

THK

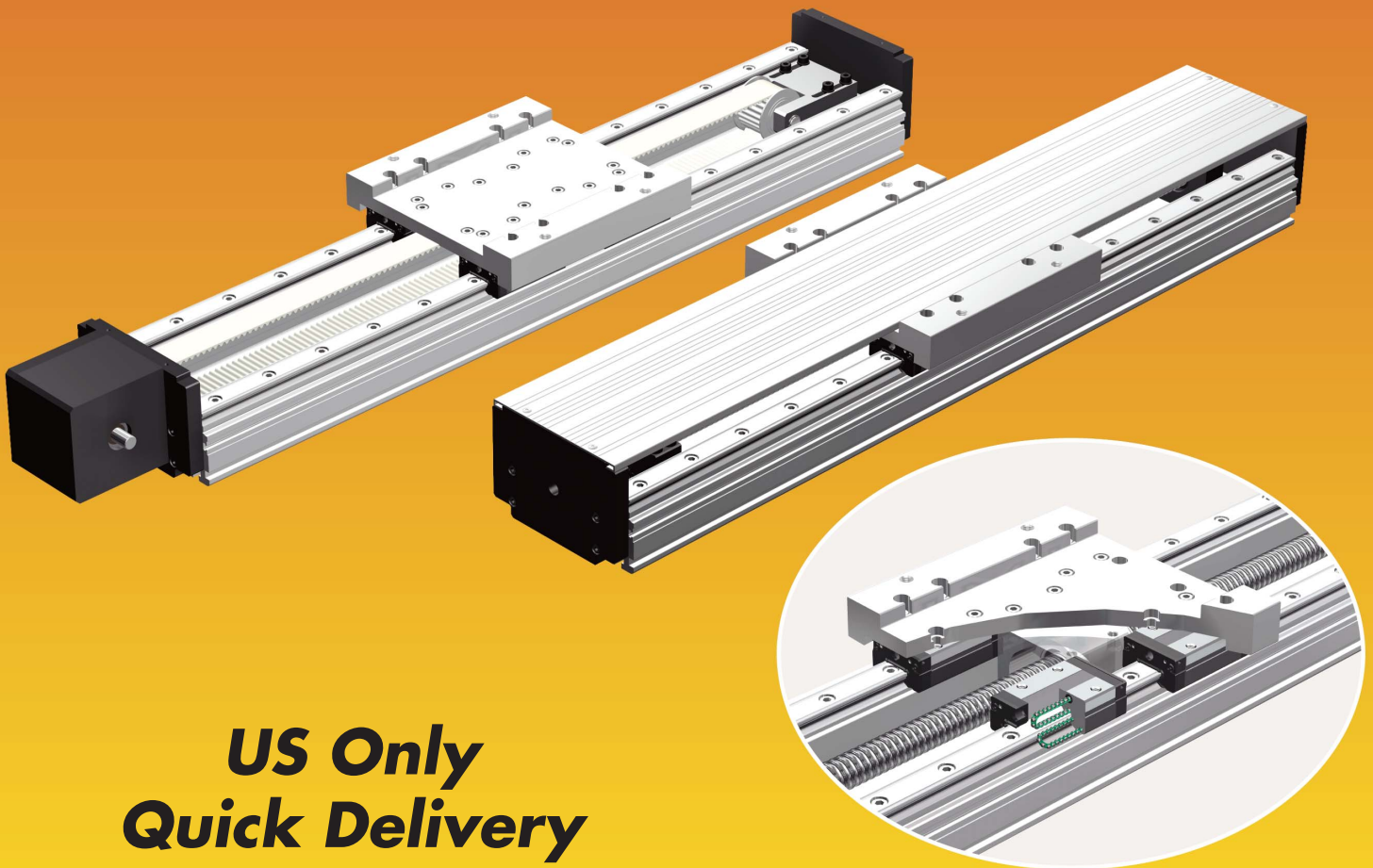
NEW



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 7.*

THK CO., LTD.
TOKYO, JAPAN

CATALOG No. 178E

LM Actuator GL-N Model

Ball Screw

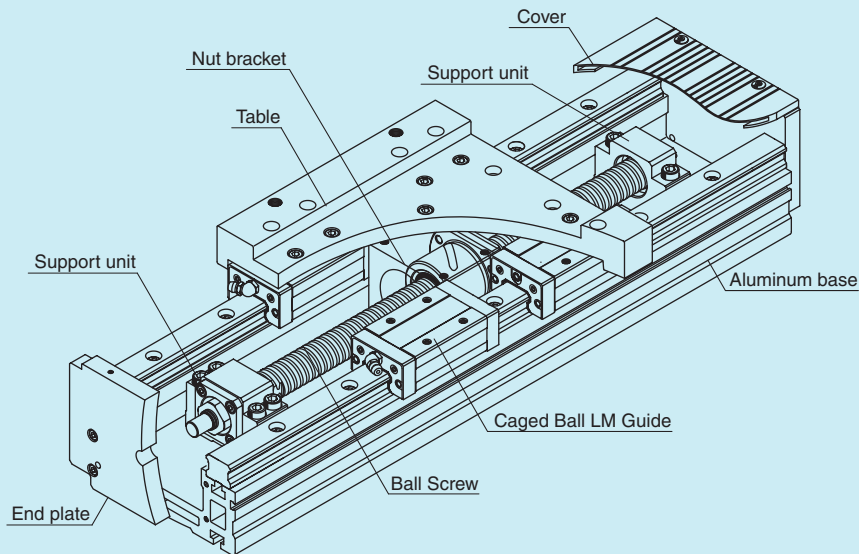


Figure 1 Ball Screw Type Structure

Timing Belt

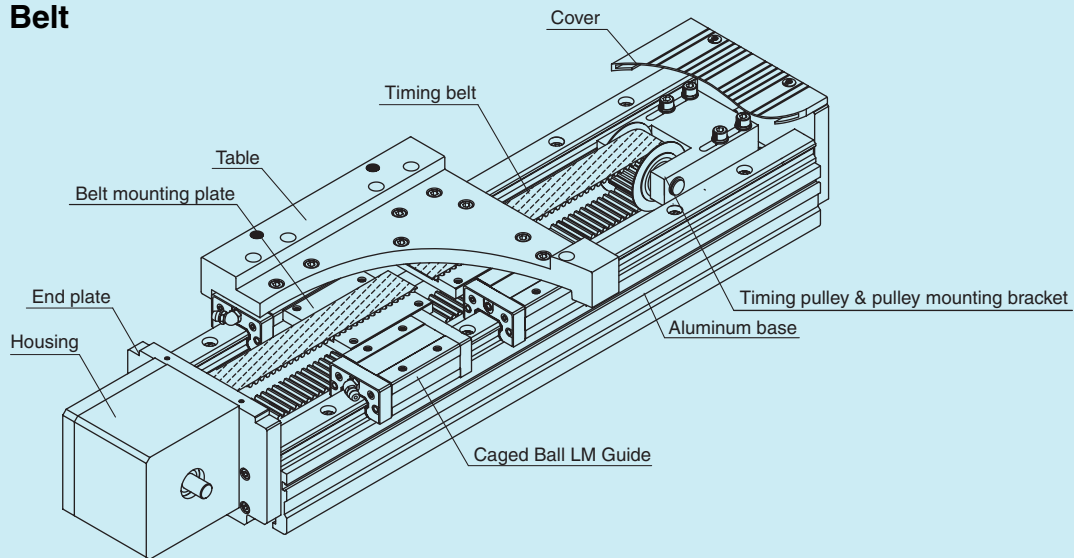


Figure 2 Timing Belt Type Structure

Structures and Features

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

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

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

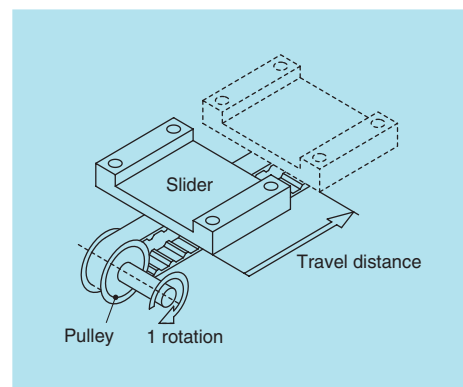
[Timing Belt Type]

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 (mm) per pulley rotation
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 19 and 20.



● Lightweight and High Rigidity

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

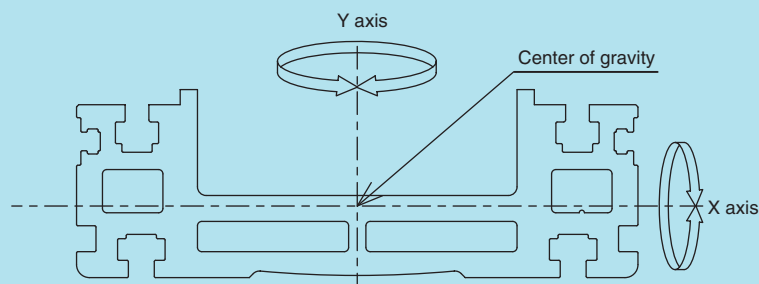


Figure 3 Base Section

Table 3 Geometrical Moment of Inertia and Weight in the Base

	Geometrical Moment of Inertia		Weight
	Ix (mm ⁴)	Iy (mm ⁴)	(kg/m)
GL15N	1.61×10^5	2.47×10^6	4.85
GL20N	3.15×10^5	4.28×10^6	6.47 (Note 1)

Note 1: The weight of the SSR model is 6.69kg/m.

● 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).

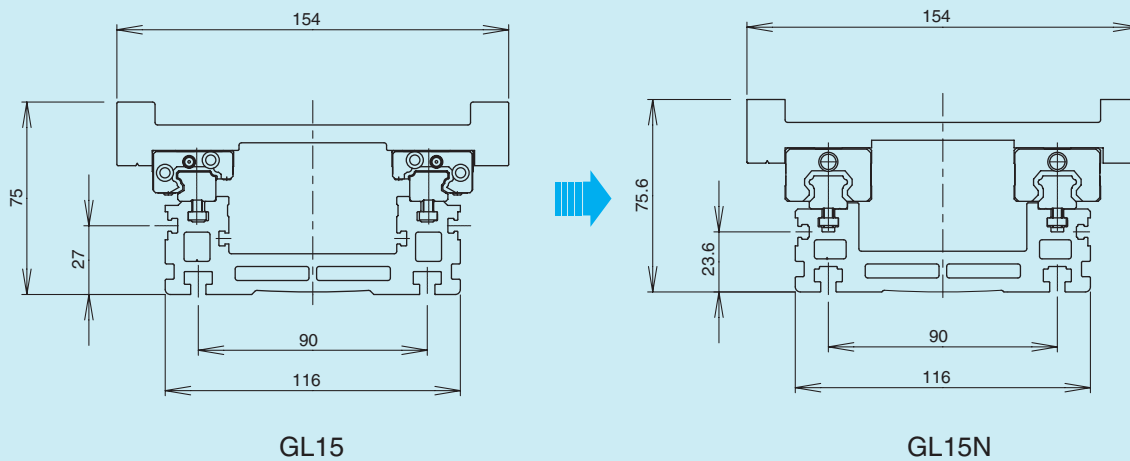


Figure 4 Cross-section comparative views

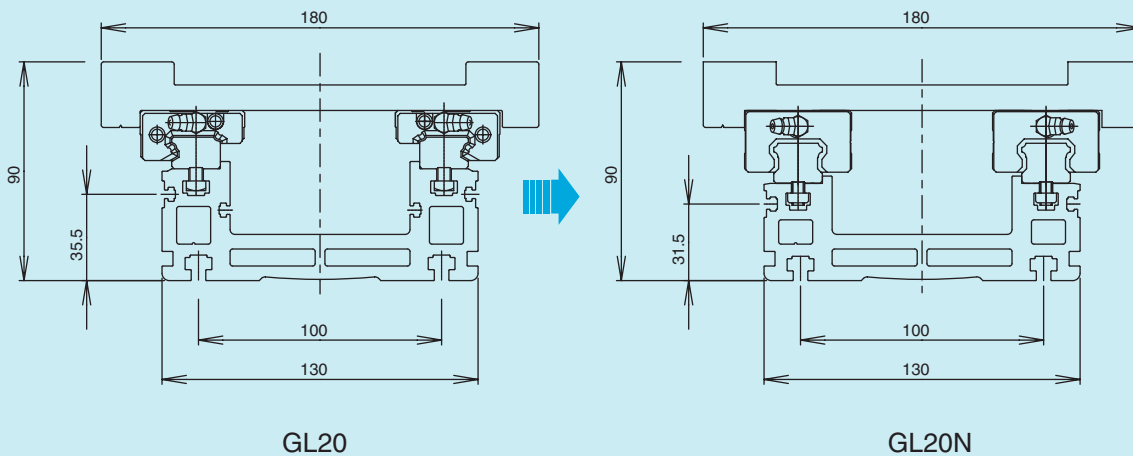
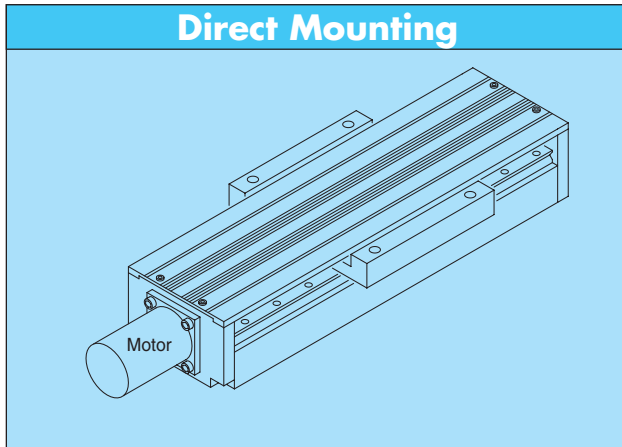


Figure 5 Cross-section comparative views

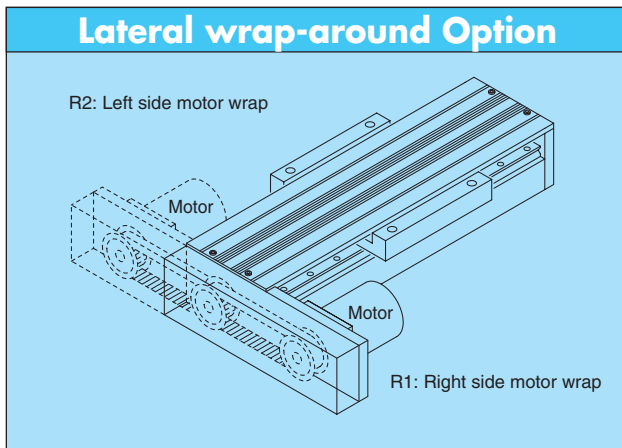
Types and Features

Types of Drive Systems

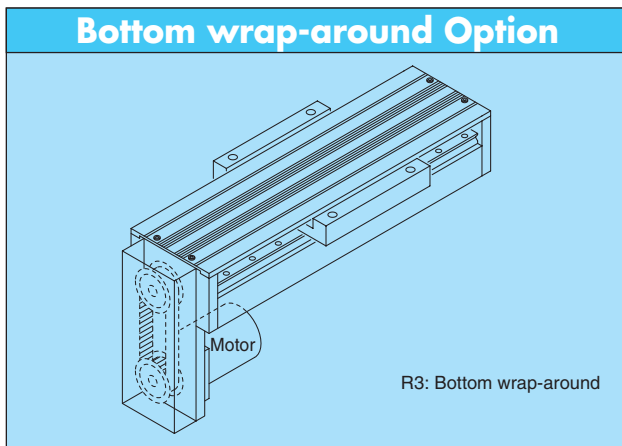
[Ball Screw Drive]



Direct mounting of Motor to Ball Screw.



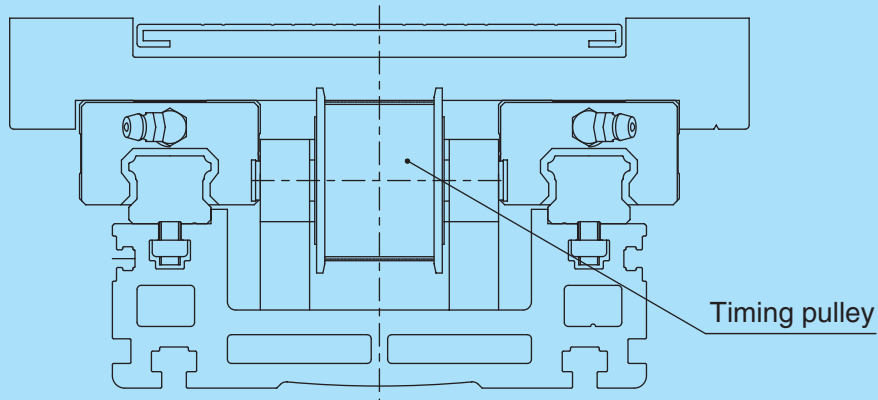
Axial dimensions are kept to minimum by applying the Wrap-Around option.
(Pulley ratio: 1:1)



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

[Timing Belt Type]

Horizontal Mounting



Note 1: When mounting the GL-N to a vertical surface in a horizontal mode, the timing belt may sag or bow. This must be taken into consideration as the belt may tend to rub in the flange/pulley area.

Note 2: The GL-N model cannot be used in a vertical position for the timing belt type.

● Specification

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 ^{Note 1)}	(mm)	±0.02			±0.08			±0.02			±0.08		
Effective stroke ^{Note 2)}	(mm)	100 to 1200			50 to 1700			200 to 1550			150 to 2700		
Applicable LM Guide		SSR15V	SSR15W	SHS15V	SSR15V	SSR15W	SHS15V	SSR20V	SSR20W	SHS20V	SSR20V	SSR20W	SHS20V
Rated moment load ^{Note 3)}	MA	84.3	98.2	157.5	112.1	130.7	210.4	165.9	242.5	336.8	150.2	238.1	329.4
	MB	64.5	77.5	154.4	86.4	103.8	206.2	122.5	179.5	327.8	110.9	176.7	318.6
	MC	75.7	113.1	204.1	108.0	164.8	296.2	128.3	187.5	371.2	123.8	199.3	346.0

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 for stroke details.

Note 3: The rated moment load refers to the moment in each direction obtained when the life travel distance of the LM guide is 5000km. For the ball screw drive, the rated moment load is the minimum loaded moment calculated under the conditions of the maximum moving speed per lead and an acceleration of 0.3G.

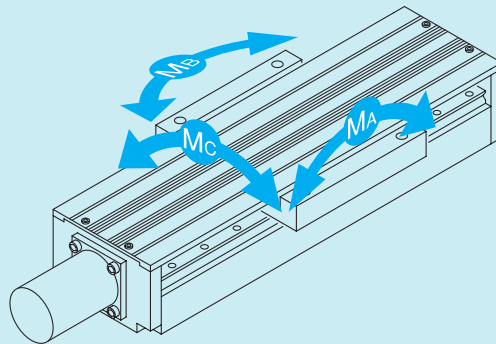


Figure 6

● 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⁻¹) of the AC servo motor.

Maximum travel speed

Unit: mm/s

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⁻¹).

Maximum travel speed

Unit: mm/s

Model number	GL15N			GL20N		
Deceleration 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-J-Y
1 2 3 4 5 6 7 8 11 12 13 14

Belt type specification

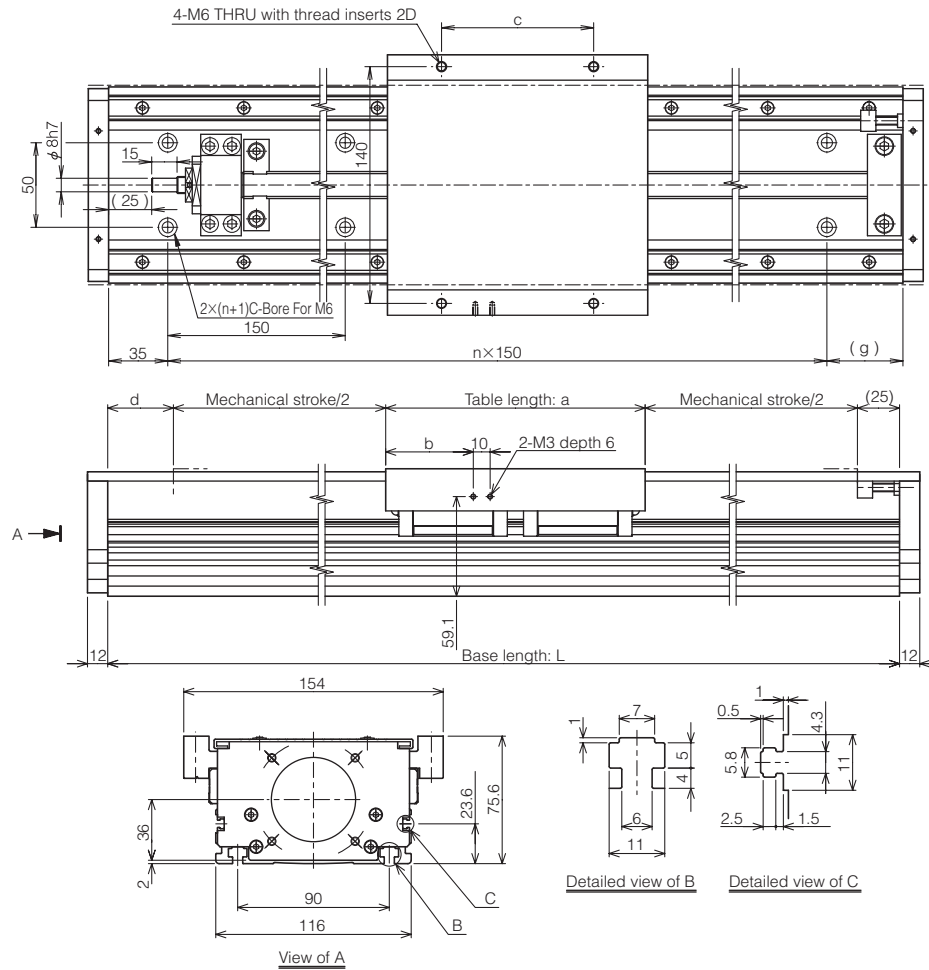
GL20N-070-SW Q-EH-B1-G1-03-C-A-J-Y
1 2 3 4 5 8 9 10 11 12 13 14

1	Nominal model number	GL15N/GL20N
2	Base length	Example) For 340 mm: 034 Standard base lengths shown on page 8 to 15
3	LM Guide	SV: SSR-XV (S-type table) SW: SSR-XW (L-type table) HV: SHS-V (L-type table) (L-QZ type table for SSR/SHS with QZ)
4	LM Guide QZ Lubricator	No mark: Not provided with QZ Q: Provided with QZ (SSR-XW/SHS only)
5	Driving system	<ul style="list-style-type: none"> ◆Ball Screw-driven <ul style="list-style-type: none"> B05: Ball Screw lead 5 mm (GL15/20) B20: Ball Screw lead 20 mm (GL20) B30: Ball Screw lead 30 mm (GL15 only) B40: Ball Screw lead 40 mm (GL20 only) ◆Belt-driven <ul style="list-style-type: none"> B20: Ball Screw lead 20 mm (GL15) B10: Ball Screw lead 10 mm (GL15/20) B16: Ball Screw lead 16 mm (GL15 only) ◆EH: Horizontal model specification
6	Ball Screw QZ Lubricator	No mark: Not provided with QZ Q: Provided with QZ (SSR-XW/SHS only) <small>*Ball Screw leads (30 mm and 40 mm) are excluded for wiper rings.</small>
7	Ball Screw driven motor mount method	No mark: Direct mounting R1: Right side motor wrap R2: Left side motor wrap R3: Bottom
8	Ball Screw drive End plate type Timing belt drive Motor bracket type	<ul style="list-style-type: none"> ◆Ball Screw specification for direct motor connection <ul style="list-style-type: none"> A: inner diameter ϕ30H7, M4, PCD46 B: inner diameter ϕ50H7, M5, PCD70 C: inner diameter ϕ50H7, M4, PCD60 D: inner diameter ϕ70H7, M5, PCD90 (GL20 only) E: inner diameter ϕ30H7, M3, PCD45 T: inner diameter ϕ22, counter bore for M3 from rear, mounting pitch 31 (NEMA17 standard) (GL15 only) U: inner diameter ϕ38.1, M4, mounting pitch 47.14 (NEMA23 standard) V: inner diameter ϕ73.03, M5, mounting pitch 69.6 (NEMA34 standard) (GL20 only) W: inner diameter ϕ40, M5, PCD63 F: inner diameter ϕ50H7, M4, PCD70 G: inner diameter ϕ34H7, M3, PCD48 H: inner diameter ϕ36H7, M4, mounting aperture pitch 50 I: inner diameter ϕ60H7, M6, mounting aperture pitch 70 (GL20 only) J: inner diameter ϕ70H7, M6, PCD90 (GL20 only) Z: inner diameter ϕ60, M5, PCD75 ◆Ball Screw specification for motor wrap-around <ul style="list-style-type: none"> B14: inner diameter ϕ50, M5, PCD70, pulley inner diameter ϕ14 D11: inner diameter ϕ70, M5, PCD90, pulley inner diameter ϕ11 D14: inner diameter ϕ70, M5, PCD90, pulley inner diameter ϕ14 U11: inner diameter ϕ38.1, M4, mounting pitch 47.14, pulley inner diameter ϕ6.35 mm (NEMA23 standard) V11: inner diameter ϕ73.03, M5, mounting pitch 69.6, pulley inner diameter ϕ9.35 mm (NEMA34 standard) (GL20 only) F11: inner diameter ϕ50, M4, PCD70, pulley inner diameter ϕ11 F14: inner diameter ϕ50, M4, PCD70, pulley inner diameter ϕ14 J14: inner diameter ϕ70, M6, PCD90, pulley inner diameter ϕ14 ◆Belt specification for motor bracket <ul style="list-style-type: none"> N: No motor bracket B1: inner diameter ϕ50, ϕ5.5, PCD60 B2: inner diameter ϕ60, ϕ6.5, PCD90 U1: inner diameter ϕ38.1, M4 (NEMA23 standard) V1: inner diameter ϕ73.03, M5 (NEMA34 standard) (GL20 only)
9	Reducer	<ul style="list-style-type: none"> ◆Reducer specification for belt drive (motor bracket, only available for B1 and B2) Reducer symbols: G1, G2, G3, G4, G5, G6, G7, G8 and G9 (See page 20 for details of the reducer symbols and available motors.) 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.) No mark: Not provided with reducer.
10	Reduction ratio	Reduction ratio: 03: 1/3 05: 1/5 09: 1/9 Note: Model number display example: B1-G1-03 (motor bracket B1 + reducer G1 + reduction ratio 1/3) No mark: Not provided with reducer.
11	Covers and bellows	N: Not provided C: Cover provided J: Bellow provided
12	Sensors	N: None A: Photo sensor EE-SX-671 (3 pcs) B: Photo sensor EE-SX-674 (3 pcs) C1: Proximity sensor TL-W3MC1 (N.O.x3) C2: Proximity sensor TL-W3MC1 (N.O.x1), TL-W3MC2 (N.C.x2) C3: TL-W3MB1 (N.O.x3) C4: TL-W3MB1 (N.O.x1), TL-W3MB2 (N.C.x2)
13	Cable carrier	N: None A: TKP0180-2B-R28 (Tsubakimoto Chain Co.) B: TKP0180-2B-R37 (Tsubakimoto Chain Co.) C: TKP0180-2B-R50 (Tsubakimoto Chain Co.) D: TKP0320-2B-R37 (Tsubakimoto Chain Co.) E: TKP0320-2B-R50 (Tsubakimoto Chain Co.) F: TKP0320-2B-R75 (Tsubakimoto Chain Co.) G: TKP0320-3B-R37 (Tsubakimoto Chain Co.) H: TKP0320-3B-R50 (Tsubakimoto Chain Co.) I: TKP0320-3B-R75 (Tsubakimoto Chain Co.)
14	Mounting hole	Y: Standard mounting counter bore

Items with cyan marker indicate standard options at this time.

Dimensional Drawing

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	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]	Table	S type	5.8	6.9	8.0	9.2	10.3	12.5	14.2	15.9
		L type (SSR15XW)	6.1	7.2	8.3	9.5	10.6	12.8	14.5	16.2
		L type (SHS15V)	6.5	7.6	8.8	9.9	11.1	13.4	15.1	16.8
Base mounting hole	n	1	2	3	4	5	6	7	9	
	g	155	125	95	65	35	125	155	35	

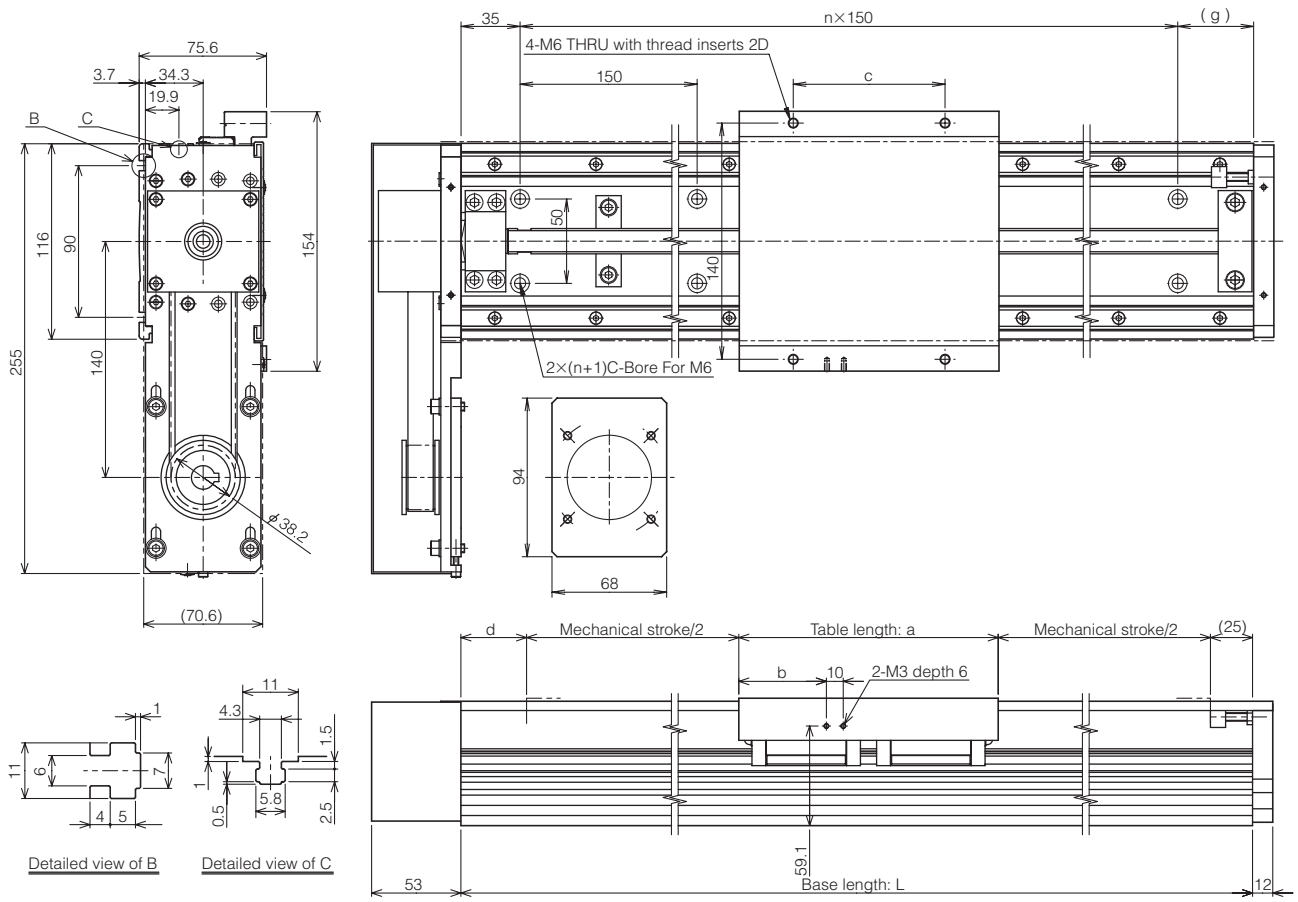
Note 1: The main unit weight includes the cover weight.

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.

● GL15N Model, Ball Screw Driven

[Lateral Wrap-around Specification]



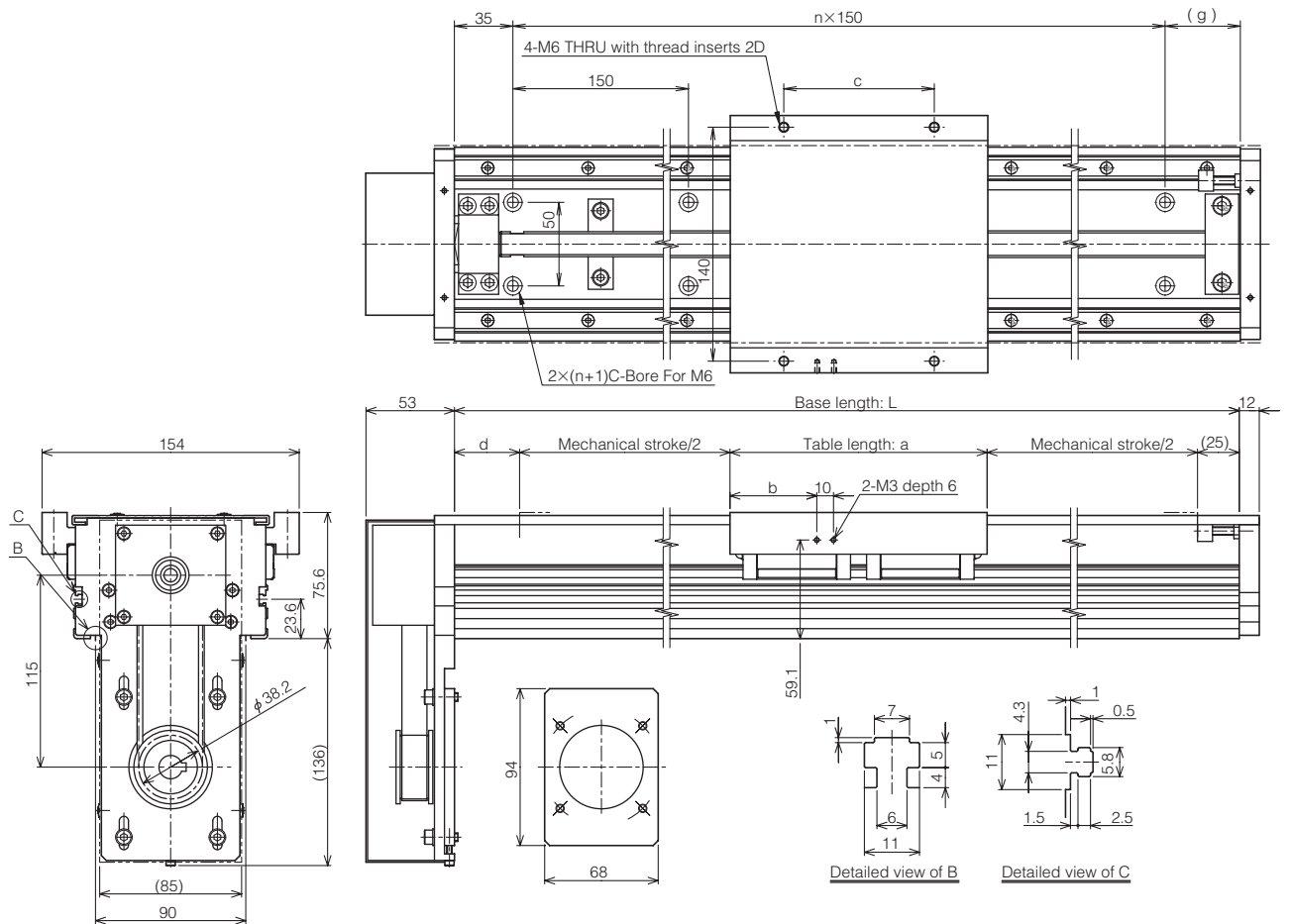
Unit: mm

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]	Table	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]	Table	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

● **GL15N Model, Ball Screw Driven**
[Bottom 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

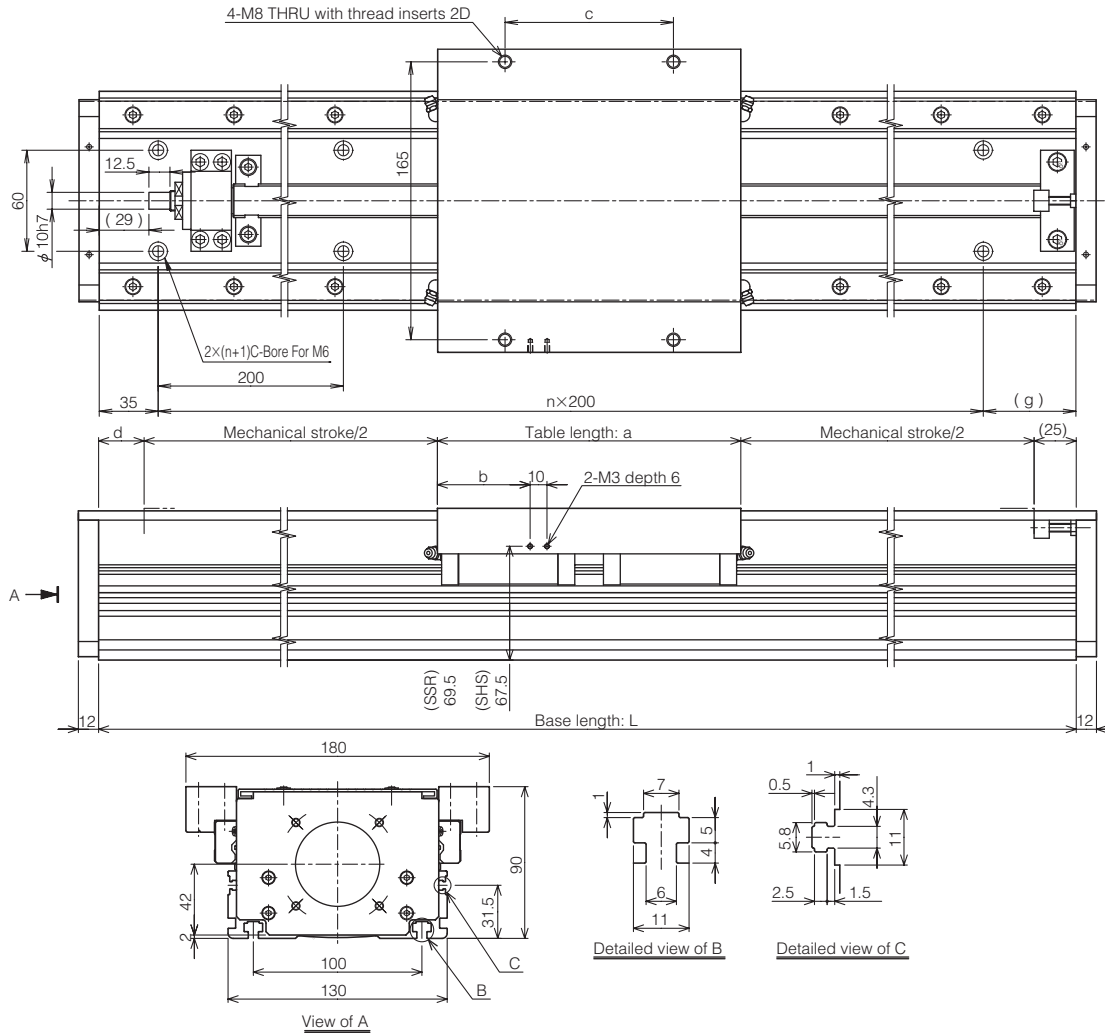
Base length: L [mm]		340	460	580	700	820	1060	1240	1420	
Mechanical stroke [mm]	Table	S type	136	256	376	496	616	856	1036	1216
		L type	122	242	362	482	602	842	1022	1202
		L(QZ) type	113	233	353	473	593	833	1013	1193
		L-QZ type	114	234	354	474	594	834	1014	1194
Main unit weight [kg]	Table	S type	7.4	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

● **GL20N Model, Ball Screw Driven**
[Direct Mounting 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]	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
Main unit weight [kg]	Table									
	S type	9.9	11.5	13.2	14.8	18.1	20.6	23.1	25.5	28.0
	L type (SSR20XW)	10.4	12.0	13.7	15.3	18.6	21.1	23.6	26.0	28.5
	L type (SHS20V)	11.2	12.9	14.6	16.3	19.7	22.2	24.7	27.3	29.8
Base mounting hole	n	1	2	3	3	4	5	6	7	8
	g	225	145	65	185	225	205	185	165	145

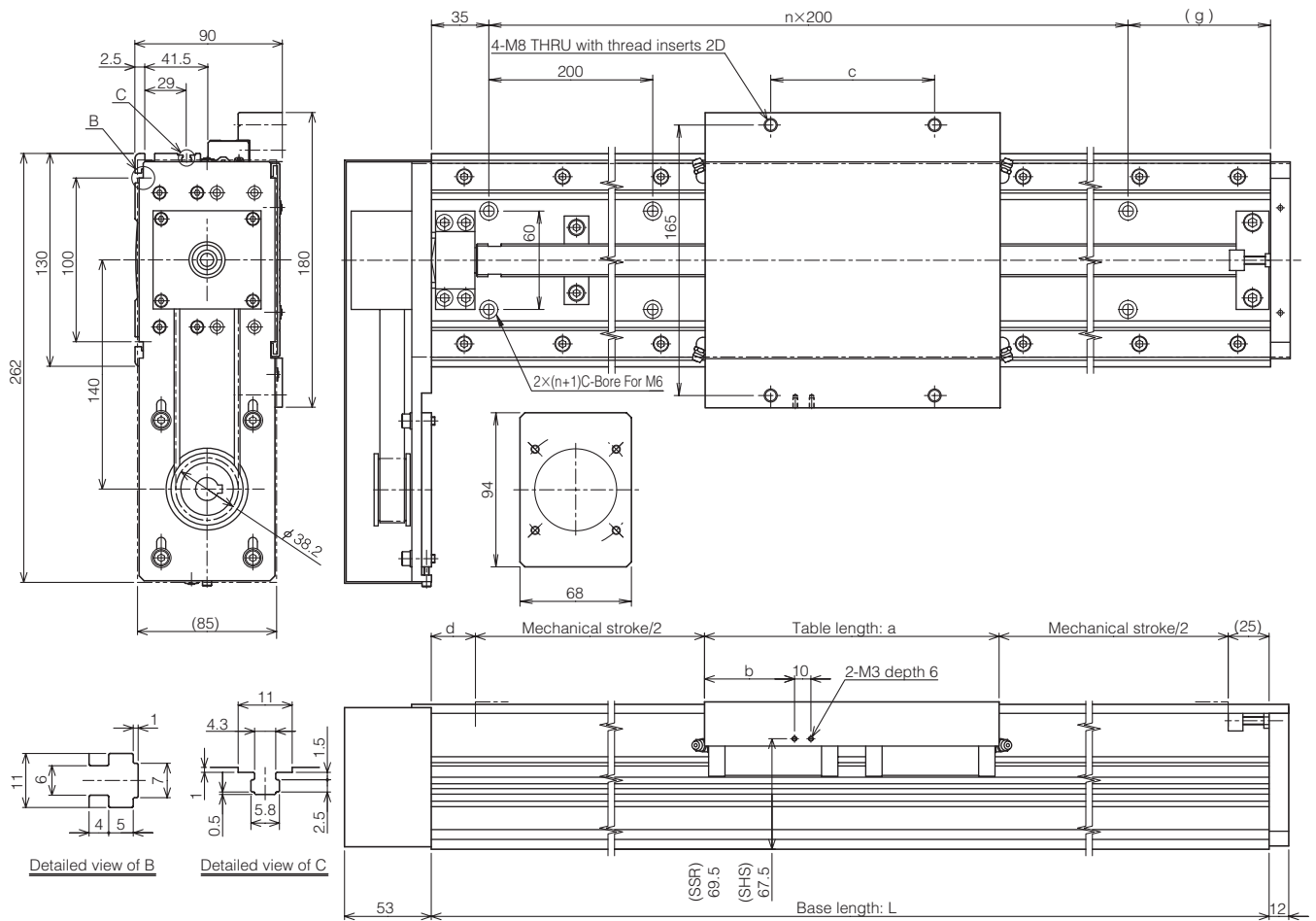
Note 1: The main unit weight includes the cover weight.

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.

● GL20N Model, Ball Screw Driven [Lateral 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]	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	
	g	225	145	65	185	225	205	185	165	145	

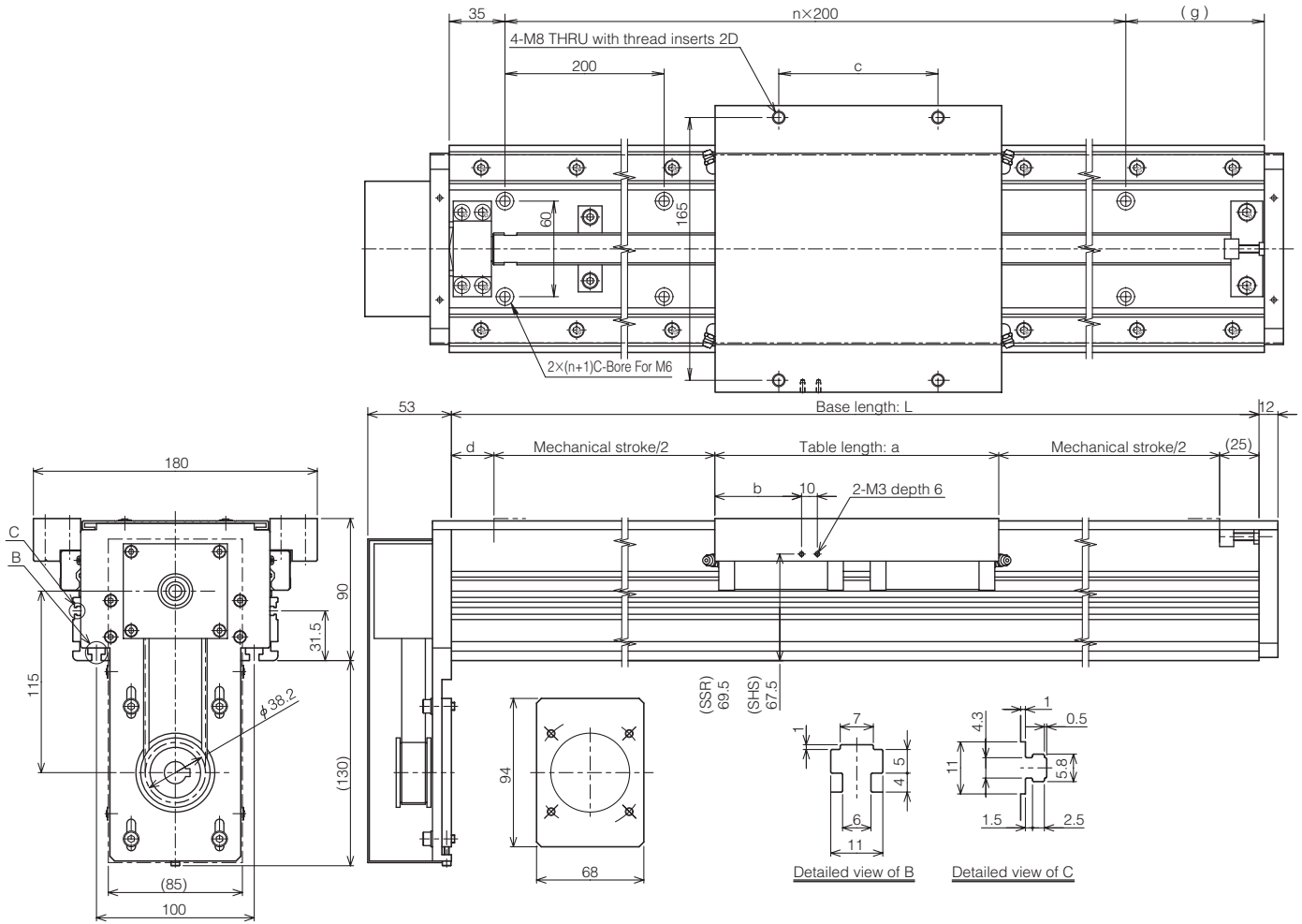
Note 1: The main unit weight includes the cover weight.

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.

● **GL20N Model, Ball Screw Driven**
[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]	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
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
Base mounting hole	L type (SHS20V)	13.1	14.8	16.5	18.2	21.6	24.1	26.6	29.2	31.7
	n	1	2	3	3	4	5	6	7	8
	g	225	145	65	185	225	205	185	165	145

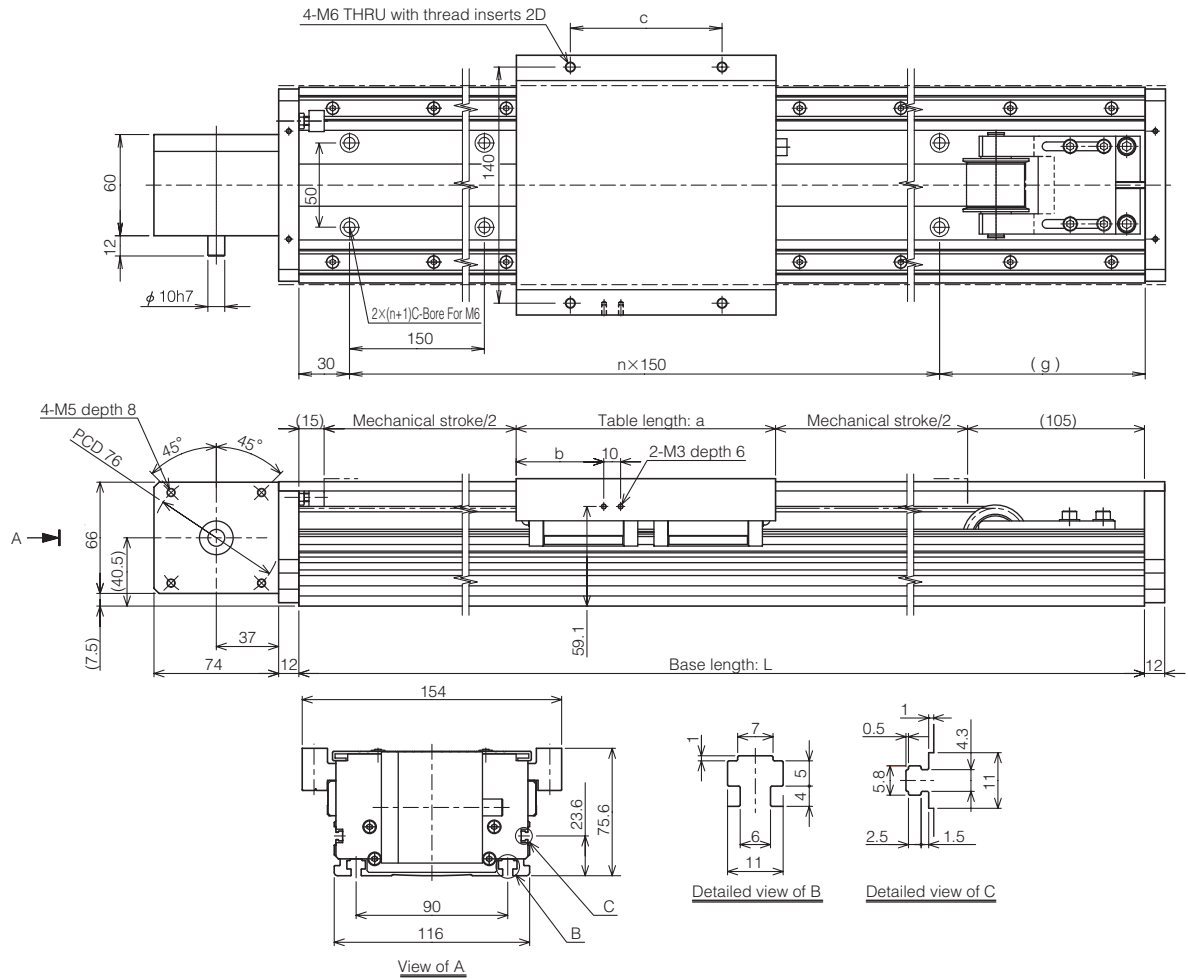
Note 1: The main unit weight includes the cover weight.

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.

● GL15N Model, Belt Driven



Unit: mm

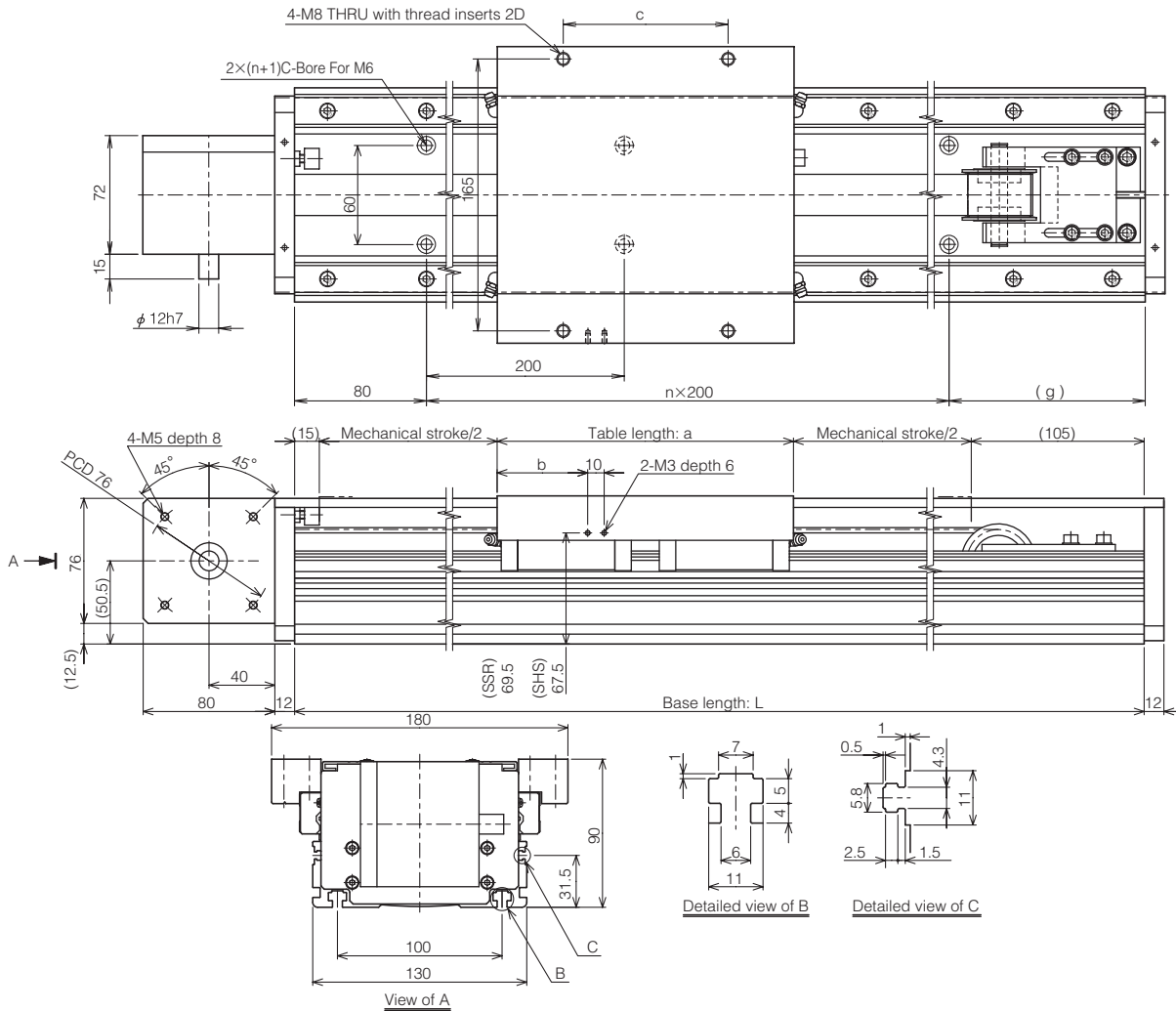
Table type	Table length: a	b	c
S type	126	38	90
L type	154	52	90
L-QZ type	180	65	120

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	1714
	L type	66	186	306	426	546	786	966	1146	1326	1506	1686
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	20.5
	L type(SSR15XW)	7.4	8.4	9.4	10.4	11.4	13.4	14.8	16.3	17.8	19.3	20.8
Base mounting hole	Table											
	L type(SHS15V)	7.8	8.8	9.8	10.9	11.9	13.9	15.4	16.9	18.5	20.0	21.5
	n	1	2	3	3	4	6	7	8	9	11	12
	g	160	130	100	220	190	130	160	190	220	100	130

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.

GL20N Model, Belt Driven



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	2220	2720
	L type	160	280	400	520	760	940	1120	1300	1480	1660	1900	2020	2200	2700
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	35.5	41.3
	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	36.0	41.8
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.

QZ Lubricator

[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.

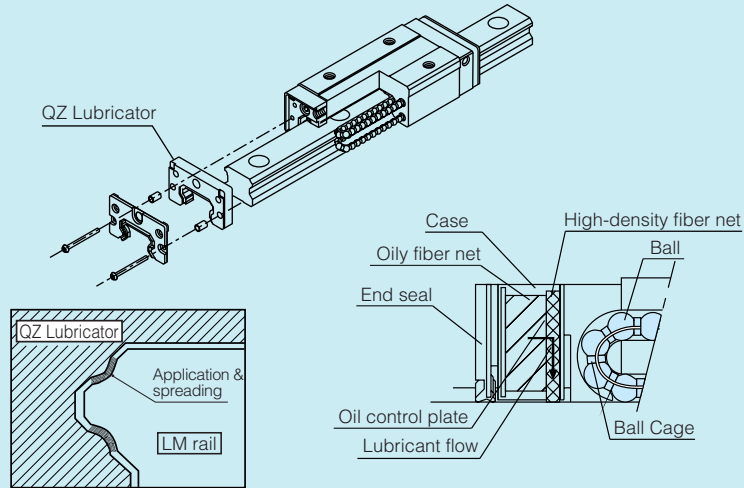


Figure 7 QZ Lubricator Structure Diagram (LM Guide)

[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.

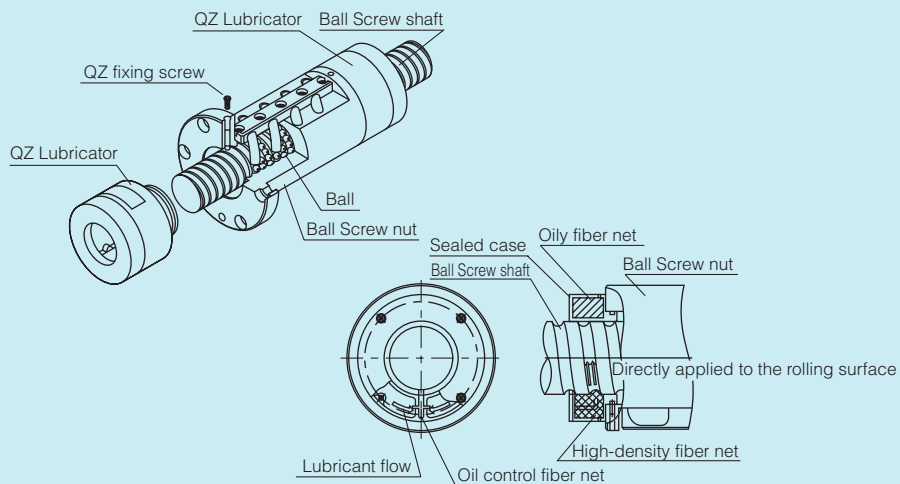


Figure 8 QZ Lubricator Structure Diagram (Ball Screw)

● Motor Bracket (Ball Screw Type Specification)

[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 angle	Direct motor mounting	Wrap-around	Direct motor mounting	Wrap-around		
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			—	—	B	B14		
	SGMAV-04	400W	—	—	B	B14				
	Σ-III	SGMAS-01	100W	□40	A	—	A	—		
		SGMPS-01			B	—	B	—		
		SGMAS-02	200W	□60	B	B14	B	B14		
		SGMAS-04			—	—	B	B14		
		SGMPS-02	200W	—	—	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			—	—	B	B14		
		SGMPH-02	200W	—	—	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						—	—	B	B14	
HF-KP43		400W	—	—	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	—			—	B	B14			
HC-KFS43	400W	—	—	B	B14					
Matsushita Electric industrial Co., Ltd.	MINAS A4	MSMD01	100W	□38	E	—	E	—		
		MQMA01			F	—	F	—		
		MSMD02	200W	□60	F	F11	F	F11		
		MSMD04			—	—	F	F14		
		MQMA02	200W	□80	—	—	D	D11		
		MQMA04			—	—	D	D14		
	MINAS A	MSMA01	100W	□38	E	—	E	—		
		MQMA01			F	—	F	—		
		MSMA02	200W	□60	F	F11	F	F11		
		MSMA04			—	—	F	F14		
		MQMA02	200W	□80	—	—	D	D11		
		MQMA04			—	—	D	D14		
	OMRON Corporation	OMNUC W	R88M-U10030	100W	□40	A	—	A	—	
			R88M-W10030			A	—	A	—	
R88M-WP10030			200W	□60	B	—	B	—		
R88M-U20030					B	B14	B	B14		
R88M-W20030					B	B14	B	B14		
R88M-U40030			400W	□60	—	—	B	B14		
R88M-W40030					—	—	B	B14		
R88M-WP20030			200W	□80	—	—	J	—		
R88M-WP40030	400W	—			—	J	—			
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	—		
		—			—	—	—	Z	—	
ORIENTAL MOTOR Co.,Ltd.	5-phase	RK	RK564	—	□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	U11	U	U11		
NEMA 34 Standard motor				□85	—	—	V	V11		

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

[Dimensional Drawing]

- Direct motor mounting

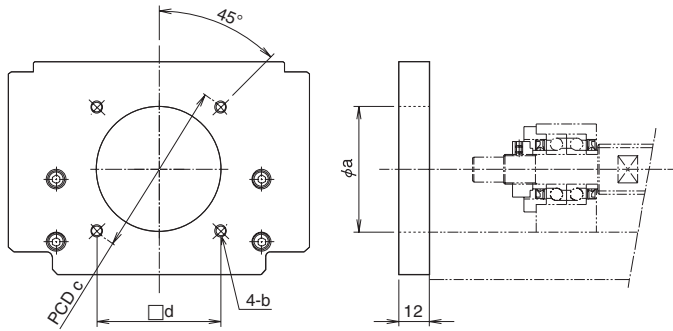
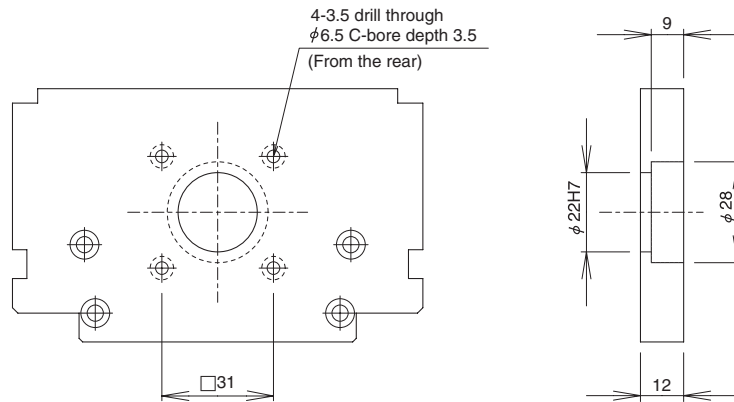


Table 5 Motor Mounting Plate Unit: mm

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	40H7	M5	63	—
Z	60H7	M5	75	—

- GL15N Motor Bracket T



- Motor wrap-around

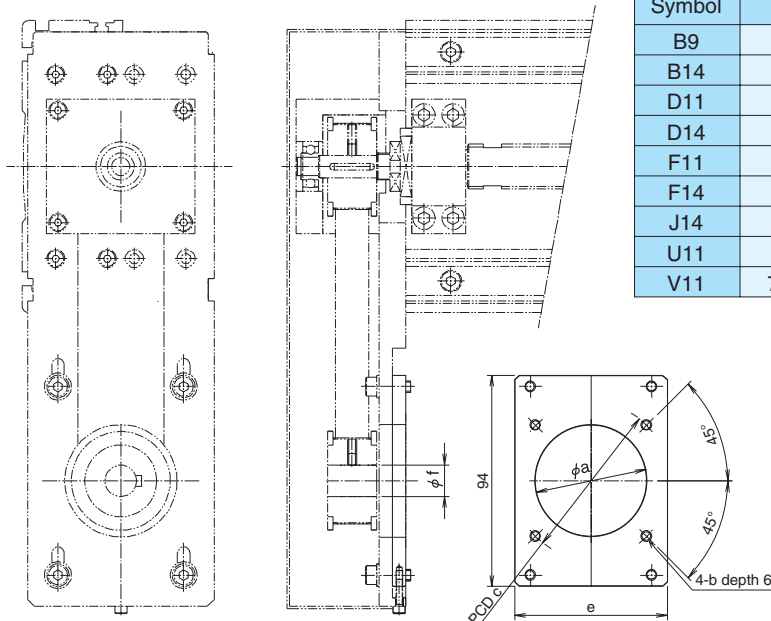


Table 6 Motor Mounting Plate Unit: mm

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
U11	38.1	M4	66.68	68	6.35
V11	73.03	M5	98.43	80	9.53

● Motor Bracket (Belt Type Specification)

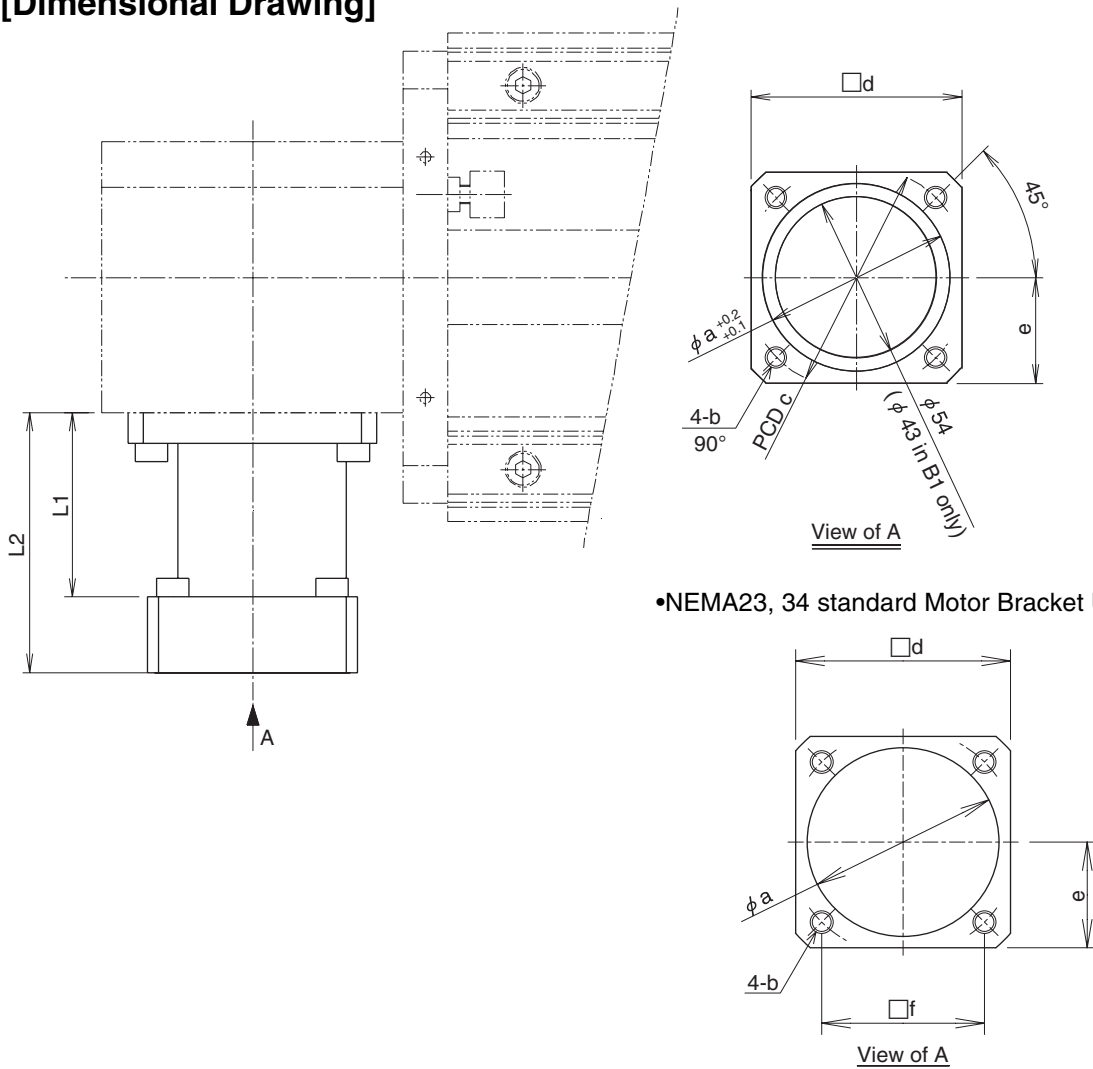
[Control Number]

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 DRIVES, INC.	VR	VRAFB03	100W	1/3	B1
		VRAFB05		1/5	B1
		VRAFB09		1/9	B1
		VRAFB03	200W	1/3	B1
		VRAFB05		1/5	B1
		VRAFB09		1/9	B1
		VRAFB03	400W	1/3	B1
		VRAFB05		1/5	B1
VRAFC09	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

● Reducer (Belt Type Specification)

[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 Motor Brackets

AC Servo motor	Motor				Reduction ratio				
	Motor Manufacture	Series	Model number	Rated output	1/3	1/5	1/9		
YASKAWA Electric Corporation	Σ-III		SGMAS-01	100W	B1-G1-03	B1-G1-05	B1-G1-09		
			SGMAS-02	200W	B1-G3-03	B1-G3-05	B1-G3-09		
			SGMAS-04	400W	B1-G3-03	B1-G3-05	B2-G3-09		
			SGMAH-01	100W	B1-G1-03	B1-G1-05	B1-G1-09		
			SGMAH-02	200W	B1-G3-03	B1-G3-05	B1-G3-09		
			SGMAH-04	400W	B1-G3-03	B1-G3-05	B2-G3-09		
	Σ-II		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	B1-G3-09		
			HF-KP23		B1-G3-03	B1-G3-05	B1-G3-09		
			HF-MP43	400W	B1-G3-03	B1-G3-05	B2-G3-09		
			HF-KP43		B1-G3-03	B1-G3-05	B2-G3-09		
Mitsubishi Electric Corporation	MELSERVO	J3	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	B1-G3-09		
		HC-KFS23	B1-G3-03		B1-G3-05	B1-G3-09			
		J2-Super	HC-MFS43	400W	B1-G3-03	B1-G3-05	B2-G3-09		
			HC-KFS43		B1-G3-03	B1-G3-05	B2-G3-09		
	MSMD01		100W	B1-G2-03	B1-G2-05	B1-G2-09			
	Matsushita Electric industrial Co.,Ltd.	MINAS A4		MSMD02	200W	B1-G4-03	B1-G4-05	B1-G4-09	
				MSMD04	400W	B1-G5-03	B1-G5-05	B2-G5-09	
				MSMA01	100W	B1-G2-03	B1-G2-05	B1-G2-09	
		MINAS A		MSMA02	200W	B1-G4-03	B1-G4-05	B1-G4-09	
				MUMA02		B1-G4-03	B1-G4-05	B1-G4-09	
MSMA04				400W	B1-G5-03	B1-G5-05	B2-G5-09		
OMRON Corporation	OMNUC W		R88M-U10030	100W	B1-G1-03	B1-G1-05	B1-G1-09		
			R88M-W10030		B1-G1-03	B1-G1-05	B1-G1-09		
			R88M-U20030	200W	B1-G3-03	B1-G3-05	B1-G3-09		
			R88M-W20030		B1-G3-03	B1-G3-05	B1-G3-09		
			R88M-U40030	400W	B1-G3-03	B1-G3-05	B2-G3-09		
			R88M-W40030		B1-G3-03	B1-G3-05	B2-G3-09		
Sanyo Denki 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	B1-G3-09		
			Q1AA06040D	400W	B1-G3-03	B1-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		
			MPL		A1510V	160W	B1-G8-03	B1-G8-05	B1-G8-09
					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: VRAF-B (SHIMPO DRIVES, INC.); B2: VRAF-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]

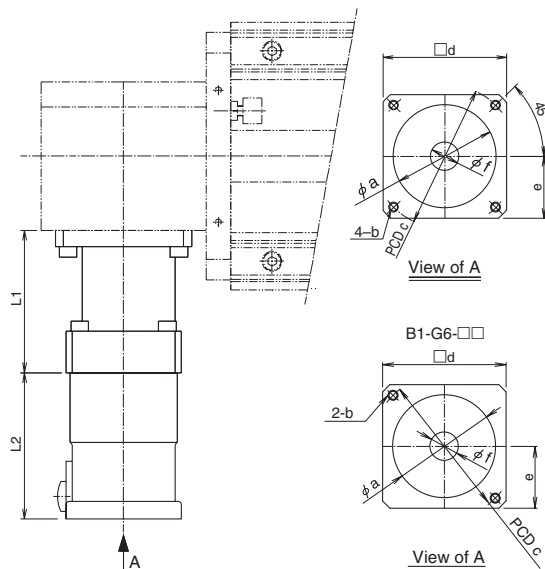


Table 10 Reducer Dimensional Drawing

Unit: mm

Bracket Symbol	Motor bracket dimensions							
	a	b	c	d	e	f	L1	L2
B1-G1-□□	30	M4 depth 10	46	42	21	8	69	67.5
B1-G2-□□	30	M3 depth 8	45	42	21	8	69	67.5
B1-G3-□□	50	M5 depth 10	70	60	30	14	69	72.5
B1-G4-□□	50	M4 depth 10	70	60	30	11	69	72.5
B1-G5-□□	50	M4 depth 10	70	60	30	14	69	72.5
B1-G6-□□	22	4.5 Thru	43.8	42	21	6.35	69	74.5
B1-G7-□□	38.1	M5 depth 10	66.7	60	30	12.7	69	80.5
B1-G8-□□	40	M4 depth 10	63	58	29	9	69	72.5
B2-G3-□□	50	M5 depth 10	70	60	30	14	86	89.5
B2-G5-□□	50	M4 depth 10	70	60	30	14	86	89.5
B2-G7-□□	38.1	M4 depth 10	66.7	60	30	12.7	86	98.5
B2-G8-□□	40	M4 depth 10	63	60	30	9	86	98.5
B2-G9-□□	60	M5 depth 10	75	67	33.5	11	86	98.5

Note: A square represents an actual gear ratio

[Cover]

The GL-N model has an anti-dust cover. This cover is common to GL15N and GL 20N.

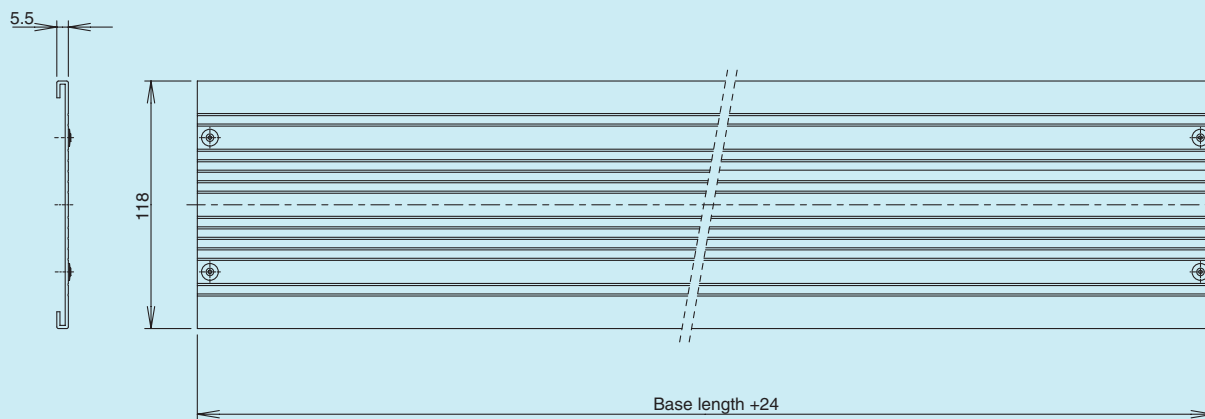


Figure 9 Cover Outline View

Note 1: Cover deflection increases long, If the base is as base length increases. The cover may touch another part such as the rail and belt because deflection caused by the cover's own weight 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.

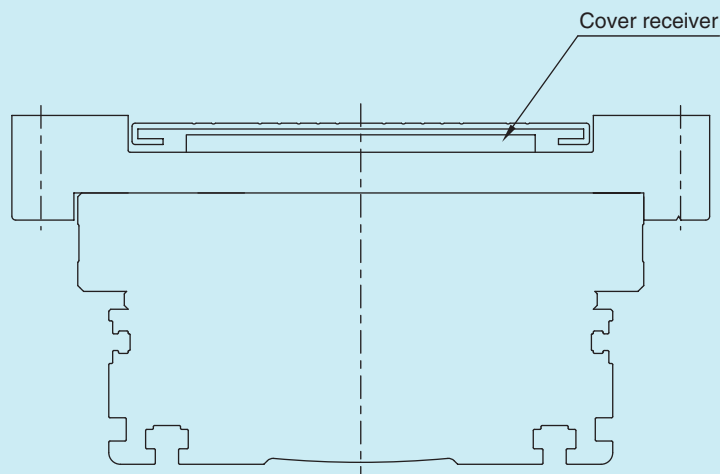
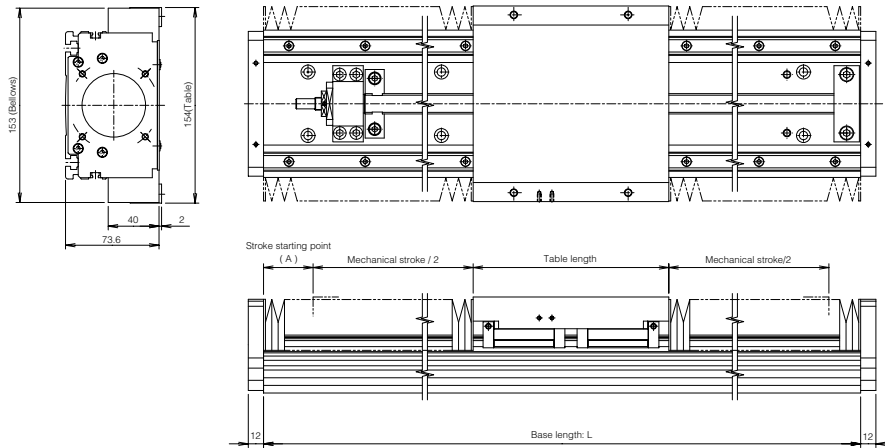


Figure 10 Section View of a Model with a Cover Receiver

Bellows

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

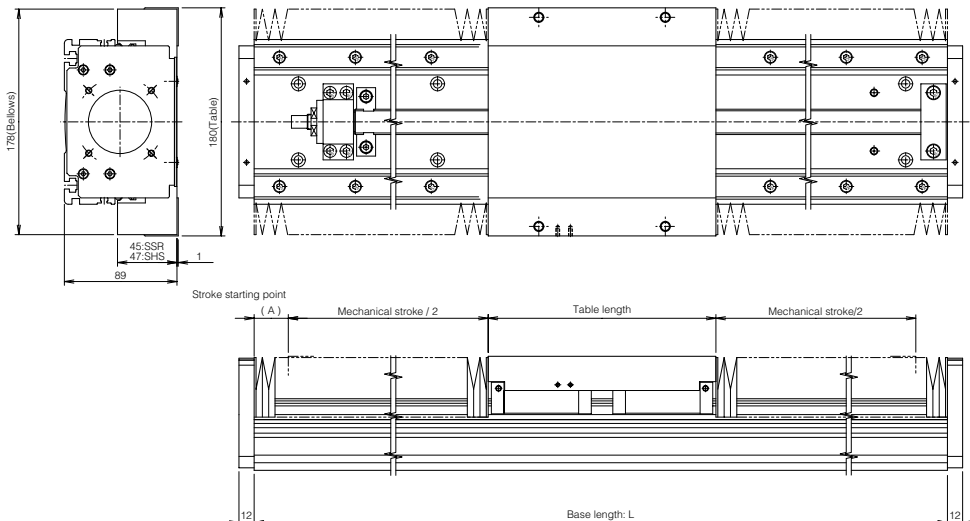
[GL15N Model, Ball Screw Driven]



Unit: mm

Base length: L		340	460	580	700	820	1060	1240	1420	
Mechanical stroke	Table	S type	133	248	358	468	563	763	913	1058
		L type	119	234	340	440	535	735	885	1030
		L(QZ) type	110	225	335	440	535	735	885	1030
		L-QZ type	104	214	314	414	509	709	859	1004
Stroke (Starting point: A)	Table	S type	53	53	53	53	65.5	85.5	100.5	118
		L type	39	39	43	53	65.5	85.5	100.5	118
		L(QZ) type	48	48	48	53	65.5	85.5	100.5	118
		L-QZ type	28	33	43	53	65.5	85.5	100.5	118

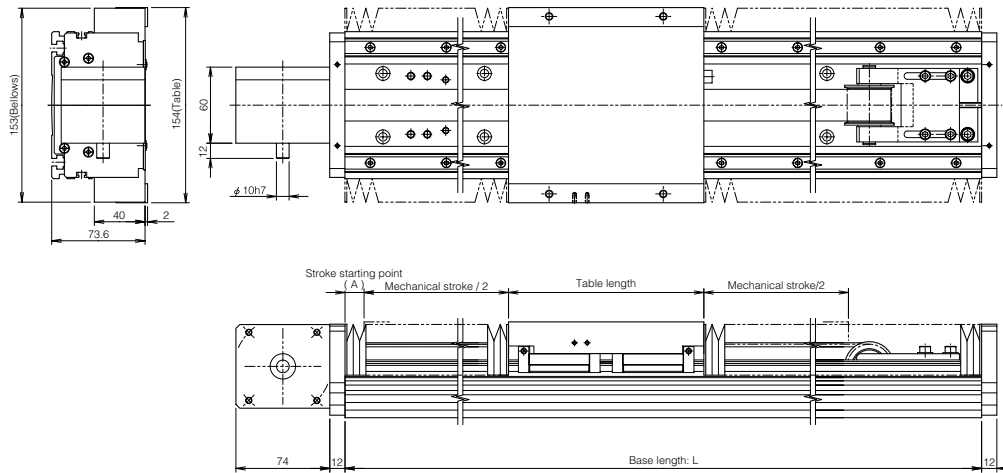
[GL20N Model, Ball Screw Driven]



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	1409
		L type	227	339	444	549	759	919	1074	1234	1389
		L(QZ) type	220	336	444	549	759	919	1074	1234	1389
		L-QZ type	198	309	414	519	729	889	1044	1204	1359
Stroke (starting point: A)	Table	S type	37	37	38	45.5	60.5	70.5	83	93	105.5
		L type	27	30.5	38	45.5	60.5	70.5	83	93	105.5
		L(QZ) type	34	34	38	45.5	60.5	70.5	83	93	105.5
		L-QZ type	25.5	30.5	38	45.5	60.5	70.5	83	93	105.5

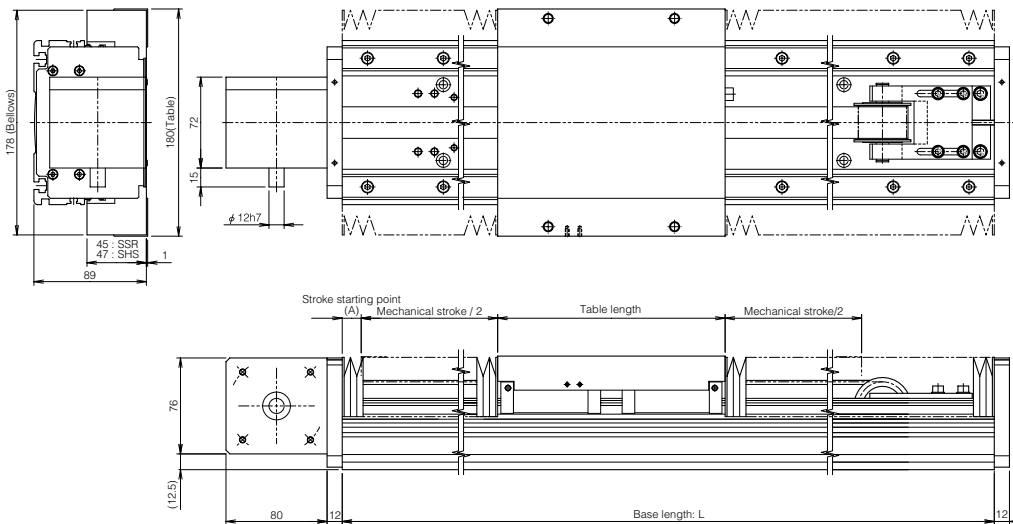
[GL15N Model, Belt Driven]



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	

Sensor

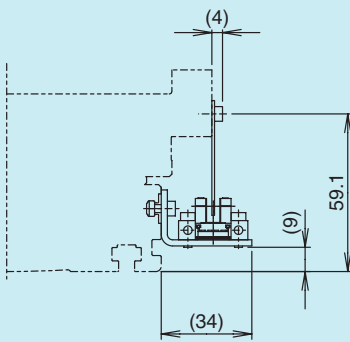
The GL-N model allows various sensors to be set to the T groove at the side of the base.

[Control Number]

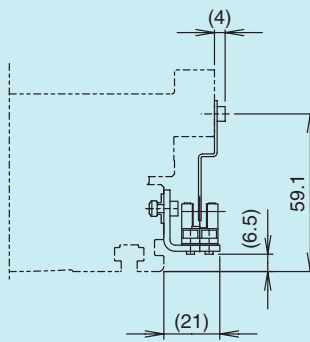
Type	Sensor model number	Quantity	Symbol	Manufacturer
Photo sensor	EE-SX671	3	A	OMRON
	EE-SX674	3	B	
Proximity sensor	TL-W3MC1	3	C1	
	TL-W3MC1	1	C2	
	TL-W3MC2	2	C3	
	TL-W3MB1	3	C3	
	TL-W3MB1	1	C4	
	TL-W3MB2	2	C4	

[Dimensional Drawing]

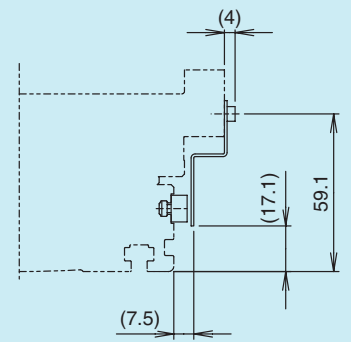
GL15N



A: EE-SX671 (OMRON)

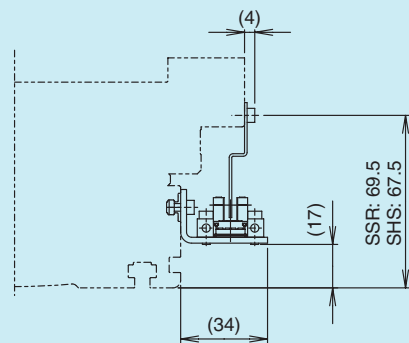


B: EE-SX674 (OMRON)

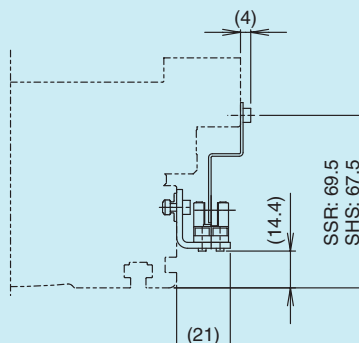


C□: TL-W3M□□ (OMRON)

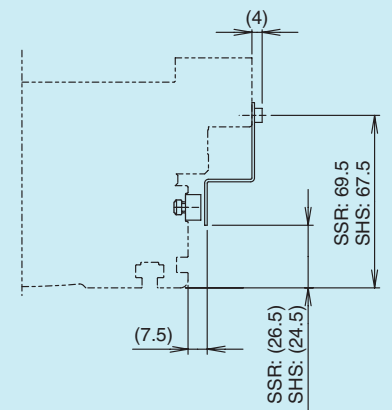
GL20N



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
TKP0180-2B-R28	TSUBAKIMOTO CHAIN CO.	A
TKP0180-2B-R37		B
TKP0180-2B-R50		C
TKP0320-2B-R37		D
TKP0320-2B-R50		E

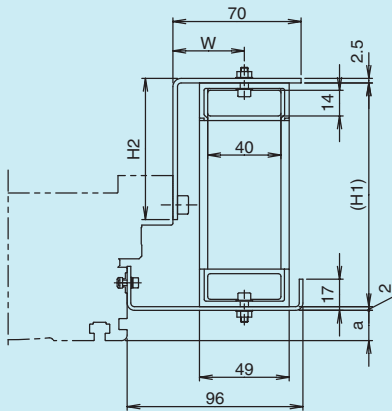
Cable carrier model number	Manufacturer	Symbol
TKP0320-2B-R75	TSUBAKIMOTO CHAIN CO.	F
TKP0320-3B-R37		G
TKP0320-3B-R50		H
TKP0320-3B-R75		I

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

Cable carrier model number	Manufacturer	Symbol	Max base length [mm]
TKP0180-2B-R28	TSUBAKIMOTO CHAIN CO.	A	1660
TKP0180-2B-R37		B	1960
TKP0180-2B-R50		C	
TKP0320-2B-R37		D	2440
TKP0320-2B-R50		E	

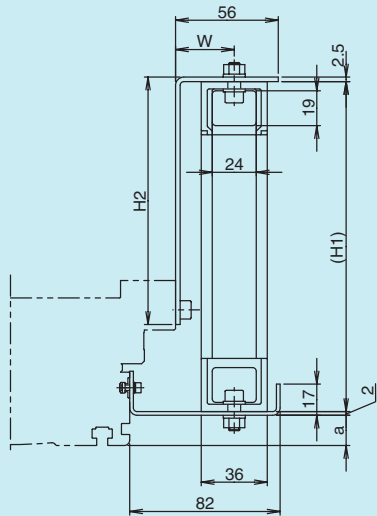
Cable carrier model number	Manufacturer	Symbol	Max base length [mm]
TKP0320-2B-R75	TSUBAKIMOTO CHAIN CO.	F	2440
TKP0320-3B-R37		G	2800
TKP0320-3B-R50		H	
TKP0320-3B-R75		I	

[Dimensional Drawing]



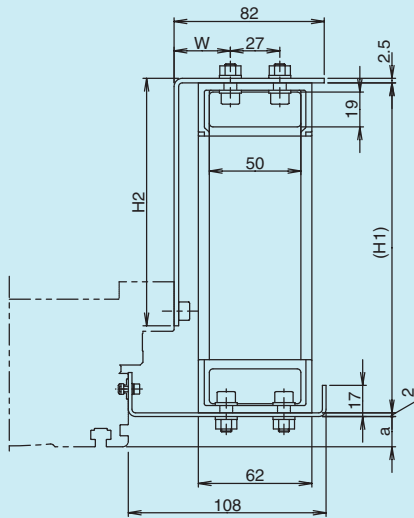
Unit: mm

Symbol	Cable carrier model number	H1	H2	Dimensions			
				W		a	
				GL15N	GL20N	GL15N	GL20N
A	TKP0180-2B-R28	(78)	33				
B	TKP0180-2B-R37	(96)	51	45	39	8.6	16.5
C	TKP0180-2B-R50	(122)	77				



Unit: mm

Symbol	Cable carrier model number	H1	H2	Dimensions			
				W		a	
				GL15N	GL20N	GL15N	GL20N
D	TKP0320-2B-R37	(104)	59				
E	TKP0320-2B-R50	(130)	85	38	32	8.6	16.5
F	TKP0320-2B-R75	(180)	135				

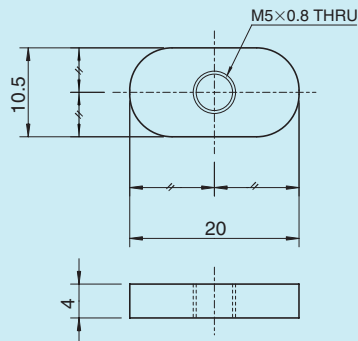


Unit: mm

Symbol	Cable carrier model number	H1	H2	Dimensions			
				W		a	
				GL15N	GL20N	GL15N	GL20N
G	TKP0320-3B-R37	(104)	59				
H	TKP0320-3B-R50	(130)	85	36.75	30.75	8.6	16.5
I	TKP0320-3B-R75	(180)	135				

[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
Quantity	4	4	6	6	8	10	10	12
Standard base length (mm)	1600	1780	1960	2200	2320	2500	3000	
Quantity	14	14	16	16	18	18	20	

● Service Life Time and Static Safety factor

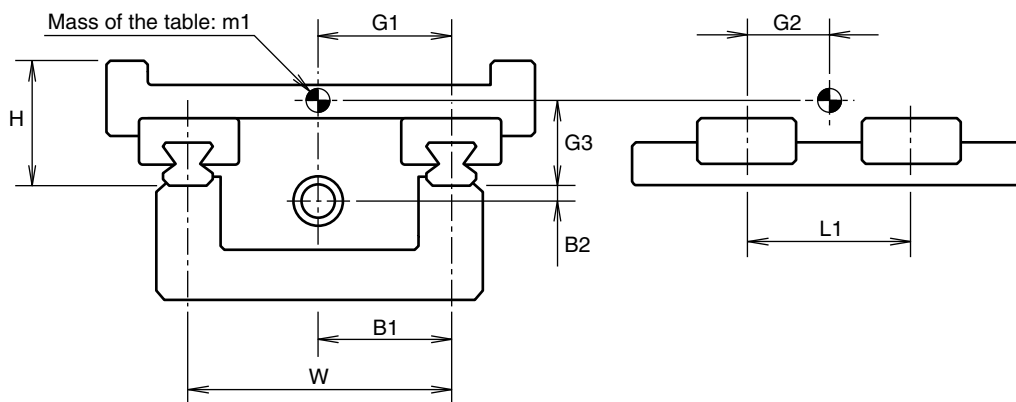
The GL-N model consists of LM Guides, a ball screw, and support units. The life and safety factor of each component can be calculated from the basic dynamic load rating and the basic static load rating. For more information on these, refer to each item (LM Guides, ball screws, and support units) in the 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 W (mm)	Block span L1 (mm)	Movable section				Slider height H (mm)			
			B1 (mm)	B2 (mm)			Mass m1 (kg)	Gravity center						
					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							74	2.2	37	30	43
	GL15N-***-SWQ-B	L-QZ	SSR15XWQZUU-Y							94	2.4	47	30	43
	GL15N-***-HV-B	L	SHS15VUU							74	2.2	37	30	43
	GL15N-***-HVQ-B	L-QZ	SHS15VQZUU							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							108	3.2	54	34.6	48
	GL20N-***-SWQ-B	L-QZ	SSR20XWQZUU							110	3.4	55	34.6	48
	GL20N-***-HV-B	L	SHS20VUU							96	3.6	48	36.6	50
GL20N-***-HVQ-B	L-QZ	SHS20VQZUU	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							74	1.7	37	30	43
	GL15N-***-SWQ-E	L-QZ	SSR15XWQZUU-Y							94	1.8	47	30	43
	GL15N-***-HV-E	L	SHS15VUU							74	1.7	37	30	43
	GL15N-***-HVQ-E	L-QZ	SHS15VQZUU							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							108	2.6	54	34.6	48
	GL20N-***-SWQ-E	L-QZ	SSR20XWQZUU							110	2.8	55	34.6	48
	GL20N-***-HV-E	L	SHS20VUU							96	3.0	48	36.6	50
GL20N-***-HVQ-E	L-QZ	SHS20VQZUU	110							3.2	55	36.6	50	



[Ball Screw]

Actuator model number			Mechanical stopper-to-mechanical stopper stroke (mm)			Ball screw			
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	WTF2040-3ZZ	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.

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

[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				Shaft-end outer diameter (mm)	LM Guide model number symbol	Movable section mass (kg)	Sliding resistance (N)
Nominal model number	Base length* ¹ (mm)	Ball screw	Model number	Outer diameter (mm)	Lead (mm)	Length* ² (mm)				
GL15N	034	B05	BTK1605-2.6ZZ	16	5	311	φ8h7	GL15N-***-SV	1.7	16.2
	142					1391		GL15N-***-SW	2.2	16.6
GL15N	034	B10	BLK1510-5.6ZZ	15	10	311	φ8h7	GL15N-***-SWQ	2.4	26.6
	142					1391		GL15N-***-HV	2.2	17.2
GL15N	034	B16	BLK1616-3.6	16	16	311	φ8h7	GL15N-***-HVQ	2.4	33.2
	142					1391		GL20N-***-SV	2.7	21.0
GL15N	034	B20	WTF1520-3ZZ	15	20	311	φ8h7	GL20N-***-SW	3.2	21.4
	142					1391		GL20N-***-SWQ	3.4	33.4
GL15N	034	B30	WTF1530-2ZZ	15	30	311	φ8h7	GL20N-***-HV	3.6	20.6
	142					1391		GL20N-***-HVQ	3.8	36.6
GL20N	046	B05	BTK2005-2.6ZZ	20	5	427	φ10h7	Timing pulley		
	178					1747		Nominal model number	Moment of inertia (kg-cm ²)	
GL20N	046	B10	BLK1510-5.6ZZ	15	10	427	φ10h7	GL15N	0.12	
	142					1387		GL20N	0.12	
GL20N	046	B20	BLK2020-3.6ZZ	20	20	427	φ10h7	Allowable input torque* ³		
	178					1747		Nominal model number	(N-m)	
GL20N	046	B40	WTF2040-3ZZ	20	40	427	φ10h7	GL15N	2.8	
	178					1747		GL20N	5.3	

*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				LM Guide model symbol	Movable section mass (kg)	Sliding resistance (N)
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 ²)			
GL15N	EH	025-MA5	0.38	22-MA5-025	35.01	110 mm	0.289	GL15N-***-SV	1.2	16.2
GL20N	EH	025-MA5	0.58	24-MA5-025	38.20	120 mm	0.447	GL15N-***-SW	1.7	16.6
								GL15N-***-SWQ	1.8	26.6
								GL15N-***-HV	1.7	17.2
								GL15N-***-HVQ	1.8	33.2
								GL20N-***-SV	2.1	21.0
								GL20N-***-SW	2.6	21.4
								GL20N-***-SWQ	2.8	33.4
								GL20N-***-HV	3.0	20.6
								GL20N-***-HVQ	3.2	36.6

Reducer		
Reduction ratio	Rated output (W)	Moment of inertia (kg-cm ²)
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

* 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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- There may be differences between products appearing in photographs and the actual product.
- The appearance, specifications, and other information are subject to change without prior notice to improve reliability, function, etc. When deciding to adopt the product, contact us beforehand.
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