permissible radial load	Max. tightening torque	Weight
		Short-term	Long-term	Short-term	Holes	
		[N]	[N]	[N]	[Nm]	[g]
EFOM-08-FC	New	600	300	1,100	1.3	4.4
EFOM-10-FC	New	700	350	2,000	2.5	7.3
EFOM-20-FC		1,500	750	5,500	10.0	35.5

Dimensions [mm]

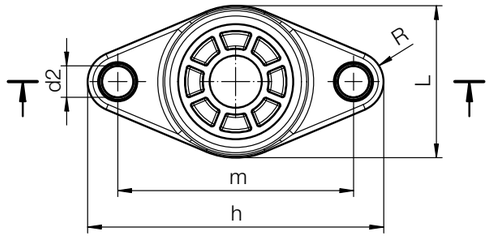
Part No.		d1	dB	h	L	m	A1	Ag	d2	x2	Max. pivot angle
		E10		Length	Width	Hole pitch ±0.1	Height of plate	Total height	Elongated hole		
EFOM-08-FC	New	8	18.0	44.2	22.0	31.0	5.5	10.5	4.3	6.5	25°
EFOM-10-FC	New	10	22.0	52.0	26.0	36.0	6.5	12.0	5.3	8.0	25°
EFOM-20-FC		20	40.0	89.0	47.0	65.0	11.0	20.0	8.4	12.5	19°

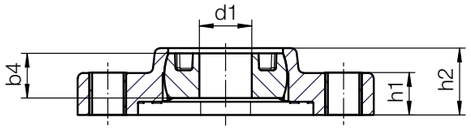
Other dimensions available upon request

igubal® fixed flange bearings | Product range New

Fixed flange bearings with 2 mounting holes, polymer housing: FL-KS-JEM-SP







Order key

Type					Size		Version
FL204-	KS-	J	E	M-	20	-17	-SP
Fixed flange bearing	Polymer	Spherical insert bearing material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**

- Dimensionally interchangeable with cast iron housings
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads
- Mounting holes reinforced with stainless steel metal sleeves

Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
FL203-KS-JEM-17-17-SP New	7,500	3,750	2,200	1,100	85.6
FL204-KS-JEM-20-17-SP New	8,000	4,000	2,200	1,100	84.9
FL205-KS-JEM-25-17-SP New	–	–	–	–	143.8
FL206-KS-JEM-30-19-SP New	13,500	6,750	2,500	1,250	164.5
FL207-KS-JEM-35-20-SP New	–	–	–	–	197.3
FL208-KS-JEM-40-21-SP New	14,500	7,250	2,600	1,300	225.5
FL209-KS-JEM-45-22-SP New	–	–	–	–	249.4
FL210-KS-JEM-50-24-SP New	–	–	–	–	271.8

Dimensions [mm]

Part No.	d1	d2	L	h	h1	h2	R	b4	m
FL203-KS-JEM-17-17-SP New	17	12	58	113	16.2	25.5	11.5	17.0	90
FL204-KS-JEM-20-17-SP New	20	12	58	113	16.2	25.5	11.5	17.0	90
FL205-KS-JEM-25-17-SP New	25	16	64	130	21.0	27.5	15.5	17.0	99
FL206-KS-JEM-30-19-SP New	30	16	75	148	21.2	29.5	15.5	19.0	117
FL207-KS-JEM-35-20-SP New	35	16	85	161	21.0	32.0	15.5	20.0	130
FL208-KS-JEM-40-21-SP New	40	16	93	175	21.2	33.5	15.5	21.0	144
FL209-KS-JEM-45-22-SP New	45	18	97	179	23.2	35.0	15.5	22.0	148
FL210-KS-JEM-50-24-SP New	50	18	101	188	23.2	36.0	15.5	24.0	157

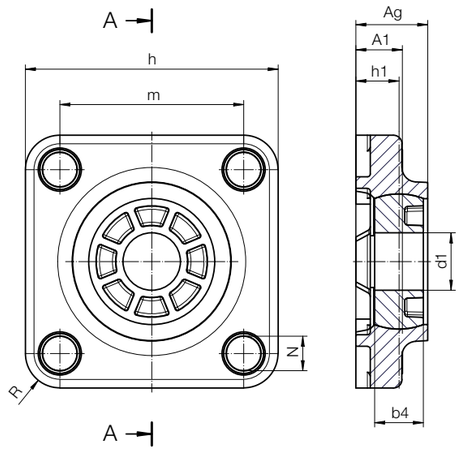
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igubal® fixed flange bearings

igubal® fixed flange bearings | Product range New

Fixed flange bearings with 4 mounting holes, polymer housing: F-KS-JEM-SP





Order key

Type					Size		Version
F204-	KS-	J	E	M-	20	-17	-SP
Fixed flange bearing	Polymer	Spherical insert bearing material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**

- Dimensionally interchangeable with cast iron housings
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads
- Mounting holes reinforced with stainless steel metal sleeves

Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
F203-KS-JEM-17-17-SP New	7,500	3,750	1,800	900	128.9
F204-KS-JEM-20-17-SP New	8,000	4,000	1,800	900	128.2
F205-KS-JEM-25-17-SP New	–	–	–	–	147.1
F206-KS-JEM-30-19-SP New	12,500	6,250	1,400	700	188.3
F207-KS-JEM-35-20-SP New	–	–	–	–	269.0
F208-KS-JEM-40-21-SP New	15,400	7,700	2,550	1,275	299.5
F209-KS-JEM-45-22-SP New	–	–	–	–	334.3
F210-KS-JEM-50-24-SP New	–	–	–	–	364.3

Dimensions [mm]

Part No.	d1	h	m	A1	Ag	N	b4	h1	R
F203-KS-JEM-17-17-SP New	17	86	64	16.2	25	12	17	15	11.0
F204-KS-JEM-20-17-SP New	20	86	64	16.2	25	12	17	15	11.0
F205-KS-JEM-25-17-SP New	25	95	70	16.2	26	12	17	16	12.5
F206-KS-JEM-30-19-SP New	30	108	83	16.2	29	12	19	18	12.5
F207-KS-JEM-35-20-SP New	35	120	92	19.2	31	14	20	19	14.0
F208-KS-JEM-40-21-SP New	40	130	102	21.2	33	16	21	21	14.0
F209-KS-JEM-45-22-SP New	45	135	105	21.2	35	16	22	22	15.0
F210-KS-JEM-50-24-SP New	50	141	111	21.2	36	16	24	22	15.0

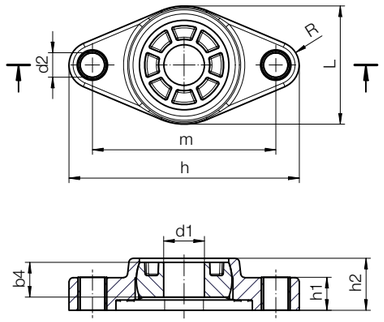
EN 09/2023

igubal® fixed flange bearings | Product range New

Compact fixed flange bearings with 2 mounting holes, polymer housing: FL208-30-KS



- Dimensions to equal to those of common flange bearings including in the bottling and packaging industry
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads
- Mounting holes reinforced with stainless steel metal sleeves



Order key

Type	Size	Version
FL208-	30	-KS-□

Fixed flange bearing | Spherical ball inner Ø [mm] | Polymer | Spherical ball material

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**
machined (hygienic)
iglidur® J-SP ▶ Page 163
moulded (cost-effective)
iglidur® J3 ▶ Page 187
machined (longer service life, hygienic)
iglidur® J3-SP ▶ Page 187
injection moulded
(longer service life, cost-effective)

Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
FL208-30-KS-□ New	9,000	4,500	2,200	1,100	175.1
FL208-35-KS-□ New	9,000	4,500	2,200	1,100	172.1
FL208-40-KS-□ New	9,000	4,500	2,200	1,100	168.8

Dimensions [mm]

Part No.	d1	d2	h	L	b4	h1	R	m	h2
FL208-30-KS-□ New	30	10	147	93	21	14.2	15	117	30.5
FL208-35-KS-□ New	35	10	147	93	21	14.2	15	117	30.5
FL208-40-KS-□ New	40	10	147	93	21	14.2	15	117	30.5

Can be combined with accessories ▶ Page 1012



SRM-ES:
Steel fixing collar
(galvanised)



SRM-KS:
Polymer fixing
collar

Can be combined with accessories ▶ Page 1016



EC-208/EC-208-CLEAR:
End caps for fixed flange bearings
with spherical insert bearings

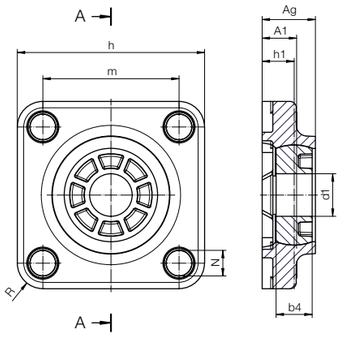
igubal® fixed flange bearings

igubal® fixed flange bearings | Product range New

Compact fixed flange bearings with 4 mounting holes, polymer housing: F208-30-KS



- Dimensions to equal to those of common flange bearings including in the bottling and packaging industry
- Completely corrosion-free
- Structurally optimised design
- Robust, for high loads
- Mounting holes reinforced with stainless steel metal sleeves



Order key

Type	Size	Version
F208-	30	-KS-□

Fixed flange bearing | Spherical ball inner Ø [mm] | Polymer | Spherical ball material

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**
machined (hygienic)
iglidur® J-SP ▶ Page 163
moulded (cost-effective)
iglidur® J3 ▶ Page 187
machined (longer service life, hygienic)
iglidur® J3-SP ▶ Page 187
injection moulded
(longer service life, cost-effective)

Technical data

Part No.	Max. permissible radial load		Max. permissible axial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
F208-30-KS-□ New	16,500	8,250	1,200	600	236.8
F208-35-KS-□ New	18,000	9,000	1,200	600	233.8
F208-40-KS-□ New	20,000	10,000	1,200	600	230.5

Dimensions [mm]

Part No.	d1	h	m	A1	Ag	N	b4	h1	R
F208-30-KS-□ New	30	115	82.8	16.2	29	12	21	16	16.1
F208-35-KS-□ New	35	115	82.8	16.2	29	12	21	16	16.1
F208-40-KS-□ New	40	115	82.8	16.2	29	12	21	16	16.1

Can be combined with accessories ▶ Page 1012



SRM-ES:
Steel fixing collar
(galvanised)



SRM-KS:
Polymer fixing
collar

Can be combined with accessories ▶ Page 1016

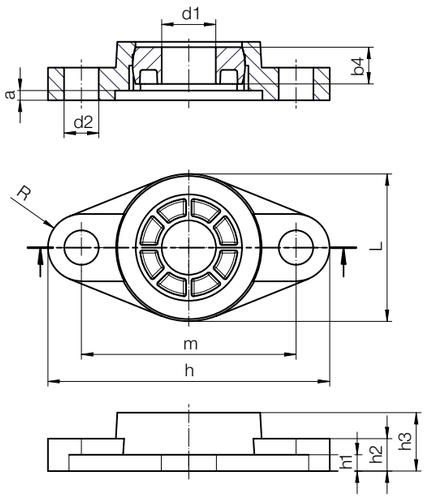


EC-208/EC-208-CLEAR:
End caps for fixed flange bearings
with spherical insert bearings

igubal® fixed flange bearings | Product range New

Fixed flange bearings with 2 mounting holes, cast iron housing: FL-JEM-SP





Order key

Type	Size	Version
FL204-	J E M-	20-17-SP

Fixed flange bearing with cast iron housing	Spherical insert bearing material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **Cast iron**
Spherical ball: **iglidur® J** ▶ **Page 163**

- Service life in dirty environment longer than with ball bearings by up to a factor of 8
- For higher static loads
- No costs due to maintenance or failure times (e.g. due to lack of lubrication)
- Save up to 25% thanks to easy bearing replacement

Technical data and dimensions [mm]

Part No.	Max. static radial load [N]	Max. static axial load [N]	d1	m	d2	L
FL204-JEM-20-17-SP New	8,000	4,000	20	90	12	60
FL205-JEM-25-17-SP New	9,000	3,500	25	99	16	68
FL206-JEM-30-19-SP New	13,500	5,000	30	117	16	80
FL208-JEM-40-21-SP New	21,000	6,000	40	144	16	100
FL210-JEM-50-24-SP New	25,000	5,500	50	157	19	115

Dimensions [mm]

Part No.	h	h1	h2	h3	R	a	b4
FL204-JEM-20-17-SP New	112	6.0	12	25.5	11.5	3.6	17
FL205-JEM-25-17-SP New	130	7.5	15	25.5	15.5	4.5	17
FL206-JEM-30-19-SP New	147	7.0	14	31.0	15.5	4.2	19
FL208-JEM-40-21-SP New	175	8.0	16	36.0	15.5	4.8	21
FL210-JEM-50-24-SP New	197	9.0	18	40.0	20.0	5.4	24

Can be combined with accessories ▶ Page 1012



SRM-ES:
Steel fixing collar (galvanised)



SRM-KS:
Polymer fixing collar

Can be combined with accessories ▶ Page 1016



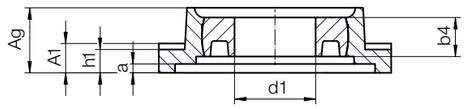
EC-208/EC-208-CLEAR:
End caps for fixed flange bearings with spherical insert bearings

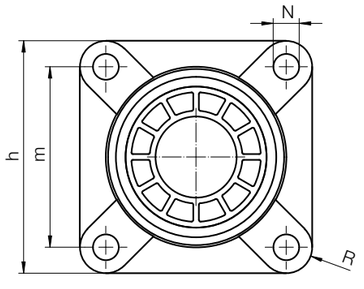
igubal® fixed flange bearings

igubal® fixed flange bearings | Product range New

Fixed flange bearings with 4 mounting holes, cast iron housing: F-JEM-SP







Order key

Type	Size	Version
F204-	J E M-	20-17-SP

Fixed flange bearing with cast iron housing	Spherical insert bearing material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:
Housing: **Cast iron**
Spherical ball: **iglidur® J** ▶ **Page 163**

- Service life in dirty environment longer than with ball bearings by up to a factor of 8
- For higher static loads
- No costs due to maintenance or failure times (e.g. due to lack of lubrication)
- Save up to 25% thanks to easy bearing replacement

Technical data and dimensions [mm]

Part No.	Max. static radial load [N]	Max. static axial load [N]	d1	a	h	m
F204-JEM-20-17-SP New	8,000	4,000	20	3.6	86	64
F205-JEM-25-17-SP New	9,000	3,500	25	4.2	95	70
F206-JEM-30-19-SP New	13,500	5,000	30	4.2	108	83
F208-JEM-40-21-SP New	21,000	6,000	40	4.8	130	102
F210-JEM-50-24-SP New	25,000	5,500	50	5.4	143	111

Dimensions [mm]

Part No.	A1	Ag	N	b4	h1	R
F204-JEM-20-17-SP New	12	25.5	12	17	9.6	11.0
F205-JEM-25-17-SP New	14	27.0	12	17	11.2	12.5
F206-JEM-30-19-SP New	14	31.0	12	19	11.2	12.5
F208-JEM-40-21-SP New	16	36.0	16	21	12.8	14.0
F210-JEM-50-24-SP New	18	40.0	16	24	14.4	16.0

Can be combined with accessories ▶ Page 1012



SRM-ES:
Steel fixing collar (galvanised)



SRM-KS:
Polymer fixing collar

Can be combined with accessories ▶ Page 1016



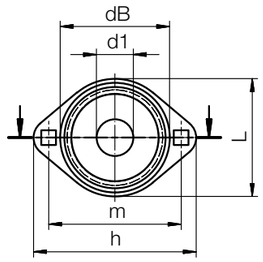
EC-208/EC-208-CLEAR:
End caps for fixed flange bearings with spherical insert bearings

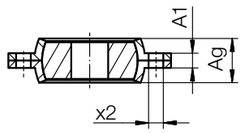
igubal® fixed flange bearings | Product range

Fixed flange bearings with cost-effective metallic housing: PFL-JEM-SP



- Cost-effective spherical ball material iglidur® J4 available (order example: PFL204-J4EM-20-14-SP)
- Lubrication and maintenance-free
- Cost-effective
- Resistant to dirt







Order key

Type	Size	Version

PFL204 - J E M - 20 - 14 - SP

Fixed flange bearing	Spherical insert bearing material	Dimensional series	Metric	Spherical ball inner Ø [mm]	Spherical ball width [mm]	Injection moulding

Material:

Housing: **Galvanised steel (stainless steel upon request)**

Spherical ball: **iglidur® J (alternative iglidur® J4)**

Technical data

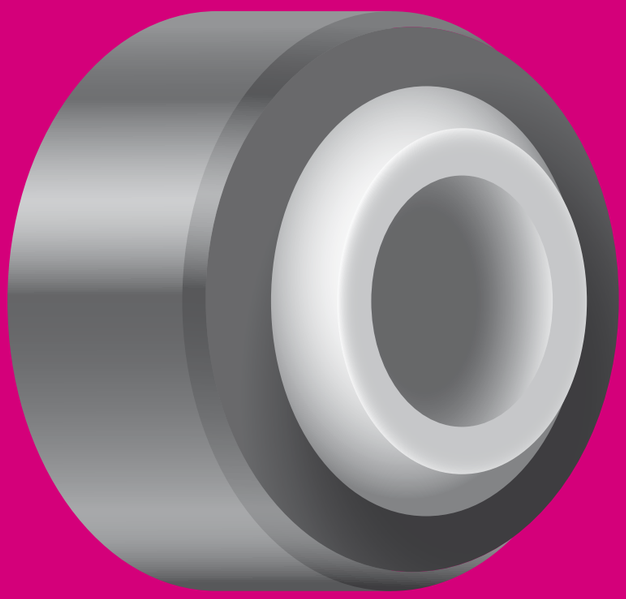
Part No.	Max. permissible axial load		Max. permissible radial load		Weight
	Short-term	Long-term	Short-term	Long-term	
	[N]	[N]	[N]	[N]	[g]
PFL203-J4EM-17-12-SP New	1,500	750	3,000	1,500	83.6
PFL204-□EM-20-14-SP	2,000	1,000	4,000	2,000	108.7
PFL205-□EM-25-15-SP	2,000	1,000	5,000	2,500	119.3
PFL206-□EM-30-16-SP	2,000	1,000	7,000	3,500	180.3
PFL207-JEM-35-17-SP New	2,500	1,250	8,000	4,000	242.6
PFL208-JEM-40-18-SP New	2,500	1,250	9,000	4,500	398.6

Dimensions [mm]

Part No.	d1	h	L	m	A1	Ag	x2
	E10				+0.1		
PFL203-J4EM-17-12-SP New	17	81	59	63.5	4.0	14	7.1
PFL204-□EM-20-14-SP	20	90	67	71.5	4.0	16	9.0
PFL205-□EM-25-15-SP	25	95	71	76.0	4.0	18	9.0
PFL206-□EM-30-16-SP	30	113	84	90.5	5.2	18	11.0
PFL207-JEM-35-17-SP New	35	122	94	100.0	5.2	20	11.0
PFL208-JEM-40-18-SP New	40	148	100	119.0	6.8	21	13.5

Can be combined with SRM fixing collars ▶ Page 1012

igus EN 09/2023



igubal® spherical bearings

- Easy to fit
- Cost-effective
- Chemical resistance
- Lightweight
- Very robust



EN 09/2023

igubal® spherical bearings

The use of spherical bearings is usually associated with heavy materials, difficult installation, and high costs. Most of the time, maintenance is still necessary long-term, and the bearings are only corrosion-resistant in special designs. igubal® spherical bearings put an end to all of these disadvantages: they are easy to fit, cost-effective, lightweight and robust.



When do I take them?

- For high axial and radial loads
- For the simplest installation
- When extremely small installation spaces are available
- When chemical resistance is required
- If a cost-effective option is requested
- When dirt-resistant bearings are required
- To adjust misalignment

When do I not take them?

- When temperatures are higher than +80°C
- For dimensions above 30mm
- If rotation speeds of more than 0.5m/s are to be achieved

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

Max. +80°C
min. -30°C

13 types
Ø 2 - 40mm

Imperial dimensions available
▶ From page 1160

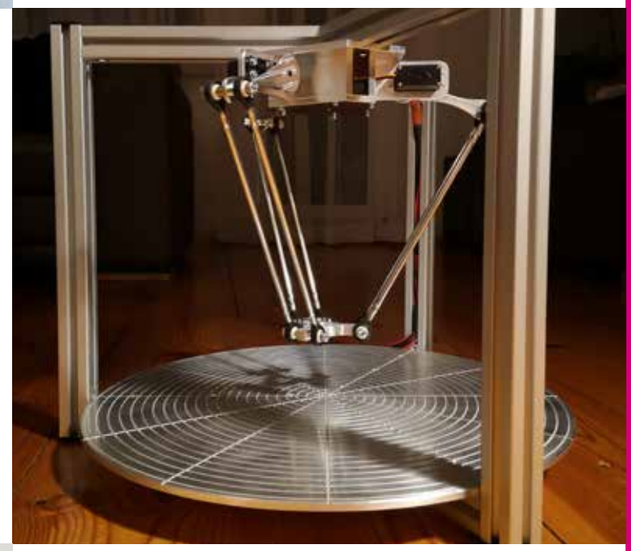
Online product finder
▶ www.igus.eu/igubal-finder

igus EN 09/2023

igubal® spherical bearings | Application examples



Saxophone
A saxophone that can be played with one hand. The transmission of force from the stop to the saxophone key was to be silent. Here, the engineers opted for igubal® KGLM polymer spherical bearings from igus®. The bearings operate quietly and ensure the necessary ease with which it should be possible to play high-quality musical instruments.



Delta robot
Contec, a Polish company, develops delta robots that position labels and tags. The company uses igubal® double joints (KDGM-06-A-ER-J) for the robot arms. The bearings require no external lubrication and are maintenance-free.



Folding table and folding chair
It is the same in most university lecture halls: some students treat folding tables and folding chairs very roughly - for example, by flopping down on them with the full weight of their body. A tough application for the bearings of a chair. The manufacturer Audia Italia therefore places its trust in igubal® KGLM-10 spherical bearings. What the engineers like about them is their resilience, self-lubricating nature and, above all, self-alignment capability.

igubal® spherical bearings | Technical data

Spherical bearings are usually associated with heavy materials, difficult installation, and high costs. In most cases, however, maintenance is required in the longer term and the bearings are only corrosion-free in special designs. Often roller bearings or plain bearings malfunction prematurely due to high edge loads, or because they need to be readjusted, reamed, or refitted in order to compensate for alignment errors.
igubal® spherical bearings put an end to all of these disadvantages and open up many new possibilities for your engineering design:

- Easy to use
- Especially cost-effective
- Lightweight
- Very robust

Application areas

Ease of installation makes many applications possible for igubal® spherical bearings. They can be used anywhere. The self-aligning feature offers design advantages and helps to simplify assembly.

Tolerances

Maintenance-free igubal® spherical bearings are designed with an inner diameter tolerance of E10. The shaft tolerance should be manufactured between h6 and h9. These recommended tolerances allow for changes in the bearing due to temperature.

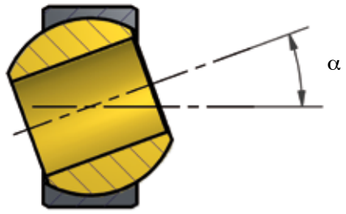
Assembly

igubal® spherical bearings are press-fitted into a recommended H7 housing bore and axially secured. An exact orientation of the bearing housing is not necessary, since the spherical bearing compensates for alignment errors.

Dimensions

igubal® spherical bearings are manufactured according to DIN ISO 12240 for dimensional K and E series. The product range provides standard dimensions from 2 to 40mm. The dimensional K series is available in imperial dimensions.

pivot angle



igubal® spherical bearings | Product overview

igubal® spherical bearings



Easy to fit, cost-effective, selectable spherical ball material

K series

▶ Page 968



For extremely narrow installation space

K series

▶ Page 969



Standard, easy to fit

K series

▶ Page 970



Cost-effective, selectable spherical ball material

E series

▶ Page 971



Space-saving

E series

▶ Page 972

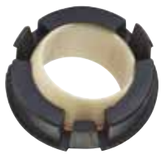


Suitable for food contact

E series

▶ Page 973

igubal® self-aligning clip bearings



Simply snap into sheet metal

E series

▶ Page 974



For high axial and radial loads, selectable spherical ball material

E series

▶ Page 975

igubal® self-aligning clip bearings



For tolerance compensation, selectable spherical ball material

E series

▶ Page 976



Simply snap-in into sheet metal, can be assembled on both sides

▶ Page 977

igubal® double joints and coupling joints



Robust plastic, selectable spherical ball material

E series

▶ Page 978



Selectable materials, individual dimensions and alignment

▶ Page 982

igubal® double joints and coupling joints



Selectable materials, individual dimensions and alignment

▶ Page 980



Removable, selectable materials, individual dimensions and alignment

▶ Page 984

New



Crimped coupling joints, particularly resistant to dirt

▶ Page 985



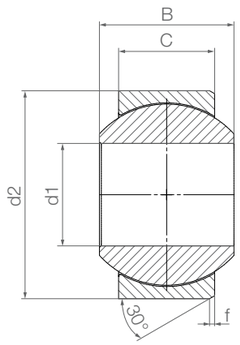
Crimped coupling joints with clevis joints

▶ Page 986

igubal® spherical bearings | Product range

Spherical bearings: KGLM low-cost





- Successor model of KGLM
- Variety of spherical ball materials
- Easy installation
- Cost-effective
- Split housing

Order key

Type	Size	Version
K GLM-	05	-LC

K series | Spherical bearings | Metric | Inner Ø [mm] | Low-cost

Spherical ball material
Blank : igilidur® W300
J4V : igilidur® J4V
J : igilidur® J
R : igilidur® R
J4 : igilidur® J4

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**
Other spherical ball materials upon request
▶ Page 993

Technical data

Part No.	Max. static load on the housing radial [N]	axial[29] [N]	Max. tightening torque through ball [Nm]	Weight [g]
KGLM-03-LC	550	200	2	0.5
KGLM-05-LC	1,300	500	5	1.0
KGLM-08-LC	2,700	1,200	12	2.9
KGLM-10-LC	4,000	1,400	20	4.3
KGLM-12-LC	5,400	1,500	30	6.9
KGLM-14-LC	6,000	2,500	35	9.0
KGLM-16-LC	8,000	3,000	40	12.7
KGLM-18-LC	9,000	4,000	45	16.6
KGLM-20-LC	10,000	5,000	55	23.6
KGLM-25-LC	13,600	7,500	65	38.9
KGLM-30-LC	20,000	9,000	70	61.0

[29] The maximum static axial load is determined when fitted into a blind housing

Dimensions [mm]

Part No.	d1 E10	d2[30]	B	C	f	Max. pivot angle
KGLM-03-LC	3	10	6	4.5	0.5	32°
KGLM-05-LC	5	13	8	6.0	0.8	30°
KGLM-08-LC	8	19	12	9.0	0.8	29°
KGLM-10-LC	10	22	14	10.5	0.8	25°
KGLM-12-LC	12	26	16	12.0	0.8	25°
KGLM-14-LC	14	28	19	13.5	0.8	23°
KGLM-16-LC	16	32	21	15.0	0.8	23°
KGLM-18-LC	18	35	23	16.5	0.8	23°
KGLM-20-LC	20	40	25	18.0	0.8	23°
KGLM-25-LC	25	47	31	22.0	0.8	22°
KGLM-30-LC	30	55	37	25.0	1.0	22°

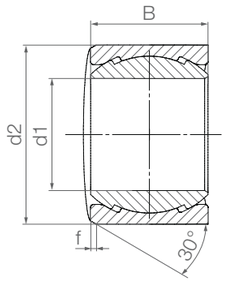
[30] In press-fitted condition

igubal® spherical bearings

igubal® spherical bearings | Product range

Spherical bearings: KGLM Slim Line





- Very small installation space
- Wall thickness halved compared to KGLM
- Angular compensation up to 5°
- Lightweight
- Dimensions according to DIN 1850

Order key

Type	Size	Version
K GLM-	08	-SL

K series | Spherical bearings | Metric | Inner Ø [mm] | Slim Line

Spherical ball material
Blank : igilidur® W300
J4V : igilidur® J4V
J : igilidur® J
R : igilidur® R
J4 : igilidur® J4

Material:
Housing: **iglidur® RN33 ▶ Page 1192**
Spherical ball: **iglidur® W300 ▶ Page 175**

Imperial dimensions available
▶ Page 1161

Online service life calculation
▶ www.igus.eu/igubal-expert

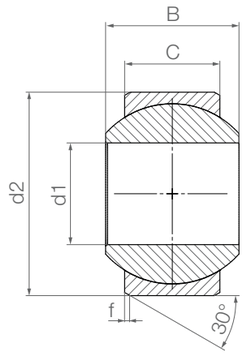
Technical data and dimensions [mm]

Part No.	Max static load (short-term) radial [N]	axial [N]	Max. static load (long-term) radial [N]	axial [N]	d1 E10	d2	B	f	Weight [g]	Max. pivot angle
KGLM-08-SL	2,700	450	1,350	225	8	14	9.0	0.5	1.1	5°
KGLM-10-SL	4,000	750	2,000	375	10	16	10.5	0.5	1.5	5°
KGLM-12-SL	4,500	750	2,250	375	12	18	12.0	0.5	2.0	5°
KGLM-16-SL	6,500	500	3,250	250	16	22	15.0	0.5	3.1	5°

igubal® spherical bearings | Product range

Spherical bearings: KGLM





- Predecessor model of KGLM-LC
- Compensation of misalignment and edge loads
- Corrosion-resistant
- Vibration-dampening
- Excellent vibration dampening
- Suitable for rotating, oscillating and axial movements

Order key

Type	Size
K GLM -	02

K series | Spherical bearings | Metric | Inner Ø [mm]

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Imperial dimensions available
▶ Page 1160

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data and dimensions [mm]

Part No.	Max. static load on the housing		Max. tightening torque through ball	d1 E10	d2	B	C	f	Weight	Max. pivot angle
	radial [N]	axial[29] [N]	[Nm]						[g]	
KGLM-02	300	60	1	2	8	4	3.0	0.8	0.1	32°
KGLM-03	550	200	2	3	10	6	4.5	0.8	0.5	32°
KGLM-05	1,300	500	5	5	13	8	6.0	0.8	1.0	30°
KGLM-06	1,800	650	10	6	16	9	6.5	0.8	1.6	29°
KGLM-08	2,700	1,200	12	8	19	12	9.0	0.8	2.9	25°
KGLM-10	4,000	1,400	20	10	22	14	10.5	0.8	4.4	25°
KGLM-12	5,400	1,500	30	12	26	16	12.0	0.8	7.0	25°
KGLM-14	6,000	2,500	35	14	28	19	13.5	0.8	9.1	23°
KGLM-16	8,000	3,000	40	16	32	21	15.0	0.8	12.8	23°
KGLM-18	9,000	4,000	45	18	35	23	16.5	0.8	16.6	23°
KGLM-20	10,000	5,000	55	20	40	25	18.0	0.8	24.4	23°
KGLM-22	11,700	6,500	60	22	42	28	20.0	0.8	28.5	22°
KGLM-25	13,600	7,500	65	25	47	31	22.0	0.8	39.3	22°
KGLM-30	20,000	9,000	70	30	55	37	25.0	1.0	62.6	22°

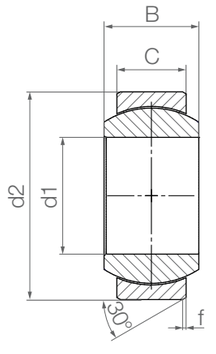
[29] The maximum static axial load is determined when fitted into a blind housing

igubal® spherical bearings

igubal® spherical bearings | Product range

Spherical bearings: EGLM Low-cost





- Successor model of EGLM
- Easy to fit
- Cost-effective
- Chemical and corrosion-resistant
- Very robust
- Compensation of misalignment errors

Order key

Type	Size	Version
E GLM -	15	- LC

E series | Spherical bearings | Metric | Inner Ø [mm] | Low-cost

Spherical ball material
Blank : iglidur® W300
J4V : iglidur® J4V
J : iglidur® J
R : iglidur® R
J4 : iglidur® J4

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data and dimensions [mm]

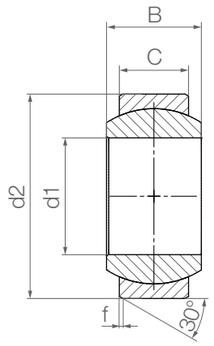
Part No.	Max. static load on the housing		Max. tightening torque through ball	d1 E10	d2	B	C	f	Weight	Max. pivot angle
	radial [N]	axial[29] [N]	[Nm]						[g]	
EGLM-15-LC	5,500	1,000	30	15	26	12	9.0	0.5	4.5	21°
EGLM-16-LC	6,000	1,150	32	16	28	13	9.5	0.5	6.0	21°
EGLM-20-LC	9,000	1,400	40	20	35	16	12.0	1.0	11.0	18°
EGLM-25-LC	14,000	2,900	55	25	42	20	16.0	1.0	20.0	16°
EGLM-30-LC	17,000	4,000	70	30	47	22	18.0	1.0	26.0	13°

[29] The maximum static axial load is determined when fitted into a blind housing

igubal® spherical bearings | Product range

Spherical bearings: EGLM





- Predecessor model of EGLM-LC
- Compensation of misalignment and edge loads
- Corrosion-resistant
- Vibration-dampening
- Excellent vibration dampening
- Suitable for rotating, oscillating and linear movements

Order key

Type	Size
E GLM	-04

E series | Spherical bearings | Metric | Inner Ø [mm]

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball:
Spherical balls with 04-30mm diameters made of iglidur® W300 **▶ Page 175**
Spherical balls with 40mm and 80mm diameter made of iglidur® J **▶ Page 163**
Other spherical ball materials upon request (Ø 04-12mm and 40mm) **▶ Page 993**

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data and dimensions [mm]

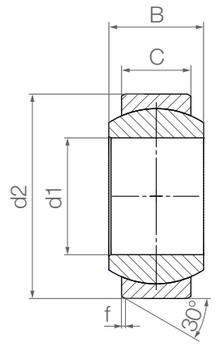
Part No.	Max. static load on the housing radial [N]	Max. static load on the housing axial[29] [N]	Max. tightening torque through ball [Nm]	d1 E10	d2	B	C	f	Weight [g]	Max. pivot angle
EGLM-04	600	50	1.0	4	12	5	3.0	0.5	0.4	37°
EGLM-05	1,000	130	2.0	5	14	6	4.0	0.5	0.8	33°
EGLM-06	1,200	150	2.5	6	14	6	4.0	0.5	0.9	27°
EGLM-08	1,800	175	7.0	8	16	8	5.0	0.5	1.2	24°
EGLM-10	2,500	400	14.0	10	19	9	6.0	0.5	1.9	24°
EGLM-12	3,800	650	25.0	12	22	10	7.0	0.5	2.8	21°
EGLM-15	5,500	1,000	30.0	15	26	12	9.0	0.5	4.5	21°
EGLM-16	6,000	1,150	32.0	16	28	13	9.5	0.5	6.0	21°
EGLM-17	6,300	1,200	35.0	17	30	14	10.0	1.0	6.9	21°
EGLM-20	9,000	1,400	40.0	20	35	16	12.0	1.0	11.0	18°
EGLM-25	14,000	2,900	55.0	25	42	20	16.0	1.0	20.0	16°
EGLM-30	17,000	4,000	70.0	30	47	22	18.0	1.0	26.0	13°
EGLM-40-J	22,500	2,500	80.0	40	62	28	22.0	1.0	57.0	15°
EGLM-80-J	50,000	11,300	–	80	120	55	45	2.0	400.0	18°

[29] The maximum static axial load is determined when fitted into a blind housing

igubal® clip bearings | Product range New

Spherical bearings: EGLM-FC





- FDA- and EU10/2011-compliant
- Longer service life
- Optimised chemical resistance
- Housing made of igumid® FC, detectable
- Also available with detectable spherical ball made of iglidur® FC180

Order key

Type	Size	Version
E GLM	- 08	- FC

E series | Spherical bearings | Metric | Inner Ø [mm] | Suitable for food contact

Material:
Housing: **igumid® FC ▶ Page 1191**
Spherical ball: **iglidur® A181 ▶ Page 401**
Other spherical ball materials upon request
▶ Page 993

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data and dimensions [mm]

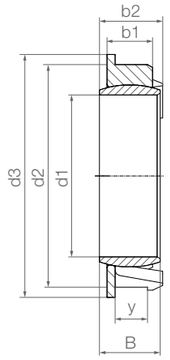
Part No.		Max. static load on the housing radial [N]	Max. static load on the housing axial[29] [N]	Max. tightening torque through ball [Nm]	d1 E10	d2	B	C	f	Weight [g]	Max. pivot angle
EGLM-08-FC	New	1,500	130	3.0	8	16	8	5.0	0.5	1.2	24°
EGLM-10-FC	New	2,000	210	6.0	10	19	9	6.0	0.5	1.9	24°
EGLM-20-LC-FC	New	10,000	1,000	15.0	20	35	16	12.0	1.0	11.0	18°

[29] The maximum static axial load is determined when fitted into a blind housing

igubal® clip bearings | Product range

Clip bearings: ECLM





Order key

Type	Size
E CLM - 05 - 02	

E series	Clip bearing	Metric	Inner Ø [mm]	Metal sheet thickness

- Very easy installation by clipping into sheet metal
- No additional locating spigot necessary
- Extremely small installation space: space-saving, thin-walled design

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® J ▶ Page 163**

Online service life calculation
▶ www.igus.eu/igubal-expert

Technical data

Part No.	Max. static compressive force (short-term)		Max. static compressive force (long-term)		Weight
	radial	axial	radial	axial	
	[N]	[N]	[N]	[N]	[g]
ECLM-05-02	700	25	350	12.5	0.5
ECLM-06-02	700	25	350	12.5	0.5
ECLM-08-02	1,000	25	500	12.5	0.5
ECLM-10-03	1,400	30	700	15.0	0.8
ECLM-12-03	1,800	35	900	17.5	0.8
ECLM-16-03	2,800	40	1,400	20.0	1.1

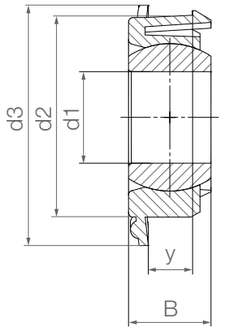
Dimensions [mm]

Part No.	d1 E10	B	d2 ±0.2	d3	y Sheet metal thickness	b1 ±0.1	b2	Max. pivot angle
ECLM-05-02	5	6	12	13	2	3.9	6.0	25°
ECLM-06-02	6	6	12	13	2	3.9	6.0	18°
ECLM-08-02	8	6	14	15	2	3.9	6.0	16°
ECLM-10-03	10	6	16	17	3	4.5	6.7	12°
ECLM-12-03	12	6	18	19	3	4.5	6.7	12°
ECLM-16-03	16	6	22	24	3	4.5	6.7	12°

igubal® clip bearings | Product range

Clip bearings: ECLM-HD





Order key

Type	Size	Version
E CLM - 08 - 04 - HD		

E series	Clip bearing	Metric	Inner Ø d1 [mm]	Metal sheet thickness	Heavy duty

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4
J4V : iglidur® J4V

- High axial and radial loads
- Adjustment of axial and radial clearance by pre-loading
- Very easy installation by clipping into sheet metal
- No additional locating spigot necessary
- For plate thickness 4-8mm

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Technical data

Part No.	Max. static compressive force (short-term)		Max. static compressive force (long-term)		Weight
	radial	axial	radial	axial	
	[N]	[N]	[N]	[N]	[g]
ECLM-08-04-HD	1,750	125	875	60	2.0
ECLM-10-05-HD	2,500	150	1,250	75	3.1
ECLM-12-06-HD	3,500	175	1,750	85	3.8
ECLM-16-08-HD	4,500	250	2,250	125	7.0
ECLM-20-08-HD	6,000	330	3,000	165	12.0

Dimensions [mm]

Part No.	d1 E10	B	d2 ±0.15	d3	y ±0.1	Max. pivot angle
ECLM-08-04-HD	8	8	18	25	4	28°
ECLM-10-05-HD	10	9	22	28	5	24°
ECLM-12-06-HD	12	10	24	32	6	24°
ECLM-16-08-HD	16	13	30	38	8	22°
ECLM-20-08-HD	20	16	36	44	8	21°

Alternative spherical ball materials ▶ Page 993


REM: Low-cost


JEM: low moisture absorption

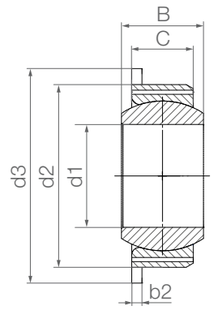

J4EM: low-cost and low moisture absorption


J4VEM: clearance-free pre-loaded spherical ball

igubal® clip bearings | Product range

Clip bearings: EGFM-...T





- Maintenance-free dry operation
- Easy installation
- Max. tolerance compensation ±0.2 mm

Order key

Type			Size	Version
E	GF	M-	08	-T

E series | Clip bearing with flange | Metric | Inner Ø d1 [mm] | Tolerance compensation

Spherical ball material
- Blank : iglidur® W300
- R : iglidur® R
- J : iglidur® J
- J4 : iglidur® J4
- J4V : iglidur® J4V

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Technical data

Part No.	Max. stat. compressive force (short-term)		Max. stat. compressive force (long-term)		Weight
	radial	axial	radial	axial	
	[N]	[N]	[N]	[N]	[g]
EGFM-08-T-SL[31]	1,100	150	550	75	0.9
EGFM-10-T	1,900	220	950	110	2.4
EGFM-12-T	2,500	270	1,250	135	3.0
EGFM-16-T	6,000	600	3,000	300	6.6
EGFM-20-T	9,000	800	4,500	400	11.1
EGFM-25-T	14,000	2,800	7,000	1,400	19.0
EGFM-30-T	17,000	3,000	8,500	1,500	24.0

Dimensions [mm]

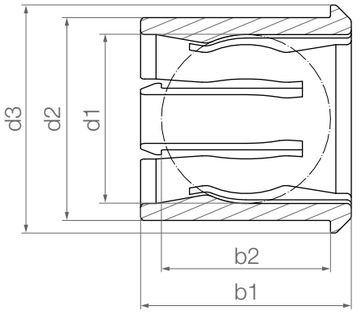
Part No.	d1	d2		d3	C	B	b2	Housing		Max.
	E10	Min.	max.					min.	max.	pivot angle
EGFM-08-T-SL[31]	8	15.8	16.5	18	5.0	6	1.1	15.8	16.2	11°
EGFM-10-T	10	20.8	21.6	26	6.0	9	1.0	20.8	21.2	24°
EGFM-12-T	12	22.8	23.6	28	7.0	10	1.0	22.8	23.2	21°
EGFM-16-T	16	29.8	30.6	35	9.5	13	1.5	29.8	30.2	21°
EGFM-20-T	20	34.8	35.6	42	12.0	16	2.0	34.8	35.2	18°
EGFM-25-T	25	41.8	42.6	50	16.0	20	2.0	41.8	42.2	16°
EGFM-30-T	30	46.8	47.6	55	18.0	22	2.0	46.8	47.2	13°

[31] Spherical ball made of iglidur® J, H10 tolerance

igubal® clip bearings | Product range

Ball stud clip bearings: ZCLM





- Connection for rotating and pivoting movements
- Easy and quick assembly
- Absolute corrosion resistance
- Lubrication and maintenance-free
- Lightweight
- Chemical resistance
- Ball studs made from galvanised steel and stainless steel[28]

▶ Accessories, **page 1013**

Order key

Type			Size		Options
Z	CLM-	06	-	10	-MS

Can be assembled on both sides | Clip bearings | Metric | Ball stud M6 [mm] | Metal sheet thickness [mm]

Ball stud[19]
- MS : Made of galvanised steel
- ES : Made of stainless steel[28]
- Blank : without ball stud

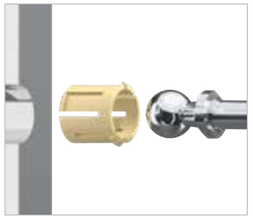
Material:
Clip bearing: **iglidur® J ▶ Page 163**

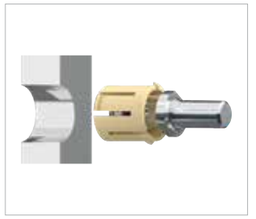
Technical data and dimensions [mm]

Part No.	Max. static axial load		d1	d2	d3	b1	b2	Weight
	Short-term	Long-term						
	[N]	[N]						[g]
ZCLM-06-10-MS	70	35	10	12	13.5	12.5	10	0.6

[19] Ball stud with right-hand thread; left-hand thread upon request
[28] Stainless steel ball stud upon request
More dimensions upon request

Fitting:





Assembly film
▶ www.igus.eu/zclm-film



Can be combined with accessories ▶ From page 1011



GZRM-IG

igubal® double joints | Product range

igubal® double joints

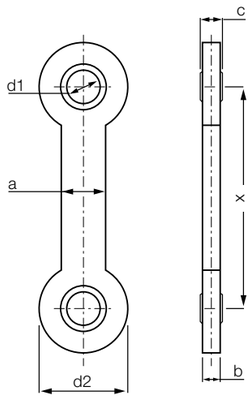
Double joints: EGZM



- Maintenance-free dry operation
- Mechanical joining link between two components
- Compensation of misalignment errors
- Corrosion-resistant
- Double joint turned 90° available upon request

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **iglidur® W300 ▶ Page 175**

Double joints: EGZM



Order key

Type			Size		
E	GZM	-	04	-	25

E series | Double joints | Metric | Inner Ø d1 [mm] | Pitch X [mm]

Spherical ball material
Blank : iglidur® W300
R : iglidur® R
J : iglidur® J
J4 : iglidur® J4
J4V : iglidur® J4V

Technical data [mm]

Part No.	Max. static load (short-term)		Max. static load (long-term)		Max. pivot angle	Weight
	Tensile force [N]	Compressive force [N]	Tensile force [N]	Compressive force [N]		[g]
EGZM-04-25	1,100	1,300	550	650	32°	3.5
EGZM-04-50	1,100	750	550	375	32°	4.8
EGZM-04-75	1,100	500	550	250	32°	6.1
EGZM-05-25	1,100	1,300	550	650	37°	2.2
EGZM-05-50	1,100	750	550	375	37°	4.9
EGZM-05-75	1,100	500	550	250	37°	6.3
EGZM-06-25	1,100	1,300	550	650	30°	3.4
EGZM-06-50	1,100	750	550	375	30°	4.8
EGZM-06-75	1,100	500	550	250	30°	6.0
EGZM-08-60	3,000	3,500	1,500	1,750	20°	15.2
EGZM-08-100	3,000	1,900	1,500	950	20°	19.5
EGZM-08-150	3,000	900	1,500	450	20°	24.5
EGZM-10-60	2,500	3,500	1,250	1,750	25°	15.3
EGZM-10-85	2,500	2,300	1,250	1,150	25°	18.1
EGZM-10-100	2,500	1,900	1,250	950	25°	19.4
EGZM-10-150	2,000	900	1,000	450	25°	23.7
EGZM-12-60	2,000	3,500	1,000	1,750	25°	14.7
EGZM-12-100	2,500	1,900	1,000	950	25°	18.8
EGZM-12-150	2,500	900	1,250	450	25°	23.3

Dimensions [mm]

d1 E10	d2	X	b	a	c
4	20	25	4	10	5
4	20	50	4	10	5
4	20	75	4	10	5
5	20	25	4	10	6
5	20	50	4	10	6
5	20	75	4	10	6
6	20	25	4	10	6
6	20	50	4	10	6
6	20	75	4	10	6
8	30	60	7	15	8
8	30	100	7	15	8
8	30	150	7	15	8
10	30	60	7	15	9
10	30	85	7	15	9
10	30	100	7	15	9
10	30	150	7	15	9
12	30	60	7	15	10
12	30	100	7	15	10
12	30	150	7	15	10

Alternative spherical ball materials ▶ Page 993



REM:
Low-cost



JEM:
low moisture absorption



J4EM:
low-cost and low moisture absorption



J4VEM:
clearance-free pre-loaded spherical ball

igubal® double joints | Product range

igubal® double joints

Variable double joints: KDGM

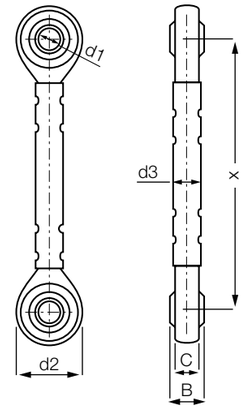


Version A Version B

- Ball diameters 5, 6, 8, 10 and 12mm
- Individual centre distance
- Individual alignment of the bearing position

Material:
Housing: **igumid® G ▶ Page 1190**
Spherical ball: **Variable ▶ Page 993**
Tube: **Galvanised or stainless steel**

Variable double joints: KDGM



Order key

Type	Size	Options
KDGM-	06	- A -ER- J

K series	Double joints	Metric	Inner Ø [mm]	Ball stud direction (A or B)	Tube material	Spherical ball material

Options:

Tube material
ER : Stainless steel (AISI 303)
SR : Galvanised steel

Spherical ball material
Blank : iglidur® W300
J : iglidur® J
J4 : iglidur® J4
R : iglidur® R
EK : Stainless steel (AISI 303)

Technical data

Part No.	Max. static tensile strain		Max. static compressive force[190]		Max. pivot angle
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	
KDGM-05-A-ER [ ][32]	220	110	1,250	625	45°
KDGM-06-A-ER-J [ ][32]	220	110	1,250	625	40°
KDGM-08-A-ER-J [ ][32]	500	250	1,500	750	35°
KDGM-10-A-ER-J[145] [ ][32]	700	350	2,500	1,250	35°
KDGM-12-A-ER-J [ ][32]	1,000	500	3,500	1,750	35°

[32] Please add the required centre distance in mm
[145] Size only available with stainless steel tube (ER)
[190] The values refer to a length of 200mm

Dimensions [mm]

d1	d2	d3	X	B	C
E10			min.		
5	20	6	72	9	7.0
6	20	6	72	9	7.0
8	24	8	84	12	9.0
10	30	10	96	14	10.5
12	34	12	108	16	12.0

Order example, KDGM-05-A-SR, 100 : Double joint with 5mm inner diameter, version A, tube material made of steel, spherical ball made of iglidur® W300, centre distance 100mm

igubal® coupling joints | Product range

igubal® double joints

Variable coupling joints: WDGM

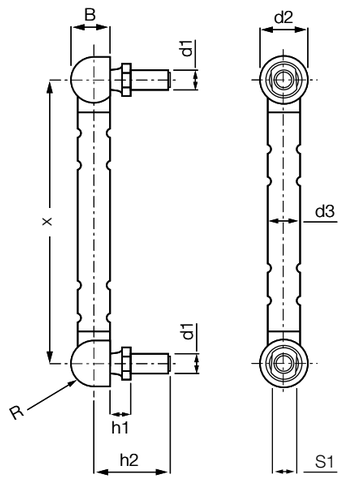


Version A Version B Version C Version D

- Socket cup M5, M6, M8 and M10
- Individual centre distance
- Individual alignment of the bearing position

Material:
Housing: **igumid® G ▶ Page 1190**
Ball stud: **Plastic, galvanised or stainless steel[28)]**
Tube: **Galvanised or stainless steel**

Variable coupling joints: WDGM



Order key

Type	Size	Options
WDGM -	05 -	A -SR-SZ

Angle	Coupling joint	Metric	Ball stud thread [mm]	Ball stud direction (A, B, C or D)	Tube material	Ball stud material

Options:

Tube material
SR : Galvanised steel
ER : Stainless steel (AISI 303)

Ball stud material
SZ : Galvanised steel
EZ : Stainless steel[28)]
PZ : igumid® G

Technical data

Part No.	Max. static tensile strain		Max. static compressive force[190)]		Max. pivot angle
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	
WDGM-05-A-SR-SZ ☐[32)]	800	400	1,250	625	23°
WDGM-06-A-ER-SZ[145)] ☐[32)]	1,700	850	2,400	1,200	25°
WDGM-08-A-SR-SZ ☐[32)]	950	475	3,200	1,600	24°
WDGM-10-A-SR-SZ ☐[32)]	950	475	3,200	1,600	24°

[28)] Stainless steel ball stud upon request
[32)] Please add the required centre distance in mm
[33)] Housing's size 8 with a special M10 stud, available only in metal
[145)] Size only available with stainless steel tube (ER)
[190)] The values refer to a length of 200mm

Dimensions [mm]

d1	d2	d3	X min.	B	h1	h2	S1 Width across flats	R
M5	12.8	8	64	10.8	4.6	19.2	SW8	6.4
M6	14.8	10	80	12.3	6.1	23.5	SW9	7.4
M8	19.3	12	80	16.2	5.9	29.5	SW12	9.7
M10[33)]	19.3	12	80	16.2	7.9	36.0	SW14	9.7

Order example, WDGM-05-A-SR-SZ, 100: Coupling joint with 5mm ball stud thread, version A, tube material made of steel, ball stud made of steel, centre distance 100mm

Can be combined with accessories ▶ From page 1011:


GZRM-IG


GZRM


GZRM-MS /GZRM-ES

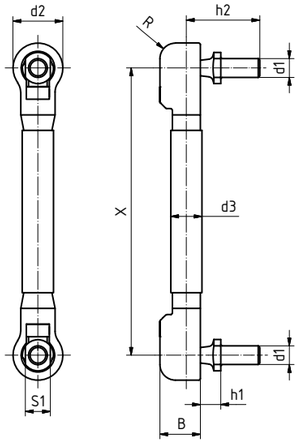
igubal® double joints | Product range

Variable coupling joints, removable: WDGM-DE



Version A Version B Version C Version D

- Socket cup M6
- Individual centre distance
- Individual alignment of the bearing position
- Easy assembly and disassembly
- High holding forces when assembled



Order key

Type	Size	Options
WDGM -	06 -	A -ER-SZ-DE

Angle	Coupling joint	Metric	Ball stud thread [mm]	Ball stud direction (A, B, C or D)	Tube material	Ball stud material	Disassembly

Options:

Tube material
ER : Stainless steel (AISI 303)

Ball stud material
SZ : Galvanised steel
EZ : Stainless steel[28)]
PZ : igumid® G

Material:
Housing: **igumid® G ▶ Page 1190**
Ball stud: **Plastic, galvanised or stainless steel[28)]**
Tube: **Stainless steel**

Dimensions [mm]

Part No.	d1	d2	d3	X min.	B	h1	h2	S1 Width across flats	R	Max. pivot angle
WDGM-06-A-ER-SZ-DE ☐ [32)]	M6	16	10	102	13	6.5	23.5	SW8	5	23°

[145)] Size only available with stainless steel tube (ER)
[28)] Stainless steel ball stud upon request
[32)] Please add the required centre distance in mm

Order example, WDGM-06-A-ER-SZ-DE, 150 : Removable coupling joint with 6mm ball stud thread, version A, tube material made of stainless steel, ball stud made of steel, centre distance 150mm

Fitting:





Can be combined with accessories
▶ From page 1011:


GZRM-IG


GZRM


GZRM-MS /GZRM-ES

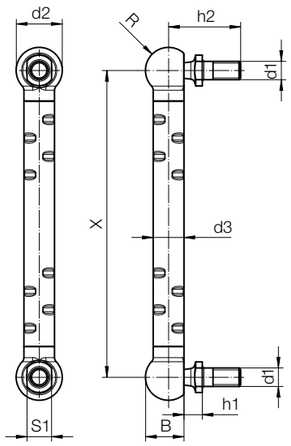
igubal® coupling joints | Product range New

Variable coupling joints, for very dirty environments: WDGM-FX



Version A Version B Version C Version D

- Shore D hardness 58: 25% more elastic than igumid® G
- 20 times more abrasion-resistant against metallic ball studs than polyamide
- Easy to assemble
- A large undercut prevents the ingress of dirt
- Vibration dampening due to flexible material



Order key

Type	Size	Options
WDGM -	06 -	A -ER-SZ-FX

Angle	Coupling joint	Metric	Ball stud thread [mm]	Ball stud direction (A, B, C or D)	Tube material	Ball stud material	End piece

Options:

Tube material
ER : Stainless steel (AISI 303)

Ball stud material
SZ : Galvanised steel
EZ : Stainless steel[28)]
PZ : igumid® G

Material:
Ball stud: **Plastic, galvanised or stainless steel[28)]**
Tube: **Stainless steel**

Dimensions [mm]

Part No.		d1	d2	d3	X min.	B	h1	h2	S1 Width across flats	R	Max. pivot angle
WDGM-05-A-ER-SZ-FX ☐ [32)]	New	M5	13	10	70	11.5	4	19.2	SW7	6.5	13°
WDGM-06-A-ER-SZ-FX ☐ [32)]	New	M6	15	10	70	12.5	6	23.5	SW8	7.5	13°
WDGM-08-A-ER-SZ-FX ☐ [32)]	New	M8	18	12	82	15.0	7	29.5	SW11	9.0	13°
WDGM-10-A-ER-SZ-FX ☐ [32)]	New	M10	18	12	82	15.0	7	29.5	SW11	9.0	13°

Technical data

Part No.		Max. static tensile strain		Max. static compressive force[190)]	
		Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]
WDGM-05-A-ER-SZ-FX ☐ [32)]	New	80	40	460	230
WDGM-06-A-ER-SZ-FX ☐ [32)]	New	100	50	500	250

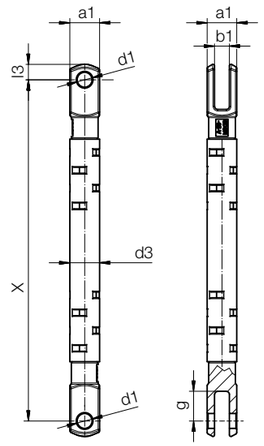
[32)] Please add the required centre distance in mm
[190)] The values refer to a length of 200mm

igubal® coupling joints | Product range

Crimped coupling joints with rotatable clevis joints: GDGM-05-V



- Lubrication and maintenance-free
- Diameter 5mm
- Individual alignment of the clevis joint - rotation feature
- Combination with spring-loaded fixing clip or bolt and securing clip possible
- Other installation sizes upon request
- Cost-effective solution for small and medium volumes



Order key

Type			Size	Options			
G	DG	M-	05	-V	-ER	-	F
Clevis joint	Coupling joint	Metric	Inner Ø [mm]	Twistable	Tube material		Accessories

Options:
F : Spring-loaded fixing clip
K : Clevis pin and circlip

Material:
Housing: **igumid® G ▶ Page 1190**
Tube: **Stainless steel (AISI 303)**

Dimensions [mm]

Part No.	d1	d3	X	a1	a2	b1	g	l3	Max. static tensile strain	
				+0.3	+0.3	+0.3			Short-term	Long-term
	+0.1		min.	-0.16	-0.16	+0.1	±0.3	+0.3	[N]	[N]
GDGM-05-V-ER-☐	5	10	90	10	10	5	10	5	150	75

Order example, GDGM-05-V-ER-F, 100: coupling joint with clevis joints for a pin diameter of 5mm. Adjustable alignment of the bearing points. Stainless steel tube, two spring-loaded fixing clips GEFM-05 DIN, centre distance 100mm, included

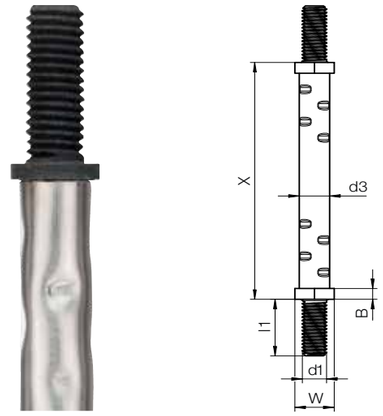
Can be combined with accessories ▶ From page 1011:

GEFM GBM GSR

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igubal® threaded inserts | Product range

Crimped threaded inserts: TDGM



- Individual centre distance
- Can be adjusted using left and right-hand threads
- Many combination options with clevis joints and rod ends and angled ball and socket joints and in-line ball and socket joints available
- Various thread sizes and diameters possible
- Less weight than solutions with threaded rods

Order key

Type			Size	Options			
T	DG	M-	06	-☐	-☐	-☐	
Thread	Coupling joint	Metric	Inner Ø [mm]	Thread direction	Tube material	Length X	

Options:
Thread direction
RL : Right and left-hand thread
RH : Right-hand thread on both sides
LH : Left-hand thread on both sides

Tube material
ER : Stainless steel (AISI 303)
SR : Galvanised steel

Dimensions [mm]

Part No.	d1	W	d3	X	B	l1
	+0.1			min.		
TDGM-06-☐-☐-☐	M6	10	8	56	3	18
TDGM-08-☐-ER-☐	M8	13	10	58	4	21
TDGM-10-☐-☐-☐	M10	15	12	62	6	24

Order example, TDGM-06-RL-ER-56: threaded inserts with M6 thread. Right-hand thread on one side, left-hand thread on the other side (adjustable). Stainless steel tube. Length X = 56mm.

Can be combined with:

KCR(L)M EBR(L)M GER(L)M WGR(L)M AGR(L)M

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Notes



igubal® - spherical thrust bearing

- Easy installation
- Compensation of misalignment errors
- Compensation of edge loads
- Very good friction and wear properties



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igubal® - spherical thrust bearing

igubal® self-aligning spherical thrust bearings are very easy to fit and help to compensate for alignment errors and prevent edge pressure.



When do I take them?
- If you want to save weight
- If corrosion resistance is requested
- When a bearing with low coefficient of friction is required

When do I not take them?
- At very high loads
- When temperatures are higher than +80°C
- When high speeds have to be achieved

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

Max. +80°C
min. -30°C

1 type
Ø 5 - 20mm

Online product finder
▶ www.igus.eu/igubal-finder

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igubal® spherical thrust bearings | Technical data

Mechanical properties
igubal® self-aligning spherical thrust bearings are very easy to fit and help to compensate for alignment errors and prevent edge pressure. The housing pad is made of the impact-resistant, thermoplastic composite igumid® G. The spherical washer is made of iglidur® W300 material. This combination provides exceptionally good friction and wear properties.

Loads
The load capacity of igubal® spherical thrust bearings is very high in standard ambient temperatures. For high continuous loads and high temperatures, the load capacity of the spherical thrust bearings should be tested in an experiment that simulates the application.

Coefficient of sliding friction and speed
Taking into account the radial load, maximum surface speeds up to 0.5m/s rotating are possible.

Assembly
The housing pad is installed so that it is countersunk and secured. The spherical washer is loosely fitted in the socket and is held in place by the shaft that is placed into the bearing.

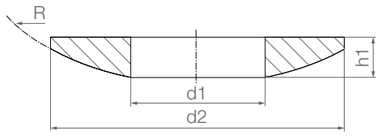
Product range
igubal® spherical thrust bearings are available in standard form to suit diameters from 5 to 20mm. Please contact us if you require other dimensions.

igubal® spherical thrust bearing | Product range

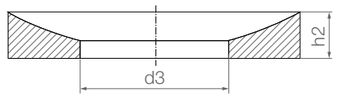
Spherical thrust bearings: SAM



Spherical washer



Housing pad



Order key

Type	Size
SA M	-05

Type | Metric | Inner Ø d1 [mm]

Material:
Spherical washer: **iglidur® W300** ▶ **Page 175**
Housing pad: **igumid® G** ▶ **Page 1190**

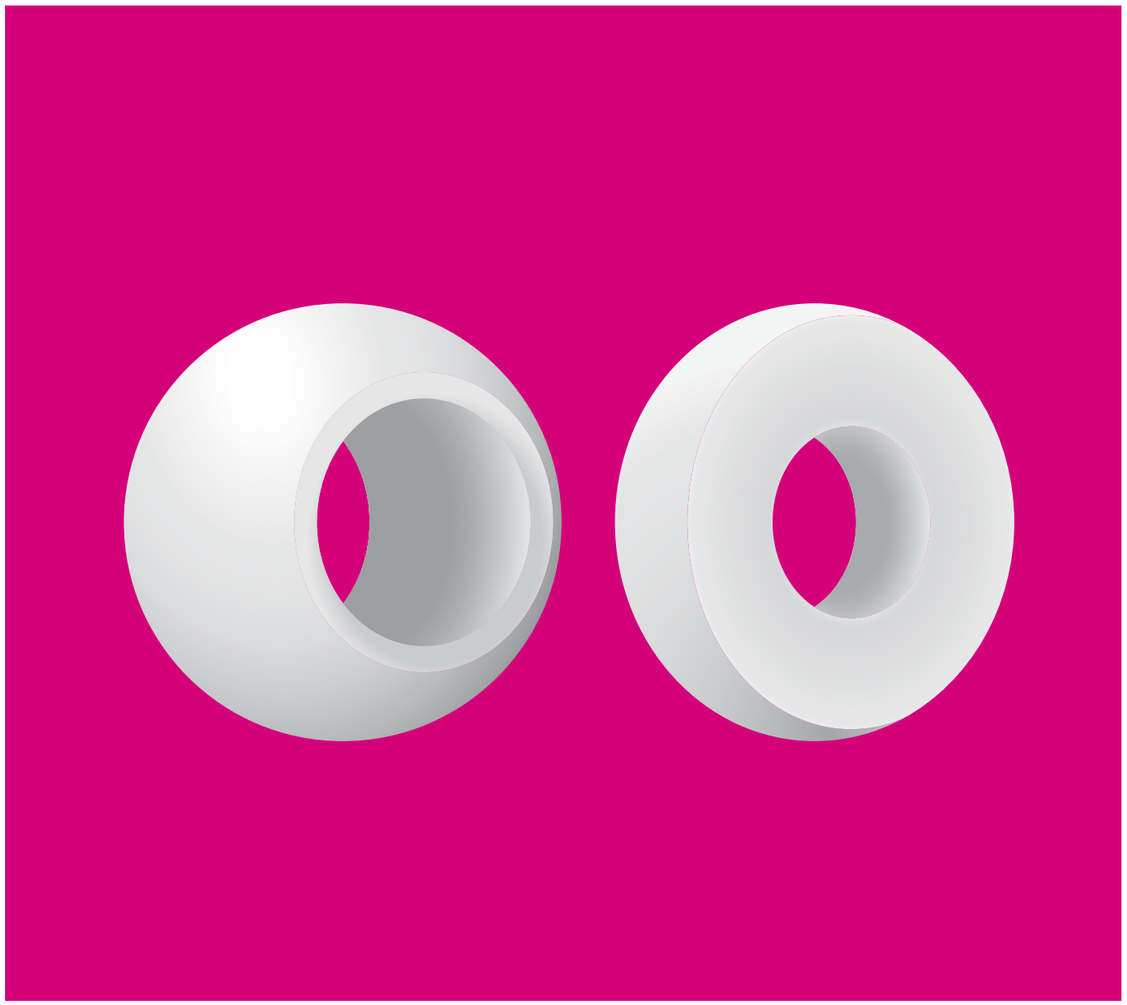
Technical data

Part No.	Max. static axial compressive strength Short-term [N]	Max. static axial compressive strength Long-term [N]	Weight [g]
SAM-05	4,000	2,000	0.9
SAM-06	5,000	2,500	1.1
SAM-08	8,000	4,000	2.2
SAM-10	10,000	5,000	3.4
SAM-12	12,000	6,000	5.9
SAM-16	17,000	8,500	8.5
SAM-20	22,000	11,000	12.8

Dimensions [mm]

Part No.	d1 Spherical washer DIN 2768 medium	d3 Housing pad DIN 2768 medium	d2	h1 Spherical washer	h2 Housing pad	H[34] Overall height	R Radius	Compensation angle
SAM-05	5.2	7.0	15	3.0	3.5	4.7	15	3°
SAM-06	6.2	7.5	16	3.0	4.0	5.3	16	3°
SAM-08	8.2	10.0	20	4.0	5.0	6.8	20	2°
SAM-10	10.2	12.0	24	4.5	5.5	7.5	24	2°
SAM-12	12.5	14.5	30	5.0	6.2	8.0	32	2°
SAM-16	16.2	19.0	36	5.5	6.5	8.7	40	2°
SAM-20	20.2	23.0	44	6.0	7.0	8.6	45	2°

[34] In assembled condition



igubal® spherical balls

- Maintenance-free dry operation
- Corrosion-resistant
- High compressive strength
- High elasticity
- Lightweight
- Different materials
- Spherical ball for metallic bearing housings



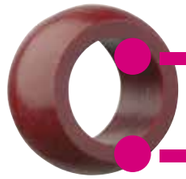
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igubal® spherical balls

Every single iglidur® material has its own special properties, which determines the suitability for your special applications and requirements. We have available spherical balls made from iglidur® materials W300 (standard), J, J4, R, A181, FC180, UW and X. The spherical balls for metallic bearing housings are available in three materials for housing numbers 203 to 210.



Maintenance-free, dry operation



Corrosion-resistant

High compressive strength



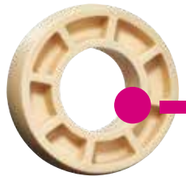
High elasticity



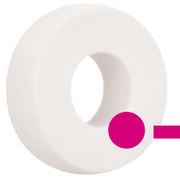
Lightweight



Different materials



For metallic bearing housings, low moisture absorption



For metallic bearing housings, FDA-compliant



For metallic bearing housings, FDA-compliant and high resistance to temperatures

When do I take them?

- If you need maintenance-free material
- When dimensional series E and K components should be fitted
- If different iglidur® materials should be tested
- If high compressive strength is required
- If high flexibility is required
- Replacing ball bearings in metallic housings

When do I not take them?

- When temperatures are higher than +250°C
- When dimensions above 50mm are required
- If rotation speeds of more than 0.5 m/s are to be achieved

Tolerances

Maintenance-free igubal® spherical balls are designed with an inner diameter tolerance according to E10. The shaft tolerance should be between h6 and h9. All values without tolerance are dealt with according to DIN ISO 2768-m.

Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

Depending on material

8 types
Ø 2 - 50mm

Imperial dimensions available
▶ From page 1162

Online product finder
▶ www.igus.eu/igubal-finder

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igubal® spherical balls | Application examples



Truck gearshift

Cabovel, a South American company, develops gear shifts for lorries. The systems are subjected to millions of cycles at temperatures of -10°C to +80°C. That is why engineers use igubal® bearings manufactured from a high-performance polymer. The bearings are resistant to impacts, mechanical influences and abrasion, and absorb little moisture.



Glider

Avionic Sp., a Polish company, develops gliders. All components must be able to handle changing weather conditions - fluctuating temperatures and moisture. That is why the engineers used around 20 different sizes and types of igus® polymer plain bearings made of high-performance polymers for the rudder, elevator and flaps. igubal® spherical bearings are used to guide the rods.



Cutting machine

The Spanish company Astech Food Machinery builds machines for slicing frozen meat and fish. At the exit of the slicing machine, ejector arms separate sections on a conveyor belt according to preset characteristics. Between the piston rods and the pneumatic pistons, the engineers use polymer spherical bearings from igus®, and two hole flange bearings made of high-performance polymer in the elements where there is movement between the pneumatic piston and the machine frame.

igubal® spherical balls | Product overview

Standard
iglidur® W300
▶ Page 175

WKM/WEM
Dimensional K and E series
▶ **Page 997**

Low-cost
iglidur® R
▶ Page 251

RKM/REM
Dimensional K and E series
▶ **Page 998**

High temperature
iglidur® X
▶ Page 291

XKM/XEM
Dimensional K and E series
▶ **Page 999**

Low moisture absorption
iglidur® J ▶ Page 163

JKM/JEM
Dimensional K and E series
▶ **Page 1000 - 1002**

Cost-effective
iglidur® J4
▶ Page 1186

J4KM/J4EM
Dimensional K and E series
▶ **Page 1003**

For underwater applications
iglidur® UW
▶ Page 569

UWEM
E series
▶ **Page 1005**

High tightening torque
Stainless steel (AISI 303)
▶ Page 1004

EK
Dimensional K and E series
▶ **Page 1004**

Clearance-free, pre-loaded
iglidur® J4VEM
▶ Page 1006

J4VEM
E series
▶ **Page 1006**

Suitable for food contact

iglidur® A181
▶ Page 401

A181□M
Dimensional K and E series
▶ **Page 1007**

iglidur® FC 180
▶ Page 1186

FC180□M
Dimensional K and E series
▶ **Page 1008**

For metallic bearing housings - igubal® spherical insert bearings

iglidur® A180
▶ Page 401

FDA-compliant
UC series
▶ **Page 1009**

iglidur® A350
▶ Page 409

FDA-compliant
UC series
▶ **Page 1009**

iglidur® J
▶ Page 163

Standard
UC series
▶ **Page 1009**

iglidur® J4
▶ Page 1186

Low-cost
UC series
▶ **Page 1009**

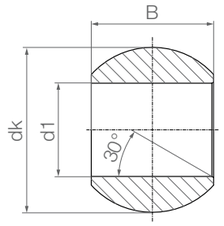
igus EN 09/2023

igubal® spherical balls

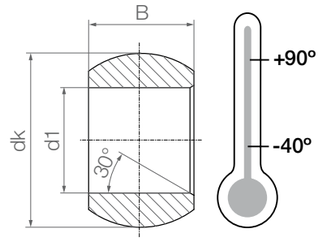
igubal® spherical balls | Product range

Spherical ball, standard: WKM and WEM









Order key

Type	Size	Options

W□M-02-04

- iglidur® W300 spherical balls
- Dimensional series
- Metric
- Inner Ø d1 [mm]
- Width [mm]

Dimensional series
K : Dimensional K series
E : Dimensional E series

Imperial dimensions available
▶ **Page 1163**

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
WKM-02-04	2	5.10	4	0.1
WKM-03-06	3	8.10	6	0.3
WKM-05-08	5	11.30	8	0.6
WKM-06-09	6	12.80	9	0.9
WKM-08-12	8	16.00	12	1.6
WKM-10-14	10	19.00	14	2.7
WKM-12-16	12	22.10	16	4.0
WKM-14-19	14	25.40	19	6.0
WKM-16-21	16	28.40	21	8.2
WKM-18-23	18	31.50	23	10.8
WKM-20-25	20	35.10	25	14.5
WKM-22-28	22	38.30	28	18.7
WKM-25-31	25	42.90	31	26.0
WKM-30-37	30	51.20	37	44.7

Dimensions [mm]

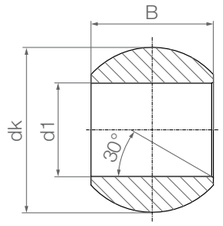
Part No.	d1 E10	dK	B	Weight [g]
WEM-04-05	4	8.30	5	0.2
WEM-05-06	5	10.30	6	0.3
WEM-06-06	6	10.30	6	0.4
WEM-08-08	8	13.30	8	0.7
WEM-10-09	10	16.10	9	1.2
WEM-12-10	12	18.10	10	1.5
WEM-15-12	15	22.00	12	2.4
WEM-16-13	16	24.10	13	3.3
WEM-17-14	17	25.10	14	3.7
WEM-20-16	20	29.10	16	5.3
WEM-25-20	25	35.60	20	9.5
WEM-30-22	30	40.90	22	12.1

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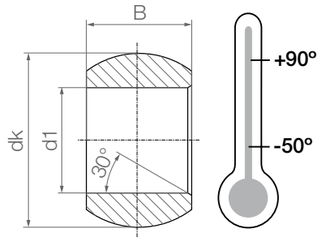
igubal® spherical balls | Product range

Low-cost spherical balls: RKM and REM









Order key

Type	Size	Options
R ☐ M - 08 - 12		

- iglidur® R spherical balls
- Dimensional series
- Metric
- Inner Ø d1 [mm]
- Width [mm]

Dimensional series
K : Dimensional K series
E : Dimensional E series

Imperial dimensions available
▶ Page 1162

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
RKM-06-09	6	12.80	9	1.01
RKM-08-12	8	15.90	12	1.80
RKM-10-14	10	19.00	14	2.90
RKM-12-16	12	22.10	16	4.48

Dimensions [mm]

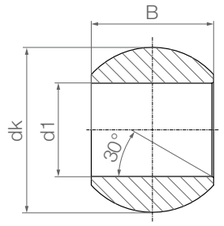
Part No.	d1 E10	dK	B	Weight [g]
REM-04-05	4	8.30	5	0.22
REM-05-06	5	10.20	6	0.40
REM-06-06	6	10.20	6	0.40
REM-08-08	8	13.20	8	0.80
REM-10-09	10	16.10	9	1.30
REM-12-10	12	18.10	10	1.60
REM-16-13	16	24.10	14	3.69
REM-20-16	20	29.10	16	5.94

igubal® spherical balls

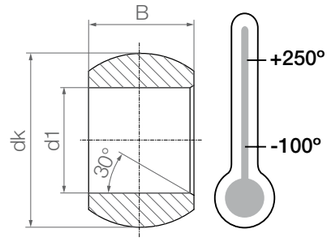
igubal® spherical balls | Product range

High temperatures spherical balls: XKM and XEM









Order key

Type	Size	Options
X ☐ M - 10 - 14		

- iglidur® X spherical balls
- Dimensional series
- Metric
- Inner Ø d1 [mm]
- Width [mm]

Dimensional series
K : Dimensional K series
E : Dimensional E series

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
XKM-10-14	10	19.10	14	2.90
XKM-16-21	16	28.40	21	9.40

Dimensions [mm]

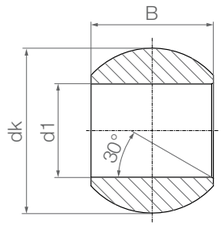
Part No.	d1 E10	dK	B	Weight [g]
XEM-05-06	5	10.30	6	0.40
XEM-06-06	6	10.20	6	0.40
XEM-08-08	8	13.30	8	0.80
XEM-10-09	10	16.10	9	1.30
XEM-12-10	12	18.10	10	1.60
XEM-16-13	16	24.10	13	3.83
XEM-20-16	20	29.10	16	6.15

igubal® spherical balls | Product range

Low moisture absorption spherical balls: JKM and JEM

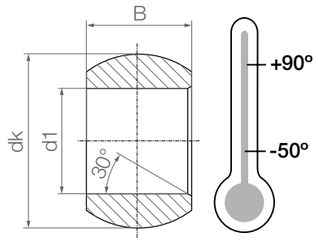


JKM





JEM



Order key

Type	Size	Options
J □ M - 03 - 06		

- iglidur® J spherical balls
- Dimensional series
- Metric
- Inner Ø d1 [mm]
- Width [mm]

Dimensional series
K : Dimensional K series
E : Dimensional E series

Imperial dimensions available
▶ Page 1163

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
JKM-03-06	3	8.10	6	0.3
JKM-05-08	5	11.30	8	0.7
JKM-06-09	6	12.80	9	1.0
JKM-08-12	8	15.90	12	1.9
JKM-10-14	10	19.00	14	3.1
JKM-12-16	12	22.10	16	4.7
JKM-16-21	16	28.40	21	9.4
JKM-18-23	18	31.50	23	13.2
JKM-20-25	20	35.10	25	17.6
JKM-25-31	25	42.80	31	31.6
JKM-30-37	30	51.20	37	53.0

Dimensions [mm]

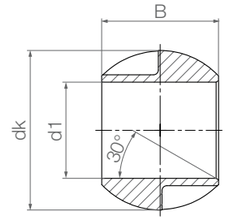
Part No.	d1 E10	dK	B	Weight [g]
JEM-04-05	4	8.30	5	0.3
JEM-05-06	5	10.20	6	0.4
JEM-06-06	6	10.20	6	0.4
JEM-08-08	8	13.30	8	0.8
JEM-10-09	10	16.10	9	1.3
JEM-12-10	12	18.10	10	1.7
JEM-15-12	15	22.00	12	2.9
JEM-16-13	16	24.10	13	3.9
JEM-17-14	17	25.20	14	4.1
JEM-20-16	20	29.10	16	6.4
JEM-25-20	25	35.60	20	11.5
JEM-30-22	30	40.90	22	14.5
JEM-40-28	40	53.00	28	31.0

igubal® spherical balls | Product range

Low moisture absorption spherical balls: JKM

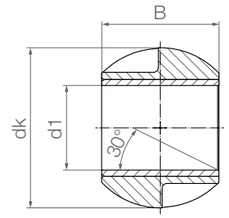


JKM spherical ball with plain bearing





JKM spherical ball without plain bearing



Order key

Type	Size
J K M - 35 - 49	

- iglidur® J spherical balls
- K series
- Metric
- Inner Ø d1 [mm]
- Width [mm]

Dimensions [mm]

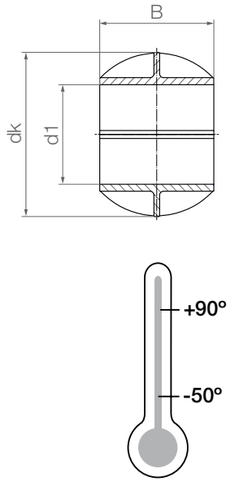
Part No.	d1 E10	dK	B	Weight [g]
JKM-35-49[35)]	35	66.30	49	75.5
JKM-40-49	40	66.30	49	54.5
JKM-45-60[35)]	45	82.40	60	125.1
JKM-50-60	50	82.40	60	92.1

[35)] Diameter reduced by means of a plain bearing

igubal® spherical balls | Product range

Low moisture absorption split spherical balls: JKM-GT





Order key

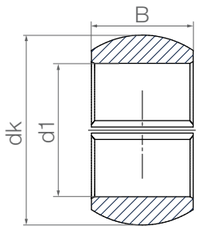
Type			Version	Size
J	K	M-	GT	-40
iglidur® J spherical balls	K series	Metric	Split ball	Inner Ø d1 [mm]

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
JKM-GT-40	40	66.30	49	54.5
JKM-GT-50	50	82.40	60	92.1

Low moisture absorption split spherical balls: JEM-GT





Order key

Type			Version	Size
J	E	M-	GT	-16
iglidur® J spherical balls	E series	Metric	Split ball	Inner Ø d1 [mm]

Dimensions [mm]

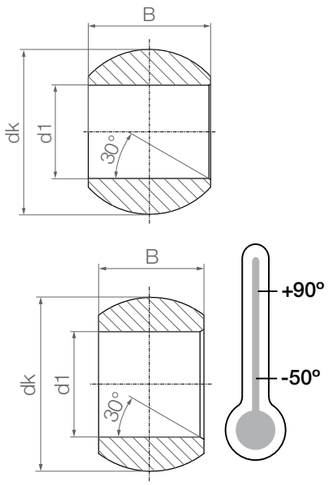
Part No.	d1	dK	B	Weight
	E10			[g]
JEM-GT-16	16	23.7	13	3.7
JEM-GT-20	20	28.9	16	6.1
JEM-GT-25	25	35.6	20	10.9
JEM-GT-30	30	40.8	22	14.6

igubal® spherical balls | Product range

Spherical balls, cost-effective: J4KM and J4EM







Order key

Type		Size		Options
J4	□	M-	10-	14
iglidur® J4 spherical balls	Dimensional series	Metric	Inner Ø d1 [mm]	Width [mm]

Dimensional series
K : Dimensional K series
E : Dimensional E series

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
J4KM-06-09	6	12.80	9	1.0
J4KM-08-12	8	15.90	12	1.9
J4KM-10-14	10	19.10	14	3.1
J4KM-12-16	12	22.10	16	4.7
J4KM-14-19	14	25.40	19	7.0
J4KM-16-21	16	28.40	21	9.4
J4KM-25-31	25	42.80	31	31.6

Dimensions [mm]

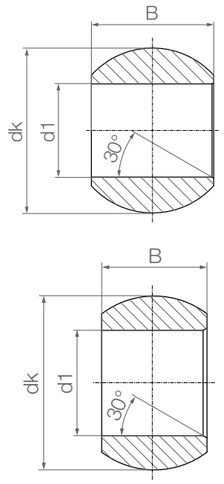
Part No.	d1	dK	B	Weight
	E10			[g]
J4EM-04-05	4	8.25	5	0.3
J4EM-05-06	5	10.20	6	0.4
J4EM-06-06	6	10.20	6	0.4
J4EM-08-08	8	13.30	8	0.8
J4EM-10-09	10	16.00	9	1.3
J4EM-12-10	12	18.00	10	1.7
J4EM-15-12	15	22.00	12	2.9
J4EM-16-13	16	24.00	13	3.9
J4EM-17-14	17	25.10	14	4.1
J4EM-20-16	20	28.90	16	6.4
J4EM-25-20	25	35.50	20	11.5
J4EM-30-22	30	40.90	22	14.5

igubal® spherical balls | Product range

Spherical balls, stainless steel: EK







Order key

Type	Size	Version	Options
EK -	03 -	K	

Spherical ball made of stainless steel

Inner Ø d1 [mm]

K series

Dimensional series
K : Dimensional K series
E : Dimensional E series

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
EK-03-K	3	8.10	6	1.7
EK-05-K	5	11.30	8	4.0
EK-06-K	6	12.80	9	5.5
EK-08-K	8	16.00	12	10.4
EK-10-K	10	19.00	14	16.8
EK-12-K	12	22.10	16	25.7
EK-16-K	16	28.40	21	52.3
EK-20-K	20	35.00	25	95.7
EK-25-K	25	42.90	31	171.1
EK-30-K	30	51.20	37	286.6

Dimensions [mm]

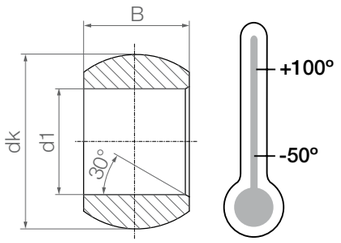
Part No.	d1 E10	dK	B	Weight [g]
EK-04	4	8.30	5	1.4
EK-05	5	10.30	6	2.5
EK-06	6	10.30	6	2.1
EK-08	8	13.30	8	4.4
EK-10	10	16.10	9	7.4
EK-12	12	18.10	10	9.3
EK-15	15	22.00	12	15.7
EK-16	16	24.10	13	21.2
EK-20	20	29.10	16	34.6
EK-25	25	35.46	20	61.6
EK-30	30	40.70	22	80.7

igubal® spherical balls

igubal® spherical balls | Product range

Spherical balls for underwater applications: UWEM





Order key

Type	Size
UW E M-	16-13

iglidur® UW spherical balls

E series

Metric

Inner Ø d1 [mm]

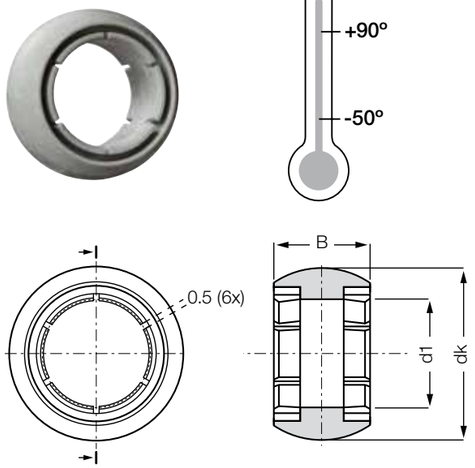
Width [mm]

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
UWEM-10-09	10	16.10	9	1.4
UWEM-16-13	16	23.80	13	4.0
UWEM-20-16	20	28.80	16	6.5
UWEM-25-20	25	35.30	20	11.6
UWEM-30-22	30	40.50	22	15.2

igubal® spherical balls | Product range

Spherical balls, clearance-free, pre-loaded: J4VEM



Order key

Type	Size
J4 V E M	-08-08

- J4 V: igliduR® J4 spherical balls
- E: pre-tensioned
- M: E series, Metric
- 08: Inner Ø d1 [mm]
- 08: Width [mm]

Dimensions [mm]

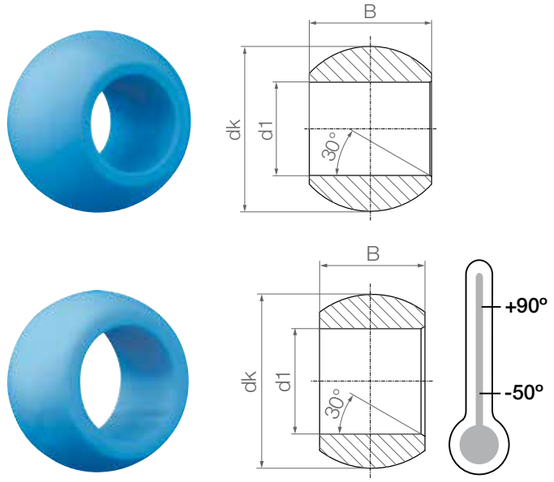
Part No.	d1 E10	dK	B	Weight [g]
J4VEM-08-08	8	13.20	8	0.7
J4VEM-10-09	10	16.10	9	1.2
J4VEM-12-10	12	18.10	10	1.5
J4VEM-16-13	16	24.10	13	3.7
J4VEM-20-16	20	29.10	16	6.2

5 sizes available: Ø 8, 10, 12, 16, 20mm combinable with:

igubal® rod ends	EA(L)RM	▶ **Page 890**	igubal® fixed flange bearings	EFSM	▶ **Page 948**
igubal® rod ends	EB(L)RM	▶ **Page 888**	igubal® clip bearings	EGFM-T	▶ **Page 976**
igubal® pillow block bearings	ESTM	▶ **Page 931**	igubal® spherical bearing	EGLM	▶ **Page 972**
igubal® fixed flange bearings	EFOM	▶ **Page 946**	igubal® double joints	EGZM	▶ **Page 978**

igubal® spherical balls | Product range New

Spherical balls, for contact with food: A181KM and A181EM



Order key

Type	Size	Options
A181 □ M	-05-08	

- A181: Spherical ball made of igliduR® A181
- M: Dimensional series, Metric
- 05: Inner Ø d1 [mm]
- 08: Width [mm]

Dimensional series
K : Dimensional K series
E : Dimensional E series

Dimensions [mm]

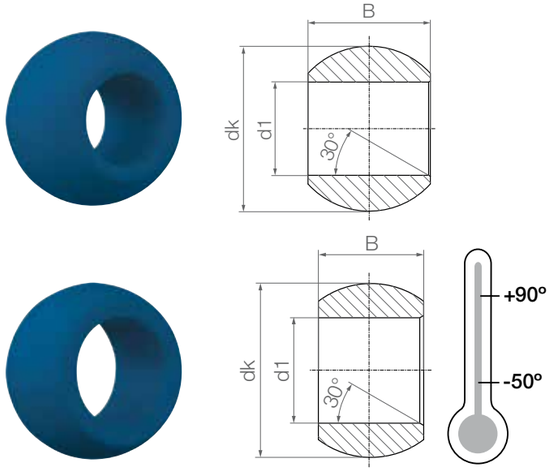
Part No.	d1 E10	dK	B	Weight [g]
A181KM-05-08 New	5	11.3	8	0.75
A181KM-06-09 New	6	12.8	9	0.97
A181KM-12-16 New	12	22.1	16	4.45

Dimensions [mm]

Part No.	d1 E10	dK	B	Weight [g]
A181EM-04-05 New	4	8.3	5	0.21
A181EM-05-06 New	5	10.3	6	0.40
A181EM-06-06 New	6	10.3	6	0.35
A181EM-08-08 New	8	13.3	8	0.76
A181EM-10-09 New	10	16.1	9	1.28
A181EM-12-10 New	12	18.1	10	1.16
A181EM-20-16 New	20	29.1	16	6.05

igubal® spherical balls | Product range New

Spherical balls, for contact with food: FC180KM and FC180EM



Order key

Type	Size	Options
FC180 ☐ M - 06 - 09		

- Spherical ball made of iglidur® FC180
- Dimensional series
- Metric
- Inner Ø d1 [mm]
- Width [mm]

Dimensional series
K : Dimensional K series
E : Dimensional E series

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
FC180KM-06-09 New	6	12.8	9	1.26

Dimensions [mm]

Part No.	d1	dK	B	Weight
	E10			[g]
FC180EM-04-05 New	4	8.3	5	0.55
FC180EM-05-06 New	5	10.3	6	0.55
FC180EM-06-06 New	6	10.3	6	0.56
FC180EM-08-08 New	8	13.3	8	0.97
FC180EM-10-09 New	10	16.1	9	1.61
FC180EM-12-10 New	12	18.1	10	2.09
FC180EM-20-16 New	20	29.1	16	7.83

EN 09/2023

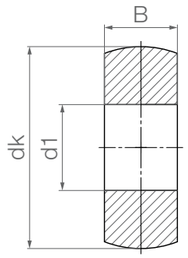
igubal® spherical insert bearings | Product range

Slim spherical insert bearings made of iglidur® materials for various metallic bearing housings



iglidur® J | iglidur® A180 | iglidur® A350 | iglidur® J3

- 4 different spherical ball materials available: iglidur® J, A180, A350 and J3
- Eight dimensions for housing numbers range includes UC203 to UC210
- Maintenance-free, dry operation
- Durable
- Corrosion-resistant
- Resistant to dirt



Dimensions [mm]

Part No.	Housing No.	d1	dk	B	Max. static compressive force	
		E10			radial [N]	axial [N]
made of iglidur® J, low coefficient of friction (material information ▶ From page 163)						
JEM-17-17	UC203	17	47	17	10,000	7,500
JEM-20-17	UC204	20	47	17	11,500	7,500
JEM-25-17	UC205	25	52	17	14,500	7,500
JEM-30-19	UC206	30	62	19	19,500	9,500
JEM-35-20	UC207	35	72	20	24,000	10,500
JEM-40-21	UC208	40	80	21	29,000	12,000
JEM-45-22	UC209	45	85	22	34,000	13,000
JEM-50-24	UC210	50	90	24	41,500	15,500
made of iglidur® A180, FDA-compliant all-rounder (material information ▶ From page 425)						
A180EM-17-17	UC203	17	47	17	7,500	6,000
A180EM-20-17	UC204	20	47	17	9,000	6,000
A180EM-25-17	UC205	25	52	17	11,500	6,000
A180EM-30-19	UC206	30	62	19	15,500	7,500
A180EM-35-20	UC207	35	72	20	19,000	8,500
A180EM-40-21	UC208	40	80	21	23,000	9,000
A180EM-45-22	UC209	45	85	22	27,000	10,000
A180EM-50-24	UC210	50	90	24	33,000	12,000
made of iglidur® A350, for high temperatures and chemicals (material information ▶ From page 409)						
A350EM-17-17	UC203	17	47	17	17,000	13,000
A350EM-20-17	UC204	20	47	17	20,000	13,000
A350EM-25-17	UC205	25	52	17	25,000	13,000
A350EM-30-19	UC206	30	62	19	34,000	17,000
A350EM-35-20	UC207	35	72	20	41,500	18,500
A350EM-40-21	UC208	40	80	21	50,000	20,000
made of iglidur® J3, for longer service life (material information ▶ From page 187)						
J3EM-30-21-80 New	UC208	30	80	21	26,500	12,000
J3EM-40-21 New	UC208	40	80	21	29,000	12,000

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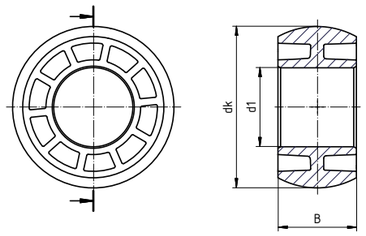
igubal® spherical insert bearings | Product range

Cost-effective spherical insert bearings for various metallic bearing housings



iglidur® J | iglidur® J4 | iglidur® A350 | iglidur® J3

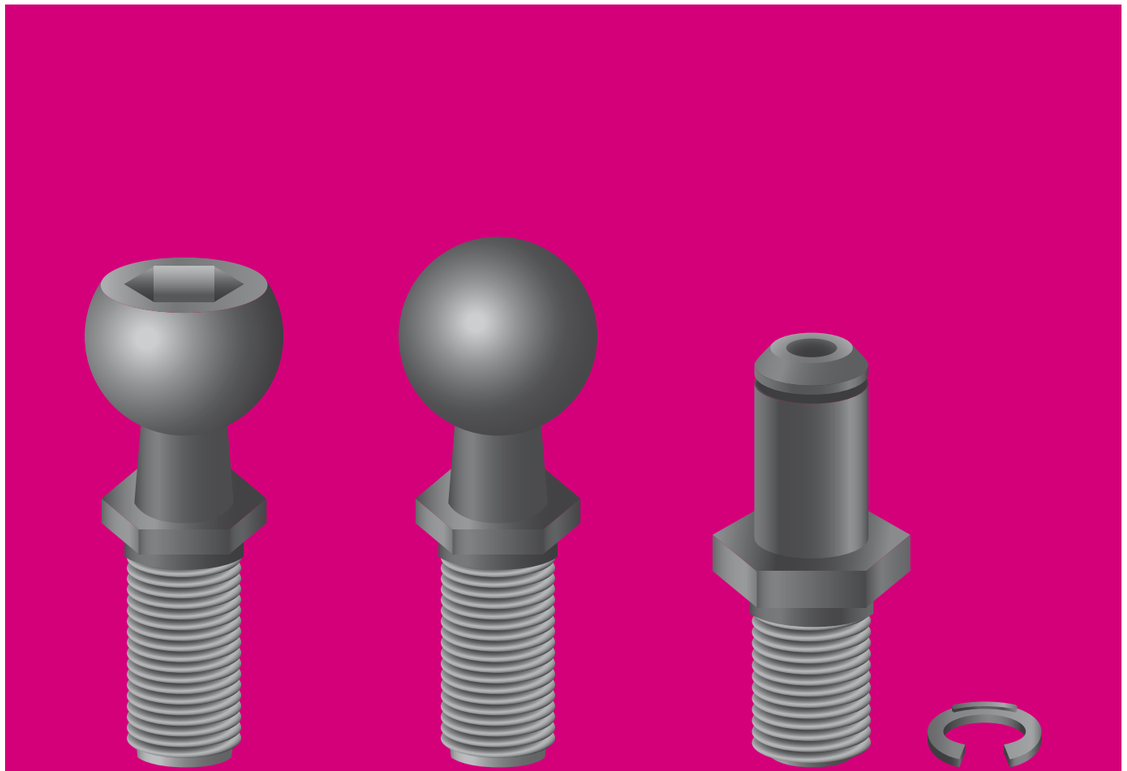
- Cost-effective due to injection moulding method
- Eight dimensions for housing numbers range includes UC203 to UC210
- Durable
- Low moisture absorption



inch Imperial dimensions available ▶ Page 1163

Dimensions [mm]

Part No.		Housing No.	d1	dk	B	Max. static compressive force			
			E10			radial		axial	
						Short-term	Long-term	Short-term	Long-term
						[N]	[N]	[N]	[N]
made of iglidur® J, low coefficient of friction (material information ▶ From page 163)									
JEM-17-12-SP	New	P203	17	40	12	–	–	–	–
JEM-17-17-SP		UC203	17	47	17	7,500	3,750	4,000	2,000
JEM-20-14-SP		P204	20	47	14	8,000	4,000	4,000	2,000
JEM-20-17-SP		UC204	20	47	17	8,000	4,000	4,000	2,000
JEM-25-15-SP		P205	25	52	15	9,000	4,500	4,000	2,000
JEM-25-17-SP		UC205	25	52	17	9,000	4,500	3,500	1,750
JEM-30-16-SP		P206	30	62	16	13,500	6,750	5,000	2,500
JEM-30-19-SP		UC206	30	62	19	13,500	6,750	5,000	2,500
JEM-30-21-80-SP	New	UC208	30	80	21	16,500	8,250	6,000	3,000
JEM-35-17-SP	New	P207	35	72	17	14,500	7,250	6,500	3,250
JEM-35-20-SP		UC207	35	72	20	14,500	7,250	6,500	3,250
JEM-35-21-80	New	UC208	35	80	21	–	–	–	–
JEM-35-21-80-SP	New	UC208	35	80	21	18,000	9,000	6,000	3,000
JEM-40-18-SP	New	P208	40	80	18	17,000	8,500	6,000	3,000
JEM-40-21-SP		UC208	40	80	21	21,000	10,500	6,000	3,000
JEM-45-22-SP		UC209	45	85	22	23,000	11,500	5,500	2,750
JEM-50-24-SP		UC210	50	90	24	25,000	12,500	5,500	2,750
made of iglidur® J4, low-cost material (material information ▶ From page 1186)									
J4EM-17-12-SP	New	P203	17	40	12	–	–	–	–
J4EM-20-14-SP		P204	20	47	14	8,000	4,000	4,000	2,000
J4EM-25-15-SP		P205	25	52	15	9,000	4,500	4,000	2,000
J4EM-30-16-SP		P206	30	62	16	13,500	6,750	5,000	2,500
made of iglidur® A350, for high temperatures and chemicals (material information ▶ From page 409)									
A350EM-20-17-SP		UC204	20	47	17	9,000	4,500	4,500	2,250
made of iglidur® J3, for longer service life (material information ▶ From page 187)									
J3EM-30-21-80-SP	New	UC208	30	80	21	16,500	8,750	6,000	3,000
J3EM-40-21-SP	New	UC208	40	80	21	21,000	10,500	6,000	3,000



igubal® accessories

Ball studs made of plastic, galvanised steel and stainless steel

Adapter screw made from plastic

Fixing collars for spherical insert bearings



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igubal® accessories | Product range

Fixing collar, galvanised steel with threaded pin

Fixing collar made of polymer





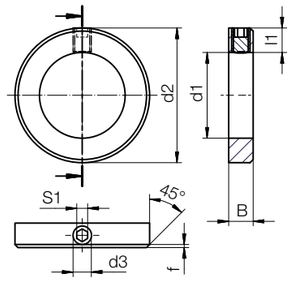
- Easy installation
- DIN 705 (lightweight series)
- Incl. DIN 914 threaded pin (Allen key)

Order key

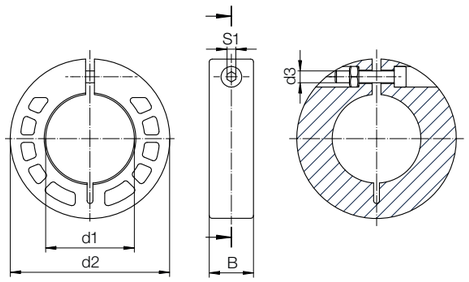
Type	Size	Version
SR M - S	20	- V - ES

Fixing collar	Metric	without thread	Shaft diameter [mm]	Pre-assembled (screw)

Material:
Galvanised and stainless steel (AISI 303)



Fixing collar, steel



Polymer fixing collar



Image exemplary

Dimensions [mm]

Part No.	d1	d2	B	f	d3	l1	S1	Weight [g]
SRM-S17-V	17	28	12	1.2	M6	6	SW3	38.0
SRM-S20-V	20	32	14	1.4	M6	6	SW3	53.0
SRM-S25-V	25	40	16	1.6	M8	8	SW4	95.6
SRM-S30-V	30	45	16	1.6	M8	8	SW4	111.0
SRM-S35-V	35	56	16	1.6	M8	10	SW4	187.0
SRM-S40-V	40	63	18	1.8	M10	10	SW5	261.0
SRM-S45-V	45	70	18	1.8	M10	12	SW5	317.0
SRM-S50-V	50	80	18	1.8	M10	14	SW5	429.0

Part No.	d1	d2	B	d3	S1	Weight [g]
SRM-S20-V-KS New	20	40	14	M4	SW3	19.9
SRM-S25-V-KS New	25	45	14	M4	SW3	20.4
SRM-S30-V-KS New	30	54	14	M4	SW3	29.8
SRM-S40-V-KS New	40	60	14	M4	SW3	31.2
SRM-S50-V-KS New	50	78	18	M6	SW5	65.4

Available from stock
Upon request

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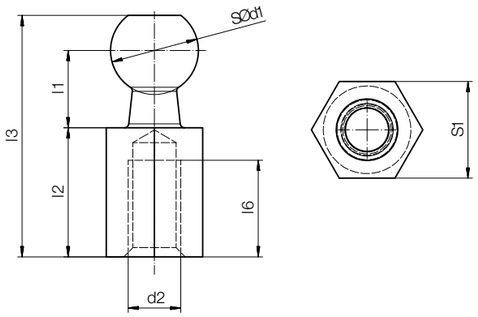
igubal® accessories

igubal® accessories | Product range

Ball studs with female thread



- Easy installation
- DIN connection size
- Corrosion-resistant



Order key

Type	Size	Version
GZ R M -	05	- IG - ES

Threaded pin	Thread direction	Metric	Thread size M ... [mm]	Female thread

Options:
Thread
R : Right-hand thread
L : Left-hand thread (upon request)

Add-on:
Blank : Galvanised steel
ES : Stainless steel[28)]

Material:
Galvanised and stainless steel (AISI 303)

Dimensions [mm]

Part No.	d1 -0.05	d2	l1	l2	l6	l3	S1	Weight [g]
GZRM-05-IG	8	M5	7.0	12.2	9	22.7	SW10	10
GZRM-06-IG	10	M6	8.8	14.7	11	27.5	SW11	15
GZRM-08-IG	13	M8	10.8	18.7	12	35.2	SW14	30
GZRM-10-IG	16	M10	13.3	22.7	16	43.0	SW17	55

[28)] **Stainless steel ball stud upon request**

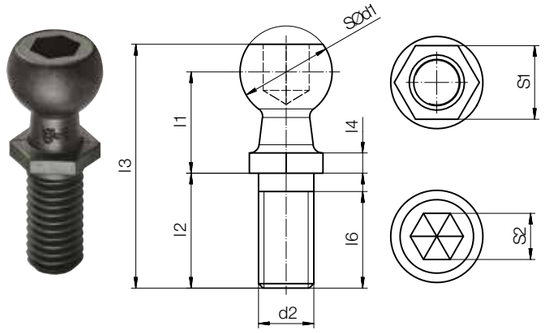
Can be combined with:

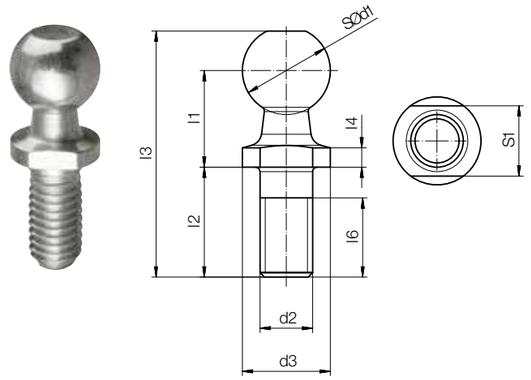


WGR(L)M | WGR(L)M LC | WGR(L)M-DE | GFSM-IG | ZCLM-06-10 | WDGM | WDGM-DE

EN 09/2023

Ball studs with male thread





Order key

Type	Size
GZ R M-	05 - MS

Threaded pin | Thread direction | Metric | Thread size M... [mm]

Options:
Thread
R : Right-hand thread
L : Left-hand thread (upon request)

Add-on:
Blank : Plastic
MS : Galvanised steel
ES : Stainless steel (upon request)

Material:
Polymer: **igumid® G ▶ Page 1190**
Galvanised and stainless steel (AISI 303)

- Easy installation
- DIN connection size
- Corrosion-resistant

Dimensions [mm] - ball studs made from plastic

Part No.	d1 ±0.1	d2	l1	l2	l3	l4 ±0.2	l6	S1	S2	Weight [g]
GZRM-05	8	M5	9	10.2	21.7	2.0	8.2	SW7	4	1
GZRM-06	10	M6	11	12.5	26.5	2.2	10.5	SW8	5	1
GZRM-08	13	M8	13	16.5	33.5	2.4	13.5	SW11	6	3
GZRM-10	16	M10	16	20.0	40.5	2.7	16.0	SW13	8	6

Dimensions [mm] - ball studs made of galvanised and stainless steel

Part No.	d1 h9	d2	d3 h14	l1 ±0.3	l2 ±0.3	l3 ±0.3	l4 ±0.4	l6 min.	S1 h14	Weight [g]
GZRM-05-MS[115]	8	M5	8	9	10.2	22.7	2.0	6.2	SW7	4.5
GZRM-06-MS[115]	10	M6	10	11	12.5	28.0	2.2	8.5	SW8	8.5
GZRM-08-MS[115]	13	M8	13	13	16.5	35.0	2.4	11.2	SW11	17.7
GZRM-10-MS[115]	16	M10	16	16	20.0	43.0	2.7	12.7	SW13	35.1

[115] For the stainless steel version please replace the suffix MS by ES

Can be combined with:


WGR(L)M


WGR(L)M LC


WGR(L)M-DE


GFSM-IG

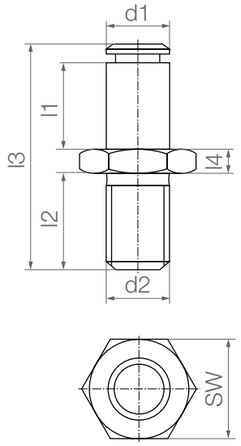

ZCLM-06-10


WDGM


WDGM-DE

Adapter screw





Order key

Type	Size	Options
P K □ M-	05	

Adapter screw | K series | Thread direction | Metric | Thread size M... [mm]

Thread
L : Left-hand thread[21]
R : Right-hand thread

Material:
POM ▶ Page 1192

Solid plastic adapter screws with corresponding circlips are used as accessories for dimensional K series rod ends. In contrast to other "black" components of stock igubal® parts, the igubal® adapter screws consist of the material POM. This component effectively transforms a standard K series rod end into an angled ball and socket joint.

- Lightweight
- Absolute corrosion resistance
- Can be combined with K series rod end
- Vibration-dampening
- Easy installation
- Left-hand thread upon request
- Circlip (GSR) included

Technical data and dimensions [mm]

Part No.	Max. static tensile strain		Max. static radial load		d1	d2	l1	l2	l3	l4	SW	Weight
	Short-term [N]	Long-term [N]	Short-term [N]	Long-term [N]	h11	Thread	Length adjusting bolt	Thread length	Total length	Nut width	Width across flats	[g]
PK□M-05	100	50	200	100	5	M5	8.5	11.3	25.0	2.7	SW8	0.7
PK□M-06	150	75	250	125	6	M6	9.5	12.8	28.0	3.2	SW10	1.2
PK□M-08	250	125	400	200	8	M8	12.5	12.5	32.0	4.0	SW13	2.6
PK□M-10	500	250	600	300	10	M10	14.5	14.5	37.5	5.0	SW16	4.0
PK□M-12	700	350	900	450	12	M12	16.5	15.5	42.0	6.0	SW18	7.5
PK□M-14	800	400	1,100	550	14	M14	19.5	15.5	47.0	7.0	SW21	11.4
PK□M-16	900	450	1,400	700	16	M16	22.0	16.5	52.0	8.0	SW24	16.9
PK□M-18	800	400	1,700	850	18	M18 x 1.5	24.0	20.5	59.0	9.0	SW27	16.9
PK□M-20	500	250	2,200	1,100	20	M20 x 1.5	26.0	25.0	67.0	10.0	SW30	34.4

[21] Delivery time: 4-6 weeks

Can be combined with:


KBR(L)M


KBR(L)M-CL


KAR(L)M


KAR(L)M-CL

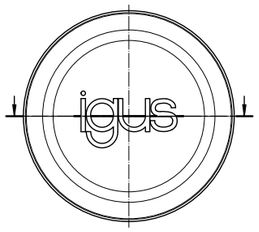

KCR(L)M

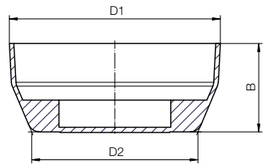
igubal® accessories | Product range New

End caps for fixed flange bearings with spherical insert bearings









- Easy assembly and disassembly by attaching to the housings
- For 2- and 4-hole fixed flange bearings with 40mm diameter
- No damage due to flexible material

Dimensions [mm]

Part No.		D1	D2	B	Weight [g]
EC-204	New	59.0	47.4	29.5	21.8
EC-206	New	74.2	59.4	31.5	31.9
EC-208	New	93.2	73.5	39.0	43.0
EC-208-CLEAR	New	93.2	73.5	39.0	43.0

Notes

xiros®...

Polymer ball bearings



...plastics

xiros® polymer ball bearings | Application examples

Other exciting applications ▶ **www.igus.eu/xiros-applications**



Labelling machine
Depending on the size of the system, between 12 and 36 conveyor rollers are used in the Sleevematic's film storage. Two xiros® ball bearings are used per conveyor roller.



Pellet ovens
Two lubrication-free polymer ball bearings are used in the mechanical drive unit. These ensure that the pellets are fed into the combustion chamber via the roller.

Bike washing system
To mount the washing brushes, the manufacturer of the "cycleWash" has used two xiros® slewing ring ball bearings with stainless steel balls. The bearing rings consist of the wear-resistant ball bearing material xirodur® B180.



Heating cable drum
Bodenbender GmbH was looking for a suitable bearing for the cable of a heating cable drum used to cure hose liners. Key properties were smooth operation, freedom from lubrication and long service life.





Film guide rollers
There is no contamination of the films through lubricants, due to the use of maintenance-free xiros® flange bearings.



Pool cleaner
xiros® B180 polymer ball bearings from igus® allow pool cleaners a lubrication-free underwater operation. Resistant to chemicals, lightweight and maintenance-free.

xiros® polymer ball bearings | Product overview

xiros® radial deep groove ball bearings - standard product range



The classic:

PA cage

▶ **Page 1038**



Cost-effective and FDA-compliant:
B180 cage

▶ **Page 1038**



FDA-compliant

J3 cage

▶ **Page 1038**



With shield or labyrinth seal:
LCC with B180 cage

▶ **Page 1044**



Black (for visible parts):
xirodur® S180,
PA cage

▶ **Page 1038**



High resistance to chemicals:
xirodur® C160, PP cage

▶ **Page 1046**



For temperatures up to +120°C:
xirodur® A500, PA cage

▶ **Page 1050**



For heat and chemicals:
xirodur® A500,
PEEK cage

▶ **Page 1050**

xiros® radial deep groove ball bearings - standard product range



Lightweight and non-metallic:
xirodur® A500, PAI balls

▶ **Page 1050**



Antistatic:
xirodur® F180,
PA cage

▶ **Page 1054**



Antistatic and FDA-compliant:
xirodur® F180, PE cage

▶ **Page 1054**

xiros® radial deep groove ball bearings with flange



Single flange:
xirodur® B180,
PA cage

▶ **Page 1056**



With double flange:
xirodur® B180,
PA cage

▶ **Page 1056**

xiros® conveyor rollers and end caps

Guide roller:
aluminium tube with fixed flange bearing

▶ **Page 1058**

New

Guide roller:
with sandblasted surface

▶ **Page 1059**

New

Guide roller:
black anodised

▶ **Page 1061**

New

Guide roller:
non-metallic with PVC tube and glass balls

▶ **Page 1062**

Guide roller:
plastic approved for food contact

▶ **Page 1063**

New

Guide roller:
with stainless steel tube for food contact

▶ **Page 1064**

New

Guide roller:
with stainless steel tube for chemicals and heat

▶ **Page 1064**

Guide roller:
carbon fibre tube with fixed flange bearing

▶ **Page 1065**

xiros® conveyor rollers and end caps



Guide roller:
carbon fibre tube with ball bearing

▶ **Page 1065**



End caps:
xirodur® B180,
PA cage

▶ **Page 1067**

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xiros® polymer ball bearings | Product overview

xiros® - other designs



With profile:

xirodur® B180

▶ **Page 1068**



Skate wheel with spherical outer diameter:
xirodur® B180

▶ **Page 1069**



Double row for higher loads:
xirodur® B180

▶ **Page 1070**



New

Self-aligning ball bearings:
xirodur® B180,
PA cage

▶ **Page 1071**

xiros® polymer ball transfer units



Polymer ball transfer units:

xirodur® B180 and F182

▶ **Page 1072**



New

Polymer ball transfer units:
with stainless-steel support balls

▶ **Page 1073**



Polymer ball transfer units:

with stainless steel balls

▶ **Page 1074**



New

Polymer ball transfer units:

sliding version

▶ **Page 1075**



Axial polymer ball transfer units:
with spherical roller

▶ **Page 1076**

xiros® thrust bearings and slewing ring ball bearings



Single row:
xirodur® B180,
glass/stainless steel balls

▶ **Page 1078**



Axial thrust washer:
xirodur® B180,
glass/stainless steel balls

▶ **Page 1079**



Slewing ring ball bearings:
xirodur® B180,
with gear teeth or with cage

▶ **Page 1080**

xiros® special and fixed flange ball bearings, pillow block ball bearings and spherical insert bearings



FDA

Fixed flange ball bearings, FDA-compliant, fixed version:
xirodur® B180

▶ **Page 1082**



FDA

Pillow block ball bearings, FDA-compliant, fixed version:
xirodur® B180

▶ **Page 1083**



New

UC pillow block:
with UC housing,
stainless steel balls

▶ **Page 1084**



New

Spherical insert bearings:
for UC housing,
stainless steel balls

▶ **Page 1085**

xiros® combinations with igubal®



Pillow block ball bearings, fixed or pivoting

▶ **Page 1086**



4-hole fixed flange ball bearings, pivoting

▶ **Page 1088**



2-hole fixed flange ball bearings, pivoting

▶ **Page 1089**

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Lubrication and maintenance-free



Lubrication-free polymer ball bearings

xiros® polymer ball bearings revolutionise the ball bearing market. Thanks to their maintenance-free dry operation and the use of xirodur® high-performance polymers, many applications can be successfully implemented in which conventional metal ball bearings are not suitable.

- Lubrication and maintenance-free
- Corrosion-resistant
- Non-metallic (due to the use of glass and plastic balls), therefore non-magnetic
- For temperatures up to +150°C (depending on material)
- High media resistance, suitable for washdown
- Lightweight
- ESD or antistatic properties
- FDA-compliant (depending on material)
- Predictable service life



Typical application areas

- Packaging
- Textile industry
- Test engineering and quality assurance
- Optical industry
- Model making



Available from stock
Detailed information about delivery time online.

Price breaks online
No minimum order value. No minimum order quantity

max. +150°C
min. -100°C



12 xirodur® materials
Ø 3 - 120mm

Imperial dimensions available
▶ Page 1164

Service life calculation
▶ www.igus.eu/xiros-expert

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Overview types



xiros® radial deep groove ball bearings - standard product range for 3 materials:

- xirodur® B180 - cost-effective standard
- xirodur® C160 - resistant to chemicals
- xirodur® A500 - for heat and chemicals

▶ From page 1038



xiros® radial deep groove ball bearings with flange and conveyor rollers

- With single or double flange
- Made from xirodur® B180, S180 or F180
- xiros® system solution: aluminium, PVC or carbon fibre tube with 2 fixed flange ball bearings

▶ From page 1056



xiros® radial deep groove ball bearings - materials for special applications

- xirodur® S180 - black (for visible parts)
- xirodur® F180 - antistatic
- xirodur® F182 - conductive
- xirodur® D180 - high speeds
- xirodur® K220 - suitable for applications in vacuum
- xirodur® MT180 - for medical devices
- xirodur® F500 - conductive and resistant to chemicals
- xirodur® ECO B180 - environmentally friendly rotation

▶ From page 1060



xiros® radial deep groove ball bearings - further designs

- Skate wheel with spherical outer diameter
- Double row for higher loads
- Self-aligning ball bearings for rotary and linear movements

▶ From page 1068



xiros® thrust bearings

- For absorbing axial loads
- Various options

▶ From page 1078



xiros® slewing ring ball bearings

- With glass or stainless steel balls
- Outer toothed profile
- With cage

▶ From page 1080



xiros® combinations with igubal®

- Fixed or pivoting versions
- For maintenance-free use in conveyor belts and conveyor rollers

▶ From page 1086

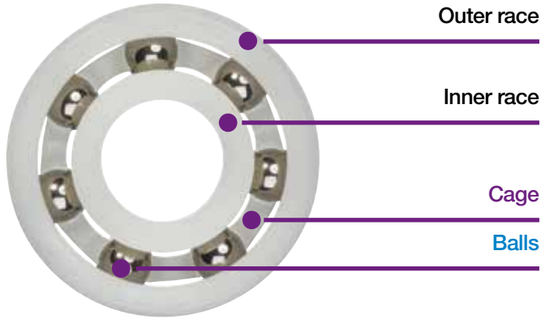
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Radial deep groove ball bearings design

The xiros® polymer ball bearings are single-row deep groove ball bearings based on DIN 625. The lubrication and maintenance-free ball bearings consist of four components:

The outer and inner races

The suitability of a xiros® polymer ball bearings is largely determined by the materials of the two races. These are made from igus® tribo-polymers to maximise service life and minimise friction. Choice of 5 materials. They allow different values of application temperature, media resistance and price. The table of materials (▶ **Page 824**) provides exact information on this topic.



The cage

The material of the ball bearing cage must fit well to the application. The various material options have quite different chemical and temperature resistance values. The cage materials are compatible with all the different race options within xiros®.

The balls

The ball materials differ most significantly. In addition to steel, glass or plastics are used. This produces a large difference in mass, which in turn affects quiet operation, weight and media resistance. Stainless steel balls (1.4401) are cost-effective, resistant to chemicals and suitable for high temperatures, but are the heaviest in the range. Glass balls (soda-lime glass) are also resistant to chemicals and have a medium weight. Just like polymer balls, they are non-metallic and non-magnetic. In addition to their excellent chemical resistance, the polymer balls (PAI) are even lighter than stainless steel or glass balls.

Other types

xiros® radial deep groove ball bearings

The other designs include:

- Convex rollers which can run directly on a profile
- Profiled rollers, e.g. for thread/cable guidance
- Thrust and slewing ring ball bearings for absorbing axial loads
- Self-aligning ball bearings
- Ball bearings designed e.g. for installation in tube ends (also for conveyor rollers)
- Double-row bearings for absorbing higher forces

Pillow block and fixed flange bearings

This range is made up by combining xiros® polymer ball bearings with the igubal® pillow block and fixed flange housings, resulting in a higher flexibility in terms of installation of the bearings. The bearing housings make it easy for the user to install these maintenance-free components. Both fixed flange and pillow block bearings are available as fixed or as pivoting design. The difference between the two options is that the pivoting type can compensate for shaft and/or bearing misalignment. A spherical outer race is pressed into the bearing housing, ensuring self-aligning action. If necessary, the inner bearing can be pivoted in all directions. Possible misalignment of two bearing points lying together can thus be compensated for.

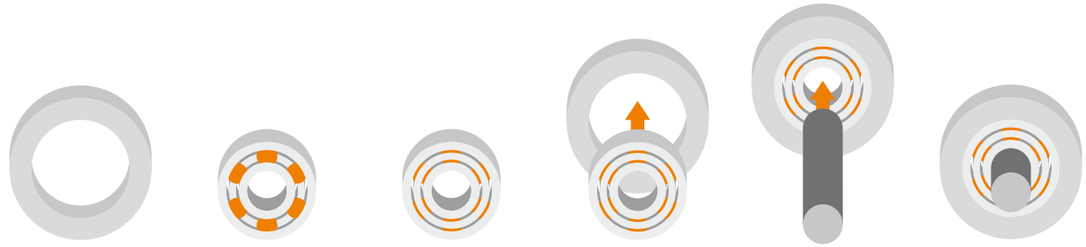
Measurement requirement for injection-moulded xiros® polymer ball bearings

The outer race of our ball bearings has a conical shape. This simplifies the installation in a suitable housing (with the narrow side first). After press-fit into a housing machined to a H7 tolerance, the bearing clearance is reduced. Therefore the bearings must be measured over the entire width of the ball bearing. Starting at an angle of 90° from the injection point.



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xiros® polymer ball bearings | Technical data



To press in the xiros® polymer ball bearing over the entire width of the housing, apply pressure on the outer race. xiros® radial deep groove ball bearings are only suitable for limited axial loads.

Development and tests

Through numerous tests the race materials were optimised. The polymers we have developed for use with ball bearings allow higher speeds, greater loads, and longer service life. But the development continues. We believe that polymer ball bearing technology will continue to advance, especially with our experience in the development of tribological polymer materials. Challenge us, talk to us about your applications, tell us what you need from a polymer ball bearing. In the igus® test laboratory the service life and wear of xiros® polymer ball bearings are tested. In addition to the actual material comparison, tests indicate these experiments also answer questions about the impact of external influences such as temperature, humidity or dust.

Predictability

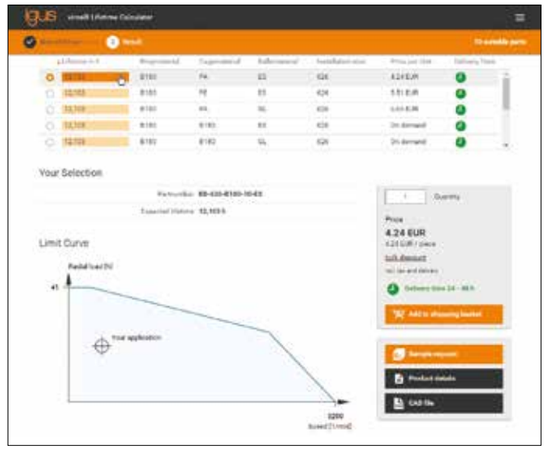
As part of the development of xiros® polymer ball bearing tests are carried out continuously. The high number of test results makes it very difficult to present this information in tabular form. It is for this reason that igus® has developed the online service life calculator, which uses real test results to give an accurate calculation.

The predictability of xiros® polymer ball bearings is one of the most important advantages. Based on the results of many wear tests, the user can calculate the service life of xiros® polymer ball bearings reliably and interpret the application.

▶ **www.igus.eu/xiros-expert**



igus® extends the xiros® test stand in the industry's largest test laboratory for plastics in motion



Download the online tool app now

Download on the App Store

In this overview you will find some special materials for special application areas. Contact us!



xirodur® K220 - no outgassing in vacuum

The xirodur® K220 material is especially well-suited to autoclaving and coating applications, and its service life is longer than that of comparable xirodur® materials.

- Maximum water absorption: 0.4% weight
- 60% more cost-effective than comparable materials for applications in vacuum



xirodur® D180 - high speeds

- Soft material
- For quiet operation
- Higher speeds
- Only suitable for small loads



xirodur® MT180 - for medical devices

The material xirodur® MT180 conforms to DIN EN ISO 10993.

- Individual components with USP class VI//DIN EN ISO 10993
- Customers save costs for assembly certification



xirodur® F500 - conductive and resistant to chemicals

Due to their high chemical resistance, the conductive ball bearings made of xirodur® F500 are ideal for the semiconductor industry.

- Surface resistance $<10^4$ Ω
- Temperature-resistant up to +150°C
- Extremely resistant to chemicals (strong acids)



xirodur® ECO B180 - environmentally friendly rotation

This ECO all-rounder not only stands out visually, but also technically. Extremely resistant to media with low moisture absorption. And that from at least 97% regranulate.

- Low moisture absorption
- High media resistance
- Cost-effective, due to reuse of already processed raw materials



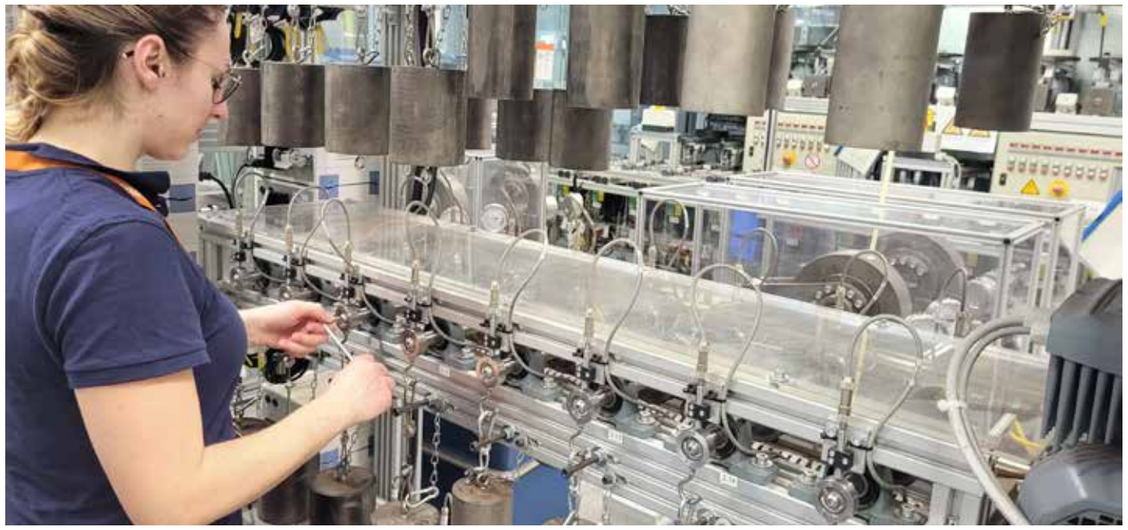
xirodur® S180LF - for automotive interiors

- Low outgassing (low fogging)
- Especially for automotive interiors
- Bespoke designs possible

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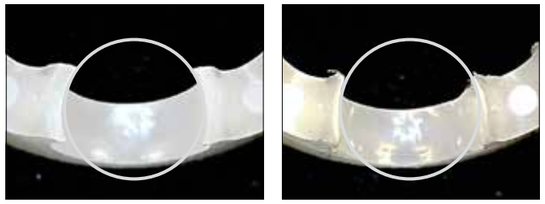
xiros® polymer ball bearings | Technical data

xiros® test laboratory ... 21x longer service life



iglidur® cage materials contain enhanced additives that improve stability and sliding properties. This results in longer service life and less downtime.

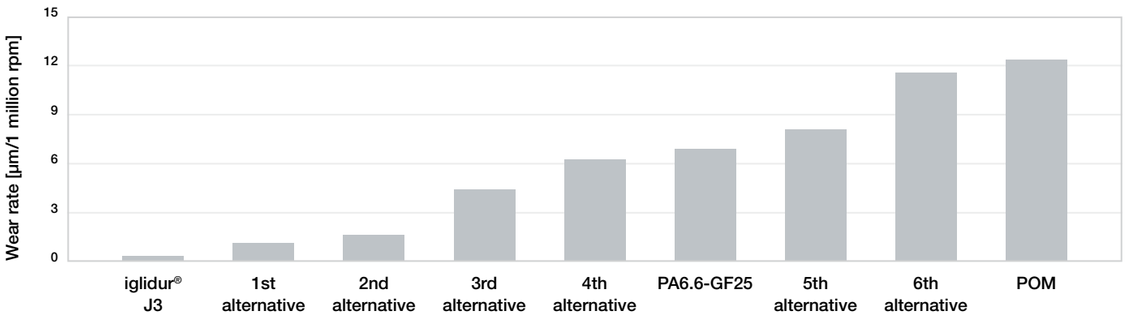
- Longer service life than the current standard range
- Less wear
- Lower maintenance costs thanks to a longer service life
- Less downtime
- Reduce operating costs due to less frequent replacement



Picture on the left:
unreinforced material, before the test
Picture on the right:
unreinforced material, after the test



Picture on the left:
reinforced iglidur® material, before the test
Picture on the right:
reinforced iglidur® material, after the test



Cage made from iglidur® J3 for the best combination with lowest wear

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xirodur® polymer ball bearing | Materials



xirodur® B180 - cost-effective all-rounder

- Longest service life
- Extensive product range
- Low wear values
- Good resistance to chemicals and temperature fluctuations/extremes

Temperature [°C]	**-40 / +80**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.7**	– +
Wear resistance		– +
Price index		– +



xirodur® A500

- Temperature-resistant
- Excellent chemical resistance
- Special product
- For vacuum and autoclave applications

Temperature [°C]	**-100 / +150**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.4**	– +
Wear resistance		– +
Price index		– +



xirodur® F180

- Anti-static dissipative material
- Supports the removal of undesired electrostatic charge

Temperature [°C]	**-40 / +80**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**1.3**	– +
Wear resistance		– +
Price index		– +



xirodur® F182

- Electrostatically conductive
- Lower surface resistance (volume resistance <10^4Ωcm) than xirodur® F180

Temperature [°C]	**-40 / +80**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.7**	– +
Wear resistance		– +
Price index		– +



xirodur® C160

- Excellent chemical resistance
- Low-cost material compared to xirodur® A500
- Low absorption of different media

Temperature [°C]	**0 / +60**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.2**	– +
Wear resistance		– +
Price index		– +

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xirodur® S180

- The all-rounder in black for visible parts

Temperature [°C]	**-40 / +80**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.7**	– +
Wear resistance		– +
Price index		– +



xirodur® MT180

- Individual components with USP class VI // DIN EN ISO 10993
- For use in medical technology

Temperature [°C]	**-40 / +80**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.7**	– +
Wear resistance		– +
Price index		– +



xirodur® F500

- Ideal for use in the semiconductor industry
- Electrostatically conductive (volume resistance <10^4Ωcm)
- Extremely resistant to chemicals

Temperature [°C]	**-55 / +150**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.5**	– +
Wear resistance		– +
Price index		– +



xirodur® D180

- Soft material
- For quiet operation
- Higher speeds
- Only suitable for small loads

Temperature [°C]	**-50 / +80**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**1.4**	– +
Wear resistance		– +
Price index		– +



xirodur® S180LF

- Low outgassing (low fogging)
- Especially for automotive interiors
- Bespoke designs possible

Temperature [°C]	**-40 / +80**	– +
Chemical resistance		– +
Moisture absorption [% weight]	**0.7**	– +
Wear resistance		– +
Price index		– +

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xiros® polymer ball bearings | Material properties

xirodur®	Unit	B180	S180	C160	A500	F180	F182	F500	D180	K220	MT180	ECO B180	S180LF	igumid® G
General properties														
Density	**[g/cm³]**	1.41	1.40	1.11	1.30	1.36	1.42	1.40	1.22	1.35	1.41	1.41	1.41	1.37
Colour														
Max. moisture absorption at +23 °C/50% r.h.	**[% weight]**	0.2	0.2	0.1	0.1	0.2	0.2	0.3	0.5	0.2	0.2	0.2	0.2	1.4
Max. moisture absorption	**[% weight]**	0.7	0.7	0.2	0.4	1.3	0.7	0.45	1.4	0.4	0.65	0.7	0.8	5.6
Mechanical properties														
Flexural modulus	**[MPa]**	2,500	2,700	1,900	4,300	1,600	3,000	24,000	135	2,200	2,700	2,500	2,550	7,800
Flexural strength at +20°C	**[MPa]**	68	65	35	130	70	95	380	n.a.	60	n.s.	68	87	240
Shore D hardness		77	78	67	85	79	79	87.5	48	77	n.s.	77	77	79
Physical and thermal properties														
Max. continuous operating temperature	**[°C]**	+80	+80	+60	+150 (PEEK) +120 (PA)	+80	+80	+150	+80	+120	+80	+100	+100	+120
Min. long-term application temperatures (in combination with cage material)	**[°C]**	-40	-40	0	-100 (PEEK) -40 (PA)	-40	-40	-50	-50	+140	-40	-40	-40	-40
Electrical properties														
Specific transitional resistance[1)]	**[Ωcm]**	> 10^{14}	> 10^{13}	> 10^{14}	> 10^{14}	> 10^{12} [1)]	> 10^{4}	> 10^{5}	> 10^{14}	> 10^{12}	> 10^{14}	> 10^{14}	> 10^{14}	> 10^{11}
Surface resistance[1)]	**[Ω]**	> 10^{14}	> 10^{13}	> 10^{14}	> 10^{14}	> 10^{12} [1)]	> 10^{4}	> 10^{4}	> 10^{14}	> 10^{10}	> 10^{14}	> 10^{14}	> 10^{16}	> 10^{11}
Medium														
Alcohols		+	+	+	+	+	+	+	+ up to 0	+	+	+	+	+
Diluted acid		0 up to –	0 up to –	+	+	0 up to –	0 up to –	+	+ up to 0	+	+	+	+	+
Diluted base		+	+	+	+	+	+	+	+ up to 0	+	+	+	+	0 up to –
Fuels		+	+	+ up to 0	+	+	+	+	+	+	+	+	+	+
Greases, oils without additives		+	+	+	+	+	+	+	+	+	+	+	+	+
Hydrocarbons		+	+	+ up to 0	+	+	+	+	+	+	+	+	+	+
Strong acids		–	–	+ up to 0	+	–	–	+	0	+	+	+	+	+ up to 0
Strong alkaline		+ up to 0	+ up to 0	+	+	+ up to 0	+ up to 0	+	+ up to 0	+	+	+	+	–
UV radiation		–	0	0	+	0	0	+	–	+	+	+	+	–

[1)] Depending on the geometry

Table 01: Material data and chemical resistance of xiros® materials

+ resistant 0 conditionally resistant – non-resistant

Detailed chemicals resistance table for xiros® products ▶ From page 1894

Recommended tolerances

Fitting	Housing hole	Shaft
Standard: Press-fit	H7	h6

For further questions about the dimensioning of the hole and the shaft please contact us.

Ball materials

Designation	Description
ES: Stainless steel	1,4401
GL : Glass	Soda-lime glass or borosilicate glass
PAI: Plastic	Polyamide-imide
PP: Plastic	Polypropylene

Cage materials

Designation	Description
10:	PA
20:	PP
30:	xirodur® B180
35:	iglidur® J3
50:	PE
70:	PEEK

xiros® polymer ball bearings | Selection guide

According to material properties

xirodur®	B180						S180	C160		A500				
Cage material	PA		B180		PE	J3	PA	PP		PA		PEEK		
Ball material	ES	GL	ES	GL	ES	ES	ES	ES	GL	ES	GL	ES	GL	PAI
Descriptive technical specifications														
Smooth running	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Low moisture absorption	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Chemical resistance			●	●	●	●		●	●			●	●	●
Seawater-resistant			●	●		●		●	●			●	●	
Dirt-resistant	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Higher temperatures										●	●	●	●	●
Higher speeds						●								
Cost-effective			●	●			●	●	●					
Approvals and standards														
For contact with food			●		●							●		
Antistatic														
Conductive														
Non-metallic		●		●					●		●		●	●
Detectable														
Availabilities / variants														
Radial deep groove ball bearings	●	●	●	●	●	●	●	●	●	●	●	●	●	●
Radial deep groove ball bearings with flange	●	●	●	●			●							
End cap	●	●												
Spherical outer diameter	●	●												
Double row	●	●												
Slewing ring ball bearings			●	●										
Thrust bearings			●	●										

F180		F182	F500	D180	K220	MT180	ECO B180	S180LF	igumid® G
PA	PE	PA	F500	PA	K230	MT180	J4	PA	
ES	ES	ES	ES	ES	ES	ES	ES	ES	
●	●	●	●		●	●	●	●	
●	●	●	●			●	●	●	
			●						
						●	●		
●	●	●	●		●	●	●	●	●
			●						
				●					
								●	●
	●								
●	●								
		●	●						
●	●	●	●	●	●	●	●	●	
●									

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xiros® radial deep groove ball bearings | Product range

Races made from xirodur® B180 - cost-effective standard



xirodur® B180 cage, stainless steel balls



xirodur® B180 cage, glass balls



PA cage, stainless steel balls



PA cage, glass balls

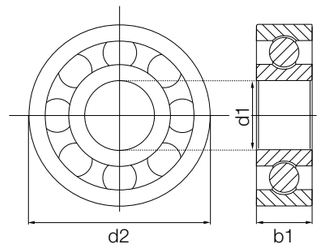


iglidur® J3 cage, stainless steel balls





Also available with S180 races for visible parts (xirodur® S180 and PA cage), upon request



- The largest standard product range of DIN dimensions from stock
- All-rounder with minimal wear
- Suitable for contact with food
- Operating temperature: from -40°C up to +80°C

Order key

Type	Material

BB-623-B180-10-ES

Ball bearing	Dimensions according to DIN 625-1	Race material	Cage material	Ball material
BB	623	B180	10	ES

Options:

Cage material
10 : PA
30 : xirodur® B180
35 : iglidur® J3

Ball material
ES : Stainless steel
GL : Glass

Race material
xirodur® B180
xirodur® S180

Technical data

Installation size	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Max. speed [rpm]	Weight B180/ES [g]	Weight B180/GL [g]	Weight PA/ES [g]	Weight PA/GL [g]	Weight J3/ES [g]	Weight J3/GL [g]
623	25	34	4,500	0.37	0.31	0.40	0.32	0.37	0.31
633	33	45	4,000	0.83	0.64	–	–	0.83	0.64
684	10	11	4,600	0.26	0.20	–	–	0.26	0.20
694	12	14	4,000	0.42	0.35	–	–	0.42	0.35
604	30	32	3,600	0.65	0.45	–	–	0.65	0.45
624	33	45	4,000	0.79	0.60	0.85	0.62	0.79	0.60
634	40	40	3,700	1.50	1.00	–	–	1.50	1.00
685	12	14	4,000	0.45	0.37	–	–	0.45	0.37
695	29	30	3,500	0.73	0.53	–	–	0.73	0.53
605	32	33	3,500	0.96	0.77	–	–	0.96	0.77
625	40	40	3,700	1.42	0.96	1.55	1.01	1.42	0.96
635	41	43	3,200	2.59	1.76	–	–	2.59	1.76
686	29	30	3,500	0.76	0.57	–	–	0.76	0.57
696	29	30	3,500	1.05	0.85	–	–	1.05	0.85
606	50	53	3,300	1.89	1.25	–	–	1.89	1.25
626	60	62	3,200	2.06	1.60	2.44	1.69	2.06	1.60
636	80	94	2,200	3.96	2.71	–	–	3.96	2.71
687	32	34	3,200	0.80	0.61	–	–	0.80	0.61
697	39	41	3,000	1.47	1.05	–	–	1.47	1.05
607	41	43	3,200	1.97	1.52	–	–	1.97	1.52
627	80	94	2,400	3.85	2.60	–	–	3.85	2.60
688	39	41	3,000	1.17	0.76	1.19	0.75	1.17	0.76
698	60	62	3,200	2.34	1.52	–	–	2.34	1.52
608	80	94	2,400	3.76	2.51	3.79	2.54	3.76	2.51

Order example:
BB-623-B180-10-ES = Radial deep groove ball bearing with race material xirodur® B180, PA cage and stainless steel balls

Dimensions [mm]

Inner Ø d1	Outer Ø d2	Width b1	Cage/ball material combination B180/ES	B180/GL	PA/ES	PA/GL	J3/ES	J3/GL	Part No.
3	10	4	●	●	●	●	○	○	BB-623-B180-□-□
3	13	5	●	●	–	–	○	○	BB-633-B180-30-□
4	9	4	●	●	–	–	○	○	BB-684-B180-30-□
4	11	4	●	●	–	–	○	○	BB-694-B180-30-□
4	12	4	●	●	–	–	○	○	BB-604-B180-30-□
4	13	5	●	●	●	●	○	○	BB-624-B180-□-□
4	16	5	●	●	–	–	○	○	BB-634-B180-30-□
5	11	5	●	●	–	–	○	○	BB-685-B180-30-□
5	13	4	●	●	–	–	○	○	BB-695-B180-30-□
5	14	5	●	●	–	–	○	○	BB-605-B180-30-□
5	16	5	●	●	●	●	○	○	BB-625-B180-□-□
5	19	6	●	●	–	–	○	○	BB-635-B180-30-i□
6	13	5	●	●	–	–	○	○	BB-686-B180-30-□
6	15	5	●	●	–	–	○	○	BB-696-B180-30-□
6	17	6	●	●	–	–	○	○	BB-606-B180-30-□
6	19	6	●	●	●	●	○	○	BB-626-B180-□-□
6	22	7	●	●	–	–	○	○	BB-636-B180-30-□
7	14	5	●	●	–	–	○	○	BB-687-B180-30-□
7	17	5	●	●	–	–	○	○	BB-697-B180-30-□
7	19	6	●	●	–	–	○	○	BB-607-B180-30-□
7	22	7	●	●	–	–	○	○	BB-627-B180-30-□
8	16	5	●	●	●	●	○	○	BB-688-B180-□-□
8	19	6	●	●	–	–	○	○	BB-698-B180-30-□
8	22	7	●	●	●	●	○	○	BB-608-B180-□-□

Available from stock
Upon request

Imperial dimensions
available ▶ Page 1164

xiros® radial deep groove ball bearings | Product range

Races made from xirodur® B180 - cost-effective standard

Technical data

Installation size	Radial load capacity stat. [N]	dyn. [N]	Max. speed [rpm]	Weight B180/ES [g]	B180/GL [g]	PA/ES [g]	PA/GL [g]	J3/ES [g]	J3/GL [g]
628	100	110	2,300	5.57	3.4	–	–	5.57	3.4
638	110	130	2,200	7.82	5.65	–	–	7.82	5.65
689	40	42	2,500	1.30	0.88	–	–	1.30	0.88
699	43	45	2,250	2.08	1.66	–	–	2.08	1.66
609	100	110	2,300	5.12	2.95	–	–	5.12	2.95
629	110	128	2,200	6.20	4.03	6.14	–	6.20	4.03
6800	43	45	2,250	1.56	1.07	–	–	1.56	1.07
6900	60	64	2,000	3.24	2.04	–	–	3.24	2.04
6000	110	130	2,200	5.98	3.83	5.95	3.78	5.98	3.83
6200	130	147	2,000	9.32	6.56	9.26	6.51	9.32	6.56
6300	140	150	1,800	13.83	11.02	13.75	–	13.83	11.02
6701	16	18	2,200	0.68	0.57	–	–	0.68	0.57
6801	60	64	2,000	1.82	1.40	–	–	1.82	1.40
6901	80	83	1,800	3.12	2.10	–	–	3.12	2.10
6001	130	147	2,000	6.36	4.18	6.78	4.34	6.36	4.18
6201	140	150	1,800	10.04	7.25	9.97	7.12	10.04	7.25
6301	160	220	1,600	15.69	12.90	–	–	15.69	12.90
6702	19	21	1,800	0.94	0.81	–	–	0.94	0.81
6802	80	83	1,800	2.46	1.46	–	–	2.46	1.46
6902	90	94	1,700	4.37	3.12	–	–	4.37	3.12
6002	140	150	1,800	8.68	5.92	8.72	6.23	8.68	5.92
6202	160	220	1,600	11.71	8.96	12.26	9.11	11.71	8.96
6302	250	320	1,400	10.56	3.95	10.49	–	10.56	3.95
6703	23	25	1,600	0.66	–	–	–	0.66	–
6803	90	94	1,700	2.83	1.65	–	–	2.83	1.65
6903	90	94	1,700	–	0.79	–	–	–	0.79
6003	160	220	1,600	10.23	7.45	10.72	7.61	10.23	7.45
6203	250	320	1,400	19.36	12.75	17.45	12.68	19.36	12.75
6303	280	360	1,200	21.68	13.60	–	–	21.68	13.60
6704	30	36	1,400	1.39	1.17	–	–	1.39	1.17
6804	100	120	1,500	5.19	3.59	–	–	5.19	3.59
6904	140	144	1,150	9.76	–	–	–	9.76	–
6004	250	320	1,400	20.81	12.93	19.46	12.89	20.81	12.93
6204	280	360	1,200	30.22	22.14	28.87	22.33	30.22	22.14
6304	380	400	1,000	43.85	31.05	–	–	43.85	31.05
6705	32	38	1,200	1.58	1.40	–	–	1.58	1.40
6805	140	144	1,150	6.48	4.16	–	–	6.48	4.16
6905	160	162	900	4.49	4.49	–	–	4.49	4.49
6005	280	360	1,200	24.14	16.07	22.93	15.67	24.14	16.07
6205	310	370	1,000	35.99	27.92	34.82	27.51	35.99	27.92
6305	480	520	850	61.12	45.48	–	–	61.12	45.48

Order example:
BB-628-B180-30-ES = Radial deep groove ball bearing with race material xirodur® B180, xirodur® B180 cage and stainless steel balls

EN 09/2023

Dimensions [mm]

Inner Ø d1	Outer Ø d2	Width b1	Cage/ball material combination B180/ES	B180/GL	PA/ES	PA/GL	J3/ES	J3/GL	Part No.
8	24	8	●	●	–	○	○	○	BB-628-B180-30-□
8	28	9	●	●	–	–	○	○	BB-638-B180-30-□
9	17	5	●	●	–	–	○	○	BB-689-B180-30-□
9	20	6	●	●	–	–	○	○	BB-699-B180-30-□
9	24	7	●	●	–	–	○	○	BB-609-B180-30-□
9	26	8	●	●	●	–	○	○	BB-629-B180-□-□
10	19	5	●	●	–	–	○	○	BB-6800-B180-30-□
10	22	6	●	●	–	–	○	○	BB-6900-B180-30-□
10	26	8	●	●	●	●	○	○	BB-6000-B180-□-□
10	30	9	●	●	●	●	○	○	BB-6200-B180-□-□
10	35	11	●	●	●	–	○	○	BB-6300-B180-□-□
12	18	4	●	●	–	–	○	○	BB-6701-B180-30-□
12	21	5	●	●	–	–	○	○	BB-6801-B180-30-□
12	24	6	●	●	–	–	○	○	BB-6901-B180-30-□
12	28	8	●	●	●	●	○	○	BB-6001-B180-□-□
12	32	10	●	●	●	●	○	○	BB-6201-B180-□-□
12	37	12	●	●	–	–	○	○	BB-6301-B180-30-□
15	21	4	●	●	–	–	○	○	BB-6702-B180-30-□
15	24	5	●	●	–	–	○	○	BB-6802-B180-30-□
15	28	7	●	●	–	–	○	○	BB-6902-B180-30-□
15	32	9	●	●	●	●	○	○	BB-6002-B180-□-□
15	35	11	●	●	●	●	○	○	BB-6202-B180-□-□
15	42	13	●	●	●	–	○	○	BB-6302-B180-□-□
17	23	4	●	–	–	–	○	○	BB-6703-B180-30-ES
17	26	5	●	●	–	–	○	○	BB-6803-B180-30-□
17	30	7	–	●	–	–	○	○	BB-6903-B180-30-GL
17	35	10	●	●	●	●	○	○	BB-6003-B180-□-□
17	40	12	●	●	●	●	○	○	BB-6203-B180-□-□
17	47	14	●	●	–	–	○	○	BB-6303-B180-30-□
20	27	4	●	●	–	–	○	○	BB-6704-B180-30-□
20	32	7	●	●	–	–	○	○	BB-6804-B180-30-□
20	37	9	●	–	–	–	○	○	BB-6904-B180-30-ES
20	42	12	●	●	●	●	○	○	BB-6004-B180-□-□
20	47	14	●	●	●	●	○	○	BB-6204-B180-□-□
20	52	15	●	●	–	–	○	○	BB-6304-B180-30-□
25	32	4	●	●	–	–	○	○	BB-6705-B180-30-□
25	37	7	●	●	–	–	○	○	BB-6805-B180-30-□
25	42	9	●	●	–	–	○	○	BB-6905-B180-30-□
25	47	12	●	●	●	●	○	○	BB-6005-B180-□-□
25	52	15	●	●	●	●	○	○	BB-6205-B180-□-□
25	62	17	●	●	–	–	○	○	BB-6305-B180-30-□

Available from stock
Upon request

EN 09/2023

xiros® radial deep groove ball bearings | Product range

Races made from xirodur® B180 - cost-effective standard

Technical data

Installation size	Radial load capacity stat. [N]	dyn. [N]	Max. speed [rpm]	Weight B180/ES [g]	B180/GL [g]	PA/ES [g]	PA/GL [g]	J3/ES [g]	J3/GL [g]
6706	34	41	1,000	1.76	1.59	–	–	1.76	1.59
6806	160	162	900	4.49	1.82	–	–	4.49	1.82
6906	190	193	850	13.15	10.13	–	–	13.15	10.13
16006	380	420	900	–	–	28.53	17.33	–	–
6006	380	400	1,000	–	–	34.15	22.70	–	–
6206	480	520	850	55.89	39.73	–	–	55.89	39.73
6306	520	660	750	27.00	8.52	–	–	27.00	8.52
6007	480	520	850	–	–	47.29	30.71	–	–
6008	520	660	750	–	–	54.84	38.73	–	–
6009	660	690	650	–	–	33.52	57.52	–	–
6010	740	780	600	–	–	82.33	54.00	–	–
6011	930	950	550	–	–	119.64	75.80	–	–
6012	990	1,050	500	–	–	126.66	80.54	–	–
6024	2,300	2,350	250	578.8	–	–	–	578.8	–

Dimensions [mm]

Inner Ø d1	Outer Ø d2	Width b1	Cage/ball material combination B180/ES	B180/GL	PA/ES	PA/GL	J3/ES	J3/GL	Part No.	
30	37	4	●	●	–	–	○	○	BB-6706-B180-30-□	
30	42	7	●	●	–	–	○	○	BB-6806-B180-30-□	
30	47	9	●	●	–	–	○	○	BB-6906-B180-30-□	
30	55	9	–	–	●	●	○	○	BB-16006-B180-10-□	
30	55	13	–	–	●	●	○	○	BB-6006-B180-10-□	
30	62	16	●	●	–	–	–	–	BB-6206-B180-30-□	
30	72	19	●	●	–	–	–	–	BB-6306-B180-30-□	
35	62	14	–	–	●	●	–	–	BB-6007-B180-10-□	
40	68	15	–	–	●	●	–	–	BB-6008-B180-10-□	
45	75	16	–	–	●	●	–	–	BB-6009-B180-10-□	
50	80	16	–	–	●	●	–	–	BB-6010-B180-10-□	
55	90	18	–	–	●	●	–	–	BB-6011-B180-10-□	
60	95	18	–	–	●	●	–	–	BB-6012-B180-10-□	
120	180	28	●	–	–	–	–	–	BB-6024-B180-30-ES	New

Order example:
BB-6706-B180-30-ES = Thin ring bearing with race material xirodur® B180, xirodur® B180 cage and stainless steel balls

Available from stock
Upon request

xiros® radial deep groove ball bearings | Product range

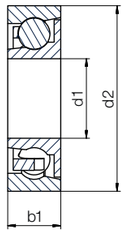
Races made from xirodur® B180 - with cover plate

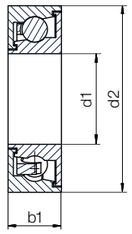


PA cage, with shield on one side stainless steel or glass balls



B180 cage, with labyrinth seal, stainless steel balls





- Protects against coarse dirt
- Operating temperature: from -40°C up to +80°C
- Suitable for contact with food

Order key

Type	Material
BB-623-	B180-10-ES- C

Ball bearing | Dimensions according to DIN 625-1 | Race material | Cage material | Ball material | With shield

Options:

Cage material
10 : PA
30 : xirodur® B180

Ball material
ES : Stainless steel
GL : Glass

Shield or labyrinth seal
C : One-sided shield
LCC : Labyrinth seal

Technical data

Installation size	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Max. speed [rpm]	Weight ES [g]	Weight GL [g]
623	10	25	4,500	0.41	0.33
626	41	43	3,200	2.56	1.71
608	80	94	2,200	3.93	2.67
6000	110	130	2,200	6.21	4.15
6001	138	147	2,000	7.09	4.61
6202	142	155	1,700	12.73	9.63
6003	160	220	1,600	11.12	8.03
6004	250	320	1,400	20.20	13.60
6005	280	360	1,200	23.89	16.51

Dimensions [mm]

Inner Ø d1	Outer Ø d2	Width b1	Cage/ball material combination PA/ES	Cage/ball material combination PA/GL	Part No.
3	10	4	●	●	BB-623-B180-10-□-C
6	19	6	●	●	BB-626-B180-10-□-C
8	22	7	●	●	BB-608-B180-10-□-C
10	26	8	●	●	BB-6000-B180-10-□-C
12	28	8	●	●	BB-6001-B180-10-□-C
15	35	11	●	●	BB-6202-B180-10-□-C
17	35	10	●	●	BB-6003-B180-10-□-C
20	42	12	●	●	BB-6004-B180-10-□-C
25	47	12	●	●	BB-6005-B180-10-□-C

With labyrinth seal

Installation size	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Max. speed [rpm]	Weight ES [g]	Weight GL [g]
6003	160	220	1,600	11.02	8.27
6004	250	320	1,400	20.81	12.93

Dimensions [mm]

Inner Ø d1	Outer Ø d2	Width b1	Cage/ball material combination B180/ES	Cage/ball material combination B180/GL	Part No.
17	35	10	●	●	BB-6003-B180-30-□-LCC
20	24	12	●	●	BB-6004-B180-30-□-LCC

Order example:
BB-623-B180-10-ES-C = Radial deep groove ball bearing with race material xirodur® B180, PA cage, stainless steel balls and shield

Available from stock

xiros® radial deep groove ball bearings | Product range

Races made from xirodur® C160 - resistant to chemicals

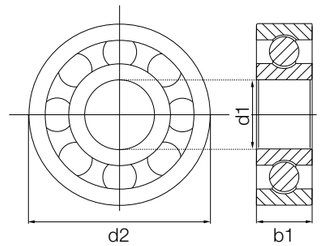


PP cage, stainless steel balls



PP cage, glass balls

- Good chemical resistance
- Cost-effective
- Operating temperature: from 0°C up to +60°C



Order key

Type	Material

BB-623-C160-20-ES

Ball bearing	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Cage material
20 : PP
Options:
Ball material
ES : Stainless steel
GL : Glass

Technical data

Installation size	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight PP/ES [g]	Weight PP/GL [g]
623	10	11	4,000	0.35	0.26
624	12	13	3,650	–	–
625	20	22	3,100	–	0.21
635	30	31	2,900	1.76	1.03
626	30	34	2,600	2.15	1.43
636	40	42	2,050	2.06	–
627	40	43	2,000	–	–
688	20	21	2,750	1.06	0.24
608	40	46	2,200	3.37	2.21
628	57	61	1,800	–	–
638	60	62	1,670	6.27	4.10
629	60	63	1,680	–	–
6800	20	24	2,100	–	–
6000	60	65	1,700	5.48	3.33
6200	78	81	1,540	7.50	4.71
6801	30	32	1,920	0.84	0.92
6001	70	74	1,580	6.59	3.80
6201	80	83	1,260	–	–
6802	40	43	1,700	–	0.46
6002	80	85	1,500	5.72	4.86
6202	80	85	1,130	–	–
6803	50	51	1,650	–	–
6003	90	96	1,300	9.10	6.22
6203	140	142	1,010	–	–
6804	50	54	1,480	–	–

Dimensions [mm]

Inner Ø d1	OuterØ d2	Width b1	Cage/ball material combination PP/ES	Cage/ball material combination PP/GL	Part No.
3	10	4	●	●	BB-623-C160-20-▭
4	13	5	●	●	BB-624-C160-20-▭
5	16	5	●	●	BB-625-C160-20-▭
5	19	6	●	●	BB-635-C160-20-▭
6	19	6	●	●	BB-626-C160-20-▭
6	22	7	●	●	BB-636-C160-20-▭
7	22	7	●	●	BB-627-C160-20-▭
8	16	5	●	●	BB-688-C160-20-▭
8	22	7	●	●	BB-608-C160-20-▭
8	24	8	●	●	BB-628-C160-20-▭
8	28	9	●	●	BB-638-C160-20-▭
9	26	8	●	●	BB-629-C160-20-▭
10	19	5	●	●	BB-6800-C160-20-▭
10	26	8	●	●	BB-6000-C160-20-▭
10	30	9	●	●	BB-6200-C160-20-▭
12	21	5	●	●	BB-6801-C160-20-▭
12	28	8	●	●	BB-6001-C160-20-▭
12	32	10	●	●	BB-6201-C160-20-▭
15	24	5	●	●	BB-6802-C160-20-▭
15	32	9	●	●	BB-6002-C160-20-▭
15	35	11	●	●	BB-6202-C160-20-▭
17	26	5	●	●	BB-6803-C160-20-▭
17	35	10	●	●	BB-6003-C160-20-▭
17	40	12	●	●	BB-6203-C160-20-▭
20	32	7	●	●	BB-6804-C160-20-▭

Order example:
BB-623-C160-20-ES = Radial deep groove ball bearing with race material xirodur® C160, PP cage and stainless steel balls

Available from stock
Upon request

xiros® radial deep groove ball bearings | Product range

Races made from xirodur® C160 - resistant to chemicals

Technical data

Installation size	Radial load capacity stat. [N]	dyn. [N]	Limit speed [rpm]	Weight PP/ES [g]	PP/GL [g]
6004	140	142	1,000	17.81	11.20
6204	140	145	950	22.85	4.89
6805	80	82	1,075	–	–
6005	140	151	960	20.63	13.29
6205	170	181	810	26.70	4.89

Dimensions [mm]

Inner Ø d1	OuterØ d2	Width b1	Cage/ball material combination PP/ES	PP/GL	Part No.
20	42	12	●	●	BB-6004-C160-20-☐
20	47	14	●	●	BB-6204-C160-20-☐
25	37	7	●	●	BB-6805-C160-20-☐
25	47	12	●	●	BB-6005-C160-20-☐
25	52	15	●	●	BB-6205-C160-20-☐

Order example:
BB-6004-C160-20-ES = Radial deep groove ball bearing with race material xirodur® C160, PP cage and stainless steel balls

Available from stock
Upon request

xiros® radial deep groove ball bearings | Product range

Races made from xirodur® A500 - for chemicals and heat up to +150°C



PA cage,
stainless steel balls



PEEK cage,
stainless steel balls



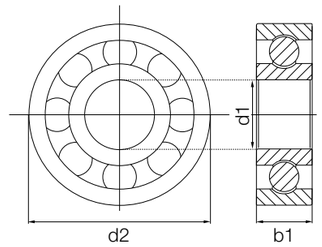
PEEK cage,
glass balls



PEEK cage,
PAI balls

Do you need an electrically conductive material for your application?
xirodur® F500 is conductive and resistant to chemicals. Please contact us!





- Temperature and chemicals resistance
- Operation temperature: from -100°C up to +150°C

Order key

Type	Material

BB-623-A500-10-ES

Ball bearing	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Options:
Cage material
10 : PA
70 : PEEK
Ball material
ES : Stainless steel
GL : Glass
PAI : Polyamide-imide

Technical data

Installation size	Radial load capacity stat.	dyn.	stat. PEEK/PAI	dyn. PEEK/PAI	Limit speed	Weight PA/ES	PEEK/ES	PEEK/GL	PEEK/PAI
	[N]	[N]	[N]	[N]	[rpm]	[g]	[g]	[g]	[g]
623	27	30	–	–	5,000	0.4	0.4	0.3	–
624	30	40	–	–	4,500	1.9	1.0	0.9	–
625	36	43	–	–	3,700	–	–	–	–
635	48	52	–	–	3,400	–	–	–	–
626	54	60	15	20	3,400	2.3	2.3	1.6	1.4
636	72	76	–	–	2,450	–	–	–	–
627	72	74	–	–	2,600	–	–	–	–
688	36	38	–	–	3,150	–	–	–	–
608	72	78	18	25	2,700	3.7	3.7	2.4	2.2
628	98	104	–	–	2,500	–	–	–	–
638	102	108	–	–	2,300	–	–	–	–
629	102	112	–	–	2,350	–	–	–	–
6800	42	46	–	–	2,300	–	–	–	–
6000	102	107	25	34	2,100	6.0	6.0	3.8	3.4
6200	126	132	–	–	2,100	–	–	–	–
6801	54	57	–	–	2,150	–	–	–	–
6001	105	124	–	–	2,040	–	–	–	–
6201	132	141	–	–	1,820	–	–	–	–
6802	72	76	–	–	1,920	–	–	–	–
6002	132	145	32	41	1,900	9.1	9.1	5.2	5.6
6202	135	146	–	–	1,600	–	–	–	–
6803	84	84	–	–	1,760	–	–	–	–
6003	138	152	–	–	1,790	–	–	–	–
6203	228	232	–	–	1,450	–	–	–	–

Dimensions [mm]

Inner Ø d1	OuterØ d2	Width b1	Cage/ball material combination PA/ES	PEEK/ES	PEEK/GL	PEEK/PAI	Part No.
3	10	4	●	●	●	–	BB-623-A500-□-□
4	13	5	●	●	●	–	BB-624-A500-□-□
5	16	5	●	●	●	–	BB-625-A500-□-□
5	19	6	○	●	○	–	BB-635-A500-□-□
6	19	6	●	●	●	●	BB-626-A500-□-□
6	22	7	○	○	○	–	BB-636-A500-□-□
7	22	7	○	●	●	–	BB-627-A500-□-□
8	16	5	●	●	●	–	BB-688-A500-□-□
8	22	7	●	●	●	●	BB-608-A500-□-□
8	24	8	●	○	○	–	BB-628-A500-□-□
8	28	9	○	○	○	–	BB-638-A500-□-□
9	26	8	○	○	○	–	BB-629-A500-□-□
10	19	5	○	●	○	–	BB-6800-A500-□-□
10	26	8	●	●	●	●	BB-6000-A500-□-□
10	30	9	●	●	●	–	BB-6200-A500-□-□
12	21	5	○	●	○	–	BB-6801-A500-□-□
12	28	8	●	●	●	●	BB-6001-A500-□-□
12	32	10	○	○	●	–	BB-6201-A500-□-□
15	24	5	●	○	○	–	BB-6802-A500-□-□
15	32	9	●	●	●	●	BB-6002-A500-□-□
15	35	11	○	●	●	–	BB-6202-A500-□-□
17	26	5	○	●	●	–	BB-6803-A500-□-□
17	35	10	●	●	●	●	BB-6003-A500-□-□
17	40	12	●	○	○	–	BB-6203-A500-□-□

Order example:
BB-623-A500-10-ES = Radial deep groove ball bearing with race material xirodur® A500, PA cage and stainless steel balls

Available from stock
Upon request

xiros®

xiros® radial deep groove ball bearings | Product range

Races made from xirodur® A500 - for chemicals and heat up to +150°C

Technical data

Installation size	Radial load capacity stat.	dyn.	stat. PEEK/PAI	dyn. PEEK/PAI	Limit speed	Weight PA/ES	PEEK/ES	PEEK/GL	PEEK/PAI
	[N]	[N]	[N]	[N]	[rpm]	[g]	[g]	[g]	[g]
6804	90	93	–	–	1,560	–	–	–	–
6004	234	250	62	88	1,700	19.7	19.7	13.2	11.7
6204	234	238	–	–	1,270	–	–	–	–
6805	132	135	–	–	980	–	–	–	–
6005	405	420	–	–	1,500	–	–	–	–
6205	422	440	–	–	1,100	–	–	–	–

Dimensions [mm]

Inner Ø	OuterØ	Width	Cage/ball material combination				Part No.
d1	d2	b1	PA/ES	PEEK/ES	PEEK/GL	PEEK/PAI	
20	32	7	○	●	●	–	BB-6804-A500-□-□
20	42	12	●	●	●	●	BB-6004-A500-□-□
20	47	14	●	●	●	–	BB-6204-A500-□-□
25	37	7	○	●	●	–	BB-6805-A500-□-□
25	47	12	●	●	●	●	BB-6005-A500-□-□
25	52	15	○	●	○	–	BB-6205-A500-□-□

Order example:
BB-623-A500-10-ES = Radial deep groove ball bearing with race material xirodur® A500, PA cage and stainless steel balls

Available from stock
Upon request

xiros® radial deep groove ball bearings | Product range

Races made from xirodur® F180 - antistatic



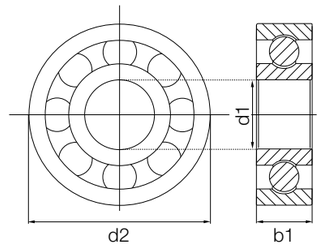
PA cage,
stainless steel balls



PE cage,
stainless steel balls

- Static dissipation
- Suitable for food contact according to the FDA/EU regulations (combined with PE cage)
- Specific volume resistance <10^{12}Ωcm
- Operating temperature: from -40°C up to +80°C

**Do you need an electrically conductive material for your application?
xirodur® F182 is even more conductive (without FDA/food approval).
Please contact us!**



Order key

Type	Material

BB-623-F180-10-ES

Ball bearing	Dimensions according to DIN 625-1	Race material	Cage material	Ball material
BB	623	F180	10	ES

Options:

Cage material
10 : PA
50 : PE

Ball material
ES : Stainless steel

Technical data

Dimensions [mm]

Installation size	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight PA/ES [g]	Weight PE/ES [g]	Inner Ø d1	OuterØ d2	Width b1	Cage/ball material combination PA/ES	Cage/ball material combination PE/ES	Part No.
623	10	25	4,500	0.39	0.39	3	10	4	●	●	BB-623-F180-□-ES
624	20	33	4,000	0.83	0.82	4	13	5	●	●	BB-624-F180-□-ES
625	40	40	3,700	1.54	1.50	5	16	5	●	●	BB-625-F180-□-ES
626	41	43	3,200	2.50	2.36	6	19	6	●	●	BB-626-F180-□-ES
608	80	94	2,200	3.79	3.67	8	22	7	●	●	BB-608-F180-□-ES
6000	110	130	2,200	5.86	5.76	10	26	8	●	●	BB-6000-F180-□-ES
6001	138	147	2,000	6.72	6.62	12	28	8	●	●	BB-6001-F180-□-ES
6002	140	150	1,800	8.59	8.50	15	32	9	●	●	BB-6002-F180-□-ES
6003	160	220	1,600	10.53	10.39	17	35	10	●	●	BB-6003-F180-□-ES
6004	250	320	1,400	19.24	19.18	20	42	12	●	●	BB-6004-F180-□-ES
6005	280	360	1,200	22.43	22.04	25	47	12	●	●	BB-6005-F180-□-ES

Order example:
BB-623-F180-10-ES = Radial deep groove ball bearing with race material xirodur® F180, PA cage and stainless steel balls

Available from stock

xiros® radial deep groove ball bearing with flange | Product range

Races made from xirodur® B180 or xirodur® F180

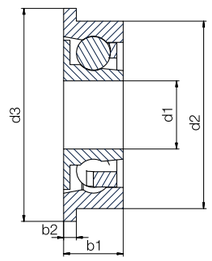
Single flange with shield



xirodur® B180,
PA cage, stainless
steel balls



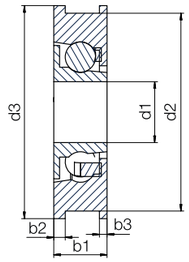
xirodur® S180,
PA cage, stainless
steel balls



Double flange with shield



xirodur® B180 races
PA cage, stainless
steel or glass balls



Technical data

Installation size	Double flange	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Max. speed [rpm]	Weight PA/ES [g]	Weight B180 PA/GL [g]	Weight B180/ES [g]	Weight F180 PA/ES [g]	Weight S180 PA/ES [g]
Radial deep groove ball bearing with single flange with shield for conveyor roller									
606	–	80	94	2,200	2.40	–	–	–	–
688	–	80	94	2,200	1.90	–	–	–	–
608	–	80	94	2,200	5.55	–	–	–	–
6000	–	110	130	1,900	7.55	–	–	–	–
6000	–	110	130	1,900	10.06	–	–	–	–
6001	–	130	147	1,750	7.53	5.09	–	–	–
6001	–	130	147	1,750	12.02	–	–	–	–
6002	–	140	150	1,600	11.44	–	–	–	–
6003	–	160	220	1,550	11.42	–	–	–	–
6004	–	250	320	1,400	–	–	16.36	–	–
6004	–	250	320	1,400	–	–	29.60	–	–
Radial deep groove ball bearing with single or double flange and shields									
608	–	80	94	2,200	5.69	4.47	–	5.49	–
608	●	80	94	2,200	5.82	5.93	–	5.61	–
626	–	60	62	3,200	–	–	–	–	1.32
688	–	39	41	3,000	–	–	–	–	0.66
608	–	80	94	2,400	–	–	–	–	2.00

Order example:
BB-6000F2830-B180-10-ES = Radial deep groove ball bearing with single flange for system solution BBT (conveyor roller), race material xirodur® B180, PA cage and stainless steel balls

EN 09/2023

Order key with single flange

Type				Material		
BB-	6000	F	2830-	B180-	10-	ES
Ball bearing	Dimensions according to DIN 625-1	Single flange	Outer Ø [mm]	Race material	Cage material	Ball material

Also available as complete system solution
▶ Page 1058

Order key with double flange

Type				Material			Design
BB-	608	FF-	B180-	10-	ES-	CC	
Ball bearing	Dimensions according to DIN 625-1	Double flange	Race material	Cage material	Ball material	Double shield	

Flange
F : Single flange
FF : Double flange
Race material
B180 : xirodur® B180
S180 : xirodur® S180

Cage material
10 : PA
30 : xirodur® B180
Ball material
ES : Stainless steel
GL : Glass
Shield
C : With shield
CC : Double shield

Dimensions [mm]

Inner Ø d1	Outer Ø d2	Outer Ø d3	Width b1	Width b2	Cage/ball material combination PA/ES	Cage/ball material combination B180 PA/GL	Cage/ball material combination B180/ES	Cage/ball material combination S180 PA/ES	Part No.
6.0	18.0	20.0	6.0	2.0	●	–	–	–	**BB-606F1820-B180-30-ES**
8.0	18.0	20.0	6.0	2.0	●	–	–	–	**BB-688F1820-B180-30-ES**
8.0	28.0	30.0	7.0	2.0	●	–	–	–	**BB-608F2830-B180-10-ES**
10.0	28.0	30.0	9.0	2.0	●	–	–	–	**BB-6000F2830-B180-10-ES**
10.0	35.0	38.0	9.0	2.0	●	–	–	–	**BB-6000F3538-B180-10-ES**
12.0	28.0	30.0	9.0	2.0	●	–	–	–	**BB-6001F2830-B180-10-ES**
12.0	35.0	38.0	9.0	2.0	●	–	–	–	**BB-6001F3538-B180-10-ES**
15.0	35.0	38.0	9.0	2.0	●	–	–	–	**BB-6002F3538-B180-10-ES**
17.0	35.0	38.0	10.0	2.0	●	–	–	–	**BB-6003F3538-B180-10-ES**
20.0	46.0	50.0	12.0	2.0	–	–	●	–	**BB-6004F4650G-B180-30-ES**
20.0	56.0	60.0	12.0	2.0	–	–	●	–	**BB-6004F5660G-B180-30-ES**
8.0	26.0	28.0	8.5	1.5	●	●	–	–	**BB-608F-B180-10-□-CC**
8.0	26.0	28.0	7.0	1.5/1.0 (b3)	●	●	–	–	**BB-608FF-B180-10-□-CC**
6.0	19.0	22.0	6.0	1.5	–	–	–	●	**BB-626F-S180-10-ES-C**
8.0	16.0	18.0	5.0	1.0	–	–	–	●	**BB-688F-S180-10-ES-C**
8.0	22.0	25.0	7.0	1.5	–	–	–	●	**BB-608F-S180-10-ES-C**

Available from stock

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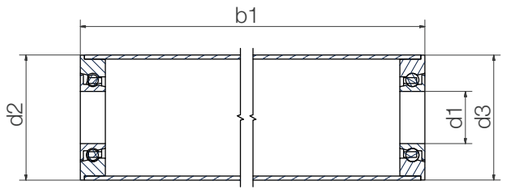
xiros® conveyor rollers | Product range

xiros® system solution - aluminium tube with fixed flange ball bearings



Aluminium tube with xirodur® B180 ball bearing

- Cost-effective and available from stock
- Suitable for contact with food according to DIN EN 143692



Order key

Type	Material

BBT-AC38-6000-B180-10-ES

Ball bearing conveyor roller	Aluminium tube	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Cage material
10 : PA
30 : xirodur® B180
Ball material
ES : Stainless steel

Radial deep groove ball bearings with flange also available as individual parts ▶ Page 1056

Dimensions [mm]

Inner Ø d1	OuterØ d2	Flange Ø d3	Length b1	Tolerance	Part No.
6	20	19.9	50 - 500	±0.5	BBT-AC20-606-B180-30-ES
8	20	19.9	50 - 500	±0.5	BBT-AC20-688-B180-30-ES
8	30	29.9	50 - 1,500	±0.5	BBT-AC30-608-B180-10-ES
10	30	29.9	50 - 1,500	±0.5	BBT-AC30-6000-B180-10-ES
12	30	29.9	50 - 1,500	±0.5	BBT-AC30-6001-B180-10-ES
10	38	37.9	50 - 1,500	±0.5	BBT-AC38-6000-B180-10-ES
12	38	37.9	50 - 1,500	±0.5	BBT-AC38-6001-B180-10-ES
15	38	37.9	50 - 1,500	±0.5	BBT-AC38-6002-B180-10-ES
17	38	37.9	50 - 1,500	±0.5	BBT-AC38-6003-B180-10-ES
20	50	49.9	50 - 1,500	±0.5	BBT-AC50-6004-B180-30-ES
20	60	59.9	50 - 1,500	±0.5	BBT-AC60-6004-B180-30-ES

Online configurator for xiros® system solutions
▶ www.igus.eu/xirosAlu

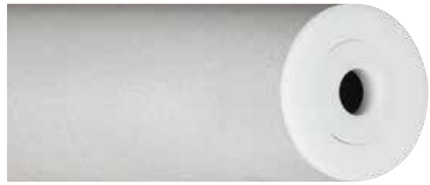
Order example:
BBT-AC38-6000-B180-10-ES, L = 500mm = Aluminium tube with 2 ball bearings with race material xirodur® B180, PA cage and stainless steel balls, total length 500mm

Available from stock
Delivery time: approx. 1-2 weeks

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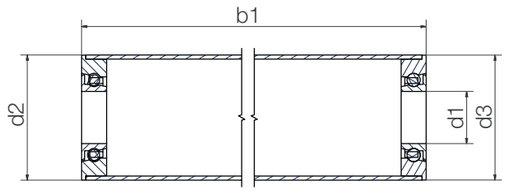
xiros® conveyor rollers | Product range New

xiros® system solution - with sandblasted surface



Aluminium tube with xirodur® B180 ball bearing

- Up to 50% less air under the film than a smooth aluminium surface
- Up to 30% more grip compared to a smooth aluminium surface



Order key

Type	Material

BBT-SAC30-6000-B180-10-ES

Ball bearing conveyor roller	Aluminium tube	Black	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Cage material
10 : PA
30 : xirodur® B180
Ball material
ES : Stainless steel

Dimensions [mm]

Inner Ø d1	OuterØ d2	Flange Ø d3	Length b1	Tolerance	Part No.	
6	20	20	100 - 1,000	±0.5	BBT-SAC20-606-B180-30-ES	New
8	20	20	100 - 1,000	±0.5	BBT-SAC20-608-B180-30-ES	New
8	30	30	100 - 1,000	±0.5	BBT-SAC30-608-B180-10-ES	New
10	30	30	100 - 1,000	±0.5	BBT-SAC30-6000-B180-10-ES	New
12	30	30	100 - 1,000	±0.5	BBT-SAC30-6001-B180-10-ES	New
10	38	38	100 - 1,000	±0.5	BBT-SAC38-6000-B180-10-ES	New
12	38	38	100 - 1,000	±0.5	BBT-SAC38-6001-B180-10-ES	New
15	38	38	100 - 1,000	±0.5	BBT-SAC38-6002-B180-10-ES	New
17	38	38	100 - 1,000	±0.5	BBT-SAC38-6003-B180-10-ES	New
20	50	50	100 - 1,000	±0.5	BBT-SAC50-6004-B180-30-ES	New
20	60	60	100 - 1,000	±0.5	BBT-SAC60-6004-B180-30-ES	New

Order example:
BBT-SAC20-606-B180-30-ES, L = 200mm = Aluminium tube, sandblasted, installation size 606 with xirodur® B180 fixed flange ball bearing, xirodur® B180 cage and stainless steel balls, total length 200mm

Available from stock
Delivery time: approx. 3-4 weeks

EN 09/2023 igus

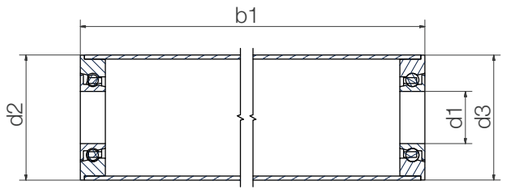
xiros® conveyor rollers | Product range New

xiros® aluminium conveyor roller with non-stick coating



Aluminium conveyor roller with non-stick coating

- Up to 70% less sticking of adhesive labels



Order key

Type	Material

BBT-AH30-6000-S180-10-ES

Ball bearing conveyor roller	Aluminium tube	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Cage material
10 : PA
Ball material
ES : Stainless steel

Dimensions [mm]

Inner Ø	OuterØ	Flange Ø	Length		Part No.	
d1	d2	d3	b1	Tolerance		
8	30	30	100 - 1,000	±0.5	BBT-AH30-608-S180-10-ES	New
10	30	30	100 - 1,000	±0.5	BBT-AH30-6000-S180-10-ES	New
12	30	30	100 - 1,000	±0.5	BBT-AH30-6000-S180-10-ES	New
10	30	30	100 - 1,000	±0.5	BBT-AH30-6001-S180-10-ES	New
10	38	38	100 - 1,000	±0.5	BBT-AH38-6000-S180-10-ES	New
10	38	38	100 - 1,000	±0.5	BBT-AH38-6000-S180-10-ES	New
15	38	38	100 - 1,000	±0.5	BBT-AH38-6002-S180-10-ES	New

Order example:
BBT-AH30-6000-S180-10-ES, L = 100mm, = Aluminium tube with 2 ball bearings with race material xirodur® S180, PA cage and stainless steel balls, total length 100mm

Upon request
Delivery time: 3-4 weeks

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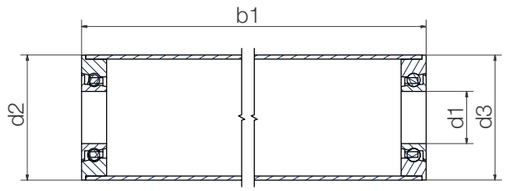
xiros® conveyor rollers | Product range New

xiros® system solution - black anodised



Aluminium tube with xirodur® S180 ball bearing

- Black design



Order key

Type	Material

BBT-AC S 30-6000-S180-10-ES

Ball bearing conveyor roller	Aluminium tube	Black	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Cage material
10 : PA
Ball material
ES : Stainless steel

Dimensions [mm]

Inner Ø	OuterØ	Flange Ø	Length		Part No.	
d1	d2	d3	b1	Tolerance		
8	30	29.9	50 - 1,500	±0.5	BBT-ACS30-608-S180-10-ES	New
10	30	29.9	50 - 1,500	±0.5	BBT-ACS30-6000-S180-10-ES	New
12	30	29.9	50 - 1,500	±0.5	BBT-ACS30-6001-S180-10-ES	New
10	38	37.9	50 - 1,500	±0.5	BBT-ACS38-6000-S180-10-ES	New

Order example:
BBT-ACS30-6000-S180-10-ES, L = 200mm = Aluminium tube with 2 ball bearings with race material xirodur® S180, PA cage and stainless steel balls, total length 200mm

Upon request
Delivery time: 3-4 weeks

EN 09/2023

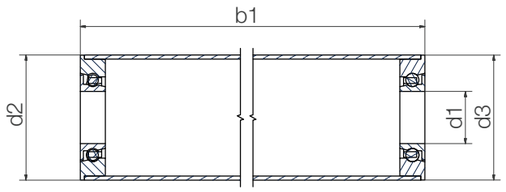
xiros® conveyor rollers | Product range New

xiros® system solution - non-metallic with PVC tube and glass balls



PVC tube with xirodur® B180 ball bearing

- 100% non-metallic, non-magnetic
- Application in the chemical, medical and semiconductor industry



Order key

Type					Material		
BBT-	PVC	30-	6000-	B180-	30-	GL	
Ball bearing conveyor roller	PVC tube	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material	

Cage material
30 : xirodur® B180
Ball material
GL : Glass

Dimensions [mm]

Inner Ø	OuterØ	Flange Ø	Length		Part No.
d1	d2	d3	b1	Tolerance	
8	30	30	100 - 1,000	±0.5	**BBT-PVC30-608-B180-30-GL** New
8	30	30	100 - 1,000	±0.5	**BBT-PVC30-6000-B180-30-GL** New
10	40	40	100 - 1,000	±0.5	**BBT-PVC40-6000-B180-30-GL** New
12	40	40	100 - 1,000	±0.5	**BBT-PVC40-6001-B180-30-GL** New
15	40	40	100 - 1,000	±0.5	**BBT-PVC40-6002-B180-30-GL** New
17	40	40	100 - 1,000	±0.5	**BBT-PVC40-6003-B180-30-GL** New
20	50	50	100 - 1,000	±0.5	**BBT-PVC50-6004-B180-30-GL** New
20	63	63	100 - 1,000	±0.5	**BBT-PVC63-6004-B180-30-GL** New

Order example:
BBT-PVC30-6000-B180-30-GL, L = 200mm = Aluminium tube with 2 ball bearings with race and cage material xirodur® B180 and glass balls, total length 200mm

Available from stock
Delivery time: approx. 1-2 weeks

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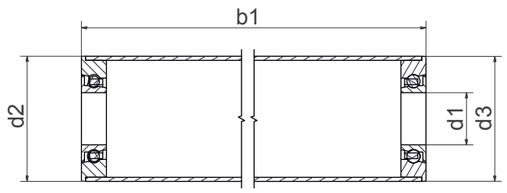
xiros® conveyor rollers | Product range

xiros® system solution - plastic for food contact



PVC tube with xirodur® B180 ball bearing

- Components for use in food in accordance with 10/2011/EU and 1935/2004/EG



Order key

Type					Material		
BBT-	PVC	50-	6004-	B180-	30-	ES	
Ball bearing conveyor roller	PVC tube	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material	

Cage material
30 : xirodur® B180
Ball material
ES : Stainless steel

Dimensions [mm]

Inner Ø	OuterØ	Flange Ø	Length		Part No.
d1	d2	d3	b1	Tolerance	
8	30	30	50 - 1,000	±0.5	**BBT-PVC30-608-B180-30-ES**
10	30	30	50 - 1,000	±0.5	**BBT-PVC30-6000-B180-30-ES**
10	40	40	50 - 1,000	±0.5	**BBT-PVC40-6000-B180-30-ES**
12	40	40	50 - 1,000	±0.5	**BBT-PVC40-6001-B180-30-ES**
15	40	40	50 - 1,000	±0.5	**BBT-PVC40-6002-B180-30-ES**
17	40	40	50 - 1,000	±0.5	**BBT-PVC40-6003-B180-30-ES**
20	50	50	50 - 1,000	±0.5	**BBT-PVC50-6004-B180-30-ES**
20	63	63	50 - 1,000	±0.5	**BBT-PVC63-6004-B180-30-ES**

Order example:
BBT-PVC50-6004-B180-30-ES, L = 200mm = PVC tube with 2 ball bearings with race material xirodur® B180, xirodur® B180 cage and stainless steel balls, total length 200mm

Available from stock
Delivery time: approx. 1-2 weeks

EN 09/2023 igus

xiros® conveyor rollers | Product range New

xiros® system solution - stainless steel tube



Stainless steel tube with xirodur® B180 ball bearing

- Application in the food and medical sector



Stainless steel conveyor rollers with xirodur® F180 ball bearings

- Prevents static charge



Stainless steel tube with xirodur® A500 ball bearing

- Operating temperature up to +150°C
- With FDA-compliant components
- Resistant to a wide range of chemicals

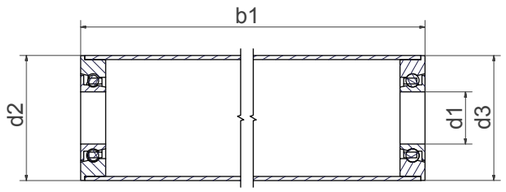
Order key

Type	Material

BBT-ES 30-6000-□-□-ES

Ball bearing conveyor roller	Stainless steel tube	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Cage material
10 : PA
30 : xirodur® B180
70 : PEEK
Ball material
ES : Stainless steel



Dimensions [mm]

Inner Ø d1	OuterØ d2	Flange Ø d3	Length b1	Tolerance	Part No.	
8	30	30	100 - 1,500	±0.5	BBT-ES30-608-A500-70-ES	New
8	30	30	50 - 1,500	±0.5	**BBT-ES30-608-B180-30-ES**	
8	30	30	100 - 1,500	±0.5	BBT-ES30-608-F180-10-ES	New
10	30	30	100 - 1,500	±0.5	BBT-ES30-6000-A500-70-ES	New
10	30	30	50 - 1,500	±0.5	**BBT-ES30-6000-B180-30-ES**	
10	30	30	100 - 1,500	±0.5	BBT-ES30-6000-F180-10-ES	New
12	30	30	100 - 1,500	±0.5	BBT-ES30-6001-A500-70-ES	New
12	30	30	50 - 1,500	±0.5	**BBT-ES30-6001-B180-30-ES**	
12	30	30	100 - 1,500	±0.5	BBT-ES30-6001-F180-10-ES	New

Order example:
BBT-ES30-6000-B180-30-ES, L = 200mm = stainless steel tube with 2 ball bearings with race material xirodur® B180, xirodur® B180 cage and stainless steel balls, total length 200mm

Available from stock - Delivery time approx. 2-3 weeks
With xirodur® F180 as ESD version available upon request

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xiros® conveyor rollers | Product range

xiros® system solution - carbon fibre tube

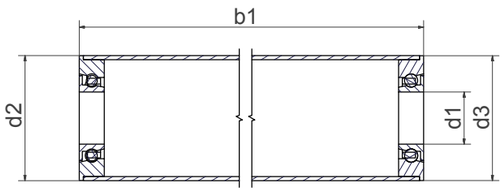


Carbon fibre tube with xirodur® S180 ball bearing, available as ESD version (with xirodur® F180 ball bearing)



Carbon fibre tube with xirodur® F180 ball bearing

- Low inertia
- Antistatic version



Order key

Type	Material

BBT-CF 50-6004-□-30-ES

Ball bearing conveyor roller	Carbon fibre tube	Outer Ø	Dimensions according to DIN 625-1	Race material	Cage material	Ball material

Cage material
10 : PA
30 : xirodur® B180
Ball material
ES : Stainless steel

Dimensions [mm]

Inner Ø d1	OuterØ d2	Flange Ø d3	Length b1	Tolerance	Part No.	
10	30	30	100 - 1,000	±0.5	BBT-CF30-6000-F180-10-ES	New
12	30	30	100 - 1,000	±0.5	BBT-CF30-6001-F180-10-ES	New
20	50	49.9	50 - 1,000	±0.5	**BBT-CF50-6004-S180-30-ES**	
20	100	100.0	50 - 1,000	±0.5	BBT-CF100-6004-F180-30-ES	

Order example:
BBT-CF50-6004-S180-30-ES, L = 370mm = Carbon fibre tube with 2 ball bearings with race material xirodur® S180, xirodur® B180 cage and stainless steel balls, total length 370mm

Delivery time: approx. 3 weeks
With xirodur® F180 as ESD version available upon request

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xiros® conveyor rollers | Product range

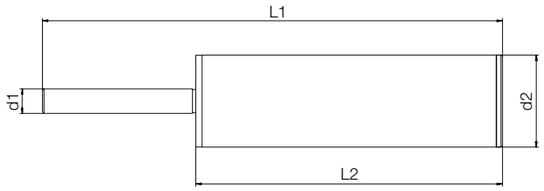
xiros® system solution - closed on one end



Closed special solution with aluminium tube and polymer ball bearing for guide rollers and label rollers

- Closed design
- Resistant to dirt
- Simple installation
- Dimensions according to customer request

Ready-to-install complete systems with shaft to required size upon request



Order key

Type	Material

BBTG-AC30-□-30-ES

Ball bearing conveyor roller	Aluminium tube	Outer Ø	Length - upon request	Cage material	Ball material

Cage material
30 : xirodur® B180
Ball material
ES : Stainless steel

Dimensions [mm]

Outer Ø d2	Length L1	Part No.
30	According to customer request	BBTG-AC30-XX-30-ES
38	According to customer request	BBTG-AC38-XX-30-ES
50	According to customer request	BBTG-AC50-XX-30-ES
60	According to customer request	BBTG-AC60-XX-30-ES

Upon request
For a ready-to-install complete system, please contact us.

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xiros® end caps | Product range

Races made from xirodur® B180



PA cage, stainless steel or glass balls



PA cage, stainless steel balls hexagon nut socket

- Suitable for all conveyor roller tubes 50x2.8mm
- Lubrication-free and corrosion-resistant
- Operating temperature: from -40°C up to +80°C

Order key

Type	Material

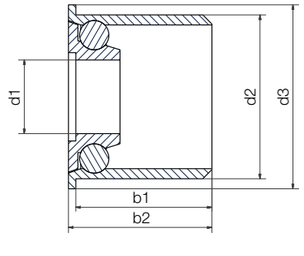
BB-6204EC44.5-B180-10-ES

Ball bearing type	Dimensions according to DIN 625-1	End cap	Outer Ø (d2)	Race material	Cage material	Ball material

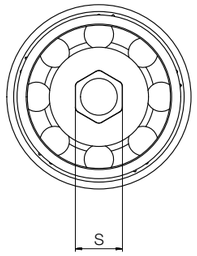
Cage material
10 : PA

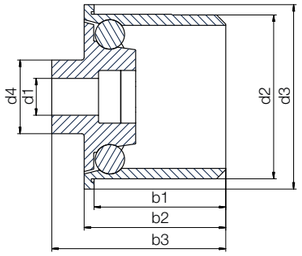
Options:
Ball material
ES : Stainless steel
GL : Glass

Example "6204EC"



Example "6204ECM8"





Technical data

Installation size	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight PA/ES [g]	Weight PA/GL [g]
6204	245	294	1,800	41.66	29.85
6204	245	294	1,800	48.44	–

Dimensions [mm]

Inner Ø d1	Outer Ø d2	Outer Ø d3	Width d4	Width b1	Width b2	Width b3	S	Cage/ball material combination PA/ES	Cage/ball material combination PA/GL	Part No.
20	44.5	50	–	35.8	38.5	–	–	●	●	BB-6204EC44.5-B180-10-□
10	44.5	50	20	35.8	38.5	47.3	M8	●	–	BB-6204ECM8-B180-10-ES

Order example:
BB-6204EC44.5-B180-10-ES = End cap with race material xirodur® B180, PA cage and stainless steel balls

Available from stock

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xiros® profiled radial deep groove ball bearings | Product range

Races made from xirodur® B180



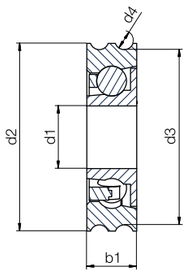
xirodur® B180 cage, stainless steel balls Type 6000PP3



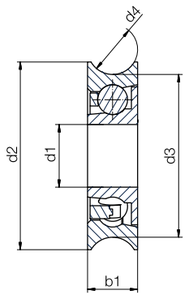
xirodur® B180 cage, stainless steel balls Type 608P6

- One-piece design
- Replaces several components
- Different profiles and installation sizes
- Suitable for contact with food
- Operating temperature: from -40°C up to +80°C

Example "Profile PP3"



Example "Profile P8"



Order key

Type	Material	Design

BB-608P6-B180-30-ES-C

Ball bearing	Dimensions according to DIN 625-1	Profile P6	Race material	Cage material	Ball material	With shield

Cage material
30 : xirodur® B180
Ball material
ES : Stainless steel
Shield
C : One-sided shield

Technical data

Installation size	Radial load capacity stat.	Limit speed	Weight B180/ES
	[N]	[rpm]	[g]
608P6	80	2,200	3.96
608P8	140	1,800	23.37
6000P8	110	2,200	7.14
6000PP3	110	2,200	7.86
6201P9	160	1,600	27.05

Dimensions [mm]

Inner Ø d1	OuterØ d2	Base Ø d3	Groove Ø d4	Width b1	Part No.
8	24	20.5	6	7	**BB-608P6-B180-30-ES-C**
8	48	32	8	14	**BB-608P8-B180-30-ES**
10	30	26	8	8	**BB-6000P8-B180-30-ES-C**
10	30	28	3	8	**BB-6000PP3-B180-30-ES-C**
12	60	43.5	9	12	**BB-6201P9-B180-30-ES**

Order example:
BB-608P6-B180-30-ES = Radial deep groove ball bearing, Profil P8 with race material xirodur® B180, xirodur® B180 cage and stainless steel balls

Available from stock

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xiros® skate wheels with spherical outer diameter | Product range

Races made from xirodur® B180

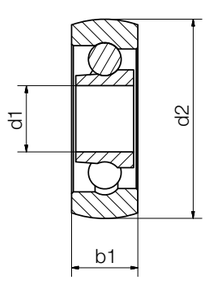


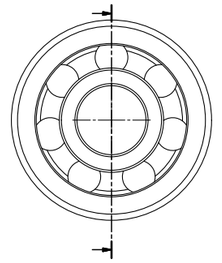
xirodur® B180 races PA cage, stainless steel balls



xirodur® B180 races PA cage, glass balls

- Replaces several components
- Different profiles and installation sizes
- Operating temperature: from -40°C up to +80°C





Order key

Type	Material

BB-608SO-B180-10-ES

Ball bearing	Dimensions according to DIN 625-1	Spherical outer Ø	Race material	Cage material	Ball material

Cage material
10 : PA
Options:
Ball material
ES : Stainless steel
GL : Glass

Technical data

Installation size	Radial load capacity stat.	Radial load capacity dyn.	Limit speed	Weight PA/ES	Weight PA/GL
	[N]	[N]	[rpm]	[g]	[g]
608	80	94	2,200	4.63	3.34
6000	110	130	1,900	7.86	5.70
6001	138	147	1,750	13.51	11.10

Dimensions [mm]

Inner Ø d1	OuterØ d2	Width b1	Width b2	Cage/ball material combination PA/ES	Cage/ball material combination PA/GL	Part No.
8	24.00	8	7	●	●	**BB-608SO-B180-10-☐**
10	28.96	10	8	●	●	**BB-6000SO-B180-10-☐**
12	35.56	12	8	●	●	**BB-6001SO-B180-10-☐**

Order example:
BB-608SO-B180-10-ES = Ball bearing with spherical outer diameter, race material xirodur® B180, PA cage and stainless steel balls

Available from stock

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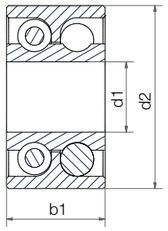
xiros® double row ball bearing | Product range

Races made from xirodur® B180



**PA cage,
stainless steel or
glass balls**

- Higher loads
- More cost-effective than two comparable bearings



Order key

Type	Material	Design

BB-6000-B180-10-ES-D

Ball bearing	Dimensions according to DIN 625-1	Race material	Cage material	Ball material	Double row

Cage material
10 : PA
Options:
Ball material
ES : Stainless steel
GL : Glass

Technical data

Installation size	Radial load capacity stat.	Radial load capacity dyn.	Limit speed	Weight PA/ES	Weight PA/GL
	[N]	[N]	[rpm]	[g]	[g]
6000	200	240	1,000	11.23	6.90
6004	420	470	650	35.60	22.55

Dimensions [mm]

Inner Ø d1	OuterØ d2	Width b1	Cage/ball material combination PA/ES	Cage/ball material combination PA/GL	Part No.
10	26	14	●	●	**BB-6000-B180-10-□-D**
20	42	20	●	●	**BB-6004-B180-10-□-D**

Order example:
BB-6000-B180-10-ES-D = Double row ball bearing with race material xirodur® B180, PA cage and stainless steel balls

**Available
from stock**

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xiros® self-aligning ball bearing | Product range New

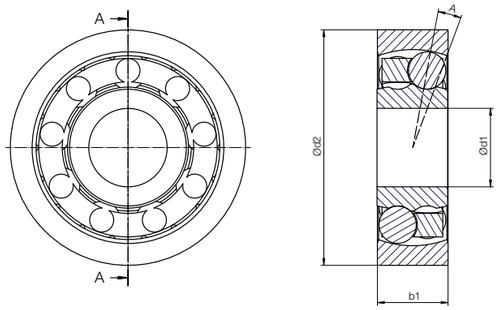
xiros®

Races made from xirodur® B180



**PA cage and stainless
steel balls**

- Angular misalignment compensation
- Lubrication-free and corrosion-resistant
- Operating temperature: from -40°C up to +80°C



Order key

Type	Material	Design

BB-1200-B180-10-ES-D

Ball bearing	Dimensions according to DIN 625-1	Race material	Cage material	Ball material	Double row

Cage material
10 : PA
Ball material
ES : Stainless steel

Technical data

Installation size	Max. pivot angle	Permissible radial load	Max. speed	Weight
	[°]	[N]	[rpm]	[g]
1,200	3.90	150	1,800	8.9
1201	3.92	150	1,800	10.4
1204	3.31	290	1,150	28.8

Dimensions [mm]

Inner Ø d1	OuterØ d2	Width b1	Part No.
10	30	9	**BB-1200-B180-10-ES-D** New
12	31	10	**BB-1201-B180-10-ES-D** New
20	47	14	**BB-1204-B180-10-ES-D** New

Order example:
BB-1200-B180-10-ES-D = Double row ball bearing with race material xirodur® B180, PA cage and stainless steel balls

**Available from stock
Delivery time: approx. 1-2 weeks**

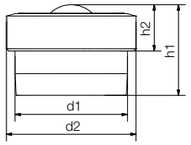
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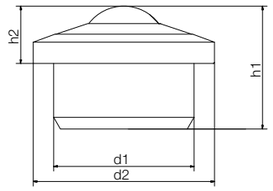
xiros® polymer ball transfer units | Product range

Polymer ball transfer units made from xirodur® B180









Installation size 505(B)

Installation size 508, 505(B), 512, 515(B), 522(B), 530B

- All-rounder for sensitive transportation
- 5XXB series suitable for overhead installation and lateral guidance

Order key

Type	Material
BB-522 B	-B180-POM

Ball bearing	Type	New generation	Housing material	Ball material

Ball material

POM : POM (ball)

Technical data and dimensions [mm]

Installation size	Max. stat. load capacity axial [N]	Inner Ø d1	d2	Height h1	h2	Weight [g]	Part No.
505	35	10.4	12.0	8.4	4.3	0.88	BB-505-B180-POM
508	40	12.6	17.0	11.2	4.8	1.65	BB-508-B180-POM New
512	60	18.0	23.0	15.4	7.4	4.69	BB-512-B180-POM New
515	80	24.0	31.0	21.0	9.8	10.73	BB-515-B180-POM
522	110	36.0	45.0	30.0	9.8	28.80	BB-522-B180-POM

Technical data and dimensions [mm]

Installation size	Max. stat. load capacity axial [N]	Inner Ø d1	d2	Height h1	h2	Weight [g]	Part No.
505B	150	10.4	12.0	8.4	4.3	0.92	BB-505B-B180-POM
515B	300	24.0	31.0	21.0	9.8	11.19	BB-515B-B180-POM
522B	500	36.0	45.0	30.0	9.8	29.97	BB-522B-B180-POM
530B	1000	45.0	55.0	37.0	13.8	67.40	BB-530B-B180-POM

Recommended tolerances

We recommend the following hole tolerances for the ball transfer units housings:

Installation size **505** ▶ 10.40H7 **515/515B** ▶ 24H7 **522/522B** ▶ 36H7

In general: The height tolerance of all installation sizes is ± 0.2mm

Order example:

BB-505-B180-POM = Polymer ball transfer unit with housing material xirodur® B180 and POM ball

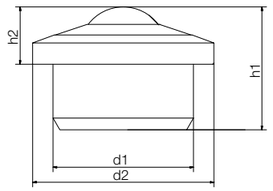
Available from stock

xiros® polymer ball transfer units | Product range New

Polymer ball transfer unit with stainless steel support balls



- Higher load capacity and smooth operation
- Up to 45% lower rolling friction compared to BB-515B/522B-B180-POM



Order key

Type	Material
BB-522-	B180-POM-ES

Ball bearing	Type	Housing material	Ball material	Support balls

Support balls

ES: Stainless steel

Technical data and dimensions [mm]

Installation size	Max. static load capacity axial [N]	Inner Ø d1	d2	Height h1	h2	Weight [g]	Part No.
515	180	24.0	31.0	21.0	9.8	15.59	BB-515-B180-POM-ES New
522	300	36.0	45.0	30.0	9.8	35.56	BB-522-B180-POM-ES New

Recommended tolerances

We recommend the following hole tolerances for the ball transfer units housings:

Installation size

515 ▶ 24H7

522 ▶ 36H7

In general: The height tolerance of all installation sizes is ± 0.2mm

Order example:

BB-515-B180-POM-ES = Polymer ball transfer unit with housing material xirodur® B180 and stainless steel support balls

Available from stock

xiros® polymer ball transfer units | Product range

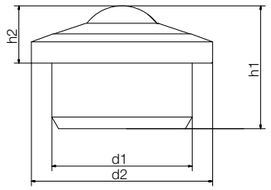
Polymer ball transfer unit with stainless steel ball



With stainless steel balls



Electrostatically conductive



- For semiconductors and electronic components
- Suitable for overhead installation and lateral guidance

Order key

Type			Material	
BB-522	B	- □		-ES

Ball bearing
Type
New generation
Housing material
Ball material

Housing material:
xirodur® B180
xirodur® F182
(ESD version)

Ball material
ES: Stainless steel

Technical data and dimensions [mm]

Installation size	Max. static axial load capacity [N]	Inner Ø d1	Inner Ø d2	Height h1	Height h2	Weight [g]	Part No.
515	300	24.0	31.0	21.0	9.8	22.8	BB-515B-B180-ES
515	300	24.0	31.0	21.0	9.8	22.8	BB-515B-F182-ES
522	500	36.0	45.0	30.0	9.8	66.6	BB-522B-B180-ES

Technical data and dimensions [mm]

Installation size	Max. static axial load capacity [N]	Inner Ø d1	Inner Ø d2	Height h1	Height h2	Weight [g]	Part No.
515B	300	24.0	31.0	21.0	9.8	11.19	BB-515B-B180-ES
522B	500	36.0	45.0	30.0	9.8	29.97	BB-522B-B180-ES

Recommended tolerances
We recommend the following hole tolerances for the ball transfer units housings:
Installation size
515B ▶ 24H7
522B ▶ 36H7
In general: The height tolerance of all installation sizes is ± 0.2mm

Order example:
BB-515B-B180-ES = Polymer ball transfer unit with housing material xirodur® B180 and stainless steel balls

Available from stock

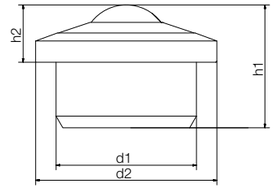
EN 09/2023

xiros® polymer ball transfer units | Product range New

Polymer ball transfer unit, sliding version



- High load carrying capacity with low friction
- For high impact loads



Order key

Type			Material	
BB-522	G	- J3B		-ES

Ball bearing
Type
Sliding version
Housing material
Ball material

Ball material
ES: Stainless steel

Technical data and dimensions [mm]

Installation size	Max. static load capacity axial [N]	Inner Ø d1	Inner Ø d2	Height h1	Height h2	Weight [g]	Part No.
515G	700	24.0	31.0	21.0	9.8	23.02	BB-515G-J3B-ES New
522G	1,470	36.0	45.0	30.0	9.8	69.43	BB-522G-J3B-ES New

Recommended tolerances
We recommend the following hole tolerances for the ball transfer units housings:
Installation size
515G ▶ 24H7
522G ▶ 36H7
In general: The height tolerance of all installation sizes is ± 0.2mm

Order example:
BB-515G-J3B-ES = Polymer ball transfer unit with sliding insert, housing material J3B and stainless steel balls

Available from stock
Delivery time: approx. 3-4 weeks

EN 09/2023

xiros® polymer ball transfer units | Product range

Axial polymer ball transfer unit made from xirodur® B180

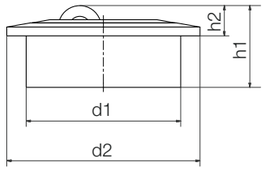


For high loads (HH)



With soft roller made from xirodur® D180 (HS)

- Self-aligning
- Low installation height



BB-515A-B180-HH/-HS
BB-522A-B180-HH/-HS

Order key

Type			Material	
BB-522	A	-	B180	-HS
Ball bearing	Type	Axial ball transfer unit	Housing material	Ball material

Options:
Ball material
HH (Hard roller) : xirodur® B180
HS (Soft roller) : xirodur® D180

Technical data and dimensions [mm]

Installation size	Max. stat. load capacity axial [N]	Inner Ø d1	Inner Ø d2	Height h1	Height h2	Weight HS [g]	Weight HH [g]	Part No.
515A	150	24.0	31.0	14.3	5.3	9.96	9.99	BB-515A-B180-☐
522A	300	36.0	45.0	19.2	7.05	24.69	24.71	BB-522A-B180-☐

Order example:
BB-515A-B180-HS = axial polymer ball transfer unit with housing material xirodur® B180 and xirodur® D180 soft roller

Available from stock

EN 09/2023

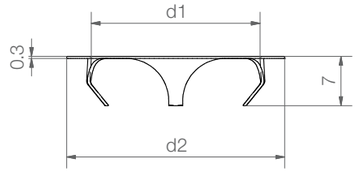
xiros®

xiros® polymer ball transfer units | Product range

Accessories: Clamping rings for xiros® polymer ball transfer units



xiros® clamping rings made of stainless steel offer the possibility to install xiros® polymer ball transfer units in another orientation than the standard horizontal position. Easy assembly and disassembly.



Dimensions [mm]

For ball transfer unit	d1	d2	Housing hole	Weight [g]	Part No.
BB-515-B180-POM/BB-515A-B180-☐	24	31	25H7	0.91	BB-515-CR
BB-522-B180-POM/BB-522A-B180-☐	36	41	37H7	1.61	BB-522-CR

Available from stock

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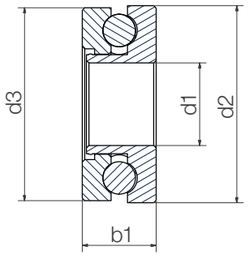
xiros® thrust bearings | Product range

Races made from xirodur® B180

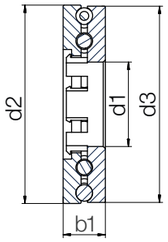


**Single or double row,
with stainless steel or glass balls**

- Higher load capacity
- Good resistance to chemicals and seawater
- Suitable for contact with food
- Operating temperature: from -40°C up to +80°C



Single row bearing



Double row bearing

Order key

Type	Material
BB-51104-	B180-ES-D

Ball bearing	Dimensions according to DIN 711	Race/cage material	Ball material	Double row

Options:

Ball material
ES : Stainless steel
GL : Glass

Suffix
Blank : Single row
D : Double row

Technical data

Installation size	Single row	Double row	load capacity stat. [N]	load capacity dyn. [N]	Limit speed [rpm]	Weight B180/ES [g]	Weight B180/GL [g]
51100	●	–	200	250	600	6.61	4.12
51104	●	–	650	810	460	13.72	8.19
51104	–	●	975	1,215	460	18.96	8.99

Dimensions [mm]

Inner Ø d1	OuterØ d2	OuterØ d3	Width b1	Cage/ball material combination B180/ES	Cage/ball material combination B180/GL	Part No.
10	24	23.5	9	●	●	BB-51100-B180-▭
20	35	34.5	10	●	●	BB-51104-B180-▭
20	47	46.5	10	●	●	BB-51104-B180-▭-D

Order example:
BB-51100-B180-ES = Thrust bearing with race material xirodur® B180, xirodur® B180 cage and stainless steel balls

Available from stock

EN 09/2023

xiros® thrust washers | Product range

Races made from xirodur® B180

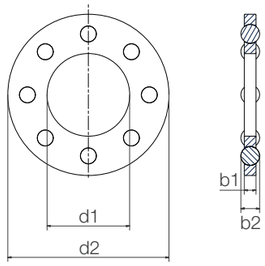


Standard type with stainless steel or glass balls



Slim Line design with stainless steel or glass balls

- Good resistance to chemicals and seawater
- Suitable for contact with food
- Operating temperature: from -40°C up to +80°C



Order key

Type	Material
BB-6004TW-	B180-ES-SL

Ball bearing	Dimensions according to DIN 625-1	Axial thrust washer	Race material	Ball material	Slim Line

Options:

Ball material
ES : Stainless steel
GL : Glass

Suffix
Blank : Standard
SL : Slim Line

Technical data (related to metallic shafts)

Installation size	Slim Line	Recommended load capacity stat. [N]	Recommended load capacity dyn. [N]	Limit speed [rpm]	Weight B180/ES [g]	Weight B180/GL [g]
626	–	341	425	2,000	1.35	0.81
608	–	482	600	1,700	2.25	1.17
6000	–	610	782	1,500	3.04	1.50
6000	●	405	500	1,500	2.09	1.20
6004	–	975	1,215	700	6.87	4.41
6006	–	925	1,540	600	5.51	3.39
6006	●	520	680	600	4.23	2.98

Dimensions [mm]

Inner Ø d1	OuterØ d2	Width b1	Width b2	Race/ball material combination B180/ES	Race/ball material combination B180/GL	Part No.
6.2	18.8	2.0	3.18	●	●	BB-626TW-B180-▭
8.2	21.8	2.0	3.97	●	●	BB-608TW-B180-▭
10.2	25.8	2.0	4.76	●	●	BB-6000TW-B180-▭
10.2	25.8	2.0	3.97	●	●	BB-6000TW-B180-▭-SL
21.0	41.0	3.0	4.76	●	●	BB-6004TW-B180-▭
29.9	45.5	2.5	4.76	●	●	BB-6006TW-B180-▭
29.9	45.5	2.5	3.97	●	●	BB-6006TW-B180-▭-SL

Order example:
BB-6000TW-B180-ES-SL = Thrust washer with race material xirodur® B180, stainless steel balls, Slim Line version

Available from stock

EN 09/2023

xiros® slewing ring ball bearings | Product range

Races made from xirodur® B180 - for absorbing higher axial loads



Stainless steel balls



Glass balls

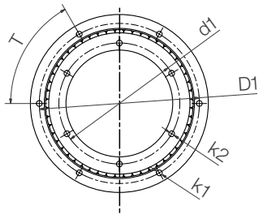


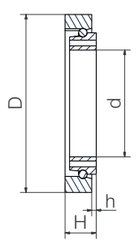
Stainless steel balls, with cage made from xirodur® B180

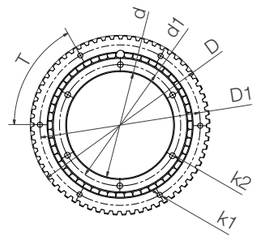


Stainless steel balls, with outer drive ring (HDT5)

- Good resistance to chemicals and seawater
- Suitable for contact with food
- Operating temperature: from -40°C up to +80°C







Order key

Type	Type	Material
BB-	RT - 01 - 60 -	ES
Ball bearing	Slewing ring ball bearings	Type 01	Inner Ø	Ball material

Order key with cage

Type	Type	Material
BB-	RT - 01 - 60 -	B180 - 30 -	ES
Ball bearing	Slewing ring ball bearings	Type 01	Inner Ø	Race material	Cage material	Ball material

Options:

Cage material

30 : xirodur® B180

Ball material

ES : Stainless steel

GL : Glass

Technical data

Type	Load capacity axial [N]	Load capacity radial [N]	Max. permissible tilting moment [Nm]	Limit speed [rpm]	Weight ES [g]	Weight GL [g]
Standard with stainless steel or glass balls						
RT-01-60	800	720	40	350	111.68	98.3
RT-01-100	1,600	1,250	60	250	283.85	243.76
Slewing ring ball bearings with xirodur® B180 cage						
RT-01–40-B180-30	500	260	30	900	63.46	–
RT-01-60-B180-30	600	300	30	800	101.22	–
RT-01-100-B180-30	1,020	760	55	650	248.90	–
RT-01-150-B180-30	2,000	1,100	75	600	398.00	–
Slewing ring ball bearings with outer drive ring and cage						
RT-01-60HDT5-B180	800	720	40	320	97.00	–
Slewing ring ball bearings with outer drive ring without cage						
RT-01-60HDT5-B180-30	600	300	30	800	109.00	–

Dimensions [mm]

d	d1	D	D1	h	H	T	k1	k2	Part No.
Standard with stainless steel or glass balls									
60	68	100	90	2.5	17.5	60	3.3	3.3	BB-RT-01-60-☐
100	110	160	150	5.0	20.0	60	5.2	5.2	BB-RT-01-100-☐
Slewing ring ball bearings with xirodur® B180 cage									
40	47	80	72	2.5	15	60	3.3	3.2	BB-RT-01-40-B180-30-ES
60	68	100	90	2.5	17.5	60	3.3	3.3	BB-RT-01-60-B180-30-ES
100	110	160	150	5.0	20	60	5.2	5.2	BB-RT-01-100-B180-30-ES
150	163	210	197	5.0	22.5	60	6.1	6.1	BB-RT-01-150-B180-30-ES
Slewing ring ball bearings with outer drive ring and cage									
60	68	100	90	2.5	17.5	60	M3	3.3	BB-RT-01-60HDT5-B180-30-ES
Slewing ring ball bearings with outer drive ring without cage									
60	68	100	90	2.5	17.5	60	M3	3.3	BB-RT-01-60HDT5-B180-30-ES

Order example:

BB-RT-01-60-ES = Standard-Standard slewing ring ball bearing with race material xirodur® B180 and stainless steel balls

BB-RT-01-60-B180-30-ES = Slewing ring ball bearing with race material xirodur® B180, xirodur® B180 cage and stainless steel balls

BB-RT-01-60-HDT5-B180-ES = Slewing ring ball bearing with race material xirodur® B180, outer drive ring and stainless steel balls

BB-RT-01-60-HDT5-B180-30-ES = Slewing ring ball bearing with race material xirodur® B180, outer drive ring, xirodur® B180 cage and stainless steel balls

Available from stock

xiros® fixed flange ball bearings | Product range

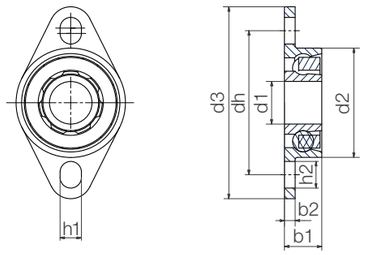
FDA-compliant, fixed version

FDA



xirodur® B180 cage
Stainless steel balls

- For less precise holding fixtures



Order key

Type	Material

BB-FL-608-B180-30-ES

- Ball bearing
- Fixed flange ball bearings
- Dimensions according to DIN 625-1
- Housing material
- Cage material
- Ball material

Cage material
30 : xirodur® B180
Ball material
ES : Stainless steel

Technical data

Installation size	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight B180/ES [g]
626	60	62	3,200	2.89
608	80	92	2,200	3.65
6000	110	130	2,200	6.49
6001	130	147	2,000	7.68
6003	160	220	1,600	11.13
6004	250	320	1,400	25.06

Dimensions [mm]

d1	d2	d3	b1	b2	DH	h1	h2	Part No.
6	19	33.5	6	2	25	3	4.5	**BB-FL-626-B180-30-ES**
8	20.7	35.8	7	2	26.8	4	5	**BB-FL-608-B180-30-ES**
10	26	41	8	2	32	4	5	**BB-FL-6000-B180-30-ES**
12	28	44	8	2	35	4	5	**BB-FL-6001-B180-30-ES**
17	35	54	10	2.5	44	4	6	**BB-FL-6003-B180-30-ES**
20	42	84	12	4	63	8	12	**BB-FL-6004-B180-30-ES**

Order example:
BB-FL-608-B180-30-ES = Fixed flange ball bearing with housing material xirodur® B180, xirodur® B180 cage and stainless steel balls

Available from stock

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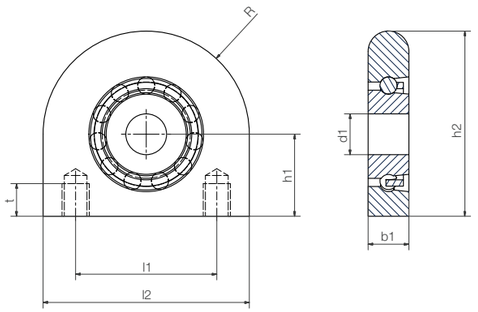
xiros® pillow block ball bearings | Product range

FDA-compliant, fixed version - 1:1 interchangeable

FDA



- Easy to assemble with integrated thread
- Suitable for contact with food
- Operating temperature: from -40°C up to +80°C



Order key

Type	Material

ESTM-BB1-F 25-B180-ES-SL

- Pillow block bearing
- Ball bearing, single row
- Fixed version
- Inner Ø
- Race/cage material
- Ball material
- Slim Line

Race/cage material
B180 : xirodur® B180
Ball material
ES : Stainless steel

Technical data

Type	Load capacity, radial stat. [N]	Load capacity, radial dyn. [N]	Limit speed [rpm]	Weight ES [g]
ESTM-F15	270	350	1,250	86
ESTM-F17	280	360	1,200	85
ESTM-F20	290	370	1,150	83
ESTM-F25	480	520	850	119
ESTM-F30	500	550	840	163

Dimensions [mm]

d1	b1	h1	h2	l1	l2	R	Thread	t	Part No.
15	15	30.2	68.2	52	76	38	M10	12	**ESTM-BB1-F15-B180-ES-SL**
17	15	30.2	68.2	52	76	38	M10	12	**ESTM-BB1-F17-B180-ES-SL**
20	15	30.2	68.2	52	76	38	M10	12	**ESTM-BB1-F20-B180-ES-SL**
25	17	36.5	78.5	56	84	42	M10	15	**ESTM-BB1-F25-B180-ES-SL**
30	19	42.9	89.9	66	94	47	M14	18	**ESTM-BB1-F30-B180-ES-SL**

Order example:
ESTM-BB1-F25-B180-ES-SL = pillow block ball bearing with race material xirodur® B180, xirodur® B180 cage, stainless steel balls, Slim Line version

Available from stock

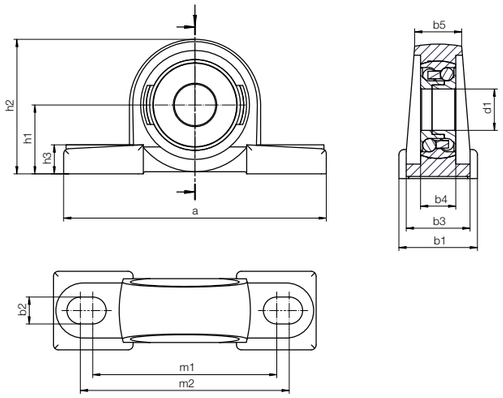
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xiros® pillow block ball bearings | Product range New

Pillow block ball bearings with metal housings



- 1:1 interchangeable with common UC pillow block bearing
- Twice the load capacity compared to single-row xiros® ball bearings
- Protected from dirt
- No lubrication



Order key

Type	Material
P204-BB-6004-B180-ES	

Pillow block bearing | Ball bearing | Installation size | Race/cage material | Ball material

Race/cage material
B180 : xirodur® B180
Ball material
ES : Stainless steel

Technical data

Type	Load capacity [N]	Limit speed [rpm]	Weight ES [g]
P204	310	1,200	524
P205	400	1,000	598
P206	480	850	1,082

Technical data

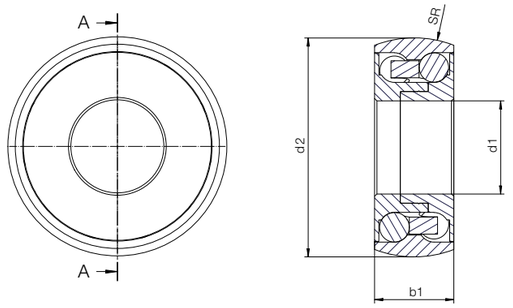
d1	b1	b2	b3	b4	b5	h1	a	h2	h3	m1	m2	Part No.
20	38	13	30.9	17	22.7	33.3	127	65	14	89	101	**P204-BB-6004-B180-ES** New
25	38	13	30.9	17	23.3	36.5	140	71	15	99	111	**P205-BB-6005-B180-ES** New
30	48	17	39.0	19	25.3	42.9	165	83	17	117	125	**P206-BB-6006-B180-ES** New

xiros® pillow block ball bearings | Product range New

Spherical insert bearing for pillow block ball bearing



- One-to-one replacement of metallic ball bearings in common UC pillow block sizes
- Smooth operation
- Operating temperature: from -40°C up to +80°C



Order key

Type	Material
BB-6004SO-B180-ES-D	

Ball bearing | Installation size | Spherical | Race/cage material | Ball material | Double row

Race/cage material
B180 : xirodur® B180
Ball material
ES : Stainless steel

Technical data

d1	d2	b1	Load capacity [N]	Limit speed [rpm]	Weight ES [g]	Part No.
20	65	38	310	1,200	44.9	**BB-6004SO-B180-ES-D** New
25	71	38	400	1,000	58.4	**BB-6005SO-B180-ES-D** New
30	83	48	480	850	82.3	**BB-6006SO-B180-ES-D** New

xiros® pillow block ball bearings | Product range

Fixed version

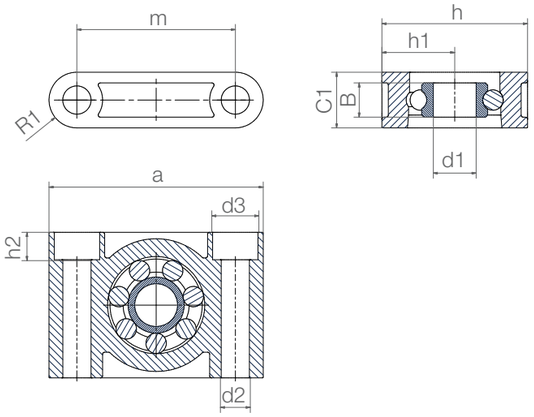


igumid® G housing, PA cage, stainless steel balls



igumid® G housing, PA cage, glass balls

- Good resistance to chemicals and seawater
- Smooth operation
- Operating temperature: from -40°C up to +80°C



Order key

Type						Material	
ESTM-	BB1-	F	06	-	B180	-	ES
Pillow block bearing	Ball bearing, single row	Fixed version	Inner Ø		Race material		Ball material

Race material
B180 : xirodur® B180
Options:
Ball material
ES : Stainless steel
GL : Glass

Technical data

Type	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight B180/ES [g]	Weight B180/GL [g]
ESTM-F06	41	43	2,600	7.7	6.7
ESTM-F10	110	130	1,900	20.2	18.2
ESTM-F20	250	320	1,150	54.1	47.7

Dimensions [mm]

Inner Ø d1	Hole Ø d2	d3	h	h1	h2	a	m	C1	B	R1	Part No.
6	5.5	–	22	11	–	36	26	10	6	5.0	ESTM-BB1-F06-B180-▭
10	6.6	10.6	34	17	6.6	50	37	13	8	6.5	ESTM-BB1-F10-B180-▭
20	9.0	14.0	48	24	8.6	72	54	18	12	9.0	ESTM-BB1-F20-B180-▭

Order example:
ESTM-BB1-F06-B180-ES = Pillow block bearing, fixed version, made from xirodur® B180 with stainless steel balls

Available from stock

EN 09/2023

xiros® pillow block ball bearings | Product range

Pivoting version

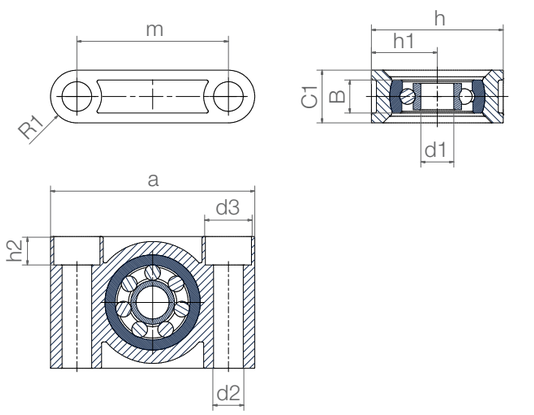


igumid® G housing, PA cage, stainless steel balls



igumid® G housing, PA cage, Glass balls

- Self-aligning
- Good resistance to chemicals and seawater
- Spherical ball bearing
- Operating temperature: from -40°C up to +80°C



Order key

Type						Material	
ESTM-	BB1-	P	08	-	B180	-	ES
Pillow block bearing	Ball bearing, single row	Fixed version	Inner Ø		Race material		Ball material

Race material
B180 : xirodur® B180
Options:
Ball material
ES : Stainless steel
GL : Glass

Technical data

Type	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight B180/ES [g]	Weight B180/GL [g]
ESTM-P08	80	94	2,200	19.6	18.2
ESTM-P10	110	130	1,900	32.9	30.3
ESTM-P12	130	147	1,750	54.8	52.8

Dimensions [mm]

Inner Ø d1	Hole Ø d2	d3	h	h1	h2	a	m	C1	B	R1	Max. pivot angle	Part No.
8	6.6	10.6	34	17	6.4	50	37	13	8	6.5	±5°	ESTM-BB1-P08-B180-▭
10	9.0	14.0	40	20	8.6	62	46	16	10	8	±5°	ESTM-BB1-P10-B180-▭
12	9.0	14.0	48	24	8.6	72	54	18	12	9	±5°	ESTM-BB1-P12-B180-▭

Order example:
ESTM-BB1-P08-B180-ES = Pillow block bearing, pivoting version, made from xirodur® B180 with stainless steel balls

Available from stock

EN 09/2023

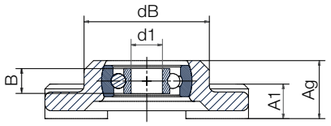
xiros® 4-hole fixed flange ball bearings | Product range

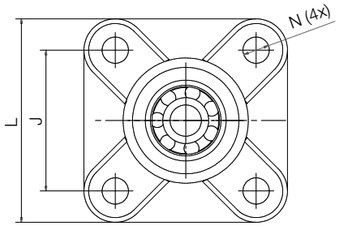
Pivoting version



igumid® G housing,
PA cage,
stainless steel balls or
glass balls

- Compensation of misalignment





Order key

Type						Material	
EFSM-	BB1-	P	08	-	B180	-	ES
Four-hole fixed flange ball bearings	Ball bearing, single row	Pivoting version	Inner Ø		Race material		Ball material

Race material
B180 : xirodur® B180
Options:
Ball material
ES : Stainless steel
GL : Glass

Technical data

Type	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight B180/ES [g]	Weight B180/GL [g]
EFSM-P08	80	94	2,200	25.2	24.0
EFSM-P10	110	130	1,900	48.8	46.2
EFSM-P12	130	147	1,750	80.0	77.7

Dimensions [mm]

Inner Ø d1	dB d2	L	J	A1	Ag	B	N	Max. pivot angle	Part No.
8	32.5	52	36	9	15.5	7	6.4	±20°	EFSM-BB1-P08-B180-▭
10	40.0	65	45	11	18.5	8	8.4	±20°	EFSM-BB1-P10-B180-▭
12	48.5	74	52	14	23.5	8	8.4	±20°	EFSM-BB1-P12-B180-▭

Order example:
EFSM-BB1-P08-B180-ES = 4-hole fixed flange ball bearing with race material xirodur® B180 and stainless steel balls

Available from stock

EN 09/2023

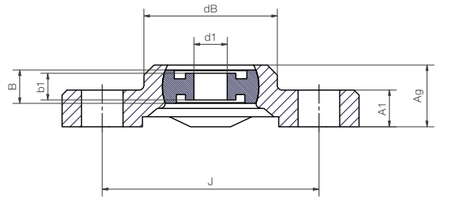
xiros® 2-hole fixed flange ball bearings | Product range

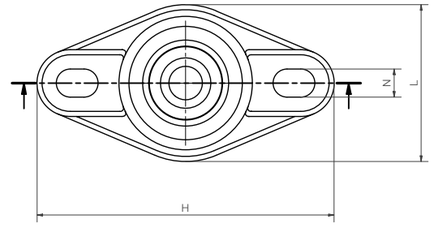
Pivoting version



igumid® G housing,
PA cage,
stainless steel balls or
glass balls

- Trouble-free readjustment thanks to elongated holes
- Precise alignment of the bearings not necessary





Order key

Type						Material	
EFOM-	BB1-	P	08	-	B180	-	ES
2-hole fixed flange ball bearings	Ball bearing, single row	Pivoting version	Inner Ø		Race material		Ball material

Race material
B180 : xirodur® B180
Options:
Ball material
ES : Stainless steel
GL : Glass

Technical data

Type	Radial load capacity stat. [N]	Radial load capacity dyn. [N]	Limit speed [rpm]	Weight B180/ES [g]	Weight B180/GL [g]
EFOM-P08	80	94	2,200	19.5	18.1
EFOM-P10	110	130	1,900	36.3	33.6
EFOM-P12	130	147	1,750	61.7	59.4

Dimensions [mm]

Inner Ø d1	b1	dB d2	H	L	J	A1	Ag	B	N	Max. pivot angle	Part No.
8	7	32.0	72.6	38	53	10	15.25	8.0	6.4x10.1	±20°	EFOM-BB1-P08-B180-▭
10	8	40.0	89.1	47	65	11	18.5	9.9	8.4x12.5	±20°	EFOM-BB1-P10-B180-▭
12	9	48.5	101.0	58.5	75	14	23.5	12.0	8.4x12.5	±20°	EFOM-BB1-P12-B180-▭

Order example:
EFOM-BB1-P08-B180-ES = 2-hole fixed flange ball bearing with race material xirodur® B180 and stainless steel balls

Available from stock

EN 09/2023

xiros® customised special parts

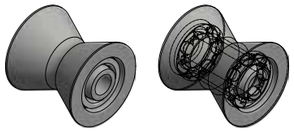
Customised and cost-effective



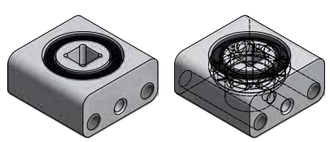
Infinite possibilities

Customised & cost-effective: your polymer ball bearing in the required design, material and quantity.

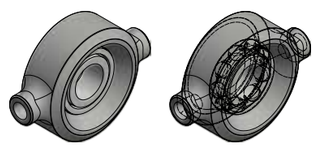
- Machined or injection-moulded
- Square or round
- With flange, outer toothed profile, etc.
- In customised quantity
- Lubrication and maintenance-free
- Cost-effective
- Select from different xirodur® materials



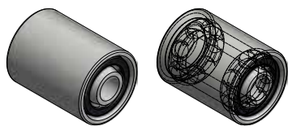
Guide roller for rubber seals in car production: which replaced a special unavailable roller



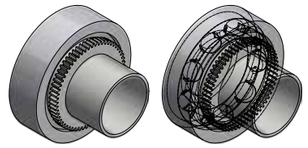
Non-magnetic for drylin® linear guide: design of a ball bearing with square housing, square shaft and glass balls



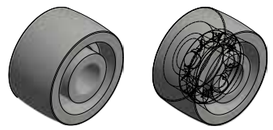
Consumer product camera stabilizer: injection-moulded special parts to improve engineered solution



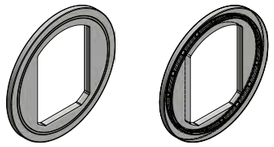
Blood pumps (peristaltic): lubrication-free and longer service life



Gear-driven shaft: one-part solution for full integration



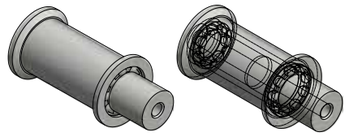
Roller for belt guide in ATM cash machines



Tension rollers in rubber production



Bearings for cash machines: lubrication-free and integration of 2 rubber rings for better paper grip



Tension roller for tape deflection: one-part solution (6 in 1)

xiros® customised special parts

In 3 steps to your individual ball bearing

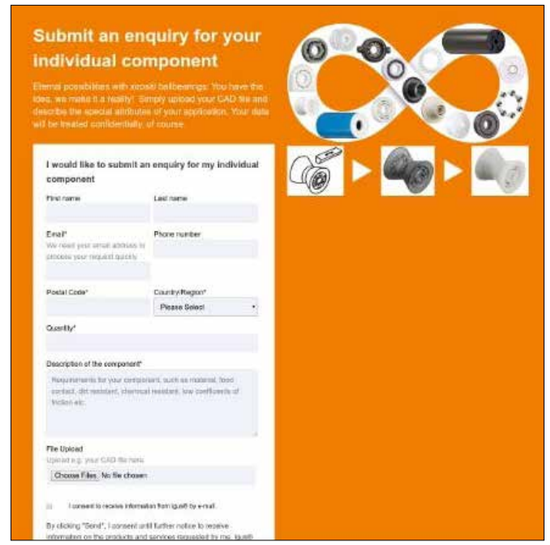
1. Submit an enquiry
Fill in the form with some basic information: quantity and requirement, such as food contact, dirt resistance, etc. and upload the CAD files, for example.

After one of our specialists has contacted you for a consultation, you will receive a quotation.

2. We manufacture your required component
Upon order, igus® starts the production process.

3. You receive your product
Your required component is ready to ship and delivered quickly.

Submit an enquiry:
▶ **www.igus.eu/xiros-specialparts**



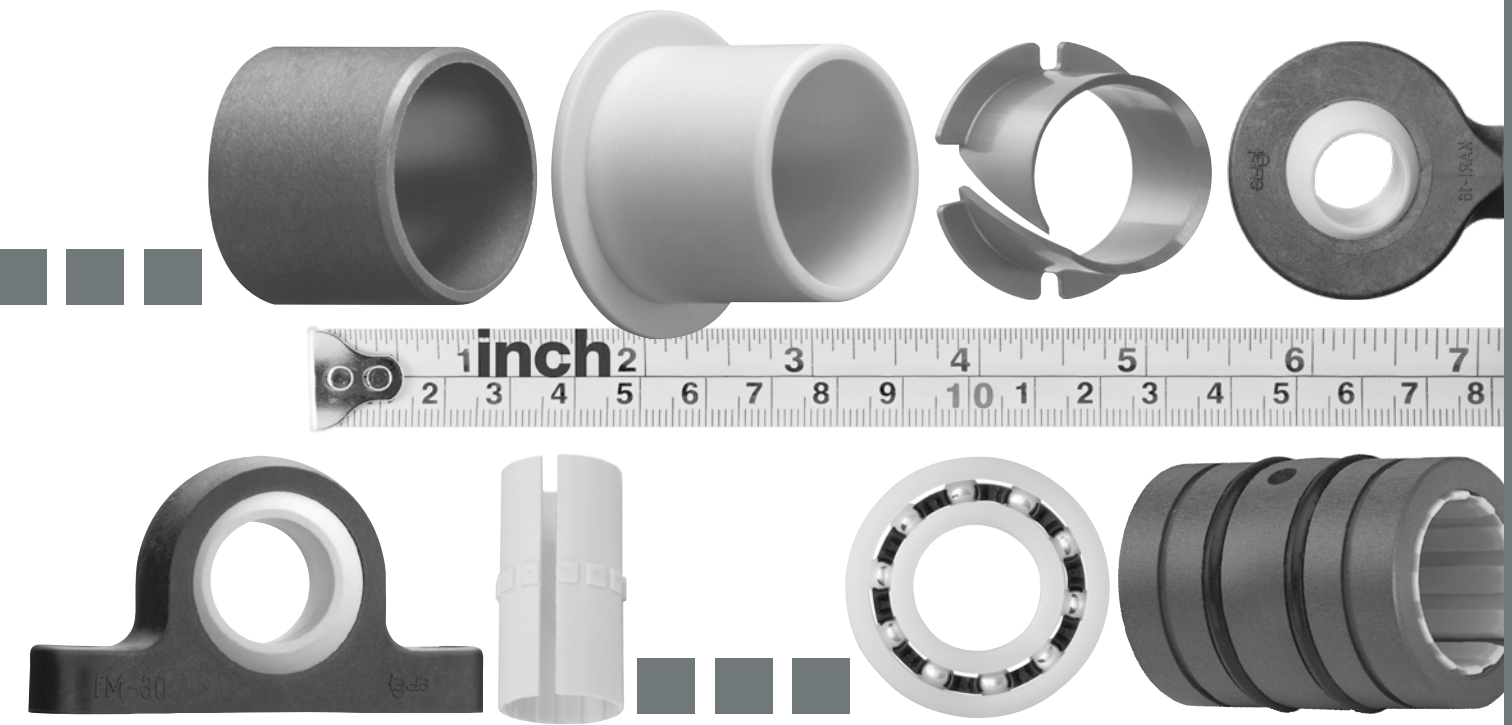
igus® test laboratory

The material combinations included in xiros® ball bearings are subjected to a large number of load and speed tests in the igus® test laboratory. The test results can be used to determine service life and suitability for both standard and special parts.



inch...

Catalogue products in imperial sizes



...plastics

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xiros® - polymer ball bearings

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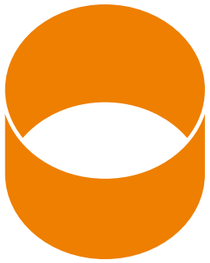
More products online

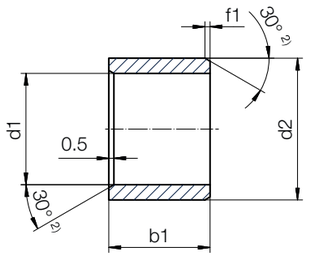
drylin® R - shaft guides

drylin® R - shaft guides	
drylin® R - adapters	

Imperial product range | Standards overview

Sleeve bearings (form S)





2) Thickness < 1mm: chamfer = 20°

Chamfer in relation to d1

d1 [inch]	f [inch]
Ø .040 - .236	.012
Ø .236 - .472	.019
Ø .472 - 1.18	.031
Ø > 1.18	.047

Order key

Type	Dimensions [inch]
☐ S	I -02 03-03

iglidur® material	Form S	Imperial dimension	Inner Ø d1	Outer Ø d2	Length b1

Choose the suitable material and dimensions for your application

Dimensions according to ISO 3547-1

Imperial product range | Standards overview

Absolute flexibility: all iglidur® standard sizes available from stock

Inch iglidur® standards

G	The classic all-rounder
P210	Specialist for pivoting, rolling applications and more
P	The cost-effective outdoor all-rounder
J	The versatile endurance runner
W(300)	The classic endurance runner up to 30MPa
J3	The new endurance runner: specialist for pivoting applications and pulsating loads
J350	Endurance runner with high dimensional stability at high temperature
X	The chemical and temperature specialist
Z	Long service life under extreme conditions
H1	Endurance runner with high media resistance
H370	Long service life under water
A181	The universal bearing for food contact
A350	The endurance runner at higher temperatures in the food sector
A500	The media and temperature specialist in the food sector
Q2	The durable heavy-duty bearing

Dimensions [inch]

d1	d2	b1	Part No.
1/8	3/16	3/16	☐ SI-0203-03
3/16	1/4	1/4	☐ SI-0304-04
3/16	1/4	3/8	☐ SI-0304-06
1/4	5/16	3/8	☐ SI-0405-06
1/4	5/16	1/2	☐ SI-0405-08
5/16	3/8	1/4	☐ SI-0506-04
5/16	3/8	3/8	☐ SI-0506-06
5/16	3/8	1/2	☐ SI-0506-08
3/8	15/32	1/4	☐ SI-0607-04
3/8	15/32	3/8	☐ SI-0607-06
3/8	15/32	1/2	☐ SI-0607-08
3/8	15/32	5/8	☐ SI-0607-10
3/8	15/32	3/4	☐ SI-0607-12

d1	d2	b1	Part No.
7/16	17/32	1/2	☐ SI-0708-08
7/16	17/32	3/7	☐ SI-0708-12
1/2	19/32	1/4	☐ SI-0809-04
1/2	19/32	3/8	☐ SI-0809-06
1/2	19/32	1/2	☐ SI-0809-08
1/2	19/32	5/8	☐ SI-0809-10
1/2	19/32	3/4	☐ SI-0809-12
1/2	19/32	1	☐ SI-0809-16
9/16	21/32	1/2	☐ SI-0910-08
9/16	21/32	5/8	☐ SI-0910-10
9/16	21/32	3/4	☐ SI-0910-12
5/8	23/32	1/2	☐ SI-1011-08
5/8	23/32	3/4	☐ SI-1011-12

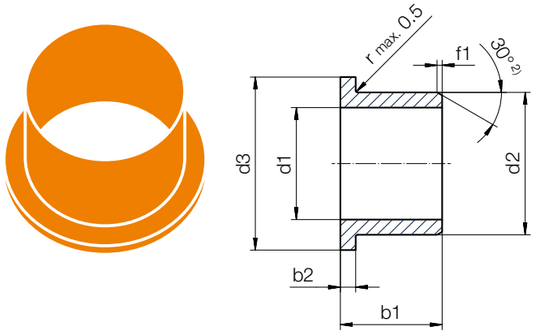
Dimensions [inch]

d1	d2	b1	Part No.
5/8	23/32	1	☐ SI-1011-16
3/4	7/8	1/2	☐ SI-1214-08
3/4	7/8	3/4	☐ SI-1214-12
3/4	7/8	1	☐ SI-1214-16
7/8	1	1/2	☐ SI-1416-08
7/8	1	3/4	☐ SI-1416-12
7/8	1	1	☐ SI-1416-16
1	1 1/8	1/2	☐ SI-1618-08
1	1 1/8	3/4	☐ SI-1618-12
1	1 1/8	1	☐ SI-1618-16
1 1/8	1 9/32	3/4	☐ SI-1820-12
1 1/8	1 9/32	1	☐ SI-1820-16
1 1/8	1 9/32	1 1/4	☐ SI-1820-20

d1	d2	b1	Part No.
1 1/4	1 13/32	3/4	☐ SI-2022-12
1 1/4	1 13/32	1	☐ SI-2022-16
1 1/4	1 13/32	1 1/4	☐ SI-2022-20
1 1/2	1 21/32	1	☐ SI-2426-16
1 1/2	1 21/32	1 1/2	☐ SI-2426-24
1 5/8	1 25/32	1	☐ SI-2629-16
1 5/8	1 25/32	1 1/2	☐ SI-2629-24
1 3/4	1 15/16	1	☐ SI-2831-16
1 3/4	1 15/16	2	☐ SI-2831-32
1 7/8	2 1/16	1	☐ SI-3033-16
1 7/8	2 1/16	2	☐ SI-3033-32
2	2 3/16	1	☐ SI-3235-16
2	2 3/16	2	☐ SI-3235-32

Imperial product range | Standards overview

Flange bearings (form F)



2) Thickness < 1mm: chamfer = 20°

Chamfer in relation to d1

d1 [inch]	f [inch]
Ø .040 - .236	.012
Ø .236 – .472	.019
Ø .472 - 1.18	.031
Ø > 1.18	.047

Order key

Type	Dimensions [inch]					
☐ F	I	-02	03	-	03	
iglidur® material	Form F	Imperial dimension	Inner Ø d1		Outer Ø d2	Length b1

Choose the suitable material and dimensions for your application

Dimensions according to ISO 3547-1

Dimensions [inch]

d1	d2	b1	d3	b2 h13	Part No.
1/8	3/16	3/16	.312	.0320	☐ FI-0203-03
3/16	1/4	1/4	.375	.0320	☐ FI-0304-04
1/4	5/16	3/8	.430	.0320	☐ FI-0405-06
1/4	5/16	1/2	.500	.0320	☐ FI-0405-08
5/16	3/8	1/4	.500	.0320	☐ FI-0506-04
5/16	3/8	3/8	.500	.0320	☐ FI-0506-06
5/16	3/8	1/2	.500	.0320	☐ FI-0506-08
3/8	15/32	1/4	.687	.0460	☐ FI-0607-04
3/8	15/32	3/8	.687	.0460	☐ FI-0607-06
3/8	15/32	1/2	.687	.0460	☐ FI-0607-08
3/8	15/32	3/4	.687	.0460	☐ FI-0607-12
7/16	17/32	1/2	.750	.0460	☐ FI-0708-08
1/2	19/32	1/4	.875	.0460	☐ FI-0809-04
1/2	19/32	3/8	.875	.0460	☐ FI-0809-06
1/2	19/32	1/2	.875	.0460	☐ FI-0809-08
1/2	19/32	3/4	.875	.0460	☐ FI-0809-12
1/2	19/32	1	.875	.0460	☐ FI-0809-16
5/8	23/32	1/2	.937	.0460	☐ FI-1011-08

Imperial product range | Standards overview

Absolute flexibility: all iglidur® standard sizes available from stock

G	The classic all-rounder
P210	Specialist for pivoting, rolling applications and more
P	The cost-effective outdoor all-rounder
J	The versatile endurance runner
W(300)	The classic endurance runner up to 30MPa
J3	The new endurance runner: specialist for pivoting applications and pulsating loads
J350	Endurance runner with high dimensional stability at high temperature
X	The chemical and temperature specialist
Z	Long service life under extreme conditions
H1	Endurance runner with high media resistance
H370	Long service life under water
A181	The universal bearing for food contact
A350	The endurance runner at higher temperatures in the food sector
A500	The media and temperature specialist in the food sector
Q2	The durable heavy-duty bearing

Dimensions [inch]

d1	d2	b1	d3	b2 h13	Part No.
5/8	23/32	3/4	.937	.0460	☐ FI-1011-12
5/8	23/32	1	.937	.0460	☐ FI-1011-16
3/4	7/8	1/2	1,125	.0620	☐ FI-1214-08
3/4	7/8	3/4	1,125	.0620	☐ FI-1214-12
3/4	7/8	1	1,125	.0620	☐ FI-1214-16
7/8	1	1/2	1,250	.0620	☐ FI-1416-08
7/8	1	3/4	1,250	.0620	☐ FI-1416-12
7/8	1	1	1,250	.0620	☐ FI-1416-16
1	1 1/8	1/2	1.375	.0620	☐ FI-1618-08
1	1 1/8	3/4	1.375	.0620	☐ FI-1618-12
1	1 1/8	1	1.375	.0620	☐ FI-1618-16
1 1/4	1 13/32	1	1.687	.0780	☐ FI-2022-16
1 1/4	1 13/32	1 1/4	1.687	.0780	☐ FI-2022-20
1 1/2	1 21/32	1	2,000	.0780	☐ FI-2426-16
1 1/2	1 21/32	1 1/2	2,000	.0780	☐ FI-2426-24
1 3/4	1 15/16	2	2.375	.0930	☐ FI-2831-32
2	2 3/16	2	2.625	.0930	☐ FI-3235-32

Inch iglidur® standards

Sleeve bearings (form S)



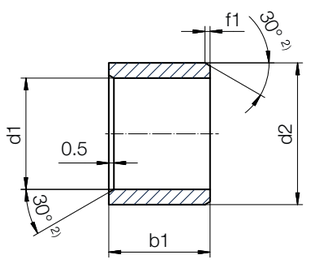


Image exemplary

Chamfer in relation to d1

d1 [inch]	f [inch]
Ø 0.040 - 0.236	0.012
Ø 0.236 - 0.472	0.019
Ø 0.472 - 1.18	0.031
Ø > 1.18	0.047

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d1	d2	b1	d1 3)		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236	**A181SI-0203-03**
3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858	**A181SI-0304-04**
3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858	**A181SI-0304-06**
1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481	**A181SI-0405-06**
1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481	**A181SI-0405-08**
5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106	**A181SI-0506-04**
5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106	**A181SI-0506-06**
5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106	**A181SI-0506-08**
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**A181SI-0607-04**
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**A181SI-0607-06**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**A181SI-0607-08**
3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**A181SI-0607-10**
3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731	**A181SI-0607-12**
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**A181SI-0708-08**
7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355	**A181SI-0708-12**
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**A181SI-0809-04**
1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980	**A181SI-0809-06**
1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980	**A181SI-0809-08**
1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980	**A181SI-0809-10**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**A181SI-0809-12**
1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980	**A181SI-0809-16**
9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605	**A181SI-0910-08**
9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605	**A181SI-0910-10**
9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605	**A181SI-0910-12**
5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230	**A181SI-1011-08**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**A181SI-1011-12**
5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230	**A181SI-1011-16**
3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479	**A181SI-1214-08**
3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479	**A181SI-1214-12**
3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479	**A181SI-1214-16**
7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**A181SI-1416-08**

3) After press-fit. Testing methods ▶ Page 61

Imperial product range | iglidur® | Sleeve bearings

Inch iglidur® form S

d1	d2	b1	d1 3)		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729	**A181SI-1416-12**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**A181SI-1416-16**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**A181SI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**A181SI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**A181SI-1618-16**
1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**A181SI-1820-12**
1 1/8	1 9/32	1	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**A181SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**A181SI-1820-20**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**A181SI-2022-12**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**A181SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**A181SI-2022-20**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**A181SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**A181SI-2426-24**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**A181SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**A181SI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**A181SI-2831-16**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**A181SI-2831-32**
1 7/8	2 1/16	1	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**A181SI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**A181SI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**A181SI-3235-16**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**A181SI-3235-32**

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d1	d2	b1	d1 3)		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	1/4	1/4	.1280	.1262	.2515	.2510	.1250	.1241	**ASI-0204-04**
3/16	5/16	1/4	.1905	.1887	.3140	.3135	.1875	.1866	**ASI-0305-04**
1/4	3/8	1/4	.2539	.2516	.3765	.3760	.2500	.2491	**ASI-0406-04**
1/4	3/8	3/8	.2539	.2516	.3765	.3760	.2500	.2491	**ASI-0406-06**
1/4	3/8	1/2	.2539	.2516	.3765	.3760	.2500	.2491	**ASI-0406-08**
5/16	15/32	1/2	.3164	.3141	.4390	.4385	.3125	.3116	**ASI-0507-08**
3/8	1/2	1/4	.3789	.3766	.5015	.5010	.3750	.3741	**ASI-0608-04**
3/8	1/2	1/2	.3789	.3766	.5015	.5010	.3750	.3741	**ASI-0608-08**
1/2	5/8	1/2	.5047	.5020	.6260	.6250	.5000	.4990	**ASI-0810-08**
1/2	5/8	3/4	.5047	.5020	.6260	.6250	.5000	.4990	**ASI-0810-12**
5/8	13/16	5/16	.6297	.6270	.8135	.8125	.6250	.6240	**ASI-1013-05**
5/8	13/16	3/4	.6297	.6270	.8135	.8125	.6250	.6240	**ASI-1013-12**
3/4	1	3/4	.7559	.7525	1.0010	1.0000	.7500	.7490	**ASI-1216-12**
3/4	1	1	.7559	.7525	1.0010	1.0000	.7500	.7490	**ASI-1216-16**
7/8	1 1/8	1	.8809	.8775	1.1260	1.1250	.8750	.8740	**ASI-1418-16**
1	1 9/32	3/4	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**ASI-1620-12**
1	1 9/32	1	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**ASI-1620-16**
1 1/4	1 17/32	1	1.2600	1.2531	1.5005	1.4995	1.2500	1.249	**ASI-2024-16**
1 1/2	1 3/4	1 1/2	1.5100	1.5032	1.7505	1.7495	1.5000	1.499	**ASI-2428-24**

3) After press-fit. Testing methods ▶ Page 61

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1266	.1247	.1878	.1873	.1243	.1236	**A350SI-0203-03**
3/16	1/4	1/4	.1888	.1869	.2503	.2497	.1865	.1858	**A350SI-0304-04**
3/16	1/4	3/8	.1888	.1869	.2503	.2497	.1865	.1858	**A350SI-0304-06**
1/4	5/16	3/8	.2518	.2495	.3128	.3122	.2490	.2481	**A350SI-0405-06**
1/4	5/16	1/2	.2518	.2495	.3128	.3122	.2490	.2481	**A350SI-0405-08**
5/16	3/8	1/4	.3143	.3120	.3753	.3747	.3115	.3106	**A350SI-0506-04**
5/16	3/8	3/8	.3143	.3120	.3753	.3747	.3115	.3106	**A350SI-0506-06**
5/16	3/8	1/2	.3143	.3120	.3753	.3747	.3115	.3106	**A350SI-0506-08**
3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731	**A350SI-0607-04**
3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731	**A350SI-0607-06**
3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731	**A350SI-0607-08**
3/8	15/32	5/8	.3768	.3745	.4691	.4684	.3740	.3731	**A350SI-0607-10**
3/8	15/32	3/4	.3768	.3745	.4691	.4684	.3740	.3731	**A350SI-0607-12**
7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355	**A350SI-0708-08**
7/16	17/32	3/4	.4399	.4371	.5316	.5309	.4365	.4355	**A350SI-0708-12**
1/2	19/32	1/4	.5024	.4996	.5941	.5934	.4990	.4980	**A350SI-0809-04**
1/2	19/32	3/8	.5024	.4996	.5941	.5934	.4990	.4980	**A350SI-0809-06**
1/2	19/32	1/2	.5024	.4996	.5941	.5934	.4990	.4980	**A350SI-0809-08**
1/2	19/32	5/8	.5024	.4996	.5941	.5934	.4990	.4980	**A350SI-0809-10**
1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980	**A350SI-0809-12**
1/2	19/32	1	.5024	.4996	.5941	.5934	.4990	.4980	**A350SI-0809-16**
9/16	21/32	1/2	.5649	.5620	.6566	.6559	.5615	.5605	**A350SI-0910-08**
9/16	21/32	5/8	.5649	.5620	.6566	.6559	.5615	.5605	**A350SI-0910-10**
9/16	21/32	3/4	.5649	.5620	.6566	.6559	.5615	.5605	**A350SI-0910-12**
5/8	23/32	1/2	.6274	.6246	.7192	.7184	.6240	.6230	**A350SI-1011-08**
5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230	**A350SI-1011-12**
5/8	23/32	1	.6274	.6246	.7192	.7184	.6240	.6230	**A350SI-1011-16**
3/4	7/8	1/2	.7532	.7499	.8755	.8747	.7491	.7479	**A350SI-1214-08**
3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479	**A350SI-1214-12**
3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479	**A350SI-1214-16**
7/8	1	1/2	.8782	.8749	1.0005	.9997	.8741	.8729	**A350SI-1416-08**
7/8	1	3/4	.8782	.8749	1.0005	.9997	.8741	.8729	**A350SI-1416-12**
7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729	**A350SI-1416-16**
1	1 1/8	1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A350SI-1618-08**
1	1 1/8	3/4	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A350SI-1618-12**
1	1 1/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A350SI-1618-16**
1 1/8	1 9/32	3/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**A350SI-1820-12**
1 1/8	1 9/32	1	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**A350SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**A350SI-1820-20**
1 1/4	1 13/32	3/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A350SI-2022-12**
1 1/4	1 13/32	1	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A350SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A350SI-2022-20**
1 1/2	1 21/32	1	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A350SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A350SI-2426-24**
1 5/8	1 25/32	1	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**A350SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**A350SI-2629-24**
1 3/4	1 15/16	1	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**A350SI-2831-16**
1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**A350SI-2831-32**
1 7/8	2 1/16	1	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**A350SI-3033-16**
1 7/8	2 1/16	2	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**A350SI-3033-32**
2	2 3/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**A350SI-3235-16**
2	2 3/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**A350SI-3235-32**

[3] After press-fit. Testing methods ▶ Page 61

Imperial product range | iglidur® | Sleeve bearings

Inch iglidur® form S

iglidur® A500

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1266	.1247	.1878	.1873	.1243	.1236	**A500SI-0203-03**
3/16	1/4	1/4	.1888	.1869	.2503	.2497	.1865	.1858	**A500SI-0304-04**
3/16	1/4	3/8	.1888	.1869	.2503	.2497	.1865	.1858	**A500SI-0304-06**
1/4	5/16	3/8	.2518	.2495	.3128	.3122	.2490	.2481	**A500SI-0405-06**
1/4	5/16	1/2	.2518	.2495	.3128	.3122	.2490	.2481	**A500SI-0405-08**
5/16	3/8	1/4	.3143	.3120	.3753	.3747	.3115	.3106	**A500SI-0506-04**
5/16	3/8	3/8	.3143	.3120	.3753	.3747	.3115	.3106	**A500SI-0506-06**
5/16	3/8	1/2	.3143	.3120	.3753	.3747	.3115	.3106	**A500SI-0506-08**
3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731	**A500SI-0607-04**
3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731	**A500SI-0607-06**
3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731	**A500SI-0607-08**
3/8	15/32	5/8	.3768	.3745	.4691	.4684	.3740	.3731	**A500SI-0607-10**
3/8	15/32	3/4	.3768	.3745	.4691	.4684	.3740	.3731	**A500SI-0607-12**
7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355	**A500SI-0708-08**
7/16	17/32	3/4	.4399	.4371	.5316	.5309	.4365	.4355	**A500SI-0708-12**
1/2	19/32	1/4	.5024	.4996	.5941	.5934	.4990	.4980	**A500SI-0809-04**
1/2	19/32	3/8	.5024	.4996	.5941	.5934	.4990	.4980	**A500SI-0809-06**
1/2	19/32	1/2	.5024	.4996	.5941	.5934	.4990	.4980	**A500SI-0809-08**
1/2	19/32	5/8	.5024	.4996	.5941	.5934	.4990	.4980	**A500SI-0809-10**
1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980	**A500SI-0809-12**
1/2	19/32	1	.5024	.4996	.5941	.5934	.4990	.4980	**A500SI-0809-16**
9/16	21/32	1/2	.5649	.5620	.6566	.6559	.5615	.5605	**A500SI-0910-08**
9/16	21/32	5/8	.5649	.5620	.6566	.6559	.5615	.5605	**A500SI-0910-10**
9/16	21/32	3/4	.5649	.5620	.6566	.6559	.5615	.5605	**A500SI-0910-12**
5/8	23/32	1/2	.6274	.6246	.7192	.7184	.6240	.6230	**A500SI-1011-08**
5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230	**A500SI-1011-12**
5/8	23/32	1	.6274	.6246	.7192	.7184	.6240	.6230	**A500SI-1011-16**
3/4	7/8	1/2	.7532	.7499	.8755	.8747	.7491	.7479	**A500SI-1214-08**
3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479	**A500SI-1214-12**
3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479	**A500SI-1214-16**
7/8	1	1/2	.8782	.8749	1.0005	.9997	.8741	.8729	**A500SI-1416-08**
7/8	1	3/4	.8782	.8749	1.0005	.9997	.8741	.8729	**A500SI-1416-12**
7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729	**A500SI-1416-16**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1	1 1/8	1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A500SI-1618-08**
1	1 1/8	3/4	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A500SI-1618-12**
1	1 1/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A500SI-1618-16**
1 1/8	1 9/32	3/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**A500SI-1820-12**
1 1/8	1 9/32	1	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**A500SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**A500SI-1820-20**
1 1/4	1 13/32	3/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A500SI-2022-12**
1 1/4	1 13/32	1	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A500SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A500SI-2022-20**
1 1/2	1 21/32	1	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A500SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A500SI-2426-24**
1 5/8	1 25/32	1	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**A500SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**A500SI-2629-24**
1 3/4	1 15/16	1	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**A500SI-2831-16**
1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**A500SI-2831-32**
1 7/8	2 1/16	1	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**A500SI-3033-16**
1 7/8	2 1/16	2	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**A500SI-3033-32**
2	2 3/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**A500SI-3235-16**
2	2 3/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**A500SI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236	**GSI-0203-03**
1/8	3/16	1/4	.1269	.1251	.1878	.1873	.1243	.1236	**GSI-0203-04**
1/8	3/16	3/8	.1269	.1251	.1878	.1873	.1243	.1236	**GSI-0203-06**
3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858	**GSI-0304-04**
3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858	**GSI-0304-06**
3/16	1/4	1/2	.1892	.1873	.2503	.2497	.1865	.1858	**GSI-0304-08**
1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481	**GSI-0405-04**
1/4	5/16	5/16	.2521	.2498	.3128	.3122	.2490	.2481	**GSI-0405-05**
1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481	**GSI-0405-06**
1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481	**GSI-0405-08**
1/4	5/16	5/8	.2521	.2498	.3128	.3122	.2490	.2481	**GSI-0405-10**
1/4	5/16	3/4	.2521	.2498	.3128	.3122	.2490	.2481	**GSI-0405-12**
5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106	**GSI-0506-04**
5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106	**GSI-0506-06**
5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106	**GSI-0506-08**
5/16	3/8	3/4	.3148	.3125	.3753	.3747	.3115	.3106	**GSI-0506-12**
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**GSI-0607-04**
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**GSI-0607-06**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**GSI-0607-08**
3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**GSI-0607-10**
3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731	**GSI-0607-12**
3/8	8/16	1/2	.3783	.3760	.5015	.5010	.3750	.3741	**GSI-0608-08**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
3/8	8/16	3/4	.3773	.3750	.5015	.5010	.3750	.3741	**GSI-0608-12**
7/16	17/32	1/4	.4406	.4379	.5316	.5309	.4365	.4355	**GSI-0708-04**
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**GSI-0708-08**
7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355	**GSI-0708-12**
1/2	19/32	3/16	.5030	.5003	.5941	.5934	.4990	.4980	**GSI-0809-03**
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**GSI-0809-04**
1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980	**GSI-0809-06**
1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980	**GSI-0809-08**
1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980	**GSI-0809-10**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**GSI-0809-12**
1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980	**GSI-0809-16**
1/2	5/8	3/4	.5040	.5013	.6260	.6250	.5000	.4990	**GSI-0810-12**
9/16	21/32	3/8	.5655	.5627	.6566	.6559	.5615	.5605	**GSI-0910-06**
9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605	**GSI-0910-08**
9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605	**GSI-0910-10**
9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605	**GSI-0910-12**
5/8	23/32	3/8	.6280	.6253	.7192	.7184	.6240	.6230	**GSI-1011-06**
5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230	**GSI-1011-08**
5/8	23/32	5/8	.6280	.6253	.7192	.7184	.6240	.6230	**GSI-1011-10**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**GSI-1011-12**
5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230	**GSI-1011-16**
5/8	23/32	1 1/4	.6280	.6253	.7192	.7184	.6240	.6230	**GSI-1011-20**
5/8	23/32	1 7/8	.6280	.6253	.7192	.7184	.6240	.6230	**GSI-1011-30**
5/8	3/4	1/2	.6290	.6263	.7510	.7500	.6250	.6240	**GSI-1012-08**
5/8	3/4	1	.6290	.6263	.7510	.7500	.6250	.6240	**GSI-1012-16**
11/16	25/32	7/8	.6906	.6879	.7817	.7809	.6865	.6855	**GSI-1112-14**
3/4	7/8	1/8	.7541	.7505	.8755	.8747	.7491	.7479	**GSI-1214-02**
3/4	7/8	3/8	.7541	.7505	.8755	.8747	.7491	.7479	**GSI-1214-06**
3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479	**GSI-1214-08**
3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479	**GSI-1214-12**
3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479	**GSI-1214-16**
3/4	7/8	1 1/4	.7541	.7505	.8755	.8747	.7491	.7479	**GSI-1214-20**
3/4	7/8	1 1/2	.7541	.7505	.8755	.8747	.7491	.7479	**GSI-1214-24**
7/8	1	3/8	.8791	.8757	1.0005	.9997	.8741	.8729	**GSI-1416-06**
7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**GSI-1416-08**
7/8	1	5/8	.8791	.8757	1.0005	.9997	.8741	.8729	**GSI-1416-10**
7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729	**GSI-1416-12**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**GSI-1416-16**
7/8	1	1 1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**GSI-1416-24**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GSI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GSI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GSI-1618-16**
1	1 1/8	1 1/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GSI-1618-20**
1	1 1/8	1 1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GSI-1618-24**
1	1 1/8	2 1/16	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GSI-1618-33**
1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**GSI-1820-12**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1 1/8	1 9/32	1	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**GSI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**GSI-1820-20**
1 1/8	1 9/32	1 1/2	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**GSI-1820-24**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GSI-2022-12**
1 1/4	1 13/32	7/8	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GSI-2022-14**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GSI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GSI-2022-20**
1 1/4	1 13/32	1 1/2	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GSI-2022-24**
1 3/8	1 17/32	1	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722	**GSI-2224-16**
1 3/8	1 17/32	1 1/2	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722	**GSI-2224-24**
1 3/8	1 17/32	1 5/8	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722	**GSI-2224-26**
1 1/2	1 21/32	3/8	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GSI-2426-06**
1 1/2	1 21/32	7/16	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GSI-2426-07**
1 1/2	1 21/32	1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GSI-2426-08**
1 1/2	1 21/32	3/4	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GSI-2426-12**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GSI-2426-16**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GSI-2426-24**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**GSI-2629-16**
1 5/8	1 25/32	1 1/4	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**GSI-2629-20**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**GSI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GSI-2831-16**
1 3/4	1 15/16	1 1/2	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GSI-2831-24**
1 3/4	1 15/16	2	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GSI-2831-32**
1 3/4	1 15/16	2 1/2	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GSI-2831-40**
1 3/4	1 15/16	3	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GSI-2831-48**
1 7/8	2 1/16	1	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**GSI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**GSI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**GSI-3235-16**
2	2 3/16	1 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**GSI-3235-24**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**GSI-3235-32**
2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489	**GSI-3639-32**
2 2/4	2 11/16	2	2.5082	2.5035	2.6881	2.6869	2.5000	2.4999	**GSI-4043-32**
2 3/4	2 15/16	2	2.7570	2.7523	2.9370	2.9358	2.7500	2.7490	**GSI-4447-32**
3	3 3/16	2	3.0070	3.0023	3.1870	3.1858	3.0000	2.9990	**GSI-4851-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
		h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1266	.1247	.1878	.1873	.1243	.1236	**H1SI-0203-03**
3/16	1/4	1/4	.1888	.1869	.2503	.2497	.1865	.1858	**H1SI-0304-04**
3/16	1/4	3/8	.1888	.1869	.2503	.2497	.1865	.1858	**H1SI-0304-06**
1/4	5/16	3/8	.2518	.2495	.3128	.3122	.2490	.2481	**H1SI-0405-06**
1/4	5/16	1/2	.2518	.2495	.3128	.3122	.2490	.2481	**H1SI-0405-08**
5/16	3/8	1/4	.3143	.3120	.3753	.3747	.3115	.3106	**H1SI-0506-04**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
		h13	max.	min.	max.	min.	max.	min.	
5/16	3/8	3/8	.3143	.3120	.3753	.3747	.3115	.3106	**H1SI-0506-06**
5/16	3/8	1/2	.3143	.3120	.3753	.3747	.3115	.3106	**H1SI-0506-08**
3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731	**H1SI-0607-04**
3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731	**H1SI-0607-06**
3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731	**H1SI-0607-08**
3/8	15/32	5/8	.3768	.3745	.4691	.4684	.3740	.3731	**H1SI-0607-10**
3/8	15/32	3/4	.3768	.3745	.4691	.4684	.3740	.3731	**H1SI-0607-12**
7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355	**H1SI-0708-08**
7/16	17/32	3/4	.4399	.4371	.5316	.5309	.4365	.4355	**H1SI-0708-12**
1/2	19/32	1/4	.5024	.4996	.5941	.5934	.4990	.4980	**H1SI-0809-04**
1/2	19/32	3/8	.5024	.4996	.5941	.5934	.4990	.4980	**H1SI-0809-06**
1/2	19/32	1/2	.5024	.4996	.5941	.5934	.4990	.4980	**H1SI-0809-08**
1/2	19/32	5/8	.5024	.4996	.5941	.5934	.4990	.4980	**H1SI-0809-10**
1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980	**H1SI-0809-12**
1/2	19/32	1	.5024	.4996	.5941	.5934	.4990	.4980	**H1SI-0809-16**
9/16	21/32	1/2	.5649	.5620	.6566	.6559	.5615	.5605	**H1SI-0910-08**
9/16	21/32	5/8	.5649	.5620	.6566	.6559	.5615	.5605	**H1SI-0910-10**
9/16	21/32	3/4	.5649	.5620	.6566	.6559	.5615	.5605	**H1SI-0910-12**
5/8	23/32	1/2	.6274	.6246	.7192	.7184	.6240	.6230	**H1SI-1011-08**
5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230	**H1SI-1011-12**
5/8	23/32	1	.6274	.6246	.7192	.7184	.6240	.6230	**H1SI-1011-16**
3/4	7/8	1/2	.7532	.7499	.8755	.8747	.7491	.7479	**H1SI-1214-08**
3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479	**H1SI-1214-12**
3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479	**H1SI-1214-16**
7/8	1	1/2	.8782	.8749	1.0005	.9997	.8741	.8729	**H1SI-1416-08**
7/8	1	3/4	.8782	.8749	1.0005	.9997	.8741	.8729	**H1SI-1416-12**
7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729	**H1SI-1416-16**
1	1 1/8	1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H1SI-1618-08**
1	1 1/8	3/4	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H1SI-1618-12**
1	1 1/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H1SI-1618-16**
1 1/8	1 9/32	3/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**H1SI-1820-12**
1 1/8	1 9/32	1	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**H1SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**H1SI-1820-20**
1 1/4	1 13/32	3/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H1SI-2022-12**
1 1/4	1 13/32	1	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H1SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H1SI-2022-20**
1 1/2	1 21/32	1	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H1SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H1SI-2426-24**
1 5/8	1 25/32	1	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**H1SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**H1SI-2629-24**
1 3/4	1 15/16	1	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**H1SI-2831-16**
1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**H1SI-2831-32**
1 7/8	2 1/16	1	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**H1SI-3033-16**
1 7/8	2 1/16	2	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**H1SI-3033-32**
2	2 3/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**H1SI-3235-16**
2	2 3/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**H1SI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
		h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1266	.1247	.1878	.1873	.1243	.1236	**H370SI-0203-03**
3/16	1/4	1/4	.1888	.1869	.2503	.2497	.1865	.1858	**H370SI-0304-04**
3/16	1/4	3/8	.1888	.1869	.2503	.2497	.1865	.1858	**H370SI-0304-06**
1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481	**H370SI-0405-04**
1/4	5/16	3/8	.2518	.2495	.3128	.3122	.2490	.2481	**H370SI-0405-06**
1/4	5/16	1/2	.2518	.2495	.3128	.3122	.2490	.2481	**H370SI-0405-08**
5/16	3/8	1/4	.3143	.3120	.3753	.3747	.3115	.3106	**H370SI-0506-04**
5/16	3/8	3/8	.3143	.3120	.3753	.3747	.3115	.3106	**H370SI-0506-06**
5/16	3/8	1/2	.3143	.3120	.3753	.3747	.3115	.3106	**H370SI-0506-08**
3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731	**H370SI-0607-04**
3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731	**H370SI-0607-06**
3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731	**H370SI-0607-08**
3/8	15/32	5/8	.3768	.3745	.4691	.4684	.3740	.3731	**H370SI-0607-10**
3/8	15/32	3/4	.3768	.3745	.4691	.4684	.3740	.3731	**H370SI-0607-12**
7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355	**H370SI-0708-08**
7/16	17/32	3/4	.4399	.4371	.5316	.5309	.4365	.4355	**H370SI-0708-12**
1/2	19/32	1/4	.5024	.4996	.5941	.5934	.4990	.4980	**H370SI-0809-04**
1/2	19/32	3/8	.5024	.4996	.5941	.5934	.4990	.4980	**H370SI-0809-06**
1/2	19/32	1/2	.5024	.4996	.5941	.5934	.4990	.4980	**H370SI-0809-08**
1/2	19/32	5/8	.5024	.4996	.5941	.5934	.4990	.4980	**H370SI-0809-10**
1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980	**H370SI-0809-12**
1/2	19/32	1	.5024	.4996	.5941	.5934	.4990	.4980	**H370SI-0809-16**
9/16	21/32	1/2	.5649	.5620	.6566	.6559	.5615	.5605	**H370SI-0910-08**
9/16	21/32	5/8	.5649	.5620	.6566	.6559	.5615	.5605	**H370SI-0910-10**
9/16	21/32	3/4	.5649	.5620	.6566	.6559	.5615	.5605	**H370SI-0910-12**
5/8	23/32	1/2	.6274	.6246	.7192	.7184	.6240	.6230	**H370SI-1011-08**
5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230	**H370SI-1011-12**
5/8	23/32	1	.6274	.6246	.7192	.7184	.6240	.6230	**H370SI-1011-16**
3/4	7/8	1/2	.7532	.7499	.8755	.8747	.7491	.7479	**H370SI-1214-08**
3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479	**H370SI-1214-12**
3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479	**H370SI-1214-16**
7/8	1	1/2	.8782	.8749	1.0005	.9997	.8741	.8729	**H370SI-1416-08**
7/8	1	3/4	.8782	.8749	1.0005	.9997	.8741	.8729	**H370SI-1416-12**
7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729	**H370SI-1416-16**
1	1 1/8	1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H370SI-1618-08**
1	1 1/8	3/4	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H370SI-1618-12**
1	1 1/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H370SI-1618-16**
1 1/8	1 9/32	3/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**H370SI-1820-12**
1 1/8	1 9/32	1	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**H370SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**H370SI-1820-20**
1 1/4	1 13/32	3/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H370SI-2022-12**
1 1/4	1 13/32	1	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H370SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H370SI-2022-20**
1 1/2	1 21/32	1	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H370SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H370SI-2426-24**
1 5/8	1 25/32	1	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**H370SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**H370SI-2629-24**
1 3/4	1 15/16	1	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**H370SI-2831-16**
1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**H370SI-2831-32**
1 7/8	2 1/16	1	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**H370SI-3033-16**
1 7/8	2 1/16	2	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**H370SI-3033-32**
2	2 3/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**H370SI-3235-16**
2	2 3/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**H370SI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236	**JSI-0203-03**
1/8	1/4	1/4	.1280	.1262	.2515	.2510	.1250	.1241	**JSI-0204-04**
1/8	1/4	3/8	.1280	.1262	.2515	.2510	.1250	.1241	**JSI-0204-06**
3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858	**JSI-0304-04**
3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858	**JSI-0304-06**
3/16	1/4	1/2	.1892	.1873	.2503	.2497	.1865	.1858	**JSI-0304-08**
3/16	5/16	5/16	.1905	.1887	.3140	.3135	.1875	.1866	**JSI-0305-05**
3/16	5/16	3/8	.1905	.1887	.3140	.3135	.1875	.1866	**JSI-0305-06**
3/16	5/16	1/2	.1905	.1887	.3140	.3135	.1875	.1866	**JSI-0305-08**
1/4	5/16	1/4	.2521	.2498	.3140	.3135	.2490	.2481	**JSI-0405-04**
1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481	**JSI-0405-06**
1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481	**JSI-0405-08**
1/4	3/8	1/4	.2539	.2516	.3765	.3760	.2500	.2491	**JSI-0406-04**
1/4	3/8	1/2	.2539	.2516	.3765	.3760	.2500	.2491	**JSI-0406-08**
1/4	3/8	3/4	.2539	.2516	.3765	.3760	.2500	.2491	**JSI-0406-12**
1/4	3/8	1	.2539	.2516	.3765	.3760	.2500	.2491	**JSI-0406-16**
5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106	**JSI-0506-04**
5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106	**JSI-0506-06**
5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106	**JSI-0506-08**
5/16	3/8	3/4	.3148	.3125	.3753	.3747	.3115	.3106	**JSI-0506-12**
5/16	7/16	3/8	.3164	.3141	.4390	.4385	.3125	.3116	**JSI-0507-06**
5/16	7/16	1/2	.3164	.3141	.4390	.4385	.3125	.3116	**JSI-0507-08**
5/16	7/16	5/8	.3164	.3141	.4390	.4385	.3125	.3116	**JSI-0507-10**
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0607-04**
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0607-06**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0607-08**
3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0607-10**
3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0607-12**
3/8	1/2	3/16	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0608-03**
3/8	1/2	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0608-06**
3/8	1/2	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0608-08**
3/8	1/2	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**JSI-0608-10**

[3] **After press-fit. Testing methods ▶ Page 61**

d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**JSI-0708-08**
7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355	**JSI-0708-12**
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**JSI-0809-04**
1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980	**JSI-0809-06**
1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980	**JSI-0809-08**
1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980	**JSI-0809-10**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**JSI-0809-12**
1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980	**JSI-0809-16**
1/2	5/8	1/2	.5040	.5013	.6260	.6250	.5000	.4990	**JSI-0810-08**
1/2	5/8	3/4	.5040	.5013	.6260	.6250	.5000	.4990	**JSI-0810-12**
9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605	**JSI-0910-08**
9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605	**JSI-0910-10**
9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605	**JSI-0910-12**
5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230	**JSI-1011-08**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**JSI-1011-12**
5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230	**JSI-1011-16**
5/8	3/4	1/4	.6297	.6270	.7510	.7500	.6250	.6240	**JSI-1012-04**
5/8	3/4	3/8	.6297	.6270	.7510	.7500	.6250	.6240	**JSI-1012-06**
5/8	3/4	1/2	.6297	.6270	.7510	.7500	.6250	.6240	**JSI-1012-08**
5/8	3/4	3/4	.6297	.6270	.7510	.7500	.6250	.6240	**JSI-1012-12**
5/8	3/4	1	.6297	.6270	.7510	.7500	.6250	.6240	**JSI-1012-16**
3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479	**JSI-1214-08**
3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479	**JSI-1214-12**
3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479	**JSI-1214-16**
3/4	1	3/4	.7559	.7525	1.0010	1.0000	.7500	.7490	**JSI-1216-12**
3/4	1	1	.7559	.7525	1.0010	1.0000	.7500	.7490	**JSI-1216-16**
7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**JSI-1416-08**
7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729	**JSI-1416-12**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**JSI-1416-16**
7/8	1 1/8	3/4	.8809	.8775	1.1260	1.1250	.8750	.8740	**JSI-1418-12**
7/8	1 1/8	1 1/2	.8809	.8775	1.1260	1.1250	.8750	.8740	**JSI-1418-24**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**JSI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**JSI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**JSI-1618-16**
1	1 1/4	1	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**JSI-1620-16**
1	1 1/4	1 1/2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**JSI-1620-24**
1 1/8	1 9/32	3/4	1.1288	1.2808	1.2818	1.2808	1.1238	1.1226	**JSI-1820-12**
1 1/8	1 9/32	1	1.1288	1.2808	1.2818	1.2808	1.1238	1.1226	**JSI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.2808	1.2818	1.2808	1.1238	1.1226	**JSI-1820-20**
1 1/8	1 13/8	1	1.1327	1.1276	1.3760	1.3750	1.1250	1.1240	**JSI-1822-16**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**JSI-2022-12**
1 1/4	1 13/32	7/8	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**JSI-2022-14**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**JSI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**JSI-2022-20**
1 1/4	1 1/2	1 1/2	1.2600	1.2532	1.5005	1.4995	1.2500	1.2490	**JSI-2024-24**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**JSI-2426-16**

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Inch iglidur® form S

d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**JSI-2426-24**
1 1/2	1 3/4	1 1/2	1.5100	1.5032	1.7505	1.7495	1.50	1.499	**JSI-2428-24**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**JSI-2629-16**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**JSI-2629-24**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**JSI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**JSI-2831-16**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**JSI-2831-32**
1 7/8	2 1/16	1	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**JSI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**JSI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**JSI-3235-16**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**JSI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	0.1269	0.1251	0.1878	0.1873	0.1243	0.1236	**J3SI-0203-03**
3/16	1/4	1/4	0.1892	0.1873	0.2503	0.2497	0.1865	0.1858	**J3SI-0304-04**
3/16	1/4	3/8	0.1892	0.1873	0.2503	0.2497	0.1865	0.1858	**J3SI-0304-06**
1/4	5/16	3/8	0.2521	0.2498	0.3128	0.3122	0.2490	0.2481	**J3SI-0405-06**
1/4	5/16	1/2	0.2521	0.2498	0.3128	0.3122	0.2490	0.2481	**J3SI-0405-08**
5/16	3/8	1/4	0.3148	0.3125	0.3753	0.3747	0.3115	0.3106	**J3SI-0506-04**
5/16	3/8	3/8	0.3148	0.3125	0.3753	0.3747	0.3115	0.3106	**J3SI-0506-06**
5/16	3/8	1/2	0.3148	0.3125	0.3753	0.3747	0.3115	0.3106	**J3SI-0506-08**
3/8	15/32	1/4	0.3773	0.3750	0.4691	0.4684	0.3740	0.3731	**J3SI-0607-04**
3/8	15/32	3/8	0.3773	0.3750	0.4691	0.4684	0.3740	0.3731	**J3SI-0607-06**
3/8	15/32	1/2	0.3773	0.3750	0.4691	0.4684	0.3740	0.3731	**J3SI-0607-08**
3/8	15/32	5/8	0.3773	0.3750	0.4691	0.4684	0.3740	0.3731	**J3SI-0607-10**
3/8	15/32	3/4	0.3773	0.3750	0.4691	0.4684	0.3740	0.3731	**J3SI-0607-12**
7/16	17/32	1/2	0.4406	0.4379	0.5316	0.5309	0.4365	0.4355	**J3SI-0708-08**
7/16	17/32	3/4	0.4406	0.4379	0.5316	0.5309	0.4365	0.4355	**J3SI-0708-12**
1/2	19/32	1/4	0.5030	0.5003	0.5941	0.5934	0.4990	0.4980	**J3SI-0809-04**
1/2	19/32	3/8	0.5030	0.5003	0.5941	0.5934	0.4990	0.4980	**J3SI-0809-06**
1/2	19/32	1/2	0.5030	0.5003	0.5941	0.5934	0.4990	0.4980	**J3SI-0809-08**
1/2	19/32	5/8	0.5030	0.5003	0.5941	0.5934	0.4990	0.4980	**J3SI-0809-10**
1/2	19/32	3/4	0.5030	0.5003	0.5941	0.5934	0.4990	0.4980	**J3SI-0809-12**
1/2	19/32	1	0.5030	0.5003	0.5941	0.5934	0.4990	0.4980	**J3SI-0809-16**
9/16	21/32	1/2	0.5655	0.5627	0.6566	0.6559	0.5615	0.5605	**J3SI-0910-08**
9/16	21/32	5/8	0.5655	0.5627	0.6566	0.6559	0.5615	0.5605	**J3SI-0910-10**
9/16	21/32	3/4	0.5655	0.5627	0.6566	0.6559	0.5615	0.5605	**J3SI-0910-12**
5/8	23/32	1/2	0.6280	0.6253	0.7192	0.7184	0.6240	0.6230	**J3SI-1011-08**
5/8	23/32	3/4	0.6280	0.6253	0.7192	0.7184	0.6240	0.6230	**J3SI-1011-12**
5/8	23/32	1	0.6280	0.6253	0.7192	0.7184	0.6240	0.6230	**J3SI-1011-16**
3/4	7/8	1/2	0.7541	0.7505	0.8755	0.8747	0.7491	0.7479	**J3SI-1214-08**
3/4	7/8	3/4	0.7541	0.7505	0.8755	0.8747	0.7491	0.7479	**J3SI-1214-12**
3/4	7/8	1	0.7541	0.7505	0.8755	0.8747	0.7491	0.7479	**J3SI-1214-16**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
7/8	1	1/2	0.8791	0.8757	1.0005	0.9997	0.8741	0.8729	**J3SI-1416-08**
7/8	1	3/4	0.8791	0.8757	1.0005	0.9997	0.8741	0.8729	**J3SI-1416-12**
7/8	1	1	0.8791	0.8757	1.0005	0.9997	0.8741	0.8729	**J3SI-1416-16**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	0.9991	0.9979	**J3SI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	0.9991	0.9979	**J3SI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	0.9991	0.9979	**J3SI-1618-16**
1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**J3SI-1820-12**
1 1/8	1 9/32	1	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**J3SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**J3SI-1820-20**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**J3SI-2022-12**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**J3SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**J3SI-2022-20**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**J3SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**J3SI-2426-24**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**J3SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**J3SI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**J3SI-2831-16**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**J3SI-2831-32**
1 7/8	2 1/16	1	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**J3SI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**J3SI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**J3SI-3235-16**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**J3SI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1266	.1247	.1878	.1873	.1243	.1236	**J350SI-0203-03**
3/16	1/4	1/4	.1888	.1869	.2503	.2497	.1865	.1858	**J350SI-0304-04**
3/16	1/4	3/8	.1888	.1869	.2503	.2497	.1865	.1858	**J350SI-0304-06**
1/4	5/16	3/8	.2518	.2495	.3128	.3122	.2490	.2481	**J350SI-0405-06**
1/4	5/16	1/2	.2518	.2495	.3128	.3122	.2490	.2481	**J350SI-0405-08**
5/16	3/8	1/4	.3143	.3120	.3753	.3747	.3115	.3106	**J350SI-0506-04**
5/16	3/8	3/8	.3143	.3120	.3753	.3747	.3115	.3106	**J350SI-0506-06**
5/16	3/8	1/2	.3143	.3120	.3753	.3747	.3115	.3106	**J350SI-0506-08**
3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731	**J350SI-0607-04**
3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731	**J350SI-0607-06**
3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731	**J350SI-0607-08**
3/8	15/32	5/8	.3768	.3745	.4691	.4684	.3740	.3731	**J350SI-0607-10**
3/8	15/32	3/4	.3768	.3745	.4691	.4684	.3740	.3731	**J350SI-0607-12**
7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355	**J350SI-0708-08**
7/16	17/32	3/4	.4399	.4371	.5316	.5309	.4365	.4355	**J350SI-0708-12**
1/2	19/32	1/4	.5024	.4996	.5941	.5934	.4990	.4980	**J350SI-0809-04**
1/2	19/32	3/8	.5024	.4996	.5941	.5934	.4990	.4980	**J350SI-0809-06**
1/2	19/32	1/2	.5024	.4996	.5941	.5934	.4990	.4980	**J350SI-0809-08**
1/2	19/32	5/8	.5024	.4996	.5941	.5934	.4990	.4980	**J350SI-0809-10**

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Inch iglidur® form S

d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980	**J350SI-0809-12**
1/2	19/32	1	.5024	.4996	.5941	.5934	.4990	.4980	**J350SI-0809-16**
9/16	21/32	1/2	.5649	.5620	.6566	.6559	.5615	.5605	**J350SI-0910-08**
9/16	21/32	5/8	.5649	.5620	.6566	.6559	.5615	.5605	**J350SI-0910-10**
9/16	21/32	3/4	.5649	.5620	.6566	.6559	.5615	.5605	**J350SI-0910-12**
5/8	23/32	1/2	.6274	.6246	.7192	.7184	.6240	.6230	**J350SI-1011-08**
5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230	**J350SI-1011-12**
5/8	23/32	1	.6274	.6246	.7192	.7184	.6240	.6230	**J350SI-1011-16**
3/4	7/8	1/2	.7532	.7499	.8755	.8747	.7491	.7479	**J350SI-1214-08**
3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479	**J350SI-1214-12**
3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479	**J350SI-1214-16**
7/8	1	1/2	.8782	.8749	1.0005	.9997	.8741	.8729	**J350SI-1416-08**
7/8	1	3/4	.8782	.8749	1.0005	.9997	.8741	.8729	**J350SI-1416-12**
7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729	**J350SI-1416-16**
1	1 1/8	1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**J350SI-1618-08**
1	1 1/8	3/4	1.0032	.9999	1.1255	1.1247	.9991	.9979	**J350SI-1618-12**
1	1 1/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979	**J350SI-1618-16**
1 1/8	1 9/32	3/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**J350SI-1820-12**
1 1/8	1 9/32	1	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**J350SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**J350SI-1820-20**
1 1/4	1 13/32	3/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**J350SI-2022-12**
1 1/4	1 13/32	1	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**J350SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**J350SI-2022-20**
1 1/2	1 21/32	1	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**J350SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**J350SI-2426-24**
1 5/8	1 25/32	1	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**J350SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**J350SI-2629-24**
1 3/4	1 15/16	1	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**J350SI-2831-16**
1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**J350SI-2831-32**
1 7/8	2 1/16	1	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**J350SI-3033-16**
1 7/8	2 1/16	2	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**J350SI-3033-32**
2	2 3/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**J350SI-3235-16**
2	2 3/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**J350SI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	1/8	.1280	.1262	.1990	.1985	.1250	.1241	**MSI-0203-02**
1/8	3/16	1/4	.1280	.1262	.1990	.1985	.1250	.1241	**MSI-0203-04**
1/8	1/4	1/8	.1280	.1262	.2515	.2510	.1250	.1241	**MSI-0204-02**
1/8	1/4	3/16	.1280	.1262	.2515	.2510	.1250	.1241	**MSI-0204-03**
1/8	1/4	1/4	.1280	.1262	.2515	.2510	.1250	.1241	**MSI-0204-04**
1/8	1/4	3/8	.1280	.1262	.2515	.2510	.1250	.1241	**MSI-0204-06**
3/16	1/4	1/4	.1905	.1887	.2515	.2510	.1875	.1866	**MSI-0304-04**
3/16	1/4	3/8	.1905	.1887	.2515	.2510	.1875	.1866	**MSI-0304-06**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
3/16	1/4	1/2	.1905	.1887	.2515	.2510	.1875	.1866	**MSI-0304-08**
3/16	5/16	1/8	.1905	.1887	.3140	.3135	.1875	.1866	**MSI-0305-02**
3/16	5/16	3/16	.1905	.1887	.3140	.3135	.1875	.1866	**MSI-0305-03**
3/16	5/16	1/4	.1905	.1887	.3140	.3135	.1875	.1866	**MSI-0305-04**
3/16	5/16	5/16	.1905	.1887	.3140	.3135	.1875	.1866	**MSI-0305-05**
3/16	5/16	3/8	.1905	.1887	.3140	.3135	.1875	.1866	**MSI-0305-06**
3/16	5/16	1/2	.1905	.1887	.3140	.3135	.1875	.1866	**MSI-0305-08**
1/4	5/16	3/16	.2539	.2516	.3140	.3135	.2500	.2491	**MSI-0405-03**
1/4	5/16	3/8	.2539	.2516	.3140	.3135	.2500	.2491	**MSI-0405-06**
1/4	5/16	1/2	.2539	.2516	.3140	.3135	.2500	.2491	**MSI-0405-08**
1/4	3/8	1/8	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-02**
1/4	3/8	3/16	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-03**
1/4	3/8	1/4	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-04**
1/4	3/8	5/16	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-05**
1/4	3/8	3/8	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-06**
1/4	3/8	1/2	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-08**
1/4	3/8	5/8	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-10**
1/4	3/8	3/4	.2539	.2516	.3765	.3760	.2500	.2491	**MSI-0406-12**
5/16	3/8	1/4	.3164	.3141	.3765	.3760	.3125	.3116	**MSI-0506-04**
5/16	3/8	3/8	.3164	.3141	.3765	.3760	.3125	.3116	**MSI-0506-06**
5/16	3/8	1/2	.3164	.3141	.3765	.3760	.3125	.3116	**MSI-0506-08**
5/16	7/16	3/16	.3164	.3141	.4390	.4385	.3125	.3116	**MSI-0507-03**
5/16	7/16	1/4	.3164	.3141	.4390	.4385	.3125	.3116	**MSI-0507-04**
5/16	7/16	5/16	.3164	.3141	.4390	.4385	.3125	.3116	**MSI-0507-05**
5/16	7/16	3/8	.3164	.3141	.4390	.4385	.3125	.3116	**MSI-0507-06**
5/16	7/16	1/2	.3164	.3141	.4390	.4385	.3125	.3116	**MSI-0507-08**
5/16	7/16	5/8	.3164	.3141	.4390	.4385	.3125	.3116	**MSI-0507-10**
5/16	7/16	3/4	.3164	.3141	.4390	.4385	.3125	.3116	**MSI-0507-12**
3/8	7/16	1/4	.3789	.3766	.4390	.4385	.3750	.3741	**MSI-0607-04**
3/8	7/16	3/8	.3789	.3766	.4390	.4385	.3750	.3741	**MSI-0607-06**
3/8	7/16	1/2	.3789	.3766	.4390	.4385	.3750	.3741	**MSI-0607-08**
3/8	1/2	1/4	.3789	.3766	.5015	.5010	.3750	.3741	**MSI-0608-04**
3/8	1/2	5/16	.3789	.3766	.5015	.5010	.3750	.3741	**MSI-0608-05**
3/8	1/2	3/8	.3789	.3766	.5015	.5010	.3750	.3741	**MSI-0608-06**
3/8	1/2	1/2	.3789	.3766	.5015	.5010	.3750	.3741	**MSI-0608-08**
3/8	1/2	5/8	.3789	.3766	.5015	.5010	.3750	.3741	**MSI-0608-10**
3/8	1/2	3/4	.3789	.3766	.5015	.5010	.3750	.3741	**MSI-0608-12**
3/8	1/2	1	.3789	.3766	.5015	.5010	.3750	.3741	**MSI-0608-16**
7/16	9/16	3/8	.4422	.4395	.5941	.5934	.4375	.4365	**MSI-0709-06**
7/16	9/16	1/2	.4422	.4395	.5941	.5934	.4375	.4365	**MSI-0709-08**
1/2	5/8	1/4	.5047	.5020	.6260	.6250	.5000	.4990	**MSI-0810-04**
1/2	5/8	5/16	.5047	.5020	.6260	.6250	.5000	.4990	**MSI-0810-05**
1/2	5/8	3/8	.5047	.5020	.6260	.6250	.5000	.4990	**MSI-0810-06**
1/2	5/8	1/2	.5047	.5020	.6260	.6250	.5000	.4990	**MSI-0810-08**
1/2	5/8	5/8	.5047	.5020	.6260	.6250	.5000	.4990	**MSI-0810-10**
1/2	5/8	3/4	.5047	.5020	.6260	.6250	.5000	.4990	**MSI-0810-12**

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Inch iglidur® form S

d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/2	5/8	1	.5047	.5020	.6260	.6250	.5000	.4990	**MSI-0810-16**
5/8	3/4	1/4	.6297	.6270	.7510	.7500	.6250	.6240	**MSI-1012-04**
5/8	3/4	3/8	.6297	.6270	.7510	.7500	.6250	.6240	**MSI-1012-06**
5/8	3/4	1/2	.6297	.6270	.7510	.7500	.6250	.6240	**MSI-1012-08**
5/8	3/4	5/8	.6297	.6270	.7510	.7500	.6250	.6240	**MSI-1012-10**
5/8	3/4	3/4	.6297	.6270	.7510	.7500	.6250	.6240	**MSI-1012-12**
5/8	3/4	1	.6297	.6270	.7510	.7500	.6250	.6240	**MSI-1012-16**
5/8	3/4	1 5/8	.6297	.6270	.7510	.7500	.6250	.6240	**MSI-1012-26**
5/8	13/16	3/8	.6297	.6270	.8135	.8125	.6250	.6240	**MSI-1013-06**
5/8	13/16	1/2	.6297	.6270	.8135	.8125	.6250	.6240	**MSI-1013-08**
5/8	13/16	5/8	.6297	.6270	.8135	.8125	.6250	.6240	**MSI-1013-10**
5/8	13/16	3/4	.6297	.6270	.8135	.8125	.6250	.6240	**MSI-1013-12**
5/8	13/16	1	.6297	.6270	.8135	.8125	.6250	.6240	**MSI-1013-16**
11/16	13/16	3/4	.6921	.6893	.8135	.8125	.6875	.6865	**MSI-1113-12**
11/16	13/16	7/8	.6921	.6893	.8135	.8125	.6875	.6865	**MSI-1113-14**
11/16	13/16	1	.6922	.6900	.8135	.8125	.6875	.6865	**MSI-1113-16**
3/4	7/8	3/8	.7559	.7525	.8760	.8750	.7500	.7490	**MSI-1214-06**
3/4	7/8	3/4	.7559	.7525	.8760	.8750	.7500	.7490	**MSI-1214-12**
3/4	7/8	1	.7559	.7525	.8760	.8750	.7500	.7490	**MSI-1214-16**
3/4	7/8	11/2	.7559	.7525	.8760	.8750	.7500	.7490	**MSI-1214-24**
3/4	1	3/8	.7559	.7525	1.0010	1.0000	.7500	.7490	**MSI-1216-06**
3/4	1	1/2	.7559	.7525	1.0010	1.0000	.7500	.7490	**MSI-1216-08**
3/4	1	5/8	.7559	.7525	1.0010	1.0000	.7500	.7490	**MSI-1216-10**
3/4	1	3/4	.7559	.7525	1.0010	1.0000	.7500	.7490	**MSI-1216-12**
3/4	1	1	.7559	.7525	1.0010	1.0000	.7500	.7490	**MSI-1216-16**
3/4	1	1 1/4	.7559	.7525	1.0010	1.0000	.7500	.7490	**MSI-1216-20**
3/4	1	1 1/2	.7559	.7525	1.0010	1.0000	.7500	.7490	**MSI-1216-24**
13/16	1	1/2	.8184	.8151	1.0010	1.0000	.8126	.8116	**MSI-1316-08**
7/8	1	3/4	.8809	.8775	1.0010	1.0000	.8750	.8740	**MSI-1416-12**
7/8	1	1	.8809	.8775	1.0010	1.0000	.8750	.8740	**MSI-1416-16**
7/8	1	1 1/2	.8809	.8775	1.0010	1.0000	.8750	.8740	**MSI-1416-24**
7/8	1 1/8	1/2	.8809	.8775	1.1260	1.1250	.8750	.8740	**MSI-1418-08**
7/8	1 1/8	3/4	.8809	.8775	1.1260	1.1250	.8750	.8740	**MSI-1418-12**
7/8	1 1/8	1	.8809	.8775	1.1260	1.1250	.8750	.8740	**MSI-1418-16**
7/8	1 1/8	1 1/2	.8809	.8775	1.1260	1.1250	.8750	.8740	**MSI-1418-24**
1	1 1/8	3/4	1.0059	1.0025	1.1260	1.1250	1.0000	.9990	**MSI-1618-12**
1	1 1/8	1	1.0059	1.0025	1.1260	1.1250	1.0000	.9990	**MSI-1618-16**
1	1 1/8	1 1/2	1.0059	1.0025	1.1260	1.1250	1.0000	.9990	**MSI-1618-24**
1	1 1/4	1/2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MSI-1620-08**
1	1 1/4	5/8	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MSI-1620-10**
1	1 1/4	3/4	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MSI-1620-12**
1	1 1/4	1	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MSI-1620-16**
1	1 1/4	1 1/2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MSI-1620-24**
1	1 1/4	2	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MSI-1620-32**
1 1/8	1 3/8	1	1.1309	1.1275	1.3760	1.3750	1.1250	1.1240	**MSI-1822-16**
1 1/8	1 3/8	1 1/2	1.1309	1.1275	1.3760	1.3750	1.1250	1.1240	**MSI-1822-24**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1 1/4	1 1/2	3/4	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MSI-2024-12**
1 1/4	1 1/2	1	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MSI-2024-16**
1 1/4	1 1/2	1 3/8	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MSI-2024-22**
1 1/4	1 1/2	1 1/2	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MSI-2024-24**
1 1/4	1 1/2	2 1/2	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MSI-2024-40**
1 3/8	1 5/8	1	1.3850	1.3182	1.6255	1.6245	1.3750	1.3740	**MSI-2226-16**
1 1/2	1 3/4	3/4	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**MSI-2428-12**
1 1/2	1 3/4	1	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**MSI-2428-16**
1 1/2	1 3/4	1 1/2	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**MSI-2428-24**
1 1/2	1 3/4	2 /2	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**MSI-2428-40**
1 5/8	1 7/8	1	1.6350	1.6282	1.8755	1.8745	1.6250	1.6240	**MSI-2630-16**
1 3/4	2	1/2	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MSI-2832-08**
1 3/4	2	3/4	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MSI-2832-12**
1 3/4	2	1	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MSI-2832-16**
1 3/4	2	1 1/2	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MSI-2832-24**
1 3/4	2	2 1/2	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MSI-2832-40**
2	2 1/4	1	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990	**MSI-3236-16**
2	2 1/4	1 1/2	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990	**MSI-3236-24**
2	2 1/4	2	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990	**MSI-3236-32**
2	2 1/4	2 1/2	2.0100	2.0032	2.2505	2.2495	2.0000	1.9990	**MSI-3236-40**
3	3 1/4	1	3.0114	3.0039	3.2505	3.2495	3.0000	2.9990	**MSI-4852-16**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236	**PSI-0203-03**
3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858	**PSI-0304-04**
3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858	**PSI-0304-06**
1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481	**PSI-0405-06**
1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481	**PSI-0405-08**
5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106	**PSI-0506-04**
5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106	**PSI-0506-06**
5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106	**PSI-0506-08**
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**PSI-0607-04**
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**PSI-0607-06**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**PSI-0607-08**
3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**PSI-0607-10**
3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731	**PSI-0607-12**
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**PSI-0708-08**
7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355	**PSI-0708-12**
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**PSI-0809-04**
1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980	**PSI-0809-06**
1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980	**PSI-0809-08**
1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980	**PSI-0809-10**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**PSI-0809-12**

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Inch iglidur® form S

d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980	**PSI-0809-16**
9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605	**PSI-0910-08**
9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605	**PSI-0910-10**
9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605	**PSI-0910-12**
5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230	**PSI-1011-08**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**PSI-1011-12**
5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230	**PSI-1011-16**
3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479	**PSI-1214-08**
3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479	**PSI-1214-12**
3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479	**PSI-1214-16**
7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**PSI-1416-08**
7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729	**PSI-1416-12**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**PSI-1416-16**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**PSI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**PSI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**PSI-1618-16**
1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**PSI-1820-12**
1 1/8	1 9/32	1	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**PSI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**PSI-1820-20**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**PSI-2022-12**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**PSI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**PSI-2022-20**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**PSI-2426-16**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**PSI-2426-24**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**PSI-2629-16**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**PSI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**PSI-2831-16**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**PSI-2831-32**
1 7/8	2 1/16	1	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**PSI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**PSI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**PSI-3235-16**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**PSI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236	**P210SI-0203-03**
3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858	**P210SI-0304-04**
3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858	**P210SI-0304-06**
1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481	**P210SI-0405-06**
1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481	**P210SI-0405-08**
5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106	**P210SI-0506-04**
5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106	**P210SI-0506-06**
5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106	**P210SI-0506-08**
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**P210SI-0607-04**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**P210SI-0607-06**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**P210SI-0607-08**
3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**P210SI-0607-10**
3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731	**P210SI-0607-12**
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**P210SI-0708-08**
7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355	**P210SI-0708-12**
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**P210SI-0809-04**
1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980	**P210SI-0809-06**
1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980	**P210SI-0809-08**
1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980	**P210SI-0809-10**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**P210SI-0809-12**
1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980	**P210SI-0809-16**
9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605	**P210SI-0910-08**
9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605	**P210SI-0910-10**
9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605	**P210SI-0910-12**
5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230	**P210SI-1011-08**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**P210SI-1011-12**
5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230	**P210SI-1011-16**
3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479	**P210SI-1214-08**
3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479	**P210SI-1214-12**
3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479	**P210SI-1214-16**
7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**P210SI-1416-08**
7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729	**P210SI-1416-12**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**P210SI-1416-16**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**P210SI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**P210SI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**P210SI-1618-16**
1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**P210SI-1820-12**
1 1/8	1 9/32	1	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**P210SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**P210SI-1820-20**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**P210SI-2022-12**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**P210SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**P210SI-2022-20**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**P210SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**P210SI-2426-24**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**P210SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**P210SI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**P210SI-2831-16**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**P210SI-2831-32**
1 7/8	2 1/16	1	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**P210SI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**P210SI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**P210SI-3235-16**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**P210SI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**QSI-0607-04**
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**QSI-0607-06**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**QSI-0607-08**
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**QSI-0708-08**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**QSI-0809-12**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**QSI-1011-12**
3/4	7/8	1/2	.7541	.7507	.8755	.8747	.7491	.7479	**QSI-1214-08**
3/4	7/8	3/4	.7541	.7507	.8755	.8747	.7491	.7479	**QSI-1214-12**
3/4	7/8	1	.7541	.7507	.8755	.8747	.7491	.7479	**QSI-1214-16**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**QSI-1416-16**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**QSI-1618-16**
1	1 1/8	1 1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**QSI-1618-24**
1 1/8	1 9/32	1 1/2	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**QSI-1820-24**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**QSI-2022-20**
1 1/4	1 13/32	1 1/2	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**QSI-2022-24**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**QSI-2426-24**
1 5/8	1 25/32	1 1/4	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**QSI-2629-20**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**QSI-2831-32**
2	2 3/16	3/4	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**QSI-3235-12**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**QSI-3235-16**
2	2 3/16	1 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**QSI-3235-24**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**QSI-3235-32**
2	2 3/16	2 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**QSI-3235-40**
2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489	**QSI-3639-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236	**Q2SI-0203-03**
3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858	**Q2SI-0304-04**
3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858	**Q2SI-0304-06**
1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481	**Q2SI-0405-06**
1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481	**Q2SI-0405-08**
5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106	**Q2SI-0506-04**
5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106	**Q2SI-0506-06**
5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106	**Q2SI-0506-08**
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**Q2SI-0607-04**
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**Q2SI-0607-06**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**Q2SI-0607-08**
3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**Q2SI-0607-10**
3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731	**Q2SI-0607-12**
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**Q2SI-0708-08**
7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355	**Q2SI-0708-12**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**Q2SI-0809-04**
1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980	**Q2SI-0809-06**
1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980	**Q2SI-0809-08**
1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980	**Q2SI-0809-10**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**Q2SI-0809-12**
1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980	**Q2SI-0809-16**
9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605	**Q2SI-0910-08**
9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605	**Q2SI-0910-10**
9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605	**Q2SI-0910-12**
5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230	**Q2SI-1011-08**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**Q2SI-1011-12**
5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230	**Q2SI-1011-16**
3/4	7/8	1/2	.7541	.7505	.8755	.8747	.7491	.7479	**Q2SI-1214-08**
3/4	7/8	3/4	.7541	.7505	.8755	.8747	.7491	.7479	**Q2SI-1214-12**
3/4	7/8	1	.7541	.7505	.8755	.8747	.7491	.7479	**Q2SI-1214-16**
3/4	1	3/4	.7541	.7508	1.0010	1.0000	.7491	.7479	**Q2SI-1216-16**
7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**Q2SI-1416-08**
7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729	**Q2SI-1416-12**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**Q2SI-1416-16**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**Q2SI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**Q2SI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**Q2SI-1618-16**
1	1 1/4	1 1/2	1.0041	1.0007	1.2510	1.2500	.9991	.9979	**Q2SI-1620-24**
1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**Q2SI-1820-12**
1 1/8	1 9/32	1	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**Q2SI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**Q2SI-1820-20**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**Q2SI-2022-12**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**Q2SI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**Q2SI-2022-20**
1 1/4	1 13/32	1 1/2	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**Q2SI-2022-24**
1 1/4	1 1/2	1 1/2	1.2548	1.2508	1.501	1,500	1.2488	1.2472	**Q2SI-2024-24**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**Q2SI-2426-16**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**Q2SI-2426-24**
1 1/2	1 3/4	1 1/2	1.5048	1.5008	1.7505	1.7495	1.4988	1.4972	**Q2SI-2428-24**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**Q2SI-2629-16**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**Q2SI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**Q2SI-2831-16**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**Q2SI-2831-32**
1 7/8	2 1/16	1	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**Q2SI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0633	2.0621	1.8737	1.8721	**Q2SI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**Q2SI-3235-16**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**Q2SI-3235-32**
2	2 1/4	2 1/4	2.0059	2.0012	2.2505	2.2495	1.9981	1.9969	**Q2SI-3236-36**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1269	.1251	.1878	.1873	.1243	.1236	**WSI-0203-03**
1/8	3/16	1/4	.1269	.1251	.1878	.1873	.1243	.1236	**WSI-0203-04**
1/8	3/16	3/8	.1269	.1251	.1878	.1873	.1243	.1236	**WSI-0203-06**
3/16	1/4	1/4	.1892	.1873	.2503	.2497	.1865	.1858	**WSI-0304-04**
3/16	1/4	3/8	.1892	.1873	.2503	.2497	.1865	.1858	**WSI-0304-06**
3/16	1/4	1/2	.1892	.1873	.2503	.2497	.1865	.1858	**WSI-0304-08**
1/4	5/16	3/16	.2521	.2498	.3128	.3122	.2490	.2481	**WSI-0405-03**
1/4	5/16	1/4	.2521	.2498	.3128	.3122	.2490	.2481	**WSI-0405-04**
1/4	5/16	5/16	.2521	.2498	.3128	.3122	.2490	.2481	**WSI-0405-05**
1/4	5/16	3/8	.2521	.2498	.3128	.3122	.2490	.2481	**WSI-0405-06**
1/4	5/16	1/2	.2521	.2498	.3128	.3122	.2490	.2481	**WSI-0405-08**
5/16	3/8	1/4	.3148	.3125	.3753	.3747	.3115	.3106	**WSI-0506-04**
5/16	3/8	3/8	.3148	.3125	.3753	.3747	.3115	.3106	**WSI-0506-06**
5/16	3/8	1/2	.3148	.3125	.3753	.3747	.3115	.3106	**WSI-0506-08**
5/16	3/8	3/4	.3148	.3125	.3753	.3747	.3115	.3106	**WSI-0506-12**
3/8	15/32	1/4	.3773	.3750	.4691	.4684	.3740	.3731	**WSI-0607-04**
3/8	15/32	3/8	.3773	.3750	.4691	.4684	.3740	.3731	**WSI-0607-06**
3/8	15/32	7/16	.3773	.3750	.4691	.4684	.3740	.3731	**WSI-0607-07**
3/8	15/32	1/2	.3773	.3750	.4691	.4684	.3740	.3731	**WSI-0607-08**
3/8	15/32	5/8	.3773	.3750	.4691	.4684	.3740	.3731	**WSI-0607-10**
3/8	15/32	3/4	.3773	.3750	.4691	.4684	.3740	.3731	**WSI-0607-12**
3/8	17/32	3/4	.3773	.3750	.5316	.5309	.3740	.3731	**WSI-0608-12**
7/16	17/32	1/4	.4406	.4379	.5316	.5309	.4365	.4355	**WSI-0708-04**
7/16	17/32	1/2	.4406	.4379	.5316	.5309	.4365	.4355	**WSI-0708-08**
7/16	17/32	3/4	.4406	.4379	.5316	.5309	.4365	.4355	**WSI-0708-12**
1/2	19/32	3/16	.5030	.5003	.5941	.5934	.4990	.4980	**WSI-0809-03**
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**WSI-0809-04**
1/2	19/32	3/8	.5030	.5003	.5941	.5934	.4990	.4980	**WSI-0809-06**
1/2	19/32	1/2	.5030	.5003	.5941	.5934	.4990	.4980	**WSI-0809-08**
1/2	19/32	5/8	.5030	.5003	.5941	.5934	.4990	.4980	**WSI-0809-10**
1/2	19/32	3/4	.5030	.5003	.5941	.5934	.4990	.4980	**WSI-0809-12**
1/2	19/32	1	.5030	.5003	.5941	.5934	.4990	.4980	**WSI-0809-16**
1/2	5/8	1/2	.5040	.5013	.6260	.6250	.5000	.4990	**WSI-0810-08**
1/2	5/8	5/8	.5040	.5013	.6260	.6250	.5000	.4990	**WSI-0810-10**
1/2	5/8	3/4	.5040	.5013	.6260	.6250	.5000	.4990	**WSI-0810-12**
1/2	5/8	1	.5040	.5013	.6260	.6250	.5000	.4990	**WSI-0810-16**
9/16	21/32	1/2	.5655	.5627	.6566	.6559	.5615	.5605	**WSI-0910-08**
9/16	21/32	5/8	.5655	.5627	.6566	.6559	.5615	.5605	**WSI-0910-10**
9/16	21/32	3/4	.5655	.5627	.6566	.6559	.5615	.5605	**WSI-0910-12**
5/8	23/32	1/4	.6280	.6253	.7192	.7184	.6240	.6230	**WSI-1011-04**
5/8	23/32	3/8	.6280	.6253	.7192	.7184	.6240	.6230	**WSI-1011-06**
5/8	23/32	1/2	.6280	.6253	.7192	.7184	.6240	.6230	**WSI-1011-08**
5/8	23/32	5/8	.6280	.6253	.7192	.7184	.6240	.6230	**WSI-1011-10**
5/8	23/32	3/4	.6280	.6253	.7192	.7184	.6240	.6230	**WSI-1011-12**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
5/8	23/32	1	.6280	.6253	.7192	.7184	.6240	.6230	**WSI-1011-16**
11/16	25/32	3/4	.6906	.6879	.7817	.7809	.6865	.6855	**WSI-1112-12**
3/4	7/8	1/2	.7541	.7507	.8755	.8747	.7491	.7479	**WSI-1214-08**
3/4	7/8	3/4	.7541	.7507	.8755	.8747	.7491	.7479	**WSI-1214-12**
3/4	7/8	1	.7541	.7507	.8755	.8747	.7491	.7479	**WSI-1214-16**
3/4	7/8	1 1/2	.7541	.7507	.8755	.8747	.7491	.7479	**WSI-1214-24**
7/8	1	1/4	.8791	.8757	1.0005	.9997	.8741	.8729	**WSI-1416-04**
7/8	1	3/8	.8791	.8757	1.0005	.9997	.8741	.8729	**WSI-1416-06**
7/8	1	1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**WSI-1416-08**
7/8	1	5/8	.8791	.8757	1.0005	.9997	.8741	.8729	**WSI-1416-10**
7/8	1	3/4	.8791	.8757	1.0005	.9997	.8741	.8729	**WSI-1416-12**
7/8	1	1	.8791	.8757	1.0005	.9997	.8741	.8729	**WSI-1416-16**
7/8	1	1 1/2	.8791	.8757	1.0005	.9997	.8741	.8729	**WSI-1416-24**
1	1 1/8	3/8	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WSI-1618-06**
1	1 1/8	1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WSI-1618-08**
1	1 1/8	3/4	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WSI-1618-12**
1	1 1/8	1	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WSI-1618-16**
1	1 1/8	1 5/16	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WSI-1618-20**
1	1 1/8	1 3/8	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WSI-1618-22**
1	1 1/8	1 1/2	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WSI-1618-24**
1 1/8	1 9/32	3/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**WSI-1820-12**
1 1/8	1 9/32	1	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**WSI-1820-16**
1 1/8	1 9/32	1 1/4	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**WSI-1820-20**
1 1/4	1 13/32	3/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WSI-2022-12**
1 1/4	1 13/32	7/8	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WSI-2022-14**
1 1/4	1 13/32	1	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WSI-2022-16**
1 1/4	1 13/32	1 1/4	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WSI-2022-20**
1 1/4	1 13/32	1 1/2	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WSI-2022-24**
1 3/8	1 17/32	1	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722	**WSI-2224-16**
1 3/8	1 17/32	1 1/2	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722	**WSI-2224-24**
1 1/2	1 21/32	3/4	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**WSI-2426-12**
1 1/2	1 21/32	1	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**WSI-2426-16**
1 1/2	1 21/32	1 1/2	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**WSI-2426-24**
1 1/2	1 21/32	2 3/4	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**WSI-2426-44**
1 5/8	1 25/32	1	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**WSI-2629-16**
1 5/8	1 25/32	1 1/4	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**WSI-2629-20**
1 5/8	1 25/32	1 1/2	1.6297	1.6258	1.7818	1.7808	1.6238	1.6222	**WSI-2629-24**
1 3/4	1 15/16	1	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**WSI-2831-16**
1 3/4	1 15/16	1 1/2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**WSI-2831-24**
1 3/4	1 15/16	2	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**WSI-2831-32**
1 3/4	1 15/16	3	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**WSI-2831-48**
1 7/8	2 1/16	1	1.8796	1.8757	2.0621	2.0633	1.8721	1.8737	**WSI-3033-16**
1 7/8	2 1/16	2	1.8796	1.8757	2.0621	2.0633	1.8721	1.8737	**WSI-3033-32**
2	2 3/16	1	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**WSI-3235-16**
2	2 3/16	1 1/2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**WSI-3235-24**
2	2 3/16	2	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**WSI-3235-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489	**WSI-3639-32**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1266	.1247	.1878	.1873	.1243	.1236	**XSI-0203-03**
1/8	3/16	5/16	.1266	.1247	.1878	.1873	.1243	.1236	**XSI-0203-05**
1/8	3/16	3/8	.1266	.1247	.1878	.1873	.1243	.1236	**XSI-0203-06**
3/16	1/4	3/16	.1888	.1869	.2503	.2497	.1865	.1858	**XSI-0304-03**
3/16	1/4	1/4	.1888	.1869	.2503	.2497	.1865	.1858	**XSI-0304-04**
3/16	1/4	3/8	.1888	.1869	.2503	.2497	.1865	.1858	**XSI-0304-06**
3/16	1/4	1/2	.1888	.1869	.2503	.2497	.1865	.1858	**XSI-0304-08**
1/4	5/16	1/4	.2518	.2495	.3128	.3122	.2490	.2481	**XSI-0405-04**
1/4	5/16	3/8	.2518	.2495	.3128	.3122	.2490	.2481	**XSI-0405-06**
1/4	5/16	1/2	.2518	.2495	.3128	.3122	.2490	.2481	**XSI-0405-08**
5/16	3/8	1/4	.3143	.3120	.3753	.3747	.3115	.3106	**XSI-0506-04**
5/16	3/8	3/8	.3143	.3120	.3753	.3747	.3115	.3106	**XSI-0506-06**
5/16	3/8	1/2	.3143	.3120	.3753	.3747	.3115	.3106	**XSI-0506-08**
3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731	**XSI-0607-04**
3/8	15/32	5/16	.3768	.3745	.4691	.4684	.3740	.3731	**XSI-0607-05**
3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731	**XSI-0607-06**
3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731	**XSI-0607-08**
3/8	15/32	5/8	.3768	.3745	.4691	.4684	.3740	.3731	**XSI-0607-10**
3/8	15/32	3/4	.3768	.3745	.4691	.4684	.3740	.3731	**XSI-0607-12**
7/16	17/32	1/4	.4399	.4371	.5316	.5309	.4365	.4355	**XSI-0708-04**
7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355	**XSI-0708-08**
7/16	17/32	5/8	.4399	.4371	.5316	.5309	.4365	.4355	**XSI-0708-10**
7/16	17/32	3/4	.4399	.4371	.5316	.5309	.4365	.4355	**XSI-0708-12**
1/2	19/32	1/4	.5030	.5003	.5941	.5934	.4990	.4980	**XSI-0809-04**
1/2	19/32	3/8	.5024	.4996	.5941	.5934	.4990	.4980	**XSI-0809-06**
1/2	19/32	1/2	.5024	.4996	.5941	.5934	.4990	.4980	**XSI-0809-08**
1/2	19/32	5/8	.5024	.4996	.5941	.5934	.4990	.4980	**XSI-0809-10**
1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980	**XSI-0809-12**
1/2	19/32	1	.5024	.4996	.5941	.5934	.4990	.4980	**XSI-0809-16**
9/16	21/32	1/2	.5649	.5620	.6566	.6559	.5615	.5605	**XSI-0910-08**
9/16	21/32	5/8	.5649	.5620	.6566	.6559	.5615	.5605	**XSI-0910-10**
9/16	21/32	3/4	.5649	.5620	.6566	.6559	.5615	.5605	**XSI-0910-12**
5/8	23/32	1/4	.6274	.6246	.7192	.7184	.6240	.6230	**XSI-1011-04**
5/8	23/32	3/8	.6274	.6246	.7192	.7184	.6240	.6230	**XSI-1011-06**
5/8	23/32	1/2	.6274	.6246	.7192	.7184	.6240	.6230	**XSI-1011-08**
5/8	23/32	5/8	.6274	.6246	.7192	.7184	.6240	.6230	**XSI-1011-10**
5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230	**XSI-1011-12**
5/8	23/32	1	.6274	.6246	.7192	.7184	.6240	.6230	**XSI-1011-16**
11/16	25/32	7/8	.6906	.6879	.7817	.7809	.6865	.6855	**XSI-1112-14**
3/4	7/8	3/8	.7532	.7499	.8755	.8747	.7491	.7479	**XSI-1214-06**

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
3/4	7/8	1/2	.7532	.7499	.8755	.8747	.7491	.7479	**XSI-1214-08**
3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479	**XSI-1214-12**
3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479	**XSI-1214-16**
7/8	1	1/2	.8782	.8749	1.0005	.9997	.8741	.8729	**XSI-1416-08**
7/8	1	3/4	.8782	.8749	1.0005	.9997	.8741	.8729	**XSI-1416-12**
7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729	**XSI-1416-16**
1	1 1/8	1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XSI-1618-08**
1	1 1/8	3/4	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XSI-1618-12**
1	1 1/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XSI-1618-16**
1	1 1/8	1 1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XSI-1618-24**
1 1/8	1 9/32	3/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**XSI-1820-12**
1 1/8	1 9/32	1	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**XSI-1820-16**
1 1/8	1 9/32	1 1/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**XSI-1820-20**
1 1/4	1 13/32	5/8	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**XSI-2022-10**
1 1/4	1 13/32	3/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**XSI-2022-12**
1 1/4	1 13/32	1	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**XSI-2022-16**
1 1/4	1 13/32	1 1/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**XSI-2022-20**
1 1/2	1 21/32	3/4	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**XSI-2426-12**
1 1/2	1 21/32	1	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**XSI-2426-16**
1 1/2	1 21/32	1 1/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**XSI-2426-24**
1 5/8	1 25/32	1	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**XSI-2629-16**
1 5/8	1 25/32	1 1/4	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**XSI-2629-20**
1 5/8	1 25/32	1 1/2	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**XSI-2629-24**
1 3/4	1 15/16	1	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**XSI-2831-16**
1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**XSI-2831-32**
1 7/8	2 1/16	1	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**XSI-3033-16**
1 7/8	2 1/16	2	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**XSI-3033-32**
2	2 3/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**XSI-3235-16**
2	2 3/16	1 1/2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**XSI-3235-24**
2	2 3/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**XSI-3235-32**
2 1/4	2 7/16	2	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489	**XSI-3639-32**
2 3/4	2 15/16	2	2.7570	2.7523	2.9370	2.9358	2.7500	2.7490	**XSI-4447-32**

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Inch iglidur® form S

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d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.1266	.1247	.1878	.1873	.1243	.1236	**ZSI-0203-03**
3/16	1/4	1/4	.1888	.1869	.2503	.2497	.1865	.1858	**ZSI-0304-04**
3/16	1/4	3/8	.1888	.1869	.2503	.2497	.1865	.1858	**ZSI-0304-06**
1/4	5/16	3/8	.2518	.2495	.3128	.3122	.2490	.2481	**ZSI-0405-06**
1/4	5/16	1/2	.2518	.2495	.3128	.3122	.2490	.2481	**ZSI-0405-08**
5/16	3/8	1/4	.3143	.3120	.3753	.3747	.3115	.3106	**ZSI-0506-04**
5/16	3/8	3/8	.3143	.3120	.3753	.3747	.3115	.3106	**ZSI-0506-06**
5/16	3/8	1/2	.3143	.3120	.3753	.3747	.3115	.3106	**ZSI-0506-08**
3/8	15/32	1/4	.3768	.3745	.4691	.4684	.3740	.3731	**ZSI-0607-04**
3/8	15/32	3/8	.3768	.3745	.4691	.4684	.3740	.3731	**ZSI-0607-06**
3/8	15/32	1/2	.3768	.3745	.4691	.4684	.3740	.3731	**ZSI-0607-08**
3/8	15/32	5/8	.3768	.3745	.4691	.4684	.3740	.3731	**ZSI-0607-10**
3/8	15/32	3/4	.3768	.3745	.4691	.4684	.3740	.3731	**ZSI-0607-12**
7/16	17/32	1/2	.4399	.4371	.5316	.5309	.4365	.4355	**ZSI-0708-08**
7/16	17/32	3/4	.4399	.4371	.5316	.5309	.4365	.4355	**ZSI-0708-12**
1/2	19/32	1/4	.5024	.4996	.5941	.5934	.4990	.4980	**ZSI-0809-04**
1/2	19/32	3/8	.5024	.4996	.5941	.5934	.4990	.4980	**ZSI-0809-06**
1/2	19/32	1/2	.5024	.4996	.5941	.5934	.4990	.4980	**ZSI-0809-08**
1/2	19/32	5/8	.5024	.4996	.5941	.5934	.4990	.4980	**ZSI-0809-10**
1/2	19/32	3/4	.5024	.4996	.5941	.5934	.4990	.4980	**ZSI-0809-12**
1/2	19/32	1	.5024	.4996	.5941	.5934	.4990	.4980	**ZSI-0809-16**
1/2	5/8	3/4	.5034	.5006	.6260	.6250	.5000	.4990	**ZSI-0810-12**
9/16	21/32	1/2	.5649	.5620	.6566	.6559	.5615	.5605	**ZSI-0910-08**
9/16	21/32	5/8	.5649	.5620	.6566	.6559	.5615	.5605	**ZSI-0910-10**
9/16	21/32	3/4	.5649	.5620	.6566	.6559	.5615	.5605	**ZSI-0910-12**
5/8	23/32	1/2	.6274	.6246	.7192	.7184	.6240	.6230	**ZSI-1011-08**
5/8	23/32	3/4	.6274	.6246	.7192	.7184	.6240	.6230	**ZSI-1011-12**
5/8	23/32	1	.6274	.6246	.7192	.7184	.6240	.6230	**ZSI-1011-16**
3/4	7/8	1/2	.7532	.7499	.8755	.8747	.7491	.7479	**ZSI-1214-08**
3/4	7/8	3/4	.7532	.7499	.8755	.8747	.7491	.7479	**ZSI-1214-12**
3/4	7/8	1	.7532	.7499	.8755	.8747	.7491	.7479	**ZSI-1214-16**
7/8	1	1/2	.8782	.8749	1.0005	.9997	.8741	.8729	**ZSI-1416-08**
7/8	1	3/4	.8782	.8749	1.0005	.9997	.8741	.8729	**ZSI-1416-12**
7/8	1	1	.8782	.8749	1.0005	.9997	.8741	.8729	**ZSI-1416-16**
1	1 1/8	1/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**ZSI-1618-08**
1	1 1/8	3/4	1.0032	.9999	1.1255	1.1247	.9991	.9979	**ZSI-1618-12**
1	1 1/8	1	1.0032	.9999	1.1255	1.1247	.9991	.9979	**ZSI-1618-16**
1	11/8	11/2	1.0032	.9999	1.1255	1.1247	.9991	.9979	**ZSI-1618-24**
1 1/8	1 9/32	3/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**ZSI-1820-12**
1 1/8	1 9/32	1	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**ZSI-1820-16**
1 1/8	1 9/32	1 1/4	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**ZSI-1820-20**
1 1/8	1 9/32	11/2	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**ZSI-1820-24**
1 1/4	1 13/32	3/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**ZSI-2022-12**
1 1/4	1 13/32	1	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**ZSI-2022-16**

[3] After press-fit. Testing methods ▶ Page 61

Imperial product range | iglidur® | Sleeve bearings

d1	d2	b1	d1[3]		Housing hole		Shaft size		Part No.
			max.	min.	max.	min.	max.	min.	
1 1/4	1 13/32	1 1/4	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**ZSI-2022-20**
1 1/2	1 21/32	1	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**ZSI-2426-16**
1 1/2	1 21/32	1 1/2	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**ZSI-2426-24**
1 5/8	1 25/32	1	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**ZSI-2629-16**
1 5/8	1 25/32	1 1/2	1.6287	1.6248	1.7818	1.7808	1.6238	1.6222	**ZSI-2629-24**
1 3/4	1 15/16	1	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**ZSI-2831-16**
1 3/4	1 15/16	2	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**ZSI-2831-32**
1 7/8	2 1/16	1	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**ZSI-3033-16**
1 7/8	2 1/16	2	1.8747	1.8786	2.0633	2.0621	1.8737	1.8721	**ZSI-3033-32**
2	2 3/16	1	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**ZSI-3235-16**
2	2 3/16	2	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**ZSI-3235-32**
2 1/4	27/16	2	2.2556	2.2519	2.4377	2.4365	2.2507	2.2489	**ZSI-3639-32**

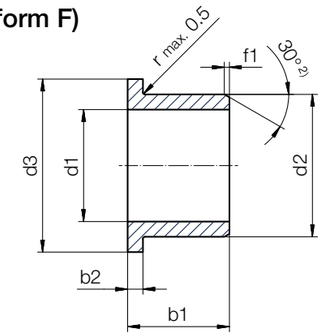
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Imperial product range | iglidur® | Flanged bearings

Flange bearings (form F)



Image exemplary



Chamfer in relation to d1

d1 [inch]	f [inch]
Ø 0.040 - 0.236	0.012
Ø 0.236 - 0.472	0.019
Ø 0.472 - 1.18	0.031
Ø > 1.18	0.047

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**A181FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**A181FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**A181FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**A181FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**A181FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**A181FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**A181FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**A181FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**A181FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**A181FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**A181FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**A181FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**A181FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**A181FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**A181FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**A181FI-0809-12**
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**A181FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**A181FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**A181FI-1011-12**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**A181FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**A181FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**A181FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**A181FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**A181FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**A181FI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**A181FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**A181FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**A181FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**A181FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**A181FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**A181FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**A181FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**A181FI-2426-24**

[3] After press-fit. Testing methods ▶ Page 61

d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**A181FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**A181FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	1/4	1/4	.3600	.0470	.1280	.1262	.2515	.2510	.1250	.1241	**AFI-0204-04**
3/16	5/16	1/4	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**AFI-0305-04**
1/4	3/8	1/4	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**AFI-0406-04**
1/4	3/8	3/8	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**AFI-0406-06**
5/16	7/16	1/2	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**AFI-0507-08**
3/8	1/2	1/4	.6250	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**AFI-0608-04**
3/8	1/2	1/2	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**AFI-0608-08**
1/2	5/8	1/2	.8750	.0620	.5047	.5020	.6257	.6250	.5000	.4983	**AFI-0810-08**
1/2	5/8	3/4	.8750	.0620	.5047	.5020	.6257	.6250	.5000	.4983	**AFI-0810-12**
5/8	13/16	1	1.0630	.1560	.6297	.6270	.8135	.8125	.6250	.6240	**AFI-1013-16**
3/4	1	3/4	1.2500	.1560	.7559	.7525	1.0010	1.0000	.7500	.7490	**AFI-1216-12**
3/4	1	1	1.2500	.1560	.7559	.7525	1.0010	1.0000	.7500	.7490	**AFI-1216-16**
7/8	1 1/8	1 1/2	1.3750	.1560	.8809	.8775	1.1260	1.1250	.8750	.8740	**AFI-1418-24**
1	1 9/32	1	1.5000	.1880	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**AFI-1620-16**
1	1 9/32	1 1/2	1.5000	.1880	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**AFI-1620-24**
1 1/4	1 17/32	1	1.7500	.2000	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**AFI-2024-16**
1 1/4	1 17/32	1 1/2	1.7500	.2000	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**AFI-2024-24**
1 1/2	1 3/4	1	2.0000	.1250	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**AFI-2428-16**
1 1/2	1 3/4	1 1/2	2.0000	.1250	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**AFI-2428-24**
1 3/4	2	1	2.2500	.1250	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**AFI-2832-16**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**A350FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**A350FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**A350FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**A350FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**A350FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**A350FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**A350FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A350FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A350FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A350FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A350FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4399	.4371	.5316	.5309	.4365	.4355	**A350FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A350FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A350FI-0809-06**

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Imperial product range | iglidur® | Flanged bearings

Inch iglidur® form F

d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/2	19/32	1/2	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A350FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A350FI-0809-12**
1/2	19/32	1	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A350FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**A350FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**A350FI-1011-12**
5/8	23/32	1	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**A350FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**A350FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**A350FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**A350FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**A350FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**A350FI-1416-12**
7/8	1	1	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**A350FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A350FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A350FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A350FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A350FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A350FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A350FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A350FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**A350FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**A350FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**A500FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**A500FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**A500FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**A500FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**A500FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**A500FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**A500FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A500FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A500FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A500FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**A500FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4399	.4371	.5316	.5309	.4365	.4355	**A500FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A500FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A500FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A500FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A500FI-0809-12**
1/2	19/32	1	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**A500FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**A500FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**A500FI-1011-12**
5/8	23/32	1	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**A500FI-1011-16**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
3/4	7/8	1/2	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**A500FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**A500FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**A500FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**A500FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**A500FI-1416-12**
7/8	1	1	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**A500FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A500FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A500FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**A500FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A500FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**A500FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A500FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**A500FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**A500FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**A500FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	1/8	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**GFI-0203-02**
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**GFI-0203-03**
1/8	3/16	1/4	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**GFI-0203-04**
1/8	3/16	3/8	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**GFI-0203-06**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**GFI-0304-04**
3/16	1/4	3/8	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**GFI-0304-06**
3/16	1/4	1/2	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**GFI-0304-08**
1/4	5/16	1/4	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**GFI-0405-04**
1/4	5/16	5/16	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**GFI-0405-05**
1/4	5/16	3/8	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**GFI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**GFI-0405-08**
1/4	5/16	3/4	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**GFI-0405-12**
5/16	3/8	1/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**GFI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**GFI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**GFI-0506-08**
5/16	3/8	3/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**GFI-0506-12**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**GFI-0607-04**
3/8	15/32	5/16	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**GFI-0607-05**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**GFI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**GFI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**GFI-0607-12**
3/8	15/32	7/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**GFI-0607-14**
7/16	17/32	1/4	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**GFI-0708-04**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**GFI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**GFI-0809-04**
1/2	19/32	5/16	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**GFI-0809-05**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**GFI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**GFI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**GFI-0809-12**
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**GFI-0809-16**
5/8	23/32	3/8	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**GFI-1011-06**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**GFI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**GFI-1011-12**
5/8	23/32	7/8	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**GFI-1011-14**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**GFI-1011-16**
5/8	23/32	1 1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**GFI-1011-24**
3/4	7/8	1/8	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**GFI-1214-02**
3/4	7/8	3/8	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**GFI-1214-06**
3/4	7/8	1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**GFI-1214-08**
3/4	7/8	5/8	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**GFI-1214-10**
3/4	7/8	3/4	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**GFI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**GFI-1214-16**
3/4	7/8	1 1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**GFI-1214-24**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**GFI-1416-08**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**GFI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**GFI-1416-16**
7/8	1	1 1/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**GFI-1416-20**
7/8	1	1 1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**GFI-1416-24**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GFI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GFI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GFI-1618-16**
1	1 1/8	1 1/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GFI-1618-20**
1	1 1/8	1 1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**GFI-1618-24**
1 1/8	1 9/32	3/4	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**GFI-1820-12**
1 1/8	1 9/32	1 1/2	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**GFI-1820-24**
1 1/4	1 13/32	3/8	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GFI-2022-06**
1 1/4	1 13/32	3/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GFI-2022-12**
1 1/4	1 13/32	7/8	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GFI-2022-14**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GFI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GFI-2022-20**
1 1/4	1 13/32	1 1/2	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**GFI-2022-24**
1 3/8	1 17/32	1	1.8750	.0780	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722	**GFI-2224-16**
1 1/2	1 21/32	3/4	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GFI-2426-12**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GFI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**GFI-2426-24**
1 3/4	1 15/16	1	2.3750	.0930	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GFI-2831-16**
1 3/4	1 15/16	1 1/2	2.3750	.0930	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GFI-2831-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7505	1.9381	1.9371	1.7487	1.7471	**GFI-2831-32**
2	2 3/16	1	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**GFI-3235-16**
2	2 3/16	1 1/2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**GFI-3235-24**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**GFI-3235-32**
2 1/4	2 7/16	2	2.7500	.0930	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489	**GFI-3639-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
2 1/2	2 11/16	2	3.1250	.0930	2.5082	2.5035	2.6881	2.6869	2.5000	2.4999	**GFI-4043-32**
2 3/4	2 15/16	2	3.3750	.0930	2.7570	2.7523	2.9370	2.9358	2.7500	2.7490	**GFI-4447-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
		h13		h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**H1FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**H1FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**H1FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**H1FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**H1FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**H1FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**H1FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H1FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H1FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H1FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H1FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4399	.4371	.5316	.5309	.4365	.4355	**H1FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H1FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H1FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H1FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H1FI-0809-12**
1/2	19/32	1	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H1FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**H1FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**H1FI-1011-12**
5/8	23/32	1	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**H1FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**H1FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**H1FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**H1FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**H1FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**H1FI-1416-12**
7/8	1	1	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**H1FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H1FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H1FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H1FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H1FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H1FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H1FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H1FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**H1FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**H1FI-3235-32**

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Inch iglidur® form F

iglidur® H370

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
		h13		h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**H370FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**H370FI-0304-04**
1/4	5/16	1/4	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**H370FI-0405-04**
1/4	5/16	3/8	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**H370FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**H370FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**H370FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**H370FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**H370FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H370FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H370FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H370FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**H370FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4399	.4371	.5316	.5309	.4365	.4355	**H370FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H370FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H370FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H370FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H370FI-0809-12**
1/2	19/32	1	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**H370FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**H370FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**H370FI-1011-12**
5/8	23/32	1	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**H370FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**H370FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**H370FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**H370FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**H370FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**H370FI-1416-12**
7/8	1	1	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**H370FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H370FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H370FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**H370FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H370FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**H370FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H370FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**H370FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**H370FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**H370FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**JFI-0203-03**
1/8	1/4	3/8	.3600	.0470	.1280	.1262	.2515	.2510	.1250	.1241	**JFI-0204-06**
3/16	1/4	1/8	.3750	.0320	.1905	.1887	.2515	.2510	.1875	.1866	**JFI-0304-02**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**JFI-0304-04**
3/16	1/4	3/8	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**JFI-0304-06**
3/16	1/4	1/2	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**JFI-0304-08**
3/16	5/16	3/8	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**JFI-0305-06**
3/16	5/16	1/2	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**JFI-0305-08**
1/4	5/16	1/4	.4370	.0320	.2521	.2498	.3140	.3135	.2490	.2481	**JFI-0405-04**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**JFI-0405-06**
1/4	5/16	3/8	.4370	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**JFI-0405-08**
1/4	5/16	3/4	.4370	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**JFI-0405-12**
1/4	3/8	3/16	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**JFI-0406-03**
1/4	3/8	1/4	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**JFI-0406-04**
1/4	3/8	1/2	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**JFI-0406-08**
5/16	3/8	1/4	.5000	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**JFI-0506-04**
5/16	3/8	3/8	.5000	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**JFI-0506-06**
5/16	3/8	1/2	.5000	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**JFI-0506-08**
5/16	7/16	1/2	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**JFI-0507-08**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**JFI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**JFI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**JFI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**JFI-0607-12**
3/8	1/2	3/16	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**JFI-0608-03**
3/8	1/2	3/8	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**JFI-0608-06**
3/8	1/2	1/2	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**JFI-0608-08**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**JFI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**JFI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**JFI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**JFI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**JFI-0809-12**
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**JFI-0809-16**
1/2	5/8	1/4	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**JFI-0810-04**
1/2	5/8	1/2	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**JFI-0810-08**
1/2	5/8	5/8	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**JFI-0810-10**
1/2	5/8	3/4	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**JFI-0810-12**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**JFI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6250	.6240	**JFI-1011-12**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6250	.6240	**JFI-1011-16**
5/8	3/4	1/2	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**JFI-1012-08**
5/8	3/4	3/4	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**JFI-1012-12**
5/8	3/4	1	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**JFI-1012-16**
3/4	7/8	1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**JFI-1214-08**
3/4	7/8	5/8	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**JFI-1214-10**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
3/4	7/8	3/4	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**JFI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**JFI-1214-16**
3/4	1	3/4	1.2500	.1560	.7559	.7525	1.0010	1.00	.7500	.7490	**JFI-1216-12**
3/4	1	1	1.2500	.1560	.7559	.7525	1.0010	1.00	.7500	.7490	**JFI-1216-16**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**JFI-1416-08**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**JFI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**JFI-1416-16**
7/8	1	1 1/16	1.1250	.0620	.8809	.8776	1.0010	1.00	.8750	.8740	**JFI-141618-11**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**JFI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**JFI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**JFI-1618-16**
1	1 1/4	3/4	1.5000	.1880	1.0059	1.0025	1.2510	1,250	1.0000	.9990	**JFI-1620-12**
1	1 1/4	1	1.5000	.1880	1.0059	1.0025	1.2510	1,250	1.0000	.9990	**JFI-1620-16**
1	1 1/4	1 1/2	1.5000	.1880	1.0059	1.0025	1.2510	1,250	1.0000	.9990	**JFI-1620-24**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**JFI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**JFI-2022-20**
1 1/4	1 1/2	1	1.7500	.1880	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**JFI-2024-16**
1 1/4	1 1/2	1 1/2	1.7500	.1880	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**JFI-2024-24**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**JFI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**JFI-2426-24**
1 1/2	1 3/4	1	2.0000	.1250	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**JFI-2428-16**
1 1/2	1 3/4	1 1/2	2.0000	.1250	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**JFI-2428-24**
1 5/8	1 7/8	1	2.1250	.1250	1.6350	1.6882	1.8755	1.8745	1.6250	1.6240	**JFI-2630-16**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**JFI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**JFI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**J3FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**J3FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**J3FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**J3FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**J3FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**J3FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**J3FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**J3FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**J3FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**J3FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**J3FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**J3FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**J3FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**J3FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**J3FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**J3FI-0809-12**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**J3FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**J3FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**J3FI-1011-12**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**J3FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**J3FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**J3FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**J3FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**J3FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**J3FI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**J3FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**J3FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**J3FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**J3FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**J3FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**J3FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**J3FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**J3FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**J3FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**J3FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**J350FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**J350FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**J350FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**J350FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**J350FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**J350FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**J350FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**J350FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**J350FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**J350FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**J350FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4399	.4371	.5316	.5309	.4365	.4355	**J350FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**J350FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**J350FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**J350FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**J350FI-0809-12**
1/2	19/32	1	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**J350FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**J350FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**J350FI-1011-12**
5/8	23/32	1	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**J350FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**J350FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**J350FI-1214-12**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
3/4	7/8	1	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**J350FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**J350FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**J350FI-1416-12**
7/8	1	1	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**J350FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**J350FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**J350FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**J350FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**J350FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**J350FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**J350FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**J350FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**J350FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**J350FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	1/8	.3125	.0320	.1280	.1262	.1885	.1880	.1250	.1241	**MFI-0203-02**
1/8	3/16	1/4	.3125	.0320	.1280	.1262	.1885	.1880	.1250	.1241	**MFI-0203-04**
1/8	1/4	1/8	.3600	.0470	.1280	.1262	.2515	.2510	.1250	.1241	**MFI-0204-02**
1/8	1/4	3/16	.3600	.0470	.1280	.1262	.2515	.2510	.1250	.1241	**MFI-0204-03**
1/8	1/4	1/4	.3600	.0470	.1280	.1262	.2515	.2510	.1250	.1241	**MFI-0204-04**
1/8	1/4	3/8	.3600	.0470	.1280	.1262	.2515	.2510	.1250	.1241	**MFI-0204-06**
1/8	1/4	3/4	.3600	.0470	.1280	.1262	.2515	.2510	.1250	.1241	**MFI-0204-12**
3/16	1/4	1/4	.3750	.0320	.1905	.1887	.2515	.2510	.1875	.1866	**MFI-0304-04**
3/16	1/4	3/8	.3750	.0320	.1905	.1887	.2515	.2510	.1875	.1866	**MFI-0304-06**
3/16	1/4	1/2	.3750	.0320	.1905	.1887	.2515	.2510	.1875	.1866	**MFI-0304-08**
3/16	5/16	3/16	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**MFI-0305-03**
3/16	5/16	1/4	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**MFI-0305-04**
3/16	5/16	5/16	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**MFI-0305-05**
3/16	5/16	3/8	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**MFI-0305-06**
3/16	5/16	1/2	.3700	.0470	.1905	.1887	.3140	.3135	.1875	.1866	**MFI-0305-08**
1/4	5/16	3/16	.4375	.0470	.2539	.2516	.3140	.3135	.2500	.2491	**MFI-0405-03**
1/4	5/16	1/4	.4375	.0320	.2539	.2516	.3140	.3135	.2500	.2491	**MFI-0405-04**
1/4	5/16	3/8	.4375	.0320	.2539	.2516	.3140	.3135	.2500	.2491	**MFI-0405-06**
1/4	5/16	7/16	.4375	.0470	.2539	.2516	.3140	.3135	.2500	.2491	**MFI-0405-07**
1/4	5/16	1/2	.4375	.0320	.2539	.2516	.3140	.3135	.2500	.2491	**MFI-0405-08**
1/4	5/16	3/4	.4375	.0470	.2539	.2516	.3140	.3135	.2500	.2491	**MFI-0405-12**
1/4	3/8	1/8	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**MFI-0406-02**
1/4	3/8	3/16	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**MFI-0406-03**
1/4	3/8	1/4	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**MFI-0406-04**
1/4	3/8	3/8	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**MFI-0406-06**
1/4	3/8	1/2	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**MFI-0406-08**
1/4	3/8	5/8	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**MFI-0406-10**
1/4	3/8	3/4	.5600	.0470	.2539	.2516	.3765	.3760	.2500	.2491	**MFI-0406-12**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
5/16	3/8	1/4	.5000	.0320	.3164	.3141	.3765	.3760	.3125	.3116	**MFI-0506-04**
5/16	3/8	3/8	.5000	.0320	.3164	.3141	.3765	.3760	.3125	.3116	**MFI-0506-06**
5/16	3/8	1/2	.5000	.0320	.3164	.3141	.3765	.3760	.3125	.3116	**MFI-0506-08**
5/16	3/8	15/16	.5000	.0320	.3164	.3141	.3765	.3760	.3125	.3116	**MFI-0506-15**
5/16	7/16	3/16	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**MFI-0507-03**
5/16	7/16	1/4	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**MFI-0507-04**
5/16	7/16	5/16	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**MFI-0507-05**
5/16	7/16	3/8	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**MFI-0507-06**
5/16	7/16	1/2	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**MFI-0507-08**
5/16	7/16	5/8	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**MFI-0507-10**
5/16	7/16	3/4	.5600	.0620	.3164	.3141	.4390	.4385	.3125	.3116	**MFI-0507-12**
3/8	7/16	1/4	.5625	.0320	.3789	.3766	.4390	.4385	.3750	.3741	**MFI-0607-04**
3/8	7/16	3/8	.5625	.0320	.3789	.3766	.4390	.4385	.3750	.3741	**MFI-0607-06**
3/8	7/16	1/2	.5625	.0320	.3789	.3766	.4390	.4385	.3750	.3741	**MFI-0607-08**
3/8	1/2	1/8	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-02**
3/8	1/2	3/16	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-03**
3/8	1/2	1/4	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-04**
3/8	1/2	5/16	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-05**
3/8	1/2	3/8	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-06**
3/8	1/2	1/2	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-08**
3/8	1/2	5/8	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-10**
3/8	1/2	3/4	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-12**
3/8	1/2	1	.6250	.0620	.3789	.3766	.5015	.5010	.3750	.3741	**MFI-0608-16**
7/16	9/16	3/8	.6870	.0620	.4422	.4395	.5941	.5934	.4375	.4365	**MFI-0709-06**
7/16	9/16	1/2	.6870	.0620	.4422	.4395	.5941	.5934	.4375	.4365	**MFI-0709-08**
1/2	5/8	1/8	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-02**
1/2	5/8	1/4	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-04**
1/2	5/8	5/16	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-05**
1/2	5/8	3/8	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-06**
1/2	5/8	1/2	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-08**
1/2	5/8	5/8	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-10**
1/2	5/8	3/4	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-12**
1/2	5/8	1	.8750	.0620	.5047	.5020	.6260	.6250	.5000	.4990	**MFI-0810-16**
5/8	3/4	3/8	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**MFI-1012-06**
5/8	3/4	1/2	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**MFI-1012-08**
5/8	3/4	5/8	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**MFI-1012-10**
5/8	3/4	3/4	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**MFI-1012-12**
5/8	3/4	1	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**MFI-1012-16**
5/8	3/4	1 1/2	1.0000	.0620	.6297	.6270	.7510	.7500	.6250	.6240	**MFI-1012-24**
5/8	13/16	1/2	1.0630	.0620	.6297	.6270	.8135	.8125	.6250	.6240	**MFI-1013-08**
5/8	13/16	5/8	1.0630	.0620	.6297	.6270	.8135	.8125	.6250	.6240	**MFI-1013-10**
5/8	13/16	3/4	1.0630	.0620	.6297	.6270	.8135	.8125	.6250	.6240	**MFI-1013-12**
5/8	13/16	1	1.0630	.0620	.6297	.6270	.8135	.8125	.6250	.6240	**MFI-1013-16**
3/4	7/8	3/8	1.1250	.0620	.7559	.7525	.8760	.8750	.6250	.6240	**MFI-1214-06**
3/4	7/8	1/2	1.1250	.0620	.7559	.7525	.8760	.8750	.6250	.6240	**MFI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7559	.7525	.8760	.8750	.7500	.7490	**MFI-1214-12**

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Inch iglidur® form F

d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
3/4	7/8	1	1.1250	.0620	.7559	.7525	.8760	.8750	.7500	.7490	**MFI-1214-16**
3/4	7/8	1 1/2	1.1250	.0620	.7559	.7525	.8760	.8750	.7500	.7490	**MFI-1214-24**
3/4	1	1/2	1.2500	.1560	.7559	.7525	1.0010	1.0000	.7500	.7490	**MFI-1216-08**
3/4	1	5/8	1.2500	.1560	.7559	.7525	1.0010	1.0000	.7500	.7490	**MFI-1216-10**
3/4	1	3/4	1.2500	.1560	.7559	.7525	1.0010	1.0000	.7500	.7490	**MFI-1216-12**
3/4	1	1	1.2500	.1560	.7559	.7525	1.0010	1.0000	.7500	.7490	**MFI-1216-16**
3/4	1	1 1/2	1.2500	.1560	.7559	.7525	1.0010	1.0000	.7500	.7490	**MFI-1216-24**
7/8	1	3/4	1.2500	.0620	.8809	.8775	1.0010	1.0000	.8750	.8740	**MFI-1416-12**
7/8	1	1	1.2500	.0620	.8809	.8775	1.0010	1.0000	.8750	.8740	**MFI-1416-16**
7/8	1	1 1/2	1.2500	.0620	.8809	.8775	1.0010	1.0000	.8750	.8740	**MFI-1416-24**
7/8	1 1/8	1/2	1.3750	.1560	.8809	.8775	1.1260	1.1250	.8750	.8740	**MFI-1418-08**
7/8	1 1/8	3/4	1.3750	.1560	.8809	.8775	1.1260	1.1250	.8750	.8740	**MFI-1418-12**
7/8	1 1/8	1	1.3750	.1560	.8809	.8775	1.1260	1.1250	.8750	.8740	**MFI-1418-16**
7/8	1 1/8	1 1/2	1.3750	.1560	.8809	.8775	1.1260	1.1250	.8750	.8740	**MFI-1418-24**
1	1 1/8	3/16	1.3750	.0620	1.0059	1.0025	1.1260	1.1250	1.0000	.9990	**MFI-1618-03**
1	1 1/8	3/4	1.3750	.0620	1.0059	1.0025	1.1260	1.1250	1.0000	.9990	**MFI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0059	1.0025	1.1260	1.1250	1.0000	.9990	**MFI-1618-16**
1	1 1/8	1 1/2	1.3750	.0620	1.0059	1.0025	1.1260	1.1250	1.0000	.9990	**MFI-1618-24**
1	1 1/4	1/2	1.5000	.1880	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MFI-1620-08**
1	1 1/4	5/8	1.5000	.1880	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MFI-1620-10**
1	1 1/4	3/4	1.5000	.1880	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MFI-1620-12**
1	1 1/4	1	1.5000	.1880	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MFI-1620-16**
1	1 1/4	1 1/2	1.5000	.1880	1.0059	1.0025	1.2510	1.2500	1.0000	.9990	**MFI-1620-24**
1 1/4	1 1/2	7/16	1.7500	.2000	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MFI-2024-07**
1 1/4	1 1/2	3/4	1.7500	.2000	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MFI-2024-12**
1 1/4	1 1/2	1	1.7500	.2000	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MFI-2024-16**
1 1/4	1 1/2	1 1/2	1.7500	.2000	1.2600	1.2531	1.5005	1.4995	1.2500	1.2490	**MFI-2024-24**
1 3/8	1 5/8	3/4	1.8750	.1250	1.3850	1.3182	1.6255	1.6245	1.3750	1.3740	**MFI-2226-12**
1 3/8	1 5/8	1	1.8750	.1250	1.3850	1.3182	1.6255	1.6245	1.3750	1.3740	**MFI-2226-16**
1 1/2	1 3/4	3/4	2.0000	.1250	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**MFI-2428-12**
1 1/2	1 3/4	1	2.0000	.1250	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**MFI-2428-16**
1 1/2	1 3/4	1 1/2	2.0000	.1250	1.5100	1.5032	1.7505	1.7495	1.5000	1.4990	**MFI-2428-24**
1 5/8	1 7/8	1	2.1250	.1250	1.6350	1.6282	1.8755	1.8745	1.6250	1.6240	**MFI-2630-16**
1 3/4	2	3/4	2.2500	.1250	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MFI-2832-12**
1 3/4	2	1	2.2500	.1250	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MFI-2832-16**
1 3/4	2	1 1/2	2.2500	.1250	1.7560	1.7532	2.0005	1.9995	1.7500	1.7490	**MFI-2832-24**
2	2 1/4	1	2.5000	.1250	2.0100	2.0032	2.2550	2.2540	2.0000	1.9990	**MFI-3236-16**
2	2 1/4	1 1/2	2.5000	.1250	2.0100	2.0032	2.2550	2.2540	2.0000	1.9990	**MFI-3236-24**
2	2 1/4	2	2.5000	.1250	2.0100	2.0032	2.2550	2.2540	2.0000	1.9990	**MFI-3236-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**PFI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**PFI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**PFI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**PFI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**PFI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**PFI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**PFI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**PFI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**PFI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**PFI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**PFI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**PFI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**PFI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**PFI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**PFI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**PFI-0809-12**
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**PFI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**PFI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**PFI-1011-12**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**PFI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**PFI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**PFI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**PFI-1214-16**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**PFI-1416-08**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**PFI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**PFI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**PFI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**PFI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**PFI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**PFI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**PFI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**PFI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**PFI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**PFI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**PFI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**P210FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**P210FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**P210FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**P210FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**P210FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**P210FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**P210FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**P210FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**P210FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**P210FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**P210FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**P210FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**P210FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**P210FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**P210FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**P210FI-0809-12**
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**P210FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**P210FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**P210FI-1011-12**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**P210FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**P210FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**P210FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**P210FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**P210FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**P210FI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**P210FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**P210FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**P210FI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**P210FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**P210FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**P210FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**P210FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**P210FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**P210FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**P210FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**QFI-0607-04**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**QFI-0607-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**QFI-0809-04**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**QFI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**QFI-0809-12**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**QFI-1011-12**
5/8	3/4	1/2	1.0000	.0620	.6290	.6263	.7510	.7500	.6250	.6240	**QFI-1012-08**
3/4	7/8	1/2	1.1250	.0620	.7541	.7507	.8755	.8747	.7491	.7479	**QFI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7541	.7507	.8755	.8747	.7491	.7479	**QFI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**QFI-1214-16**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**QFI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**QFI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**QFI-1618-08**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**QFI-1618-16**
1	1 1/8	1 1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**QFI-1618-24**
1 1/8	1 9/32	3/4	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**QFI-1820-12**
1 1/8	1 9/32	1 1/2	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**QFI-1820-24**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**QFI-2022-20**
1 1/4	1 13/32	1 1/2	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**QFI-2022-24**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**QFI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**QFI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**QFI-3235-32**
2 1/4	2 7/16	2	2.7500	.0930	2.2577	2.2531	2.4377	2.4365	2.2507	2.2489	**QFI-3639-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**Q2FI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**Q2FI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**Q2FI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**Q2FI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**Q2FI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**Q2FI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**Q2FI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**Q2FI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**Q2FI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**Q2FI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**Q2FI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**Q2FI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**Q2FI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**Q2FI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**Q2FI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**Q2FI-0809-12**
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**Q2FI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**Q2FI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**Q2FI-1011-12**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**Q2FI-1011-16**
3/4	7/8	1/2	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**Q2FI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**Q2FI-1214-12**
3/4	7/8	1	1.1250	.0620	.7541	.7505	.8755	.8747	.7491	.7479	**Q2FI-1214-16**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**Q2FI-1416-08**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**Q2FI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**Q2FI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**Q2FI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**Q2FI-1618-12**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**Q2FI-1618-16**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**Q2FI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**Q2FI-2022-20**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**Q2FI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**Q2FI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**Q2FI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**Q2FI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**WFI-0203-03**
1/8	3/16	1/4	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**WFI-0203-04**
1/8	3/16	3/8	.3120	.0320	.1269	.1251	.1878	.1873	.1243	.1236	**WFI-0203-06**
3/16	1/4	1/8	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**WFI-0304-02**
3/16	1/4	1/4	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**WFI-0304-04**
3/16	1/4	3/8	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**WFI-0304-06**
3/16	1/4	1/2	.3750	.0320	.1892	.1873	.2503	.2497	.1865	.1858	**WFI-0304-08**
1/4	5/16	1/4	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**WFI-0405-04**
1/4	5/16	5/16	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**WFI-0405-05**
1/4	5/16	3/8	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**WFI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**WFI-0405-08**
1/4	5/16	3/4	.5000	.0320	.2521	.2498	.3128	.3122	.2490	.2481	**WFI-0405-12**
5/16	3/8	1/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**WFI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**WFI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**WFI-0506-08**
5/16	3/8	3/4	.5620	.0320	.3148	.3125	.3753	.3747	.3115	.3106	**WFI-0506-12**
3/8	15/32	1/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**WFI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**WFI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**WFI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3773	.3750	.4691	.4684	.3740	.3731	**WFI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4406	.4379	.5316	.5309	.4365	.4355	**WFI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**WFI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**WFI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**WFI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**WFI-0809-12**
1/2	19/32	1	.8750	.0460	.5030	.5003	.5941	.5934	.4990	.4980	**WFI-0809-16**
5/8	23/32	9/32	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**WFI-1011-045**
5/8	23/32	1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**WFI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**WFI-1011-12**
5/8	23/32	1	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**WFI-1011-16**
5/8	23/32	1 1/2	.9370	.0460	.6280	.6253	.7192	.7184	.6240	.6230	**WFI-1011-24**
3/4	7/8	1/2	1.1250	.0620	.7541	.7507	.8755	.8747	.7491	.7479	**WFI-1214-08**
3/4	7/8	5/8	1.1250	.0620	.7541	.7507	.8755	.8747	.7491	.7479	**WFI-1214-10**
3/4	7/8	3/4	1.1250	.0620	.7541	.7507	.8755	.8747	.7491	.7479	**WFI-1214-12**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
3/4	7/8	1	1.1250	.0620	.7541	.7507	.8755	.8747	.7491	.7479	**WFI-1214-16**
3/4	7/8	1 1/2	1.1250	.0620	.7541	.7507	.8755	.8747	.7491	.7479	**WFI-1214-24**
7/8	1	1/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-04**
7/8	1	15/32	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-075**
7/8	1	1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-08**
7/8	1	23/32	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-115**
7/8	1	3/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-12**
7/8	1	1	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-16**
7/8	1	1 1/4	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-20**
7/8	1	1 1/2	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-1416-24**
7/8	1	5/8	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-141618-10**
7/8	1	11/16	1.2500	.0620	.8791	.8757	1.0005	.9997	.8741	.8729	**WFI-141620-11**
1	1 1/8	1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WFI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WFI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WFI-1618-16**
1	1 1/8	1 1/4	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WFI-1618-20**
1	1 1/8	1 1/2	1.3750	.0620	1.0041	1.0007	1.1255	1.1247	.9991	.9979	**WFI-1618-24**
1 1/8	1 9/32	1/2	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**WFI-1820-08**
1 1/8	1 9/32	3/4	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**WFI-1820-12**
1 1/8	1 9/32	1 1/2	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**WFI-1820-24**
1 1/4	1 13/32	3/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WFI-2022-12**
1 1/4	1 13/32	1	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WFI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WFI-2022-20**
1 1/4	1 13/32	1 1/2	1.6870	.0780	1.2548	1.2508	1.4068	1.4058	1.2488	1.2472	**WFI-2022-24**
1 3/8	1 17/32	1	1.8750	.0780	1.3798	1.3758	1.5318	1.5308	1.3738	1.3722	**WFI-2224-16**
1 1/2	1 21/32	3/4	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**WFI-2426-12**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**WFI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**WFI-2426-24**
1 3/4	1 15/16	1	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**WFI-2831-16**
1 3/4	1 15/16	1 1/2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**WFI-2831-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7547	1.7507	1.9381	1.9371	1.7487	1.7471	**WFI-2831-32**
2	2 3/16	1	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**WFI-3235-16**
2	2 3/16	1 1/2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**WFI-3235-24**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**WFI-3235-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**XFI-0203-03**
1/8	3/16	3/8	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**XFI-0203-06**
3/16	1/4	1/4	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**XFI-0304-04**
3/16	1/4	3/8	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**XFI-0304-06**
3/16	1/4	1/2	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**XFI-0304-08**
1/4	5/16	3/16	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**XFI-0405-03**
1/4	5/16	1/4	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**XFI-0405-04**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/4	5/16	3/8	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**XFI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**XFI-0405-08**
1/4	5/16	3/4	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**XFI-0405-12**
5/16	3/8	1/4	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**XFI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**XFI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**XFI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**XFI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**XFI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**XFI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**XFI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4399	.4371	.5316	.5309	.4365	.4355	**XFI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**XFI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**XFI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**XFI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**XFI-0809-12**
1/2	19/32	1	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**XFI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**XFI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**XFI-1011-12**
5/8	23/32	1	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**XFI-1011-16**
5/8	23/32	1 1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**XFI-1011-24**
3/4	7/8	1/2	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**XFI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**XFI-1214-12**
3/4	7/8	1	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**XFI-1214-16**
3/4	7/8	1 3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**XFI-1214-28**
7/8	1	1/2	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**XFI-1416-08**
7/8	1	3/4	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**XFI-1416-12**
7/8	1	1	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**XFI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XFI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XFI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XFI-1618-16**
1	1 1/8	1 1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**XFI-1618-24**
1 1/8	1 9/32	3/4	1.5620	.0780	1.1288	1.1254	1.2818	1.2808	1.1238	1.1226	**XFI-1820-12**
1 1/4	1 13/32	1	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**XFI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**XFI-2022-20**
1 1/4	1 13/32	2	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**XFI-2022-32**
1 1/2	1 21/32	3/4	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**XFI-2426-12**
1 1/2	1 21/32	1	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**XFI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**XFI-2426-24**
1 1/2	1 21/32	1 5/8	2.0000	.0780	1.5048	1.5008	1.6568	1.6558	1.4988	1.4972	**XFI-2426-26**
1 3/4	1 15/16	1	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**XFI-2831-16**
1 3/4	1 15/16	2	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**XFI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0057	2.0011	2.1883	2.1871	1.9981	1.9969	**XFI-3235-32**
2 3/4	2 15/16	2	3.3750	.0930	2.7570	2.7523	2.9370	2.9358	2.7500	2.7490	**XFI-4447-32**

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d1	d2	b1	d3	b2	d1[3]		Housing hole		Shaft size		Part No.
				h13	max.	min.	max.	min.	max.	min.	
1/8	3/16	3/16	.3120	.0320	.1266	.1247	.1878	.1873	.1243	.1236	**ZFI-0203-03**
3/16	1/4	1/4	.3750	.0320	.1888	.1869	.2503	.2497	.1865	.1858	**ZFI-0304-04**
1/4	5/16	3/8	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**ZFI-0405-06**
1/4	5/16	1/2	.5000	.0320	.2518	.2495	.3128	.3122	.2490	.2481	**ZFI-0405-08**
5/16	3/8	1/4	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**ZFI-0506-04**
5/16	3/8	3/8	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**ZFI-0506-06**
5/16	3/8	1/2	.5620	.0320	.3143	.3120	.3753	.3747	.3115	.3106	**ZFI-0506-08**
3/8	15/32	1/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**ZFI-0607-04**
3/8	15/32	3/8	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**ZFI-0607-06**
3/8	15/32	1/2	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**ZFI-0607-08**
3/8	15/32	3/4	.6870	.0460	.3768	.3745	.4691	.4684	.3740	.3731	**ZFI-0607-12**
7/16	17/32	1/2	.7500	.0460	.4399	.4371	.5316	.5309	.4365	.4355	**ZFI-0708-08**
1/2	19/32	1/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**ZFI-0809-04**
1/2	19/32	3/8	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**ZFI-0809-06**
1/2	19/32	1/2	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**ZFI-0809-08**
1/2	19/32	3/4	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**ZFI-0809-12**
1/2	19/32	1	.8750	.0460	.5024	.4996	.5941	.5934	.4990	.4980	**ZFI-0809-16**
5/8	23/32	1/2	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**ZFI-1011-08**
5/8	23/32	3/4	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**ZFI-1011-12**
5/8	23/32	1	.9370	.0460	.6274	.6246	.7192	.7184	.6240	.6230	**ZFI-1011-16**
5/8	3/4	3/4	1.0000	.0460	.6284	.6256	.7510	.7500	.6250	.6240	**ZFI-1012-08**
3/4	7/8	1/2	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**ZFI-1214-08**
3/4	7/8	3/4	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**ZFI-1214-12**
3/4	7/8	1	1.1250	.0620	.7532	.7499	.8755	.8747	.7491	.7479	**ZFI-1214-16**
7/8	1	1/2	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**ZFI-1416-08**
7/8	1	3/4	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**ZFI-1416-12**
7/8	1	1	1.2500	.0620	.8782	.8749	1.0005	.9997	.8741	.8729	**ZFI-1416-16**
1	1 1/8	1/2	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**ZFI-1618-08**
1	1 1/8	3/4	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**ZFI-1618-12**
1	1 1/8	1	1.3750	.0620	1.0032	.9999	1.1255	1.1247	.9991	.9979	**ZFI-1618-16**
1 1/8	1 9/32	11/2	1.5620	.0780	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**ZFI-1820-12**
1 1/8	1 9/32	11/2	1.5620	.0780	1.1279	1.1246	1.2818	1.2808	1.1238	1.1226	**ZFI-1820-24**
1 1/4	1 13/32	1	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**ZFI-2022-16**
1 1/4	1 13/32	1 1/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**ZFI-2022-20**
1 1/4	1 13/32	11/4	1.6870	.0780	1.2537	1.2498	1.4068	1.4058	1.2488	1.2472	**ZFI-2022-24**
1 1/2	1 21/32	1	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**ZFI-2426-16**
1 1/2	1 21/32	1 1/2	2.0000	.0780	1.5037	1.4998	1.6568	1.6558	1.4988	1.4972	**ZFI-2426-24**
1 3/4	1 15/16	2	2.3750	.0930	1.7536	1.7497	1.9381	1.9371	1.7487	1.7471	**ZFI-2831-32**
2	2 3/16	2	2.6250	.0930	2.0040	1.9993	2.1883	2.1871	1.9981	1.9969	**ZFI-3235-32**

[3] **After press-fit. Testing methods ▶ Page 61**

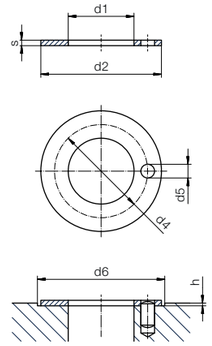
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Thrust washer (form T)



Image exemplary



iglidur® A200

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d1	d1[3]		d2		Øs	Part No.
(nominal)	max.	min.	max.	min.		
1/4	.2610	.2551	.6201	.6094	.0902	**ATI-04**
3/8	.3943	.3813	.7500	.7370	.0902	**ATI-06**
1/2	.5102	.5031	.8201	.8071	.0902	**ATI-08**
3/4	.7673	.7598	1.0654	1.0500	.0941	**ATI-12**
1	1.0268	1.0197	1.5000	1.4843	.1252	**ATI-16**

iglidur® G

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d1	d2	s	d4	d5	h	d6	Part No.
+.010	-.010	-.0020	±.005	.015 + .005	+.008	+.005	
.5000	.8750	.0585	.6920	.0670	.0400	.8750	**GTI-0814-01**
.6250	1.1250	.0585	.8800	.0990	.0400	1,125	**GTI-1018-01**
.7500	1.2500	.0585	1,005	.0990	.0400	1,250	**GTI-1220-01**
.8750	1.5000	.0585	1.192	.1300	.0400	1,500	**GTI-1424-01**
1.0000	1.7500	.0585	1.380	.1300	.0400	1,750	**GTI-1628-01**
1.2500	2.1250	.0585	1.692	.1610	.0400	2.125	**GTI-2034-01**
1.5000	2.5000	.0585	2.005	.1920	.0400	2,500	**GTI-2440-01**
1.7500	2.7500	.0585	2.255	.1920	.0400	2,750	**GTI-2844-01**
2.0000	3.0000	.0895	2.505	.1920	.0700	3,000	**GTI-3248-01**

iglidur® M250

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d1	d1[3]		d2		Øs	Part No.
(nominal)	max.	min.	max.	min.		
1/4	.2609	.2550	.6200	.6094	.0900	**MTI-04**
5/16	.3271	.3189	.6874	.6767	.0900	**MTI-05**
3/8	.3940	.3810	.7409	.7394	.0900	**MTI-06**
1/2	.5101	.5030	.8200	.8070	.0900	**MTI-08**
5/8	.6371	.6300	1.0000	.9870	.0940	**MTI-10**
3/4	.7675	.7600	1.0630	1.0500	.0940	**MTI-12**
1	1.0200	1.0100	1.5000	1.4843	.1250	**MTI-16**
1 1/4	1.2998	1.2900	2.1400	2.1220	.0980	**MTI-20**
1 1/2	1.6000	1.5500	2.6000	2.5500	.1250	**MTI-24**

[3] **After press-fit. Testing methods ▶ Page 61**

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iglidur® W300

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d1	d2	s	d4	d5	h	d6	Part No.
+.010	-.010	-.0020	±.005	.015 + .005	+.008	+.005	
.500	.8750	.0585	.6920	.0670	.0400	.8750	**WTI-0814-01**
.625	1.1250	.0585	.8800	.0990	.0400	1.1250	**WTI-1018-01**
.750	1.2500	.0585	1.0050	.0990	.0400	1.2500	**WTI-1220-01**
.875	1.5000	.0585	1.1920	.1300	.0400	1.5000	**WTI-1424-01**
1.00	1.7500	.0585	1.3800	.1300	.0400	1.7500	**WTI-1628-01**
1.25	2.1250	.0585	1.6920	.1610	.0400	2.1250	**WTI-2034-01**
1.50	2.5000	.0585	2.0050	.1920	.0400	2.5000	**WTI-2440-01**
1.75	2.7500	.0585	2.2550	.1920	.0400	2.7500	**WTI-2844-01**
2.00	3.0000	.0895	2.5050	.1920	.0700	3.0000	**WTI-3248-01**

iglidur® X

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d1	d2	s	d4	d5	h	d6	Part No.
+.010	-.010	-.0020	±.005	.015 + .005	+.008	+.005	
.500	.8750	.0585	.6920	.0670	.0400	.8750	**XTI-0814-01**
.625	1.1250	.0585	.8800	.0990	.0400	1.1250	**XTI-1018-01**
.750	1.2500	.0585	1.0050	.0990	.0400	1.2500	**XTI-1220-01**
.875	1.5000	.0585	1.1920	.1300	.0400	1.5000	**XTI-1424-01**
1.00	1.7500	.0585	1.3800	.1300	.0400	1.7500	**XTI-1628-01**
1,125	1.6250	.0585	–	–	.0400	1.6250	**XTI-1826-01**
1.25	2.1250	.0585	1.6920	.1610	.0400	2.1250	**XTI-2034-01**
1.50	2.5000	.0585	2.0050	.1920	.0400	2.5000	**XTI-2440-01**
1.75	2.7500	.0585	2.2550	.1920	.0400	2.7500	**XTI-2844-01**
2.00	3.0000	.0895	2.5050	.1920	.0700	3.0000	**XTI-3248-01**

[3] After press-fit. Testing methods ▶ Page 61

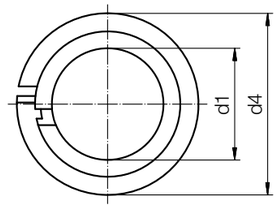
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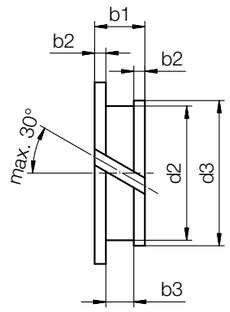
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Clip bearings



Image exemplary





Clip bearings

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d1	d2	d3	d4	b1	b2	b3	Part No.
D11[7]				+0.20	-0.10		
3/16	0.2343	1/4	5/16	0.138	0.032	0.074	**MCI-03-01**
3/16	0.2343	1/4	5/16	0.200	0.032	0.136	**MCI-03-02**
1/4	0.3125	11/32	7/16	0.138	0.032	0.074	**MCI-04-01**
1/4	0.3125	11/32	7/16	0.200	0.032	0.136	**MCI-04-02**
5/16	0.3750	13/32	1/2	0.138	0.032	0.074	**MCI-05-01**
5/16	0.3750	13/32	1/2	0.200	0.032	0.136	**MCI-05-02**
3/8	0.4375	15/32	9/16	0.138	0.032	0.074	**MCI-06-01**
3/8	0.4375	15/32	9/16	0.200	0.032	0.136	**MCI-06-02**
7/16	0.5000	17/32	5/8	0.138	0.032	0.074	**MCI-07-01**
7/16	0.5000	17/32	5/8	0.200	0.032	0.136	**MCI-07-02**
1/2	0.5625	19/32	11/16	0.138	0.032	0.074	**MCI-08-01**
1/2	0.5625	19/32	11/16	0.200	0.032	0.136	**MCI-08-02**

[7] d1 value is measured with a plug gauge after fitting into a reference housing d2 (+0.005).
Please see D11 tolerances table ▶ Page 62

Split bearings, low bearing clearance



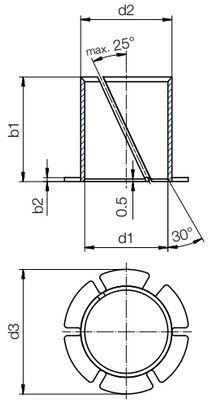


Image exemplary

Split bearings with anti-rotation feature



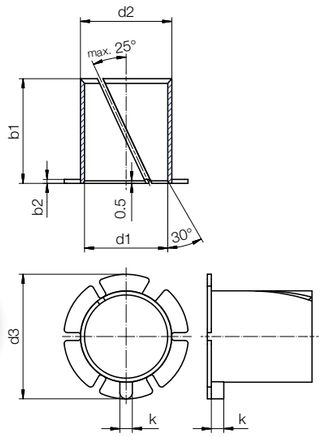


Image exemplary

Split bearings, low bearing clearance

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d1	Shaft diameter		d2	Housing hole		d3	b1	b1	b2	Part No.
	min.	max.		min.	max.			tolerance		
3/16	.1875	.1865	0.2339	.2351	.2339	19/61	3/16	–0.016	0.0252	**MYI-03-03**
1/4	.0025	.2490	0.2965	.2979	.2965	13/32	1/4	–0.016	0.0252	**MYI-04-04**
5/16	.3125	.3115	0.3744	.3758	.3744	1/2	5/16	–0.017	0.0299	**MYI-05-05**
3/8	.3750	.3740	0.4370	.4387	.4370	19/32	3/8	–0.017	0.0299	**MYI-06-06**
7/16	.4375	.4365	0.4996	.5013	.4996	21/32	7/16	–0.017	0.0299	**MYI-07-07**
1/2	.5000	.4990	0.5618	.5635	.5618	3/4	3/8	–0.018	0.0299	**MYI-08-06**
1/2	.5000	.4990	0.5618	.5635	.5618	3/4	1/2	–0.018	0.0299	**MYI-08-08**
5/8	.6250	.6240	0.6870	.6887	.6870	15/16	7/16	–0.018	0.0299	**MYI-10-07**
5/8	.6250	.6240	0.6870	.6887	.6870	15/16	5/8	–0.018	0.0299	**MYI-10-10**
5/8	.6250	.6240	0.6870	.6887	.6870	15/16	1 1/8	–0.018	0.0299	**MYI-10-18**
3/4	.7500	.7490	0.8118	.8139	.8118	1 1/8	3/4	–0.019	0.0299	**MYI-12-12**
3/4	.7500	.7490	0.8118	.8139	.8118	1 1/8	1 1/8	–0.019	0.0299	**MYI-12-18**
7/8	.8750	.8740	0.9370	.9391	.9370	1 5/16	15/32	–0.019	0.0299	**MYI-14-7.5**
7/8	.8750	.8740	0.9370	.9391	.9370	1 5/16	7/8	–0.019	0.0299	**MYI-14-14**
1	1.00	.9985	1.0933	1.0954	1.0933	1 1/2	7/8	-0.020	0.0449	**MYI-16-14**
1	1.00	.9985	1.0933	1.0954	1.0933	1 1/2	1	-0.020	0.0449	**MYI-16-16**

Split bearings with anti-rotation feature

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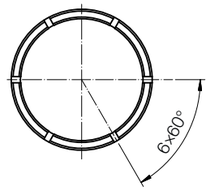
d1	Shaft diameter		d2	Housing hole		d3	b1	b1	b2	k	Part No.
	min.	max.		min.	max.			tolerance			
1/4	.0025	.2490	0.2965	.2979	.2965	13/32	1/4	–0.016	0.0252	1/16	**MYI-04-04-K**
5/16	.3125	.3115	0.3744	.3758	.3744	1/2	5/16	–0.017	0.0299	3/32	**MYI-05-05-K**
1/2	.5000	.4990	0.5618	.5635	.5618	3/4	1/2	–0.018	0.0299	3/32	**MYI-08-08-K**
5/8	.6250	.6240	0.6870	.6887	.6870	15/16	7/16	–0.018	0.0299	1/8	**MYI-10-07-K**
5/8	.6250	.6240	0.6870	.6887	.6870	15/16	5/8	–0.018	0.0299	1/8	**MYI-10-10-K**
3/4	.7500	.7490	0.8118	.8139	.8118	1 1/8	3/4	–0.019	0.0299	1/8	**MYI-12-12-K**
1	1.00	.9985	1.0933	1.0954	1.0933	1 1/2	1	-0.020	0.0449	5/32	**MYI-16-16-K**

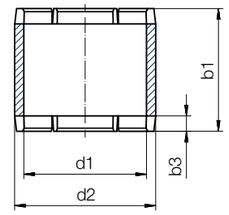
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Inch iglidur® - other designs

Clearance-free, pre-loaded sleeve plain bearings







JVSI - clearance-free pre-loaded plain bearings

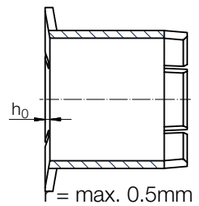
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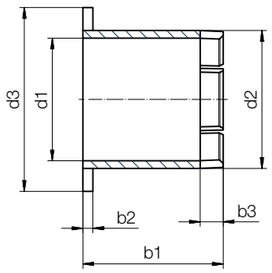
d1	d1[14]		d2	b1	b1 tolerance	Part No.
	max.	min.		h13		
3/8	.3773	.3750	1/2	3/8	0.075	**JVSI-0608-06**
1/2	.5040	.5013	5/8	1/2	0.075	**JVSI-0810-08**
5/8	.6297	.6270	3/4	5/8	0.075	**JVSI-1012-10**
3/4	.7541	.7505	1 1/8	3/4	0.075	**JVSI-1214-12**
1	1.0041	1.0007	28.58	1	0.100	**JVSI-1618-16**

[14] d1 measured after press-fit in housing hole. d2 H7 within the measurement plane

Sleeve bearings for all shaft surfaces







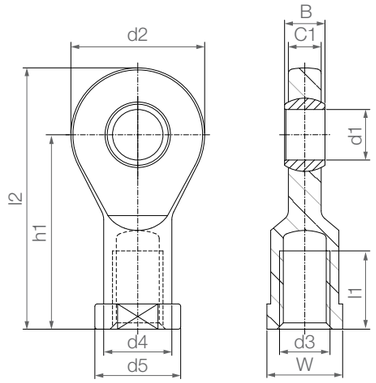
PEPSI - for all shaft surfaces

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d1	d2	b1	Part No.
1/4	3/8	3/8	**PEPSI-0406-06**
3/8	1/2	1/2	**PEPSI-0608-08**
1/2	5/8	1/2	**PEPSI-0810-08**
5/8	3/4	3/4	**PEPSI-1012-12**
3/4	7/8	3/4	**PEPSI-1214-12**
1	1 1/8	1	**PEPSI-1618-16**

Rod ends with female thread: EBRI and EBLI





EBRI/EBLI Chapter ▶ Page 888

Part No.		d1	d2	d3	d4	d5	C1	B
Right-hand thread	Left-hand thread	E10						
EBRI-03	**EBLI-03**	.1900	.748	10–32	.3543	.4331	.1732	.1900
EBRI-04	**EBLI-04**	.2500	.827	1/4–28	.4331	.5118	.1732	.2500
EBRI-05	**EBLI-05**	.3125	.945	5/16–24	.5118	.6299	.2362	.3125
EBRI-06	**EBLI-06**	.3750	1.142	3/8–24	.5906	.7480	.2756	.3750
EBRI-07	**EBLI-07**	.4375	1,339	7/16–20	.7087	.8661	.3150	.4063
EBRI-08	**EBLI-08**	.5000	1,339	1/2–20	.7087	.8661	.3150	.4063
EBRI-10[17)]	**EBLI-10**[17)]	.6250	1.693	5/8–18	–	–	.4134	.5000
EBRI-12	**EBLI-12**	.7500	2.087	3/4–16	1.0630	1.3386	.5118	.6250

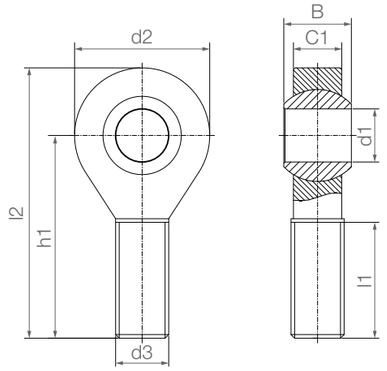
Part No.		h1	l1	l2	W	Max. pivot angle
Right-hand thread	Left-hand thread	E10				
EBRI-03	**EBLI-03**	1.1811	.4724	1.5551	0.35	30°
EBRI-04	**EBLI-04**	1.1811	.4724	1.5945	0.43	25°
EBRI-05	**EBLI-05**	1.4173	.6299	1.8898	0.55	22°
EBRI-06	**EBLI-06**	1.6929	.7087	2.2638	0.67	22°
EBRI-07	**EBLI-07**	1.9685	.7874	2.6378	0.75	18°
EBRI-08	**EBLI-08**	1.9685	.7874	2.6378	0.75	18°
EBRI-10[17)]	**EBLI-10**[17)]	2.5394	1.0433	3.3858	0.87	16°
EBRI-12	**EBLI-12**	3.0315	1.2205	4.0748	1.18	14°

[17)] **EBRI-10/EBLI-10 special form with hexagonal foot**

Part No.		Max. static tensile strain		Max. axial force		Min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
		Short-term	Long-term	Short-term	Long-term	Thread	Female thread		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[inch]	[Nm]	[Nm]	[g]
EBRI-03	**EBLI-03**	1,300	650	150	75	.315	2	2.0	3.1
EBRI-04	**EBLI-04**	1,500	750	200	100	.315	5	2.5	3.8
EBRI-05	**EBLI-05**	2,000	1,000	450	225	.433	6	7.0	6.9
EBRI-06	**EBLI-06**	2,300	1,150	500	250	.512	7	14.0	11.5
EBRI-07	**EBLI-07**	3,300	1,650	550	275	.551	18	25.0	17.6
EBRI-08	**EBLI-08**	3,300	1,650	550	275	.551	23	25.0	18.1
EBRI-10	**EBLI-10**	5,000	2,500	850	425	.709	30	32.0	31.9
EBRI-12	**EBLI-12**	7,200	3,600	1,800	900	.866	40	40.0	61.5

Rod ends with male thread: KARI and KALI





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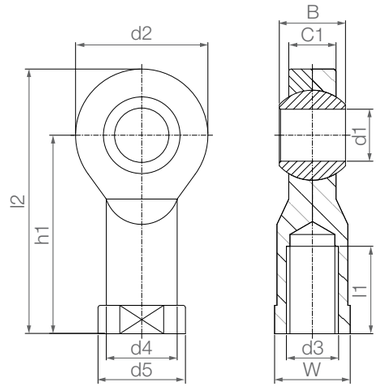
Part No.		d1	d2	d3	C1	B	h1	l1	l2	Max. pivot angle
		E10								
Right-hand thread	Left-hand thread									
KARI-03	**KALI-03**	.1900	.625	10-32	.234	.312	1.25	.750	1.563	25°
KARI-04	**KALI-04**	.2500	.750	1/4-28	.250	.365	1.562	1.00	1.937	25°
KARI-05	**KALI-05**	.3125	.875	5/16-24	.312	.437	1.875	1.25	2.313	25°
KARI-06	**KALI-06**	.3750	1.00	3/8-24	.359	.500	1.938	1.25	2.438	22°
KARI-07	**KALI-07**	.4375	1,125	7/16-20	.406	.562	2.125	1.375	2.688	22°
KARI-08	**KALI-08**	.5000	1.312	1/2-20	.453	.625	2.428	1.50	2.094	22°
KARI-10	**KALI-10**	.6250	1.50	5/8-18	.484	.750	2.625	1.625	3.375	22°
KARI-12	**KALI-12**	.7500	1.75	3/4-16	.593	.875	2.875	1.75	3.75	22°
KARI-16	**KALI-16**	1.00	2.75	1-12	1.00	1.375	4.125	2.35	5.50	20°

Part No.		Max. static tensile strain		Max. axial force		Min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
		Short-term	Long-term	Short-term	Long-term		Male thread		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[inch]	[Nm]	[Nm]	[g]
KARI-03	**KALI-03**	390	200	70	35	.525	0.5	3	2.1
KARI-04	**KALI-04**	900	450	100	50	.700	1.0	4	3.5
KARI-05	**KALI-05**	1,100	550	150	75	.875	2.0	10	6
KARI-06	**KALI-06**	1,500	750	350	175	.875	3.0	15	8.8
KARI-07	**KALI-07**	2,000	1,000	400	200	.962	6.0	25	12.4
KARI-08	**KALI-08**	2,500	1,250	450	225	1,050	9.0	35	18.5
KARI-10	**KALI-10**	3,500	1,750	600	300	1.137	12.0	50	27.6
KARI-12	**KALI-12**	3,900	1,950	1,000	500	1.226	25.0	70	42.8
KARI-16	**KALI-16**	4,400	2,200	1,300	650	1.488	45.0	85	143.3

Imperial product range | igubal® | Rod end bearings

Rod ends with female thread: KBRI and KBLI





KBRI/KBLI Chapter ▶ Page 882

Part No.		d1 E10	d2	d3	d4	C1	B	h1	l1	l2	W	Max. pivot angle
Right-hand thread	Left-hand thread											
KBRI-03	KBLI-03	.1900	.625	10-32	.406	.246	.312	1.062	.500	1.374	.312	25°
KBRI-04	KBLI-04	.2500	.750	1/4-28	.469	.272	.365	1.312	.687	1.687	.375	25°
KBRI-05	KBLI-05	.3125	.875	5/16-24	.500	.340	.437	1.375	.687	1.813	.437	25°
KBRI-06	KBLI-06	.3750	1.00	3/8-24	.687	.394	.500	1.625	.812	2.125	.562	22°
KBRI-07	KBLI-07	.4375	1,125	7/16-20	.750	.456	.562	1.812	.937	2.374	.625	22°
KBRI-08	KBLI-08	.5000	1.312	1/2-20	.875	.487	.625	2.125	1.062	2.781	.750	22°
KBRI-10	KBLI-10	.6250	1.50	5/8-18	1.00	.545	.750	2.50	1.375	3.25	.875	22°
KBRI-12	KBLI-12	.7500	1.75	3/4-16	1,125	.676	.875	2.875	1.562	3.75	1.00	22°
KBRI-16	KBLI-16	1.00	2.75	1-12	1.625	1.00	1.375	4.125	2.125	5.50	1.500[18)]	20°

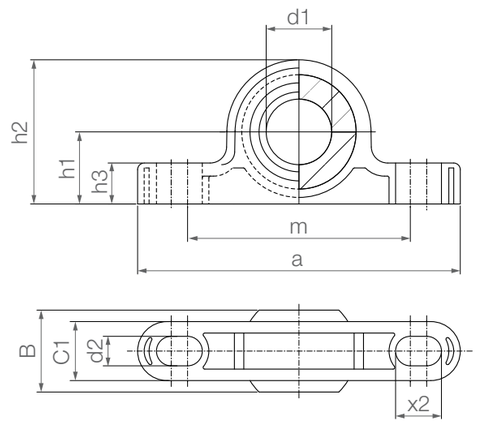
[18)] Spanner flat design

Part No.		Max. static tensile strain		Max. axial force		Min. thread depth	Max. tightening torque	Max. tightening torque through ball	Weight
		Short-term	Long-term	Short-term	Long-term	Thread	Female thread		
Right-hand thread	Left-hand thread	[N]	[N]	[N]	[N]	[inch]	[Nm]	[Nm]	[g]
KBRI-03	KBLI-03	900	450	300	150	.350	2	3	3.3
KBRI-04	KBLI-04	1,100	550	400	200	.480	5	4	5.1
KBRI-05	KBLI-05	1,700	850	500	250	.480	6	10	7.1
KBRI-06	KBLI-06	2,000	1,000	1,000	500	.568	7	15	12.6
KBRI-07	KBLI-07	2,300	1,150	1,200	600	.655	18	25	16.1
KBRI-08	KBLI-08	2,600	1,300	1,500	750	.743	23	35	26.5
KBRI-10	KBLI-10	4,900	2,450	1,700	850	.962	30	50	38.7
KBRI-12	KBLI-12	5,600	2,800	2,300	1,150	1,093	40	70	54.4
KBRI-16	KBLI-16	6,000	3,000	2,600	1,300	1.488	46	85	197.5

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Pillow block bearings: KSTI





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Part No.	d1 E10	B	C1	h1	h2	m	a	h3	d2	X2	Max. pivot angle
KSTI-03	.1900	.312	.234	.290	.566	1.00	1.40	.165	.137	.200	25°
KSTI-04	.2500	.375	.250	.390	.705	1.25	1.75	.205	.137	.250	25°
KSTI-05	3125	.437	.312	.430	.824	1.35	1.95	.236	.150	.280	25°
KSTI-06	.3750	.500	.359	.550	1.022	1.80	2.40	.376	.180	.300	22°
KSTI-07	.4375	.562	.406	.570	1,082	1.85	2.50	.315	.205	.330	22°
KSTI-08	.5000	.625	.453	.600	1.191	2.00	2.80	.354	.205	.380	22°
KSTI-10	.6250	.750	.484	.700	1.409	2.30	3.35	.413	.205	.470	22°
KSTI-12	.7500	.875	.593	.860	1.687	2.70	3.75	.472	.270	.530	22°
KSTI-16	1.00	1.375	1,005	1.10	2.163	3.50	5.00	.630	.520	.680	20°

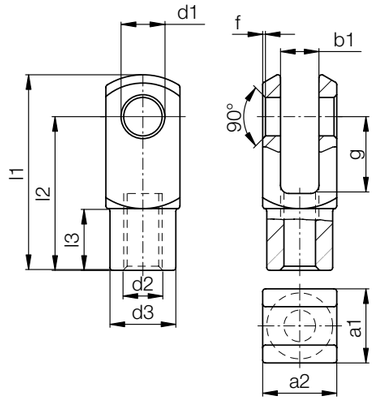
Part No.	Max. static tensile strain		Max. axial static compressive force	Max. tightening torque for longitudinal holes	Weight
	Short-term	Long-term			
	[N]	[N]	[N]	[Nm]	[g]
KSTI-03	550	275	300	0.6	1.7
KSTI-04	600	300	300	0.6	2.8
KSTI-05	800	400	400	0.8	4.5
KSTI-06	1,000	500	500	1.3	7.5
KSTI-07	1,100	550	600	2.5	9.7
KSTI-08	1,200	600	600	2.5	13.5
KSTI-10	2,100	1,050	800	2.5	21.5
KSTI-12	3,100	1,550	1,200	4.5	33.4
KSTI-16	5,400	2,700	1,600	10.5	85.8

The maximum tightening torques for elongated holes correspond to the permissible tightening torque of the fixing screws (fixing category 5.8).

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Clevis joints: GERI and GELI





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Part No.	d1	g	a1	a2	b1	d2	d3	f	l1	l2	h1
	H9	h11		+0.3 -0.16		2B	±0.3	±0.3	±0.5	±0.3	±0.2
GE□I-03 New	.1875	.394	.394	.394	.197	10-32	.354	.02	1,024	.787	.295
GE□I-04 New	.2500	.472	.472	.472	.236	1/4-28	.394	.02	1.205	.945	.354
GE□I-05 New	.3125	.630	.630	.630	.315	5/16-24	.551	.02	1,638	1,260	.472
GE□I-06 New	.3750	.787	.787	.787	.394	3/8-24	.709	.02	2.020	1.575	.591
GE□I-07 New	.4375	.945	.945	.945	.472	7/16-20	.787	.02	2.413	1.890	.709
GE□I-08 New	.5000	1.102	1.063	1.063	.551	1/2-20	.945	.02	2.807	2.205	.886

Part No.	Max. static tensile strain		Weight
	Short-term	Long-term	
	[lbf]	[lbf]	[g]
GE□I-03 New	225	112	1.6
GE□I-04 New	270	135	2.9
GE□I-05 New	607	303	6.1
GE□I-06 New	1056	528	13.0
GE□I-07 New	1281	640	16.5
GE□I-08 New	719	360	20.8

Clevis joints: GERIK and GELIK

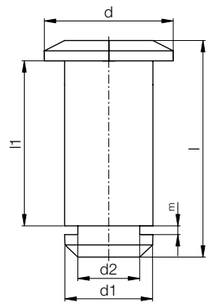


GERIK/GELIK Chapter ▶ Page 912

Part No.	Max. static tensile strain		Weight
	Short-term	Long-term	
	[lbf]	[lbf]	[g]
GE□IK-03 New	180	90	2.0
GE□IK-04 New	202	101	3.5
GE□IK-05 New	472	236	7.7
GE□IK-06 New	674	404	16.0
GE□IK-07 New	787	393	21.4
GE□IK-08 New	629	315	26.3

Clevis pins: GBI



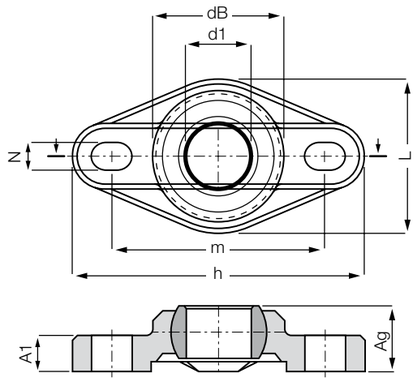


GBI Chapter ▶ Page 917

Part No.	d1	d2	d	l	l1	m	Clip	Weight
								[g]
GBI-03 New	.1875	.1260	.3125	.55	.3975	.0472	GSR-04	0.4
GBI-04 New	.2500	.1969	.3750	.65	.4764	.0512	GSR-08	0.5
GBI-05 New	.3125	.1969	.4375	.85	.6339	.0512	GSR-08	1.5
GBI-06 New	.3750	.2756	.5000	1.05	.7953	.0591	GSR-10	2.8
GBI-07 New	.4375	.3543	.6250	1.25	.9528	.0669	GSR-12	4.6
GBI-08 New	.5000	.3543	.7500	1.40	1.0709	.0669	GSR-12	5.2

Fixed flange bearings with 2 mounting holes: EFOI





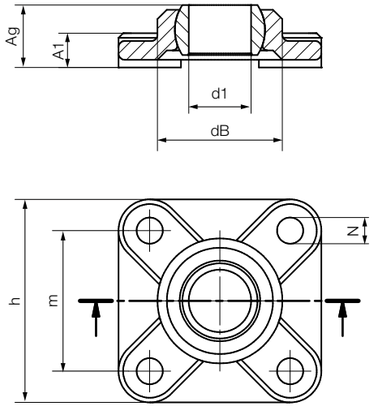
EFOI Chapter ▶ Page 946

Part No.	d1 E10	dB	H	L	J Hole pitch	A1 Height of plate	Ag Total height	N d x 1
EFOI-03 New	.1875	.551	1.331	.630	.945	.177	.312	.126 x .197
EFOI-04 New	.2500	.551	1.331	.630	.945	.177	.342	.126 x .197
EFOI-05 New	.3125	.709	1.740	.866	1,220	.217	.412	.169 x .256
EFOI-06 New	.3750	.866	2.047	1,024	1.417	.256	.483	.210 x .315
EFOI-07 New	.4375	.984	2.232	1,220	1.614	.276	.518	.210 x .315
EFOI-08 New	.5000	.984	2.232	1,220	1.614	.276	.518	.210 x .315
EFOI-10 New	.6250	1,260	2.858	1.496	2.087	.394	.683	.212 x .315
EFOI-12 New	.7500	1.575	3.504	1,850	2.559	.433	.785	.331 x .492
EFOI-16 New	1.0000	1.909	3.976	2.303	2.953	.551	.966	.331 x .492

Part No.	Max. permissible axial load		Max. permissible radial load		Max. tightening torque	Max. pivot angle	Weight
	Short-term	Long-term	Short-term	Long-term	Holes		
	[lbf]	[lbf]	[lbf]	[lbf]	[ft*lbs]		[g]
EFOI-03 New	56	28	168	84	0.44	33°	2.3
EFOI-04 New	56	28	180	90	0.96	27°	2.0
EFOI-05 New	156	78	248	124	1.84	24°	4.0
EFOI-06 New	192	96	450	225	1.84	24°	6.5
EFOI-07 New	248	124	494	247	1.84	21°	7.5
EFOI-08 New	248	124	494	247	3.32	21°	12.0
EFOI-10 New	314	157	630	315	3.32	24°	17.2
EFOI-12 New	404	202	1236	618	3.32	17°	33.7
EFOI-16 New	674	337	1348	674	7.74	14°	59.0

Fixed flange bearings with 4 mounting holes: EFSI





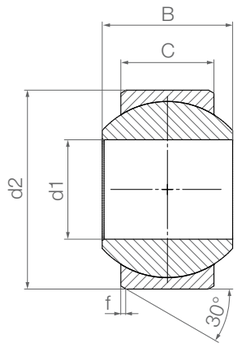
EFSI Chapter ▶ Page 948

Part No.	d1 E10	dB	L	J Hole pitch	A1 Height of plate	Ag Total height	N d x 1
EFSI-03 New	.1875	.551	.984	.669	.177	.311	.126
EFSI-04 New	.2500	.551	.984	.669	.177	.343	.126
EFSI-05 New	.3125	.709	1.299	.866	.217	.413	.169
EFSI-06 New	.3750	.866	1.496	1,024	.256	.484	.209
EFSI-07 New	.4375	.984	1.575	1.102	.276	.520	.209
EFSI-08 New	.5000	.984	1.575	1.102	.276	.520	.209
EFSI-10 New	.6250	1,260	2.047	1.417	.354	.654	.252
EFSI-12 New	.7500	1.575	2.559	1.772	.433	.787	.331
EFSI-16 New	1.0000	1.909	2.913	2.047	.551	.965	.331

Part No.	Max. permissible axial load		Max. permissible radial load		Max. tightening torque	Max. pivot angle	Weight
	Short-term	Long-term	Short-term	Long-term	Holes		
	[lbf]	[lbf]	[lbf]	[lbf]	[ft*lbs]		[g]
EFSI-03 New	50	25	224	112	0.44	33°	2.3
EFSI-04 New	56	28	224	112	0.96	27°	2.0
EFSI-05 New	90	45	314	157	1.84	24°	4.0
EFSI-06 New	112	56	448	224	1.84	24°	6.5
EFSI-07 New	134	67	562	281	1.84	21°	7.5
EFSI-08 New	134	67	562	281	3.32	21°	12.0
EFSI-10 New	282	141	720	360	3.32	24°	17.2
EFSI-12 New	428	214	900	450	3.32	17°	31.5
EFSI-16 New	584	292	1258	629	7.74	14°	77.0

Spherical bearings: KGLI





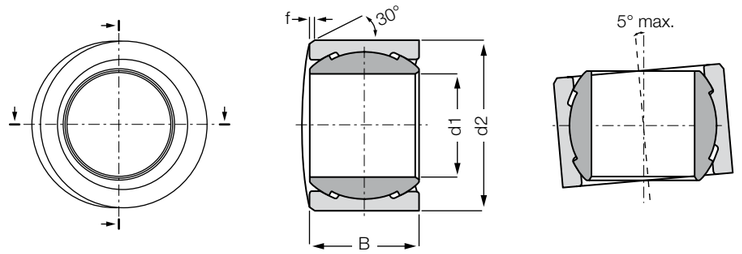
KGLI Chapter ▶ Page 970

Part No.	Max. static load		Max. tightening torque through ball	d1 E10	d2	B	C	f	Max. pivot angle	Weight
	radial [N]	axial[29] [N]	[Nm]							[g]
KGLI-03	1,000	150	5	.1900	.5625	.312	.218	0.3	34°	1.2
KGLI-04	1,500	250	10	.2500	.6562	.375	.250	0.3	30°	1.7
KGLI-05	2,000	350	12	.3125	.7500	.437	.281	0.3	29°	2.6
KGLI-06	2,800	400	20	.3750	.8125	.500	.312	0.5	25°	3.3
KGLI-07	3,750	450	30	.4375	.9375	.562	.343	0.5	25°	4.9
KGLI-08	4,250	500	35	.5000	1.0625	.625	.390	0.5	25°	7.1
KGLI-10	5,300	750	40	.6250	1.1875	.750	.500	0.5	23°	10.2
KGLI-12	8,500	850	55	.7500	1.4375	.875	.593	0.5	23°	17.5
KGLI-16	13,600	2,500	65	1.00	2.125	1.375	1,005	0.5	23°	62.7

[29] The maximum static axial load is determined when fitted into a blind housing.

Spherical bearings: KGLI Slim Line





KGLI-SL Chapter ▶ Page 969

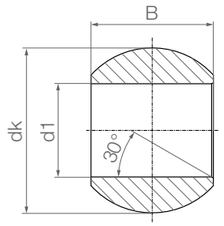
Part No.	d1 E10	d2	B	f	Max. pivot angle	Weight [g]
KGLI-03-SL New	.1875	.3750	.1875	.0200	5°	0.69
KGLI-04-SL New	.2500	.5000	.2500	.0200	5°	0.75
KGLI-05-SL New	.3125	.5000	.3125	.0200	5°	1.0
KGLI-06-SL New	.3750	.6250	.3750	.0200	5°	1.3
KGLI-08-SL New	.5000	.8125	.5000	.0200	5°	2.5

Part No.	Max. permissible axial load		Max. permissible radial load	
	Short-term [lbf]	Long-term [lbf]	Short-term [lbf]	Long-term [lbf]
KGLI-03-SL New	34	17	225	112
KGLI-04-SL New	56	28	337	168
KGLI-05-SL New	79	39	450	225
KGLI-06-SL New	112	56	630	315
KGLI-08-SL New	135	67	955	478

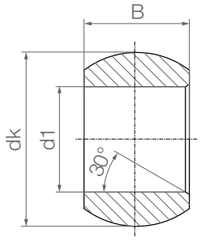
Imperial product range | igubal® | Spherical balls New

Low-cost spherical balls: REI









REI Chapter ▶ Page 998

Part No.	d1 E10	dK	B	Weight [g]
REI-03 New	.1875	.402	.1900	0.3
REI-04 New	.2500	.402	.2500	0.3
REI-05 New	.3125	.520	.3125	0.7
REI-06 New	.3750	.630	.3750	1.3
REI-07 New	.4275	.709	.4063	1.6
REI-08 New	.5000	.709	.4063	2.6
REI-10 New	.6250	.945	.5000	3.1
REI-12 New	.7500	1.138	.6250	5.9
REI-16 New	1.0000	1,398	.7500	9.2

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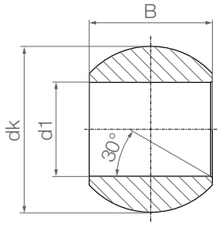
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Imperial product range | igubal® | Spherical balls

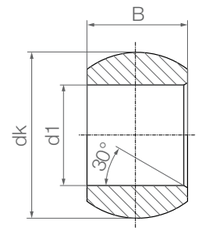
Inch igubal®

Standard spherical balls: WKI and WEI









WKI Chapter ▶ Page 997

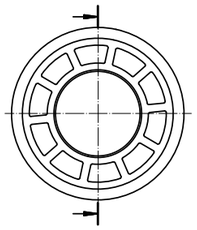
Part No.	d1 E10	dK	B	Weight [g]
WKI-03	.1900	.444	.312	0.6
WKI-04	.2500	.516	.375	1.0
WKI-05	.3125	.625	.437	1.7
WKI-06	.3750	.718	.500	2.3
WKI-07	.4375	.828	.562	3.5
WKI-08	.5000	.938	.625	5.0
WKI-10	.6250	1,125	.750	8.2
WKI-12	.7500	1.312	.875	12.5
WKI-16	1.00	1.75	1.375	31.7

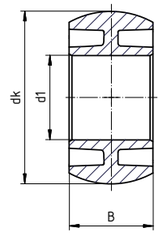
WEI Chapter ▶ Page 997

Part No.	d1	dK	B	Weight [g]
WEI-03	.1900 H10	.402	.1900	0.3
WEI-04	.2500 H10	.402	.2500	0.3
WEI-05	.3125 H10	.520	.3125	0.7
WEI-06	.3750 H10	.630	.3750	1.3
WEI-07	.4375 H10	.709	.4063	1.6
WEI-08	.5000 H10	.709	.4063	2.6
WEI-10	.6250 E10	.945	.5000	3.1
WEI-12	.7500 E10	1.138	.6250	5.9
WEI-16	1.00 E10	1,398	.7500	9.2

Cost-effective spherical insert bearings for various metallic bearing housings: JEI







JEI Chapter ▶ Page 1000

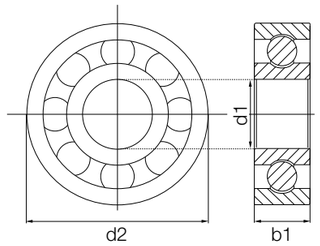
Part No.	Housing No.	d1 E10	dk	B	Max. static compressive force radial [N]	axial [N]
JEI-16-17-SP New	205	1	2.0472	.6692	9,000	3,500
JEI-24-21-SP New	208	1 1/2	3.1496	.8267	21,000	6,000
JEI-32-25-SP New	211	2	3.9370	.9842	25,000	5,500

The bearing inserts can be combined with our plastic housings, e.g. B. P205-xx-KS/P208-xx-KS. Contact us!
KS housing ▶ Page 938

Imperial product range | xiros® | Polymer ball bearings

Radial deep groove ball bearings, up to +80°C





xirodur® B180 Chapter ▶ Page 886

Part No.	Race	Cage	Balls		Inner Ø	Outer Ø	Width
			ES	GL	d1	d2	b1
BB-I-0620-06-B180-10-☐ [142)]	B180	PA	1,4401	Glas	3/16	5/8	10/51
BB-I-0820-06-B180-10-ES	B180	PA	1,4401	–	1/4	5/8	10/51
BB-I-0824-07-B180-10-☐ [142)]	B180	PA	1,4401	Glas	1/4	3/4	7/32
BB-I-1228-10-B180-10-ES	B180	PA	1,4401	–	3/8	7/8	5/16
BB-I-1236-12-B180-10-☐ [142)]	B180	PA	1,4401	Glas	3/8	1 1/8	3/8
BB-I-1636-12-B180-10-☐ [142)]	B180	PA	1,4401	Glas	1/2	1 1/8	3/8
BB-I-2044-12-B180-10-☐ [142)]	B180	PA	1,4401	Glas	5/8	1 3/8	3/8
BB-I-2452-16-B180-10-☐ [142)]	B180	PA	1,4401	Glas	3/4	1 5/8	1/2
BB-I-3264-12-B180-10-☐ [142)]	B180	PA	1,4401	Glas	1	2	1/2

[142)] For ball bearings with stainless steel balls please add suffix"-ES", for glass balls please add suffix "-GL".

Part No.	Max. static axial load capacity	Load capacity		Limit speed	Weight	
		stat.	dyn.		ES	GL
	[N]	[N]	[N]	[rpm]	[g]	[g]
BB-I-0620-06-B180-ES/-GL	35	45	49	3,700	1.6	1.0
BB-I-0820-06-B180-ES	40	47	51	3,500	1.3	–
BB-I-0824-07-B180-ES/-GL	50	60	75	3,200	1.6	1.0
BB-I-1228-09-B180-ES	55	70	89	2,200	3.9	–
BB-I-1236-12-B180-ES/-GL	75	134	150	1,050	4.9	2.9
BB-I-1636-12-B180-ES/-GL	75	134	150	2,000	7.6	5.2
BB-I-2044-12-B180-ES/-GL	78	170	193	1,600	11.0	7.9
BB-I-2452-16-B180-ES/-GL	81	260	290	1,400	20.1	13.6
BB-I-3264-12-B180-ES/-GL	85	275	320	1,050	27,3	21.3

Notes

Service

Online tools, chemicals table,
material data, forms, addresses



...plastics

Online tools

Online expert tools
Quickly find the right lead screw technology part and an estimated service life for your application with igus® finder and expert online tools. You can also order your parts or request more information from us.

Online configurator tools
With the online configurators, you can assemble your individual product in just a few steps.
▶ **www.igus.eu/online**

igus® CAD
Our CAD application gives you access to 2D/3D CAD files in various formats. Alternatively, you can transfer CAD files directly to your CAD system using our Click2CAD toolbox. For 3D printing, you can configure individual 3D printing models online.

iglidur® product finder
Expert for plain bearings
Service life calculation
▶ www.igus.eu/IBD

iglidur® expert
Expert for slewing rings
Find the right solution quickly
▶ www.igus.eu/PRT-expert

iglidur® bar stock finder
Product finder for bar stock
Material finder and required dimensions
▶ www.igus.eu/barstockfinder

igus® gear configurator
Gear configurator
Wear-resistant gears in 60 seconds using the new igus® gear configurator
▶ www.igus.eu/gears

igubal® expert
Expert for spherical bearings
Service life calculation
▶ www.igus.eu/igubal-expert

igus® CAD configurator
CAD configurator
Quickly generate complete 3D models
▶ www.igus.eu/CAD

xiros® expert
Service life calculator for plastic ball bearings
Service life calculation of polymer ball bearings
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drylin® drive technology configurator
Configurator for drive technology
Complete drive technology configurable with or without motor
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Configurator for SHT drive technology
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Configurator for robot arms
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iglidur® slewing rings expert
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iglidur® special parts
Special parts according to customer request
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Download area:
igus® download
Free download of all product catalogues, brochures, instructions, videos, etc.
▶ www.igus.eu/downloads

Online services

FastLine service in the iglidur® bearing designer
With the igus® FastLine service, you receive customised injection-moulded plain bearings and thrust washers in a maximum of seven days. Apart from the immediate price indication, the iglidur® bearing designer shows you the manufacturing costs of our other production methods.

3D printing service
In the online 3D printing calculation, you not only receive 3D printing, but also analyse feasibility and prices of injection-moulded parts made with 3D-printed moulds (print2mold).

CNC service
Online CNC service for individually machined parts. Upload the 3D models of your machined parts in our online CNC tool, configure your requirements and get direct price feedback.

Coating service
iglidur® coating is a tribologically optimised polymer in powder form that can be applied to electrically conductive components using powder coating. With our iglidur® coating service, you will get your configuration at the push of a button.

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Chemical resistance

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Acetaldehyde (aqueous), 40%	+	o	x	+	o	+	–	x	x	–	o
Acetaldehyde (aqueous), 40%	+	o	x	x	o	o	x	x	x	o	o
Acetamide (aqueous), 50%	+	4	x	+	4	+	–	x	x	x	4
Acetic acid, 10%	+	–	+	+	–	+	+	+	+	+	+
Acetic acid, 2%	+	–	+	+	–	+	+	+	+	+	o
Acetic acid, 90%	–	–	+	o	–	–	–	x	+	–	–
Acetone	+	+	–	+	o	+	–	–	+	–	+
Acetyl chloride	–	–	x	x	–	–	x	x	x	x	–
Acrylnitrile	o	+	x	+	+	o	–	x	x	–	+
Air, liquid	o	o	x	x	o	o	x	x	x	o	o
Allyl alcohol	+	o	x	+	o	+	x	x	+	+	+
Aluminium chloride (aqueous), 10%	o	o	x	+	o	o	o	x	+	o	o
Aluminium cleaner	–	–	x	o	–	–	x	x	o	x	–
Aluminium salts of mineral acids, 20%	o	o	x	x	o	o	x	x	x	o	o
Aluminium sulphate (aqueous), 10%	o	o	x	+	o	o	+	x	+	o	o
Ammonium carbonate (aqueous), 10%	+	4	x	+	4	+	o	x	+	+	4
Ammonium carbonate (aqueous), 10%	+	+	x	+	+	+	x	x	+	x	x
Ammonium chloride (aqueous), 10%	+	4	x	+	4	+	+	x	+	+	4
Amyl acetate, 100%	–	–	x	+	–	–	–	x	+	o	+
Amyl alcohol	+	+	x	+	+	+	+	x	+	o	+
Aniline (aqueous), saturated solution	o	o	x	+	o	o	–	x	+	o	o
Anodic solutions (HNO3 -30%/H2SO4 -10%)	–	o	x	x	o	–	x	x	x	o	o
Aqua regia HCl/HNO3 (75/50 vol.)	o	+	x	+	+	o	–	x	x	–	+
Aromatic compounds	+	+	+	x	+	+	x	x	x	o	x
Barium chloride (aqueous), 10%	+	o	x	+	o	+	+	x	+	+	4
Barium salts from mineral acids	+	o	x	x	o	o	x	x	x	o	o
Barium sulphate (aqueous), 10%	+	o	x	+	o	+	o	x	+	+	4
Benzaldehyde	+	o	x	+	o	o	–	x	o	–	o
Benzoic acid (aqueous), 20%	o	o	x	+	o	o	–	x	x	+	o
Benzyl alcohol	+	+	+	+	+	o	–	+	x	x	o
Biphenyl	+	+	x	x	+	+	x	x	x	–	x
Bitumen, DIN 51567	+	o	–	+	o	o	+	x	x	o	o
Bleaching lye	–	–	x	+	–	–	x	x	x	–	o
Bleaching lye (aqueous), 10%	–	–	x	+	–	–	x	x	+	o	o
Boric acid (aqueous), 10%	+	o	+	+	o	+	+	x	x	–	4
Brandy vinegar	o	o	x	+	o	o	x	x	+	o	o
Bromine (aqueous), 25%	–	–	x	+	–	–	–	x	–	–	–
Bromine vapours	–	–	x	x	–	–	x	x	x	–	–

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Chemical resistance

"4" swelling, softening due to the water

V400	Z	B	D	T220	K230	PEP	A160 B160 UW160 xirodur® C160	E7	I170	I180 I180-BL	xirodur® D180	xiros® ball bearings with PEEK cage	 PP cage PE cage	 PA cage	I150	C210 P230	I3 I6 AB
x	x	o	+	–	x	o	+	x	x	–	x	+	+	o	–	x	+
x	x	x	o	o	x	x	o	x	x	x	x	o	+	–	–	x	o
x	x	x	+	x	x	4	x	x	+	–	x	+	x	+	x	x	+
+	+	–	+	+	x	o	+	x	+	+	x	+	+	–	+	+	+
+	+	–	+	+	o	o	+	x	+	+	–	x	x	o	+	+	+
+	+	–	–	–	x	–	+	x	–	–	x	+	+	–	–	–	–
+	+	o	o	–	o	+	+	o	–	–	x	+	+	+	–	+	+
x	x	x	–	x	x	–	x	x	x	x	x	x	x	–	–	x	–
x	x	–	o	–	x	+	+	x	x	–	x	+	+	+	–	x	+
x	x	x	o	o	x	x	x	x	x	x	x	x	x	–	x	o	o
x	+	o	o	o	x	o	+	+	+	+	x	+	+	o	+	x	o
x	+	o	+	+	x	4	+	+	+	o	x	+	+	+	+	x	x
x	+	x	+	x	x	+	x	x	x	x	x	+	+	+	x	x	+
x	+	o	+	+	x	4	+	+	x	+	o	+	+	+	+	x	–
x	+	–	o	o	x	o	o	x	–	–	x	+	o	–	+	+	–
x	o	o	+	+	x	+	+	x	+	+	x	+	+	+	+	+	+
x	x	–	o	o	x	o	+	o	–	–	x	+	+	o	x	x	o
x	x	x	–	o	x	–	x	x	x	x	x	x	+	o	x	o	o
x	x	–	o	–	x	+	+	+	o	–	x	+	x	+	–	–	–
x	x	x	x	o	x	x	x	x	x	x	x	x	x	+	x	o	+
x	+	–	+	+	x	4	+	–	+	+	x	+	+	o	+	x	o
x	x	x	o	o	x	x	x	x	x	x	x	x	x	o	x	+	+
x	+	o	+	+	x	4	+	x	x	o	x	+	+	o	x	x	o
x	x	–	o	–	x	o	+	x	–	–	x	+	+	o	–	x	o
x	+	o	o	+	x	o	+	x	+	+	x	+	+	o	+	+	o
x	o	o	o	x	x	o	+	+	–	–	x	+	+	+	x	x	+
x	x	x	x	–	x	x	x	x	x	x	x	x	x	+	–	–	+
x	+	–	o	o	x	o	o	+	x	+	x	+	o	o	+	x	o
x	+	–	–	–	x	–	x	x	x	x	x	+	x	–	x	x	–
x	+	–	–	o	x	–	x	x	+	+	x	+	x	–	x	x	–
x	+	–	–	+	x	4	+	+	+	+	o	+	+	o	+	+	o
x	+	o	o	o	x	o	+	x	x	x	x	+	+	o	x	x	o
x	o	–	–	–	x	–	–	x	–	–	x	+	–	–	x	x	–
x	x	x	–	–	x	–	o	x	x	x	x	x	o	–	–	–	–

Chemical resistance

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Bromochloromethane, 98%	x	o	x	+	o	x	x	x	x	o	o
Butanol	+	+	+	+	+	+	o	x	+	+	+
Butter	+	+	x	+	+	+	+	x	+	+	+
Butyl acetate	+	+	o	+	o	o	x	x	+	o	o
Butyl glycol	+	+	–	+	+	+	o	x	+	+	+
Butyl glycolate	+	+	x	x	+	+	x	x	x	+	x
Butyl phthalate	+	+	x	x	+	+	x	x	x	+	x
Butyric acid	o	o	x	+	o	–	–	x	+	o	–
Calcium chloride, saturated solution	+	4	x	+	4	+	+	x	+	+	4
Calcium hydroxide, aqueous	+	+	+	x	+	+	x	x	x	+	x
Calcium hypochlorite	+	+	x	x	+	+	x	x	x	o	x
Camphor	+	+	x	+	+	+	o	x	+	x	+
Carbon bisulphide	+	+	x	+	+	+	x	x	+	x	+
Carbon dioxide gas	+	+	x	+	+	+	+	x	+	+	x
Casein	+	+	x	x	+	+	x	x	x	+	x
Caustic potash lye (aqueous), 40%	+	+	x	+	+	+	x	x	x	x	x
Caustic potash, 10%	o	4	+	x	4	o	x	x	x	–	x
Caustic potash, 20%	–	o	+	+	o	–	–	x	+	–	x
Caustic potash, 50%	–	o	+	x	o	–	x	x	x	–	o
Caustic sodium bicarbonate (aqueous), 50%	o	o	x	+	o	o	x	x	x	x	x
Cellulose lacquer	+	+	x	x	x	+	x	x	x	x	x
Chloramine	x	–	x	x	–	–	x	x	x	–	–
Chlorinated water, saturated solution	–	–	x	+	–	–	o	x	x	–	o
Chlorine	–	–	x	x	–	–	x	x	x	–	–
Chlorine gas	–	–	x	–	–	–	–	x	–	–	–
Chloroacetic acid (aqueous), 10%	–	–	x	+	–	–	–	x	x	–	–
Chloroethanol	–	–	x	x	–	–	x	x	x	–	–
Chloroform	–	–	–	+	o	–	–	–	o	–	–
Chlorsulphonic acid (aq.)	–	–	x	–	o	–	–	x	–	–	–
Chromic acid (aq.), 10%	–	–	x	+	–	–	–	x	–	–	–
Chromic acid (aqueous), 1%	o	–	x	+	–	o	o	x	–	o	o
Citric acid (aqueous), 10%	+	4	+	+	4	+	+	x	+	+	o
Citric acid, concentrated solution	o	o	x	+	o	o	+	x	o	x	–
Citrus fruits	+	+	x	x	+	+	x	x	x	+	x
Cobalt salts (aqueous)	+	+	x	x	+	+	x	x	x	+	x
Copper sulphate, 0.5%	+	o	+	+	o	+	x	x	+	x	o
Copper sulphate, saturated solution	o	o	+	+	o	o	x	x	+	x	o
Cresol	–	–	x	+	–	–	–	x	+	–	–

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Chemical resistance

"4" swelling, softening due to the water

V400	Z	B	D	T220	K230	PEP	A160 B160 UW160 xirodur® C160	E7	I170	I180 I180-BL	xirodur® D180	xiros® ball bearings with PEEK cage	 PP cage PE cage	 PA cage	I150	C210 P230	I3 I6 AB
x	x	o	x	o	x	x	–	x	x	x	x	+	–	o	+	+	o
x	o	–	o	+	x	+	+	+	+	o	x	+	+	+	+	o	+
x	+	o	+	+	x	+	+	x	+	+	x	+	+	+	+	+	+
x	+	x	o	o	+	o	+	o	–	–	x	+	+	+	x	o	+
x	+	o	+	+	x	+	+	x	x	o	x	+	+	+	+	+	+
x	x	x	x	x	x	x	x	x	x	x	x	x	x	+	+	+	+
x	x	x	x	x	x	x	+	x	x	x	x	x	+	+	x	+	+
x	+	–	–	o	x	–	+	+	–	–	x	+	+	o	x	o	+
x	+	+	+	+	x	4	+	x	+	+	o	+	+	+	x	+	+
x	x	x	x	x	x	x	+	+	x	x	x	x	+	+	+	+	+
x	x	x	x	o	x	x	o	+	+	+	x	x	o	+	x	o	+
x	+	o	+	x	x	+	+	x	+	o	x	+	+	+	x	x	+
x	x	x	o	–	x	x	+	x	+	+	x	+	+	–	–	–	x
x	+	o	–	–	x	–	+	x	x	–	x	x	+	+	–	–	o
x	x	x	–	–	x	–	+	x	+	+	x	+	+	o	–	–	+
x	+	o	o	x	x	o	x	x	x	x	x	+	x	+	x	x	o
x	x	x	+	+	x	x	x	x	x	x	x	x	x	+	x	+	+
x	x	x	–	–	x	–	+	+	x	x	x	x	+	–	–	–	–
+	o	–	–	–	x	–	o	x	o	o	x	+	o	–	–	x	–
x	x	x	–	–	x	–	–	–	–	–	x	x	–	–	–	–	–
o	–	–	–	–	x	–	–	x	–	–	x	–	–	–	–	x	–
x	–	–	–	–	x	–	+	+	o	–	x	+	+	–	–	–	–
x	x	x	–	–	x	–	x	x	x	x	x	x	x	–	x	x	–
x	o	–	–	–	x	–	o	x	–	–	x	+	o	–	–	–	o
x	+	–	–	–	x	–	–	x	–	–	x	–	–	–	–	–	–
+	o	–	–	–	x	–	+	x	o	–	x	+	+	–	o	o	–
+	o	–	o	o	x	o	+	x	o	o	x	+	+	–	x	+	–
x	+	x	+	+	x	o	+	+	+	+	o	+	+	+	+	+	+
x	+	o	o	x	x	–	+	x	x	+	x	+	+	+	x	x	o
x	x	x	x	x	x	x	+	x	x	x	x	+	+	o	x	+	+
x	x	x	x	x	x	x	x	x	x	x	x	x	+	–	x	+	+
x	+	o	+	x	x	o	x	x	x	x	x	+	x	o	x	+	o
x	+	o	o	x	x	o	x	x	+	+	x	+	+	–	x	x	o
x	+	–	–	–	x	–	+	+	o	–	x	x	–	–	–	–	–

EN 09/2023

Chemical resistance

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Cyclohexane	+	+	+	+	+	+	o	x	+	–	+
Decahydronaphthalene = decalin	+	+	–	+	+	+	x	x	+	–	+
Dibutyl ether	+	+	x	x	+	+	x	x	x	+	x
Dibutylphthalate	+	+	x	+	+	+	–	x	+	+	+
Dichlorethylene	–	–	x	+	–	–	–	x	+	–	–
Dichlorobenzene	–	+	x	+	+	–	x	x	+	–	+
Dichloroethene	–	+	x	+	+	–	x	x	+	–	+
Diethyl ether	o	o	+	+	+	+	–	x	x	+	+
Dimethylformamide	o	+	+	+	+	+	–	x	+	+	+
Dioctylphthalate	+	+	+	+	+	+	x	x	+	o	+
Dioxane	o	+	x	+	+	o	–	x	+	+	+
Drilling oils	+	+	+	x	+	+	x	x	x	+	x
Edible fats, 100%	+	+	+	+	+	+	x	x	+	+	+
Edible oils	+	+	+	+	+	+	x	x	+	+	+
Ethanol (aqueous), 96%	+	o	+	+	o	o	+	x	+	–	o
Ethyl acetate	+	+	–	+	+	+	–	x	+	–	+
Ethylene	+	+	x	x	+	+	x	x	x	+	x
Ethylene chloride	+	+	–	+	+	+	–	x	+	–	+
Ethylene glycol (aqueous), 95%	+	o	x	+	o	+	o	x	+	+	o
Ethylene oxide (1.2 epoxyethane)	+	o	+	x	o	o	x	x	x	o	o
Ethylenediamine (1.2 ethanediamine)	+	+	x	+	+	+	o	x	o	+	+
Ferric chloride, 2.5%	+	o	x	x	o	+	x	x	+	x	o
Ferric chloride, 5%	–	o	x	o	o	–	o	x	+	x	o
Ferric chloride, saturated solution	+	o	x	x	o	+	x	x	+	x	o
Fluorinated hydrocarbons	o	+	x	+	o	+	o	x	+	o	+
Fluorine	–	–	+	x	–	–	x	x	x	–	–
Formaldehyde (aqueous), 30%	+	o	+	+	o	+	+	+	+	+	4
Formamide	+	o	–	+	o	+	o	x	x	x	o
Formic acid (aqueous), 2%	o	–	x	o	–	–	+	x	+	o	–
Formic acid, 10%	–	–	x	–	–	–	x	x	o	–	–
Formic acid, 90%	–	–	x	–	–	–	–	x	o	–	–
Fruit juices	+	+	–	x	+	+	x	x	x	+	x
Furfural	+	o	x	+	o	+	o	x	+	+	+
Glycerine	–	+	+	+	+	+	o	x	+	+	+
Glycol	+	o	+	+	o	o	x	x	+	+	o
Greases, cooking fat	+	+	x	+	+	+	o	x	+	+	+
Heptane	+	+	+	+	+	+	+	x	+	o	+
Hexachlorobenzene	+	–	x	+	–	–	x	x	x	x	–
Hexachloroethane	+	+	x	+	+	+	x	x	x	x	+

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Chemical resistance

"4" swelling, softening due to the water

V400	Z	B	D	T220	K230	PEP	A160 B160 UW160 xirodur® C160	E7	I170	I180 I180-BL	xirodur® D180	xiros® ball bearings with PEEK cage	xiros® ball bearings with PP cage PE cage	xiros® ball bearings with PA cage	I150	C210 P230	I3 I6 AB
x	+	–	–	–	x	+	+	+	+	o	x	x	+	+	+	+	+
x	+	–	–	–	x	+	–	x	+	+	x	+	+	+	o	o	+
x	x	x	x	x	x	x	o	o	x	x	x	+	–	+	+	+	+
x	+	o	+	+	x	+	+	x	x	–	x	x	o	+	x	+	+
x	+	–	–	–	x	–	x	x	x	–	x	+	+	+	–	x	–
x	o	x	–	–	x	–	o	o	–	–	x	+	+	+	x	x	+
x	o	x	–	–	x	–	+	x	x	x	x	+	o	+	–	–	+
x	+	o	o	+	x	+	o	o	–	–	x	+	x	–	x	+	+
+	+	o	+	+	o	+	+	+	–	–	x	+	o	o	+	+	+
x	+	x	o	o	x	+	+	–	x	x	x	+	+	+	+	+	+
x	+	x	o	+	x	o	+	+	–	–	x	+	+	o	–	–	+
x	x	x	x	x	x	–	x	x	x	x	x	+	+	+	x	+	+
x	+	o	+	–	x	+	+	o	x	–	x	x	x	+	–	–	+
+	+	–	+	+	+	o	+	+	x	o	x	+	+	+	+	+	o
x	x	x	o	o	x	x	–	x	x	x	x	+	+	o	+	+	o
+	+	o	o	x	x	+	+	+	x	o	x	+	+	+	o	x	+
x	+	o	+	x	x	o	x	x	x	x	x	o	+	+	x	x	o
x	+	o	–	x	x	–	x	x	x	o	x	+	+	–	x	x	o
x	+	o	+	x	x	o	+	x	x	x	x	x	x	+	x	x	o
x	o	x	o	o	x	+	x	x	x	o	x	x	–	–	+	+	+
x	x	x	–	–	x	–	–	–	x	x	x	+	+	+	–	–	–
x	+	o	+	+	x	4	+	+	+	+	x	+	+	–	+	+	o
x	+	–	o	x	x	o	+	x	x	o	x	+	+	o	x	x	o
x	o	–	–	o	x	–	+	x	+	+	x	o	+	–	+	+	+
x	–	–	–	–	x	–	+	x	+	+	x	–	+	–	x	+	+
x	–	–	–	–	x	–	+	x	+	–	x	–	+	–	x	x	–
x	x	x	x	x	x	x	+	x	x	x	x	+	+	o	+	+	+
x	+	o	+	+	x	+	o	+	–	–	x	x	+	+	+	+	o
x	+	x	+	+	x	+	+	x	+	o	x	+	+	o	+	+	+
x	+	o	o	+	x	o	+	x	+	+	x	+	o	o	+	+	+
x	+	o	+	+	x	+	+	x	x	o	x	x	–	o	+	+	+
x	+	–	–	o	+	+	+	+	+	+	x	+	+	+	+	+	+
x	o	x	–	–	x	–	x	x	+	+	x	+	+	+	x	x	–
x	o	x	–	–	x	–	–	x	x	x	x	+	x	–	x	x	+

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Chemical resistance

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Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Hexafluorosilicic acid (aqueous), 30%	x	–	x	x	–	–	x	x	x	–	–
Hexamethylphosphoramide	+	–	x	x	–	–	x	x	x	–	–
Hexane	+	+	+	+	+	+	+	x	+	–	+
Humic acids	o	o	x	x	o	o	x	x	x	o	o
Hydrobromic acid (aqueous), 10%	–	–	x	+	–	–	–	x	o	–	–
Hydrochloric acid, 10%	–	–	+	+	–	–	–	o	–	–	–
Hydrochloric acid, 2%	–	–	+	+	–	–	+	x	–	–	o
Hydrochloric gas	–	–	x	x	–	–	x	x	x	–	–
Hydrofluoric acid (aqueous), 4%	–	–	–	+	–	–	–	x	–	–	–
Hydrogen peroxide, 0.5%	+	+	–	+	+	+	+	o	+	+	+
Hydrogen peroxide, 30%	–	–	–	+	–	–	–	–	–	–	–
Hydrogen sulphide (aqueous)	+	o	x	x	o	+	x	x	x	o	o
Hydrogen sulphide (dry)	+	+	+	+	o	x	+	x	+	+	+
Hydroquinone (aqueous), 5%	o	–	x	+	–	o	o	x	x	o	–
Ink, printing ink	+	4	–	+	4	+	+	x	+	+	4
Inks	+	4	x	+	4	+	+	x	+	x	4
Iron (III) chloride (aqueous), acidic, 10%	–	–	x	+	+	–	–	x	+	–	o
Iron (III) chloride (aqueous), neutral, 10%	o	4	x	o	o	o	+	x	+	x	o
Isooctane, 80%	+	+	+	+	+	+	+	x	+	o	+
Isopropyl alcohol = isopropanol	+	+	+	+	+	+	+	x	+	+	o
Isopropylether	+	+	x	+	+	+	–	x	x	o	+
Ketones (aliphatic)	+	o	+	x	o	o	x	x	x	–	o
Lactic acid, 10%	+	+	+	+	+	+	+	x	+	+	o
Lactic acid, 90%	+	o	o	+	o	o	+	x	+	o	o
Lead acetate (aqueous), 10%	+	o	x	+	o	+	+	x	x	o	o
Lead stearate	+	+	x	+	+	+	+	x	+	+	+
Linseed oil	+	+	+	+	+	+	+	x	+	+	+
Lithium bromide/chloride/salts (aqueous), 50%	+	o	x	+	o	+	+	x	x	o	o
Lithium chloride in alcohol, 20%	+	–	x	x	–	–	x	x	x	x	–
Lubricating oil, mineral	+	+	+	+	+	+	+	x	+	o	+
Lubricating oil, synthetic	o	o	x	+	o	o	o	x	+	–	+
Magnesium chloride (aqueous), 10%	+	4	x	+	4	+	+	x	+	+	4
Magnesium hydroxide (aq.)	+	4	x	+	4	+	+	x	+	+	+
Maleic acid (aqueous), 10%	–	o	x	x	o	–	x	x	x	–	o
Maleic acid, concentrated solution	o	–	x	+	–	o	o	x	+	x	o
Malt	+	+	x	x	+	+	x	x	x	+	x
Manganese sulphate (aqueous), 10%	+	o	x	+	o	+	x	x	+	x	+
Mercury	+	+	x	+	+	+	+	x	+	+	+

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x	x	x	–	–	x	–	+	+	x	x	x	x	x	o	–	–	–
x	x	x	–	–	x	–	x	x	x	x	x	+	–	+	x	+	–
+	+	–	–	–	x	+	+	x	+	+	x	x	x	–	x	x	+
x	x	x	o	o	x	x	+	x	x	x	x	+	+	+	x	+	o
x	+	–	–	–	x	–	+	+	x	–	x	+	+	–	x	o	–
+	+	–	–	–	o	–	+	x	x	–	x	+	+	–	o	o	–
+	+	–	–	–	x	–	+	x	x	+	–	+	+	–	+	+	–
x	x	x	–	–	x	–	+	x	x	x	x	x	+	–		–	–
–	–	–	–	–	x	–	+	–	+	–	x	+	x	+	–	–	–
+	+	+	+	+	x	+	+	x	+	+	x	+	+	+	+	+	+
x	–	–	–	–	x	–	+	x	x	–	o	+	+	+	+	+	–
x	x	x	–	o	x	o	+	x	x	x	x	x	+	o	x	+	o
x	+	x	x	+	x	x	+	+	+	+	x	o	+	–	x	+	+
x	+	–	o	o	x	–	+	x	+	o	x	x	+	o	+	+	–
+	+	+	+	+	x	4	+	+	+	+	x	+	–	o	x	+	+
x	+	x	+	x	x	4	x	x	x	+	x	+	x	+	x	+	+
x	+	–	–	x	x	–	+	x	x	–	x	o	x	o	x	x	–
x	+	o	o	x	x	–	+	x	x	+	x	x	x	o	x	x	+
x	+	–	–	o	x	+	+	x	+	+	x	+	+	–	+	+	+
x	o	o	+	+	x	o	+	x	+	+	o	+	+	+	+	+	+
x	+	o	+	o	x	+	o	+	x	–	x	+	+	+	+	x	+
x	x	x	o	–	x	x	x	x	x	x	x	+	x	o	–	–	o
x	+	o	o	o	x	o	+	+	+	+	–	+	+	+	x	+	+
x	+	o	o	o	x	o	+	+	+	+	x	+	+	+	x	+	o
x	+	–	+	o	x	o	+	+	+	+	x	+	+	o	+	x	o
x	+	o	+	+	x	+	x	x	+	+	x	+	x	+	+	x	+
+	+	–	+	+	x	+	+	+	+	+	x	+	x	o	+	+	+
x	+	–	+	o	x	o	x	x	x	+	x	+	+	+	+	+	o
x	x	x	–	x	x	–	x	x	x	x	x	+	x	o	x	x	–
+	+	–	+	o	x	o	x	x	x	+	x	+	+	+	x	x	+
+	+	–	o	–	x	o	x	x	x	o	x	+	x	+	x	x	o
+	+	+	+	+	x	4	+	+	+	+	x	x	x	o	+	+	+
+	+	+	+	+	x	+	+	x	x	+	x	+	+	+	+	x	–
x	x	x	–	–	x	–	+	x	x	x	x	x	+	o	x	x	o
x	+	–	o	x	x	–	+	x	x	o	x	+	+	+	x	x	–
x	x	x	x	x	x	x	x	x	x	x	x	+	+	–	x	+	+
x	+	o	+	x	x	+	x	x	x	x	x	x	x	+	x	x	o
+	+	+	+	+	x	+	+	+	+	+	x	+	o	+	+	+	+

Chemical resistance

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Mercury chloride, 6%	–	–	x	+	–	–	+	x	o	o	–
Methane	+	+	+	+	+	+	+	+	+	+	x
Methanol	+	+	+	x	+	+	x	+	x	+	x
Methanol +20% CaCl2 or LiCl	+	–	x	o	o	o	–	x	o	+	o
Methyl acetate	o	+	x	+	+	o	x	x	+	o	+
Methyl ethyl ketone	o	+	–	+	+	o	–	–	+	–	+
Methylamine	+	+	x	x	+	+	x	x	x	+	x
Methylene chloride	o	–	–	x	–	–	x	–	+	–	–
Milk	+	4	+	+	4	+	+	x	+	+	4
Molasses	+	+	+	x	+	+	x	+	x	+	x
Mortar, cement, lime	+	+	x	x	+	+	x	x	x	+	x
Naphthalene	+	+	x	+	+	+	o	x	+	+	+
Naphthalenesulfonic acid	–	–	x	x	–	–	x	x	x	x	–
Nickel salts (aqueous), 10%	+	o	x	x	o	+	x	x	x	x	o
Nitric acetic acid	+	+	x	x	+	+	x	x	x	+	x
Nitric acid (aq.), 5%	–	–	x	+	–	–	–	x	–	–	–
Nitric acid (aqueous), 2%	–	–	+	+	–	–	o	+	–	–	–
Nitro gases	–	o	x	x	o	–	x	x	x	x	o
Nitrobenzene	o	–	–	+	–	o	–	x	o	–	o
Nitrocellulose lacquers, Hazard Class A I	+	o	x	x	o	+	x	x	x	o	o
Nitrocellulose lacquers, Hazard Class A II	+	+	x	x	+	+	x	x	x	o	x
Nitrogen oxides (dry)	–	o	x	x	o	–	x	x	x	o	o
Nitromethane	–	o	x	+	o	–	x	x	o	–	x
Nitrotoluene	o	o	x	x	o	o	x	x	x	–	o
Noble gases (argon, helium, neon)	+	+	x	x	+	+	x	x	x	+	x
Octane	x	+	x	x	+	+	x	x	x	+	x
Oil, cooking	+	+	+	+	+	+	+	+	+	+	+
Oleic acid	+	+	x	+	+	+	+	x	+	+	+
Oleum	–	–	–	–	–	–	–	–	–	–	–
Oxalic acid (aqueous), 10%	x	o	+	+	o	x	+	x	x	+	o
Oxygen gas +23°C, without pressure	+	+	x	+	+	+	+	x	+	+	x
Ozone	–	–	–	+	–	–	+	x	–	–	–
Palmitic acid	+	+	x	x	+	+	x	x	x	+	x
Paraffin oil	+	+	+	+	+	+	+	x	+	–	+
Paraffins	+	+	x	x	+	+	x	x	x	+	x
Perchlorethene	–	–	–	+	–	–	–	–	x	–	–
Perchloric acid, 10%	–	–	x	+	–	–	–	x	x	–	–
Perfume	+	+	x	x	+	+	x	x	x	+	x
Phenol (alcoholic), 70%	–	–	x	o	–	–	–	x	+	–	–

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Chemical resistance

"4" swelling, softening due to the water

V400	Z	B	D	T220	K230	PEP	A160 B160 UW160 xirodur® C160	E7	I170	I180 I180-BL	xirodur® D180	xiros® ball bearings with PEEK cage	 PP cage PE cage	 PA cage	I150	C210 P230	I3 I6 AB
x	x	–	–	o	x	–	+	x	+	+	x	+	+	+	+	x	–
x	x	–	+	+	x	x	+	x	x	x	x	x	+	+	+	+	+
x	x	x	x	x	o	x	+	+	o	o	–	+	+	+	+	+	+
+	o	+	+	+	x	o	x	x	–	–	x	x	+	+	x	x	–
x	+	x	o	o	x	o	+	x	x	x	x	o	x	–	+	o	+
x	+	–	o	–	o	o	+	x	x	–	x	x	–	–	–	–	+
x	x	x	x	x	x	x	+	x	x	x	x	+	+	+	x	x	+
+	o	o	–	–	x	–	–	o	–	–	x	x	+	+	x	–	–
+	+	+	+	+	x	4	+	+	+	+	x	+	+	+	+	+	+
x	x	x	x	x	x	x	+	+	x	x	x	x	+	+	+	+	+
x	x	x	x	x	x	x	x	x	x	x	x	+	x	+	x	+	+
x	+	–	o	–	o	o	+	x	x	x	x	o	x	–	+	o	+
x	x	x	x	x	x	x	+	x	x	x	x	x	+	+	x	x	+
+	+	o	+	+	x	+	+	x	x	+	x	x	+	+	+	+	+
+	+	o	+	+	x	+	+	+	+	+	x	–	–	–	+	+	+
–	–	–	–	–	x	–	–	+	x	–	x	+	+	+	–	–	–
x	+	–	x	+	x	x	+	x	x	+	x	+	+	+	+	+	o
x	x	–	+	+	x	x	+	x	x	+	x	x	x	–	x	+	+
x	+	–	–	–	x	–	o	x	+	+	x	+	+	o	–	+	–
x	x	x	x	x	x	x	+	+	+	+	x	+	o	–	+	+	+
x	+	–	–	–	x	+	+	+	+	+	x	x	+	+	x	+	+
x	x	x	x	x	x	x	+	+	x	x	x	x	+	+	+	+	+
x	+	–	–	–	x	–	o	x	o	–	x	x	+	+	o	o	–
x	+	–	–	–	x	–	+	+	x	–	x	+	o	–	x	x	–
x	x	x	x	x	x	x	+	x	x	x	x	+	+	+	+	+	+
x	+	–	–	–	x	–	+	x	x	–	x	+	+	–	–	x	–

Chemical resistance

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Phenol (aq.), 88%	+	–	–	x	–	–	x	x	x	x	–
Phenol (aqueous), 6%	–	–	–	x	–	–	–	x	+	–	–
Phosphoric acid (aqueous), 0.3%	+	o	x	+	o	+	+	x	o	–	o
Phosphoric acid (aqueous), 10%	–	–	–	+	–	–	o	x	–	–	–
Phosphoric acid (aqueous), 3%	–	o	x	+	–	o	+	x	o	–	o
Phthalic acid, saturated solution	+	o	x	+	o	+	o	x	o	+	o
Polyester resins (with styrene)	o	+	x	+	+	+	–	x	+	o	+
Potassium bromide (aqueous), 10%	+	o	x	+	o	o	+	x	+	o	4
Potassium carbonate (aqueous), 60%	+	4	x	+	4	+	+	x	+	o	4
Potassium chloride (aq.), 90%	+	4	x	+	4	+	+	x	+	+	4
Potassium chloride (aqueous), 10%	+	4	x	x	4	+	x	x	x	+	x
Potassium dichromate (aqueous), 5%	+	o	–	+	o	o	+	x	+	o	o
Potassium nitrate (aqueous), 10%	+	4	x	+	4	+	+	x	+	+	4
Potassium permanganate (aqueous), 1%	+	–	–	+	–	+	+	x	–	+	o
Potassium sulphate, saturated solution	+	4	x	+	4	+	+	x	+	o	4
Propane, propene	+	+	x	+	+	+	–	x	+	+	+
Propanol	+	+	–	+	+	+	+	x	o	+	+
Propenoic acid	o	–	x	x	–	–	x	x	x	–	–
Pyridine	o	+	–	+	+	o	–	x	+	x	+
Pyrocatechol (aqueous), 6%	–	–	x	+	–	–	–	x	x	–	o
Pyruvic acid (aqueous), 10%	x	o	x	x	o	x	x	x	x	o	o
Resorcinol (1.3-dihydroxybenzene), 50%	x	–	x	x	–	–	x	x	x	–	–
Salicylic acid	–	+	–	+	+	–	+	x	+	–	+
Seawater	+	+	+	+	+	+	+	+	+	+	+
Silicone oils	+	+	+	+	+	+	+	x	+	+	+
Silver nitrate	+	4	x	+	4	+	+	x	+	o	4
Soap solutions	+	4	+	+	4	+	+	x	+	+	4
Soda lye (aqueous), 10%	+	+	+	+	+	o	x	x	+	–	o
Soda lye (aqueous), 50%	o	o	x	+	o	o	x	x	x	x	x
Soda solution, 10%	+	4	+	+	4	+	x	x	+	+	4
Sodium acetate (aqueous), 10%	+	–	x	+	4	+	+	x	+	o	+
Sodium bisulphite (aqueous), 10%	+	4	–	+	4	+	o	x	+	+	4
Sodium bromide (aqueous), 10%	+	4	x	+	4	+	+	x	+	+	4
Sodium carbonate (aqueous), 21.5%	+	4	–	+	4	+	+	x	+	+	4
Sodium carbonate (aqueous), 50%	+	4	–	+	4	+	+	x	+	+	4
Sodium carbonate, 5%	+	4	–	+	4	+	+	x	+	+	4
Sodium chlorate (aqueous), 10%	+	o	x	x	o	o	x	x	x	o	o
Sodium chloride, saturated solution	+	4	x	+	4	+	+	x	+	+	4
Sodium dichromate (aqueous), 10%	x	o	x	x	o	x	x	x	x	o	o

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Chemical resistance

"4" swelling, softening due to the water

V400	Z	B	D	T220	K230	PEP	A160 B160 UW160 xirodur® C160	E7	I170	I180 I180-BL	xirodur® D180	xiros® ball bearings with PEEK cage	 PP cage PE cage	 PA cage	I150	C210 P230	I3 I6 AB
x	x	x	–	x	x	–	+	x	x	x	x	x	+	–	–	x	–
x	+	–	–	–	x	–	x	x	x	–	x	x	+	–	–	x	–
x	+	o	–	+	x	o	+	+	+	+	x	o	x	–	+	+	o
x	+	–	–	–	x	–	+	+	x	o	x	+	+	–	x	+	–
x	+	o	–	–	x	o	+	+	x	+	o	+	+	o	+	+	o
x	+	o	+	+	x	o	+	x	+	+	x	+	+	o	+	+	o
x	+	–	o	o	x	+	x	x	x	–	x	+	+	o	+	+	+
x	+	–	+	o	x	+	+	+	+	+	x	x	+	o	+	+	+
x	+	o	+	o	x	+	+	x	x	+	x	+	+	o	+	x	–
+	+	+	+	+	x	+	+	+	x	+	x	x	+	+	x	x	–
x	x	x	x	x	x	x	+	+	+	+	x	+	+	+	+	x	+
x	x	x	–	–	x	–	x	x	x	x	x	+	+	+	x	x	–
x	+	x	o	x	x	o	o	+	–	–	x	x	x	–	x	x	+
x	o	–	–	–	x	–	x	x	x	–	x	+	x	–	x	x	–
x	x	x	–	o	x	x	x	x	x	x	x	x	x	o	x	+	o
x	x	x	–	–	x	–	x	x	o	o	x	+	+	–	–	–	–
x	+	x	–	–	x	–	+	+	+	+	x	x	x	–	x	+	+
+	+	+	+	+	x	x	+	x	+	+	x	+	+	o	x	+	+
+	+	+	+	+	x	+	+	+	+	+	+	+	+	+	+	+	+
x	+	x	+	o	x	4	+	+	+	+	x	+	+	+	+	x	x
+	+	+	+	+	x	4	+	+	x	+	x	+	+	+	+	+	+
+	+	+	+	–	x	o	+	–	+	x	x	+	x	+	–	–	+
x	+	o	o	x	x	o	x	x	+	x	x	+	+	–	–	–	+
x	+	x	+	+	x	4	+	x	+	+	o	+	+	+	x	+	+
x	+	o	+	o	x	+	+	x	+	+	x	x	x	–	+	+	+
x	+	x	+	+	x	4	+	x	+	o	x	+	+	–	+	+	x
x	+	+	+	+	x	4	+	x	+	+	x	+	+	+	+	x	+
x	+	x	+	+	x	+	+	x	x	+	x	+	+	+	x	x	x
x	+	o	+	+	x	+	+	x	x	+	x	+	+	+	x	x	x
x	+	x	+	+	x	+	+	x	+	+	x	+	+	+	x	+	+
x	x	x	o	o	+	x	+	o	x	x	x	+	+	+	x	+	o
x	+	+	+	+	x	4	+	+	+	+	x	x	+	o	+	x	x
x	x	x	–	o	x	x	x	x	x	x	x	+	+	+	o	o	o

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Chemical resistance

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Sodium dodecylbenzenesulfonate	+	+	x	x	+	+	x	x	x	+	x
Sodium hypochlorite (aqueous), 10%	–	–	x	+	–	–	o	x	o	o	o
Sodium hypophosphite (aqueous), 10%	+	+	x	x	+	+	x	x	x	+	x
Sodium nitrate (aqueous), 10%	+	4	–	+	4	+	+	x	+	+	4
Sodium nitrilotriacetate (aqueous), 10%	+	+	x	x	+	+	x	x	x	+	x
Sodium oleate	+	+	x	x	+	+	x	x	x	+	x
Sodium salts, 10%	+	+	x	x	+	+	x	x	x	+	x
Sodium sulphate, 10%	+	4	x	+	4	+	+	x	+	+	4
Sodium sulphite, neutral, 2%	o	4	x	+	4	o	o	x	+	o	4
Sodium thiosulphate, 10%	+	4	–	+	4	+	+	x	+	+	4
Soldering fluid	–	–	x	x	–	–	x	x	x	–	–
Soluble glass (sodium silicate)	+	4	x	+	4	+	+	x	+	+	4
Steam	x	–	o	+	–	x	o	x	+	–	o
Styrene	o	+	x	+	+	o	–	x	+	–	+
Sulphur	+	+	x	+	+	+	+	x	+	+	+
Sulphuric acid (concentrated), 98%	–	–	–	–	–	–	–	x	–	–	–
Sulphuric acid, 10%	–	–	+	o	–	–	o	o	–	–	–
Sulphuric acid, 2%	–	–	+	o	–	–	o	+	o	–	–
Tallow	+	+	x	+	+	+	+	x	+	+	+
Tar	+	+	+	+	+	+	o	x	+	+	+
Tartaric acid	o	o	+	+	o	+	+	x	+	x	4
Tetrahydrofuran (solvent)	o	+	–	+	+	o	–	x	+	+	+
Tetralin	+	+	x	+	+	+	x	x	+	–	+
Thionyl chloride	o	o	–	+	o	o	–	x	x	x	o
Tincture of iodine, 3%	o	–	–	+	–	o	–	x	+	x	o
Toluol	o	+	o	+	+	o	–	o	+	–	+
Transformer oil	+	+	+	+	+	+	o	x	+	+	+
Trichloroacetic acid (aqueous), 50%	–	–	x	x	–	–	x	x	x	–	–
Trichloroethane	–	o	x	+	o	–	x	x	+	–	o
Trichloroethylene	–	–	–	+	–	–	–	–	o	–	–
Triethanolamine, 90%	+	4	–	+	4	+	+	x	+	+	4
Trisodium phosphate, 90%	+	+	x	+	+	+	+	x	+	+	+
Uranium fluorides	–	–	x	x	–	–	x	x	x	–	–
Urea	+	+	x	+	+	+	+	x	+	+	+
Uric acid (aqueous), 10%	+	+	+	x	+	+	x	x	x	+	x
Urine	+	+	+	+	+	+	+	+	+	+	+
Vaseline	o	o	+	+	+	+	o	x	+	o	+
Violet oil	+	+	x	+	+	+	x	x	+	x	+

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Chemical resistance

"4" swelling, softening due to the water

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x	x	x	x	x	x	x	+	x	x	x	x	x	x	o	+	+	+
x	x	o	o	o	x	o	+	+	+	o	o	x	+	+	o	o	o
x	x	x	x	x	x	x	x	x	x	x	x	+	+	–	x	+	+
x	+	+	+	+	x	4	+	+	+	+	o	x	x	+	+	+	+
x	x	x	x	x	x	x	x	x	x	x	x	+	+	+	x	+	+
x	x	x	x	x	x	x	x	x	x	x	x	x	x	+	x	+	+
x	x	x	x	x	x	x	x	x	x	x	x	x	x	+	x	x	+
x	+	+	+	+	x	4	+	x	+	+	x	x	x	+	+	x	+
x	+	x	o	o	x	o	+	x	+	+	x	+	+	+	+	x	+
x	+	x	o	+	x	4	+	x	+	+	x	+	+	–	x	+	+
+	+	x	o	+	x	o	o	o	–	–	x	+	+	+	+	+	+
x	+	x	–	–	x	+	–	x	–	–	x	+	o	+	+	+	+
x	x	o	o	x	x	o	–	–	–	–	x	+	–	+	x	x	o
x	+	–	o	x	x	o	+	+	o	–	x	+	o	+	x	x	–
+	+	–	–	–	+	+	o	o	–	–	x	+	+	+	x	o	+
x	+	–	+	+	x	+	o	x	+	o	x	+	o	+	+	+	+
x	x	x	–	–	x	–	+	+	x	x	x	+	o	+	–	–	–
x	o	x	–	–	+	–	x	x	–	–	x	+	x	o	–	–	o
x	+	–	–	–	x	–	o	x	–	–	x	x	+	–	–	–	–
x	+	x	+	+	x	4	x	x	+	+	o	+	o	–	+	x	+
x	+	x	+	+	x	+	x	x	x	+	x	+	x	+	+	x	+
x	x	x	–	–	x	–	x	x	x	x	x	+	x	+	–	–	–
x	+	o	+	+	x	+	+	+	+	+	o	x	+	+	+	+	+
x	x	x	x	x	x	x	+	x	x	x	x	+	+	+	+	+	+
+	+	+	+	+	x	+	+	x	x	+	x	x	x	–	+	+	+
x	+	o	o	+	x	+	+	+	+	o	x	+	+	+	+	+	+
x	+	x	+	x	x	+	x	x	x	x	x	+	+	o	x	x	+

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Chemical resistance

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

Chemicals, iglidur®	A180 A181 J200 R UW xirodur® B180 xirodur® S180 xirodur® F180 xirodur® M180 FC180	A200, G GLW G V0 M250 N54, Q2 W300, C L250, L100 igumid® G xirodur® G220 igumid® FC	A350	A500 C500 UW500 X X6 xirodur® A500 L500 AX500	A290 F Q290 W360 G1	J J2 J3 J4 JB E	J260 M260	J350	H H1 H2 H370 H4 HLW iguton G H3, H5	F2 K P P210 P4 M210	Q
Washing machine cleaner (phosphoric and nitric acid)	+	o	x	+	o	–	x	x	+	+	o
Wax, melted	+	+	+	+	+	+	+	+	+	+	+
White spirit	+	+	x	+	+	+	o	x	+	+	+
Xylol	o	o	+	+	+	o	–	x	+	–	+
Zinc chloride (aqueous), 10%	–	–	x	+	+	–	–	x	+	–	o
Zinc oxide	+	+	x	+	+	+	+	x	+	+	+
Zinc sulphate (aq.), 10%	+	4	x	+	4	+	+	x	+	+	4
Zinc sulphate (aqueous), 10%	+	4	x	+	4	+	+	x	+	+	4

Resistance classification: + resistant; o conditionally resistant; – not resistant; x no data available

[4] The lead screw nuts are not chemically attacked by these substances. However, there may be a dimensional change due to total moisture absorption.

Chemical resistance

"4" swelling, softening due to water

V400	Z	B	D	T220	K230	PEP	A160 B160 UW160 xirodur® C160	E7	I170	I180 I180-BL	xirodur® D180	xiros® ball bearings with PEEK cage	 PP cage PE cage	 PA cage	I150	C210 P230	I3 I6 AB
x	+	o	–	+	x	–	+	x	x	x	x	+	o	+	x	x	o
+	+	+	+	+	x	+	o	x	+	+	x	+	x	+	x	+	+
x	+	x	+	+	x	+	x	x	x	o	x	+	+	o	x	x	+
x	+	o	–	–	+	+	–	o	–	–	x	+	x	+	x	o	+
x	+	–	–	x	o	–	+	+	+	–	x	+	–	o	x	x	–
+	+	+	+	+	x	+	x	x	+	+	x	+	+	o	+	x	+
x	+	+	+	+	x	4	+	x	+	+	x	+	x	+	+	x	x
x	+	+	+	+	x	4	+	x	+	+	x	+	x	+	+	x	x

The data was determined using laboratory specimens or based on comparisons with similar chemicals. Therefore, this data can only act as a reference. No interaction is also considered between the single chemicals / media which can lead to a change of the resistance of iglidur® plain bearings. The chemical resistance of actual parts should be tested under application conditions. All data given concerns the chemical resistance at room temperature. Other temperatures may lead to different classifications of the chemical resistance. We therefore recommend custom-designed tests under real application conditions.

iglidur® J4

General properties	Unit	iglidur® J4	Testing method
Density	g/cm³	1.48	
Colour		grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Coefficient of sliding friction, dynamic against steel	µ	0.06 - 0.20	
pv value, max. (dry)	MPa · m/s	0.3	
Mechanical properties			
Flexural modulus	MPa	2,350	DIN 53457
Flexural strength at +20°C	MPa	70	DIN 53452
Compressive strength	MPa	55	
Max. recommended surface pressure (+20°C)	MPa	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+90	
Max. short-term application temperature	°C	+120	
Min. application temperature	°C	-50	
Thermal conductivity	W/m · K	0.25	ASTM C 177
Coefficient of thermal expansion (at +23°C)	$K^{-1} \cdot 10^{-5}$	10	DIN 53752
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{13}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

iglidur® FC180

General properties	Unit	iglidur® FC180	Testing method
Density	g/cm³	1.73	
Colour		blue	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.7	DIN 53495
Max. moisture absorption	% weight	1.3	
Mechanical properties			
Flexural modulus	MPa	2,600	DIN 53457
Flexural strength at +20°C	MPa	68	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	31	
Shore D hardness		69	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+90	
Max. short-term application temperature	°C	+120	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

Material properties

iglidur® I3

General properties	Unit	iglidur® I3	Testing method
Density	g/cm³	1.05	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.8	DIN 53495
Max. moisture absorption	% weight	1.9	
Mechanical properties			
Flexural modulus	MPa	1,400	DIN 53457
Flexural strength at +20°C	MPa	68/61[130)]	DIN 53452
Shore D hardness		70	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+80	
Max. short-term application temperature	°C	+140	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{11}$	DIN 53482

[130)] **Printed flat/upright**

iglidur® K230

General properties	Unit	iglidur® K230	Testing method
Density	g/cm³	1.36	
Colour		dark grey	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.8	DIN 53495
Max. moisture absorption	% weight	2.9	
Mechanical properties			
Flexural modulus	MPa	1,600	DIN 53457
Flexural strength at +20°C	MPa	40	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	38	
Shore D hardness		68	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+110	
Max. short-term application temperature	°C	+130	
Min. application temperature	°C	-30	
Electrical properties			
Specific transitional resistance	Ωcm	$> 10^{12}$	DIN IEC 93
Surface resistance	Ω	$> 10^{12}$	DIN 53482

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iglidur® K250

General properties	Unit	iglidur® K250	Testing method
Density	g/cm³	1.19	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	3.6	
Mechanical properties			
Flexural modulus	MPa	2,975	DIN 53457
Flexural strength at +20°C	MPa	79	DIN 53452
Shore D hardness		70	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+90	
Max. short-term application temperature	°C	+110	
Min. application temperature	°C	-50	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

iglidur® A230

General properties	Unit	iglidur® A230	Testing method
Density	g/cm³	1.20	
Colour		blue	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	2.5	
Mechanical properties			
Flexural modulus	MPa	1,530	DIN 53457
Flexural strength at +20°C	MPa	53	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	18	
Shore D hardness		73	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+110	
Max. short-term application temperature	°C	+130	
Min. application temperature	°C	-30	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

Material properties

iglidur® L100

General properties	Unit	iglidur® L100	Testing method
Density	g/cm³	1.35	
Colour		yellow	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.7	DIN 53495
Max. moisture absorption	% weight	5.2	
Mechanical properties			
Flexural modulus	MPa	5,500	DIN 53457
Flexural strength at +20°C	MPa	150	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	70	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+100	
Max. short-term application temperature	°C	+190	
Max. short-term ambient temperature	°C	+200	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{13}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	DIN 53482

iglidur® P UV

General properties	Unit	iglidur® P UV	Testing method
Density	g/cm³	1.45	
Colour		black	
Max. moisture absorption at +23°C/50% r.h.	% weight	0.5	DIN 53495
Max. moisture absorption	% weight	0.5	
Mechanical properties			
Flexural modulus	MPa	4,250	DIN 53457
Flexural strength at +20°C	MPa	110	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	n.s.	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+100	
Max. short-term application temperature	°C	+160	
Min. application temperature	°C	-40	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{11}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	DIN 53482

igumid® F300

General properties	Unit	igumid® F300	Testing method
Density	**g/cm³**	1.44	
Colour		grey	
Max. moisture absorption at +23°C and 50% r.h.	**% weight**	0.9	DIN 53495
Max. moisture absorption	**% weight**	3.9	
Mechanical properties			
Flexural modulus	**MPa**	5,900	DIN 53457
Flexural strength at +20°C	**MPa**	150	DIN 53452
Max. recommended surface pressure (+20°C)	**MPa**	45	
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	**°C**	+90	
Max. short-term application temperature	**°C**	+170	
Min. application temperature	**°C**	-40	
Electrical properties			
Specific transitional resistance[5)]	**Ωcm**	> 10^4 - 10^9 [37)]	DIN IEC 93
Surface resistance[5)]	**Ω**	> 10^4 - 10^9 [37)]	DIN 53482

[5)] The good conductivity of this plastic material under certain circumstances can favour the generation of corrosion on the metallic contact components

[37)] Depending on the geometry

igumid® G

General properties	Unit	igumid® G	Testing method
Density	**g/cm³**	1.37	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	**% weight**	1.4	DIN 53495
Max. moisture absorption	**% weight**	5.6	
Mechanical properties			
Flexural modulus	**MPa**	7,800	DIN 53457
Flexural strength at +20°C	**MPa**	240	DIN 53452
Shore D hardness		79	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	**°C**	+120	
Max. short-term application temperature	**°C**	+180	
Min. application temperature	**°C**	-40	
Thermal conductivity	**W/m · K**	0.24	ASTM C 177
Coefficient of thermal expansion (at +23°C)	**$K^{-1} \cdot 10^{-5}$**	17	DIN 53752
Electrical properties			
Specific transitional resistance	**Ωcm**	> 10^{11}	DIN IEC 93
Surface resistance	**Ω**	> 10^{11}	DIN 53482

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Material properties

igumid® FC

General properties	Unit	igumid® FC	Testing method
Density	**g/cm³**	1.47	
Colour		dark blue	
Max. moisture absorption at +23°C and 50% r.h.	**% weight**	2.3	DIN 53495
Max. moisture absorption	**% weight**	5.2	
Mechanical properties			
Flexural modulus	**MPa**	7,083	DIN 53457
Flexural strength at +20°C	**MPa**	193	DIN 53452
Shore D hardness		83	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	**°C**	+100	
Max. short-term application temperature	**°C**	+140	
Min. application temperature	**°C**	-30	
Electrical properties			
Specific transitional resistance	**Ωcm**	> 10^{12}	DIN IEC 93
Surface resistance	**Ω**	> 10^{12}	DIN 53482

iguton G

General properties	Unit	iguton G	Testing method
Density	**g/cm³**	1.69	
Colour		brown	
Max. moisture absorption at +23°C and 50% r.h.	**% weight**	0.1	DIN 53495
Max. moisture absorption	**% weight**	0.2	
Mechanical properties			
Flexural modulus	**MPa**	10,200	DIN 53457
Flexural strength at +20°C	**MPa**	140	DIN 53452
Max. recommended surface pressure (+20°C)	**MPa**	65	
Shore D hardness		85	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	**°C**	+200	
Max. short-term application temperature	**°C**	+240	
Max. short-term ambient temperature[1]	**°C**	+260	
Min. application temperature	**°C**	-40	
Electrical properties			
Specific transitional resistance	**Ωcm**	> 10^{15}	DIN IEC 93
Surface resistance	**Ω**	> 10^{14}	DIN 53482

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POM black

General properties	Unit	POM black	Testing method
Density	g/cm³	1.41	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.2	DIN 53495
Max. moisture absorption	% weight	1.1	
Mechanical properties			
Flexural modulus	MPa	1,900	DIN 53457
Flexural strength at +20°C	MPa	68	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	23	
Shore D hardness		78	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+90	
Max. short-term application temperature	°C	+120	
Min. application temperature	°C	-50	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{12}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

iglidur® RN33 + RN89

General properties	Unit	RN33	RN89	Testing method
Density	g/cm³	1.36	1.44	
Colour		black	grey	
Max. moisture absorption at +23°C and 50% r.h.	% weight	1.4	0.9	DIN 53495
Max. moisture absorption	% weight	6.0	3.9	
Mechanical properties				
Flexural modulus	MPa	3,200	5,900	DIN 53457
Flexural strength at +20°C	MPa	80	150	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	60	45	
Shore D hardness		77	79	DIN 53505
Physical and thermal properties				
Max. long-term application temperature	°C	+90	+90	
Max. short-term application temperature	°C	+120	+170	
Min. application temperature	°C	-40	-40	
Electrical properties				
Specific transitional resistance	Ωcm	~ 10^{11}	10^{4} - 10^{9}	DIN IEC 93
Surface resistance	Ω	~ 10^{11}	10^{4} - 10^{9}	DIN 53482

iglidur® RN246 + RN248

General properties	Unit	RN246	RN248	Testing method
Density	g/cm³	1.49	1.25	
Colour		blue	black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	2.0	1.4	DIN 53495
Max. moisture absorption	% weight	6.0	7.6	
Mechanical properties				
Flexural modulus	MPa	6,000	2,700	DIN 53457
Flexural strength at +20°C	MPa	180	99	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	65	50	
Shore D hardness		85	–	DIN 53505
Physical and thermal properties				
Max. long-term application temperature	°C	+80	+90	
Max. short-term application temperature[1)]	°C	+120	+180	
Min. application temperature	°C	-40	-40	
Electrical properties				
Specific transitional resistance	Ωcm	> 10^{11}	> 10^{3}	DIN IEC 93
Surface resistance	Ω	> 10^{11}	> 10^{9}	DIN 53482

[1)] Without fill weight; no gliding movement; relaxation not excluded

iglidur® JB

General properties	Unit	iglidur® JB	Testing method
Density	g/cm³	1.49	
Colour		black	
Max. moisture absorption at +23°C and 50% r.h.	% weight	0.3	DIN 53495
Max. moisture absorption	% weight	1.3	
Mechanical properties			
Flexural modulus	MPa	2,400	DIN 53457
Flexural strength at +20°C	MPa	73	DIN 53452
Max. recommended surface pressure (+20°C)	MPa	35	
Shore D hardness		74	DIN 53505
Physical and thermal properties			
Max. long-term application temperature	°C	+90	
Max. short-term application temperature	°C	+120	
Min. application temperature	°C	-50	
Electrical properties			
Specific transitional resistance	Ωcm	> 10^{13}	DIN IEC 93
Surface resistance	Ω	> 10^{12}	DIN 53482

igubal® | Analysis

Date:	Phone: +49 2203 9649-145 Fax: +49 2203 9649-334
From: Phone: Fax:	To: **igus® GmbH** Technical Sales igubal® spherical bearings PO Box 90 61 23 51127 Cologne, Germany

Please enter all the data you know. If you prefer other measuring units, cross out the given unit and write your units next to it. Please enter as much information as possible. The question "Is igubal® a possible solution?" can already be answered with minimal data. Please call for further information (Phone: +49 2203 9649-145).

Rod end, Type A ☐ (male thread)
Rod end, Type B ☐ (female thread)
Pillow block bearings ☐
Spherical bearings ☐
Fixed flange bearings ☐ 2-hole ☐ 4-hole
Clevis joint ☐ with pin and clip ☐ with spring-loaded fixing clip
Dimensional series ☐ E ☐ K
Thread ☐ Standard thread ☐ Fine thread

Speed (m/s; 1/min): .....

Type of movements:

☐ Rotating
☐ Oscillating with ..... degrees
☐ Linear

Lubrication:

☐ Dry
☐ Oil
☐ Greases
☐ Water

Shaft diameter (mm/inch): .....
.....
Bearing load [N]: .....
Ambient temperature [°C]: .....
Shaft material (e.g. steel, VA, plastic): .....
.....

Average surface finish Ra: .....
Target service life (hrs): .....
Current bearing type: .....
.....
Surrounding media (e.g. acids, water, alkalines etc.): .....
.....

Which problem can igubal® solve for you?

☐ Dry operation ☐ Chemicals
☐ Corrosion ☐ Dirt
☐ Vibration dampening ☐ Dust
☐ Cost reduction ☐ Weight

Other load characteristics: .....
.....

Sketch:

All calculations easily and quickly also online with our expert system
▶ www.igus.eu/igubal-expert

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iglidur® | Analysis

Date:	Phone: +49 2203 9649-145 Fax: +49 2203 9649-334
From: Phone: Fax:	To: **igus® GmbH** Technical Sales iglidur® plain bearings PO Box 90 61 23 51127 Cologne, Germany

Please enter all the data you know. If you prefer other measuring units, cross out the given unit and write your units next to it. Please enter as much information as possible. The question "Is iglidur® a possible solution?" can already be answered with minimal data. Please call for further information (Phone: +49 2203 9649-145).

Dimensions:

Shaft diameter [mm]: .....
Bearing width [mm]: .....
Bearing wall thickness [mm]: .....
Bearing flange diameter [mm]: .....
Bearing flange wall thickness [mm]: .....
Bearing load [N]: .....
Surface speed [m/s]: .....

Type of motion:

☐ Rotating with ..... rpm
☐ Oscillating with ..... degrees
☐ Linear with .....mm stroke length

Speed [1/min]: .....

Lubrication:

☐ Dry
☐ Oil
☐ Greases
☐ Water

Ambient temperature [°C] .....
Surrounding media (e.g. acids, water, alkalines etc.): .....
.....
Shaft material (e.g. steel, plastic): .....
.....
Average surface finish [Ra]: .....
Housing material: .....
Intermittent rating: .....
Run time [s]: .....
Down time [s]: .....
Target service life: .....

What type of bearing are you currently using?

☐ iglidur®
☐ Wrapped bushing
☐ Sinter
☐ Rolling bearing
☐ Other

Which problem can iglidur® solve for you?

☐ Dry operation ☐ Chemicals
☐ Abrasion resistance ☐ Temperature
☐ Edge pressures ☐ Dirt, dust, ...
☐ Vibration dampening ☐ Cost reduction

Other load characteristics: .....
.....

Sketch:

All calculations easily and quickly also online with our expert system
▶ www.igus.eu/iglidur-expert

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Improve what moves

motion plastics®

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- iglidur® more products
- iglidur® slewing rings
- iglidur® bar stock
- iglidur® gears
- iglidur® tribo 3D printing
- igubal® spherical bearings
- xiros® polymer ball bearings
- drylin® linear technology
- dryspin® lead screw technology
- drylin® drive technology
- Low Cost Automation
- e-chains® and e-chain systems®
- smart plastics
- chainflex® cables
- readycable® readychain®
- Connectors

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Everything at a glance

dry-tech® bearing technology

iglidur® plain bearings



Sleeve bearings



Flange bearings



Thrust washers

iglidur® more products



Two hole flange bearings



Guide rings



Guide rollers



Knife edge rollers

Clip bearings



Coating powder



iglidur®
slewing rings

Slewing rings



Toothed slewing rings

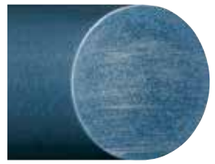


Accessories



iglidur®
bar stock

Round bars



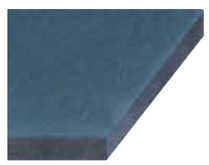
Hollow bars



Plates



Plate strips



iglidur®
gears

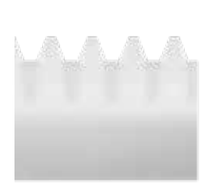
Spur gears



Gear wheels



Racks



Angular gearbox



iglidur®
tribo 3D printing

Filaments



Selective Laser Sintering



Resin



Accessories



igubal®
spherical bearings

Rod end bearings



Spherical balls





Spherical insert bearings



Coupling joints



Double joints



Clevis joint combinations



Fixed flange bearings



Spherical bearings



Pillow block bearings



Angled and in-line ball and socket joints



Clip bearing



Accessories

xiros®
ball bearings



Radial deep groove ball bearings



Thrust bearings



Fixed flange ball bearings



Pillow block ball bearings



Ball transfer units



Conveyor rollers



Slewing ring ball bearings



Other types

drylin®
linear technology



W profile guides



N low-profile linear guides



T rail guides



R shaft guides



Q square linear guides



NT telescopic rails



Complete systems with measuring technology

dryspin®
lead screw technology



Lead screw nuts



Lead screws



Accessories

drylin®
drive technology



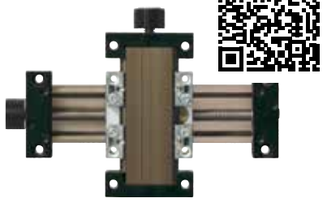
Linear modules with lead screw



Linear modules with toothed belt



Linear modules with racks



XY-tables



Electric motors

Low Cost Automation



Articulated arm robot



Linear robots



Further kinematics



Modular gearbox system



Accessories

Everything at a glance

e-chains® and e-chain systems®

e-chains® and e-chain systems®



Energy chains for linear motion



Special solutions



Rotary movements



Accessories



Complete set

smart plastics



Condition monitoring | i.Sense



Predictive maintenance | i.Cee



Complete system solutions

chainflex® cables



Control cables



Data cables



Coaxial cables



Bus cables



Fibre optic cables



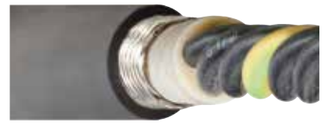
Measuring system cables



Servo cables



Hybrid cables



Motor cables

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Robot cables



Special cables



Clean room elements

readycable®
readychain®



Drive cables in accordance with manufacturers' standards



Network, Ethernet, fieldbus cables



Video, vision, bus technology



Sensor and actuator cables



Cables with HARTING industrial plug-in connectors



Cables for robots



AIDA Standard



Accessories

Connectors



Plug-in connectors in accordance with manufacturers' standards

Catalogues



dry-tech® bearings technology
MAT0075591.20



dry-tech® linear technology
MAT0075592.20



e-chains® catalogue
MAT0072320.20



chainflex® catalogue
MAT0070582.20



New products journal 2023
MAT0075538.20

Notes

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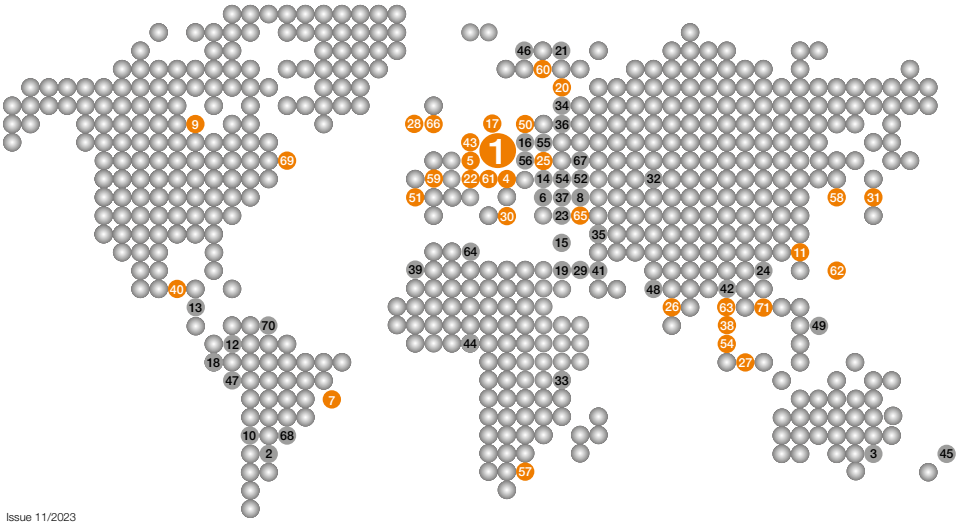
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