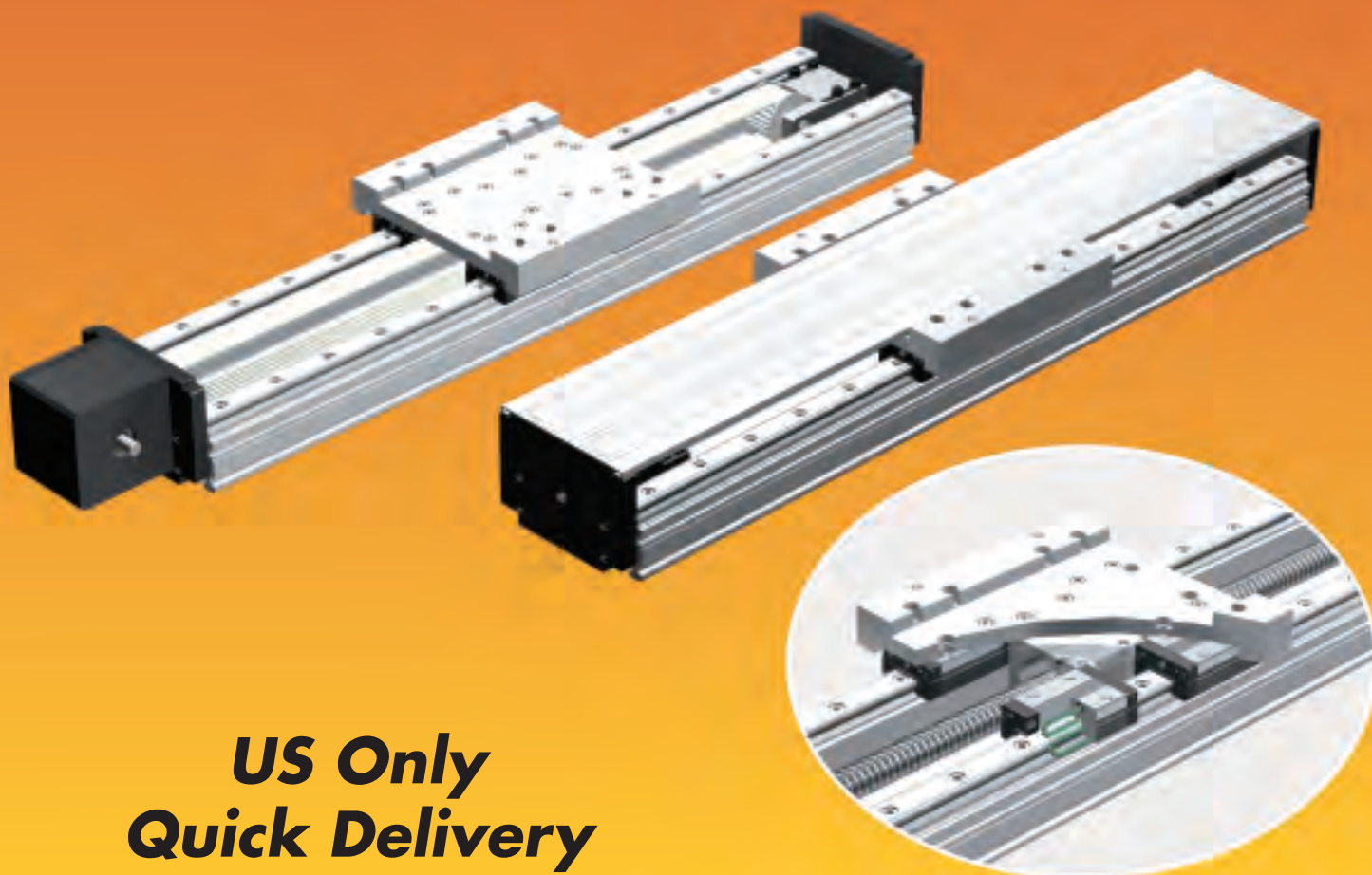




# LM Actuator

Equipped with Caged Ball  
LM Guides and QZ Lubricator  
for Ball Screw

# GL-N



**US Only  
Quick Delivery**

*\* Standard options only. Please refer to list in page 6.*

For details, visit THK at [www.thk.com](http://www.thk.com)

\*Product information is updated regularly on the THK website.

**THK CO., LTD.**  
TOKYO, JAPAN

CATALOG No. 177-6E-US

# Structures of LM Actuator GL-N Model

## Ball Screw

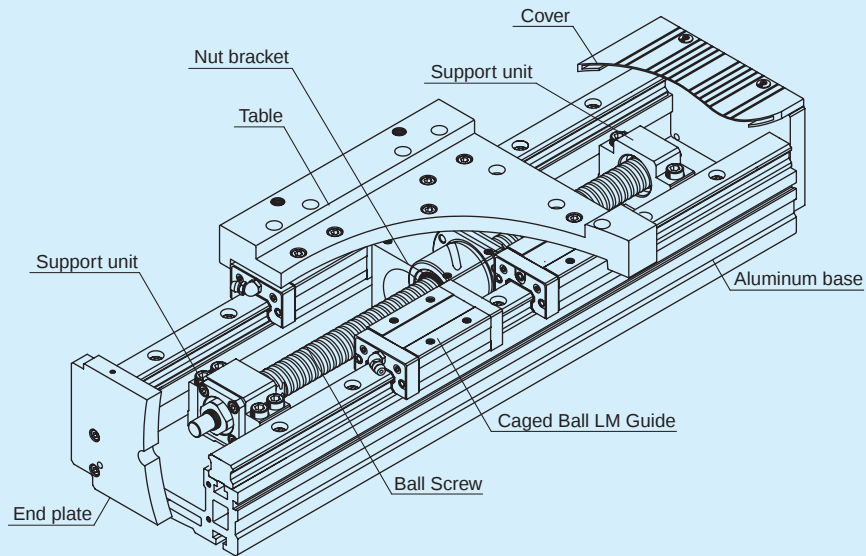


Figure 1 Ball Screw Type Structure

## Timing Belt

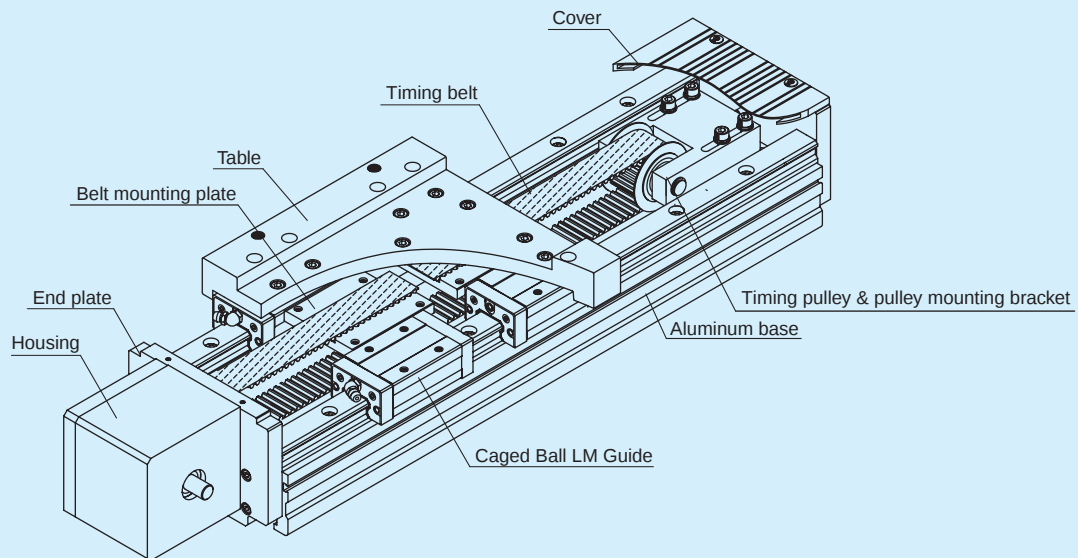


Figure 2 Timing Belt Type Structure

## Features of LM Actuator GL-N Model

Lightweight, high rigidity aluminum base with Caged Ball LM Guides has been utilized for the guide portion. A screw or belt options are available for the drive system.

In addition, Caged Ball LM Guides and QZ Lubricator for the Ball Screw has been utilized to provide a long-term maintenance free actuator.

### Utilizing Caged Ball LM Guide (SSR, SHS)

SSR model: Due to its 90-degree ball contact structure, is best suited to horizontal applications with relatively low moment loads.

SHS model: It can handle loads from all directions (radial, reverse radial, and horizontal) with its 4-way equal load rating capability.

### Drive System

#### [Ball Screw Type]

Variety of screw leads can be selected.

Table 1 Ball Screw Leads by Model Numbers (Rolled ball screw)

| Model number | Ball Screw lead (mm) |
|--------------|----------------------|
| GL15N        | 5, 10, 16, 20, 30    |
| GL20N        | 5, 10, 20, 40        |

Note: For wrap-around motor types, three motor directions (left, right and bottom) can be selected. (See page 4 for details.)

#### [Timing Belt Type]

Highly rigid timing belt ensures that high speed processes are possible for longer stroke applications than the Ball Screw driven type.

Table 2 Pitch Diameter of the Timing Pulley

| Model number | Pitch diameter (mm) | Slider move distance per pulley rotation (mm) |
|--------------|---------------------|-----------------------------------------------|
| GL15N        | 35.01               | $35.01 \times \pi \approx 110$                |
| GL20N        | 38.20               | $38.20 \times \pi \approx 120$                |

Note: Because the timing pulley has a large pitch diameter, the use of a reducer is recommended. For details, see pages 18 and 19.

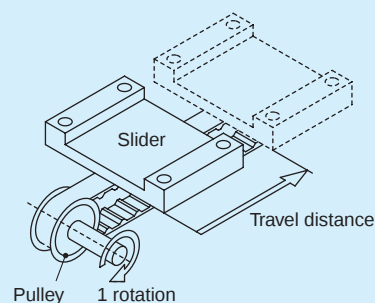


Figure 3 Slider move distance per pulley rotation

### Lightweight and High Rigidity

By using a hollow aluminum extrusion, lightweight and high rigidity is achieved.

Table 3 Geometrical Moment of Inertia and Weight in the Base

| Model number | Geometrical Moment of Inertia |                          | Weight (kg/m) |
|--------------|-------------------------------|--------------------------|---------------|
|              | $I_x$ (mm <sup>4</sup> )      | $I_y$ (mm <sup>4</sup> ) |               |
| GL15N        | $1.61 \times 10^5$            | $2.47 \times 10^6$       | 4.85          |
| GL20N        | $3.15 \times 10^5$            | $4.28 \times 10^6$       | 6.47*         |

\* The weight of the SSR model is 6.69kg/m.

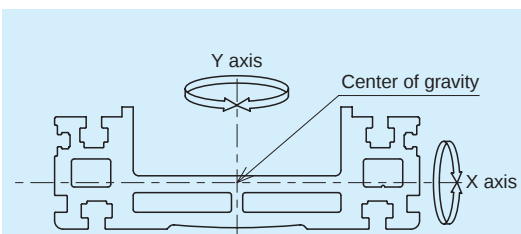


Figure 4 Base Section

## GL-N Model also available with optional QZ Lubricator

A Caged Ball LM Guide and QZ Lubricator for the Ball Screw have been utilized to ensure a long-term maintenance-free actuator.

## Ensuring Adaptability with Most Advanced Motors

A large variety of flanges have been engineered so that a wide selection of motor options are available to be used with the GL-N.

## Multiple Options Available

Multiple options such as covers, bellows, sensors and cable carriers are available.

## Compatible with the Conventional GL Model

Due to the dimensions between the GL models and the GL-N models are same.  
Replacing with the GL-N is easily possible (GL20N).

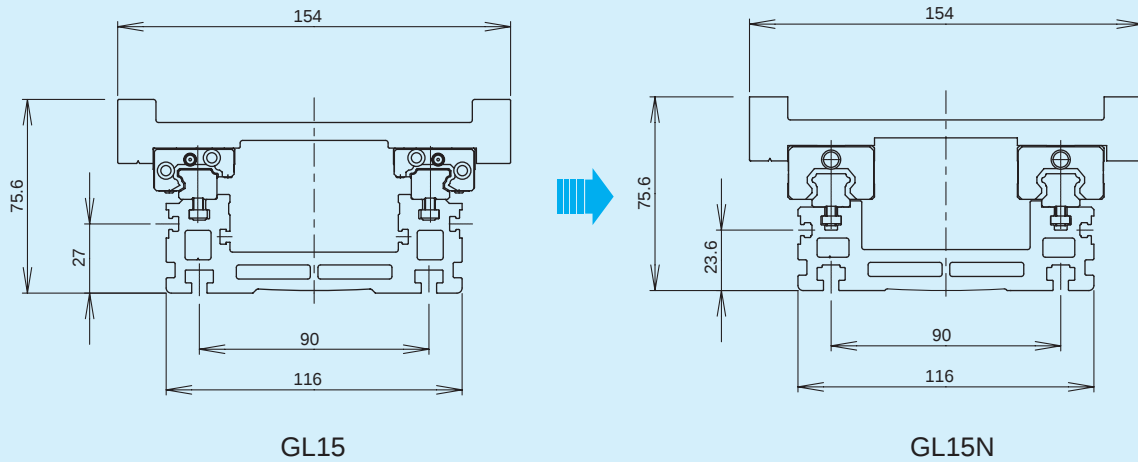


Figure 5 Cross-section comparative views

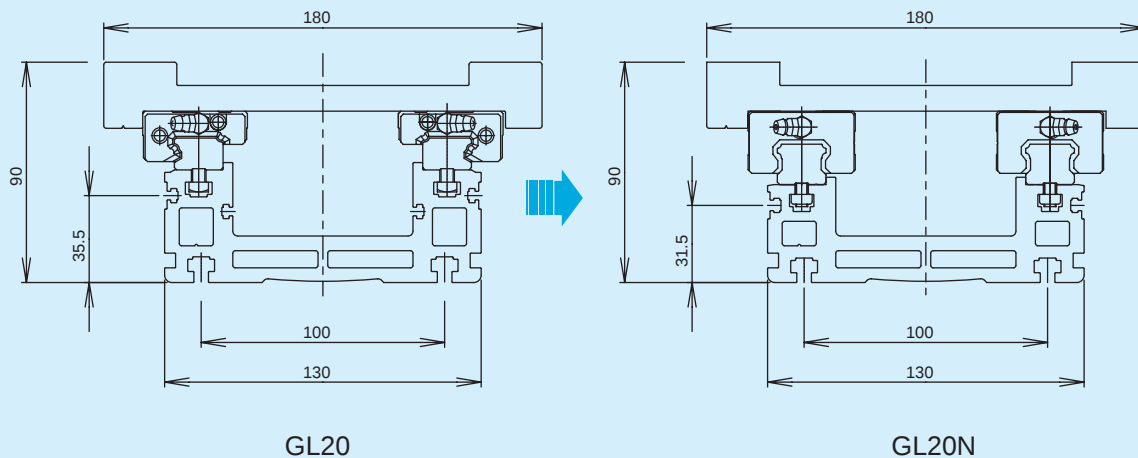


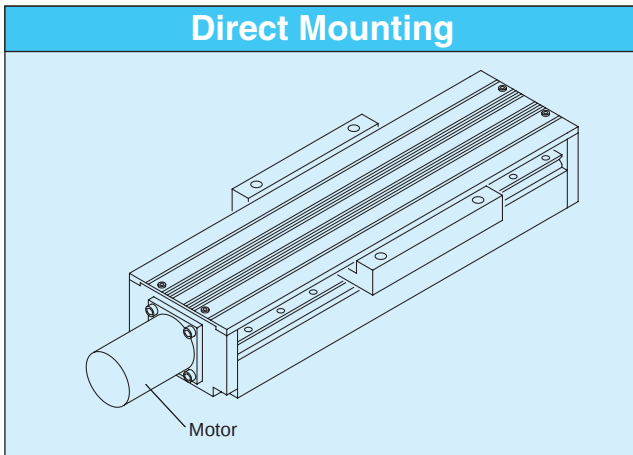
Figure 6 Cross-section comparative views

# Types and Features

## Types of Drive Systems

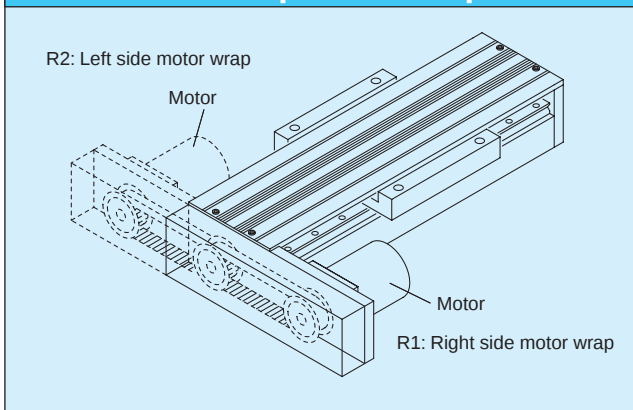
### [Ball Screw Drive]

#### Direct Mounting



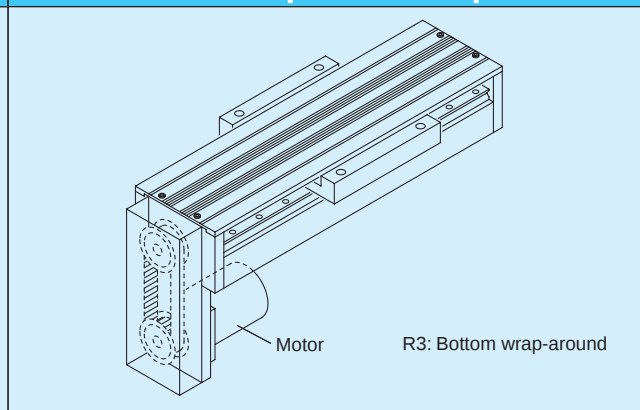
Direct mounting of Motor to Ball Screw.

#### Lateral wrap-around Option



Axial dimensions are kept to minimum by applying the Wrap-Around option.  
(Pulley ratio: 1:1)

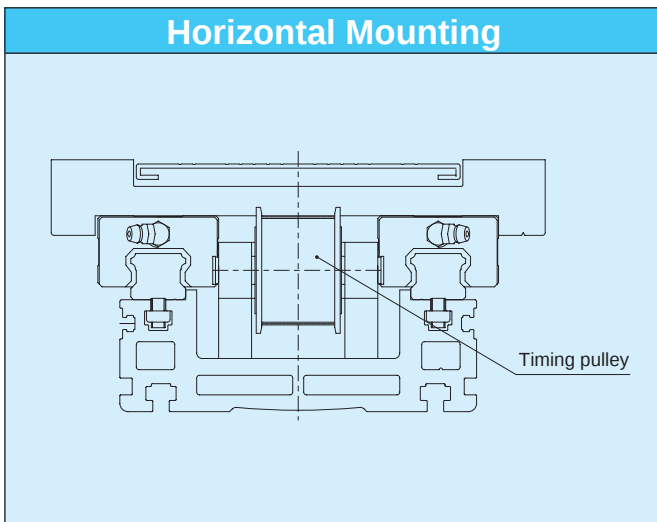
#### Bottom wrap-around Option



When horizontal space is at a minimum, the bottom side Wrap-Around option is available.  
(Pulley ratio: 1:1)

### [Timing Belt Type]

#### Horizontal Mounting



Note 1: Please mount Model GL-N horizontally. Contact THK if Model GL-N will be mounted on a wall.

Note 2: Please note that Model GL-N with timing belts cannot be mounted vertically.

| Model number                                                               |                          |            | GL15N       |    |    |    |    |            |             | GL20N |    |    |             |  |
|----------------------------------------------------------------------------|--------------------------|------------|-------------|----|----|----|----|------------|-------------|-------|----|----|-------------|--|
| Drive system                                                               |                          |            | Ball Screw  |    |    |    |    | Belt       | Ball Screw  |       |    |    | Belt        |  |
| Screw lead (mm)                                                            |                          |            | 5           | 10 | 16 | 20 | 30 | —          | 5           | 10    | 20 | 40 | —           |  |
| Pulley pitch diameter (mm)                                                 |                          |            | —           |    |    |    |    | 35.01      | —           |       |    |    | 38.20       |  |
| Repeatability <sup>Note 1)</sup> (mm)                                      |                          |            | ±0.02       |    |    |    |    | ±0.08      | ±0.02       |       |    |    | ±0.08       |  |
| Effective stroke <sup>Note 2)</sup> (mm)                                   |                          |            | 100 to 1200 |    |    |    |    | 50 to 1700 | 200 to 1550 |       |    |    | 150 to 2700 |  |
| Maximum load capacity guideline <sup>Note 3)</sup> <sup>Note 4)</sup> [kg] | 200W                     | Horizontal | 60          | 60 | 50 | 45 | 20 | 30         | —           | —     | —  | —  | —           |  |
|                                                                            |                          | Vertical   | 20          | 16 | 10 | 10 | 3  | —          | —           | —     | —  | —  |             |  |
|                                                                            | 400W                     | Horizontal | —           | —  | —  | —  | —  | —          | 70          | 70    | 60 | 15 | 50          |  |
|                                                                            |                          | Vertical   | —           | —  | —  | —  | —  | —          | 30          | 30    | 13 | 6  | —           |  |
| Static permissible load <sup>Note 5)</sup> [N]                             | Reverse radial direction |            | 9600        |    |    |    |    |            |             | 14300 |    |    |             |  |
|                                                                            | Horizontal direction     |            | 2900        |    |    |    |    |            |             | 4500  |    |    |             |  |
|                                                                            | Axial direction          |            | 2100        |    |    |    |    | —          | 2200        |       |    |    | —           |  |
| Static permissible moment <sup>Note 6)</sup> [N-m]                         | M <sub>A</sub>           |            | 430         |    |    |    |    |            |             | 710   |    |    |             |  |
|                                                                            | M <sub>B</sub>           |            | 240         |    |    |    |    |            |             | 430   |    |    |             |  |
|                                                                            | M <sub>C</sub>           |            | 610         |    |    |    |    |            |             | 1020  |    |    |             |  |

Note 1: This repeatability is ensured at an ambient temperature of 20°C.

Note 2: The effective stroke decreases depending on the table length. See the dimensional drawings (pages 7 to 14) for stroke details.

Note 3: Maximum load capacity guideline is determined based on rated revolution of the motor at the acceleration of 0.3G.

The motor capacity assumes the use of an AC servomotor.

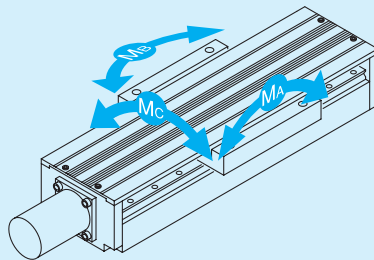
Note 4: Values for the belt drive type are guidelines when using 1/5 reducers.

Note 5: The static permissible load is determined by the bolt joint strength, and the static rated load of the LM guide unit, ball screw unit and the support bearing.

For safety purposes, please take into consideration that the strength of the actuator mounting unit is not included.

Note 6: The static permissible moment is the maximum value of the moment in each direction.

For details on fatigue life, see "Service Life Time and Static Safety Factor" on pages 25 to 26.



**MA** : Pitching direction

**MB** : Yawing direction

**MC** : Rolling direction

**Figure 7 Directions of static permissible moment**

## Types of Tables

### S type: Short table (applicable LM Guide model number: SSR-XV)

A short table length ensures a longer stroke.

### L type: Long table (applicable LM Guide model number: SSR-XW, and SHS-V)

This table is suitable for mounting large sized objects or if the load is off center.

### L-QZ type: Long table with an LM Guide QZ Lubricator (applicable LM Guide model numbers: SSR-XWQZ and SHS-VQZ)

The LM Guide is provided with a QZ Lubricator. (This table is longer than the L-type table. See dimensional drawings for more details.)

Note: QZ lubricator is not available for S type table option.

## Maximum Travel Speed of the LM Actuator

### Ball Screw Type

Ball Screws have an allowable rotational speed based on the DN value and the critical speed.

The table travel speed (mm/s) of the LM Actuator depends on the rotational speed of the Ball Screw and the rated rpm (3000 min<sup>-1</sup>) of the AC servo motor.

### Maximum travel speed

Unit: mm/s

| Nominal model number |      | GL15N |     |     |      |      | GL20N |     |      |      |
|----------------------|------|-------|-----|-----|------|------|-------|-----|------|------|
| Ball Screw lead      |      | 5     | 10  | 16  | 20   | 30   | 5     | 10  | 20   | 40   |
| Base length          | 340  | 248   | 500 | 800 | 1000 | 1500 | —     | —   | —    | —    |
|                      | 460  | 248   | 500 | 800 | 1000 | 1500 | 202   | 500 | 1000 | 2000 |
|                      | 580  | 248   | 500 | 800 | 1000 | 1500 | 202   | 500 | 1000 | 2000 |
|                      | 700  | 248   | 500 | 800 | 1000 | 1500 | 202   | 500 | 1000 | 2000 |
|                      | 820  | 248   | 500 | 800 | 1000 | 1500 | 202   | 500 | 1000 | 2000 |
|                      | 1060 | 207   | 391 | 685 | 776  | 1175 | 202   | 396 | 1000 | 2000 |
|                      | 1240 | 144   | 271 | 474 | 540  | 815  | 185   | 275 | 763  | 1533 |
|                      | 1420 | 105   | 198 | 349 | 396  | 595  | 136   | 201 | 560  | 1120 |
|                      | 1600 | —     | —   | —   | —    | —    | 104   | —   | 426  | 860  |
| 1780                 | —    | —     | —   | —   | —    | 82   | —     | 336 | 673  |      |

Note: The LM actuator may not reach the maximum travel speed if the moving distance is short.

### Timing Belt Type

The table shown below summarizes the table travel speed (mm/s) of when the LM Actuator is equipped with a reducer and the AC servo motor is operated at a rated rpm (3000min<sup>-1</sup>).

### Maximum travel speed

Unit: mm/s

| Nominal model number |  | GL15N |      |     | GL20N |      |     |
|----------------------|--|-------|------|-----|-------|------|-----|
| Reduction ratio      |  | 1/3   | 1/5  | 1/9 | 1/3   | 1/5  | 1/9 |
| Maximum travel speed |  | 1833  | 1100 | 611 | 2000  | 1200 | 667 |

# Nominal Model Numbers

## Ball Screw type specification

**GL20N - 070 - SW Q - B20 Q R1 - B14 - C - A - A - Y**

① ② ③ ④ ⑤ ⑥ ⑦ ⑧ ⑪ ⑫ ⑬ ⑭

## Belt type specification

**GL20N - 070 - SW Q - EH - B1 - G1 - 03 - C - A - A - Y**

① ② ③ ④ ⑤ ⑧ ⑨ ⑩ ⑪ ⑫ ⑬ ⑭

|                                        |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                          |
|----------------------------------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|----------------------------------------------------------------------------------------------------------|
| ① Nominal model number                 | GL15N/GL20N                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                          |
| ② Base length                          | Example) For 340 mm: 034                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       | Standard base lengths shown on page 7 to 14                                                              |
| ③ LM Guide                             | SV: SSR-XV (S-type table)<br>HV: SHS-V (L-type table) (L-QZ type table for SSR/SHS with QZ)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    | SW: SSR-XW (L-type table)                                                                                |
| ④ LM Guide QZ Lubricator               | No mark: Not provided with QZ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Q: Provided with QZ (SSR-XW/SHS only)                                                                    |
| ⑤ Driving system                       | <b>◆ Ball Screw-driven</b><br>B05: Ball Screw lead 5 mm (GL15/20)<br>B20: Ball Screw lead 20 mm (GL20)<br>B30: Ball Screw lead 30 mm (GL15 only)<br>B40: Ball Screw lead 40 mm (GL20 only)<br><b>◆ Belt-driven</b><br>EH: Horizontal model specification                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |                                                                                                          |
| ⑥ Ball Screw QZ Lubricator             | No mark: Not provided with QZ                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                  | Q: Provided with QZ (SSR-XW/SHS only) * Ball Screw leads (30 mm and 40 mm) are excluded for wiper rings. |
| ⑦ Ball Screw driven motor mount method | No mark: Direct mounting<br>R1: Right side motor wrap                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          | R2: Left side motor wrap<br>R3: Bottom                                                                   |
| ⑧ Ball Screw drive End plate type      | <b>◆ Ball Screw specification for direct motor connection</b><br>A: inner diameter ø30H7, M4, PCD46<br>B: inner diameter ø50H7, M5, PCD70<br>C: inner diameter ø50H7, M4, PCD60<br>D: inner diameter ø70H7, M5, PCD90 (GL20 only)<br>E: inner diameter ø30H7, M3, PCD45<br>T: inner diameter ø22, counter bore for M3 from rear, mounting pitch 31 (NEMA17 standard) (GL15 only)<br>U: inner diameter ø38.15, M4, mounting pitch 47.14 (NEMA23 standard)<br>V: inner diameter ø73.03, M5, mounting pitch 69.6 (NEMA34 standard) (GL20 only)<br>W: inner diameter ø40, M5, PCD63<br>Z: inner diameter ø60, M5, PCD75<br><b>◆ Ball Screw specification for motor wrap-around</b><br>B14: inner diameter ø50, M5, PCD70, pulley inner diameter ø14<br>D11: inner diameter ø70, M5, PCD90, pulley inner diameter ø11<br>D14: inner diameter ø70, M5, PCD90, pulley inner diameter ø14<br>V11: inner diameter ø73.03, M5, mounting pitch 69.6, pulley inner diameter ø9.53 mm (NEMA34 standard) (GL20 only)<br><b>◆ Belt specification for motor bracket</b><br>N: No motor bracket<br>B1: inner diameter ø50, ø5.5, PCD60<br>B2: inner diameter ø70, ø6.6, PCD90<br>U1: inner diameter ø38.15, M4 (NEMA23 standard)<br>V1: inner diameter ø73.03, M5 (NEMA34 standard) (GL20 only) |                                                                                                          |
| Timing belt drive Motor bracket type   |                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |                                                                                                          |
| ⑨ Reducer                              | <b>◆ Reducer specification for belt drive (motor bracket, only available for B1 and B2)</b><br>Reducer symbols: G1, G2, G3, G4, G5, G6, G7, G8 and G9<br>* See page 19 for details of the reducer symbols and available motors.<br>Note: When ordering a belt drive with reducer inform us of the model number of the motor to which it is to be attached. (Please indicate combined motor for selecting gear head interface.)<br>No mark: Not provided with reducer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |                                                                                                          |
| ⑩ Reduction ratio                      | Reduction ratio: 03: 1/3    05: 1/5    09: 1/9<br>Note: Model number display example: B1-G1-03 (motor bracket B1 + reducer G1 + reduction ratio 1/3)<br>No mark: Not provided with reducer.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |                                                                                                          |
| ⑪ Covers and bellows <sup>Note2)</sup> | N: Not provided    C: Cover provided    J: Bellow provided                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |                                                                                                          |
| ⑫ Sensors                              | N : None    A: Photo sensor EE-SX671 (3 pcs)    B: Photo sensor EE-SX674 (3 pcs)<br>C1: Proximity sensor TL-W3MC1 (N.O.×3)<br>C2: Proximity sensor TL-W3MC1 (N.O.×1), TL-W3MC2 (N.C.×2)<br>C3: TL-W3MB1(N.O.×3)<br>C4: TL-W3MB1(N.O.×1), TL-W3MB2(N.C.×2)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |                                                                                                          |
| ⑬ Cable carrier                        | N: None<br>A: TKP0180W40R28 (Tsubakimoto Chain Co.)<br>B: TKP0180W40R37 (Tsubakimoto Chain Co.)<br>C: TKP0180W40R50 (Tsubakimoto Chain Co.)<br>D: TKP0350W25R37 (Tsubakimoto Chain Co.)<br>E: TKP0350W25R50 (Tsubakimoto Chain Co.)<br>F: TKP0350W25R75 (Tsubakimoto Chain Co.)<br>G: TKP0350W50R37 (Tsubakimoto Chain Co.)<br>H: TKP0350W50R50 (Tsubakimoto Chain Co.)<br>I: TKP0350W50R75 (Tsubakimoto Chain Co.)                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |                                                                                                          |
| ⑭ Mounting hole                        | Y: Standard mounting counter bore                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |                                                                                                          |

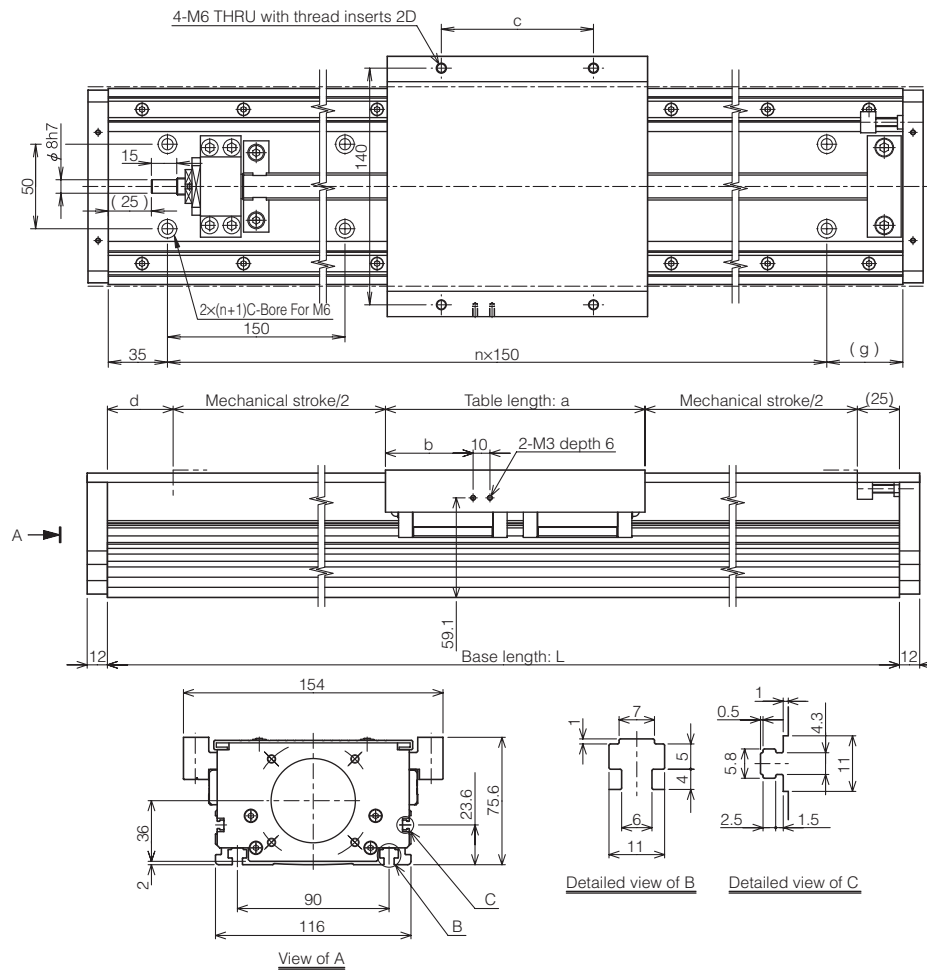
Note 1: Items with cyan marker indicate standard options at this time.

Note 2: Cover is applied up to 1960mm base length.

# Ball Screw Driven Dimensions

## GL15N Model, Ball Screw Driven

### [Direct Mounting Specification]



Unit: mm

| Table type | Table length: a | b  | c   | d  |
|------------|-----------------|----|-----|----|
| S type     | 126             | 38 | 90  | 53 |
| L type     | 154             | 52 | 90  | 39 |
| L(QZ) type | 154             | 52 | 90  | 48 |
| L-QZ type  | 180             | 65 | 120 | 21 |

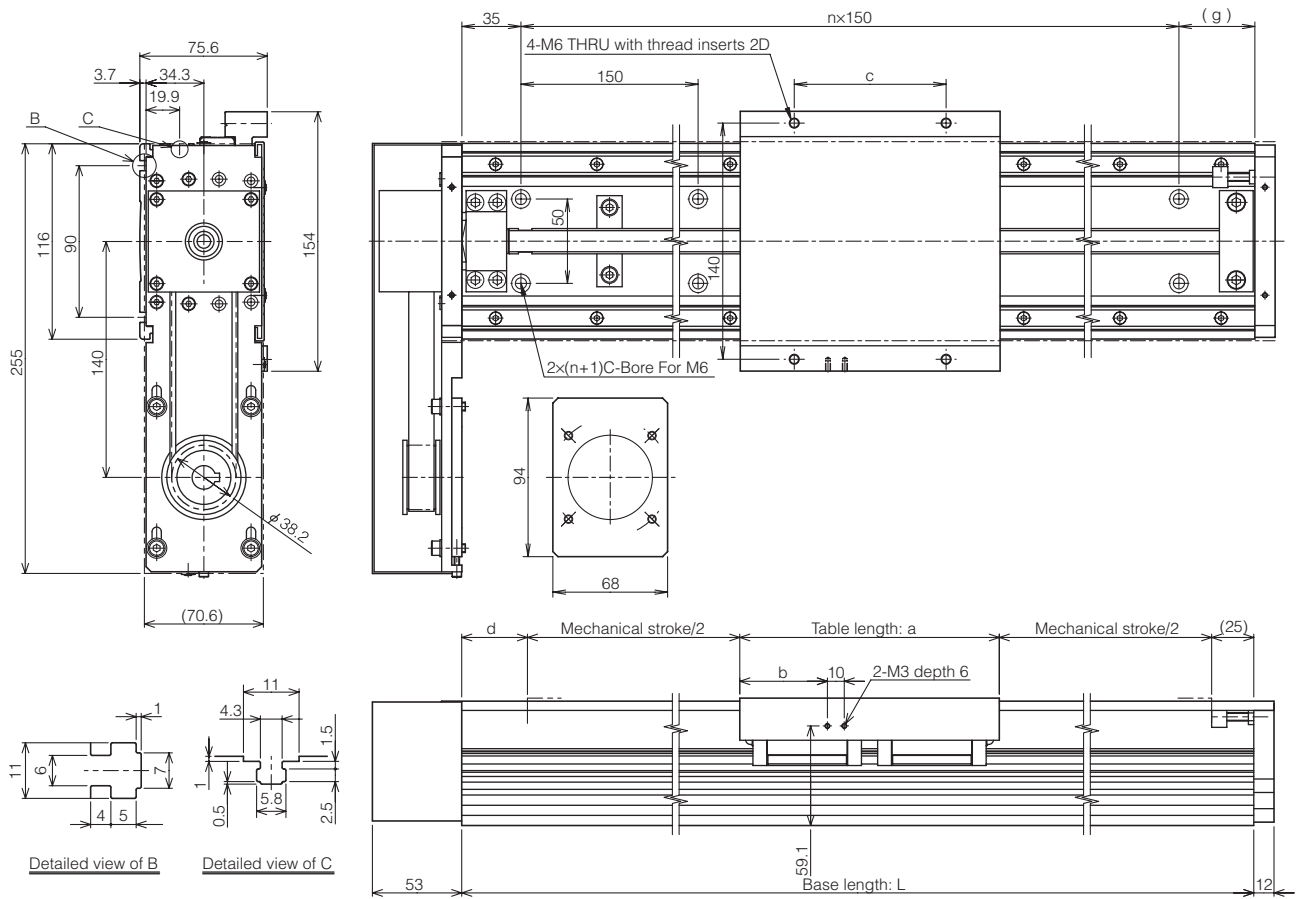
| Base length: L [mm]    |       | 340              | 460 | 580 | 700 | 820 | 1060 | 1240 | 1420 |
|------------------------|-------|------------------|-----|-----|-----|-----|------|------|------|
| Mechanical stroke [mm] | Table | S type           | 136 | 256 | 376 | 496 | 616  | 856  | 1216 |
|                        |       | L type           | 122 | 242 | 362 | 482 | 602  | 842  | 1202 |
|                        |       | L(QZ) type       | 113 | 233 | 353 | 473 | 593  | 833  | 1193 |
|                        |       | L-QZ type        | 114 | 234 | 354 | 474 | 594  | 834  | 1194 |
| Main unit weight [kg]  | Table | S type           | 5.8 | 6.9 | 8.0 | 9.2 | 10.3 | 12.5 | 15.9 |
|                        |       | L type (SSR15XW) | 6.1 | 7.2 | 8.3 | 9.5 | 10.6 | 12.8 | 16.2 |
|                        |       | L type (SHS15V)  | 6.5 | 7.6 | 8.8 | 9.9 | 11.1 | 13.4 | 16.8 |
| Base mounting hole     |       | n                | 1   | 2   | 3   | 4   | 5    | 6    | 7    |
|                        |       | g                | 155 | 125 | 95  | 65  | 35   | 125  | 155  |

Note 1: The main unit weight includes the cover weight.

Note 2: The table L(QZ) type shows a QZ specification only for the Ball Screw.

Note 3: The main unit weight of the QZ type is the main unit weight of the table +0.1kg.

[Lateral Wrap-around Specification]



Unit: mm

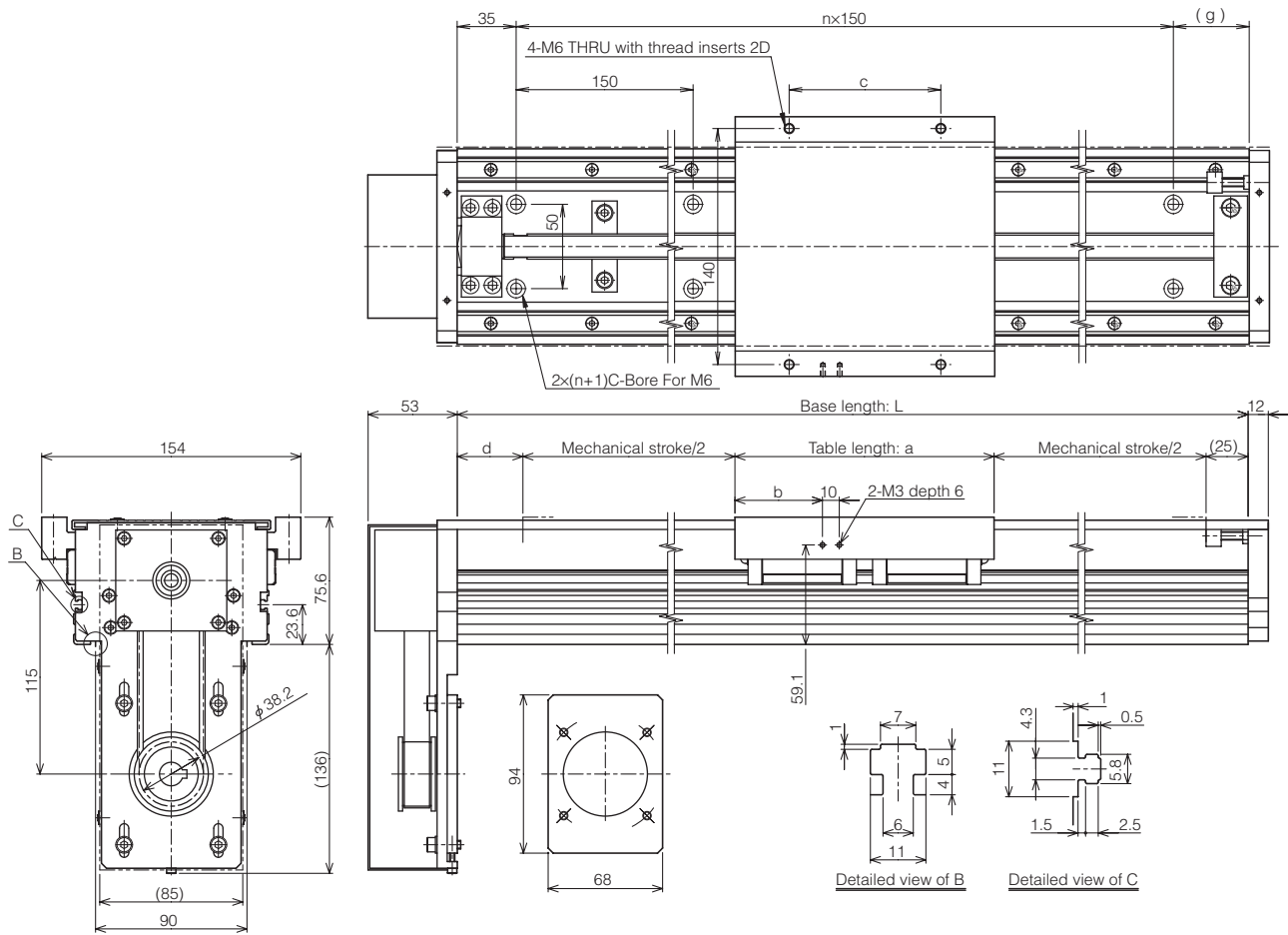
| Table type | Table length: a | b  | c   | d  |
|------------|-----------------|----|-----|----|
| S type     | 126             | 38 | 90  | 53 |
| L type     | 154             | 52 | 90  | 39 |
| L(QZ) type | 154             | 52 | 90  | 48 |
| L-QZ type  | 180             | 65 | 120 | 21 |

| Base length: L [mm]    |                  | 340 | 460 | 580  | 700  | 820  | 1060 | 1240 | 1420 |
|------------------------|------------------|-----|-----|------|------|------|------|------|------|
| Mechanical stroke [mm] | S type           | 136 | 256 | 376  | 496  | 616  | 856  | 1036 | 1216 |
|                        | L type           | 122 | 242 | 362  | 482  | 602  | 842  | 1022 | 1202 |
|                        | L(QZ) type       | 113 | 233 | 353  | 473  | 593  | 833  | 1013 | 1193 |
|                        | L-QZ type        | 114 | 234 | 354  | 474  | 594  | 834  | 1014 | 1194 |
| Main unit weight [kg]  | S type           | 7.4 | 8.5 | 9.6  | 10.8 | 11.9 | 14.1 | 15.8 | 17.5 |
|                        | L type (SSR15XW) | 7.7 | 8.8 | 9.9  | 11.1 | 12.2 | 14.4 | 16.1 | 17.8 |
|                        | L type (SHS15V)  | 8.1 | 9.2 | 10.4 | 11.5 | 12.7 | 15.0 | 16.7 | 18.4 |
| Base mounting hole     | n                | 1   | 2   | 3    | 4    | 5    | 6    | 7    | 9    |
|                        | g                | 155 | 125 | 95   | 65   | 35   | 125  | 155  | 35   |

Note 1: The main unit weight includes the cover weight.

Note 2: The table L(QZ) type shows a QZ specification only for the Ball Screw.

Note 3: The main unit weight of the QZ type is the main unit weight of the table +0.1kg.



Unit: mm

| Table type | Table length: a | b  | c   | d  |
|------------|-----------------|----|-----|----|
| S type     | 126             | 38 | 90  | 53 |
| L type     | 154             | 52 | 90  | 39 |
| L(QZ) type | 154             | 52 | 90  | 48 |
| L-QZ type  | 180             | 65 | 120 | 21 |

| Base length: L [mm]    |       | 340              | 460 | 580 | 700  | 820  | 1060 | 1240 | 1420 |
|------------------------|-------|------------------|-----|-----|------|------|------|------|------|
| Mechanical stroke [mm] | Table | S type           | 136 | 256 | 376  | 496  | 616  | 856  | 1216 |
|                        |       | L type           | 122 | 242 | 362  | 482  | 602  | 842  | 1202 |
|                        |       | L(QZ) type       | 113 | 233 | 353  | 473  | 593  | 833  | 1193 |
|                        |       | L-QZ type        | 114 | 234 | 354  | 474  | 594  | 834  | 1194 |
| Main unit weight [kg]  | Table | S type           | 7.4 | 8.5 | 9.6  | 10.8 | 11.9 | 14.1 | 17.5 |
|                        |       | L type (SSR15XW) | 7.7 | 8.8 | 9.9  | 11.1 | 12.2 | 14.4 | 17.8 |
|                        |       | L type (SHS15V)  | 8.1 | 9.2 | 10.4 | 11.5 | 12.7 | 15.0 | 18.4 |
| Base mounting hole     |       | n                | 1   | 2   | 3    | 4    | 5    | 6    | 7    |
|                        |       | g                | 155 | 125 | 95   | 65   | 35   | 125  | 155  |

Note 1: The main unit weight includes the cover weight.

Note 2: The table L(QZ) type shows a QZ specification only for the Ball Screw.

Note 3: The main unit weight of the QZ type is the main unit weight of the table +0.1kg.



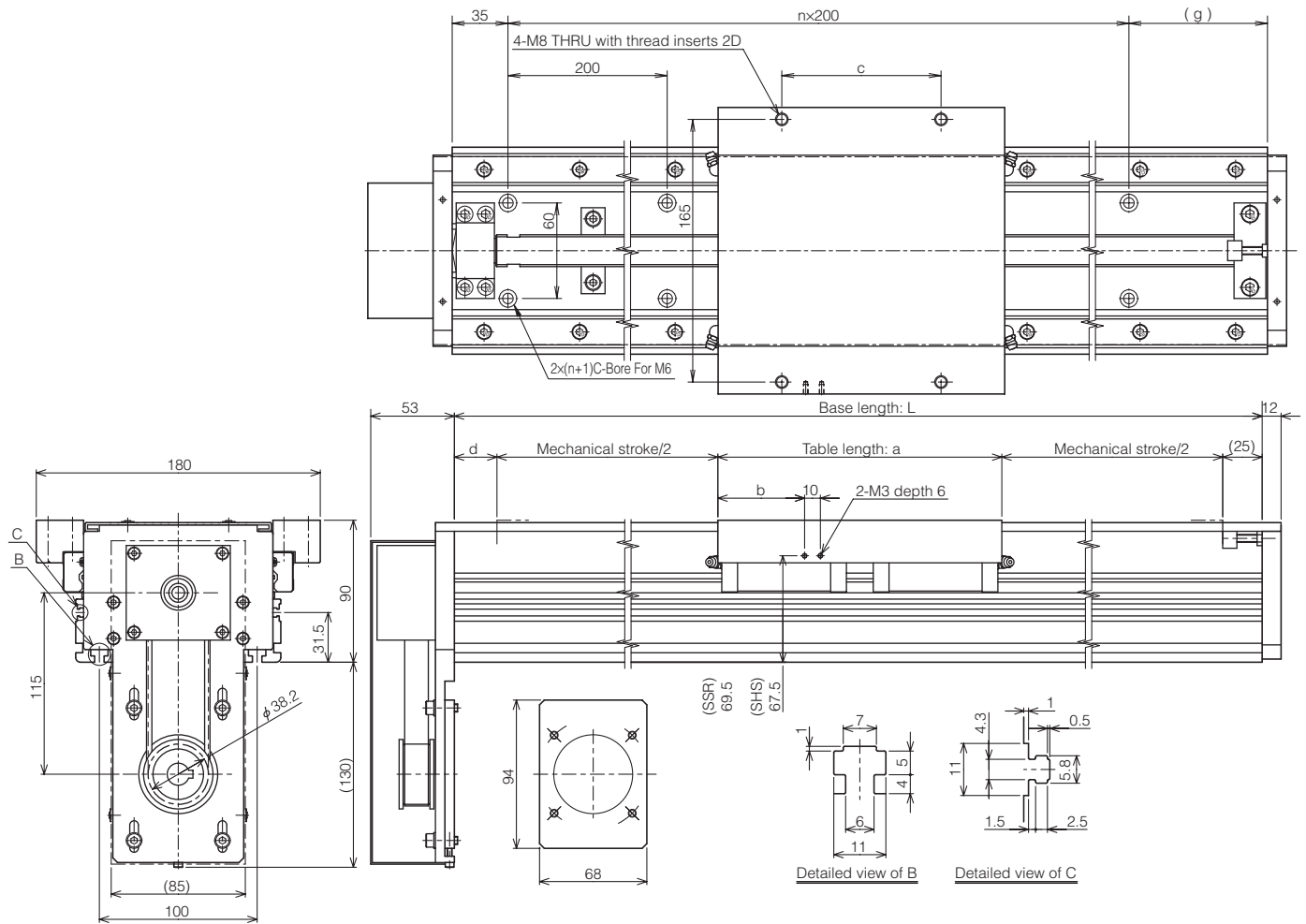


| Table type | Table length: a | b  | c   | d  |
|------------|-----------------|----|-----|----|
| S type     | 160             | 45 | 100 | 37 |
| L type     | 180             | 55 | 100 | 27 |
| L(QZ) type | 180             | 55 | 100 | 34 |
| L-QZ type  | 210             | 70 | 150 | 5  |

| Base length: L [mm]    |       |                  | 460  | 580  | 700  | 820  | 1060 | 1240 | 1420 | 1600 | 1780 |
|------------------------|-------|------------------|------|------|------|------|------|------|------|------|------|
| Mechanical stroke [mm] | Table | S type           | 238  | 358  | 478  | 598  | 838  | 1018 | 1198 | 1378 | 1558 |
|                        |       | L type           | 228  | 348  | 468  | 588  | 828  | 1008 | 1188 | 1368 | 1548 |
|                        |       | L(QZ) type       | 221  | 341  | 461  | 581  | 821  | 1001 | 1181 | 1361 | 1541 |
|                        |       | L-QZ type        | 220  | 340  | 460  | 580  | 820  | 1000 | 1180 | 1360 | 1540 |
| Main unit weight [kg]  | Table | S type           | 11.8 | 13.4 | 15.1 | 16.7 | 20.0 | 22.5 | 25.0 | 27.4 | 29.9 |
|                        |       | L type (SSR20XW) | 12.3 | 13.9 | 15.6 | 17.2 | 20.5 | 23.0 | 25.5 | 27.9 | 30.4 |
|                        |       | L type (SHS20V)  | 13.1 | 14.8 | 16.5 | 18.2 | 21.6 | 24.1 | 26.6 | 29.2 | 31.7 |
| Base mounting hole     |       | n                | 1    | 2    | 3    | 3    | 4    | 5    | 6    | 7    | 8    |
|                        |       | φ                | 225  | 145  | 65   | 185  | 225  | 205  | 185  | 165  | 145  |

Note 4: The maximum base length for the 10mm ball screw lead is 1420mm.

[Bottom Wrap-around Specification]



Unit: mm

| Table type | Table length: a | b  | c   | d  |
|------------|-----------------|----|-----|----|
| S type     | 160             | 45 | 100 | 37 |
| L type     | 180             | 55 | 100 | 27 |
| L(QZ) type | 180             | 55 | 100 | 34 |
| L-QZ type  | 210             | 70 | 150 | 5  |

| Base length: L [mm]    |                  | 460  | 580  | 700  | 820  | 1060 | 1240 | 1420 | 1600 | 1780 |
|------------------------|------------------|------|------|------|------|------|------|------|------|------|
| Mechanical stroke [mm] | S type           | 238  | 358  | 478  | 598  | 838  | 1018 | 1198 | 1378 | 1558 |
|                        | L type           | 228  | 348  | 468  | 588  | 828  | 1008 | 1188 | 1368 | 1548 |
|                        | L(QZ) type       | 221  | 341  | 461  | 581  | 821  | 1001 | 1181 | 1361 | 1541 |
|                        | L-QZ type        | 220  | 340  | 460  | 580  | 820  | 1000 | 1180 | 1360 | 1540 |
| Main unit weight [kg]  | S type           | 11.8 | 13.4 | 15.1 | 16.7 | 20.0 | 22.5 | 25.0 | 27.4 | 29.9 |
|                        | L type (SSR20XW) | 12.3 | 13.9 | 15.6 | 17.2 | 20.5 | 23.0 | 25.5 | 27.9 | 30.4 |
|                        | L type (SHS20V)  | 13.1 | 14.8 | 16.5 | 18.2 | 21.6 | 24.1 | 26.6 | 29.2 | 31.7 |
| Base mounting hole     | n                | 1    | 2    | 3    | 3    | 4    | 5    | 6    | 7    | 8    |
|                        | g                | 225  | 145  | 65   | 185  | 225  | 205  | 185  | 165  | 145  |

Note 1: The main unit weight includes the cover weight.

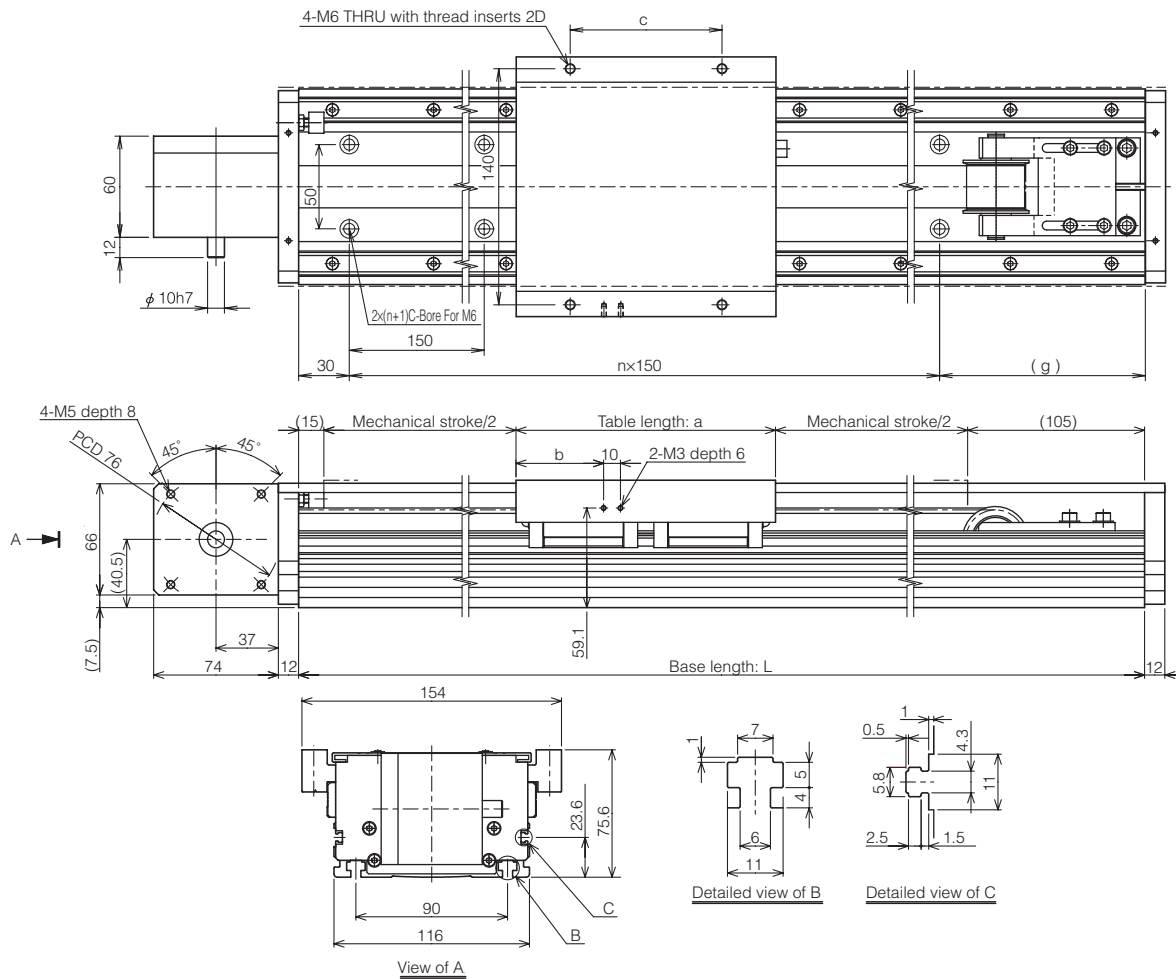
Note 2: The table L(QZ) type shows a QZ specification only for the Ball Screw.

Note 3: The main unit weight of the QZ type is the main unit weight of the table +0.1kg.

Note 4: The maximum base length for the 10mm ball screw lead is 1420mm.

# Belt Driven Dimensions

## GL15N Model, Belt Driven



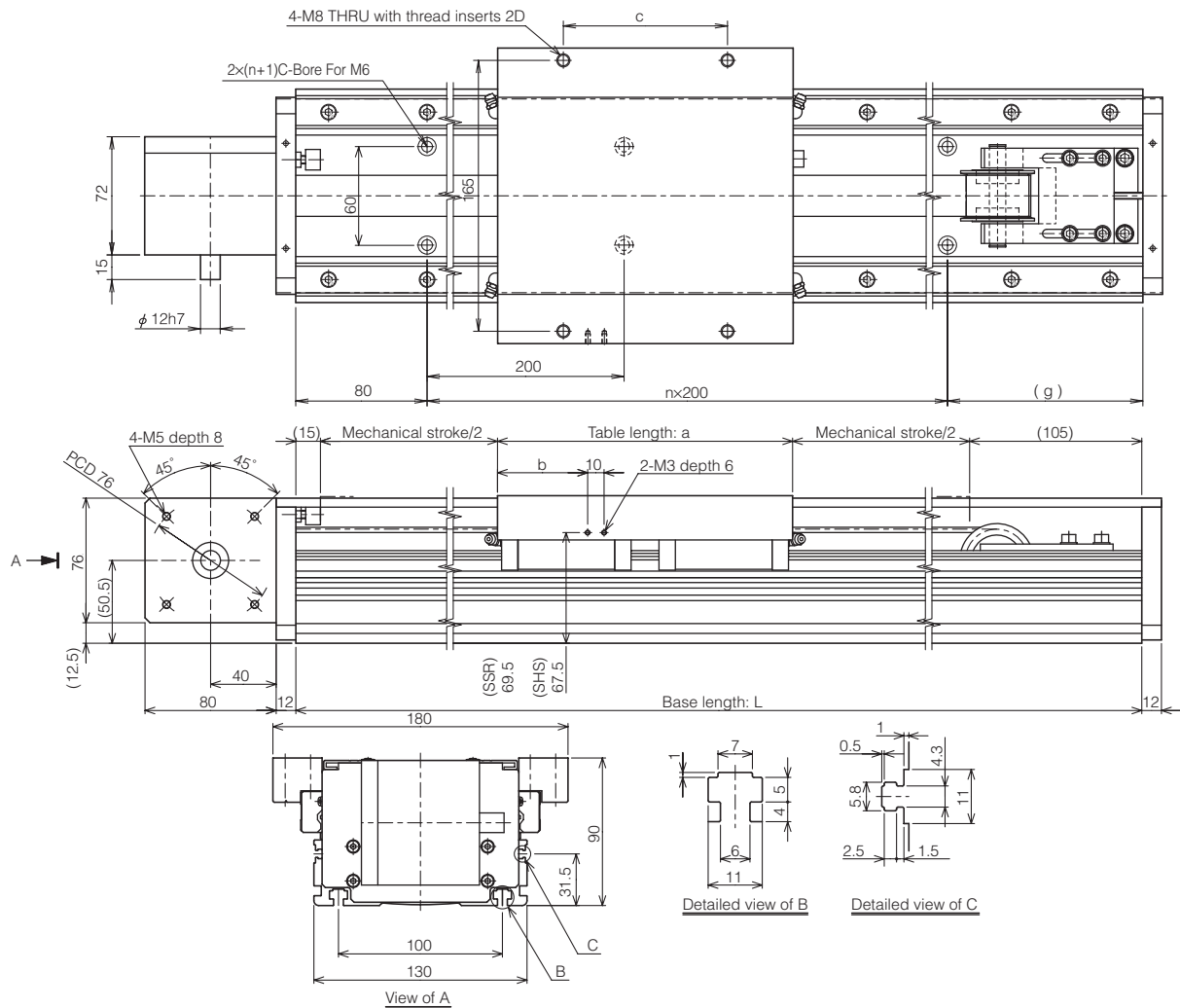
Unit: mm

| Table type | Table length: a | b  | c   |
|------------|-----------------|----|-----|
| S type     | 126             | 38 | 90  |
| L type     | 154             | 52 | 90  |
| L-QZ type  | 180             | 65 | 120 |

| Base length: L [mm]    |       | 340              | 460 | 580 | 700 | 820  | 1060 | 1240 | 1420 | 1600 | 1780 | 1960 |
|------------------------|-------|------------------|-----|-----|-----|------|------|------|------|------|------|------|
| Mechanical stroke [mm] | Table | S type           | 94  | 214 | 334 | 454  | 574  | 814  | 994  | 1174 | 1354 | 1534 |
|                        |       | L type           | 66  | 186 | 306 | 426  | 546  | 786  | 966  | 1146 | 1326 | 1506 |
|                        |       | L-QZ type        | 40  | 160 | 280 | 400  | 520  | 760  | 940  | 1120 | 1300 | 1480 |
| Main unit weight [kg]  | Table | S type           | 7.1 | 8.1 | 9.1 | 10.1 | 11.1 | 13.1 | 14.5 | 16.0 | 17.5 | 19.0 |
|                        |       | L type (SSR15XW) | 7.4 | 8.4 | 9.4 | 10.4 | 11.4 | 13.4 | 14.8 | 16.3 | 17.8 | 19.3 |
|                        |       | L type (SHS15V)  | 7.8 | 8.8 | 9.8 | 10.9 | 11.9 | 13.9 | 15.4 | 16.9 | 18.5 | 20.0 |
| Base mounting hole     |       | n                | 1   | 2   | 3   | 3    | 4    | 6    | 7    | 8    | 9    | 11   |
|                        |       | g                | 160 | 130 | 100 | 220  | 190  | 130  | 160  | 190  | 220  | 100  |

Note 1: The main unit weight includes the cover weight.

Note 2: The main unit weight of QZ type is the main unit weight of the table +0.1kg.



Unit: mm

| Table type | Table length: a | b  | c   |
|------------|-----------------|----|-----|
| S type     | 160             | 45 | 100 |
| L type     | 180             | 55 | 100 |
| L-QZ type  | 210             | 70 | 150 |

| Base length: L [mm]    |       | 460              | 580  | 700  | 820  | 1060 | 1240 | 1420 | 1600 | 1780 | 1960 | 2200 | 2320 | 2500 | 3000 |
|------------------------|-------|------------------|------|------|------|------|------|------|------|------|------|------|------|------|------|
| Mechanical stroke [mm] | Table | S type           | 180  | 300  | 420  | 540  | 780  | 960  | 1140 | 1320 | 1500 | 1680 | 1920 | 2040 | 2720 |
|                        | Table | L type           | 160  | 280  | 400  | 520  | 760  | 940  | 1120 | 1300 | 1480 | 1660 | 1900 | 2020 | 2700 |
|                        | Table | L-QZ type        | 130  | 250  | 370  | 490  | 730  | 910  | 1090 | 1270 | 1450 | 1630 | 1870 | 1990 | 2670 |
| Main unit weight [kg]  | Table | S type           | 11.5 | 12.9 | 14.3 | 15.7 | 18.6 | 20.7 | 22.8 | 24.9 | 27.0 | 29.1 | 31.9 | 33.3 | 41.3 |
|                        | Table | L type (SSR20XW) | 12.0 | 13.4 | 14.8 | 16.2 | 19.1 | 21.2 | 23.3 | 25.4 | 27.5 | 29.6 | 32.4 | 33.8 | 41.8 |
|                        | Table | L type (SHS20V)  | 12.8 | 14.2 | 15.7 | 17.1 | 20.1 | 22.2 | 24.4 | 26.6 | 28.8 | 31.0 | 33.9 | 35.4 | 43.6 |
| Base mounting hole     | n     | 1                | 1    | 2    | 3    | 4    | 5    | 6    | 7    | 8    | 8    | 10   | 10   | 11   | 14   |
|                        | g     | 180              | 300  | 220  | 140  | 180  | 160  | 140  | 120  | 100  | 280  | 120  | 240  | 220  | 120  |

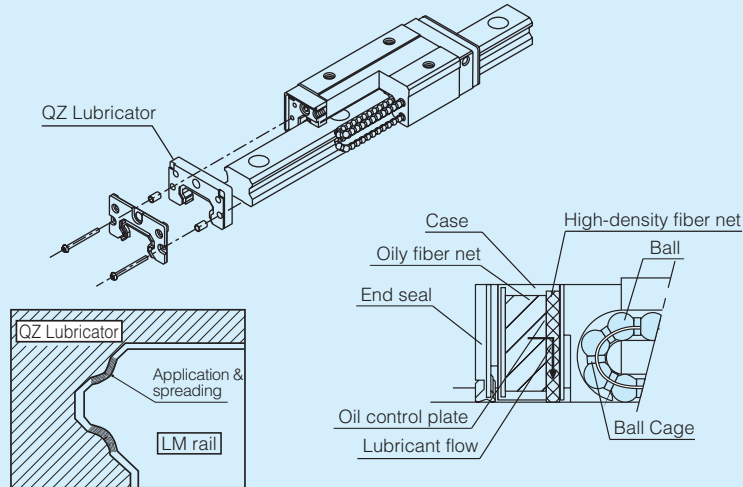
Note 1: The main unit weight includes the cover weight.

Note 2: The main unit weight of QZ type is the main unit weight of the table +0.1kg.

Note 3: Cover is applied up to 1960mm base length.

### [LM Guide]

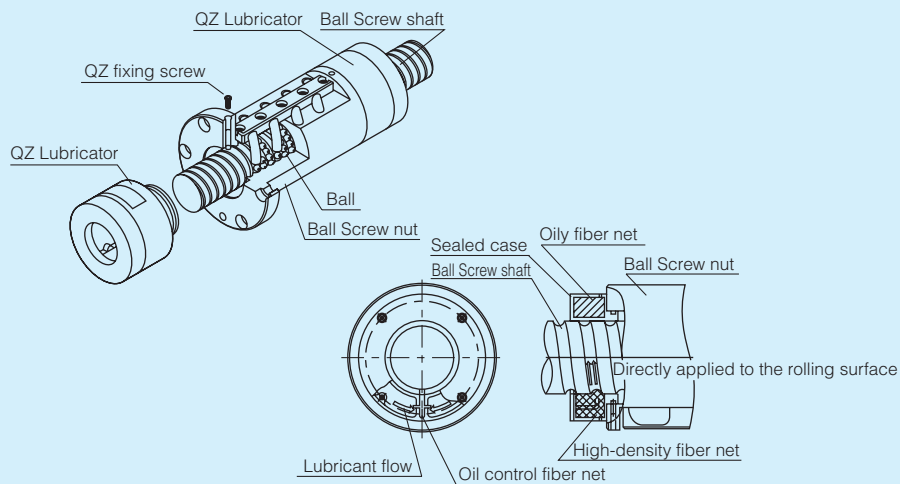
QZ Lubricator, composed of high-density fiber net feeds the right amount of lubricant to the raceway of the LM rail. This allows oil film to continuously be formed between balls and raceways and significantly extends the lubrication and maintenance intervals.



**Figure 8 QZ Lubricator Structure Diagram (LM Guide)**

### [Ball Screw]

An adequate amount of lubricant can be supplied to necessary locations as in the LM Guide portion so that maintenance interval can be greatly extended.



**Figure 9 QZ Lubricator Structure Diagram (Ball Screw)**

## [Control Number]

Motor brackets are available to mount various types of motors. The following table lists by model number the motor brackets available for motors. When purchasing a motor bracket, specify the corresponding model number.

Table 4 Motors and Applicable motor Brackets

| Motor                  |                                 |                   |                        |              |             | GL15N                 |             | GL20N                 |             |     |   |  |
|------------------------|---------------------------------|-------------------|------------------------|--------------|-------------|-----------------------|-------------|-----------------------|-------------|-----|---|--|
| Manufacturer           | Series                          |                   | Model number           | Rated output | Flange size | Direct motor mounting | Wrap-around | Direct motor mounting | Wrap-around |     |   |  |
| AC Servo motor         | YASKAWA Electric Corporation    | Σ-V               | SGMJV-01               | 100W         | □40         | A                     | —           | A                     | —           |     |   |  |
|                        |                                 |                   | SGMAV-01               |              |             | A                     | —           | A                     | —           |     |   |  |
|                        |                                 |                   | SGMJV-02               | 200W         | □60         | B                     | B14         | B                     | B14         |     |   |  |
|                        |                                 |                   | SGMAV-02               |              |             | B                     | B14         | B                     | B14         |     |   |  |
|                        |                                 |                   | SGMJV-04               | 400W         |             | —                     | —           | B                     | B14         |     |   |  |
|                        |                                 |                   | SGMAV-04               |              |             | —                     | —           | B                     | B14         |     |   |  |
|                        |                                 | Σ-III             | SGMAS-01               | 100W         | □40         | A                     | —           | A                     | —           |     |   |  |
|                        |                                 |                   | SGMPS-01               |              |             | B                     | —           | B                     | —           |     |   |  |
|                        |                                 |                   | SGMAS-02               | 200W         | □60         | B                     | B14         | B                     | B14         |     |   |  |
|                        |                                 |                   | SGMAS-04               |              |             | 400W                  | —           | —                     | B           | B14 |   |  |
|                        |                                 |                   | SGMPS-02               | 200W         | □80         | —                     | —           | J                     | J14         |     |   |  |
|                        |                                 |                   | SGMPS-04               |              |             | 400W                  | —           | —                     | J           | J14 |   |  |
|                        |                                 | Σ-II              | SGMAH-01               | 100W         | □40         | A                     | —           | A                     | —           |     |   |  |
|                        |                                 |                   | SGMPH-01               |              |             | B                     | —           | B                     | —           |     |   |  |
|                        |                                 |                   | SGMAH-02               | 200W         | □60         | B                     | B14         | B                     | B14         |     |   |  |
|                        |                                 |                   | SGMAH-04               |              |             | 400W                  | —           | —                     | B           | B14 |   |  |
|                        |                                 |                   | SGMPH-02               | 200W         | □80         | —                     | —           | J                     | J14         |     |   |  |
|                        |                                 |                   | SGMPH-04               |              |             | 400W                  | —           | —                     | J           | J14 |   |  |
|                        | Mitsubishi Electric Corporation | MELSERVO          | J3                     | HF-MP13      | 100W        | □40                   | A           | —                     | A           | —   |   |  |
|                        |                                 |                   |                        | HF-KP13      |             |                       | A           | —                     | A           | —   |   |  |
|                        |                                 |                   |                        | HF-MP23      | 200W        | □60                   | B           | B14                   | B           | B14 |   |  |
|                        |                                 |                   |                        | HF-KP23      |             |                       | B           | B14                   | B           | B14 |   |  |
|                        |                                 |                   |                        | HF-MP43      | 400W        |                       | —           | —                     | B           | B14 |   |  |
|                        |                                 |                   |                        | HF-KP43      |             |                       | —           | —                     | B           | B14 |   |  |
|                        |                                 | J2-Super          | HC-MFS13               | 100W         | □40         | A                     | —           | A                     | —           |     |   |  |
|                        |                                 |                   | HC-KFS13               |              |             | A                     | —           | A                     | —           |     |   |  |
|                        |                                 |                   | HC-MFS23               | 200W         | □60         | B                     | B14         | B                     | B14         |     |   |  |
|                        |                                 |                   | HC-KFS23               |              |             | B                     | B14         | B                     | B14         |     |   |  |
|                        |                                 |                   | HC-MFS43               | 400W         |             | —                     | —           | B                     | B14         |     |   |  |
|                        |                                 |                   | HC-KFS43               |              |             | —                     | —           | B                     | B14         |     |   |  |
|                        | Panasonic Corporation           | MINAS A4          | MSMD01                 | 100W         | □38         | E                     | —           | E                     | —           |     |   |  |
|                        |                                 |                   | MQMA01                 |              |             | F                     | —           | F                     | —           |     |   |  |
|                        |                                 |                   | MSMD02                 | 200W         | □60         | F                     | F11         | F                     | F11         |     |   |  |
|                        |                                 |                   | MSMD04                 |              |             | 400W                  | —           | —                     | F           | F14 |   |  |
|                        |                                 |                   | MQMA02                 | 200W         | □80         | —                     | —           | D                     | D11         |     |   |  |
|                        |                                 |                   | MQMA04                 |              |             | 400W                  | —           | —                     | D           | D14 |   |  |
|                        |                                 |                   | MINAS A                | MSMA01       | 100W        | □38                   | E           | —                     | E           | —   |   |  |
|                        |                                 |                   |                        | MQMA01       |             |                       | F           | —                     | F           | —   |   |  |
|                        |                                 | MSMA02            |                        | 200W         | □60         | F                     | F11         | F                     | F11         |     |   |  |
|                        |                                 | MSMA04            |                        |              |             | 400W                  | —           | —                     | F           | F14 |   |  |
|                        |                                 | MQMA02            |                        | 200W         | □80         | —                     | —           | D                     | D11         |     |   |  |
|                        |                                 | MQMA04            |                        |              |             | 400W                  | —           | —                     | D           | D14 |   |  |
|                        |                                 | OMRON Corporation | G5 SERIES              | R88M-K10030  | 100W        | □40                   | A           | —                     | A           | —   |   |  |
|                        |                                 |                   |                        | R88M-K20030  | 200W        | □60                   | F           | F11                   | F           | F11 |   |  |
|                        | R88M-K40030                     |                   |                        | 400W         | —           |                       | —           | F                     | F14         |     |   |  |
|                        | OMNUC G                         |                   |                        | R88M-G10030  | 100W        | □40                   | A           | —                     | A           | —   |   |  |
|                        |                                 |                   | R88M-G20030            | 200W         | □60         | F                     | F11         | F                     | F11         |     |   |  |
|                        |                                 |                   | R88M-G40030            | 400W         |             | —                     | —           | F                     | F14         |     |   |  |
|                        |                                 |                   | OMNUC G FLAT           | R88M-GP10030 | 100W        | □60                   | F           | —                     | F           | —   |   |  |
|                        | R88M-GP20030                    |                   |                        | 200W         | □80         | —                     | —           | D                     | D11         |     |   |  |
| R88M-GP40030           | 400W                            | —                 |                        | —            |             | D                     | D14         |                       |             |     |   |  |
| FANUC                  | β is series                     | β 0.3/5000is      | 100W                   | □40          | A           | —                     | A           | —                     |             |     |   |  |
|                        |                                 | β 0.4/5000is      | 125W                   |              | B           | —                     | B           | —                     |             |     |   |  |
|                        |                                 | β 0.5/5000is      | 200W                   | □60          | B           | B9                    | B           | B9                    |             |     |   |  |
|                        |                                 | β 1/5000is        | 400W                   |              | —           | —                     | B           | B14                   |             |     |   |  |
| Sanyo Denki Co.,Ltd.   | SANMOTION Q1                    | Q1AA04010D        | 100W                   | □40          | A           | —                     | A           | —                     |             |     |   |  |
|                        |                                 | Q1AA06020D        | 200W                   | □60          | B           | B14                   | B           | B14                   |             |     |   |  |
|                        |                                 | Q1AA06040D        | 400W                   |              | —           | —                     | B           | B14                   |             |     |   |  |
| Allen-Bradley          | MPL                             | A1510V            | 160W                   | □55          | W           | —                     | W           | —                     |             |     |   |  |
|                        |                                 | A1520U            | 270W                   |              | W           | —                     | W           | —                     |             |     |   |  |
|                        |                                 | A1530U            | 390W                   |              | —           | —                     | W           | —                     |             |     |   |  |
|                        |                                 | A210V             | 370W                   | □70          | —           | —                     | Z           | —                     |             |     |   |  |
|                        |                                 | A220T             | 620W                   |              | —           | —                     | Z           | —                     |             |     |   |  |
| Stepping motor         | ORIENTAL MOTOR Co.,Ltd.         | 5-phase           | RK                     | —            | □60         | H                     | —           | H                     | —           |     |   |  |
|                        |                                 |                   |                        |              |             | RK566                 | H           | —                     | H           | —   |   |  |
|                        |                                 |                   |                        |              |             | RK569                 | H           | —                     | H           | —   |   |  |
|                        |                                 |                   |                        |              |             | RK596                 | —           | —                     | I           | —   |   |  |
|                        |                                 |                   |                        |              |             | RK599                 | —           | —                     | I           | —   |   |  |
|                        |                                 | α step            | AS66                   |              | □60         | H                     | —           | H                     | —           |     |   |  |
|                        |                                 |                   | ASC66                  |              |             | H                     | —           | H                     | —           |     |   |  |
|                        |                                 |                   | AS98                   |              |             | □85                   | —           | —                     | I           | —   |   |  |
|                        |                                 |                   | NEMA 17 Standard motor |              |             |                       |             | □42                   | T           | —   | — |  |
|                        |                                 |                   | NEMA 23 Standard motor |              |             |                       |             | □56                   | U           | —   | — |  |
| NEMA 34 Standard motor |                                 |                   |                        |              | □85         | —                     | —           | V                     | V11         |     |   |  |

Note: A motor shaft for motor wrap option will need a key.

## [Dimensional Drawing]

### • Direct motor mounting

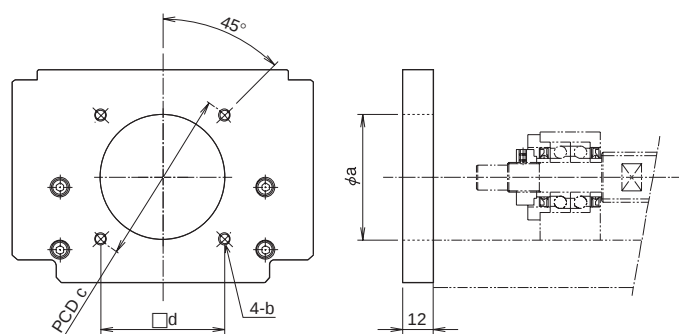
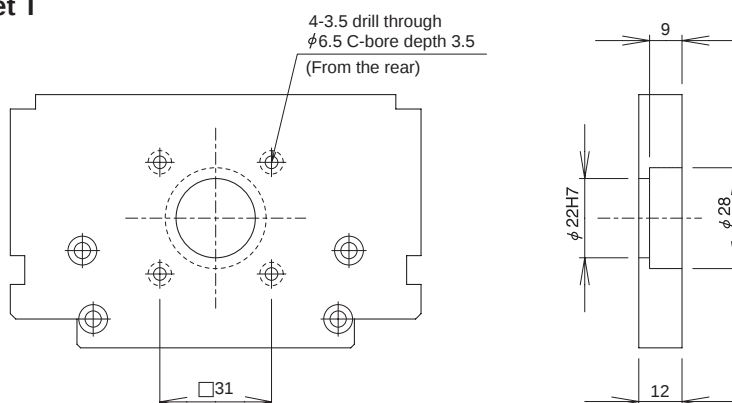


Table 5 Motor Mounting Plate

Unit: mm

| Bracket Symbol | Motor mount dimensions  |    |    |       |
|----------------|-------------------------|----|----|-------|
|                | a                       | b  | c  | d     |
| A              | 30H7                    | M4 | 46 | —     |
| B              | 50H7                    | M5 | 70 | —     |
| C              | 50H7                    | M4 | 60 | —     |
| D              | 70H7                    | M5 | 90 | —     |
| E              | 30H7                    | M3 | 45 | —     |
| F              | 50H7                    | M4 | 70 | —     |
| G              | 34H7                    | M3 | 48 | —     |
| H              | 36H7                    | M4 | —  | 50    |
| I              | 60H7                    | M6 | —  | 70    |
| J              | 70H7                    | M6 | 90 | —     |
| U              | 38.15 $^{+0.050}_0$     | M4 | —  | 47.14 |
| V              | 73.03H7                 | M5 | —  | 69.6  |
| W              | 40 $^{+0.036}_{+0.011}$ | M5 | 63 | —     |
| Z              | 60 $^{+0.042}_{+0.012}$ | M5 | 75 | —     |

### • GL15N Motor Bracket T



### • Motor wrap-around

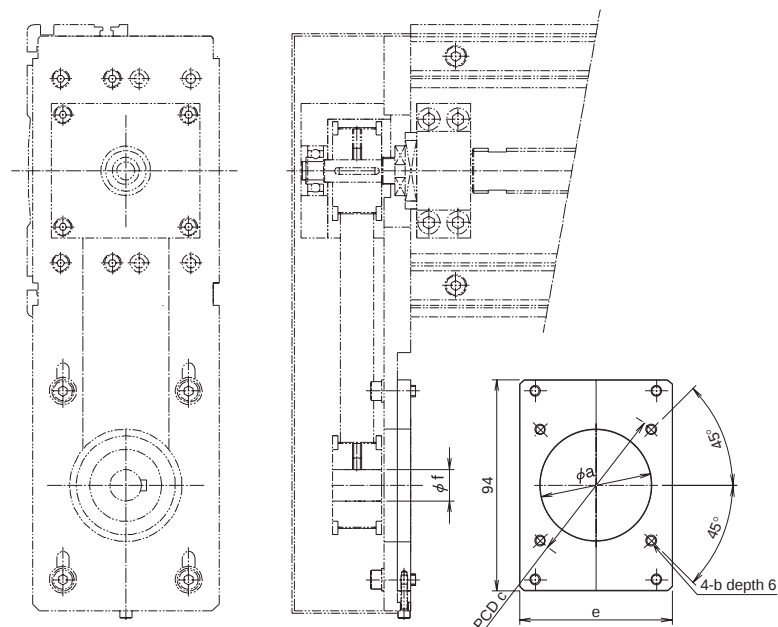


Table 6 Motor Mounting Plate

Unit: mm

| Bracket Symbol | Motor mount dimensions |    |       |    | f    |
|----------------|------------------------|----|-------|----|------|
|                | a                      | b  | c     | e  |      |
| B9             | 50                     | M5 | 70    | 68 | 9    |
| B14            | 50                     | M5 | 70    | 68 | 14   |
| D11            | 70                     | M5 | 90    | 80 | 11   |
| D14            | 70                     | M5 | 90    | 80 | 14   |
| F11            | 50                     | M4 | 70    | 68 | 11   |
| F14            | 50                     | M4 | 70    | 68 | 14   |
| J14            | 70                     | M6 | 90    | 80 | 14   |
| V11            | 73.03                  | M5 | 98.43 | 80 | 9.53 |

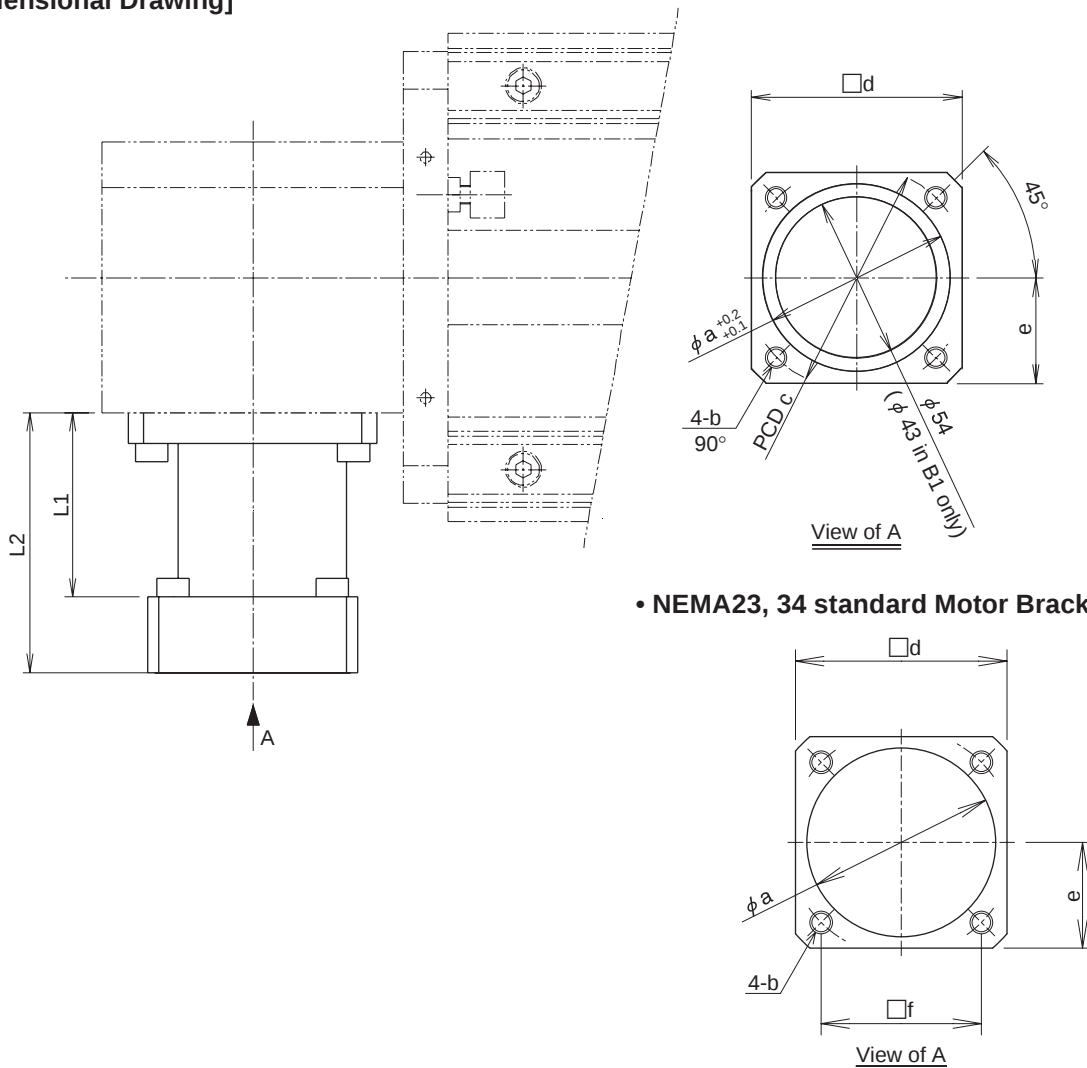
## [Control Number]

The following table depicts the motor brackets available for motors with reducers. Please specify the corresponding model number.

Table 7 Reducers and Applicable Motor Brackets

| Manufacturer           | Series | Reducer      |              |                 | Common to GL15N and GL20N |
|------------------------|--------|--------------|--------------|-----------------|---------------------------|
|                        |        | Model Number | Rated output | Reduction Ratio |                           |
| SHIMPO<br>DRIVES, INC. | VR     | VRSFB03      | 100W         | 1/3             | B1                        |
|                        |        | VRSFB05      |              | 1/5             | B1                        |
|                        |        | VRSFB09      |              | 1/9             | B1                        |
|                        |        | VRSFB03      | 200W         | 1/3             | B1                        |
|                        |        | VRSFB05      |              | 1/5             | B1                        |
|                        |        | VRSFC09      |              | 1/9             | B2                        |
|                        |        | VRSFB03      | 400W         | 1/3             | B1                        |
|                        |        | VRSFC05      |              | 1/5             | B2                        |
|                        |        | VRSFC09      |              | 1/9             | B2                        |

## [Dimensional Drawing]



### • NEMA23, 34 standard Motor Bracket U1, V1

Table 8 Motor Bracket Dimensional Drawing

Unit: mm

| Bracket Symbol | Motor bracket dimensions |             |    |    |    |       |    |    |
|----------------|--------------------------|-------------|----|----|----|-------|----|----|
|                | a                        | b           | c  | d  | e  | f     | L1 | L2 |
| B1             | 50                       | 5.5 THRU    | 60 | 56 | 28 | —     | 49 | 69 |
| B2             | 70                       | 6.6 THRU    | 90 | 78 | 39 | —     | 60 | 86 |
| U1             | 38.15                    | M4 depth 8  | —  | 66 | 33 | 47.14 | 40 | 48 |
| V1             | 73.03                    | M5 depth 10 | —  | 86 | 43 | 69.6  | 48 | 58 |

## [Control Number]

The following table lists reducers and motors available with motor bracket B1 or B2. It also shows the control numbers of reducers available with the motors. When purchasing a reducer, specify the corresponding control number.

Table 9 Motors and Applicable Reducer

|                | Motor                                 |              |    |              | Reduction ratio |          |          |          |
|----------------|---------------------------------------|--------------|----|--------------|-----------------|----------|----------|----------|
|                | Manufacture                           | Series       |    | Model number | Rated output    | 1/3      | 1/5      | 1/9      |
|                |                                       |              |    |              |                 |          |          |          |
| AC Servo motor | YASKAWA<br>Electric<br>Corporation    | Σ-V          |    | SGMAV-01     | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | SGMAV-02     | 200W            | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | SGMAV-04     | 400W            | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                |                                       | Σ-III        |    | SGMAS-01     | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | SGMAS-02     | 200W            | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | SGMAS-04     | 400W            | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                |                                       | Σ-II         |    | SGMAH-01     | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | SGMAH-02     | 200W            | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | SGMAH-04     | 400W            | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                | Mitsubishi<br>Electric<br>Corporation | MELSERVO     | J3 | HF-MP13      | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | HF-KP13      |                 | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | HF-MP23      | 200W            | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | HF-KP23      |                 | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | HF-MP43      | 400W            | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                |                                       |              |    | HF-KP43      |                 | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                |                                       | J2-Super     |    | HC-MFS13     | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | HC-KFS13     |                 | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | HC-MFS23     | 200W            | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | HC-KFS23     |                 | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | HC-MFS43     | 400W            | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                |                                       |              |    | HC-KFS43     |                 | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                | Panasonic<br>Corporation              | MINAS A4     |    | MSMD01       | 100W            | B1-G2-03 | B1-G2-05 | B1-G2-09 |
|                |                                       |              |    | MSMD02       | 200W            | B1-G4-03 | B1-G4-05 | B2-G4-09 |
|                |                                       |              |    | MSMD04       | 400W            | B1-G5-03 | B2-G5-05 | B2-G5-09 |
|                |                                       | MINAS A      |    | MSMA01       | 100W            | B1-G2-03 | B1-G2-05 | B1-G2-09 |
|                |                                       |              |    | MSMA02       | 200W            | B1-G4-03 | B1-G4-05 | B2-G4-09 |
|                |                                       |              |    | MUMA02       |                 | B1-G4-03 | B1-G4-05 | B2-G4-09 |
|                |                                       |              |    | MSMA04       | 400W            | B1-G5-03 | B2-G5-05 | B2-G5-09 |
|                |                                       |              |    | MUMA04       |                 | B1-G5-03 | B2-G5-05 | B2-G5-09 |
|                | OMRON<br>Corporation                  | G5 SERIES    |    | R88M-K10030  | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | R88M-K20030  | 200W            | B1-G4-03 | B1-G4-05 | B1-G4-09 |
|                |                                       |              |    | R88M-K40030  | 400W            | B1-G5-03 | B1-G5-05 | B2-G5-09 |
|                |                                       | OMNUC G      |    | R88M-G10030  | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | R88M-G20030  | 200W            | B1-G4-03 | B1-G4-05 | B1-G4-09 |
|                |                                       |              |    | R88M-G40030  | 400W            | B1-G5-03 | B1-G5-05 | B2-G5-09 |
|                | Sanyo Denki<br>Co.,Ltd.               | BL Super P3  |    | P30B04010    | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | P30B06020    | 200W            | B1-G3-03 | B1-G3-05 | B1-G3-09 |
|                |                                       |              |    | P30B06040    | 400W            | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       | SANMOTION Q1 |    | Q1AA04010D   | 100W            | B1-G1-03 | B1-G1-05 | B1-G1-09 |
|                |                                       |              |    | Q1AA06020D   | 200W            | B1-G3-03 | B1-G3-05 | B2-G3-09 |
|                |                                       |              |    | Q1AA06040D   | 400W            | B1-G3-03 | B2-G3-05 | B2-G3-09 |
|                | Allen-Bradley                         | TLY          |    | TLY-120P (N) | 81W             | B1-G6-03 | B1-G6-05 | B1-G6-09 |
|                |                                       |              |    | TLY-130P (N) | 140W            | B1-G6-03 | B1-G6-05 | B1-G6-09 |
|                |                                       |              |    | TLY-220P (N) | 350W            | B1-G7-03 | B1-G7-05 | B2-G7-09 |
|                |                                       |              |    | TLY-230P (N) | 440W            | B1-G7-03 | B2-G7-05 | B2-G7-09 |
|                |                                       |              |    | A1510V       | 160W            | B1-G8-03 | B1-G8-05 | B1-G8-09 |
|                |                                       | MPL          |    | A1520U       | 270W            | B1-G8-03 | B1-G8-05 | B2-G8-09 |
| A1530U         |                                       |              |    | 390W         | B1-G8-03        | B1-G8-05 | B2-G8-09 |          |
| A210V          |                                       |              |    | 370W         | B2-G9-03        | B2-G9-05 | B2-G9-09 |          |
| A220T          |                                       |              |    | 620W         | B2-G9-03        | B2-G9-05 | B2-G9-09 |          |

Note 1: B1: VRSF-B (SHIMPO DRIVES, INC.); B2: VRSF-C (SHIMPO DRIVES, INC.)

Note 2: When ordering a belt drive with reducer inform us of the model number of the motor to which it is to be attached.

## [Dimensional Drawing]

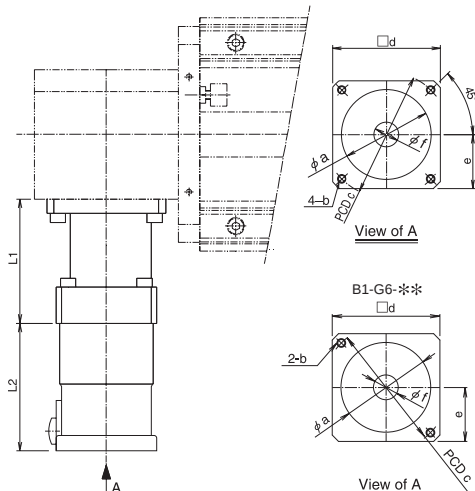


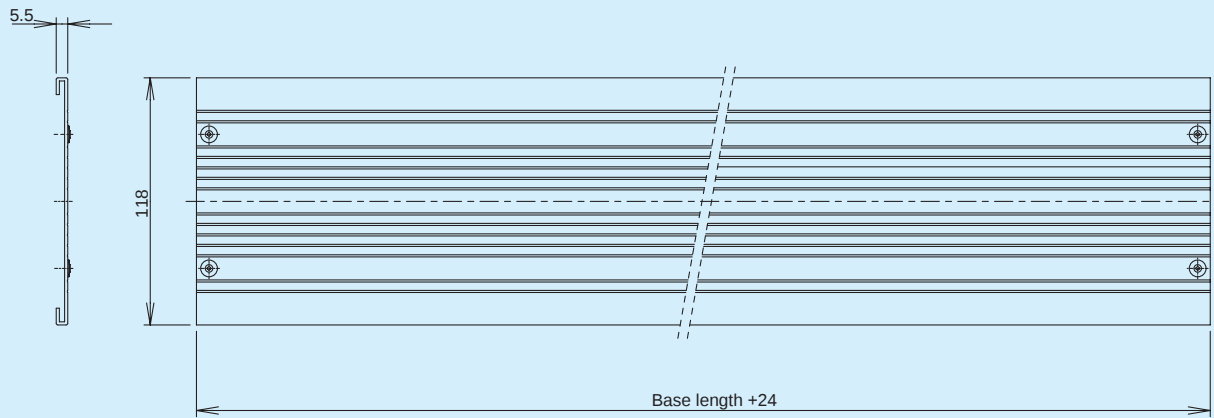
Table 10 Reducer Dimensional Drawing

Unit: mm

| Bracket Symbol | Motor bracket dimensions |             |      |    |     |      |    |      |
|----------------|--------------------------|-------------|------|----|-----|------|----|------|
|                | a                        | b           | c    | d  | e   | f    | L1 | L2   |
| B1-G1-**-      | 30                       | M4 depth 10 | 46   | 52 | d/2 | 8    | 69 | 72.5 |
| B1-G2-**-      | 30                       | M3 depth 8  | 45   | 52 |     | 8    | 69 | 72.5 |
| B1-G3-**-      | 50                       | M5 depth 10 | 70   | 65 |     | 14   | 69 | 75.5 |
| B1-G4-**-      | 50                       | M4 depth 10 | 70   | 65 |     | 11   | 69 | 75.5 |
| B1-G5-**-      | 50                       | M4 depth 10 | 70   | 65 |     | 14   | 69 | 75.5 |
| B1-G6-**-      | 22                       | 4.5 Thru    | 43.8 | 65 |     | 6.35 | 69 | 77.5 |
| B1-G7-**-      | 38.1                     | M5 depth 10 | 66.7 | 65 |     | 12.7 | 69 | 80.5 |
| B1-G8-**-      | 40                       | M4 depth 10 | 63   | 65 |     | 9    | 69 | 75.5 |
| B2-G3-**-      | 50                       | M5 depth 10 | 70   | 70 |     | 14   | 86 | 90   |
| B2-G5-**-      | 50                       | M4 depth 10 | 70   | 65 |     | 14   | 86 | 90   |
| B2-G7-**-      | 38.1                     | M4 depth 10 | 66.7 | 65 |     | 12.7 | 86 | 95   |
| B2-G8-**-      | 40                       | M5 depth 12 | 63   | 65 |     | 9    | 86 | 90   |
| B2-G9-**-      | 60                       | M5 depth 12 | 75   | 70 |     | 11   | 86 | 90   |

Note: \*\* represents an actual gear ratio

The GL-N model has an anti-dust cover. This cover is common to GL15N and GL20N.

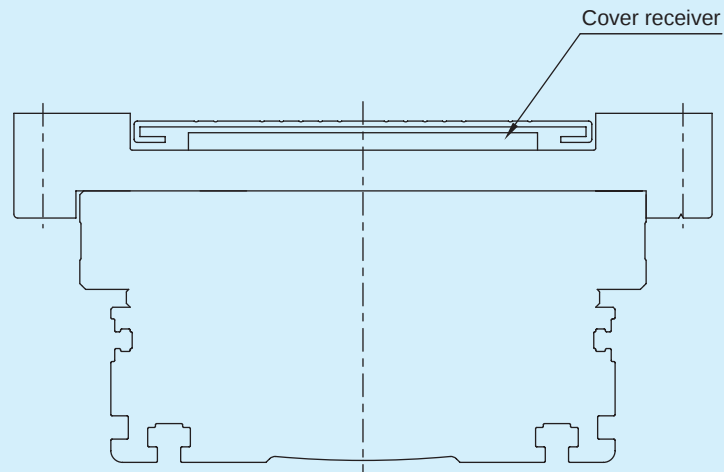


**Figure 10 Cover Outline View**

Note 1: Cover deflection increases long, If the base is as base length increases.

Note 2: If the GL-N model is used in any position other than horizontal, a part mounted on the table might touch the cover due to deflection caused by the cover.

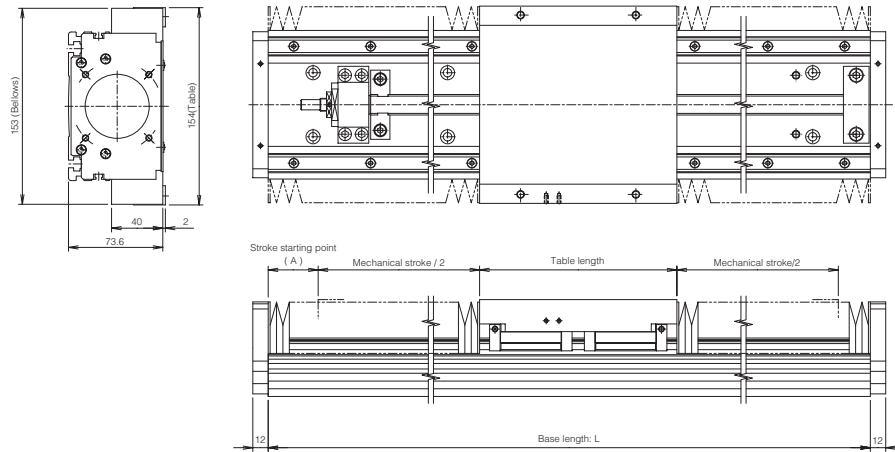
Note 3: Cover is applied up to 1960mm base length.



**Figure 11 Section View of a Model with a Cover Receiver**

The GL-N model has an anti-dust bellows as well as an anti-dust cover.

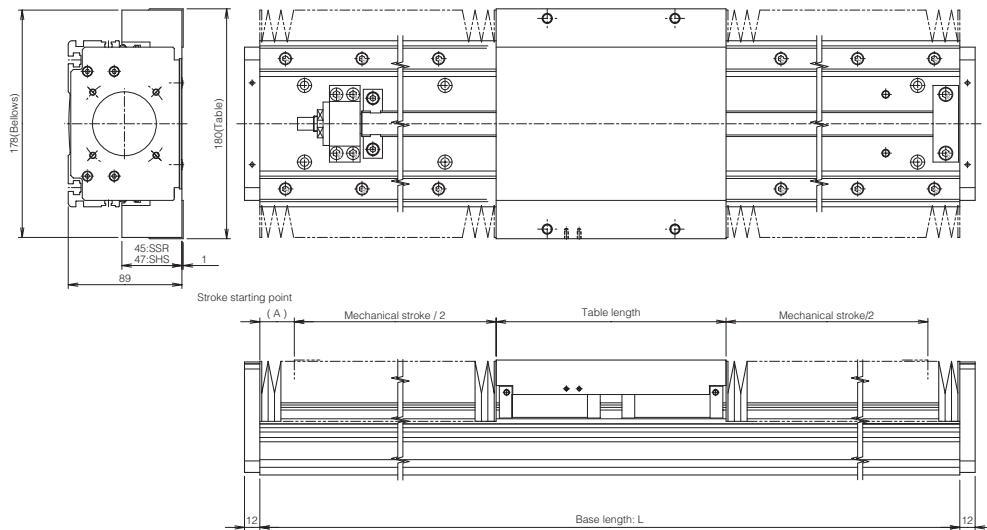
## [GL15N Model, Ball Screw Driven]



Unit: mm

| Base length: L           |       | 340        | 460 | 580 | 700 | 820 | 1060 | 1240 | 1420  |
|--------------------------|-------|------------|-----|-----|-----|-----|------|------|-------|
| Mechanical stroke        | Table | S type     | 133 | 248 | 358 | 468 | 563  | 763  | 1058  |
|                          |       | L type     | 119 | 234 | 340 | 440 | 535  | 735  | 1030  |
|                          |       | L(QZ) type | 110 | 225 | 335 | 440 | 535  | 735  | 1030  |
|                          |       | L-QZ type  | 104 | 214 | 314 | 414 | 509  | 709  | 1004  |
| Stroke starting point: A | Table | S type     | 53  | 53  | 53  | 53  | 65.5 | 85.5 | 100.5 |
|                          |       | L type     | 39  | 39  | 43  | 53  | 65.5 | 85.5 | 100.5 |
|                          |       | L(QZ) type | 48  | 48  | 48  | 53  | 65.5 | 85.5 | 100.5 |
|                          |       | L-QZ type  | 28  | 33  | 43  | 53  | 65.5 | 85.5 | 100.5 |

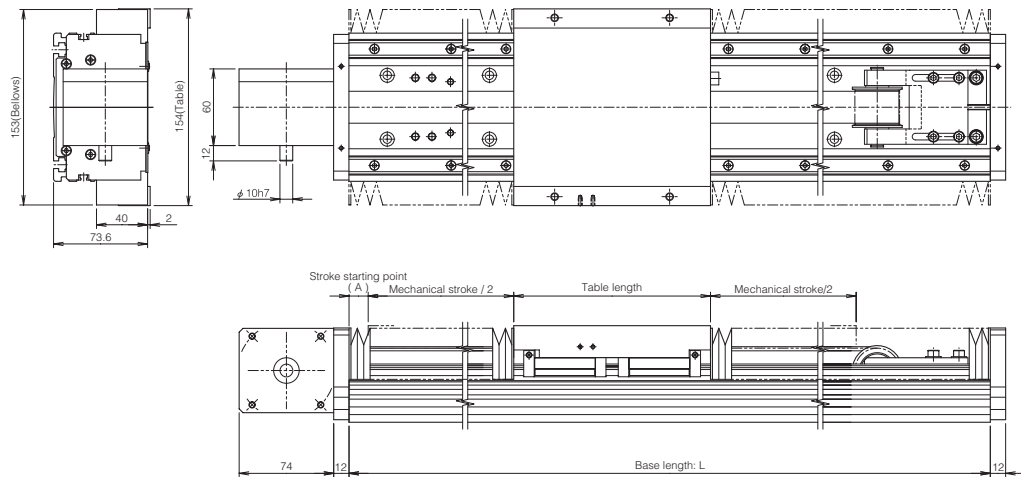
## [GL20N Model, Ball Screw Driven]



Unit: mm

| Base length: L           |       | 460        | 580  | 700  | 820 | 1060 | 1240 | 1420 | 1600 | 1780 |
|--------------------------|-------|------------|------|------|-----|------|------|------|------|------|
| Mechanical stroke        | Table | S type     | 237  | 352  | 464 | 569  | 779  | 939  | 1094 | 1254 |
|                          |       | L type     | 227  | 339  | 444 | 549  | 759  | 919  | 1074 | 1234 |
|                          |       | L(QZ) type | 220  | 336  | 444 | 549  | 759  | 919  | 1074 | 1234 |
|                          |       | L-QZ type  | 198  | 309  | 414 | 519  | 729  | 889  | 1044 | 1204 |
| Stroke starting point: A | Table | S type     | 37   | 37   | 38  | 45.5 | 60.5 | 70.5 | 83   | 93   |
|                          |       | L type     | 27   | 30.5 | 38  | 45.5 | 60.5 | 70.5 | 83   | 93   |
|                          |       | L(QZ) type | 34   | 34   | 38  | 45.5 | 60.5 | 70.5 | 83   | 93   |
|                          |       | L-QZ type  | 25.5 | 30.5 | 38  | 45.5 | 60.5 | 70.5 | 83   | 93   |

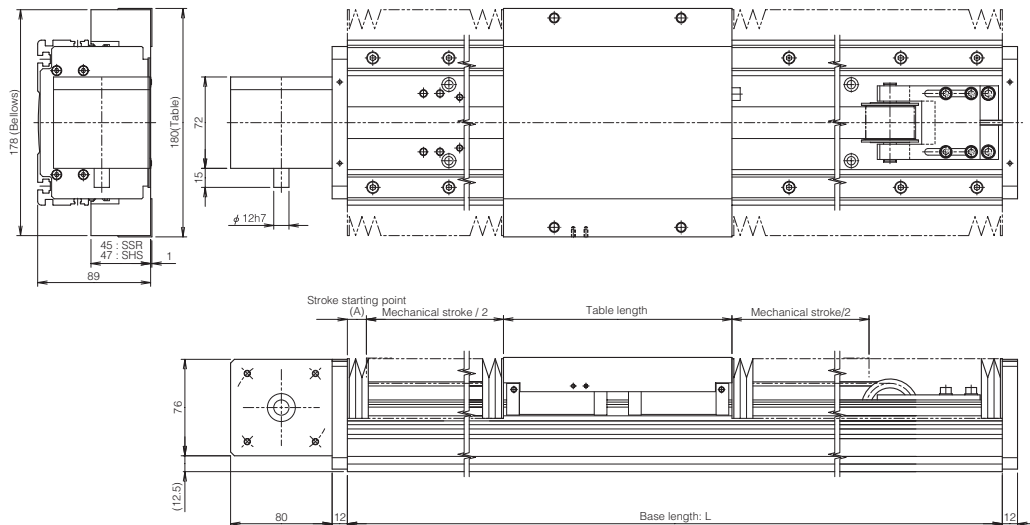
## [GL15N Model, Belt Driven]



Unit: mm

| Base length: L           |       |           | 340 | 460 | 580 | 700 | 820 | 1060 | 1240  | 1420  | 1600 | 1780  | 1960 |
|--------------------------|-------|-----------|-----|-----|-----|-----|-----|------|-------|-------|------|-------|------|
| Mechanical stroke        | Table | S type    | 78  | 186 | 291 | 396 | 501 | 698  | 833   | 973   | 1108 | 1243  | 1378 |
|                          |       | L type    | 50  | 158 | 263 | 368 | 473 | 670  | 805   | 945   | 1080 | 1215  | 1350 |
|                          |       | L-QZ type | 24  | 132 | 237 | 342 | 447 | 644  | 779   | 919   | 1054 | 1189  | 1324 |
| Stroke starting point: A |       |           | 31  | 43  | 58  | 73  | 88  | 118  | 140.5 | 160.5 | 183  | 205.5 | 228  |

## [GL20N Model, Belt Driven]



Unit: mm

| Base length: L           |       |           | 460 | 580 | 700 | 820 | 1060 | 1240  | 1420  | 1600 | 1780 | 1960  | 2200  | 2320 | 2500 | 3000  |
|--------------------------|-------|-----------|-----|-----|-----|-----|------|-------|-------|------|------|-------|-------|------|------|-------|
| Mechanical stroke        | Table | S type    | 159 | 267 | 374 | 482 | 697  | 849   | 989   | 1134 | 1274 | 1419  | 1609  | 1704 | 1844 | 2239  |
|                          |       | L type    | 139 | 247 | 354 | 462 | 677  | 829   | 969   | 1114 | 1254 | 1399  | 1589  | 1684 | 1824 | 2219  |
|                          |       | L-QZ type | 109 | 217 | 324 | 432 | 647  | 799   | 939   | 1084 | 1224 | 1369  | 1559  | 1654 | 1794 | 2189  |
| Stroke starting point: A |       |           | 36  | 48  | 61  | 73  | 98   | 115.5 | 135.5 | 153  | 173  | 190.5 | 215.5 | 228  | 248  | 300.5 |

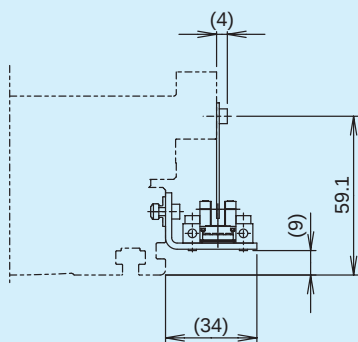
The GL-N model allows various sensors to be set to the T groove at the side of the base.

## [Control Number]

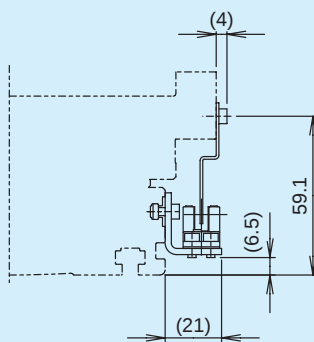
| Type             | Sensor model number | Quantity | Symbol | Manufacturer |
|------------------|---------------------|----------|--------|--------------|
| Photo sensor     | EE-SX671            | 3        | A      | OMRON        |
|                  | EE-SX674            | 3        | B      |              |
| Proximity sensor | TL-W3MC1            | 3        | C1     |              |
|                  | TL-W3MC1            | 1        | C2     |              |
|                  | TL-W3MC2            | 2        |        |              |
|                  | TL-W3MB1            | 3        | C3     |              |
|                  | TL-W3MB1            | 1        | C4     |              |
|                  | TL-W3MB2            | 2        |        |              |

## [Dimensional Drawing]

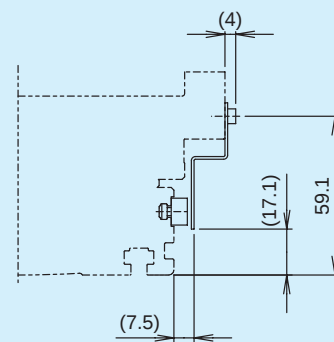
### GL15N



A: EE-SX671 (OMRON)

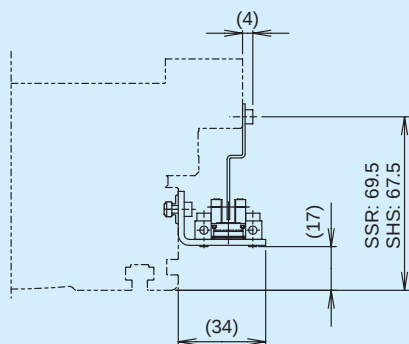


B: EE-SX674 (OMRON)

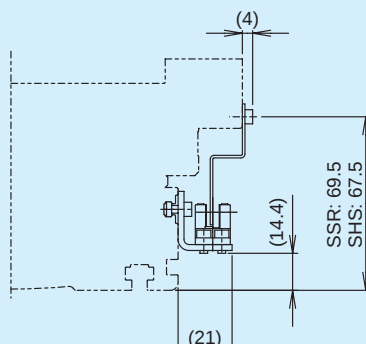


C\*: TL-W3M\*\* (OMRON)

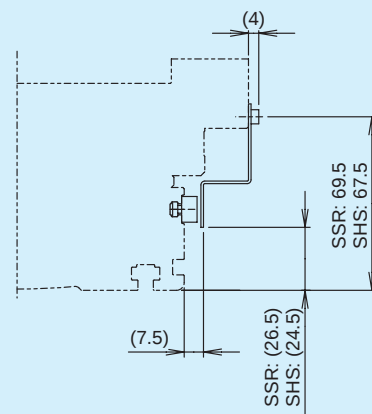
### GL20N



A: EE-SX671 (OMRON)



B: EE-SX674 (OMRON)



C\*: TL-W3M\*\* (OMRON)

## Cable Carrier

The GL-N model enables various cable carriers to be set to the T groove at the side of the base.

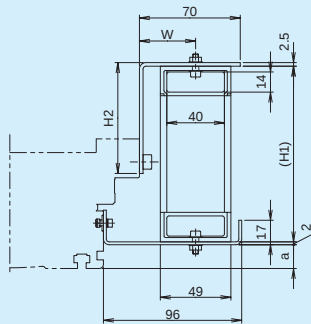
### [Control Number]

| Cable carrier model number | Manufacturer          | Symbol | Max base length [mm] |
|----------------------------|-----------------------|--------|----------------------|
| TKP0180W40R28              | TSUBAKIMOTO CHAIN CO. | A      | 1660                 |
| TKP0180W40R37              |                       | B      | 1960                 |
| TKP0180W40R50              |                       | C      |                      |
| TKP0350W25R37              |                       | D      | 2440                 |
| TKP0350W25R50              |                       | E      |                      |

| Cable carrier model number | Manufacturer          | Symbol | Max base length [mm] |
|----------------------------|-----------------------|--------|----------------------|
| TKP0350W25R75              | TSUBAKIMOTO CHAIN CO. | F      | 2440                 |
| TKP0350W50R37              |                       | G      | 2800                 |
| TKP0350W50R50              |                       | H      |                      |
| TKP0350W50R75              |                       | I      |                      |

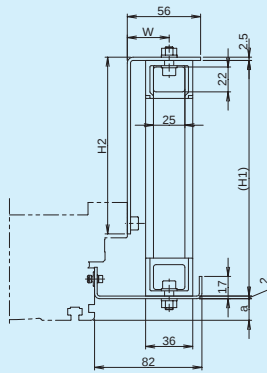
Note: For the selection of cable carriers, etc., refer to the catalogs of cable carriers.

### [Dimensional Drawing]



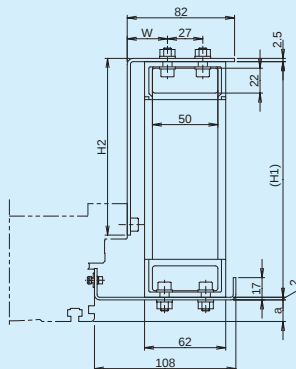
Unit: mm

| Symbol | Cable carrier model number | H1    | H2 | Dimensions |       |       |       |
|--------|----------------------------|-------|----|------------|-------|-------|-------|
|        |                            |       |    | W          |       | a     |       |
|        |                            |       |    | GL15N      | GL20N | GL15N | GL20N |
| A      | TKP0180W40R28              | (78)  | 33 | 45         | 39    | 8.6   | 16.5  |
| B      | TKP0180W40R37              | (96)  | 51 |            |       |       |       |
| C      | TKP0180W40R50              | (122) | 77 |            |       |       |       |



Unit: mm

| Symbol | Cable carrier model number | H1    | H2  | Dimensions |       |       |       |
|--------|----------------------------|-------|-----|------------|-------|-------|-------|
|        |                            |       |     | W          |       | a     |       |
|        |                            |       |     | GL15N      | GL20N | GL15N | GL20N |
| D      | TKP0350W25R37              | (107) | 62  | 38         | 32    | 8.6   | 16.5  |
| E      | TKP0350W25R50              | (133) | 88  |            |       |       |       |
| F      | TKP0350W25R75              | (183) | 138 |            |       |       |       |

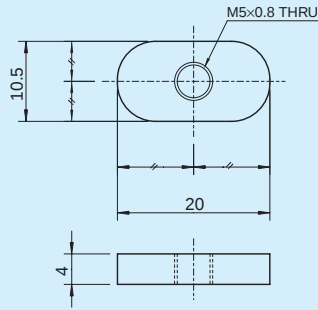


Unit: mm

| Symbol | Cable carrier model number | H1    | H2  | Dimensions |       |       |       |
|--------|----------------------------|-------|-----|------------|-------|-------|-------|
|        |                            |       |     | W          |       | a     |       |
|        |                            |       |     | GL15N      | GL20N | GL15N | GL20N |
| G      | TKP0350W50R37              | (107) | 62  | 36.75      | 30.75 | 8.6   | 16.5  |
| H      | TKP0350W50R50              | (133) | 88  |            |       |       |       |
| I      | TKP0350W50R75              | (183) | 138 |            |       |       |       |

## Base-Mounting Fasteners

Base-mounting plate fasteners are available if they are necessary. Please contact THK for further details.



| Standard base length (mm) | 340 | 460 | 580 | 700 | 820 | 1060 | 1240 | 1420 | 1600 | 1780 | 1960 | 2200 | 2320 | 2500 | 3000 |
|---------------------------|-----|-----|-----|-----|-----|------|------|------|------|------|------|------|------|------|------|
| Quantity                  | 4   | 4   | 6   | 6   | 8   | 10   | 10   | 12   | 14   | 14   | 16   | 16   | 18   | 18   | 20   |

## Appendix

### Service Life Time and Static Safety factor

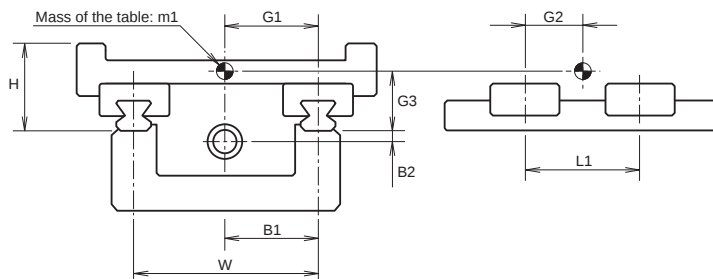
The GL-N model consists of LM Guides, a ball screw, and support units. The life and safety factor of each component can be calculated from the basic dynamic load rating and the basic static load rating. For more information on these, refer to each item (LM Guides, ball screws, and support units) in the general catalog.

The nominal life of the LM Guides and ball screw can be calculated using the technical calculation software available from the THK Technical Support Site or contained in the CD-ROM catalog. In calculating the nominal life, see the data in the following table.

Note: Please note that the calculation of life is theoretical. In actual use, the life varies depending on the service conditions such as the usage environment, the lubricating condition, the accuracy or rigidity of the area where the LM actuator is installed, and so forth.

#### [LM Guide]

| Actuator model number |                 | Table type | LM Guide model number | Thrust position |         | Rail span | Block span | Movable section |                |         | Slider height |        |
|-----------------------|-----------------|------------|-----------------------|-----------------|---------|-----------|------------|-----------------|----------------|---------|---------------|--------|
|                       |                 |            |                       | B1 (mm)         | B2 (mm) |           |            | Mass            | Gravity center |         |               | H (mm) |
|                       |                 |            |                       |                 |         | W (mm)    | L1 (mm)    | m1 (kg)         | G1 (mm)        | G2 (mm) | G3 (mm)       |        |
| Ball screw type       | GL15N-***-SV-B  | S          | SSR15XVUU-Y           | 45              | -5.4    | 90        | 82         | 1.7             | 45             | 41      | 30            | 43     |
|                       | GL15N-***-SW-B  | L          | SSR15XWUU-Y           |                 | -5.4    |           | 74         | 2.2             |                | 37      | 30            | 43     |
|                       | GL15N-***-SWQ-B | L-QZ       | SSR15XWQZUU-Y         |                 | -5.4    |           | 94         | 2.4             |                | 47      | 30            | 43     |
|                       | GL15N-***-HV-B  | L          | SHS15VUU              |                 | -5.4    |           | 74         | 2.2             |                | 37      | 30            | 43     |
|                       | GL15N-***-HVQ-B | L-QZ       | SHS15VQZUU            |                 | -5.4    |           | 94         | 2.4             |                | 47      | 30            | 43     |
|                       | GL20N-***-SV-B  | S          | SSR20XVUU             | 51              | -2      | 102       | 108        | 2.7             | 51             | 54      | 34.6          | 48     |
|                       | GL20N-***-SW-B  | L          | SSR20XWUU             |                 | -2      |           | 108        | 3.2             |                | 54      | 34.6          | 48     |
|                       | GL20N-***-SWQ-B | L-QZ       | SSR20XWQZUU           |                 | -2      |           | 110        | 3.4             |                | 55      | 34.6          | 48     |
|                       | GL20N-***-HV-B  | L          | SHS20VUU              |                 | -4      |           | 96         | 3.6             |                | 48      | 36.6          | 50     |
|                       | GL20N-***-HVQ-B | L-QZ       | SHS20VQZUU            |                 | -4      |           | 110        | 3.8             |                | 55      | 36.6          | 50     |
| Belt drive type       | GL15N-***-SV-E  | S          | SSR15XVUU-Y           | 45              | -26     | 90        | 82         | 1.2             | 45             | 41      | 30            | 43     |
|                       | GL15N-***-SW-E  | L          | SSR15XWUU-Y           |                 | -26     |           | 74         | 1.7             |                | 37      | 30            | 43     |
|                       | GL15N-***-SWQ-E | L-QZ       | SSR15XWQZUU-Y         |                 | -26     |           | 94         | 1.8             |                | 47      | 30            | 43     |
|                       | GL15N-***-HV-E  | L          | SHS15VUU              |                 | -26     |           | 74         | 1.7             |                | 37      | 30            | 43     |
|                       | GL15N-***-HVQ-E | L-QZ       | SHS15VQZUU            |                 | -26     |           | 94         | 1.8             |                | 47      | 30            | 43     |
|                       | GL20N-***-SV-E  | S          | SSR20XVUU             | 51              | -27     | 102       | 108        | 2.1             | 51             | 54      | 34.6          | 48     |
|                       | GL20N-***-SW-E  | L          | SSR20XWUU             |                 | -27     |           | 108        | 2.6             |                | 54      | 34.6          | 48     |
|                       | GL20N-***-SWQ-E | L-QZ       | SSR20XWQZUU           |                 | -27     |           | 110        | 2.8             |                | 55      | 34.6          | 48     |
|                       | GL20N-***-HV-E  | L          | SHS20VUU              |                 | -29     |           | 96         | 3.0             |                | 48      | 36.6          | 50     |
|                       | GL20N-***-HVQ-E | L-QZ       | SHS20VQZUU            |                 | -29     |           | 110        | 3.2             |                | 55      | 36.6          | 50     |



## [Ball Screw]

| Actuator model number |                   |            | Mechanical stopper-to-mechanical stopper stroke (mm) |        |           | Ball screw      |                         |                  |                   |
|-----------------------|-------------------|------------|------------------------------------------------------|--------|-----------|-----------------|-------------------------|------------------|-------------------|
| Nominal model number  | Base length* (mm) | Ball screw | S type                                               | L type | L-QZ type | Mounting method | Category                | Nut model number | Mounting distance |
|                       |                   |            | SV                                                   | SW, HV | SWQ, HVQ  |                 |                         |                  | MAX (mm)          |
| GL15N                 | 034               | B05        | 136                                                  | 122    | 114       | Fixed-support   | Rolled-without pre-load | BTK1605-2.6ZZ    | 186               |
|                       | 142               |            | 1216                                                 | 1202   | 1194      |                 |                         |                  | 1266              |
| GL15N                 | 034               | B10        | 136                                                  | 122    | 114       | Fixed-support   | Rolled-without pre-load | BLK1510-5.6ZZ    | 179               |
|                       | 142               |            | 1216                                                 | 1202   | 1194      |                 |                         |                  | 1259              |
| GL15N                 | 034               | B16        | 136                                                  | 122    | 114       | Fixed-support   | Rolled-without pre-load | BLK1616-3.6      | 176               |
|                       | 142               |            | 1216                                                 | 1202   | 1194      |                 |                         |                  | 1256              |
| GL15N                 | 034               | B20        | 136                                                  | 122    | 114       | Fixed-support   | Rolled-without pre-load | WTF1520-3ZZ      | 179               |
|                       | 142               |            | 1216                                                 | 1202   | 1194      |                 |                         |                  | 1259              |
| GL15N                 | 034               | B30        | 136                                                  | 122    | 114       | Fixed-support   | Rolled-without pre-load | WTF1530-2ZZ      | 179               |
|                       | 142               |            | 1216                                                 | 1202   | 1194      |                 |                         |                  | 1259              |
| GL20N                 | 046               | B05        | 238                                                  | 228    | 220       | Fixed-support   | Rolled-without pre-load | BTK2005-2.6ZZ    | 299               |
|                       | 178               |            | 1558                                                 | 1548   | 1540      |                 |                         |                  | 1619              |
| GL20N                 | 046               | B10        | 238                                                  | 228    | 220       | Fixed-support   | Rolled-without pre-load | BLK1510-5.6ZZ    | 299               |
|                       | 142               |            | 1198                                                 | 1188   | 1180      |                 |                         |                  | 1259              |
| GL20N                 | 046               | B20        | 238                                                  | 228    | 220       | Fixed-support   | Rolled-without pre-load | BLK2020-3.6ZZ    | 297               |
|                       | 178               |            | 1558                                                 | 1548   | 1540      |                 |                         |                  | 1617              |
| GL20N                 | 046               | B40        | 238                                                  | 228    | 220       | Fixed-support   | Rolled-without pre-load | WTF2040-2ZZ      | 297               |
|                       | 178               |            | 1558                                                 | 1548   | 1540      |                 |                         |                  | 1617              |

\* The base length shows the minimum and maximum lengths. Example: 034 for a base length of 340mm and 142 for a base length of 1420mm  
Note: Sliding resistance listed is total for all four LM Guide blocks.

## [Support Unit]

| Nominal model number | Support unit fixed side |                                              | Support unit support side |                      |
|----------------------|-------------------------|----------------------------------------------|---------------------------|----------------------|
|                      | Angular ball bearing    |                                              | Deep-groove ball bearing  |                      |
|                      | Model number            | Bearing model number                         | Model number              | Bearing model number |
| GL15N                | GK10S                   | 7000HTDFGMP5 (Direct-mounting specification) | GF10                      | 608ZZ                |
|                      |                         | 7000HTDBGMP5 (Wrap-around specification)     |                           |                      |
| GL20N                | GK12S                   | 7001HTDFGMP5 (Direct-mounting specification) | GF12                      | 6000ZZ               |
|                      |                         | 7001HTDBGMP5 (Wrap-around specification)     |                           |                      |

## Motor Selection

When selecting a motor that is installed on the GL-N model, refer to the following data. For details of the motor selection method and motor specifications, contact the motor manufacturer.

## [Ball Screw Specifications]

| Actuator model number |                    |            | Ball screw shaft |                     |           |               |                               |
|-----------------------|--------------------|------------|------------------|---------------------|-----------|---------------|-------------------------------|
| Nominal model number  | Base length*1 (mm) | Ball screw | Model number     | Outer diameter (mm) | Lead (mm) | Length*2 (mm) | Shaft-end outer diameter (mm) |
| GL15N                 | 034                | B05        | BTK1605-2.6ZZ    | 16                  | 5         | 311           | ø8h7                          |
|                       | 142                |            |                  |                     |           | 1391          |                               |
| GL15N                 | 034                | B10        | BLK1510-5.6ZZ    | 15                  | 10        | 311           | ø8h7                          |
|                       | 142                |            |                  |                     |           | 1391          |                               |
| GL15N                 | 034                | B16        | BLK1616-3.6      | 16                  | 16        | 311           | ø8h7                          |
|                       | 142                |            |                  |                     |           | 1391          |                               |
| GL15N                 | 034                | B20        | WTF1520-3ZZ      | 15                  | 20        | 311           | ø8h7                          |
|                       | 142                |            |                  |                     |           | 1391          |                               |
| GL15N                 | 034                | B30        | WTF1530-2ZZ      | 15                  | 30        | 311           | ø8h7                          |
|                       | 142                |            |                  |                     |           | 1391          |                               |
| GL20N                 | 046                | B05        | BTK2005-2.6ZZ    | 20                  | 5         | 427           | ø10h7                         |
|                       | 178                |            |                  |                     |           | 1747          |                               |
| GL20N                 | 046                | B10        | BLK1510-5.6ZZ    | 15                  | 10        | 427           | ø10h7                         |
|                       | 142                |            |                  |                     |           | 1387          |                               |
| GL20N                 | 046                | B20        | BLK2020-3.6ZZ    | 20                  | 20        | 427           | ø10h7                         |
|                       | 178                |            |                  |                     |           | 1747          |                               |
| GL20N                 | 046                | B40        | WTF2040-2ZZ      | 20                  | 40        | 427           | ø10h7                         |
|                       | 178                |            |                  |                     |           | 1747          |                               |

\*1 The base length shows the minimum and maximum lengths.

Example: 034 for a base length of 340mm and 142 for a base length of 1420mm

\*2 The length of a ball screw shaft is the length available for the direct-mounting specification. For the wrap-around specification, the length of the ball screw shaft is 74mm longer for the GL15N model and 78mm longer for the GL20N model.

\*3 The allowable input torque is the value for the direct-mounting specification. For the wrap-around specification, contact THK.

Note: Sliding resistance listed is total for all four LM Guide blocks.

## [Belt Specifications]

| Actuator model number |             | Belt         |            | Timing pulley |                     |                                          |                                                                |
|-----------------------|-------------|--------------|------------|---------------|---------------------|------------------------------------------|----------------------------------------------------------------|
| Nominal model number  | Timing belt | Model number | Mass* (kg) | Model number  | Diameter (PCD) (mm) | Table moving distance/one turn of pulley | Moment of inertia (total of two pulleys) (kg-cm <sup>2</sup> ) |
| GL15N                 | EH          | 025-MA5      | 0.38       | 22-MA5-025    | 35.01               | 110 mm                                   | 0.289                                                          |
| GL20N                 | EH          | 025-MA5      | 0.58       | 24-MA5-025    | 38.20               | 120 mm                                   | 0.447                                                          |

| Reducer         |                  |                                         |
|-----------------|------------------|-----------------------------------------|
| Reduction ratio | Rated output (W) | Moment of inertia (kg-cm <sup>2</sup> ) |
| 1/3             | 100              | 0.058                                   |
| 1/3             | 200              | 0.135                                   |
| 1/5             | 100              | 0.04                                    |
| 1/5             | 200              | 0.118                                   |
| 1/9             | 100              | 0.035                                   |

| Allowable input torque |       |
|------------------------|-------|
| Nominal model number   | (N-m) |
| GL15N                  | 4.8   |
| GL20N                  | 8.1   |

| LM Guide model number symbol | Movable section mass (kg) | Sliding resistance (N) |
|------------------------------|---------------------------|------------------------|
| GL15N-***-SV                 | 1.7                       | 16.2                   |
| GL15N-***-SW                 | 2.2                       | 16.6                   |
| GL15N-***-SWQ                | 2.4                       | 26.6                   |
| GL15N-***-HV                 | 2.2                       | 17.2                   |
| GL15N-***-HVQ                | 2.4                       | 33.2                   |
| GL20N-***-SV                 | 2.7                       | 21.0                   |
| GL20N-***-SW                 | 3.2                       | 21.4                   |
| GL20N-***-SWQ                | 3.4                       | 33.4                   |
| GL20N-***-HV                 | 3.6                       | 20.6                   |
| GL20N-***-HVQ                | 3.8                       | 36.6                   |

| LM Guide model number symbol | Movable section mass (kg) | Sliding resistance (N) |
|------------------------------|---------------------------|------------------------|
| GL15N-***-SV                 | 1.7                       | 16.2                   |
| GL15N-***-SW                 | 2.2                       | 16.6                   |
| GL15N-***-SWQ                | 2.4                       | 26.6                   |
| GL15N-***-HV                 | 2.2                       | 17.2                   |
| GL15N-***-HVQ                | 2.4                       | 33.2                   |
| GL20N-***-SV                 | 2.7                       | 21.0                   |
| GL20N-***-SW                 | 3.2                       | 21.4                   |
| GL20N-***-SWQ                | 3.4                       | 33.4                   |
| GL20N-***-HV                 | 3.6                       | 20.6                   |
| GL20N-***-HVQ                | 3.8                       | 36.6                   |

| Timing pulley        |                                         |
|----------------------|-----------------------------------------|
| Nominal model number | Moment of inertia (kg-cm <sup>2</sup> ) |
| GL15N                | 0.12                                    |
| GL20N                | 0.12                                    |

| Allowable input torque*3 |       |
|--------------------------|-------|
| Nominal model number     | (N-m) |
| GL15N                    | 2.8   |
| GL20N                    | 5.3   |

\* The belt mass is the mass for the maximum belt length.

Note: Sliding resistance listed is total for all four LM Guide blocks.



## Precautions on Use

### Handling

- (1) Do not disassemble this product. Doing so may allow foreign matter or objects to enter the product or cause deterioration of its precision.
- (2) Do not drop or strike this product. Doing so may damage the product. If this product is under a shock, its functions may be damaged even though it looks normal in appearance.

### Lubricant

- (1) Wipe out anti-rust oil completely, then apply lubricator.
- (2) Do not mix lubricants with different properties when applying lubricants.
- (3) Contact us in advance before using this product in places subject to constant vibration, or in special environments such as clean room, vacuum, low temperatures or high temperatures, regular lubricants may not be used in such environments. Contact us to purchase the dedicated low-dust-raising grease, when using this product in a clean room.
- (4) Contact us in advance when using the special lubricant.
- (5) Lubrication is essential to ensure the best performance of this product. When no lubricant is applied, it sometimes causes not only the roller to be wear, but also the product life is shortened.
- (6) Usually, grease must be applied to this product every 100 kilometers under normal operating conditions. The interval for grease application must be determined upon initial inspection.

### Notes on Use

- (1) If a foreign object or foreign matter enters this product, the ball circulation components may be damaged or its functions may deteriorate. Prevent foreign matters or objects such as trash and chips.
- (2) Contact us in advance when using this product is used in environments where coolants enter the interior of the product, because some types of coolant may lower the performance of the product's functions.
- (3) This product must be used within a temperature range from +5°C to 40°C. In addition, humidity must be 80% or less and no dew condensation must occur. Contact us in advance if planning to use this product in a different range of temperature or humidity.
- (4) Contact us in advance when using this product in a place subject to constant vibration or in special environments such as clean room, vacuum, low temperatures or high temperatures.

### Storage

This product must be leveled in our package or a shipment package during stock. Avoid any place with low temperature, high temperature or high humidity. If necessary, CAD data (DXF format) for this product may be downloaded from the website of our technical support center.

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