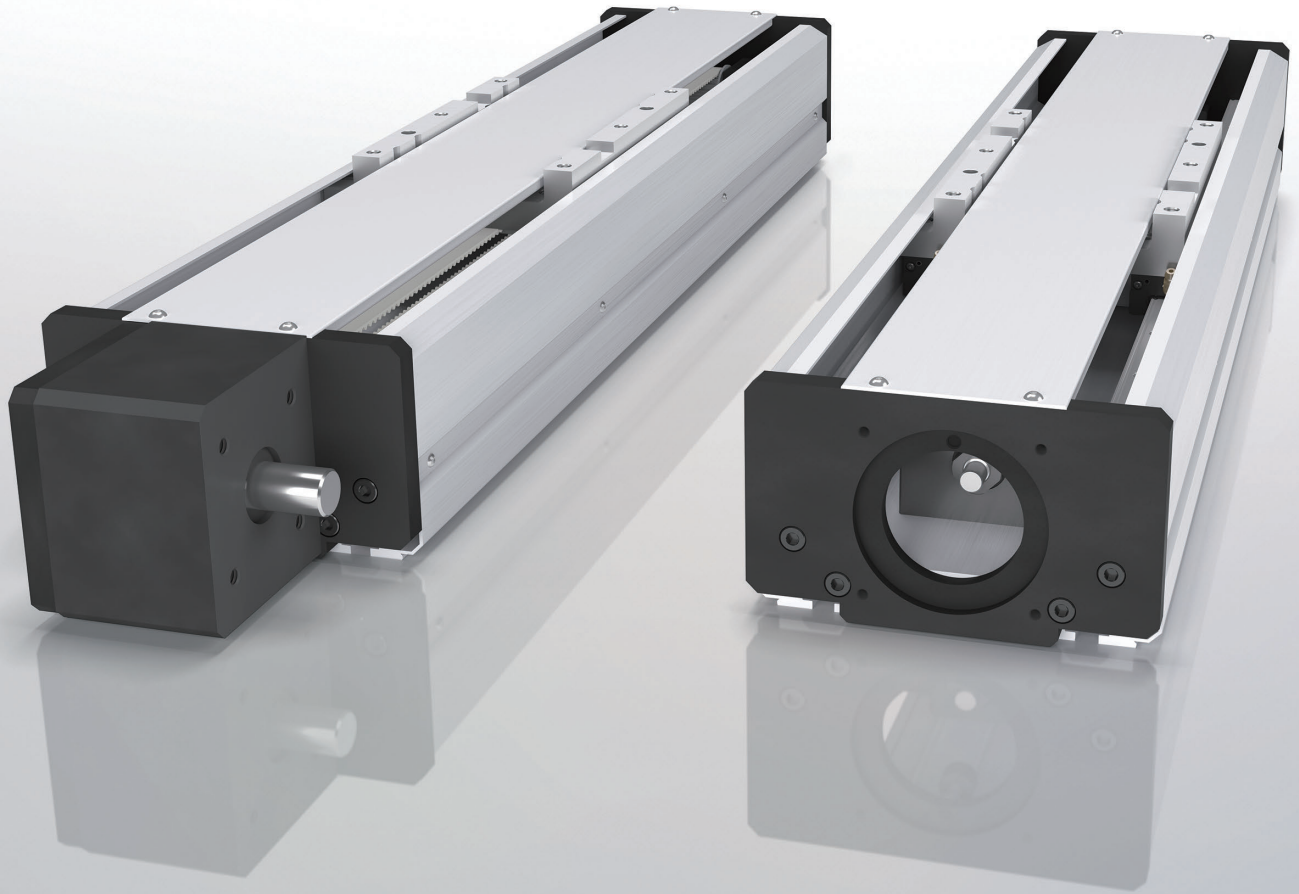
Universal Series Electric Actuator **TH**



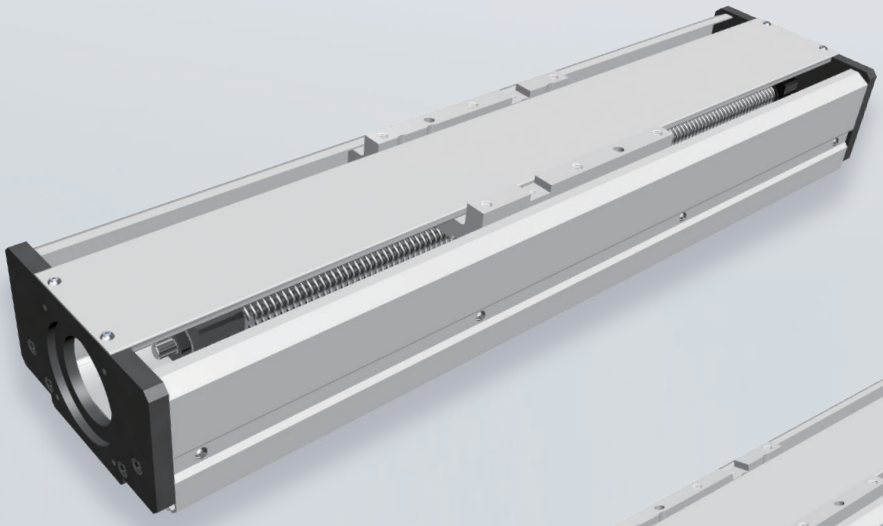
Highly rigid actuator
with an aluminum base
suited for transferring heavy objects

Electric Actuator TH

TH

A lightweight, highly rigid electric actuator with an aluminum base

The Universal Series TH is an electric actuator with a central ball screw shaft (or belt) surrounded on both sides by LM Guide units. Combined with an aluminum base designed for rigidity, this product offers many benefits.

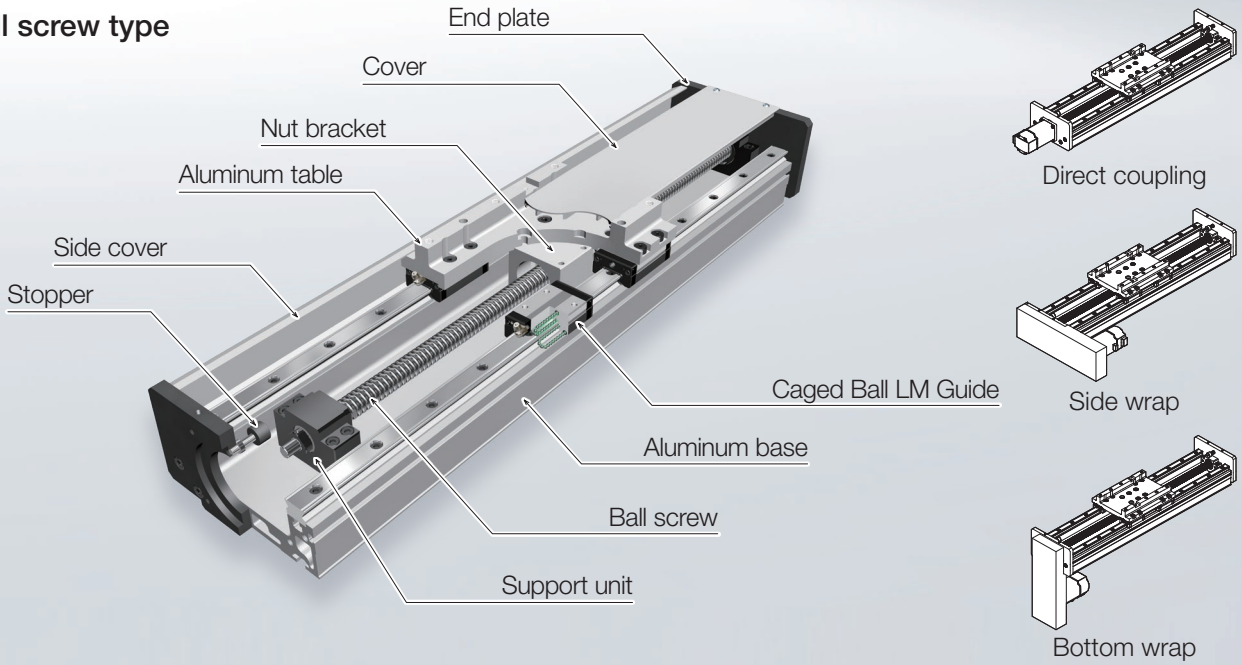


Ball screw type
Direct coupling specifications

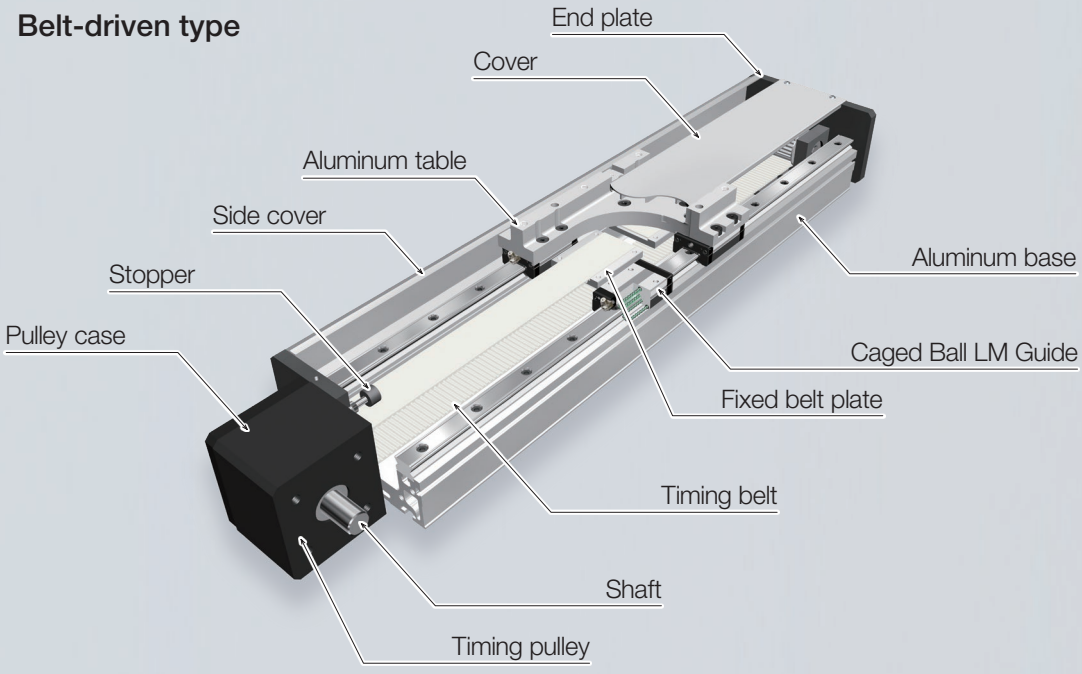
Belt-driven type

The TH is available with two drive options.
Based on your application, you can select a ball screw type, which is optimal for transporting heavy objects, or a belt-driven type, which is best suited for high-speed transfers over long strokes.

Ball screw type



Belt-driven type

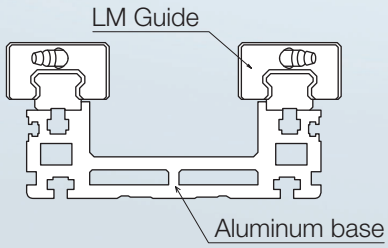


Note) The belt-driven type is intended for horizontal use. Please be aware that it cannot be used vertically.
In addition, contact THK if you will be mounting the product on a wall.

An electric actuator featuring Caged Ball LM Guide units and a lightweight, highly rigid aluminum base

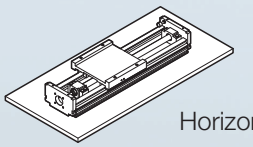
THK Technology 1 Multiple Options Available for the LM Guide Units

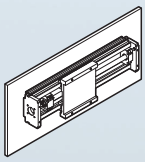
The TH uses two Caged Ball LM Guide units, which makes it suited for transferring heavy objects.



SSR: The ball contact structure is resistant to loads in the radial direction, making this type of guide ideal for horizontal use.

SHS: This type of guide bears loads equally in four directions, so loads can be applied from any direction (radial, reverse radial, and horizontal).


Horizontal


Wall-mounted

Note) The belt-driven type is intended for horizontal use.

THK Technology 2 Optimal for High-Speed Transfers over Long Strokes

The TH features an aluminum base, and this actuator is suited for transferring objects over long strokes.

- Ball screw type
  The ball screw has a wide variety of lead options. This type can operate up to speeds of 2240 mm/s.

Max. speed **2240 mm/s**

* When using TH25

- Belt-driven type
  A timing belt is used as the drive method. This type can operate at speeds up to 2500 m/s.

Max. speed **2500 mm/s**

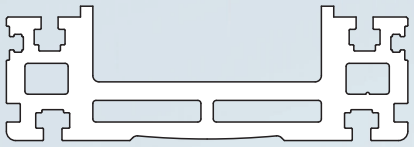
* When using TH25

Ball Screw Leads by Model (Rolled Ball Screws)

Model	Ball screw leads (mm)	Max. stroke (mm)	Max. speed (mm/s)
TH20	5, 20, 40	2170	2000
TH25	5, 10, 25, 50	2650	2240

THK Technology 3 Light Weight and High Rigidity

The cross-section of the extruded aluminum base features hollow areas, making it both lightweight and highly rigid.



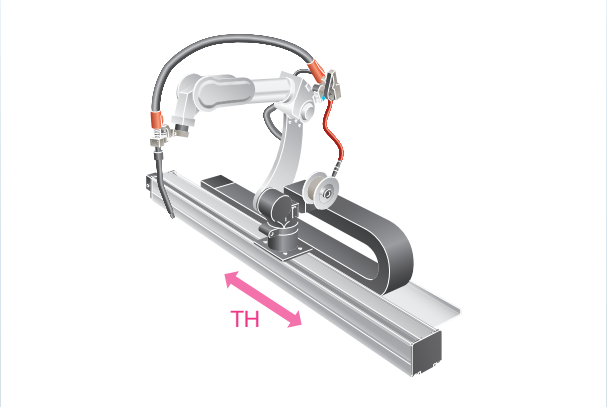
THK Technology 4 Many Accessories Available

Optional covers, bellows, sensors, and cable carriers are available. A QZ Lubricator can be attached to the LM Guide and ball screw units to enable long-term maintenance-free operation.

Optimal for transferring heavy objects and moving at high speeds over long strokes

Automotive industry

Welding robot transfer device

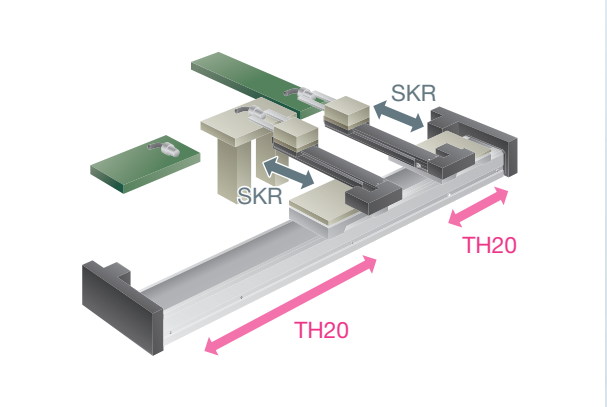


The TH is being used to transfer a welding robot. As a belt-driven type was chosen, the highly rigid TH is capable of moving at high speeds along long strokes. Control of the TH was centralized by attaching a motor that can be manipulated by the welding robot's controller.
(Belt-driven type)

Model used: Transfer axis: TH25

Automotive industry

Inter-process transfer device

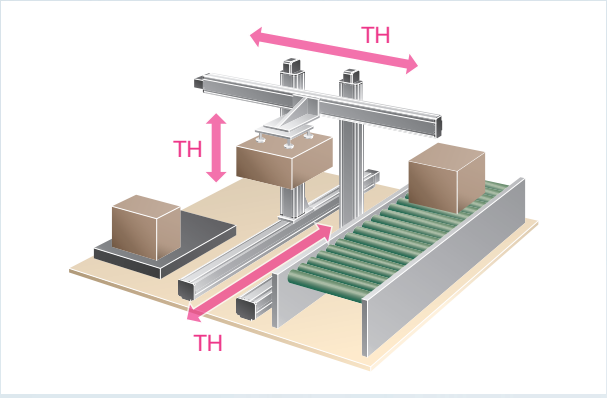


The upper axis of the automotive component transfer unit uses the SKR, and the lower axis base has a special TH with two ball screws in order to achieve a long stroke. Used in place of a traditional rack and pinion drive, this type takes up less space and can handle operations with faster takt times.
(Ball screw type)

Models used:
Lower axis: Special TH20
Upper axis: SKR3320A with motor wrap

General industry

Palletizer

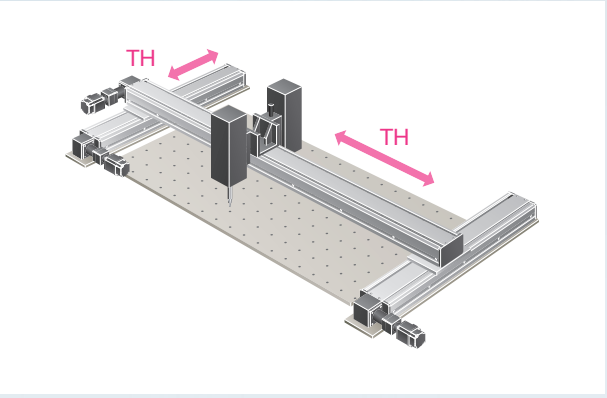


The TH, capable of high-speed operations over long strokes, is used in the cardboard transfer unit. With the superior rigidity of its base, the TH is used in the lower, vertical, and transfer axes. The traditional LM Guide and ball screw combination now comes as a single unit, which reduces design and assembly time.
(Ball screw type)

Models used:
Lower axis: Special TH20
Vertical axis: TH25
Horizontal axis: TH20

General industry

Duralumin plate hole drilling device



Three TH units are being combined in a gantry. The high rigidity of the TH allowed the gantry frame to be wider, and it became possible to operate at a high speed.
(Belt-driven type)

Models used:
X axis: TH20
Y axis: TH20

Series Overview (Ball Screw Type)

Model	Ball screw leads (mm)	Stroke (mm)	Estimated motor capacity (W)	Maximum load capacity[1, 2] (kg)			
				Horizontal	Wall-mounted	Vertical	
TH20	5	190 to 2170	400	100	100	45	
	20			55	55	16	
	40			11	11	9	
	20		750	100	100	32	
	40			40	40	14	
TH25	5	250 to 2650	750	120	120	50	
	10			120	120	35	
	25			70	70	25	
	50			25	25	12	

[1] Maximum load capacity refers to the mass at the below speed and acceleration/deceleration. (LM Guide model HV: TH20 is the value for SHS20V specifications, and TH25 is the value for SHS25V.)
Speed: The rated rotational speed of the motor (3,000 min^{-1}).
Acceleration/deceleration speed: 0.15 G (5 mm lead), 0.3 G (10 mm lead and above)
[2] Reduction ratio is 1/1.
[3] The maximum speed is restricted by the permissible speed of the actuator.

Series Overview (Belt-Driven Type)

Model	Drive system	Stroke (mm)	Estimated motor capacity (W)	Maximum load capacity[4] (kg)	
				Horizontal	
TH20	Belt	140 to 2660	400	18	
			750	20	
TH25		230 to 3590	750	30	

[4] Maximum load capacity refers to the mass at the below speed and acceleration/deceleration. (LM Guide model HV: TH20 is the value for SHS20V specifications, and TH25 is the value for SHS25V.)
Speed: The rated rotational speed of the motor (3,000 min^{-1}).
Acceleration/deceleration: 0.3 G
[5] The maximum speed is restricted by the permissible speed of the actuator.
Note) Reduction ratio is 1/3.

Model Number Coding (Ball Screw Type)

Model ①	Stroke ②	LM Guide model ③	LM Guide with/without QZ ④	Ball screw leads ⑤	Ball screw with/without QZ ⑥	With/without motor ⑦	Motor wrap reduction ratio ⑧	End plate/ motor mounting plate ⑨	Cover/ bellows ⑩	Sensor ⑪	Cable carrier ⑫
TH20 –	1940 –	SW	Q	– B20	Q	0	–	B	– N	– N	– N
TH20	0190: 190 mm	SW: SSR-XW	No symbol: Without QZ	B05: 5 mm	No symbol: Without QZ	With direct coupling	No symbol: Direct coupling	With direct coupling	N: Without cover	N: None	N: None
TH25	to	HV: SHS-V	Q: With QZ	B10: 10 mm	Q: With QZ	0: Without motor (Without coupling. If necessary, please specify.)	G1: Motor wrap 1/1	B	C: With cover	6	B
	2650: 2650 mm			B20: 20 mm		1: With motor (THK will purchase and mount the motor you specify)	G2: Motor wrap 2/3	D	J: With bellows	H	C
				B25: 25 mm		With motor wrap	G3: Motor wrap 1/2	F		J	D
				B40: 40 mm		R1: Non-standard side wrap (without motor)		J			E
				B50: 50 mm		R2: Standard side wrap (without motor)		With motor wrap			F
						R3: Bottom side wrap (without motor)		B14			G
						R4: Non-standard side wrap (THK will purchase and mount the motor you specify)		D19			H
						R5: Standard side wrap (THK will purchase and mount the motor you specify)		F11			I
						R6: Bottom side wrap (THK will purchase and mount the motor you specify)		F14			J
								J19			K
											L

When "J" (with bellows) is selected for ⑩ Cover/bellows, specify the stroke with bellows. → p. 26, p. 46

When "Q" is selected for ④ LM Guide with/without QZ, "No symbol" cannot be selected.

If "0" is selected:
No coupling will be attached. Please specify if a coupling is required when ordering.

When "R1," "R2," or "R3" is selected, the timing belt and timing pulley will be included.

When "1," "R4," "R5," or "R6" is selected:
The designated motor will be mounted. Please specify the motor cable direction separately.
Please select the end plate and motor mounting plate in ⑨ that match the specified motor.
Please select the driver and controller yourself.

This product is compatible with motors from various manufacturers. Contact THK for details.

	Maximum speed at each stroke[3] (mm/s)																													Page
	Stroke (mm)																													
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700			
	250								190	130		100		80		60		50		40										p. 7
	1000								780	570		430		340		270		210		170										
	2000								1570	1140		870		680		550		430		340										
	1000								780	570		430		340		270		210		170										
	2000								1570	1140		870		680		550		430		340										
	250									190		140		110		90		70		50		40		30						p. 27
	310											260		200		160		120		100		80		60						
	1120									960		720		560		450		350		280		220		180						
	2240									1920		1450		1130		910		700		550		450		360						

	Maximum speed at each stroke[5] (mm/s)																													Page
	Stroke (mm)																													
	100	200	300	400	500	600	700	800	900	1000	1100	1200	1300	1400	1500	1600	1700	1800	1900	2000	2100	2200	2300	2400	2500	2600	2700	2800		
	2000																													p. 17
	2000																													
	2500 (max. stroke of 3590 mm)																													p. 37

Model Number Coding (Belt-Driven Type)

Model ①	Stroke ②	LM Guide model ③	LM Guide with/without QZ ④	Drive system ⑤	With/without motor ⑥	Motor bracket ⑦	Belt specification reduction gear ⑧	Belt specification reduction ratio ⑨	Cover/ bellows ⑩	Sensor ⑪	Cable carrier ⑫
TH20 –	2400 –	SW	Q	– EH –	0	N			– N	– N	– N
TH20	0140: 140 mm	SW: SSR–XW	No symbol: Without QZ	EH: Belt	0: Without motor (Without coupling. If necessary, please specify.)	N: None	No symbol: No reduction gear	No symbol: No reduction gear	N: Without cover	N: None	N: None
TH25	to	HV: SHS-V	Q: With QZ		1: With motor (THK will purchase and mount the motor you specify)	B1	G1	03: 1/3	C: With cover	6	B
	3590: 3590 mm					B2	G2	05: 1/5	J: With bellows	H	C
							G3	09: 1/9		J	D
							G4				E
							G5				F
							G6				G
							G7				H
							G8				I
											J
											K

When "J" (with bellows) is selected for ⑩ Cover/bellows, specify the stroke with bellows. → p. 26, p. 46

If "0" is selected:
No coupling will be attached. Please specify if a coupling is required when ordering.

If "1" is selected:
The designated motor will be mounted. Please specify the motor cable direction separately.
Please select the motor bracket in ⑦ that matches the specified motor.
Please select the driver and controller yourself.

This product is compatible with motors from various manufacturers. Contact THK for details.

TH20

Direct Motor Coupling | Motor wrap | Body width 170 mm | Body height 110 mm | Max. stroke 2170 mm | Max. speed 2000 mm/s | Ball screw type

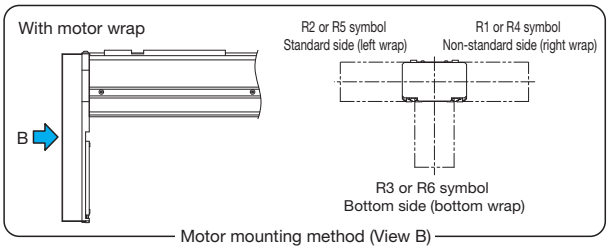
Model Number Coding

Model ①	Stroke ②	LM Guide model ③	LM Guide with/without QZ ④	Ball screw leads ⑤	Ball screw with/without QZ ⑥	With/without motor ⑦	Motor wrap reduction ratio ⑧
TH20 –	1930 –	SW	Q	– B20	Q	0	
TH20	0190: 190 mm to 2170: 2170 mm When "J" (with bellows) is selected for ⑩ Cover/bellows, specify the stroke with bellows. → p. 26	SW: SSR20XW HV: SHS20V	No symbol: Without QZ Q: With QZ	B05: 5 mm B20: 20 mm B40: 40 mm	No symbol: Without QZ Q: With QZ When "Q" is selected for ④ LM Guide with/without QZ, "No symbol" cannot be selected.	With direct coupling 0: Without motor (Without coupling. If necessary, please specify.) 1: With motor (THK will purchase and mount the motor you specify) With motor wrap R1: Non-standard side wrap (without motor) R2: Standard side wrap (without motor) R3: Bottom side wrap (without motor) R4: Non-standard side wrap (THK will purchase and mount the motor you specify) R5: Standard side wrap (THK will purchase and mount the motor you specify) R6: Bottom side wrap (THK will purchase and mount the motor you specify)	No symbol: Direct coupling G1: Motor wrap 1/1 G2: Motor wrap 2/3 G3: Motor wrap 1/2

③ LM Guide model

Select the LM Guide model suited to the application.
·SW: The ball contact structure is suited to large loads in the radial direction, making this model ideal for horizontal guides. (LM Guide model: SSR20XW)
·HV: This type of guide bears loads equally in four directions, so loads can be applied from any direction (radial, reverse radial, and horizontal). (LM Guide model: SHS20V)

⑦ With/without motor



If "0" is selected:
No coupling will be attached. Please specify if a coupling is required when ordering.
When "R1," "R2," or "R3" is selected, the timing belt and timing pulley will be included.
When "1," "R4," "R5," or "R6" is selected:
The designated motor will be mounted. Please specify the motor cable direction separately.
Please select the end plate and motor mounting plate in ⑨ that matches the specified motor.
Please select the driver and controller yourself.

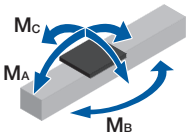
Selection Information

General Specifications[1]

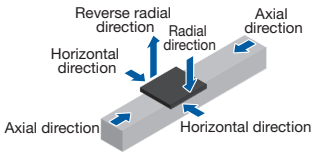
LM Guide	Basic dynamic load rating C (N)		22300		
	Basic static load rating C_0 (N)		38400		
Ball screw	Ball screw leads (mm)		5	20	40
	Basic dynamic load rating Ca (N)		6000	7700	5400
	Basic static load rating C_0a (N)		16500	22300	13600
	Screw shaft diameter (mm)		ϕ20		
	Thread minor diameter (mm)		ϕ17.2	ϕ17.5	
	Ball center-to-center diameter (mm)		ϕ20.5	ϕ20.75	
	Permissible rotational speed[2] (min^{-1})		4800	3370	
Bearing (fixed side)	Axial direction	Basic dynamic load rating Ca (N)	7600		
		Static permissible load P_0a (N)	2800		
Base	Geometric moment of inertia[3, 4, 5]	I_X (mm^4)	6.43×10^5		
		I_Y (mm^4)	7.84×10^6		
		Mass (kg/m)	8.8		
Starting torque[6] (N·cm)	Ball screw QZ	Without QZ	14.7	20.2	27.5
		With QZ	26.1	40.8	48.8
Positioning repeatability (mm)			±0.02		
Backlash (mm)			0.05		
Permissible input torque (N·m)		Direct coupling	2.4	9.5	
		Motor wrap 1/1	2.4	4.6	
		Motor wrap 2/3	1.6	4.6	
		Motor wrap 1/2	1.2	4.6	
Static permissible load[7] (N)		Reverse radial direction	21500		
		Horizontal direction	6700		
		Axial direction	2800		
Static permissible moment[8] (N·m)			M_A: 1290, M_B: 590, M_C: 1180		
Standard grease/ Grease nipple used		LM Guide	THK AFB-LF Grease/ B-M6F		
		Ball screw	THK AFB-LF Grease/ PB107		

[1] These are the values for LM Guide model HV: SHS20V specifications.
[2] The permissible rotational speed may decrease as the stroke becomes longer.
[3] These are the values for the cross-sectional characteristics of the aluminum base.
[4] I_X is the geometric moment of inertia about the X axis.
[5] I_Y is the geometric moment of inertia about the Y axis.
[6] The starting torque refers to the values when THK AFB-LF is used.
[7] The static permissible load is a value limited by the bolt tightening strength, the basic static load rating of the LM Guide unit and the ball screw unit, and the static permissible load of the bearing.
[8] Static permissible moment is the maximum moment that can be permitted while the product is stationary.
The standard for M_A and M_C moments is the top surface of the table, while the standard for M_B moments is the center of the table.

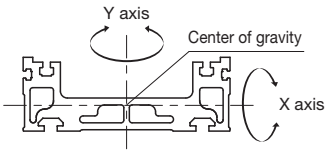
Static permissible moment



Static permissible load



Geometric moment of inertia



End plate/motor mounting plate ⑨	Cover/bellows ⑩	Sensor ⑪	Cable carrier ⑫
B	N	N	N
With direct coupling	N: Without cover	N: None	N: None
B	C: With cover	6	B
D	J: With bellows	H	C
F	With cover → p. 14	J	D
J	With bellows → p. 26	Sensors → p. 13	E
With motor wrap			F
B14			G
D19			H
F11			I
F14			J
J19			K
			Cable carrier → p. 15

Motor Selection Specifications

■ LM Guide

LM Guide model	Moving part mass (kg)	Sliding resistance (N)
TH20– * –SW (SSR20XW)	3.2	21.4
TH20– * –SWQ (SSR20XWQZ)	3.4	33.4
TH20– * –HV (SHS20V)	3.5	20.6
TH20– * –HVQ (SHS20VQZ)	3.7	36.6

■ Ball screw

Base length[1] (mm)	Lead (mm)	Ball screw model	Shaft length[2] (mm)
460 to 2440	5	BTK2005V–2.6ZZ	424 to 2404
	20	BLK2020–3.6ZZ	
	40	WTF2040–2ZZ	

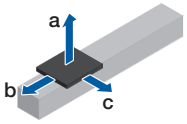
■ Motor mounting part

Direct coupling	Motor wrap		
Shaft end diameter (mm)	Timing pulley		
	Inertial moment×10^{-4} (kg·m^2)		
	Reduction ratio	Motor side	Main unit side
ϕ12h7	1/1	0.11	0.11
	2/3	0.11	0.54
	1/2	0.11	1.75

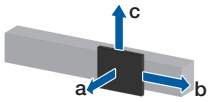
[1] For base length, see the specification table. → p. 9
[2] This length is that of a ball screw shaft directly coupled to the motor. For motor wrap specifications, the ball screw shaft is 74 mm longer.
Note) Please see p. 11 for information on applicable couplings.

Permissible Overhang Length[3]

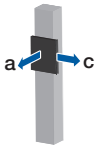
Horizontal



Wall-Mounted



Vertical



Hypothetical motor capacity 400 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	b (mm)	c (mm)
Direct coupling/ Motor wrap[4]	5	25	1500	1500	1500
		50	1500	1320	1500
		100	1500	640	880
	20	13.5	1500	1500	1500
		27.5	1500	1500	1500
		55	1500	740	950
	40	2.5	1500	1500	1500
		5.5	1500	1500	1500
		11	1500	1500	1500

Hypothetical motor capacity 400 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	b (mm)	c (mm)
Direct coupling/ Motor wrap[4]	5	25	1500	1500	1500
		50	1500	1290	1500
		100	830	600	1500
	20	13.5	1500	1500	1500
		27.5	1500	1490	1500
		55	930	710	1500
	40	3.5	1500	1500	1500
		6.5	1500	1500	1500
		11	1500	1500	1500

Hypothetical motor capacity 400 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	c (mm)
Direct coupling/ Motor wrap[4]	5	11	1500	1500
		22.5	1500	1500
		45	1450	1450
	20	4	1500	1500
		8	1500	1500
		16	1500	1500
	40	2	1500	1500
		4.5	1500	1500
		9	1500	1500

Hypothetical motor capacity 750 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	b (mm)	c (mm)
Direct coupling/ Motor wrap[4]	20	25	1500	1500	1500
		50	1500	820	1050
		100	1500	390	490
	40	10	1500	1500	1500
		20	1500	1500	1500
		40	1500	760	850

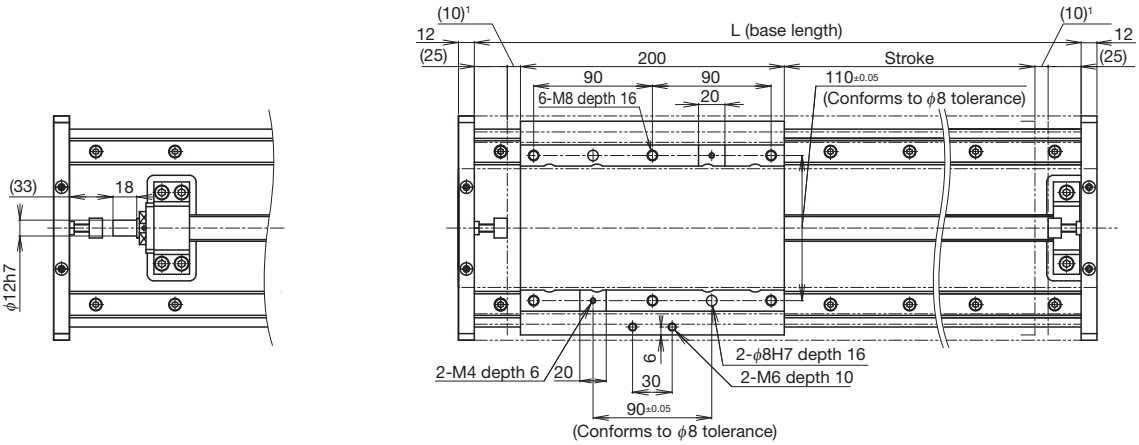
Hypothetical motor capacity 750 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	b (mm)	c (mm)
Direct coupling/ Motor wrap[4]	20	25	1500	1500	1500
		50	1040	790	1500
		100	470	350	1500
	40	10	1500	1500	1500
		20	1500	1500	1500
		40	880	730	1500

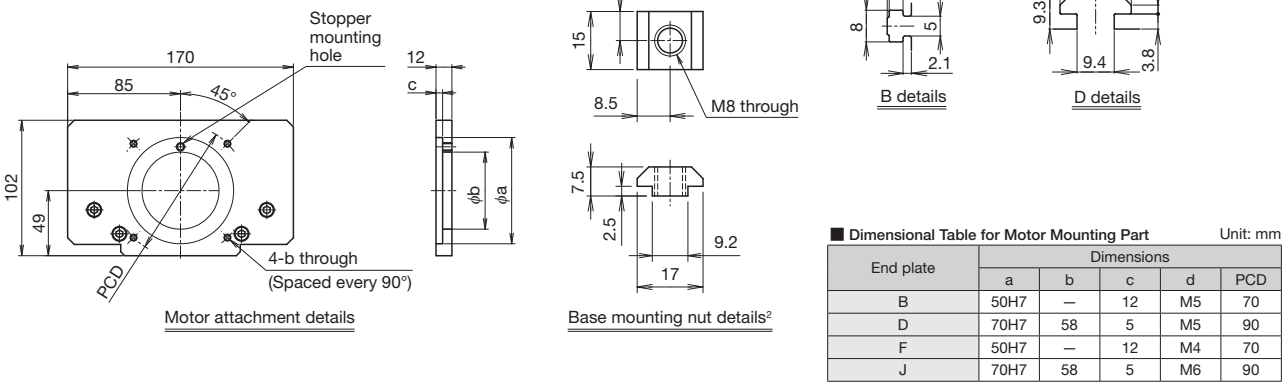
Hypothetical motor capacity 750 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	c (mm)
Direct coupling/ Motor wrap[4]	20	8	1500	1500
		16	1500	1500
		32	1260	1260
	40	3.5	1500	1500
		7	1500	1500
		14	1500	1500

[3] This is the value with the travel life of the LM Guide limited to 10,000 km (5,000 km for 5 mm lead only). The calculation conditions are as follows.
Stroke: 1180 mm (LM Guide: SHS20V) / Acceleration/deceleration: 0.3 G / Speed: Rated speed / Overhang direction: Loaded only in a single direction. Dimensions a, b, and c are from the center of the table's upper surface.
[4] The reduction ratio is 1/1.

Dimensions

Direct Motor Coupling





■ Dimensional Table for Motor Mounting Part Unit: mm

End plate	Dimensions				
	a	b	c	d	PCD
B	50H7	—	12	M5	70
D	70H7	58	5	M5	90
F	50H7	—	12	M4	70
J	70H7	58	5	M6	90

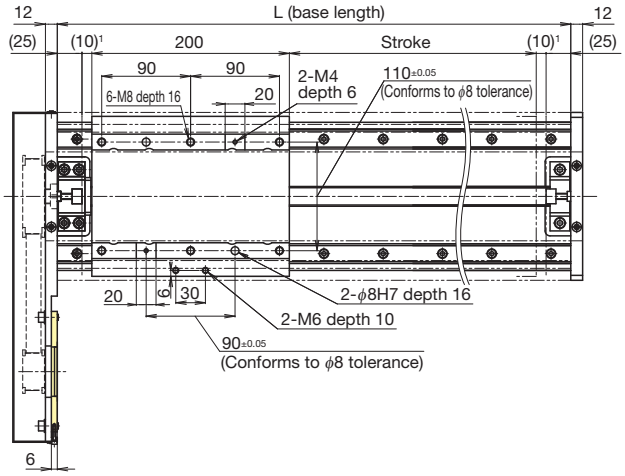
[1] This is the distance between the mechanical stopper and the stroke starting position.
[2] Nuts for mounting the base are included. The quantity is listed in the specification table.

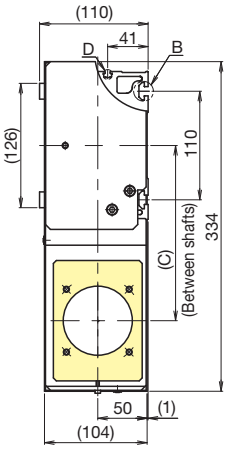
Stroke (mm) (Stroke between mechanical stoppers)		190 (210)	310 (330)	430 (450)	550 (570)	790 (810)	970 (990)	1150 (1170)	1330 (1350)	1510 (1530)	1690 (1710)	1930 (1950)	2170 (2190)
Maximum speed[3] (mm/s)	Ball screw lead: 5 mm	250					190	130	100	80	60	50	40
	Ball screw lead: 20 mm	1000					780	570	430	340	270	210	170
	Ball screw lead: 40 mm	2000					1570	1140	870	680	550	430	340
Dimensions (mm)	L (base length)	460	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440
	AL	484	604	724	844	1084	1264	1444	1624	1804	1984	2224	2464
Nuts for mounting the base		4	6	6	8	10	10	12	14	14	16	16	18
Mass[4] (kg)	HV (SHS20V)	15.4	17.5	19.5	21.6	25.8	28.9	32	35.1	38.2	41.3	45.4	49.5

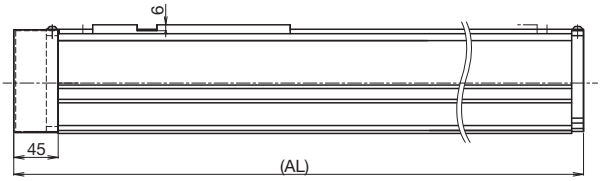
[3] The maximum speed is restricted by the permissible speed of the actuator.
[4] The mass is that of products with a cover and QZ.

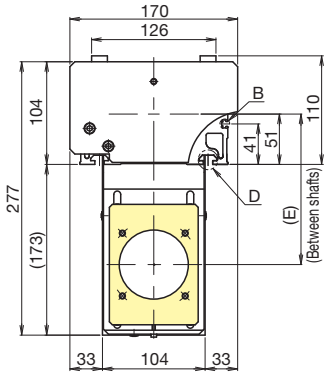
Dimensions

Motor Wrap

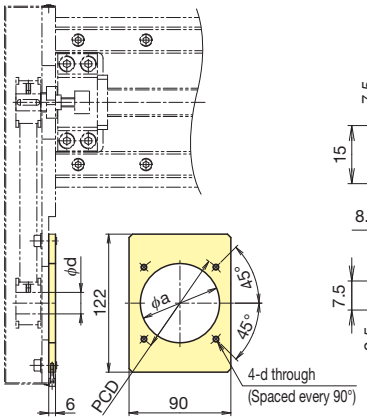




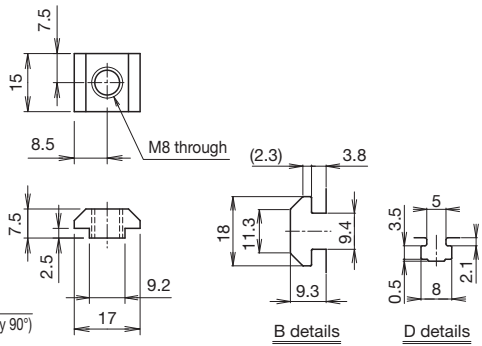




With bottom side wrap



Motor attachment details



Base mounting nut details[2]

B details

D details

■ Dimensional Table for Motor Mounting Part Unit: mm

Motor mounting plate	Dimensions			Pulley inner diameter
	a	b	PCD	d
B14	50	M5	70	14H7
D19	70	M5	90	19H7
F11	50	M4	70	11H7
F14	50	M4	70	14H7
J19	70	M6	90	19H7

Unit: mm

Reduction ratio	C (Between shafts)	E (Between shafts)
1/1	177.5	152.5
2/3	174.7	149.7
1/2	174	153.8

[1] This is the distance between the mechanical stopper and the stroke starting position.
[2] Nuts for mounting the base are included. The quantity is listed in the specification table.

Stroke (mm) (Stroke between mechanical stoppers)		190 (210)	310 (330)	430 (450)	550 (570)	790 (810)	970 (990)	1150 (1170)	1330 (1350)	1510 (1530)	1690 (1710)	1930 (1950)	2170 (2190)
Maximum speed[3] (mm/s)	Ball screw lead: 5 mm	250					190	130	100	80	60	50	40
	Ball screw lead: 20 mm	1000					780	570	430	340	270	210	170
	Ball screw lead: 40 mm	2000					1570	1140	870	680	550	430	340
Dimensions (mm)	L (base length)	460	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440
	AL	517	637	757	877	1117	1297	1477	1657	1837	2017	2257	2497
Nuts for mounting the base		4	6	6	8	10	10	12	14	14	16	16	18
Mass[4] (kg)	HV (SHS20V)	17.3	19.4	21.4	23.5	27.7	30.8	33.9	37	40.1	43.2	47.3	51.4

[3] The maximum speed is restricted by the permissible speed of the actuator.
[4] The mass is that of products with a cover and QZ.

Options

End Plate (Direct Coupling)

Several types of end plate for mounting motors are available.
Specify an end plate that matches the motor used.

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Flange size	End plate	Compatible coupling model	
								MIKI PULLEY CO., LTD.	Nabeya Bi-tech Kaisha (NBK)
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMJV–02	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				SGMAV–02					
				SGMJV–04	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				SGMAV–04					
				SGMJV–08	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
				SGMAV–08					
		Σ-7		SGM7J–02	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				SGM7A–02					
				SGM7J–04	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				SGM7A–04					
				SGM7J–08	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
				SGM7A–08					
		Σ-X		SGMXJ–02	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				SGMXA–02					
				SGMXJ–04	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				SGMXA–04					
				SGMXJ–08	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
				SGMXA–08					
	Mitsubishi Electric Corporation	MELSERVO	J4	HG–KR23	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				HG–MR23					
				HG–KR43	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				HG–MR43					
				HG–KR73	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
				HG–MR73					
			J5	HK–KT23W	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				HK–KT43W	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				HK–KT7M3W	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
			JN	HF–KN23	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				HF–KN43	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4607	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				TS4609	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				TS4614	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
		TBL-iⅣ		TSM3202	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				TSM3204	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				TSM3304	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
	Panasonic Corporation	MINAS	A5	MSMD02	200	□60	F	SFC–030DA2–11B–12B	XGT2–30C–11–12
				MSME02					
				MSMD04	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				MSME04					
				MSMD08	750	□80	D	SFC–040DA2–12B–19B	XGT2–39C–12–19
				MSME08					
			A6	MSMF02	200	□60	F	SFC–030DA2–11B–12B	XGT2–30C–11–12
				MHMF02					
				MSMF04	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				MHMF04					
				MSMF08	750	□80	D	SFC–040DA2–12B–19B	XGT2–39C–12–19
				MHMF08					
	KEYENCE CORPORATION	SV		SV–M020	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				SV–M040	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				SV–M075	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
		SV2		SV2–M020	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				SV2–M040	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				SV2–M075	750	□80	J	SFC–040DA2–12B–19B	XGT2–39C–12–19
	SANYO DENKI CO., LTD.	SANMOTION R		R2□A06020	200	□60	B	SFC–030DA2–12B–14B	XGT2–27C–12–14
				R2AA06040	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
	OMRON Corporation	OMNUC G5		R88M–K20030	200	□60	F	SFC–030DA2–11B–12B	XGT2–30C–11–12
				R88M–K40030	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				R88M–K75030	750	□80	D	SFC–040DA2–12B–19B	XGT2–39C–12–19
		1S		R88M–1M20030	200	□60	F	SFC–030DA2–11B–12B	XGT2–30C–11–12
				R88M–1M40030	400			SFC–035DA2–12B–14B	XGT2–30C–12–14
				R88M–1M75030	750	□80	D	SFC–040DA2–12B–19B	XGT2–39C–12–19

Note 1) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer.
Note 2) If the maximum torque of the installed motor will exceed the permissible input torque (p. 7), please consider a safety measure to limit the torque.

Motor Mounting Plate (Motor Wrap)

Motor mounting plates are available for attaching a variety of motors.
Specify a motor mounting plate that matches the motor used.

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Flange size	Motor mounting plate
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMJV–02	200	□60	B14
				SGMAV–02			
				SGMJV–04	400		B14
				SGMAV–04			
				SGMJV–08	750	□80	J19
				SGMAV–08			
		Σ-7		SGM7J–02	200	□60	B14
				SGM7A–02			
				SGM7J–04	400		B14
				SGM7A–04			
				SGM7J–08	750	□80	J19
				SGM7A–08			
		Σ-X		SGMXJ–02	200	□60	B14
				SGMXA–02			
				SGMXJ–04	400		B14
				SGMXA–04			
				SGMXJ–08	750	□80	J19
				SGMXA–08			
	Mitsubishi Electric Corporation	MELSERVO	J4	HG–KR23	200	□60	B14
				HG–MR23			
				HG–KR43	400		B14
				HG–MR43			
				HG–KR73	750	□80	J19
				HG–MR73			
			J5	HK–KT23W	200	□60	B14
				HK–KT43W	400		B14
				HK–KT7M3W	750	□80	J19
			JN	HF–KN23	200	□60	B14
				HF–KN43	400		
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4607	200	□60	B14
				TS4609	400		B14
				TS4614	750	□80	J19
		TBL-iⅣ		TSM3202	200	□60	B14
				TSM3204	400		B14
				TSM3304	750	□80	J19
	Panasonic Corporation	MINAS	A5	MSMD02	200	□60	F11
				MSME02			
				MSMD04	400		F14
				MSME04			
				MSMD08	750	□80	D19
				MSME08			
			A6	MSMF02	200	□60	F11
				MHMF02			
				MSMF04	400		F14
				MHMF04			
				MSMF08	750	□80	D19
				MHMF08			
	KEYENCE CORPORATION	SV		SV–M020	200	□60	B14
				SV–M040	400		B14
				SV–M075	750	□80	J19
		SV2		SV2–M020	200	□60	B14
				SV2–M040	400		B14
				SV2–M075	750	□80	J19
	SANYO DENKI CO., LTD.	SANMOTION R		R2□A06020	200	□60	B14
				R2AA06040	400		B14
	OMRON Corporation	OMNUC G5		R88M–K20030	200	□60	F11
				R88M–K40030	400		F14
				R88M–K75030	750	□80	D19
		1S		R88M–1M20030	200	□60	F11
				R88M–1M40030	400		F14
				R88M–1M75030	750	□80	D19

Note 1) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer. Please select a motor shaft with a keyed end.
Note 2) If the maximum torque of the installed motor will exceed the permissible input torque (p. 7), please consider a safety measure to limit the torque.

Options

Sensors

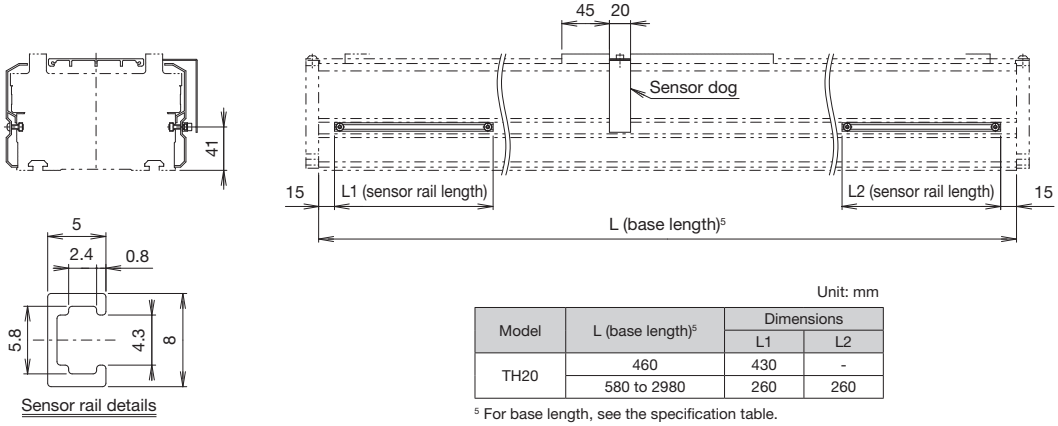
Optional photo sensors and proximity sensors are available.
A variety of sensors can be mounted using the T-slot on the side of the base. For products with a cover, sensors can be mounted using a sensor rail.

Symbol	Details	Model	Accessories
N	No sensor	-	-
6	Photo sensors[1] (x3)	EE-SX674 (OMRON Corporation)	Mounting screws, nuts, sensor dog (x1), sensor rail[4] (x1 or x2), mounting plates (x3)
H	Sensors: N.O. contact[2] (x3)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1), sensor rail[4] (x1 or x2)
J	Sensors: N.O. contact[2] (x1) N.C. contact[3] (x2)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1), sensor rail[4] (x1 or x2)

[1] The photo sensors can be switched between ON when lit and ON when unlit.
[2] N.O. contact: Normally open contact
[3] N.C. contact: Normally closed contact
[4] Sensor rails included only with products that have a cover.

Note 1) All sensor output is NPN.
Note 2) Sensors and accessories will be mounted to the unit before shipping.

Sensor Rail Mounting Dimensions

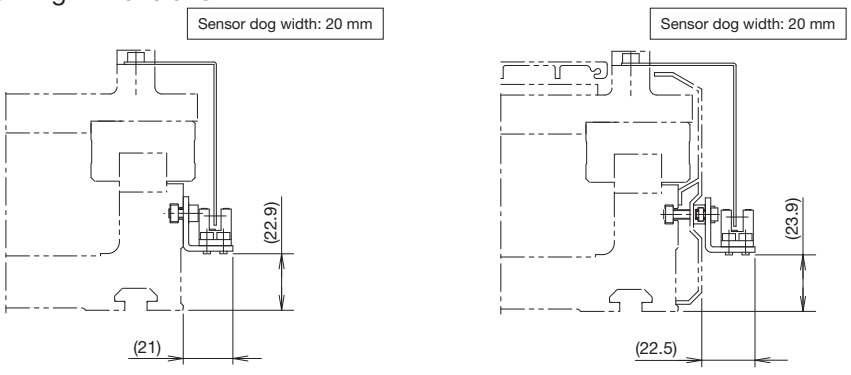


Unit: mm

Model	L (base length)[5]	Dimensions	
		L1	L2
TH20	460	430	-
	580 to 2980	260	260

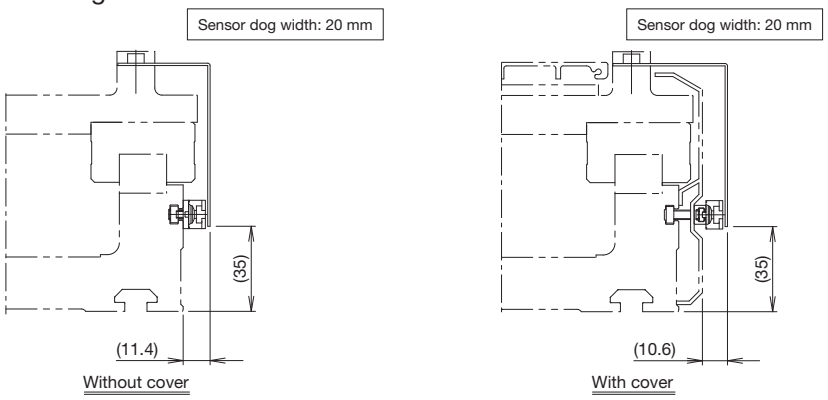
[5] For base length, see the specification table.

Photo Sensor Mounting Dimensions



Symbol	Model	Manufacturer
6	EE–SX674	OMRON Corporation

Proximity Sensor Mounting Dimensions

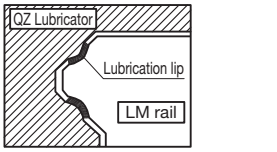


Symbol	Model	Manufacturer
H, J	GX–F12A	Panasonic Industrial Devices SUNX Co., Ltd.
	GX–F12B	

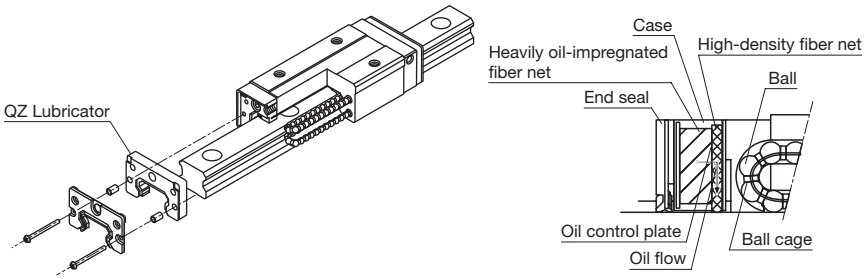
Lubrication Options

LM Guide

The QZ Lubricator feeds the right amount of lubricant to the LM rail raceway.
This allows an oil film to be constantly formed between the balls and the raceway and significantly extends the lubrication maintenance interval.



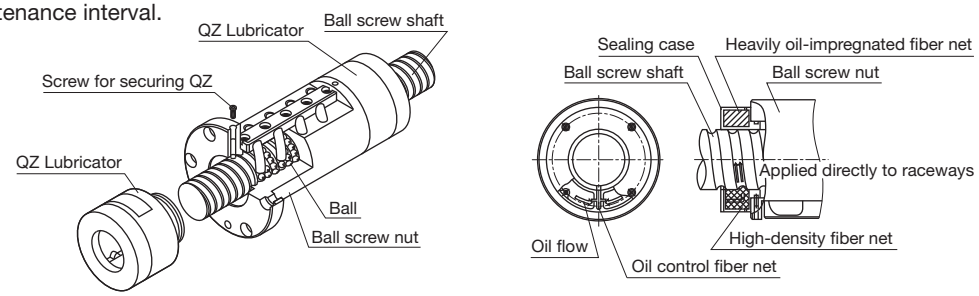
Note 1) The stroke with the QZ Lubricator mounted is the same as when no QZ is mounted.



QZ Lubricator Structural Drawing (LM Guide)

Ball Screw

The QZ Lubricator feeds the right amount of lubricant to the ball screw shaft raceway.
This allows an oil film to be constantly formed between the balls and the raceway, which improves the lubricity and significantly extends the maintenance interval.

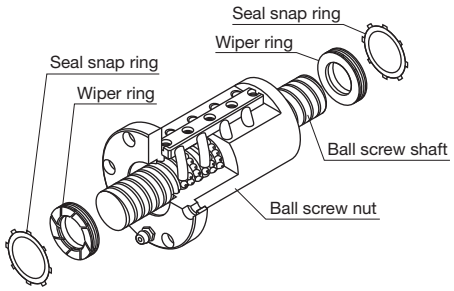


QZ Lubricator Structural Drawing (Ball Screw)

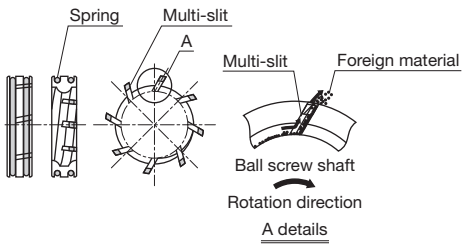
Contamination Protection Options

Ball Screw

The wiper ring W is made from special resin with superior wear resistance. It makes elastic contact with the outer diameter of the ball screw shaft and the groove and prevents foreign impurities from entering the ball screw nut by redirecting contaminants through eight slits.



Wiper Ring W Structural Drawing

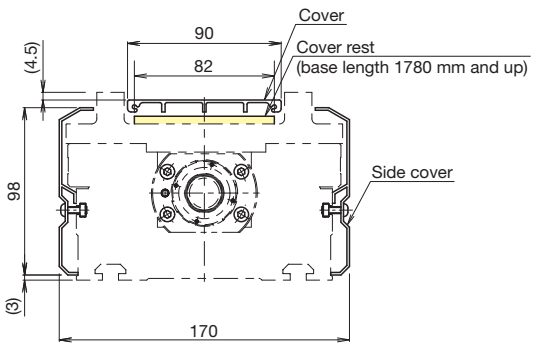


Note 2) This will be installed when "B05" or "B20" is selected in the model number coding ⑤ Ball screw leads, and when "Q" is selected for ⑥ Ball screw with/without QZ.

Cover

A cover is available to dust-proof the top and side surfaces.
When the base length is over 1780 mm, standard equipment includes a rest for the cover to protect against interference with the table.

Ball Screw Specification



Options

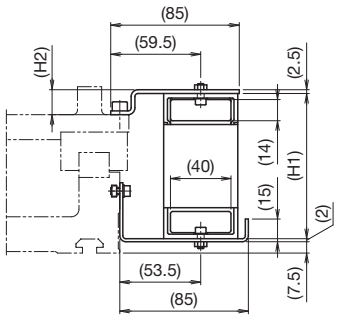
Cable Carrier

A variety of cable carriers can be mounted using the T-slot on the side of the base.
When selecting a cable carrier, specify the corresponding symbol from the table.

Symbol	Cable carrier model	Manufacturer
B	TKP0180W40R37	TSUBAKIMOTO CHAIN CO.
C	TKP0180W40R50	
D	TKP35H22–30W25R37	
E	TKP35H22–30W25R50	
F	TKP35H22–30W25R75	

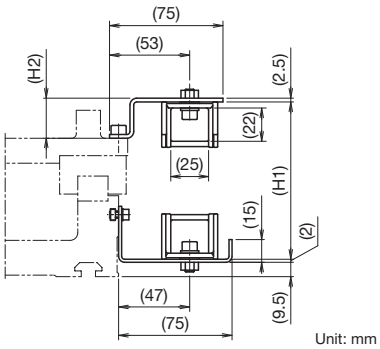
Symbol	Cable carrier model	Manufacturer
G	TKP35H22–30W50R37	TSUBAKIMOTO CHAIN CO.
H	TKP35H22–30W50R50	
I	TKP35H22–30W50R75	
J	KSH–24L–42	THK CO., LTD.
K	KSH–32WL–60	

Note 1) When a cable carrier is installed, a side cover cannot also be mounted.
Note 2) For the selection and handling of the cable carrier, please see the catalog from the manufacturer.



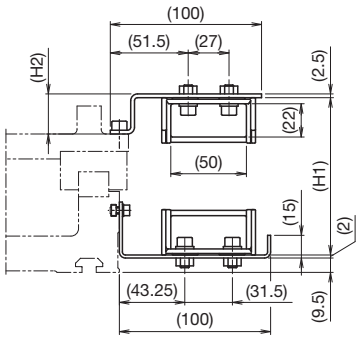
Unit: mm

Symbol	Cable carrier model	H1	H2
B	TKP0180W40R37	96	16.5
C	TKP0180W40R50	122	42.5



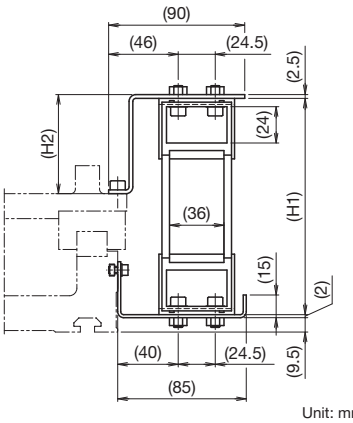
Unit: mm

Symbol	Cable carrier model	H1	H2
D	TKP35H22–30W25R37	104	26.5
E	TKP35H22–30W25R50	130	52.5
F	TKP35H22–30W25R75	180	102.5



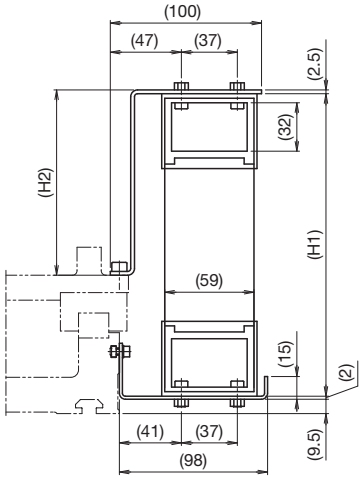
Unit: mm

Symbol	Cable carrier model	H1	H2
G	TKP35H22–30W50R37	104	26.5
H	TKP35H22–30W50R50	130	52.5
I	TKP35H22–30W50R75	180	102.5



Unit: mm

Symbol	Cable carrier model	H1	H2
J	KSH–24L–42	143	65.5



Unit: mm

Symbol	Cable carrier model	H1	H2
K	KSH–32WL–60	200	122.5

TH20

Direct Motor Coupling | Body width 170 mm | Body height 110 mm | Max. stroke 2660 mm | Max. speed 2000 mm/s | Belt-driven type

Model Number Coding

Model ①	Stroke ②	LM Guide model ③	LM Guide with/without QZ ④	Drive system ⑤	With/without motor ⑥	Motor bracket ⑦	Belt specification reduction gear ⑧	Belt specification reduction ratio ⑨
TH20	2360	SW	Q	EH	0	N		
TH20	0140: 140 mm to 2660: 2660 mm When "J" (with bellows) is selected for ⑩ Cover/bellows, specify the stroke with bellows. → p. 26	SW: SSR20XW HV: SHS20V	No symbol: Without QZ Q: With QZ	EH: Belt	0: Without motor (Without coupling. If necessary, please specify.) 1: With motor (THK will purchase and mount the motor you specify) If "0" is selected: No coupling will be attached. Please specify if a coupling is required when ordering. If "1" is selected: The designated motor will be mounted. Please specify the motor cable direction separately. Please select the motor bracket in ⑦ that matches the specified motor. Please select the driver and controller yourself.	N: None B1 B2	No symbol: No reduction gear G1 G2 G3 G4 G5 G6 G7 G8	No symbol: No reduction gear 03: 1/3 05: 1/5 09: 1/9

See p. 21 for details about ⑦ Motor bracket, ⑧ Belt specification reduction gear, and ⑨ Belt specification reduction ratio combinations.

③ LM Guide model

Select the LM Guide model suited to the application.
·SW: The ball contact structure is suited to large loads in the radial direction, making this model ideal for horizontal guides. (LM Guide model: SSR20XW)
·HV: This type of guide bears loads equally in four directions, so loads can be applied from any direction (radial, reverse radial, and horizontal). (LM Guide model: SHS20V)

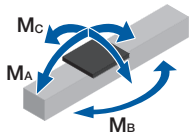
Selection Information

General Specifications[1]

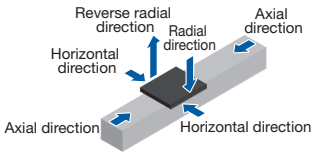
LM Guide	Basic dynamic load rating C (N)		22300
	Basic static load rating C_0 (N)		38400
Base	Geometric moment of inertia[2, 3, 4]	I_x (mm^4)	6.43×10^5
		I_Y (mm^4)	7.84×10^6
		Mass (kg/m)	15.3
Permissible input rotational speed (min^{-1})			3000
Starting torque (N·cm)		Without QZ	63.1
		With QZ	93.7
Positioning repeatability (mm)			±0.08
Permissible input torque[5] (N·m)			38.3
Static permissible load[6] (N)		Reverse radial direction	21500
		Horizontal direction	6700
		Axial direction	2010
Static permissible moment[7] (N·m)			M_A: 1290, M_B: 590, M_C: 1180
Standard grease/Grease nipple used			THK AFB–LF Grease/B–M6F

[1] These are the values for LM Guide model HV: SHS20V specifications.
[2] These are the values for the cross-sectional characteristics of the aluminum base.
[3] I_x is the geometric moment of inertia about the X axis.
[4] I_Y is the geometric moment of inertia about the Y axis.
[5] This is the input torque for the shaft end.
[6] The static permissible load is a value limited by the bolt tightening strength, LM Guide unit, belt, and pulley shaft.
[7] Static permissible moment is the maximum moment that can be permitted while the product is stationary.
The standard for M_A and M_C moments is the top surface of the table, while the standard for M_B moments is the center of the table.

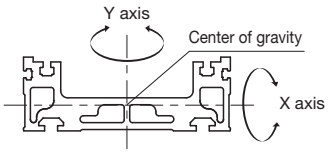
Static permissible moment



Static permissible load



Geometric moment of inertia



Cover/bellows ⑩	Sensor ⑪	Cable carrier ⑫
– N	– N	– N
N: Without cover	N: None	N: None
C: With cover	6	B
J: With bellows	H	C
	J	D
		E
		F
		G
		H
		I
		J
		K

With cover
→ p. 24
With bellows
→ p. 26

Sensors
→ p. 23

Cable carrier
→ p. 25

Motor Selection Specifications

■ LM Guide

LM Guide model	Moving part mass (kg)	Sliding resistance (N)
TH20– * –SW (SSR20XW)	2.9	21.4
TH20– * –SWQ (SSR20XWQZ)	3.1	33.4
TH20– * –HV (SHS20V)	3.2	20.6
TH20– * –HVQ (SHS20VQZ)	3.4	36.6

■ Belt Drive

Belt model	Mass[1] (kg)
040–MA5	0.9

■ Timing Pulley

Timing pulley model	Diameter (PCD) (mm)	Table travel amount per pulley rotation (mm)	Inertial moment (2 total)×10^{-4} (kg·m^2)
24–MA5–040	ϕ38.2	120	0.504

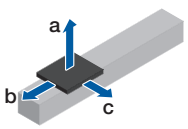
■ Reduction Gear

Reduction ratio	Motor rated output (W)	Inertial moment×10^{-4} (kg·m^2)
1/3	200	0.175
1/3	400	0.175
1/3	750	1.02
1/5	100	0.06
1/5	200	0.147
1/5	400	0.370
1/9	100	0.05
1/9	200	0.273

[1] The belt mass is the mass when the base has the maximum length.

Permissible Overhang Length[2]

Horizontal



Hypothetical motor capacity 400 W		Load mass (kg)	a (mm)	b (mm)	c (mm)
Reduction ratio	1/3	4.5	1500	1500	1500
		9	1500	1500	1500
		18	1500	1500	1500
	1/5	15	1500	1500	1500
		30	1500	1040	1150
		60	1500	490	550

Hypothetical motor capacity 750 W		Load mass (kg)	a (mm)	b (mm)	c (mm)
Reduction ratio	1/3	5	1500	1500	1500
		10	1500	1500	1500
		20	1500	1500	1500

[2] This is the value with the service life of the LM Guide limited to 10,000 km.
The calculation conditions are as follows.
Stroke: 1400 mm (LM Guide: SHS20V) / Acceleration/deceleration: 0.3 G / Speed: Rated speed / Overhang direction: Loaded only in a single direction.
Dimensions a, b, and c are from the center of the table's upper surface.

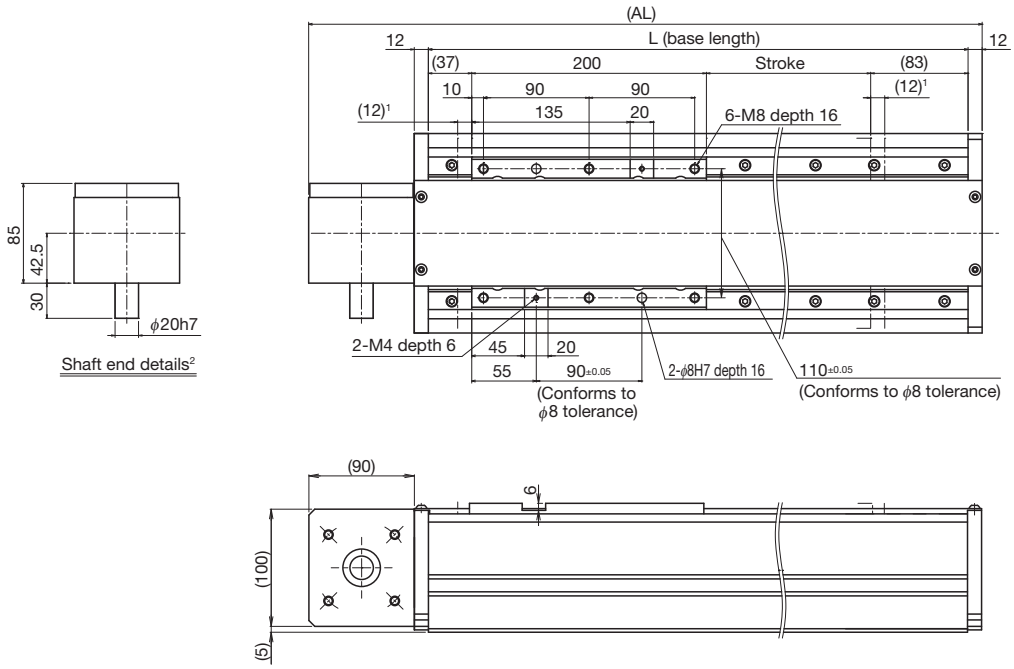
Table Travel Amount Per Motor Rotation

Pulley pitch circle diameter (mm)	Table travel amount per motor rotation (mm)			
	No reduction gear[3]	Reduction ratio		
		1/3	1/5	1/9
ϕ38.2	120	40	24	13.3

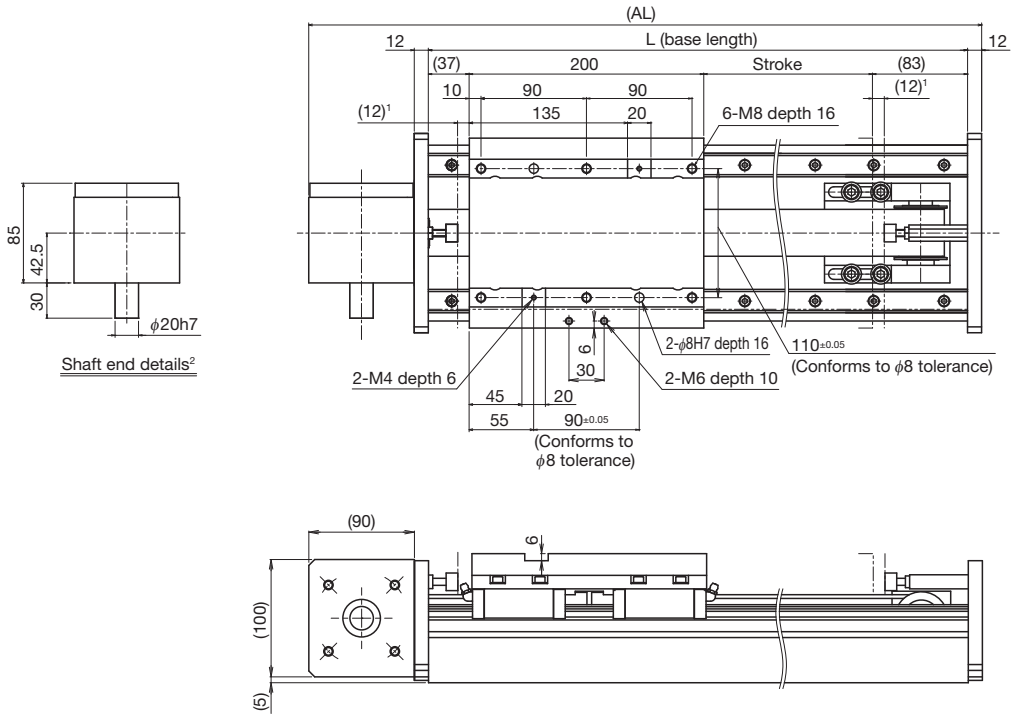
[3] The timing pulley's pitch circle diameter is large, so we recommend using a reduction gear.

Dimensions

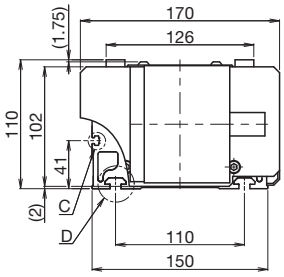
With Cover



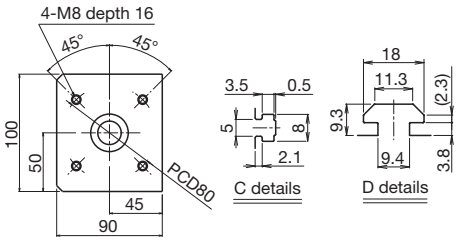
Without Cover



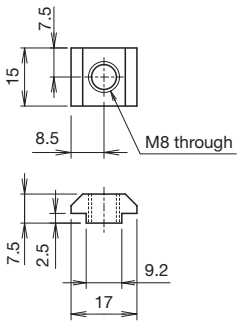
[1] This is the distance between the mechanical stopper and the stroke starting position.
[2] See p. 20 for details about the bracket mounting surface.



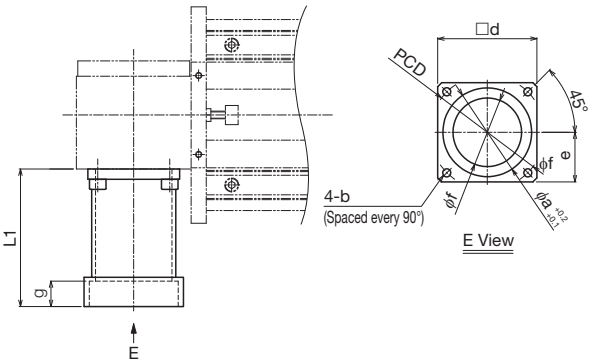
Side surface details



Bracket mounting surface details

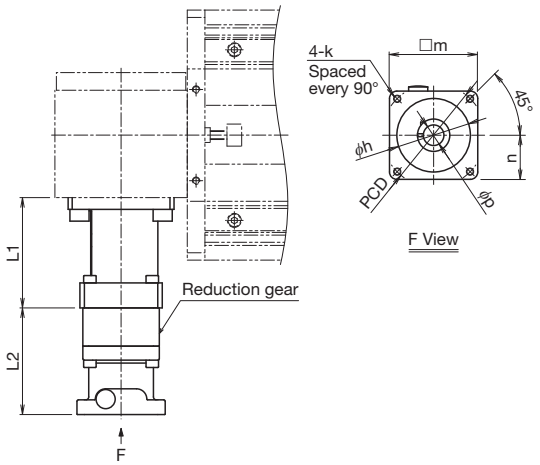


Base mounting nut details



Unit: mm

Bracket symbol	Dimensions							
	a	b	PCD	d	e	f	g	L1
B1	50	5.5 drill through	60	56	28	44	14	75
B2	70	6.6 drill through	90	78	39	60	20	108



Unit: mm

Bracket symbol	Dimensions							
	h	k	PCD	m	n	p	L1	L2
B1G103, B1G105, B1G109	30	M4 depth 6	46	40	20	8	75	67.5
B1G203, B1G205, B1G209	30	M3 depth 6	45	40	20	8	75	67.5
B1G303, B1G305	50	M5 depth 10	70	60	30	14	75	72.5
B1G403, B1G405	50	M4 depth 10	70	60	30	11	75	72.5
B1G503	50	M4 depth 10	70	60	30	14	75	72.5
B2G305, B2G309	50	M5 depth 8	70	60	30	14	108	89.5
B2G409	50	M4 depth 8	70	60	30	11	108	89.5
B2G505	50	M4 depth 8	70	60	30	14	108	89.5
B2G603	70	M5 depth 10	90	80	40	19	108	93.5
B2G703	70	M6 depth 10	90	80	40	16	108	93.5
B2G803	70	M6 depth 10	90	80	40	19	108	93.5

Stroke (mm) (Stroke between mechanical stoppers)		140 (164)	260 (284)	380 (404)	500 (524)	740 (764)	920 (944)	1100 (1124)	1280 (1304)	1460 (1484)	1640 (1664)	1880 (1904)	2120 (2144)	2360 (2384)	2660 (2684)
Maximum speed[3] (mm/s)	Reduction ratio: 1/3	2000													
	Reduction ratio: 1/5	1200													
Dimensions (mm)	L (base length)	460	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440	2680	2980
	AL	574	694	814	934	1174	1354	1534	1714	1894	2074	2314	2554	2794	3094
Nuts for mounting the base		4	6	6	8	10	10	12	14	14	16	16	18	20	20
Mass[4] (kg)	HV (SHS20V)	17.8	19.6	21.5	23.3	27.1	29.9	32.6	35.4	38.1	40.9	44.6	48.3	51.9	56.5

[3] The maximum speed is restricted by the permissible speed of the actuator.
[4] The mass is that of products with a cover and QZ.

Options

Reduction Gear (Belt Specifications)

These are the reduction gears and motors that can be attached when B1 and B2 are selected for the motor bracket.
Specify the motor bracket that matches the motor and reduction gear that will be used.

Symbol Coding

Motor bracket ①	Belt specification reduction gear ②	Belt specification reduction ratio ③
B1	**G3**	**03**
B1	G1	03: 1/3
B2	G2	05: 1/5
	G3	09: 1/9
	G4	
	G5	
	G6	
	G7	
	G8	

Reduction ratio: 1/3

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Reduction gear model	Symbol	Compatible reduction gear coupling
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMAV–02	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMAV–04	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMAV–08	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
		Σ-7		SGM7A–02	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGM7A–04	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGM7A–08	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
		Σ-X		SGMXA–02	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMXA–04	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMXA–08	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
	Mitsubishi Electric Corporation	MELSERVO	J4	HG–KR23	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–MR23		VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–KR43	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–MR43		VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–KR73	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
				HG–MR73		VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
			J5	HK–KT23W	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HK–KT43W	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				HK–KT7M3W	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
			JN	HF–KN23	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HF–KN43	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4607	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				TS4609	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				TS4614	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
		TBL-iⅣ		TSM3202	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				TSM3204	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				TSM3304	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
	Panasonic Corporation	MINAS	A5	MSMD02	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				MSMD04	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				MSMD08	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)
			A6	MSMF02	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				MSMF04	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				MSMF08	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)
	OMRON Corporation	OMNUC G5		R88M–K20030	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				R88M–K40030	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				R88M–K75030	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)
		1S		R88M–1M20030	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				R88M–1M40030	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				R88M–1M75030	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)

Note 1) The symbols in the table represent the motor bracket, belt specification reduction gear, and belt specification reduction ratio.
Note 2) In the table, B1 indicates VRXF-□B (NIDEC-SHIMPO CORPORATION), and B2 indicates VRXF-□C (NIDEC-SHIMPO CORPORATION).
Note 3) When requesting a product with a reduction gear, please inform THK of the motor model that will be attached.
Note 4) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer.
Note 5) Contact THK if you will be using a motor with a reduction gear.
Note 6) If the reduction gear's output torque will exceed the permissible input torque (p. 17) due to the maximum torque of the installed motor and the reduction ratio, please consider a safety measure to limit the torque.

Reduction ratio: 1/5

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Reduction gear model	Symbol	Compatible reduction gear coupling
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMAV-01	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				SGMAV–02	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				SGMAV–04	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
		Σ-7		SGM7A-01	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				SGM7A–02	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				SGM7A–04	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
		Σ-X		SGMXA-01	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				SGMXA–02	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				SGMXA–04	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
	Mitsubishi Electric Corporation	MELSERVO	J4	HG-KR13	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HG-MR13		VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HG–KR23	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HG–MR23		VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HG–KR43	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
				HG–MR43		VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
			J5	HK-KT13W	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HK–KT23W	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HK–KT43W	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
			JN	HF-KN13	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HF–KN23	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HF–KN43	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4603	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				TS4607	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				TS4609	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
		TBL-iⅣ		TSM3104	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				TSM3202	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				TSM3204	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
	Panasonic Corporation	MINAS	A5	MSMD01	100	VRXF–5B–S–100	B1G205	MJC-41-12X20-TB (MIGHTY)
				MSMD02	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				MSMD04	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)
			A6	MSMF01	100	VRXF–5B–S–100	B1G205	MJC-41-12X20-TB (MIGHTY)
				MSMF02	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				MSMF04	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)
	OMRON Corporation	OMNUC G5		R88M-K10030	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				R88M–K20030	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				R88M–K40030	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)
		1S		R88M-1M10030	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				R88M–1M20030	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				R88M–1M40030	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)

Reduction ratio: 1/9

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Reduction gear model	Symbol	Compatible reduction gear coupling
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMAV-01	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				SGMAV–02	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
		Σ-7		SGM7A-01	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				SGM7A–02	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
		Σ-X		SGMXA-01	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				SGMXA–02	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
	Mitsubishi Electric Corporation	MELSERVO	J4	HG-KR13	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HG-MR13		VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HG–KR23	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
				HG–MR23		VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
			J5	HK-KT13W	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HK–KT23W	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
			JN	HF-KN13	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HF–KN23	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4603	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				TS4607	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
		TBL-iⅣ		TSM3104	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				TSM3202	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
	Panasonic Corporation	MINAS	A5	MSMD01	100	VRXF–9B–S–100	B1G209	MJC-41-12X20-TB (MIGHTY)
				MSMD02	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)
			A6	MSMF01	100	VRXF–9B–S–100	B1G209	MJC-41-12X20-TB (MIGHTY)
				MSMF02	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)
	OMRON Corporation	OMNUC G5		R88M-K10030	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				R88M–K20030	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)
		1S		R88M-1M10030	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				R88M–1M20030	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)

Note 1) The symbols in the table represent the motor bracket, belt specification reduction gear, and belt specification reduction ratio.
Note 2) In the table, B1 indicates VRXF-□B (NIDEC-SHIMPO CORPORATION), and B2 indicates VRXF-□C (NIDEC-SHIMPO CORPORATION).
Note 3) When requesting a product with a reduction gear, please inform THK of the motor model that will be attached.
Note 4) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer.
Note 5) Contact THK if you will be using a motor with a reduction gear.
Note 6) If the reduction gear's output torque will exceed the permissible input torque (p. 17) due to the maximum torque of the installed motor and the reduction ratio, please consider a safety measure to limit the torque.

Options

Sensors

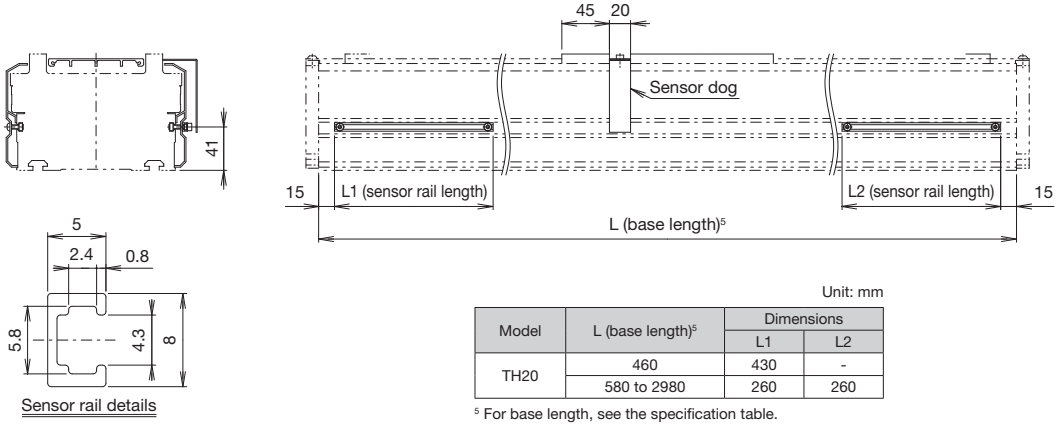
Optional photo sensors and proximity sensors are available.
A variety of sensors can be mounted using the T-slot on the side of the base. For products with a cover, sensors can be mounted using a sensor rail.

Symbol	Details	Model	Accessories
N	No sensor	-	-
6	Photo sensors[1] (x3)	EE-SX674 (OMRON Corporation)	Mounting screws, nuts, sensor dog (x1), sensor rail[4] (x1 or x2), mounting plates (x3)
H	Proximity sensors: N.O. contact[2] (x3)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1), sensor rail[4] (x1 or x2)
J	Proximity sensors: N.O. contact[2] (x1) N.C. contact[3] (x2)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1), sensor rail[4] (x1 or x2)

[1] The photo sensors can be switched between ON when lit and ON when unlit.
[2] N.O. contact: Normally open contact
[3] N.C. contact: Normally closed contact
[4] Sensor rails included only with products that have a cover.

Note 1) All sensor output is NPN.
Note 2) Sensors and accessories will be mounted to the unit before shipping.

Sensor Rail Mounting Dimensions

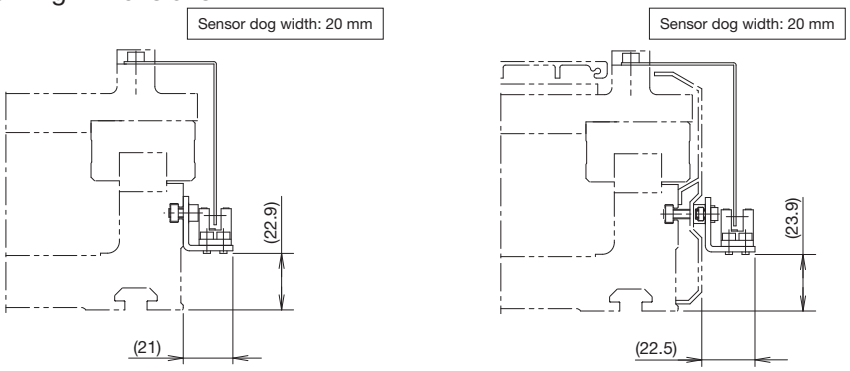


Unit: mm

Model	L (base length)[5]	Dimensions	
		L1	L2
TH20	460	430	-
	580 to 2980	260	260

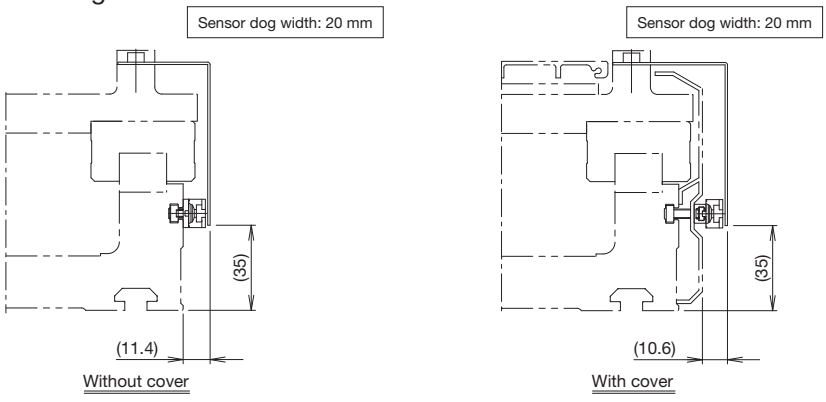
[5] For base length, see the specification table.

Photo Sensor Mounting Dimensions



Symbol	Model	Manufacturer
6	EE–SX674	OMRON Corporation

Proximity Sensor Mounting Dimensions

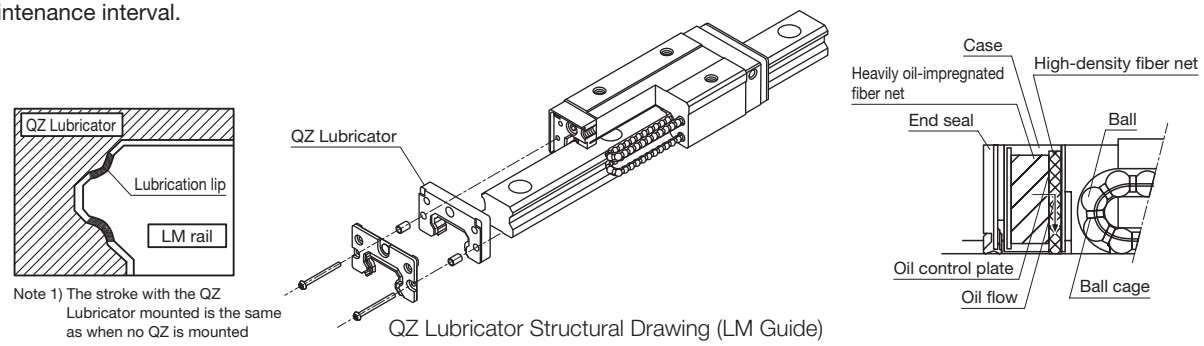


Symbol	Model	Manufacturer
H, J	GX–F12A	Panasonic Industrial Devices SUNX Co., Ltd.
	GX–F12B	

QZ Lubricator

LM Guide

The QZ Lubricator feeds the right amount of lubricant to the LM rail raceway.
This allows an oil film to be constantly formed between the balls and the raceway and significantly extends the lubrication maintenance interval.



Note 1) The stroke with the QZ Lubricator mounted is the same as when no QZ is mounted

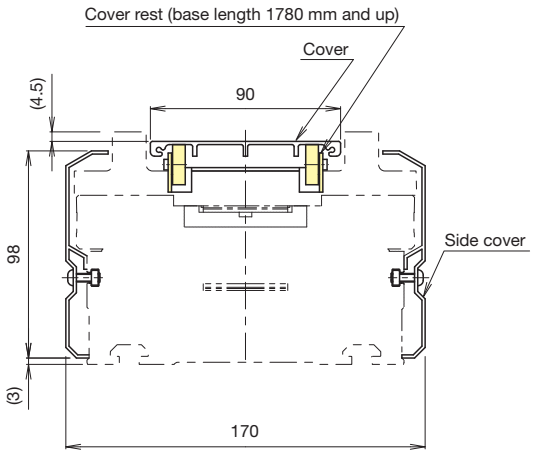
QZ Lubricator Structural Drawing (LM Guide)

Cover

A cover is available to dust-proof the top and side surfaces. When the base length is over 1780 mm, standard equipment includes a cover rest to protect against interference.

Belt Specification

The standard product comes equipped with a cover rest that has a rolling structure capable of handling long strokes and high speeds.



Note 2) When the base is long, the deflection of the cover will increase due to its weight, which may cause the cover to come in contact with other components (such as the belt).
Note 3) The cover rest is only effective when the product is mounted horizontally. In addition, be aware that the cover may touch the opposite side if the product is used in any orientation other than horizontal.

Options

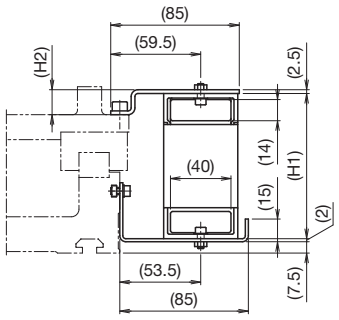
Cable Carrier

A variety of cable carriers can be mounted using the T-slot on the side of the base.
When selecting a cable carrier, specify the corresponding symbol from the table.

Symbol	Cable carrier model	Manufacturer
B	TKP0180W40R37	TSUBAKIMOTO CHAIN CO.
C	TKP0180W40R50	
D	TKP35H22–30W25R37	
E	TKP35H22–30W25R50	
F	TKP35H22–30W25R75	

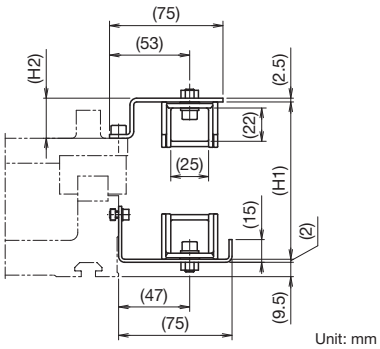
Symbol	Cable carrier model	Manufacturer
G	TKP35H22–30W50R37	TSUBAKIMOTO CHAIN CO.
H	TKP35H22–30W50R50	
I	TKP35H22–30W50R75	
J	KSH–24L–42	THK CO., LTD.
K	KSH–32WL–60	

Note 1) When a cable carrier is installed, a side cover cannot also be mounted.
Note 2) For the selection and handling of the cable carrier, please see the catalog from the manufacturer.



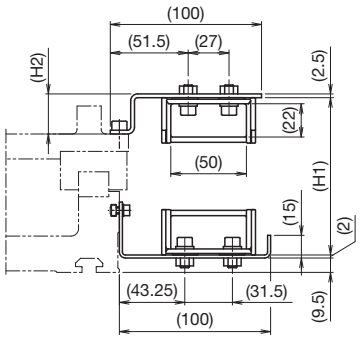
Unit: mm

Symbol	Cable carrier model	H1	H2
B	TKP0180W40R37	96	16.5
C	TKP0180W40R50	122	42.5



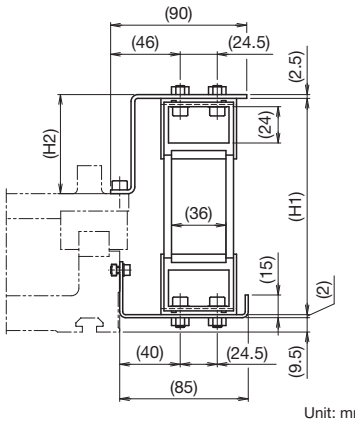
Unit: mm

Symbol	Cable carrier model	H1	H2
D	TKP35H22–30W25R37	104	26.5
E	TKP35H22–30W25R50	130	52.5
F	TKP35H22–30W25R75	180	102.5



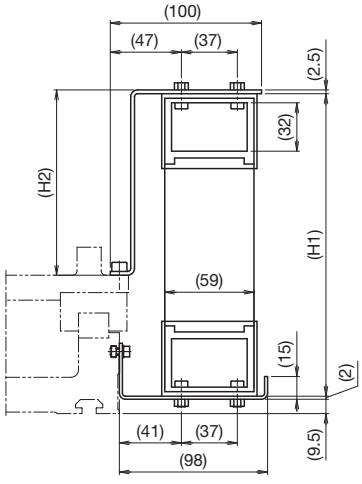
Unit: mm

Symbol	Cable carrier model	H1	H2
G	TKP35H22–30W50R37	104	26.5
H	TKP35H22–30W50R50	130	52.5
I	TKP35H22–30W50R75	180	102.5



Unit: mm

Symbol	Cable carrier model	H1	H2
J	KSH–24L–42	143	65.5



Unit: mm

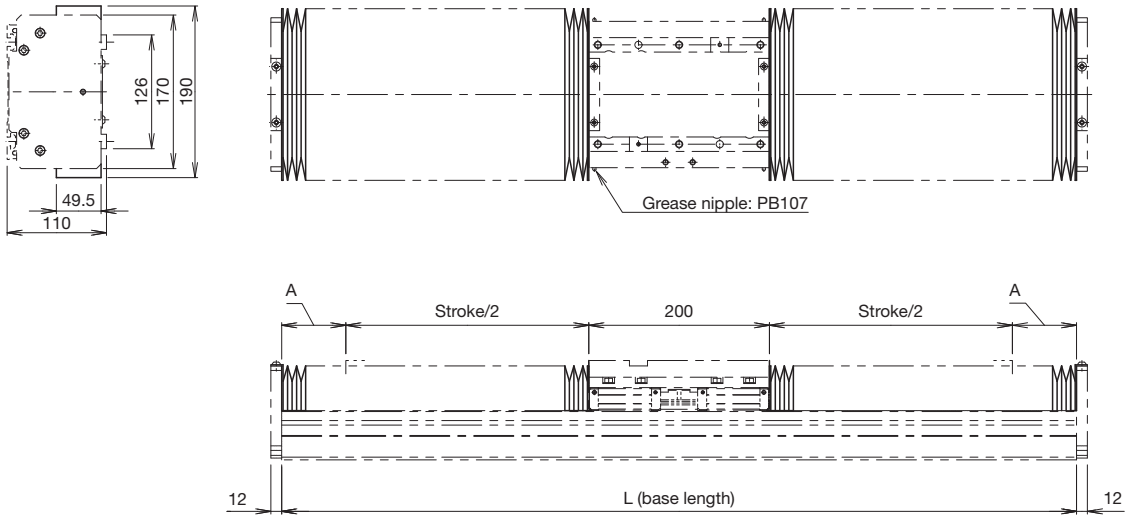
Symbol	Cable carrier model	H1	H2
K	KSH–32WL–60	200	122.5

Bellows

In addition to a cover, bellows are also available as a dust-proofing option.

Ball Screw Type

Direct Motor Coupling/Motor Wrap

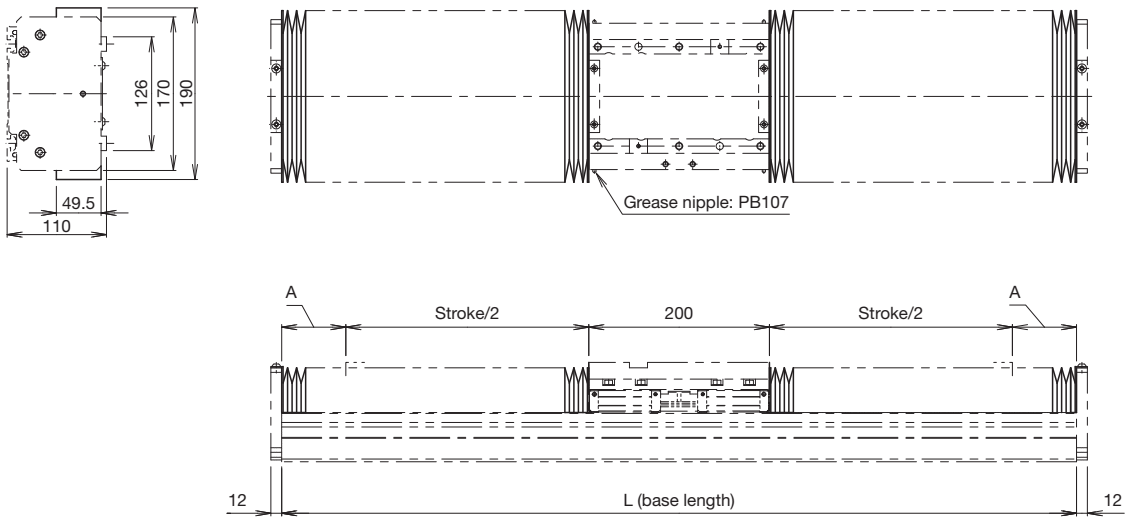


Unit: mm

Stroke[1]	180 (204)	300 (324)	410 (429)	510 (534)	720 (744)	880 (904)	1040 (1059)	1200 (1219)	1360 (1374)	1520 (1534)	1720 (1744)	1940 (1954)
L (base length)	460	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440
A: Stroke start	40	40	45	55	70	80	90	100	110	120	140	150

[1] Values in parentheses are the maximum stroke.
Note 1) For the model number coding, use the stroke when bellows are attached.
Note 2) When using bellows, the stroke will be shorter. See the specifications and dimensional diagrams for the stroke when not using bellows. → p. 9, p. 10

Belt-Driven Type



Unit: mm

Stroke[2]	230 (249)	350 (369)	470 (489)	710 (729)	880 (904)	1040 (1059)	1200 (1219)	1360 (1374)	1520 (1534)	1720 (1744)	1940 (1954)	2140 (2164)	2400 (2424)
L (base length)	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440	2680	2980
A: Stroke start	75	75	75	75	80	90	100	110	120	140	150	170	190

[2] Values in parentheses are the maximum stroke.
Note 3) For the model number coding, use the stroke when bellows are attached.
Note 4) When using bellows, the stroke will be shorter. See the specifications and dimensional diagrams for the stroke when not using bellows. → p. 19, p. 20

TH25

Direct Motor Coupling | Motor wrap | Body width 170 mm | Body height 180 mm | Max. stroke 2650 mm | Max. speed 2240 mm/s | Ball screw type

Model Number Coding

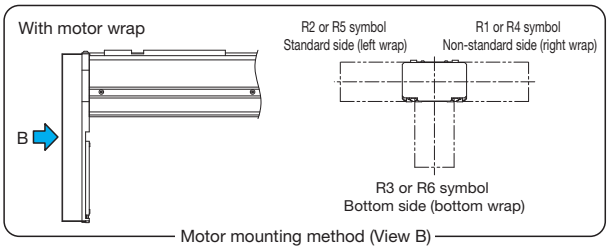
Model ①	Stroke ②	LM Guide model ③	LM Guide with/without QZ ④	Ball screw leads ⑤	Ball screw with/without QZ ⑥	With/without motor ⑦	Motor wrap reduction ratio ⑧
TH25	– 2350	– SW	Q	– B25	Q	0	
TH25	0250: 250 mm to 2650: 2650 mm When "J" (with bellows) is selected for ⑩ Cover/bellows, specify the stroke with bellows. → p. 46	SW: SSR25XW HV: SHS25V	No symbol: Without QZ Q: With QZ	B05: 5 mm B10: 10 mm B25: 25 mm B50: 50 mm	No symbol: Without QZ Q: With QZ When "Q" is selected for ④ LM Guide with/without QZ, "No symbol" cannot be selected.	With direct coupling 0: Without motor (Without coupling. If necessary, please specify.) 1: With motor (THK will purchase and mount the motor you specify) With motor wrap R1: Non-standard side wrap (without motor) R2: Standard side wrap (without motor) R3: Bottom side wrap (without motor) R4: Non-standard side wrap (THK will purchase and mount the motor you specify) R5: Standard side wrap (THK will purchase and mount the motor you specify) R6: Bottom side wrap (THK will purchase and mount the motor you specify)	No symbol: Direct coupling G1: Motor wrap 1/1 G2: Motor wrap 2/3 G3: Motor wrap 1/2

③ LM Guide model

Select the LM Guide model suited to the application.
·SW: The ball contact structure is suited to large loads in the radial direction, making this model ideal for horizontal guides. (LM Guide model: SSR25XW)
·HV: This type of guide bears loads equally in four directions, so loads can be applied from any direction (radial, reverse radial, and horizontal). (LM Guide model: SHS25V)

⑦ With/without motor

If "0" is selected:
No coupling will be attached. Please specify if a coupling is required when ordering.
When "R1," "R2," or "R3" is selected, the timing belt and timing pulley will be included.
When "1," "R4," "R5," or "R6" is selected:
The designated motor will be mounted. Please specify the motor cable direction separately.
Please select the end plate and motor mounting plate in ⑨ that matches the specified motor.
Please select the driver and controller yourself.



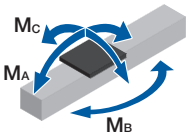
Selection Information

General Specifications[1]

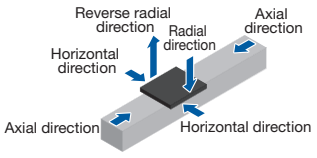
LM Guide	Basic dynamic load rating C (N)		31700			
	Basic static load rating C_0 (N)		52400			
Ball screw	Ball screw leads (mm)		5	10	25	50
	Basic dynamic load rating Ca (N)		6700	21400	12100	8500
	Basic static load rating C_0a (N)		20800	40700	35000	21200
	Screw shaft diameter (mm)		ϕ25			
	Thread minor diameter (mm)		ϕ22.2	ϕ20.3	ϕ22	ϕ21.9
	Ball center-to-center diameter (mm)		ϕ25.5	ϕ26.8	ϕ26	ϕ26
	Permissible rotational speed[2] (min^{-1})		3920	1860	2690	2690
Bearing (fixed side)	Axial direction	Basic dynamic load rating Ca (N)	13700			
		Static permissible load P_0a (N)	4000			
Base	Geometric moment of inertia[3, 4, 5]	I_X (mm^4)	4.55×10^6			
		I_Y (mm^4)	1.32×10^7			
		Mass (kg/m)	12.7			
Starting Torque[6] (N·cm)	Ball screw QZ	Without QZ	18.9	21.9	31	46
		With QZ	30.3	34.7	53	80.2
Positioning repeatability (mm)			±0.02			
Backlash (mm)			0.05			
Permissible input torque (N·m)		Direct coupling	3.6	7.2	15.7	
		Motor wrap 1/1	3.6	5.2	4.8	
		Motor wrap 2/3	2.4	4.8		
		Motor wrap 1/2	1.8	3.6	4.8	
Static permissible load[7] (N)		Reverse radial direction	31400			
		Horizontal direction	10400			
		Axial direction	4000			
Static permissible moment[8] (N·m)			M_A: 2090, M_B: 980, M_C: 1720			
Standard grease/ Grease nipple used		LM Guide	THK AFB-LF Grease/ B–M6F			
		Ball screw	THK AFB-LF Grease/ C–MT6 ×1			

[1] These are the values for LM Guide model HV: SHS25V specifications.
[2] The permissible rotational speed may decrease as the stroke becomes longer.
[3] These are the values for the cross-sectional characteristics of the aluminum base.
[4] I_X is the geometric moment of inertia about the X axis.
[5] I_Y is the geometric moment of inertia about the Y axis.
[6] The starting torque refers to the values when THK AFB-LF is used.
[7] The static permissible load is a value limited by the bolt tightening strength, the basic static load rating of the LM Guide unit and the ball screw unit, and the static permissible load of the bearing.
[8] Static permissible moment is the maximum moment that can be permitted while the product is stationary.
The standard for M_A and M_C moments is the top surface of the table, while the standard for M_B moments is the center of the table.

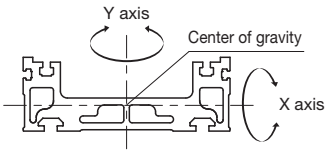
Static permissible moment



Static permissible load



Geometric moment of inertia



End plate/motor mounting plate ⑨	Cover/bellows ⑩	Sensor ⑪	Cable carrier ⑫
B	N	N	N
With direct coupling	N: Without cover	N: None	N: None
B	C: With cover	6	C
D	J: With bellows	H	E
F	With cover → p. 34	J	F
J	With bellows → p. 46	Sensors → p. 33	H
With motor wrap			I
B14			J
D19			K
F11			L
F14			Cable carrier → p. 35
J19			

Motor Selection Specifications

■ LM Guide

LM Guide model	Moving part mass (kg)	Sliding resistance (N)
TH25– * –SW (SSR25XW)	5.9	27.4
TH25– * –SWQ (SSR25XWQZ)	6.1	47.4
TH25– * –HV (SHS25V)	6.3	33.9
TH25– * –HVQZ (SHS25VQZ)	6.5	49.9

■ Ball Screw

Base length[1] (mm)	Lead (mm)	Ball screw model	Shaft length[2] (mm)
580 to 2980	5	BTK2505V–2.6ZZ	540 to 2940
	10	DK2510–3ZZ	
	25	BLK2525–3.6ZZ	
	50	WTF2550–2ZZ	

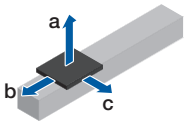
■ Motor Mounting Part

Direct coupling	Motor wrap		
Shaft end diameter (mm)	Timing pulley		
	Inertial moment×10⁻⁴(kg·m²)		
	Reduction ratio	Motor side	Main unit side
ϕ14h7	1/1	0.11	0.11
	2/3	0.11	0.54
	1/2	0.11	1.76

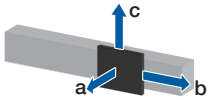
[1] For base length, see the specification table. → p. 29
[2] This length is that of a ball screw shaft directly coupled to the motor. For motor wrap specifications, the ball screw shaft is 74 mm longer.
Note) Please see p. 31 for information on applicable couplings.

Permissible Overhang Length[3]

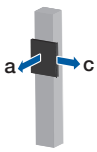
Horizontal



Wall-Mounted



Vertical



Hypothetical motor capacity 750 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	b (mm)	c (mm)
Direct coupling/ Motor wrap[4]	5	30	1500	1500	1500
		60	1500	1500	1500
		120	1500	1140	1000
	10	30	1500	1500	1500
		60	1500	1500	1500
		120	1500	890	780
	25	17.5	1500	1500	1500
		35	1500	1500	1500
		70	1500	1250	1040
	50	6	1500	1500	1500
		12.5	1500	1500	1500
		25	1500	1500	1500

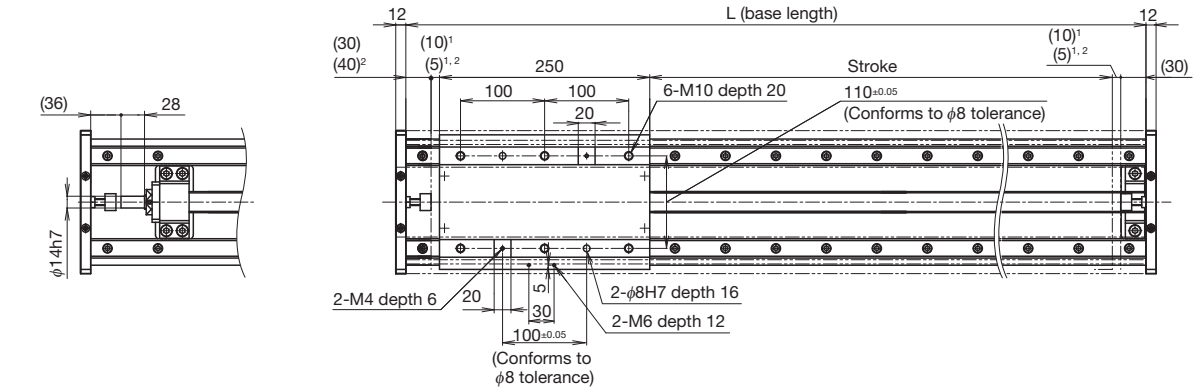
Hypothetical motor capacity 750 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	b (mm)	c (mm)
Direct coupling/ Motor wrap[4]	5	30	1500	1500	1500
		60	1500	1500	1500
		120	930	1070	1500
	10	30	1500	1500	1500
		60	1500	1500	1500
		120	710	820	1500
	25	17.5	1500	1500	1500
		35	1500	1500	1500
		70	1000	1170	1500
	50	6	1500	1500	1500
		12.5	1500	1500	1500
		25	1500	1500	1500

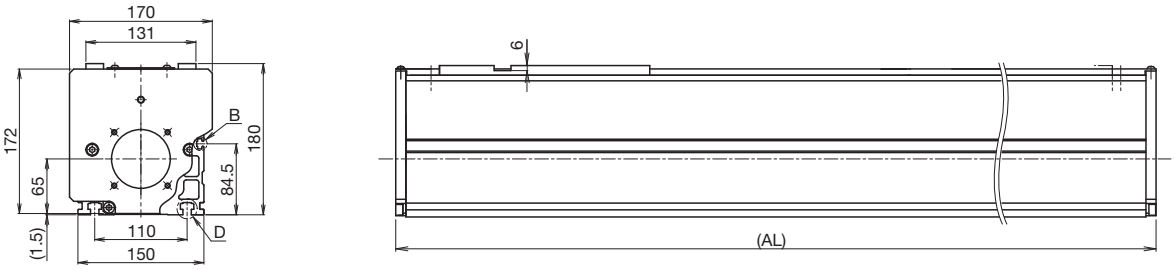
Hypothetical motor capacity 750 W	Ball screw leads (mm)	Load mass (kg)	a (mm)	c (mm)
Direct coupling/ Motor wrap[4]	5	12.5	1500	1500
		25	1500	1500
		50	1500	1500
	10	8.5	1500	1500
		17.5	1500	1500
		35	1500	1500
	25	6	1500	1500
		12.5	1500	1500
		25	1500	1500
	50	3	1500	1500
		6	1500	1500
		12	1500	1500

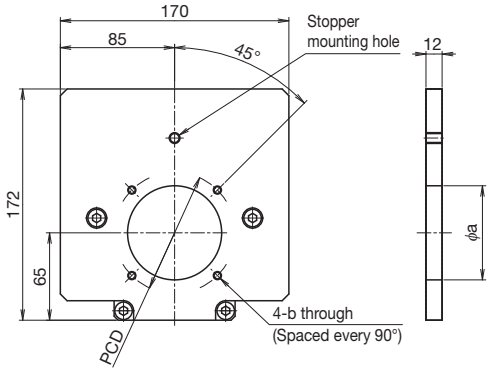
[3] This is the value with the travel life of the LM Guide limited to 10,000 km (5,000 km for 5 mm lead only). The calculation conditions are as follows.
Stroke: 1450 mm (LM Guide: SHS25V) / Acceleration/deceleration: 0.3 G / Speed: Rated speed / Overhang direction: Loaded only in a single direction. Dimensions a, b, and c are from the center of the table's upper surface.
[4] The reduction ratio is 1/1.

Dimensions

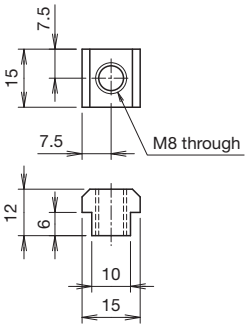
Direct Motor Coupling



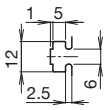




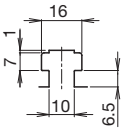
Motor attachment details



Base mounting nut details[3]



B details



D details

■ Dimensional Diagram for Motor Mounting Part Unit: mm

End plate	Dimensions		
	a	d	PCD
B	50H7	M5	70
D	70H7	M5	90
F	50H7	M4	70
J	70H7	M6	90

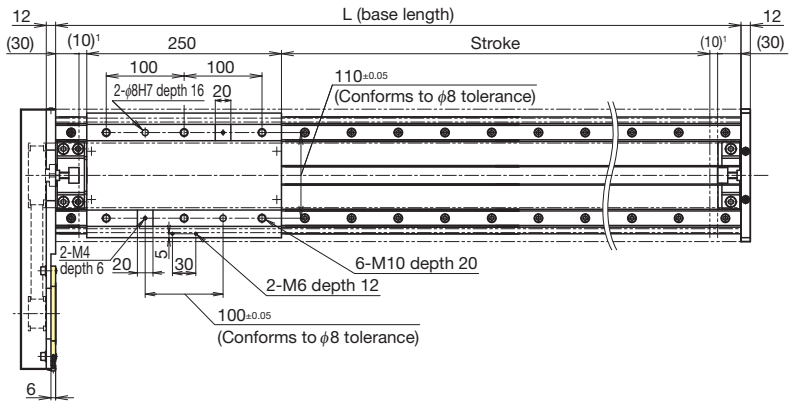
[1] This is the distance between the mechanical stopper and the stroke starting position.
[2] This applies when the ball screw lead is 10 mm and a QZ is attached.
[3] Nuts for mounting the base are included. The quantity is listed in the specification table.

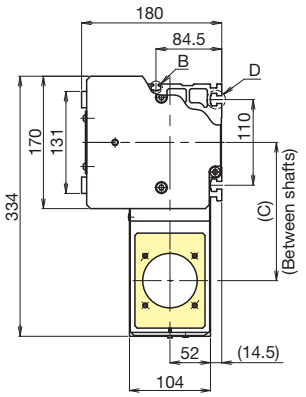
Stroke (mm) (Stroke between mechanical stoppers)[4]		250 (270)	370 (390)	490 (510)	730 (750)	910 (930)	1090 (1110)	1270 (1290)	1450 (1470)	1630 (1650)	1870 (1890)	2110 (2130)	2350 (2370)	2650 (2670)
Maximum speed[5] (mm/s)	Ball screw lead: 5 mm	250					190	140	110	90	70	50	40	30
	Ball screw lead: 10 mm	310						260	200	160	120	100	80	60
	Ball screw lead: 25 mm	1120					960	720	560	450	350	280	220	180
	Ball screw lead: 50 mm	2240					1920	1450	1130	910	700	550	450	360
Dimensions (mm)	L: (Base length)	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440	2680	2980
	AL	604	724	844	1084	1264	1444	1624	1804	1984	2224	2464	2704	3004
Nuts for mounting the base		6	6	8	10	10	12	14	14	16	16	18	20	20
Mass[6] (kg)	HV (SHS25V)	29	32.2	35.5	42	46.8	51.7	56.6	61.5	66.3	72.8	79.3	85.8	93.9

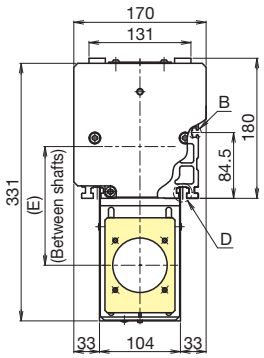
[4] When the ball screw lead is 10 mm and a QZ is attached, the stroke between the mechanical stoppers becomes 10 mm shorter.
[5] The maximum speed is restricted by the permissible speed of the actuator.
[6] The mass is that of products with a cover and QZ.

Dimensions

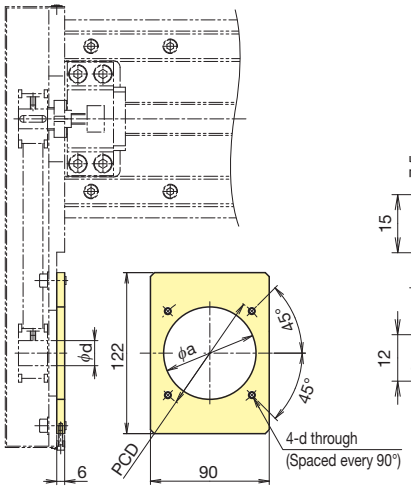
Motor Wrap



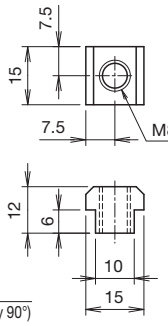




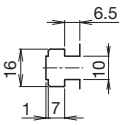
With bottom side wrap



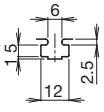
Motor attachment details



Base mounting nut details[2]



D details



B details

■ **Dimensional Diagram for Motor Mounting Part** Unit: mm

Motor mounting plate	Dimensions			Pulley inner diameter
	a	b	PCD	d
B14	50	M5	70	14H7
D19	70	M5	90	19H7
F11	50	M4	70	11H7
F14	50	M4	70	14H7
J19	70	M6	90	19H7

Unit: mm

Reduction ratio	C (Between shafts)	E (Between shafts)
1/1	177.5	152.5
2/3	174.7	149.7
1/2	174	153.8

[1] This is the distance between the mechanical stopper and the stroke starting position.
[2] Nuts for mounting the base are included. The quantity is listed in the specification table.

Stroke (mm) (Stroke between mechanical stoppers)		250 (270)	370 (390)	490 (510)	730 (750)	910 (930)	1090 (1110)	1270 (1290)	1450 (1470)	1630 (1650)	1870 (1890)	2110 (2130)	2350 (2370)	2650 (2670)
Maximum speed[3] (mm/s)	Ball screw lead: 5 mm	250					190	140	110	90	70	50	40	30
	Ball screw lead: 10 mm	310						260	200	160	120	100	80	60
	Ball screw lead: 25 mm	1120					960	720	560	450	350	280	220	180
	Ball screw lead: 50 mm	2240					1920	1450	1130	910	700	550	450	360
Dimensions (mm)	L: (Base length)	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440	2680	2980
	AL	637	757	877	1117	1297	1477	1657	1837	2017	2257	2497	2737	3037
Nuts for mounting the base		6	6	8	10	10	12	14	14	16	16	18	20	20
Mass[4] (kg)	HV (SHS25V)	31	34.2	37.5	44	48.8	53.7	58.6	63.5	68.3	74.8	81.3	87.8	95.9

[3] The maximum speed is restricted by the permissible speed of the actuator.
[4] The mass is that of products with a cover and QZ.

Options

End Plate (Direct Coupling)

Several types of end plate for mounting motors are available.
Specify an end plate that matches the motor used.

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Flange size	End plate	Compatible coupling models	
								MIKI PULLEY CO., LTD.	Nabeya Bi-tech Kaisha (NBK)
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMJV–02	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				SGMAV–02					
				SGMJV–04	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				SGMAV–04					
				SGMJV–08	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
				SGMAV–08					
		Σ-7		SGM7J–02	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				SGM7A–02					
				SGM7J–04	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				SGM7A–04					
				SGM7J–08	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
				SGM7A–08					
		Σ-X		SGMXJ–02	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				SGMXA–02					
				SGMXJ–04	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				SGMXA–04					
				SGMXJ–08	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
				SGMXA–08					
	Mitsubishi Electric Corporation	MELSERVO	J4	HG–KR23	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				HG–MR23					
				HG–KR43	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				HG–MR43					
				HG–KR73	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
				HG–MR73					
			J5	HK–KT23W	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				HK–KT43W	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				HK–KT7M3W	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
			JN	HF–KN23	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				HF–KN43	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4607	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				TS4609	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				TS4614	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
		TBL-iⅣ		TSM3202	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				TSM3204	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				TSM3304	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
	Panasonic Corporation	MINAS	A5	MSMD02	200	□60	F	SFC–035DA2–11B–14B	XGT2–27C–11–BT–14–BT
				MSME02					
				MSMD04	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				MSME04					
				MSMD08	750	□80	D	SFC–040DA2–14B–19B	XGT2–44C–14–19
				MSME08					
			A6	MSMF02	200	□60	F	SFC–035DA2–11B–14B	XGT2–27C–11–BT–14–BT
				MHMF02					
				MSMF04	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				MHMF04					
				MSMF08	750	□80	D	SFC–040DA2–14B–19B	XGT2–44C–14–19
				MHMF08					
	KEYENCE CORPORATION	SV		SV–M020	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				SV–M040	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				SV–M075	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
		SV2		SV2–M020	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				SV2–M040	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				SV2–M075	750	□80	J	SFC–040DA2–14B–19B	XGT2–44C–14–19
	SANYO DENKI CO., LTD.	SANMOTION R		R2□A06020	200	□60	B	SFC–035DA2–14B–14B	XGT2–27C–14–14
				R2AA06040	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
	OMRON Corporation	OMNUC G5		R88M–K20030	200	□60	F	SFC–035DA2–11B–14B	XGT2–27C–11–BT–14–BT
				R88M–K40030	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				R88M–K75030	750	□80	D	SFC–040DA2–14B–19B	XGT2–44C–14–19
		1S		R88M–1M20030	200	□60	F	SFC–035DA2–11B–14B	XGT2–27C–11–BT–14–BT
				R88M–1M40030	400			SFC–035DA2–14B–14B	XGT2–30C–14–14
				R88M–1M75030	750	□80	D	SFC–040DA2–14B–19B	XGT2–44C–14–19

Note 1) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer.
Note 2) If the maximum torque of the installed motor will exceed the permissible input torque (p. 27), please consider a safety measure to limit the torque.

Motor Mounting Plate (Motor Wrap)

Motor mounting plates are available for attaching a variety of motors.
Specify a motor mounting plate that matches the motor used.

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Flange size	Motor mounting plate
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMJV–02	200	□60	B14
				SGMAV–02			
				SGMJV–04	400		B14
				SGMAV–04			
				SGMJV–08	750	□80	J19
				SGMAV–08			
		Σ-7		SGM7J–02	200	□60	B14
				SGM7A–02			
				SGM7J–04	400		B14
				SGM7A–04			
				SGM7J–08	750	□80	J19
				SGM7A–08			
		Σ-X		SGMXJ–02	200	□60	B14
				SGMXA–02			
				SGMXJ–04	400		B14
				SGMXA–04			
				SGMXJ–08	750	□80	J19
				SGMXA–08			
	Mitsubishi Electric Corporation	MELSERVO	J4	HG–KR23	200	□60	B14
				HG–MR23			
				HG–KR43	400		B14
				HG–MR43			
				HG–KR73	750	□80	J19
				HG–MR73			
			J5	HK–KT23W	200	□60	B14
				HK–KT43W	400		B14
				HK–KT7M3W	750	□80	J19
			JN	HF–KN23	200	□60	B14
				HF–KN43	400		
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4607	200	□60	B14
				TS4609	400		B14
				TS4614	750	□80	J19
		TBL-iⅣ		TSM3202	200	□60	B14
				TSM3204	400		B14
				TSM3304	750	□80	J19
	Panasonic Corporation	MINAS	A5	MSMD02	200	□60	F11
				MSME02			
				MSMD04	400		F14
				MSME04			
				MSMD08	750	□80	D19
				MSME08			
			A6	MSMF02	200	□60	F11
				MHMF02			
				MSMF04	400		F14
				MHMF04			
				MSMF08	750	□80	D19
				MHMF08			
	KEYENCE CORPORATION	SV		SV–M020	200	□60	B14
				SV–M040	400		B14
				SV–M075	750	□80	J19
		SV2		SV2–M020	200	□60	B14
				SV2–M040	400		B14
				SV2–M075	750	□80	J19
	SANYO DENKI CO., LTD.	SANMOTION R		R2□A06020	200	□60	B14
				R2AA06040	400		B14
	OMRON Corporation	OMNUC G5		R88M–K20030	200	□60	F11
				R88M–K40030	400		F14
				R88M–K75030	750	□80	D19
		1S		R88M–1M20030	200	□60	F11
				R88M–1M40030	400		F14
				R88M–1M75030	750	□80	D19

Note 1) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer. Please select a motor shaft with a keyed end.
Note 2) If the maximum torque of the installed motor will exceed the permissible input torque (p. 27), please consider a safety measure to limit the torque.

Options

Sensors

Optional photo sensors and proximity sensors are available.
A variety of sensors can be mounted using the T-slot on the side of the base. For products with a cover, sensors can be mounted using a sensor rail.

Symbol	Details	Model	Accessories
N	No sensor	-	-
6	Photo sensors[1] (x3)	EE-SX674 (OMRON Corporation)	Mounting screws, nuts, sensor dog (x1 or x2), sensor rail[4] (x1), mounting plates (x3)
H	Proximity sensors: N.O. contact[2] (x3)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1 or x2), sensor rail[4] (x1)
J	Proximity sensors: N.O. contact[2] (x1) N.C. contact[3] (x2)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1 or x2), sensor rail[4] (x1)

[1] The photo sensors can be switched between ON when lit and ON when unlit.
[2] N.O. contact: Normally open contact
[3] N.C. contact: Normally closed contact
[4] Sensor rails included only with products that have a cover.

Note 1) All sensor output is NPN.
Note 2) Sensors and accessories will be mounted to the unit before shipping.

Sensor Rail Mounting Dimensions

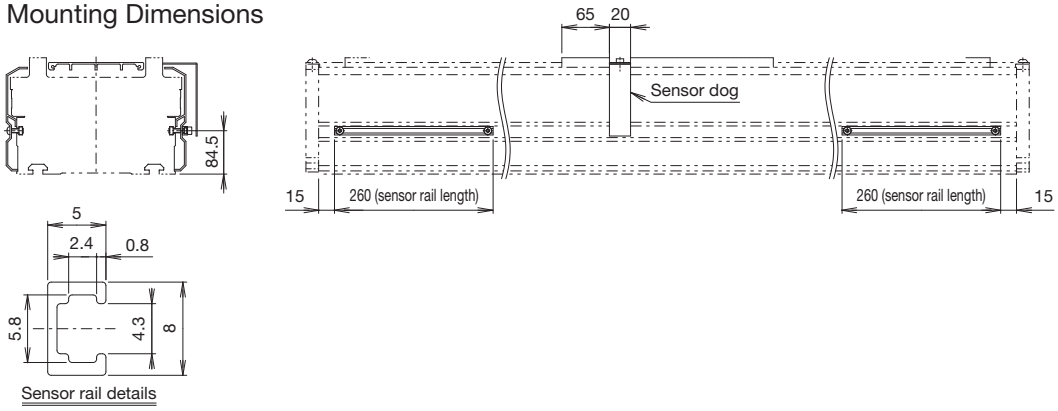
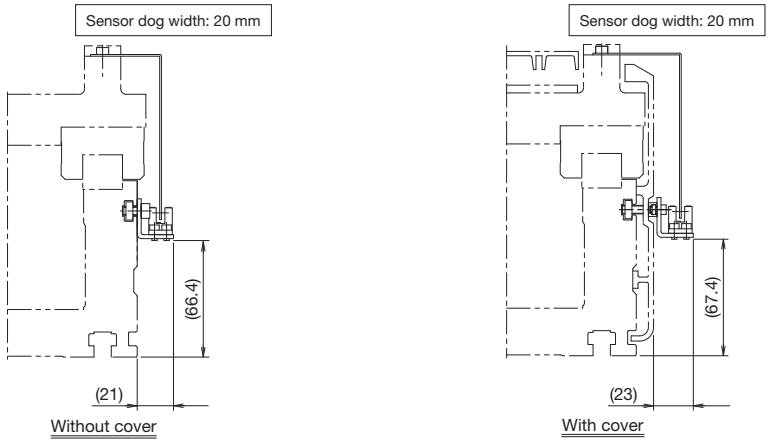
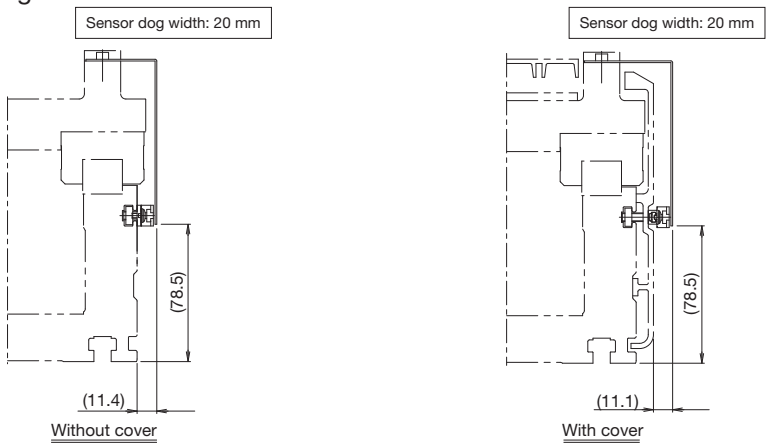


Photo Sensor Mounting Dimensions



Symbol	Model	Manufacturer
6	EE–SX674	OMRON Corporation

Proximity Sensor Mounting Dimensions

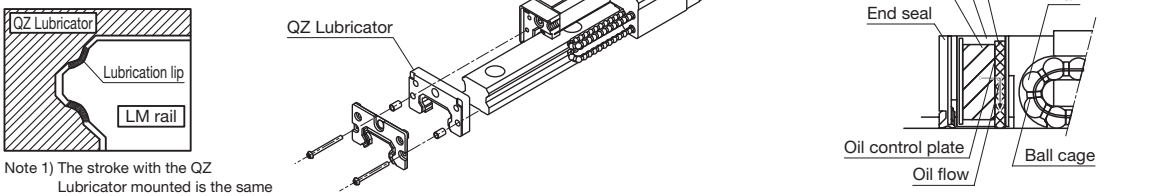


Symbol	Model	Manufacturer
H, J	GX–F12A (B)	Panasonic Industrial Devices SUNX Co., Ltd.

Lubrication Options

LM Guide

The QZ Lubricator feeds the right amount of lubricant to the LM rail raceway.
This allows an oil film to be constantly formed between the balls and the raceway and significantly extends the lubrication maintenance interval.

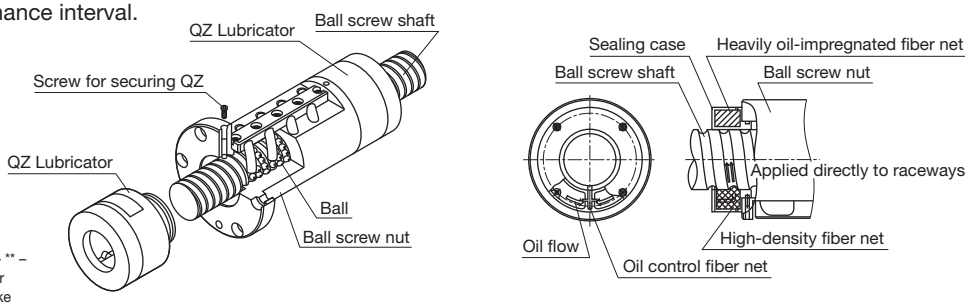


Note 1) The stroke with the QZ Lubricator mounted is the same as when no QZ is mounted

QZ Lubricator Structural Drawing (LM Guide)

Ball Screw

The QZ Lubricator feeds the right amount of lubricant to the ball screw shaft raceway.
This allows an oil film to be constantly formed between the balls and the raceway, which improves the lubricity and significantly extends the maintenance interval.



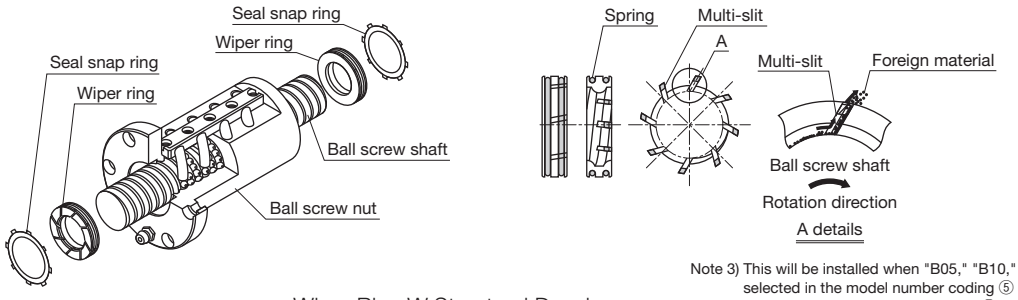
Note 2) For model TH25– **** – ** – B10Q with direct motor coupling only, the stroke is 10 mm shorter.

QZ Lubricator Structural Drawing (Ball Screw)

Contamination Protection Options

Ball Screw

The wiper ring W is made from special resin with superior wear resistance. It makes elastic contact with the outer diameter of the ball screw shaft and the groove and prevents foreign impurities from entering the ball screw nut by redirecting contaminants through eight slits.



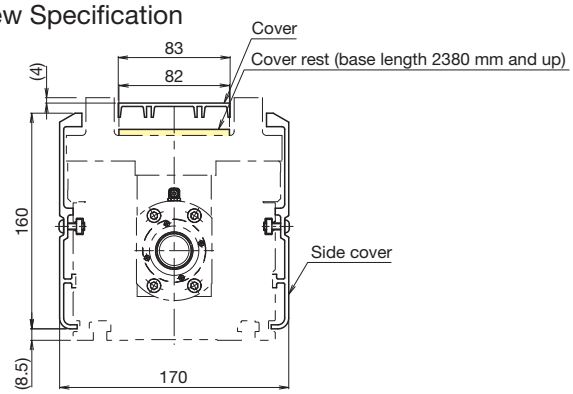
Wiper Ring W Structural Drawing

Note 3) This will be installed when "B05," "B10," or "B25" is selected in the model number coding ⑤ Ball screw leads and when "Q" is selected for ⑥ Ball screw with/without QZ.

Cover

A cover is available to dust-proof the top and side surfaces.
When the base length is over 2380 mm, standard equipment includes a rest for the cover to protect against interference with the table.

Ball Screw Specification



Options

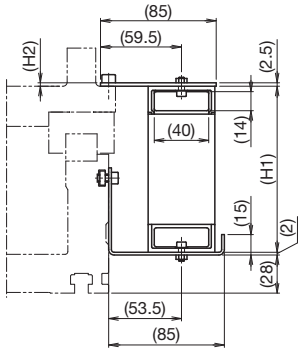
Cable Carrier

A variety of cable carriers can be mounted using the T-slot on the side of the base.
When selecting a cable carrier, specify the corresponding symbol from the table.

Symbol	Cable carrier model	Manufacturer
C	TKP0180W40R50	TSUBAKIMOTO CHAIN CO.
E	TKP35H22–30W25R50	
F	TKP35H22–30W25R75	
H	TKP35H22–30W50R50	

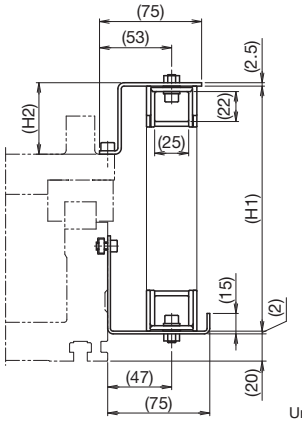
Symbol	Cable carrier model	Manufacturer
I	TKP35H22–30W50R75	TSUBAKIMOTO CHAIN CO.
J	KSH–24L–42	THK CO., LTD.
K	KSH–32WL–60	
L	KSH–32WL–110	

Note 1) When a cable carrier is installed, a side cover cannot also be mounted.
Note 2) For the selection and handling of the cable carrier, please see the catalog from the manufacturer.



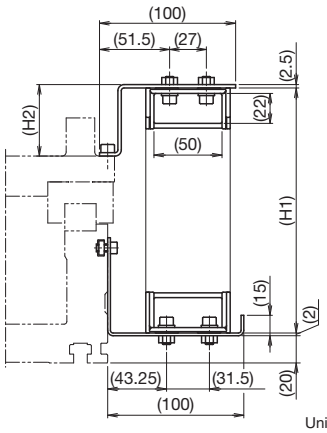
Unit: mm

Symbol	Cable carrier model	H1	H2
C	TKP0180W40R50	122	2.5



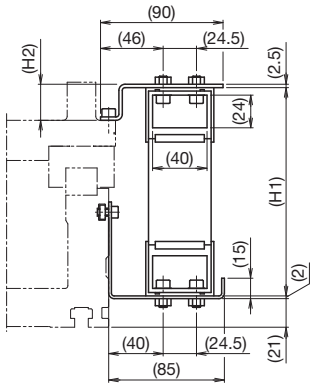
Unit: mm

Symbol	Cable carrier model	H1	H2
E	TKP35H22–30W25R50	130	2.5
F	TKP35H22–30W25R75	180	52.5



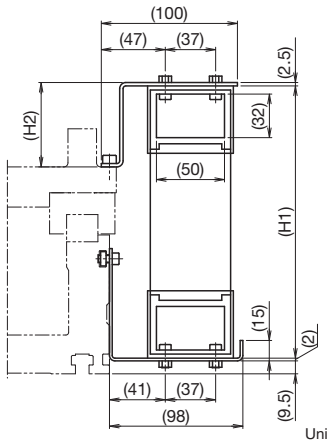
Unit: mm

Symbol	Cable carrier model	H1	H2
H	TKP35H22–30W50R50	130	2.5
I	TKP35H22–30W50R75	180	52.5



Unit: mm

Symbol	Cable carrier model	H1	H2
J	KSH–24L–42	143	16.5



Unit: mm

Symbol	Cable carrier model	H1	H2
K	KSH–32WL–60	200	62
L	KSH–32WL–110	300	162

TH25

Direct Motor Coupling | Body width 170 mm | Body height 180 mm | Max. stroke 3590 mm | Max. speed 2500 mm/s | Belt-driven type

Model Number Coding

Model ①	Stroke ②	LM Guide model ③	LM Guide with/without QZ ④	Drive system ⑤	With/without motor ⑥	Motor bracket ⑦	Belt specification reduction gear ⑧	Belt specification reduction ratio ⑨
TH25	3230	SW	Q	EH	0	N		
TH25	0230: 230 mm to 3590: 3590 mm	SW: SSR25XW HV: SHS25V	No symbol: Without QZ Q: With QZ	EH: Belt	0: Without motor (Without coupling. If necessary, please specify.) 1: With motor (THK will purchase and mount the motor you specify)	N: None B1 B2	No symbol: No reduction gear G1 G2 G3 G4 G5 G6 G7 G8	No symbol: No reduction gear 03: 1/3 05: 1/5 09: 1/9

When "J" (with bellows) is selected for ⑩ Cover/bellows, specify the stroke with bellows. → p. 46

If "0" is selected:
No coupling will be attached. Please specify if a coupling is required when ordering.

If "1" is selected:
The designated motor will be mounted. Please specify the motor cable direction separately.
Please select the motor bracket in ⑦ that matches the specified motor.
Please select the driver and controller yourself.

See p. 41 for details about ⑦ Motor bracket, ⑧ Belt specification reduction gear, and ⑨ Belt specification reduction ratio combinations.

③ LM Guide model

Select the LM Guide model suited to the application.
·SW: The ball contact structure is suited to large loads in the radial direction, making this model ideal for horizontal guides. (LM Guide model: SSR25XW)
·HV: This type of guide bears loads equally in four directions, so loads can be applied from any direction (radial, reverse radial, and horizontal). (LM Guide model: SHS25V)

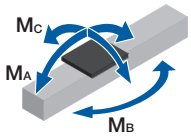
Selection Information

General Specifications[1]

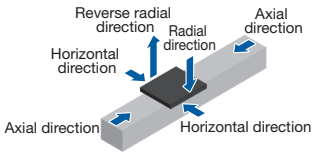
LM Guide	Basic dynamic load rating C (N)		31700
	Basic static load rating C_0 (N)		52400
Base	Geometric moment of inertia[2, 3, 4]	I_x (mm^4)	4.55×10^6
		I_y (mm^4)	1.32×10^7
		Mass (kg/m)	28.5
Permissible input rotational speed (min^{-1})			3000
Starting torque (N·cm)		Without QZ	105
		With QZ	143.2
Positioning repeatability (mm)			±0.08
Permissible input torque[5] (N·m)			40.5
Static permissible load[6] (N)		Reverse radial direction	31400
		Horizontal direction	10400
		Axial direction	1690
Static permissible moment[7] (N·m)			M_A: 2090, M_B: 980, M_C: 1720
Standard grease/Grease nipple used			THK AFB–LF Grease/B–M6F

[1] These are the values for LM Guide model HV: SHS25V specifications.
[2] These are the values for the cross-sectional characteristics of the aluminum base.
[3] I_x is the geometric moment of inertia about the X axis.
[4] I_y is the geometric moment of inertia about the Y axis.
[5] This is the input torque for the shaft end.
[6] The static permissible load is a value limited by the bolt tightening strength, LM Guide unit, belt, and pulley shaft.
[7] Static permissible moment is the maximum moment that can be permitted while the product is stationary.
The standard for M_A and M_C moments is the top surface of the table, while the standard for M_B moments is the center of the table.

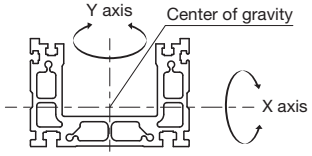
Static permissible moment



Static permissible load



Geometric moment of inertia



Cover/bellows ⑩	Sensor ⑪	Cable carrier ⑫
– N	– N	– N
N: Without cover	N: None	N: None
C: With cover	6	C
J: With bellows	H	E
	J	F
		H
		I
		J
		K
		L

With cover
→ p. 44
With bellows
→ p. 46

Sensors
→ p. 43

Cable carrier
→ p. 45

Motor Selection Specifications

■ LM Guide

LM Guide model	Moving part mass (kg)	Sliding resistance (N)
TH25– * –SW (SSR25XW)	5.4	27.4
TH25– * –SWQ (SSR25XWQZ)	5.6	47.4
TH25– * –HV (SHS25V)	5.8	33.9
TH25– * –HVQ (SHS25VQZ)	6	49.9

■ Belt Drive

Belt model	Mass[1] (kg)
040–MA5	1.2

■ Timing Pulley

Timing pulley model	Diameter (PCD) (mm)	Table travel amount per pulley rotation (mm)	Inertial moment (2 total)×10^{-4} (kg·m^2)
30–MA5–040	ϕ47.75	150	1.288

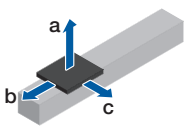
■ Reduction Gear

Reduction ratio	Motor rated output (W)	Inertial moment×10^{-4} (kg·m^2)
1/3	200	0.175
1/3	400	0.175
1/3	750	1.02
1/5	100	0.06
1/5	200	0.147
1/5	400	0.370
1/9	100	0.05
1/9	200	0.273

[1] The belt mass is the mass when the base has the maximum length.

Permissible Overhang Length[2]

Horizontal



Hypothetical motor capacity 750 W		Load mass (kg)	a (mm)	b (mm)	c (mm)
Reduction ratio	1/3	7.5	1500	1500	1500
		15	1500	1500	1500
		30	1500	1500	1500

[2] This is the value with the service life of the LM Guide limited to 10,000 km.
The calculation conditions are as follows.
Stroke: 1910 mm (LM Guide: SHS25V) / Acceleration/deceleration: 0.3 G / Speed: Rated speed / Overhang direction: Loaded only in a single direction.
Dimensions a, b, and c are from the center of the table's upper surface.

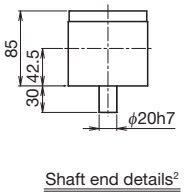
Table Travel Amount Per Motor Rotation

Pulley pitch circle diameter (mm)	Table travel amount per motor rotation (mm)			
	No reduction gear[3]	Reduction ratio		
		1/3	1/5	1/9
ϕ47.75	150	50	30	16.7

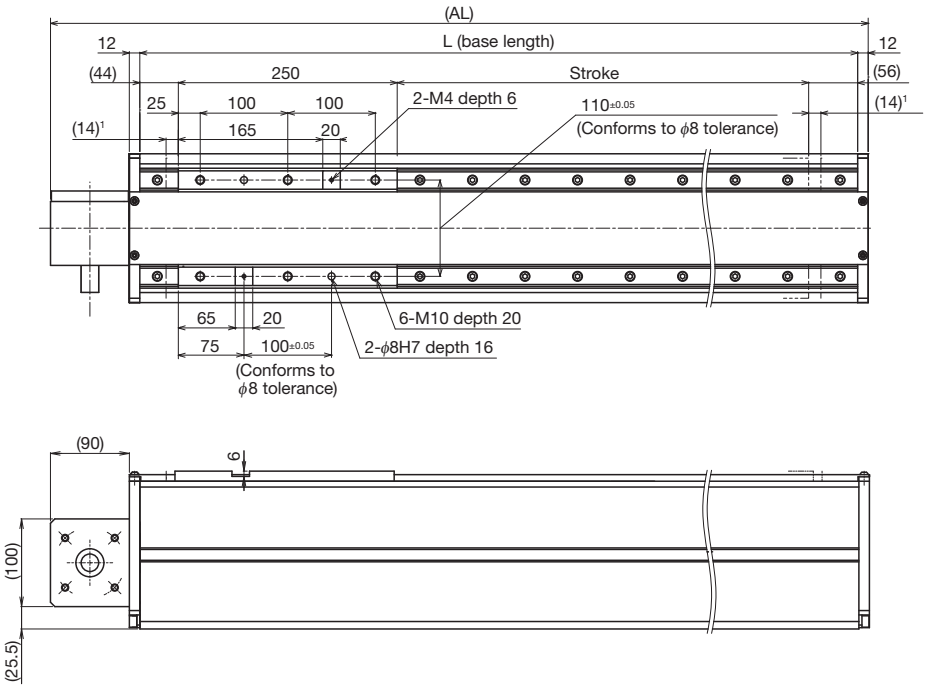
[3] The timing pulley's pitch circle diameter is large, so we recommend using a reduction gear.

Dimensions

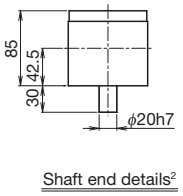
With Cover



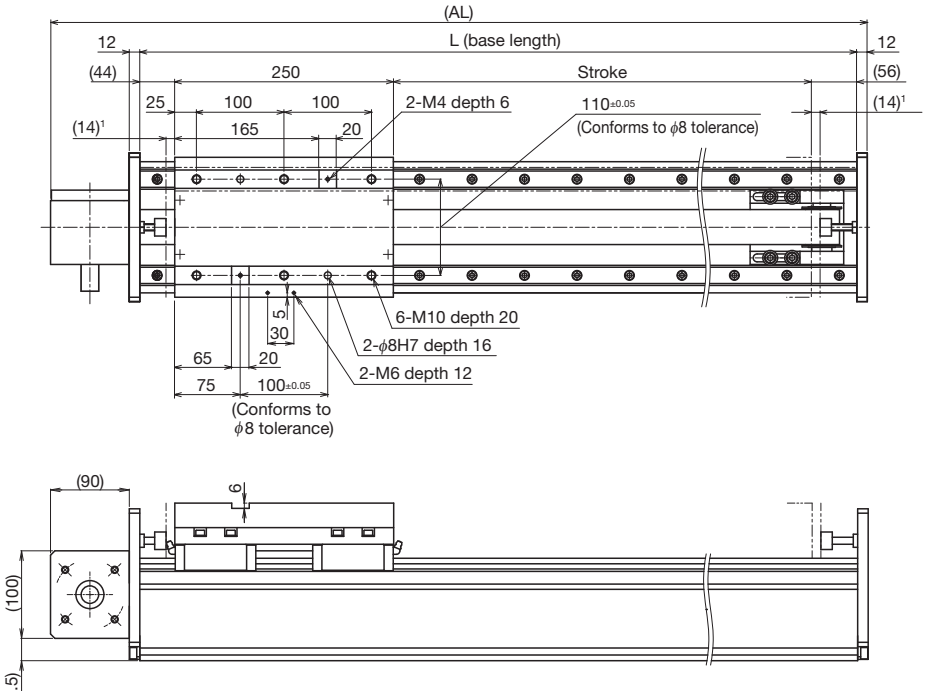
Shaft end details[2]



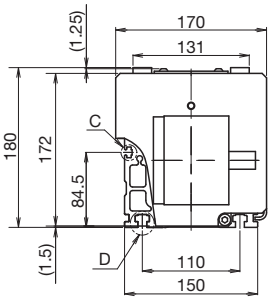
Without Cover



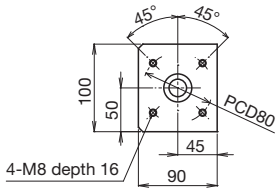
Shaft end details[2]



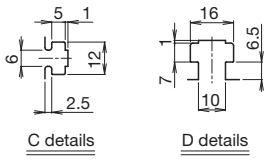
[1] This is the distance between the mechanical stopper and the stroke starting position.
[2] See p. 40 for details about the bracket mounting surface.

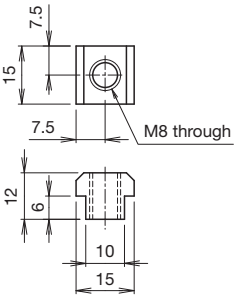


Side surface details

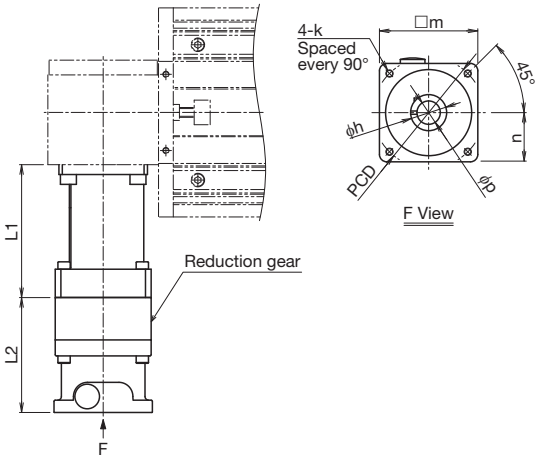


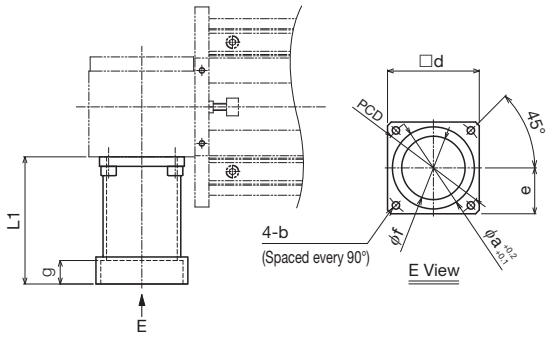
Bracket mounting surface details





Base mounting nut details





Unit: mm

Bracket symbol	Dimensions							
	a	b	PCD	d	e	f	g	L1
B1	50	5.5 drill through	60	56	28	44	14	75
B2	70	6.6 drill through	90	78	39	60	20	108

Unit: mm

Bracket symbol	Dimensions							
	h	k	PCD	m	n	p	L1	L2
B1G103, B1G105, B1G109	30	M4 depth 6	46	40	20	8	75	67.5
B1G203, B1G205, B1G209	30	M3 depth 6	45	40	20	8	75	67.5
B1G303, B1G305	50	M5 depth 10	70	60	30	14	75	72.5
B1G403, B1G405	50	M4 depth 10	70	60	30	11	75	72.5
B1G503	50	M4 depth 10	70	60	30	14	75	72.5
B2G305, B2G309	50	M5 depth 8	70	60	30	14	108	89.5
B2G409	50	M4 depth 8	70	60	30	11	108	89.5
B2G505	50	M4 depth 8	70	60	30	14	108	89.5
B2G603	70	M5 depth 10	90	80	40	19	108	93.5
B2G703	70	M6 depth 10	90	80	40	16	108	93.5
B2G803	70	M6 depth 10	90	80	40	19	108	93.5

Stroke (mm) (Stroke between mechanical stoppers)		230 (258)	350 (378)	470 (498)	710 (738)	890 (918)	1070 (1098)	1250 (1278)	1430 (1458)	1610 (1638)	1850 (1878)	2090 (2118)	2330 (2358)	2630 (2658)	2930 (2958)	3230 (3258)	3590 (3618)
Maximum speed[3] (mm/s)	Reduction ratio: 1/3	2500															
Dimensions (mm)	L (base length)	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440	2680	2980	3280	3580	3940
	AL	694	814	934	1174	1354	1534	1714	1894	2074	2314	2554	2794	3094	3394	3694	4054
Nuts for mounting the base		6	6	8	10	10	12	14	14	16	16	18	20	20	24	26	30
Mass[4] (kg)	HV (SHS25V)	30.3	33.1	36	41.7	46	50.2	54.6	58.8	63.1	68.8	74.5	80.2	87.3	94.5	101.5	110.1

[3] The maximum speed is restricted by the permissible speed of the actuator.
[4] The mass is that of products with a cover and QZ.

Options

Reduction Gear (Belt Specifications)

These are the reduction gears and motors that can be attached when B1 and B2 are selected for the motor bracket.
Specify the motor bracket that matches the motor and reduction gear that will be used.

Symbol Coding

Motor bracket ①	Belt specification reduction gear ②	Belt specification reduction ratio ③
B1	G3	03
B1	G1	03: 1/3
B2	G2	05: 1/5
	G3	09: 1/9
	G4	
	G5	
	G6	
	G7	
	G8	

Reduction ratio: 1/3

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Reduction gear model	Symbol	Compatible reduction gear coupling
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMAV–02	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMAV–04	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMAV–08	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
		Σ-7		SGM7A–02	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGM7A–04	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGM7A–08	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
		Σ-X		SGMXA–02	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMXA–04	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				SGMXA–08	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
	Mitsubishi Electric Corporation	MELSERVO	J4	HG–KR23	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–MR23		VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–KR43	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–MR43		VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				HG–KR73	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
				HG–MR73		VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
			J5	HK–KT23W	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HK–KT43W	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				HK–KT7M3W	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
			JN	HF–KN23	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				HF–KN43	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4607	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				TS4609	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				TS4614	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
		TBL-iⅣ		TSM3202	200	VRXF–3B–S–200	B1G303	MJC-41-12X20-TB (MIGHTY)
				TSM3204	400	VRXF–3B–S–400	B1G303	MJC-41-12X20-TB (MIGHTY)
				TSM3304	750	VRXF–3C–S–750	B2G803	MJC-50-19X20 (MIGHTY)
	Panasonic Corporation	MINAS	A5	MSMD02	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				MSMD04	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				MSMD08	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)
			A6	MSMF02	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				MSMF04	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				MSMF08	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)
	OMRON Corporation	OMNUC G5		R88M–K20030	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				R88M–K40030	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				R88M–K75030	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)
		1S		R88M–1M20030	200	VRXF–3B–S–200	B1G403	MJC-41-12X20-TB (MIGHTY)
				R88M–1M40030	400	VRXF–3B–S–400	B1G503	MJC-41-12X20-TB (MIGHTY)
				R88M–1M75030	750	VRXF–3C–S–750	B2G603	MJC-50-19X20 (MIGHTY)

Note 1) The symbols in the table represent the motor bracket, belt specification reduction gear, and belt specification reduction ratio.
Note 2) In the table, B1 indicates VRXF-□B (NIDEC-SHIMPO CORPORATION), and B2 indicates VRXF-□C (NIDEC-SHIMPO CORPORATION).
Note 3) When requesting a product with a reduction gear, please inform THK of the motor model that will be attached.
Note 4) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer.
Note 5) Contact THK if you will be using a motor with a reduction gear.
Note 6) If the reduction gear's output torque will exceed the permissible input torque (p. 37) due to the maximum torque of the installed motor and the reduction ratio, please consider a safety measure to limit the torque.

Reduction ratio: 1/5

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Reduction gear model	Symbol	Compatible reduction gear coupling
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMAV-01	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				SGMAV–02	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				SGMAV–04	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
		Σ-7		SGM7A-01	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				SGM7A–02	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				SGM7A–04	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
		Σ-X		SGMXA-01	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				SGMXA–02	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				SGMXA–04	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
	Mitsubishi Electric Corporation	MELSERVO	J4	HG-KR13	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HG-MR13		VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HG–KR23	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HG–MR23		VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HG–KR43	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
				HG–MR43		VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
			J5	HK-KT13W	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HK–KT23W	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HK–KT43W	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
			JN	HF-KN13	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				HF–KN23	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				HF–KN43	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4603	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				TS4607	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				TS4609	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
		TBL-iⅣ		TSM3104	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				TSM3202	200	VRXF–5B–S–200	B1G305	MJC-41-12X20-TB (MIGHTY)
				TSM3204	400	VRXF–5C–S–400	B2G305	MJC-50-19X20 (MIGHTY)
	Panasonic Corporation	MINAS	A5	MSMD01	100	VRXF–5B–S–100	B1G205	MJC-41-12X20-TB (MIGHTY)
				MSMD02	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				MSMD04	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)
			A6	MSMF01	100	VRXF–5B–S–100	B1G205	MJC-41-12X20-TB (MIGHTY)
				MSMF02	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				MSMF04	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)
	OMRON Corporation	OMNUC G5		R88M-K10030	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				R88M–K20030	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				R88M–K40030	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)
		1S		R88M-1M10030	100	VRXF–5B–S–100	B1G105	MJC-41-12X20-TB (MIGHTY)
				R88M–1M20030	200	VRXF–5B–S–200	B1G405	MJC-41-12X20-TB (MIGHTY)
				R88M–1M40030	400	VRXF–5C–S–400	B2G505	MJC-50-19X20 (MIGHTY)

Reduction ratio: 1/9

Motor type	Manufacturer	Series		Motor model	Motor rated output (W)	Reduction gear model	Symbol	Compatible reduction gear coupling
AC servo motor	YASKAWA Electric Corporation	Σ-V		SGMAV-01	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				SGMAV–02	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
		Σ-7		SGM7A-01	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				SGM7A–02	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
		Σ-X		SGMXA-01	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				SGMXA–02	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
	Mitsubishi Electric Corporation	MELSERVO	J4	HG-KR13	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HG-MR13		VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HG–KR23	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
				HG–MR23		VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
			J5	HK-KT13W	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HK–KT23W	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
			JN	HF-KN13	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				HF–KN23	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
	TAMAGAWA SEIKI CO., LTD.	TBL-iⅡ		TS4603	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				TS4607	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
		TBL-iⅣ		TSM3104	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				TSM3202	200	VRXF–9C–S–200	B2G309	MJC-50-19X20 (MIGHTY)
	Panasonic Corporation	MINAS	A5	MSMD01	100	VRXF–9B–S–100	B1G209	MJC-41-12X20-TB (MIGHTY)
				MSMD02	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)
			A6	MSMF01	100	VRXF–9B–S–100	B1G209	MJC-41-12X20-TB (MIGHTY)
				MSMF02	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)
	OMRON Corporation	OMNUC G5		R88M-K10030	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				R88M–K20030	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)
		1S		R88M-1M10030	100	VRXF–9B–S–100	B1G109	MJC-41-12X20-TB (MIGHTY)
				R88M–1M20030	200	VRXF–9C–S–200	B2G409	MJC-50-19X20 (MIGHTY)

Note 1) The symbols in the table represent the motor bracket, belt specification reduction gear, and belt specification reduction ratio.
Note 2) In the table, B1 indicates VRXF-□B (NIDEC-SHIMPO CORPORATION), and B2 indicates VRXF-□C (NIDEC-SHIMPO CORPORATION).
Note 3) When requesting a product with a reduction gear, please inform THK of the motor model that will be attached.
Note 4) The table shows only a portion of the model numbers for motors. For details regarding model numbers, please see the catalog for each respective motor manufacturer.
Note 5) Contact THK if you will be using a motor with a reduction gear.
Note 6) If the reduction gear's output torque will exceed the permissible input torque (p. 37) due to the maximum torque of the installed motor and the reduction ratio, please consider a safety measure to limit the torque.

Options

Sensors

Optional photo sensors and proximity sensors are available.
A variety of sensors can be mounted using the T-slot on the side of the base. For products with a cover, sensors can be mounted using a sensor rail.

Symbol	Details	Model	Accessories
N	No sensor	-	-
6	Photo sensors[1] (x3)	EE-SX674 (OMRON Corporation)	Mounting screws, nuts, sensor dog (x1 or x2), sensor rail[4] (x1), mounting plates (x3)
H	Proximity sensors: N.O. contact[2] (x3)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1 or x2), sensor rail[4] (x1)
J	Proximity sensors: N.O. contact[2] (x1) N.C. contact[3] (x2)	GX-F12A (Panasonic Industrial Devices SUNX Co., Ltd.) GX-F12B (Panasonic Industrial Devices SUNX Co., Ltd.)	Mounting screws, nuts, sensor dog (x1 or x2), sensor rail[4] (x1)

[1] The photo sensors can be switched between ON when lit and ON when unlit.
[2] N.O. contact: Normally open contact
[3] N.C. contact: Normally closed contact
[4] Sensor rails included only with products that have a cover.

Note 1) All sensor output is NPN.
Note 2) Sensors and accessories will be mounted to the unit before shipping.

Sensor Rail Mounting Dimensions

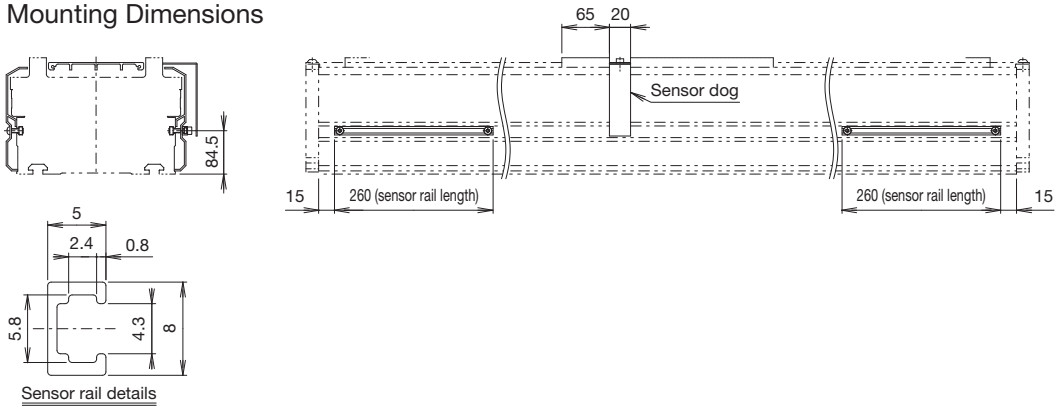
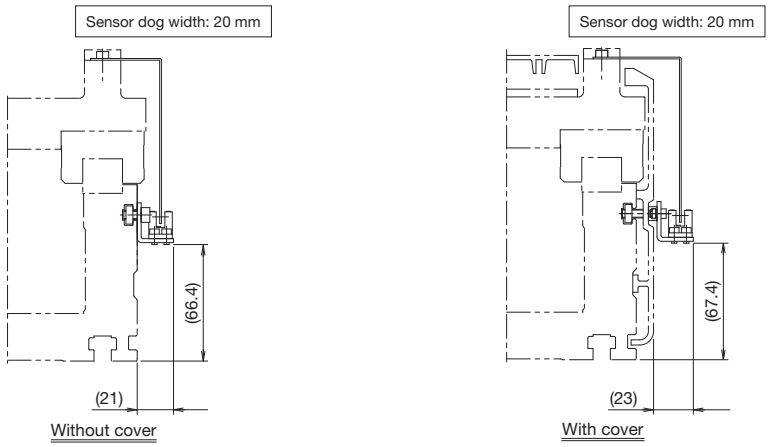
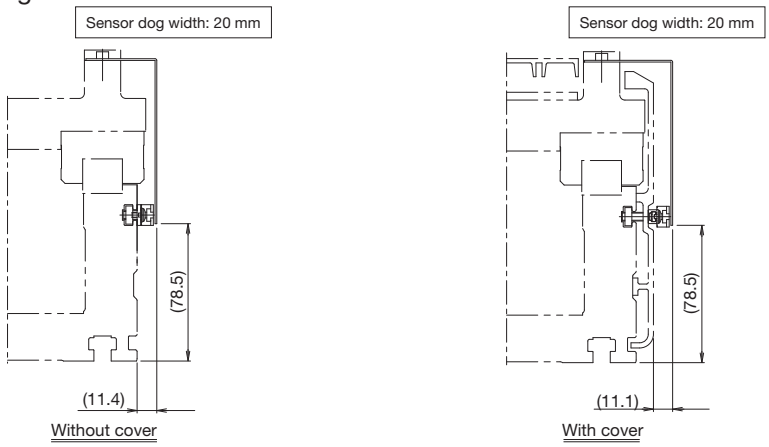


Photo Sensor Mounting Dimensions



Symbol	Model	Manufacturer
6	EE–SX674	OMRON Corporation

Proximity Sensor Mounting Dimensions

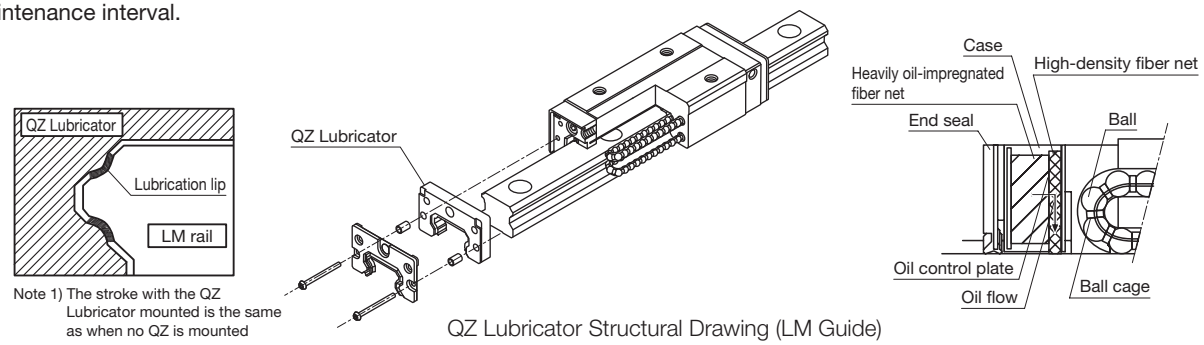


Symbol	Model	Manufacturer
H, J	GX–F12A	Panasonic Industrial Devices SUNX Co., Ltd.
	GX–F12B	

QZ Lubricator

LM Guide

The QZ Lubricator feeds the right amount of lubricant to the LM rail raceway.
This allows an oil film to be constantly formed between the balls and the raceway and significantly extends the lubrication maintenance interval.



Note 1) The stroke with the QZ Lubricator mounted is the same as when no QZ is mounted

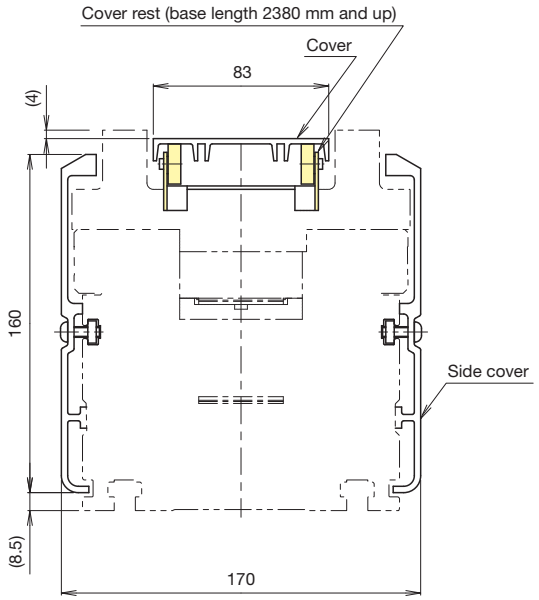
QZ Lubricator Structural Drawing (LM Guide)

Cover

A cover is available to dust-proof the top and side surfaces. When the base length is over 2380 mm, standard equipment includes a cover rest to protect against interference.

Belt Specification

The standard product comes equipped with a cover rest that has a rolling structure capable of handling long strokes and high speeds.



Note 2) When the base is long, the deflection of the cover will increase due to its weight, which may cause the cover to come in contact with other components (such as the belt).
Note 3) The cover rest is only effective when the product is mounted horizontally. In addition, be aware that the cover may touch the opposite side if the product is used in any orientation other than horizontal.

Options

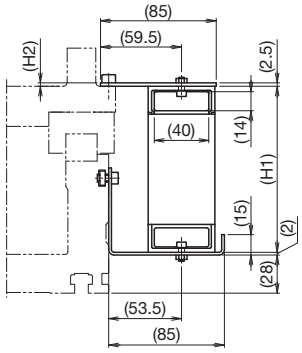
Cable Carrier

A variety of cable carriers can be mounted using the T-slot on the side of the base.
When selecting a cable carrier, specify the corresponding symbol from the table.

Symbol	Cable carrier model	Manufacturer
C	TKP0180W40R50	TSUBAKIMOTO CHAIN CO.
E	TKP35H22–30W25R50	
F	TKP35H22–30W25R75	
H	TKP35H22–30W50R50	

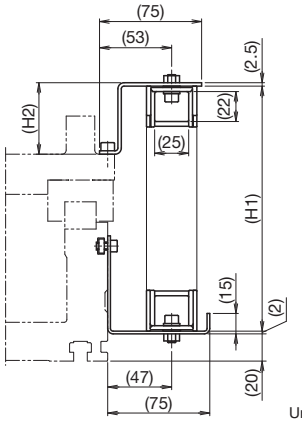
Symbol	Cable carrier model	Manufacturer
I	TKP35H22–30W50R75	TSUBAKIMOTO CHAIN CO.
J	KSH–24L–42	THK CO., LTD.
K	KSH–32WL–60	
L	KSH–32WL–110	

Note 1) When a cable carrier is installed, a side cover cannot also be mounted.
Note 2) For the selection and handling of the cable carrier, please see the catalog from the manufacturer.



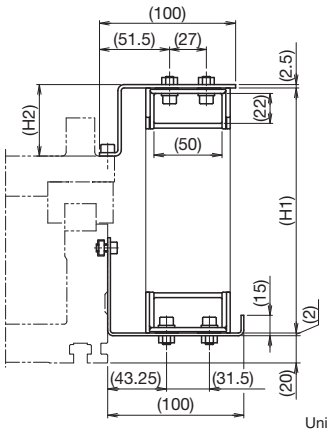
Unit: mm

Symbol	Cable carrier model	H1	H2
C	TKP0180W40R50	122	2.5



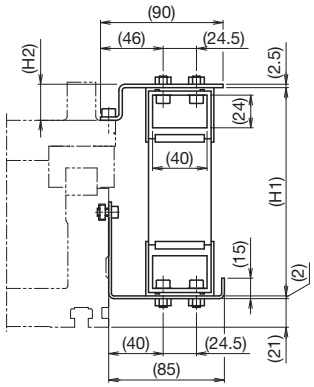
Unit: mm

Symbol	Cable carrier model	H1	H2
E	TKP35H22–30W25R50	130	2.5
F	TKP35H22–30W25R75	180	52.5



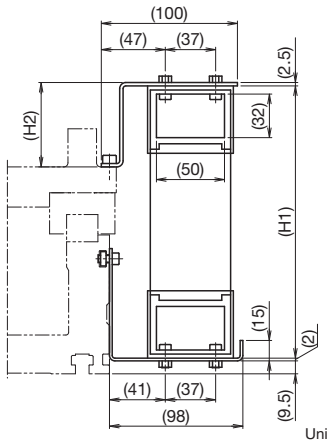
Unit: mm

Symbol	Cable carrier model	H1	H2
H	TKP35H22–30W50R50	130	2.5
I	TKP35H22–30W50R75	180	52.5



Unit: mm

Symbol	Cable carrier model	H1	H2
J	KSH–24L–42	143	16.5



Unit: mm

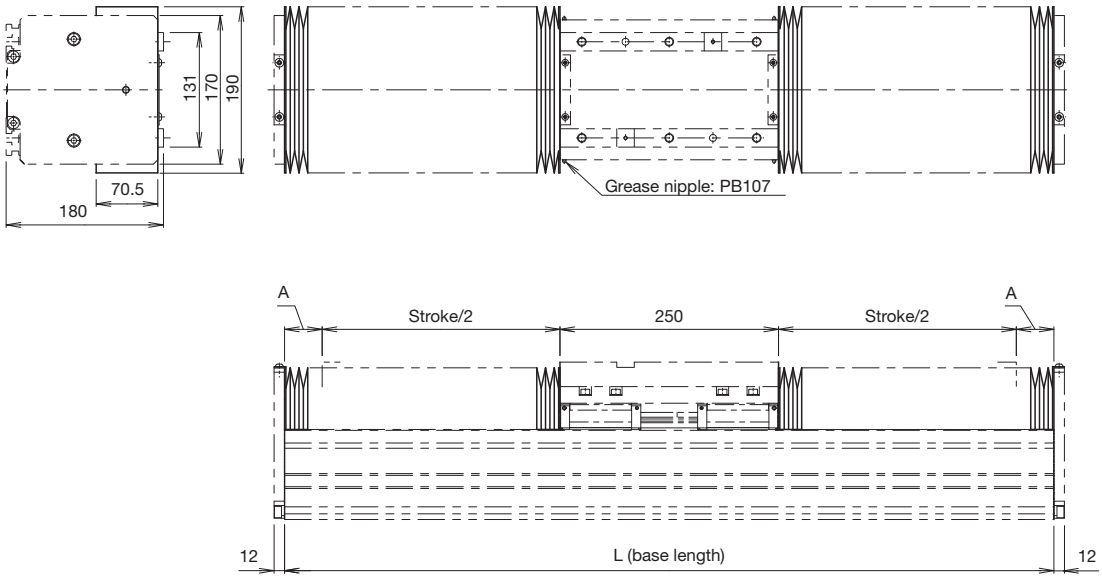
Symbol	Cable carrier model	H1	H2
K	KSH–32WL–60	200	62
L	KSH–32WL–110	300	162

Bellows

In addition to a cover, bellows are also available as a dust-proofing option.

Ball Screw Type

Direct Motor Coupling/Motor Wrap

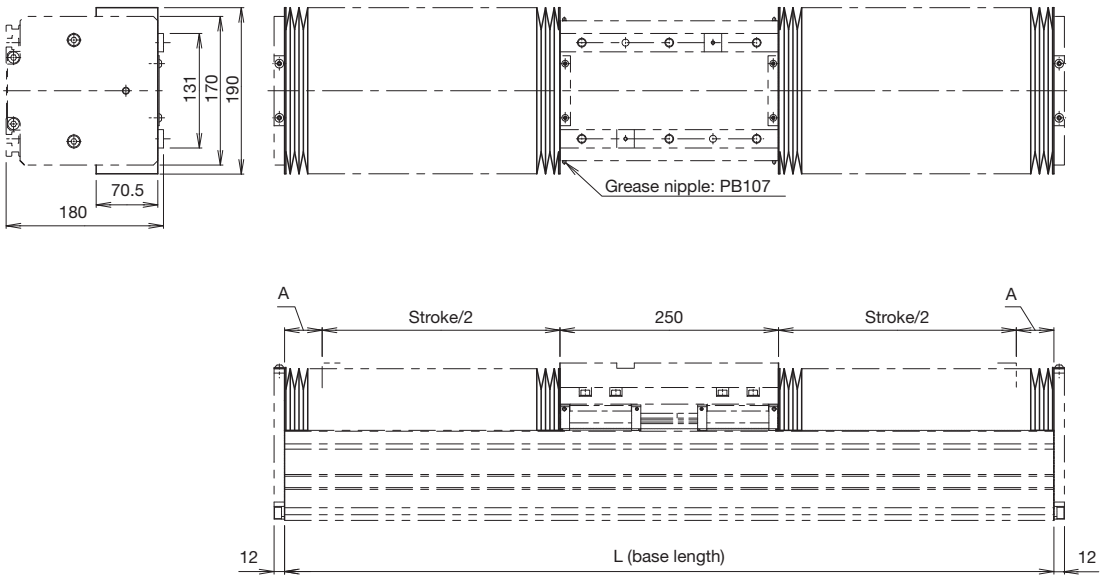


Unit: mm

Stroke[1]	230 (249)	350 (369)	470 (489)	680 (699)	840 (859)	1000 (1014)	1150 (1174)	1310 (1329)	1470 (1489)	1680 (1699)	1890 (1909)	2100 (2119)	2360 (2379)
L (base length)	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440	2680	2980
A: Stroke start	50	50	50	65	75	85	100	110	120	135	150	165	185

[1] Values in parentheses are the maximum stroke.
Note 1) For the model number coding, use the stroke when bellows are attached.
Note 2) When using bellows, the stroke will be shorter. See the specifications and dimensional diagrams for the stroke when not using bellows. → p. 29, p. 30

Belt-Driven Type



Unit: mm

Stroke[2]	240 (259)	360 (379)	470 (489)	680 (699)	840 (859)	990 (1014)	1150 (1174)	1310 (1329)	1470 (1489)	1680 (1699)	1890 (1909)	2100 (2119)	2360 (2379)	2630 (2644)	2890 (2904)	3200 (3219)
L (base length)	580	700	820	1060	1240	1420	1600	1780	1960	2200	2440	2680	2980	3280	3580	3940
A: Stroke start	45	45	50	65	75	90	100	110	120	135	150	165	185	200	220	245

[2] Values in parentheses are the maximum stroke.
Note 3) For the model number coding, use the stroke when bellows are attached.
Note 4) When using bellows, the stroke will be shorter. See the specifications and dimensional diagrams for the stroke when not using bellows. → p. 39, p. 40

Load Rating

Ball Screw Type Load Rating

Model			TH20			TH25			
Drive system			Ball screw			Ball screw			
LM Guide	Basic dynamic load rating C (N)		22300			31700			
	Basic static load rating C_0 (N)		38400			52400			
Ball screw leads (mm)			5	20	40	5	10	25	50
Ball screw	Basic dynamic load rating Ca (N)		6000	7700	5400	6700	21400	12100	8500
	Basic static load rating C_0a (N)		16500	22300	13600	20800	40700	35000	21200
Bearing (fixed side)	Axial direction	Basic dynamic load rating Ca (N)	7600			13700			
		Static permissible load P_0a (N)	2800			4000			

Note 1) LM Guide model HV: These are the values used for SHS-V specification.

Belt-Driven Type Load Rating

Model		TH20	TH25
Drive system		Belt	Belt
LM Guide	Basic dynamic load rating C (N)	22300	31700
	Basic static load rating C_0 (N)	38400	52400

Note 2) LM Guide model HV: These are the values used for SHS-V specification.

Static Permissible Load and Static Permissible Moment

Ball Screw Static Permissible Load and Static Permissible Moment

Model		TH20	TH25
Drive system		Ball screw	Ball screw
Positioning repeatability[1] (mm)		±0.02	±0.02
Static permissible load[2] (N)	Reverse radial direction	21500	31400
	Horizontal direction	6700	10400
	Axial direction	2800	4000
Static permissible moment[3] (N·m)	M_A	1290	2090
	M_B	590	980
	M_C	1180	1720

[1] Positioning repeatability is the guaranteed accuracy with an ambient temperature of 20°C.
[2] The static permissible load is determined by the bolt tightening strength, basic static load rating of the LM Guide unit and the ball screw unit, and static permissible load of the bearing. The strength of the actuator's mounting area is not included, so consider adequate safety.
[3] Static permissible moment is the maximum moment that can be permitted while the product is stationary. The standard for M_A and M_C moments is the top surface of the table, while the standard for M_B moments is the center of the table.
Note 3) LM Guide model HV: These are the values used for SHS-V specification.

Belt-Driven Type Static Permissible Load and Static Permissible Moment

Model		TH20	TH25
Drive system		Belt	Belt
Positioning repeatability[4] (mm)		±0.08	±0.08
Static permissible load[5] (N)	Reverse radial direction	21500	31400
	Horizontal direction	6700	10400
	Axial direction	2010	1690
Static permissible moment[6] (N·m)	M_A	1290	2090
	M_B	590	980
	M_C	1180	1720

[4] Positioning repeatability is the guaranteed accuracy with an ambient temperature of 20°C.
[5] The static permissible load is a value limited by the bolt tightening strength, LM Guide unit, belt, and pulley shaft. The strength of the actuator's mounting area is not included, so consider adequate safety.
[6] Static permissible moment is the maximum moment that can be permitted while the product is stationary. The standard for M_A and M_C moments is the top surface of the table, while the standard for M_B moments is the center of the table.
Note 4) LM Guide model HV: These are the values used for SHS-V specification.

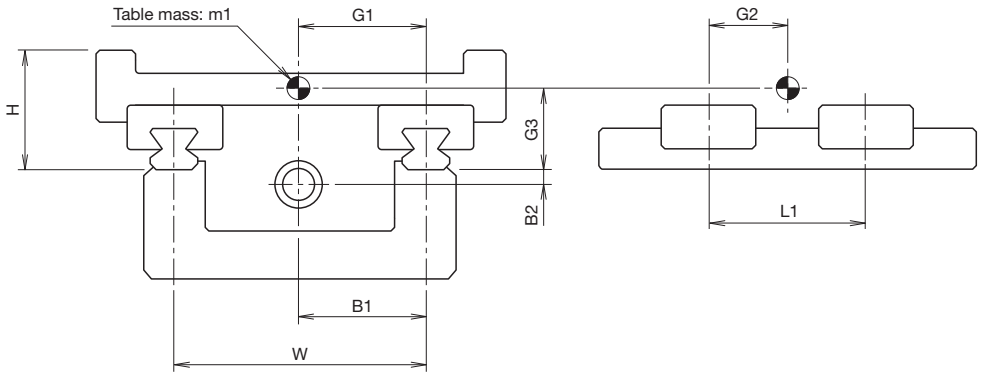
Service Life and Static Safety Factor

The TH is made up of LM Guide units, a ball screw (or belt), and support unit.
Refer to the THK linear motion system general catalog for the service life and static safety factor of each component (LM Guide, ball screw, and support unit).
Furthermore, the nominal life of the LM Guide can be calculated using the THK Technical Support Site (tech.thk.com) or the technical calculation software included in the DVD catalog. When calculating the nominal life, please reference the data in the below table. For the ball screw, please contact THK.

Note) Service life calculations are theoretical calculations. The actual service life may vary depending on usage conditions such as environment, lubrication status, mounting surface accuracy, and rigidity.

Service Life and Static Safety Factor

Actuator model	Drive system	LM Guide symbol	LM Guide with/without QZ	LM Guide model	Thrust position		Rail span	Block span	Moving part				Slider height
									Mass	Center of gravity			
					B1 (mm)	B2 (mm)	W (mm)	L1 (mm)	m1 (kg)	G1 (mm)	G2 (mm)	G3 (mm)	H (mm)
TH20	Ball screw	SW	Without	SSR20XW	58	-1	116	132	3.19	58	66	37.3	60
			With	SSR20XW				114	3.19		57	37.3	
		HV	Without	SHS20V				120	3.49		60	37.9	
			With	SHS20V				100	3.49		50	37.9	
	Belt	SW	Without	SSR20XW	58	-24	116	132	2.94	58	66	37.3	60
			With	SSR20XW				114	2.94		57	37.3	
		HV	Without	SHS20V				120	3.24		60	37.9	
			With	SHS20V				100	3.24		50	37.9	
TH25	Ball screw	SW	Without	SSR25XW	55	30.5	110	165	5.89	55	82.5	48.4	83
			With	SSR25XW				143	5.89		71.5	48.4	
		HV	Without	SHS25V				157	6.25		78.5	49.3	
			With	SHS25V				135	6.25		67.5	49.3	
	Belt	SW	Without	SSR25XW	55	-2.5	110	165	5.4	55	82.5	48.4	83
			With	SSR25XW				143	5.4		71.5	48.4	
		HV	Without	SHS25V				157	5.76		78.5	49.3	
			With	SHS25V				135	5.76		67.5	49.3	



MEMO

⚠ Precautions for Use

Application of These Products
- These products cannot be used for equipment or systems used in situations involving human life and limb.
- Be certain to contact THK in advance if considering utilizing for special applications, such as devices or systems used in passenger vehicles, medical equipment, aerospace, nuclear power, or electric power equipment.

Rotational Motor Drive Products

Handling
- When using the product in locations exposed to constant vibrations or in special environments such as in clean rooms, vacuums, and low/high temperatures, contact THK.
- Tilting the table or the outer rail may cause them to fall due to their own weight.

Safety Precautions
- Before operation, thoroughly read and follow "Manipulating industrial robots - Safety" (JIS B 8433) and "Ordinance on Industrial Safety and Health" (Ministry of Health, Labour and Welfare of Japan).
- Be certain to read the instruction manual carefully, ensure you fully understand its contents, and observe precautions for safety.
- When installing, adjusting, inspecting, and maintaining the actuator body and related connected devices, be sure to unplug all plugs from outlets and lock them or prepare a safety plug so that the power cannot be turned on except by the operator. In a visible location, post a notice clearly stating that work is in progress.
- Never touch the operating parts of the actuator while it is live. Also, do not enter the operating range of the actuator while the product is in operation or a ready state.
- If multiple people are involved in the operation, confirm procedures such as work process, signs, and abnormalities in advance, and appoint a separate person for monitoring the operation.
- Do not disassemble these products unnecessarily. Doing so may lead to contamination by foreign materials or deterioration in accuracy.
- Take care not to drop or strike this product. Otherwise, it may cause injury or damage the unit. Even if there is no outward indication of damage, a sudden impact could prevent the unit from functioning properly.
- Do not exceed the permissible rotational speed when using the product. This could damage the product or otherwise cause it to malfunction. Please use the product within the range of speeds we have specified.
- Take care to avoid contamination of foreign material such as debris or cutting chips. This may result in damage to the ball circulation parts or decreased functionality.
- Contact THK regarding use in environments where coolant may enter the product.
- An impact-absorbing mechanism such as a shock absorber must be installed if there is a risk that the slider may collide with the stoppers attached to both ends of the movable range. The stoppers are not intended to absorb impacts during slider collision. Colliding with the stoppers during operation may result in damage or injury.
- Operation of the actuator over the torque limit value may lead to component damage or accidents.
- Keep the torque limit setting parameters within the allowable torque limit values.
- Motor wrap types do not include a safety device to protect users if the timing belt snaps. The customer must provide a safety device.
- Among these products are those with a total body weight exceeding 20 kg. When transporting or assembling, always take safety into consideration to avoid injury or damage, and use appropriate conveying equipment.
- In applications where this product will be moved or transferred, the conditions of use may cause inertia from the motor's weight to result in damage to the motor attachment (Housing A) or other parts. Please contact THK before using in this manner.

Operating Environment
- Indoors, ambient temperature between 0°C to 40°C, and ambient humidity of 80% RH or less (no freezing or condensation).
- Places free from corrosive gas and flammable gas.
- Places where vibrations and impacts are not transmitted to the unit.
- Places free from electrically conductive powder (such as iron powder), dust, oil mist, moisture, salt, and organic solvents.
- Places free from direct sunlight and radiant heat.
- Places free from strong electric and magnetic fields.
- Places that are easily accessible for maintenance and cleaning.
- When using the product in locations exposed to constant vibrations or in special environments such as in vacuums or low/high temperatures, contact THK.

Actuator Mounting Surface
- Mount to a flat surface suitable for mechanical machining or with comparable precision. Some products have required degrees of flatness.
- Mount to a base with sufficient rigidity.

Lubrication
- For effective use of the actuator's functions, lubrication is required. Insufficient lubrication may cause greater wear on moving parts, leading to premature damage.
- Do not use a mix of lubricants with different properties. Note that the included lubricant may differ depending on the product.
- Contact THK if using special lubricants.
- 100 km should be considered a guideline for greasing intervals. However, this may vary depending on the operating conditions, so THK recommends determining a greasing interval during the initial inspection.
- Regular lubricant may not be usable in special environments such as constantly vibrating locations, vacuums, high/low temperatures, or clean rooms. Contact THK in these cases.
- Contact THK if using oil lubrication.
- Thoroughly wipe off anti-rust oil and feed lubricant before using the product.

Storage
- When storing this actuator, pack it as designated by THK and store it in a horizontal position away from high or low temperatures and high humidity.
- When storing the controller, avoid high or low temperatures and high humidity.

Disposal
- The product should be treated as industrial waste and disposed of appropriately.

Other Recommended Products

Caged Ball LM Guide Actuator

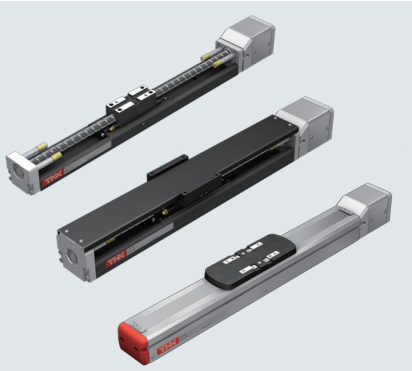
SKR

- ○ Modular structure reduces the number of parts, design hours, and assembly hours
- ○ Caged ball effect enables a long service life and long-term maintenance-free operation
- ○ Ideal for high-precision positioning and orthogonal, multi-axis designs

LM Guide Actuator

KR

- ○ Modular structure reduces the number of parts, design hours, and assembly hours
- ○ Can be used in various orientations, including horizontal, wall-mounted, vertical, and hanging
- ○ Extensive lineup of 9 sizes



LM Guide Actuator with Large-Diameter Ball Screw

KSF

Open cover/top cover/fully enclosed

- ○ Large-diameter ball screw enables high-speed and high-acceleration/deceleration operations
- ○ 3 types of cover options to choose from to suit the application
- ○ Supports long strokes up to 1500 mm

Universal Series Electric Actuator **TH**

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