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NEW

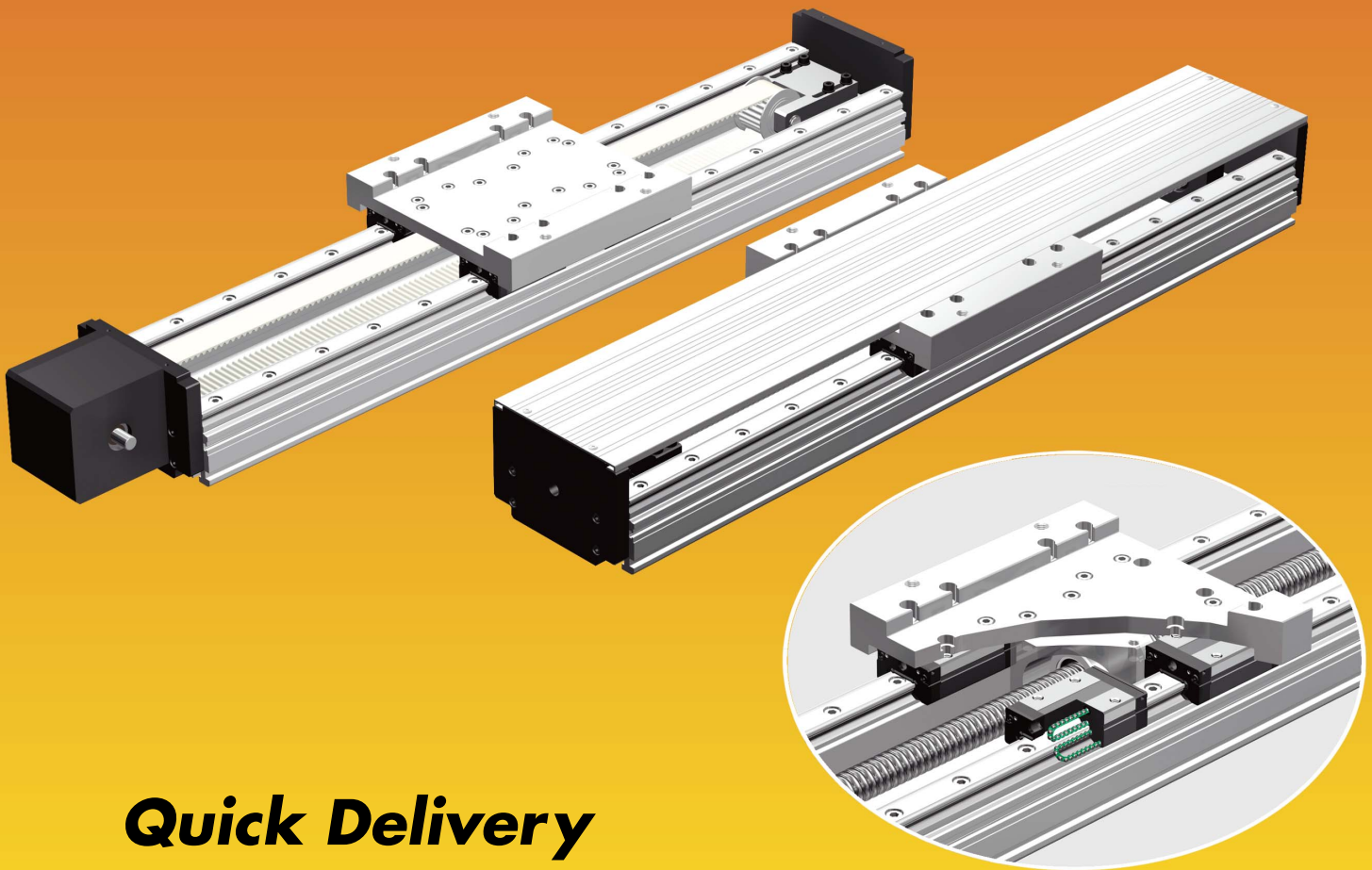


LM ACTUATOR

Long-term Maintenance-free Type

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

GL-N



Quick Delivery

** Standard options only. Please refer to list in page 7.*

THK CO., LTD.
TOKYO, JAPAN

Catalog No. 177E

LM Actuator GL-N Model

Ball Screw

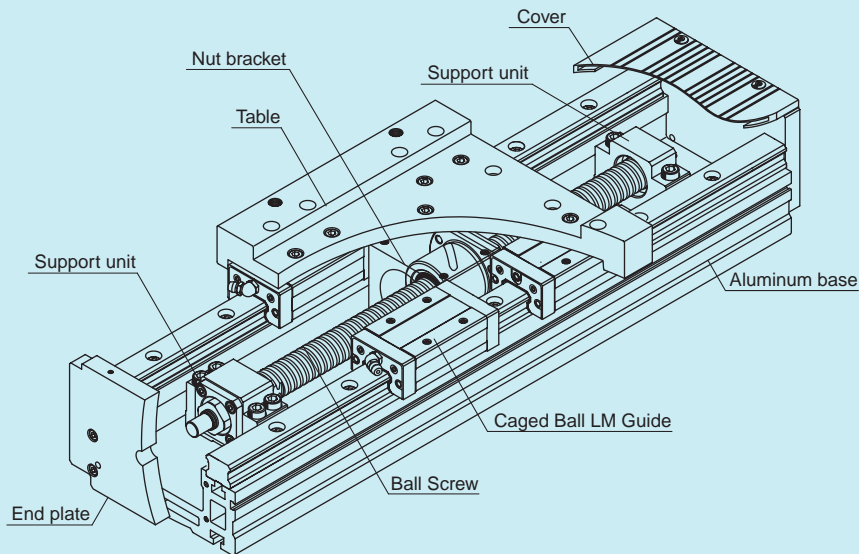


Figure 1: Ball Screw Type Structure

Timing Belt

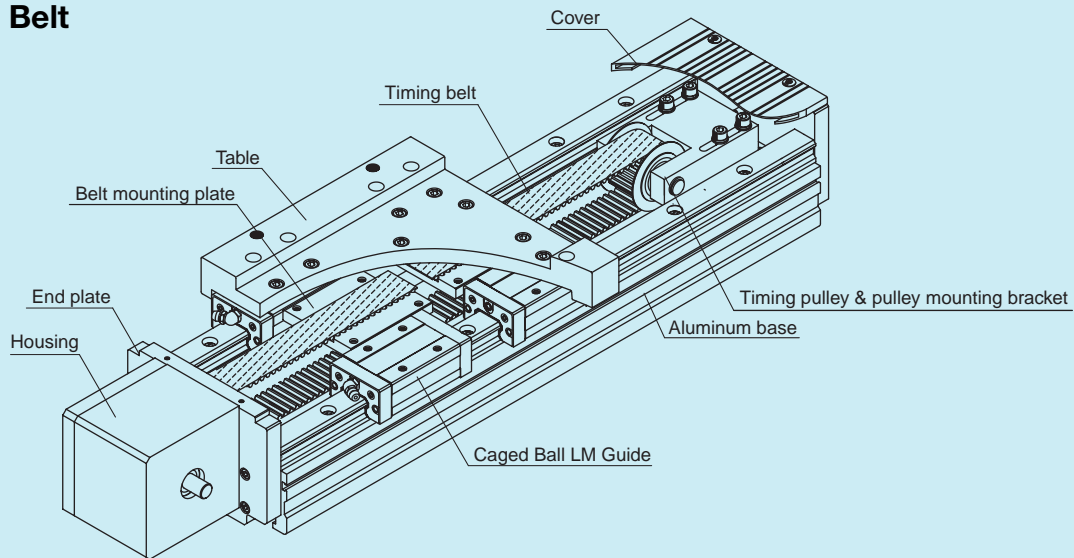


Figure 2: Timing Belt Type Structure

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: Best suited for the horizontal application with its 90-degree ball contact structure in the radial direction.

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.)

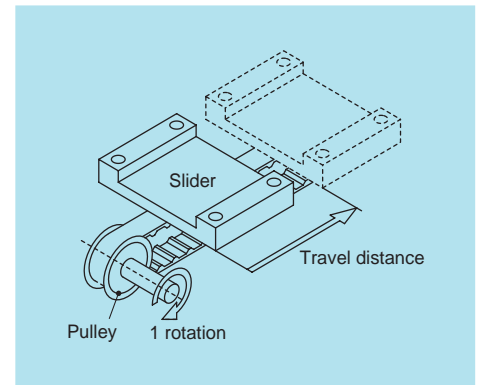
[Timing Belt Type]

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.

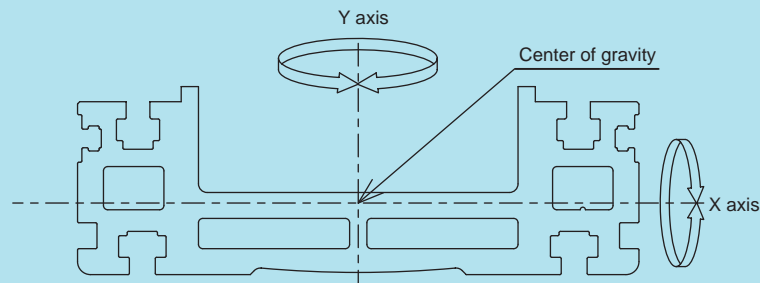


Figure 3: Base Section

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 6.69 kg/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.

● Same Height as the Conventional GL Model

Due to the common height dimensions between the GL models and the GL-N models a drop-in replacement is possible.

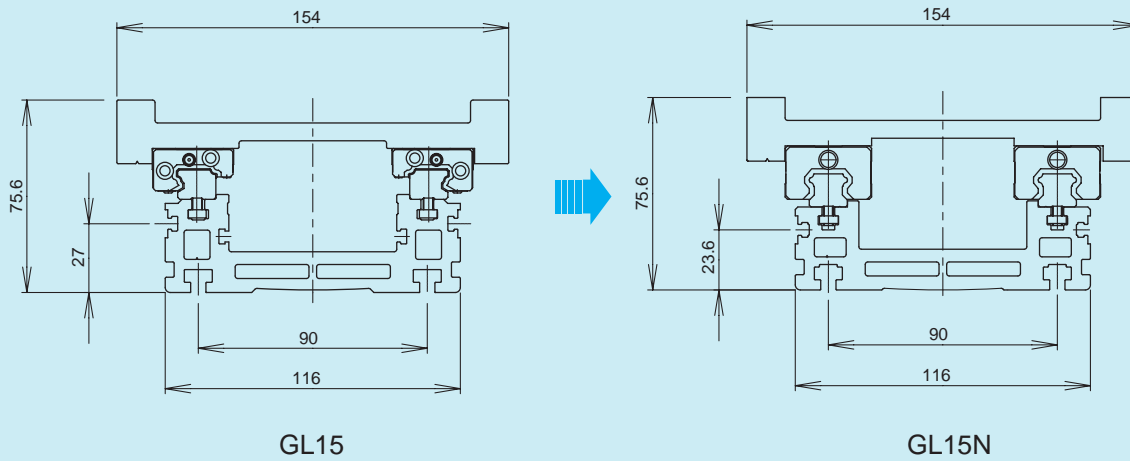


Figure 4: Cross-section comparative views

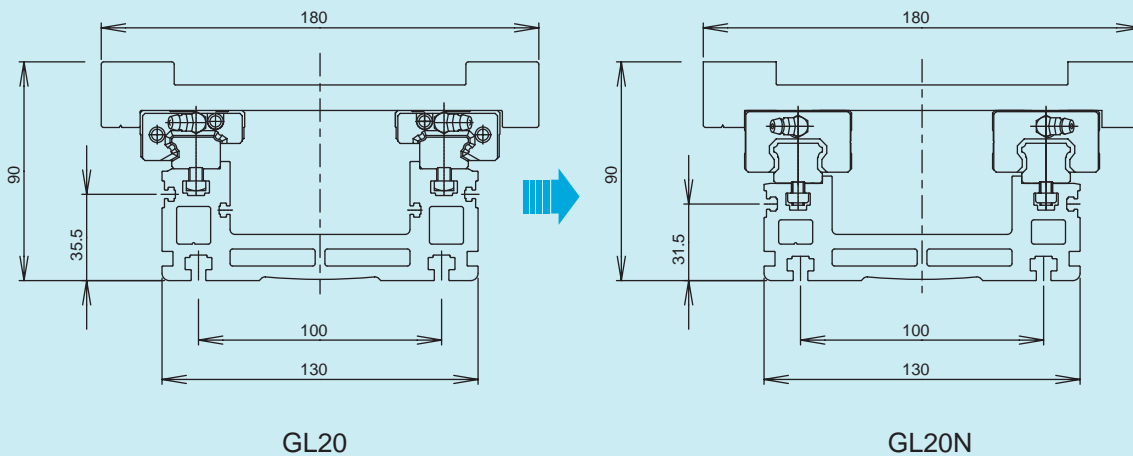
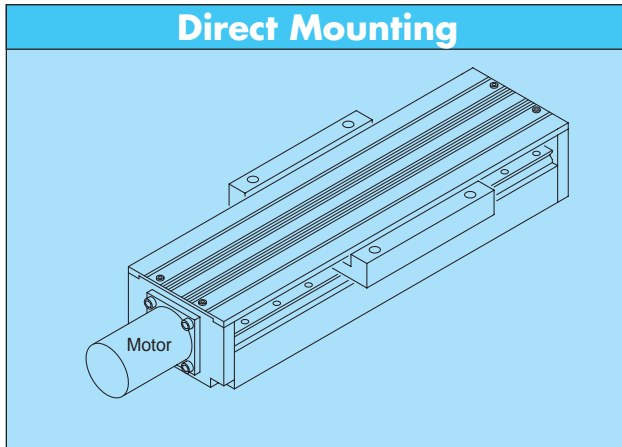


Figure 5: Cross-section comparative views

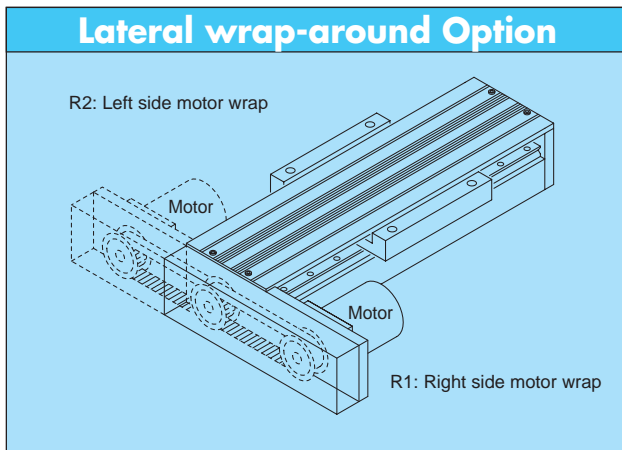
Types and Features

Types of Drive Systems

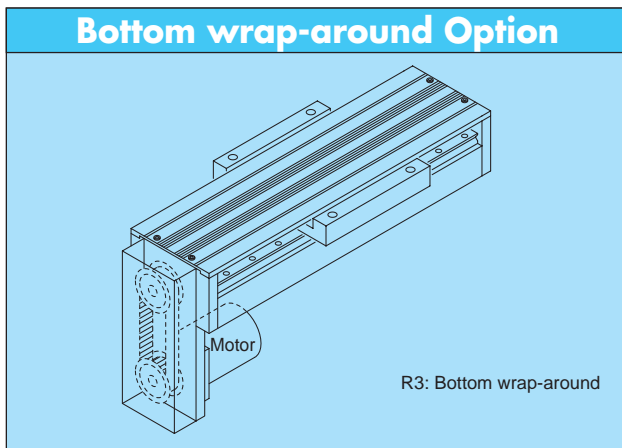
[Ball Screw Drive]



Direct mounting of Ball Screw to Motor.

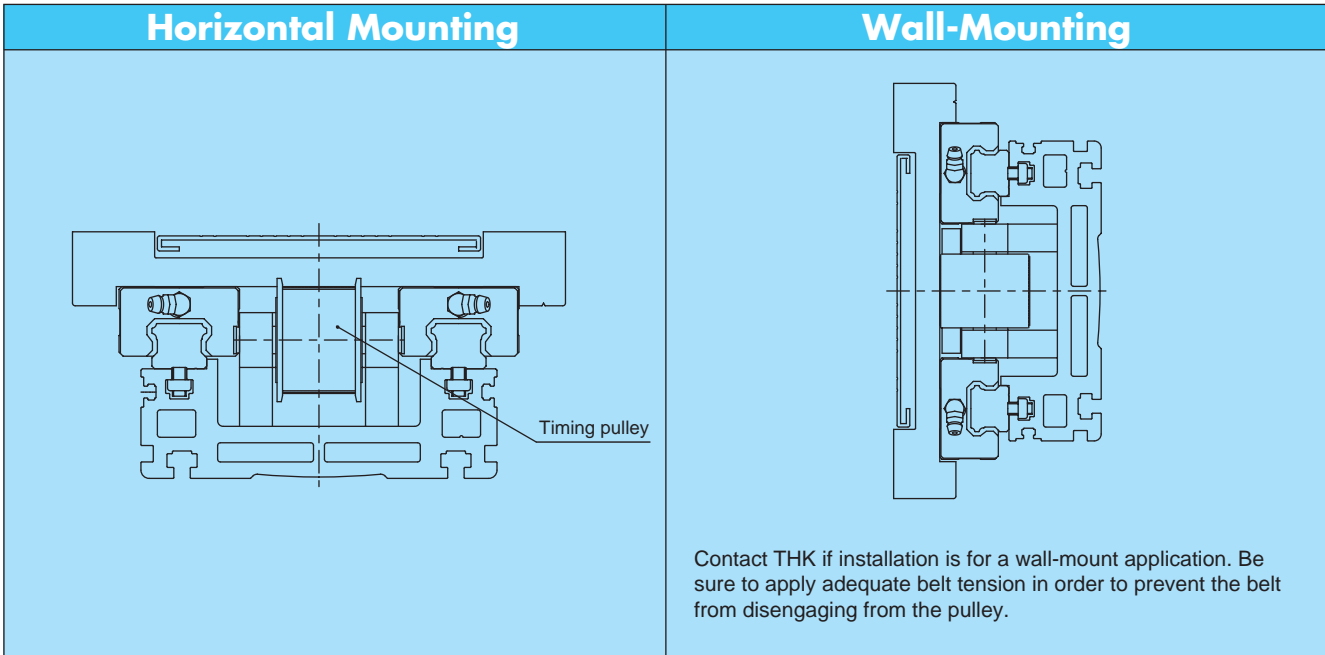


Axial dimensions are kept to minimum by applying the Wrap-Around option. (Pulley ratio: 1:1)



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

[Timing Belt Type]



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: When using a horizontal model for a wall-mount application, caution must be observed due to the firm grip of the belt to the timing pulley, which is from the timing belt's weight. It will cause damage to the timing pulley. Proper belt tension must be maintained to prevent the timing belt from coming off of the pulley.

● Specification

Model number		GL15N						GL20N					
Drive system		Ball Screw			Belt			Ball Screw			Belt		
Screw lead	(mm)	5, 10, 16, 20, 30						—					
Pulley pitch diameter	(mm)	—						35.01					
Repeatability	(mm)	±0.02						±0.08					
Effective stroke	(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	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: This load moment is a value for life distance of 5000 km.

Note 3: The effective stroke decreases depending on the table length. See the dimensional drawings for stroke details.

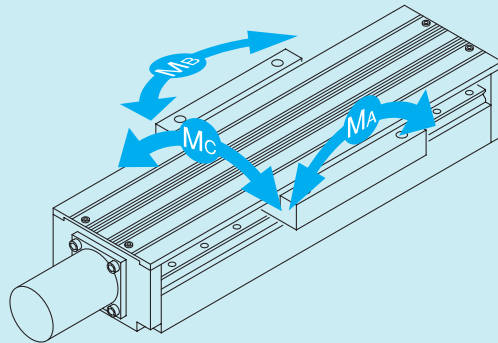


Figure 6

● 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)

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.)

● 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	1685
	580	248	500	800	1000	1500	202	500	1000	1685
	700	248	500	800	1000	1500	202	500	1000	1685
	820	248	500	800	1000	1500	202	500	1000	1685
	1060	207	391	685	776	1175	202	396	1000	1660
	1240	144	271	474	540	815	185	275	763	1150
	1420	105	198	349	396	595	136	201	560	840
	1600	—	—	—	—	—	104	153	426	645
	1780	—	—	—	—	—	82	120	336	505

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

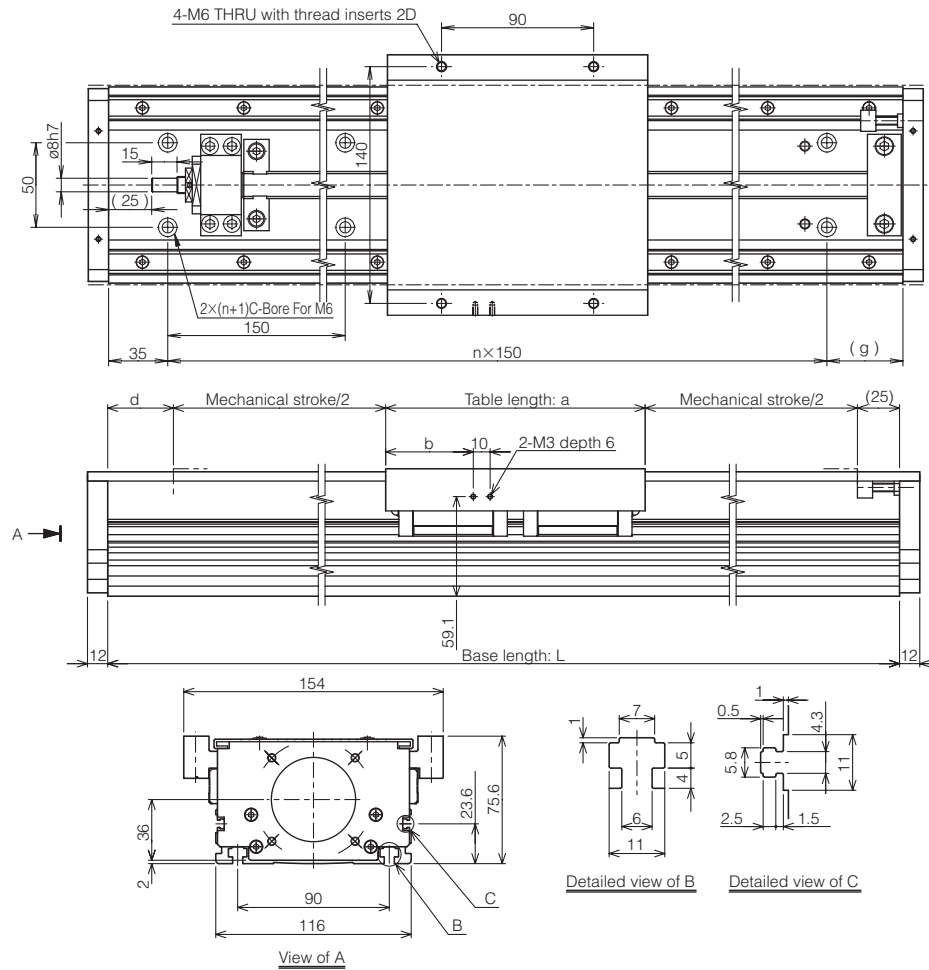
GL20N—070—SW Q—EH—B1—G1—03—C—A—J—Y
1 2 3 4 5 8 9 10 11 12 13 14

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/SH 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 (GL15) B30: Ball Screw lead 30 mm (GL15 only) B40: Ball Screw lead 40 mm (GL20 only) ◆Belt-driven <ul style="list-style-type: none"> B10: Ball Screw lead 10 mm (GL15/20) B16: Ball Screw lead 16 mm (G15 only) EH: Horizontal model specification EK: Wall-mounted model specification
6	Ball Screw QZ Lubricator	No mark: Not provided with QZ Q: Provided with QZ *Ball Screw leads (30 mm and 40 mm) are excluded for wiper rings.
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 ø30H7, M4, PCD46 B: inner diameter ø50H7, M5, PCD70 C: inner diameter ø50H7, M4, PCD60 D: inner diameter ø70H7, M5, PCD90 (GL20 only) E: inner diameter ø30H7, M3, PCD45 F: inner diameter ø50H7, M4, PCD70 G: inner diameter ø34H7, M3, PCD48 H: inner diameter ø36H7, M4, mounting aperture pitch 50 I: inner diameter ø60H7, M6, mounting aperture pitch 70 (GL20 only) J: inner diameter ø70H7, M6, PCD90 (GL20 only) T: inner diameter ø22, counter bore for M3 from rear, mounting pitch 31 (NEMA17 standard) (GL15 only) U: inner diameter ø38.1, M4, mounting pitch 47.14 (NEMA23 standard) V: inner diameter ø73.03, M5, mounting pitch 69.6 (NEMA34 standard) (GL20 only) ◆Ball Screw specification for motor wrap-around <ul style="list-style-type: none"> B14: inner diameter ø50, M5, PCD70, pulley inner diameter ø14 D11: inner diameter ø70, M5, PCD90, pulley inner diameter ø11 D14: inner diameter ø70, M5, PCD90, pulley inner diameter ø14 U11: inner diameter ø38.1, M4, mounting pitch 47.14, pulley inner diameter ø6.35 mm (NEMA23 standard) V11: inner diameter ø73.03, M5, mounting pitch 69.6, pulley inner diameter ø9.35 mm (NEMA34 standard) (GL20 only) F11: inner diameter ø50, M4, PCD70, pulley inner diameter ø11 F14: inner diameter ø50, M4, PCD70, pulley inner diameter ø14 J14: inner diameter ø70, M6, PCD90, pulley inner diameter ø14 ◆Belt specification for motor bracket <ul style="list-style-type: none"> N: No motor bracket B1: inner diameter ø50, ø5.5, PCD60 B2: inner diameter ø60, ø6.5, PCD90 U1: inner diameter ø38.1, M4 (NEMA23 standard) V1: inner diameter ø73.03, M5 (NEMA34 standard) (GL20 only)
9	Reducer	◆Reducer specification for belt drive (motor bracket, only available for B1 and B2) Reducer symbols: G1, G2, G3, G4, G5, G6 and G7 (See page 20 for details of the reducer symbols and available motors.)
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)
11	Covers and bellows	N: Not provided C: Cover provided J: Bellow provided
12	Sensors	N: None A: Photo sensor EE-SX671 B: Photo sensor EE-SX674 C: Proximity sensor TL-W3MC1 * Normally open sensor x 3 provided
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.) J: KSH24-R42 (Kunimori Kagaku Co., Ltd.)
14	Mounting hole	Y: Standard mounting counter bore

Items with cyan marker indicate standard options.

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

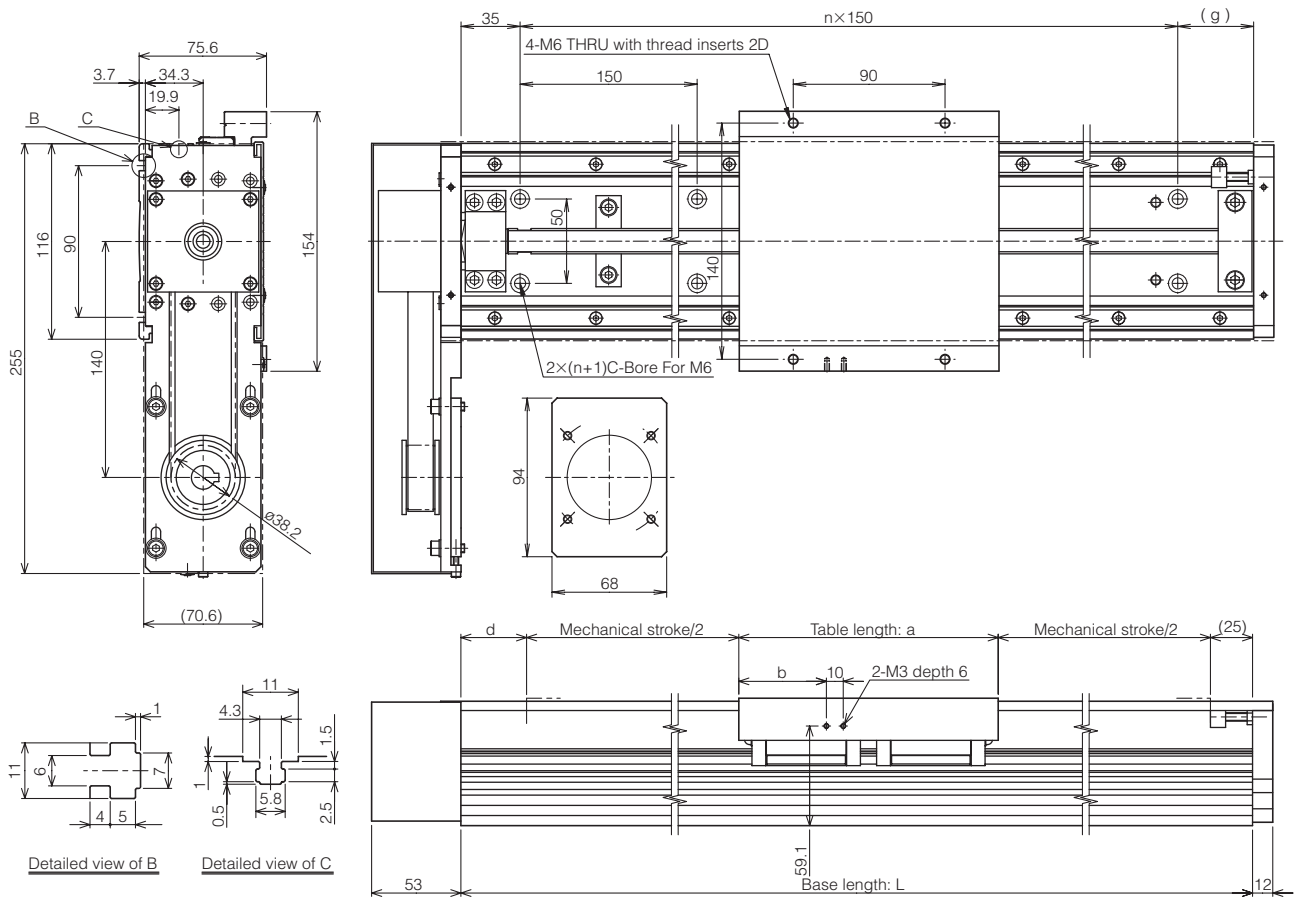
Base length: L mm		340	460	580	700	820	1060	1240	1420	
Mechanical stroke mm	Table	S type	136	256	376	496	616	856	1036	1216
		L type	122	242	362	482	602	842	1022	1202
		L(QZ) type	113	233	353	473	593	833	1013	1193
		L-QZ type	114	234	354	474	594	834	1014	1194
Main unit weight kg	Table	S type	6.0	7.2	8.3	9.6	10.8	13.1	14.9	16.7
		L type (SSR15XW)	6.7	7.9	9.1	10.3	11.6	14.0	15.8	17.6
		L type (SHS15V)	6.8	8.0	9.2	10.4	11.7	14.1	15.9	17.7
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 + 0.1 kg.

● **GL15N Model, Ball Screw Driven**
[Lateral Wrap-around Specification]



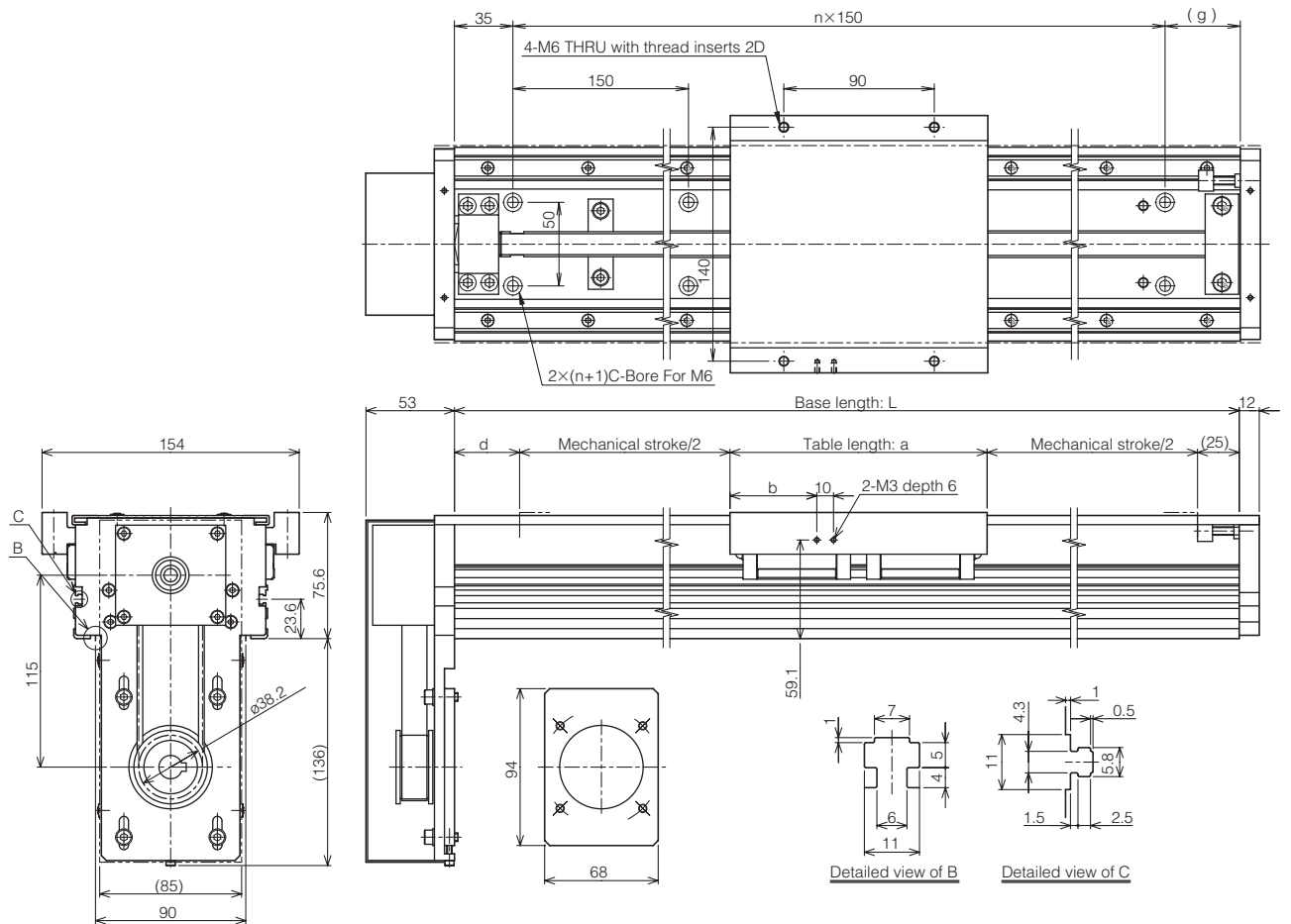
Unit: mm

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	7.6	8.8	9.9	11.2	12.4	14.7	16.5	18.3
		L type (SSR15XW)	8.3	9.5	10.7	11.9	13.2	15.6	17.4	19.2
		L type (SHS15V)	8.4	9.6	10.8	12.0	13.3	15.7	17.5	19.3
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 + 0.1 kg

● **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

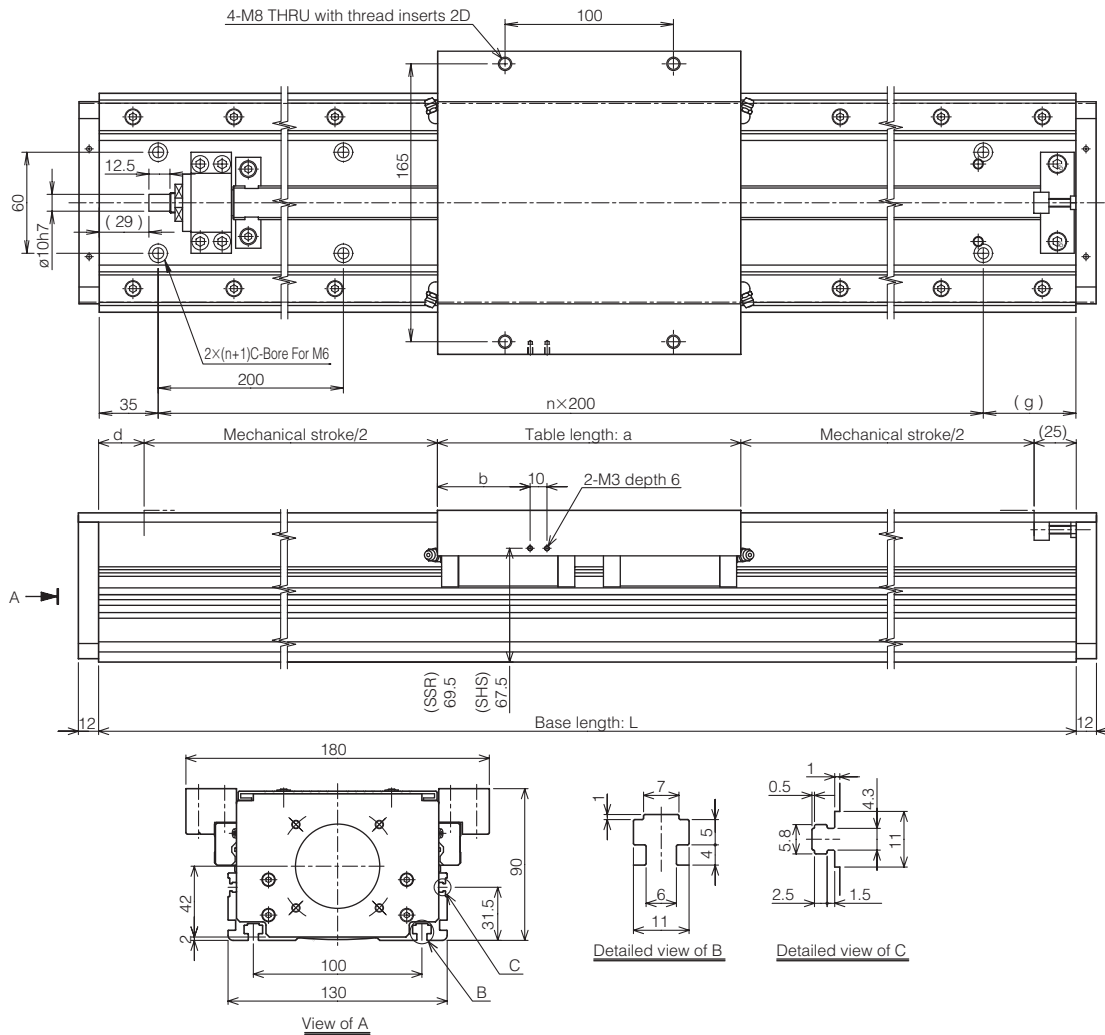
Base length: L mm		340	460	580	700	820	1060	1240	1420	
Mechanical stroke mm	Table	S type	136	256	376	496	616	856	1036	1216
		L type	122	242	362	482	602	842	1022	1202
		L(QZ) type	113	233	353	473	593	833	1013	1193
		L-QZ type	114	234	354	474	594	834	1014	1194
Main unit weight kg	Table	S type	7.6	8.8	9.9	11.2	12.4	14.7	16.5	18.3
		L type (SSR15XW)	8.3	9.5	10.7	11.9	13.2	15.6	17.4	19.2
		L type (SHS15V)	8.4	9.6	10.8	12.0	13.3	15.7	17.5	19.3
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 + 0.1 kg

● 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

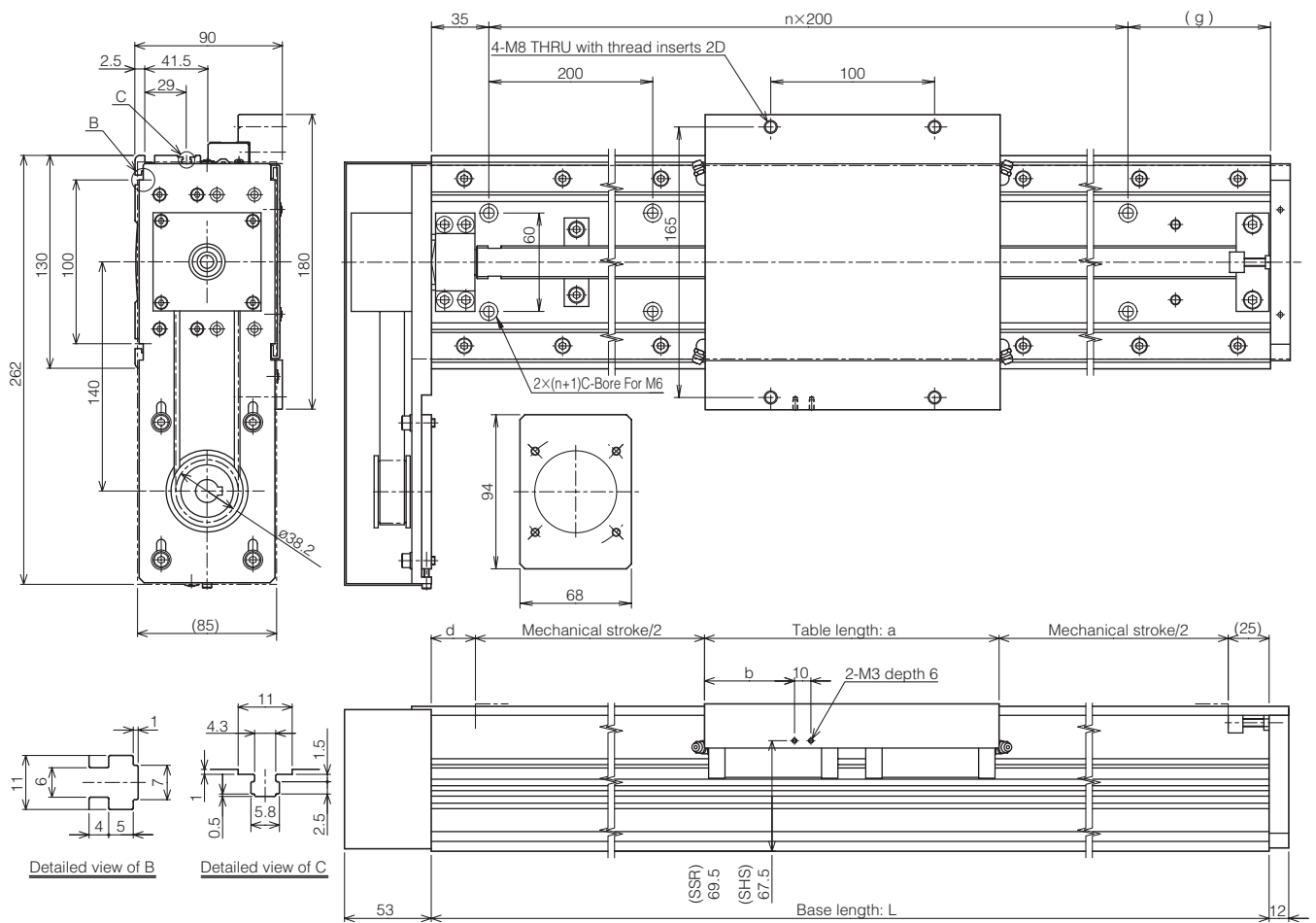
Base length: L mm		460	580	700	820	1060	1240	1420	1600	1780
Mechanical stroke mm	Table	S type	238	358	478	598	838	1018	1198	1378
		L type	228	348	468	588	828	1008	1188	1368
		L(QZ) type	221	341	461	581	821	1001	1181	1361
		L-QZ type	220	340	460	580	820	1000	1180	1360
Main unit weight kg	Table	S type	10.2	11.0	13.6	15.3	18.7	21.3	23.9	26.4
		L type (SSR15XW)	11.5	13.2	15.0	16.8	20.3	22.9	25.5	28.2
		L type (SHS15V)	11.7	13.4	15.2	17.0	20.5	23.1	25.7	28.4
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 + 0.1 kg.

● **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

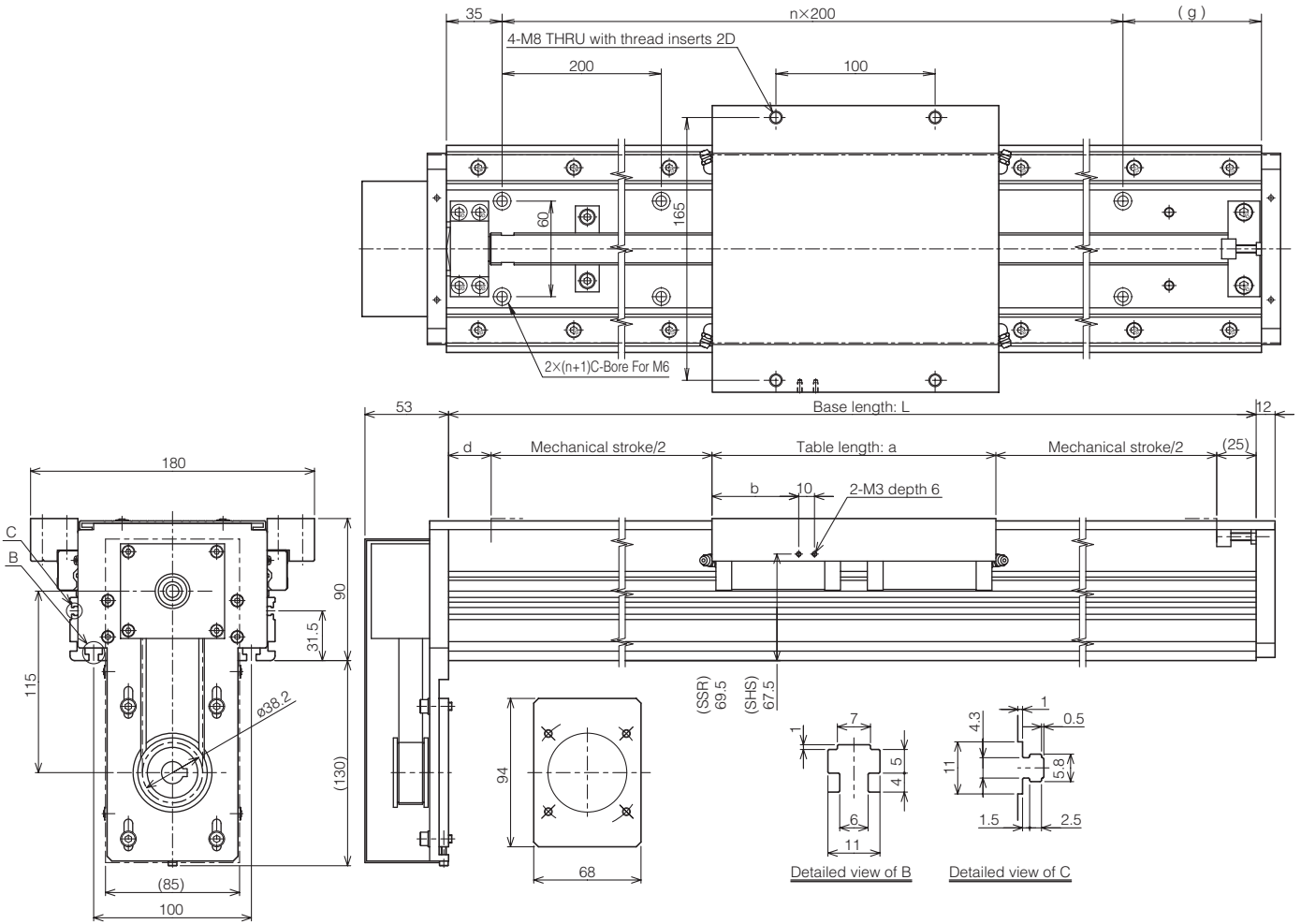
Base length: L mm		460	580	700	820	1060	1240	1420	1600	1780	
Mechanical stroke mm	Table	S type	238	358	478	598	838	1018	1198	1558	
		L type	228	348	468	588	828	1008	1188	1548	
		L(QZ) type	221	341	461	581	821	1001	1181	1541	
		L-QZ type	220	340	460	580	820	1000	1180	1540	
Main unit weight kg	Table	S type	11.8	12.9	15.5	17.2	20.6	23.2	25.8	30.9	
		L type (SSR15XW)	13.4	15.1	16.9	18.7	22.2	24.8	27.4	30.1	32.7
		L type (SHS15V)	13.6	15.3	17.1	18.9	22.4	25.0	27.6	30.3	32.9
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 + 0.1 kg.

● 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

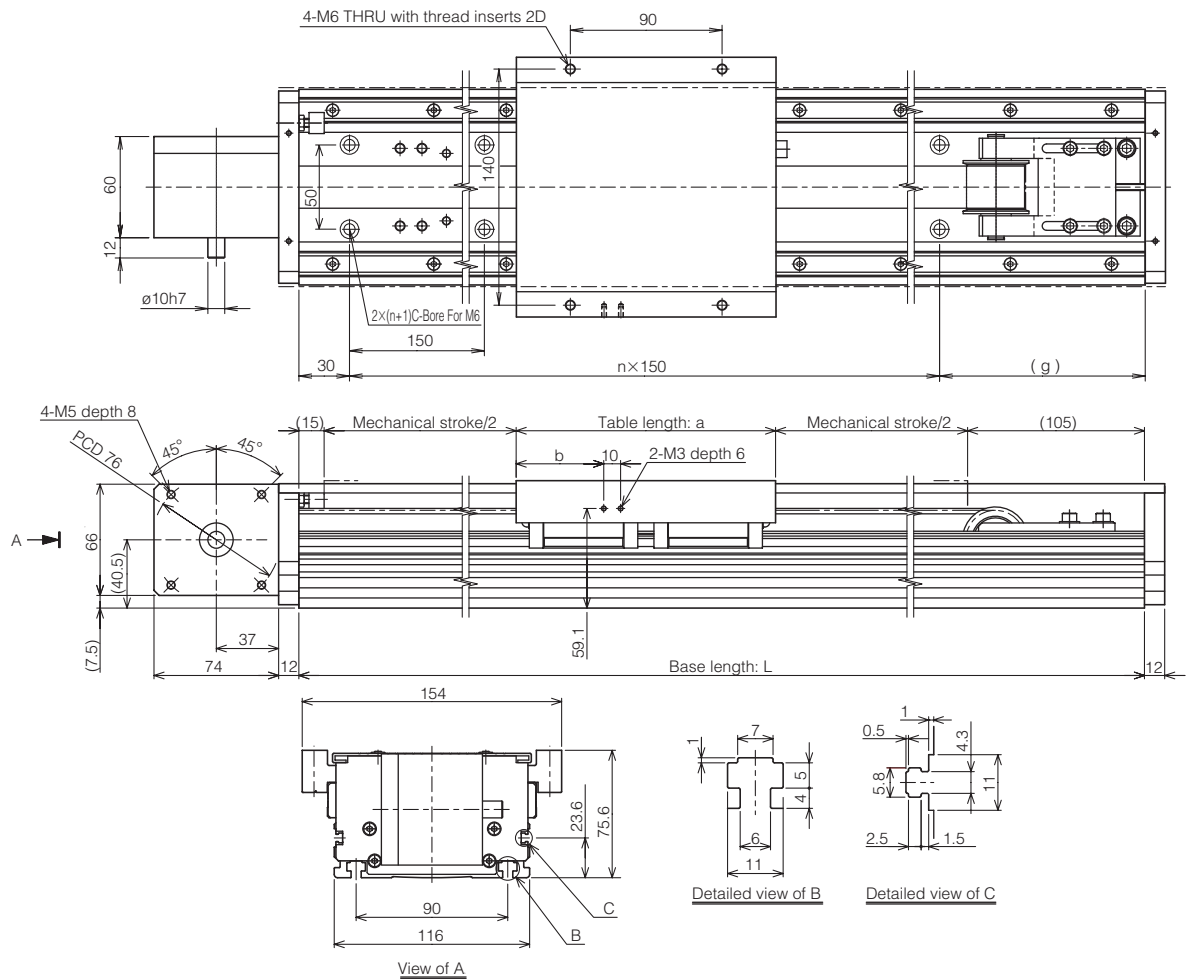
Base length: L mm		460	580	700	820	1060	1240	1420	1600	1780
Mechanical stroke mm	S type	238	358	478	598	838	1018	1198	1378	1558
	L type	228	348	468	588	828	1008	1188	1368	1548
	L(QZ) type	221	341	461	581	821	1001	1181	1361	1541
	L-QZ type	220	340	460	580	820	1000	1180	1360	1540
Main unit weight kg	S type	11.8	12.9	15.5	17.2	20.6	23.2	25.8	28.3	30.9
	L type (SSR15XW)	13.4	15.1	16.9	18.7	22.2	24.8	27.4	30.1	32.7
	L type (SHS15V)	13.6	15.3	17.1	18.9	22.4	25.0	27.6	30.3	32.9
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 + 0.1 kg.

● GL15N Model, Belt Driven



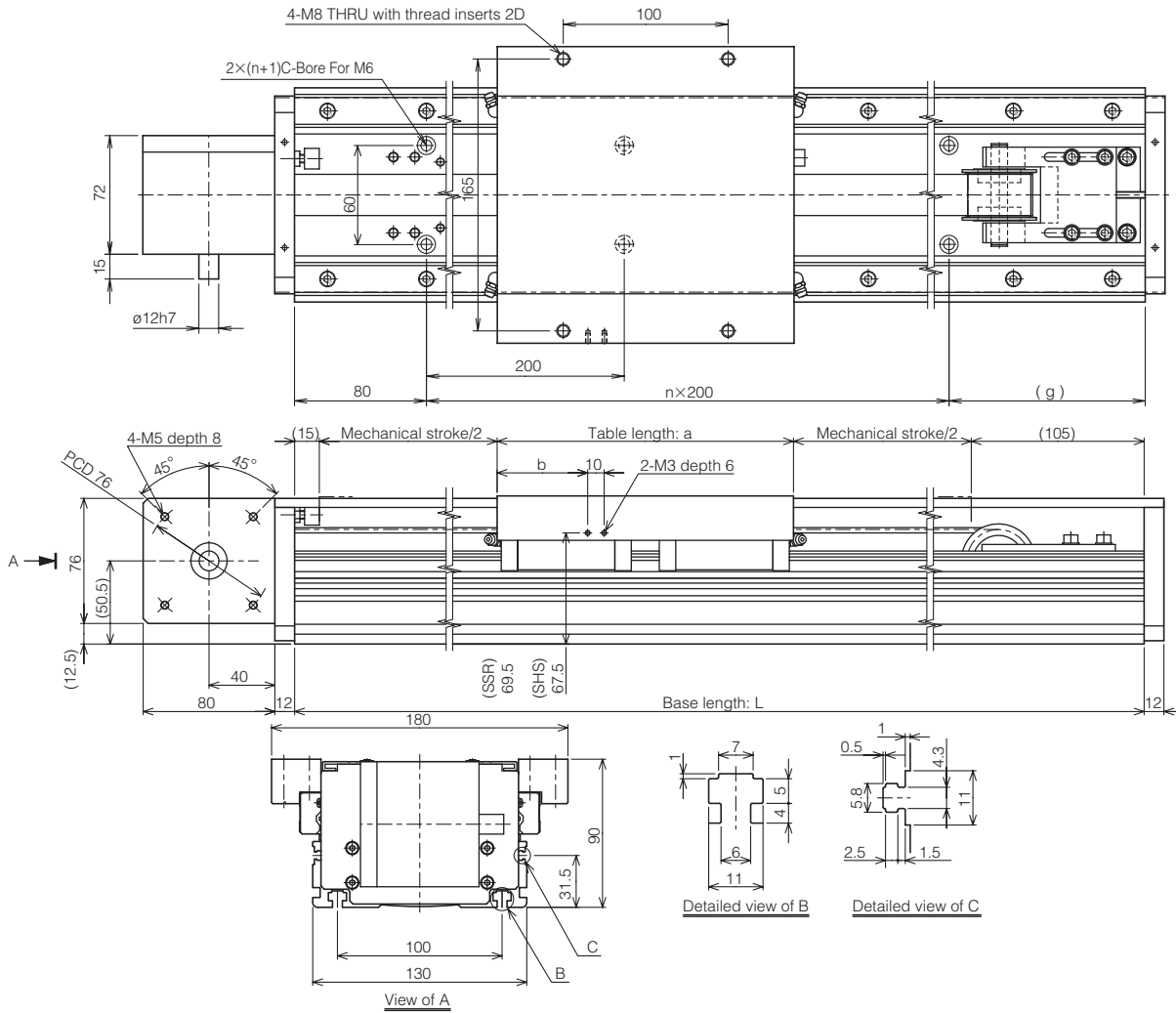
Unit: mm

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
		L-QZ type	40	160	280	400	520	760	940	1120	1300	1480	1660
Main unit weight kg	Table	S type	7.3	8.4	9.4	10.5	11.6	13.7	15.2	16.8	18.4	20.0	21.6
		L type	8.0	9.1	10.1	11.3	12.4	14.5	16.1	17.7	19.4	21.0	22.6
		L-QZ type	8.1	9.2	10.2	11.4	12.5	14.6	16.2	17.8	19.5	21.1	22.7
Base mounting hole	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: The main unit weight includes the cover weight.

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
		L-QZ type	130	250	370	490	730	910	1090	1270	1450	1630	1870	1990	2170	2670
Main unit weight kg	Table	S type	11.8	12.5	14.7	16.2	19.2	21.4	23.6	25.8	28.0	30.2	33.2	34.6	36.9	43.0
		L type	13.1	14.5	16.1	17.6	20.7	22.9	25.2	27.5	29.8	32.1	35.2	36.7	38.9	45.3
		L-QZ type	13.3	14.7	16.3	17.8	20.9	23.1	25.4	27.7	30.0	32.3	35.4	36.9	39.1	45.5
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: The main unit weight includes the cover weight.

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.

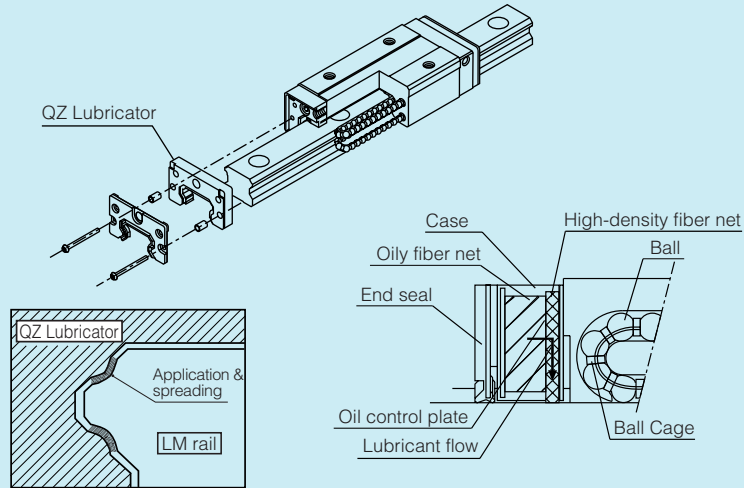


Figure 7: QZ Lubricator Structure Diagram (LM Guide)

[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.

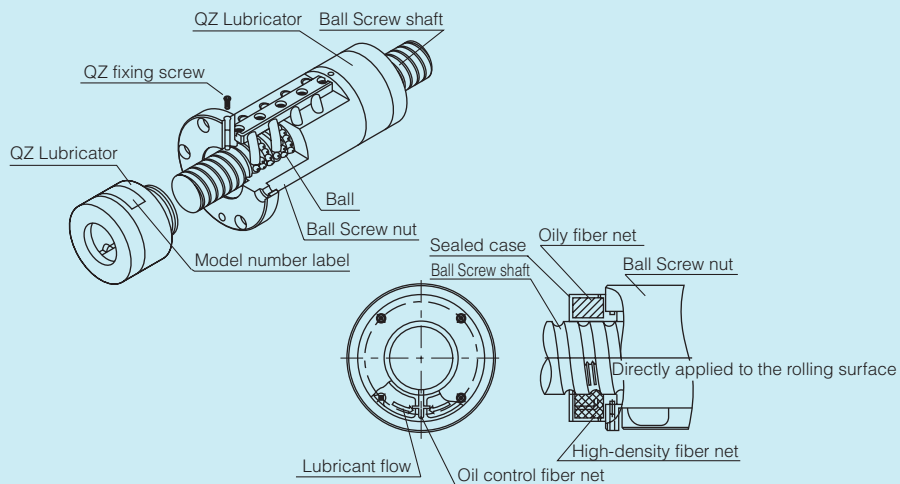


Figure 8: QZ Lubricator Structure Diagram (Ball Screw)

● 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				GL15		GL20			
		Manufacturer	Series	Model number	Rated output	Flange angle	Direct motor mounting	Wrap-around	Direct motor mounting	Wrap-around	
Servo motor	Yasukawa Electric Mfg Co., Ltd.	Σ—II		SGMAH-01	100W	□40	A	—	A	—	
				SGMPH-01		□60	B	—	B	—	
				SGMAH-02	200W		□60	B	B14	B	B14
				SGMAH-04		400W		—	—	B	B14
				SGMPH-02	400W	□80	—	—	J	J14	
				SGMPH-04			—	—	J	J14	
	Mitsubishi Electric Corporation	MELSERVO	J3		HF-KP13	100W	□40	A	—	A	—
					HF-KP23	200W	□60	B	B14	B	B14
					HF-KP43	400W		B	—	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	□60	—	—	B	B14			
	HC-KFS43	—			—	B	B14				
	Matsushita Electric Industrial Co., Ltd.	MINAS A			MSMA01	100W	□38	E	—	E	—
					MQMA01		□60	F	—	F	—
					MSMA02	200W		□60	F	F11	F
					MSMA04	400W	—		—	F	F14
					MQMA02	200W	□76	—	—	D	D11
					MQMA04	400W		—	—	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	400W	□60	B	B14	B	B14
					R88M-U40030			—	—	B	B14
					R88M-W40030	200W	□80	—	—	B	B14
					R88M-WP20030			—	—	J	—
	R88M-WP40030	400W	—	—	J	—					
	FANUC	βis series			β0.3/5000is	100W	□40	A	—	A	—
					β0.4/5000is	125W	□60	B	—	B	—
β0.5/5000is					200W	B		B9	B	—	
β1/5000is					400W	—	—	B	B14		
Sanyo Denki Co., Ltd.	BL Super P			P30B04010	100W	□40	A	—	A	—	
				P50B04010		□42	G	—	G	—	
				P50B05010	200W	□54	C	—	C	—	
				P50B05020			C	—	C	—	
				P30B06020	400W	□60	B	B14	B	B14	
				P30B06040			—	—	B	B14	
				P50B07020	200W	□76	—	—	D	—	
				P50B07030	300W		—	—	D	—	
				P50B07040	400W		—	—	D	—	
	SANMOTION Q1				Q1AA04010D	100W	□40	A	—	A	—
					Q1AA06020D	200W	□60	B	B14	B	B14
Q1AA06040D					400W	—		—	B	B14	
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	ASC66	AS98	—	—	□60	H	—	H	—
								H	—	H	—
								—	—	I	—
								—	—	I	—
								—	—	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

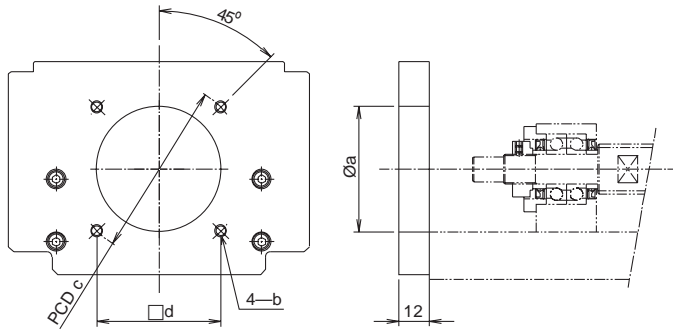
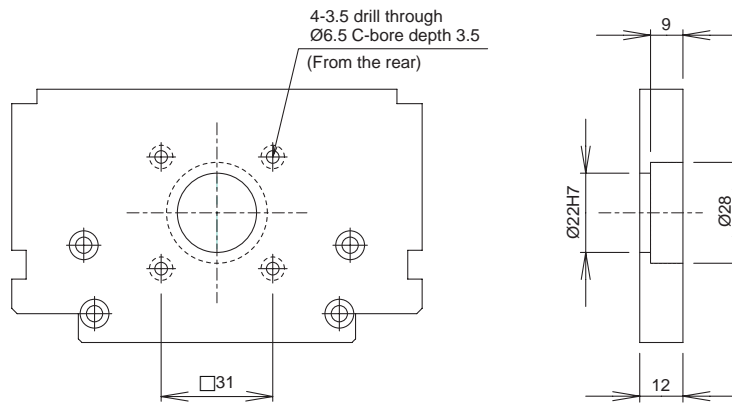


Table 5 End Plate Dimensions Unit: mm

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

- GL15N Motor Bracket T



- Motor wrap-around

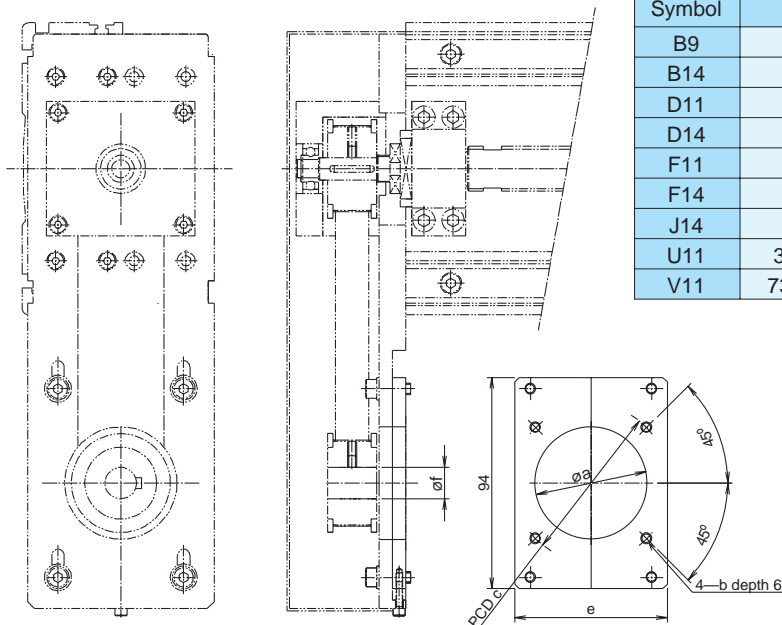


Table 6 Motor Mounting Plate Unit: mm

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	80	6.35
V11	73.03	M5	98.43	80	9.53

● Motor Bracket (Belt Type Specification)

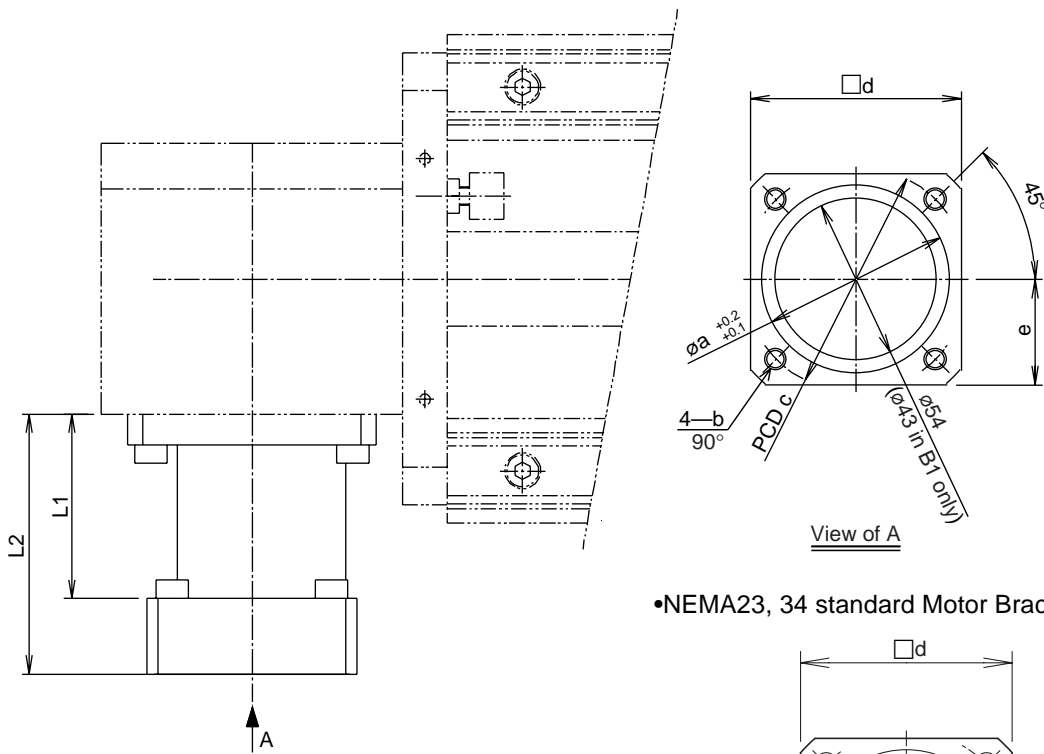
[Control Number]

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

Table 7 Motors and Applicable Motor Brackets

Motor (decelerator)						Common to GL15N and GL20N
Reducer	Manufacturer	Series	Model number	Rated output	Reduction ratio	
	NIDEC-SHIMPO CORPORATION	VR	VR□F-3B-100	100W	1/3	B1
			VR□F-5B-100		1/5	B1
			VR□F-3B-200	200W	1/3	B1
			VR□F-5B-200		1/5	B1
			VR□F-3B-400	400W	1/3	B1
			VR□F-5C-400		1/5	B2

[Dimensional Drawing]



●NEMA23, 34 standard Motor Bracket U1, V1

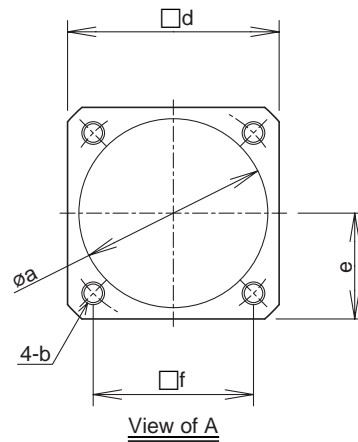


Table 8: Motor Bracket Dimensional Drawing Unit: mm

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

	Motor (Reducer)				Reduction ratio			
	Manufacturer	Series	Model number	Capacity	1/3	1/5	1/9	
Servo motor	Yaskawa Electric Mfg. Co., Ltd.	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 Electric Corporation	MELSERVO	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
	Matsushita Electric Industrial Co., Ltd.	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 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	B2-G3-09	
			R88M-W20030		B1-G3-03	B1-G3-05	B2-G3-09	
			R88M-U40030	400W	B1-G3-03	B2-G3-05	B2-G3-09	
			R88M-W40030		B1-G3-03	B2-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	B2-G3-09	
			P30B06040	400W	B1-G3-03	B2-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	NEMA17	TL-120P (N)	81W	B1-G6-03	B1-G6-05	B1-G6-09		
		TL-130P (N)	140W	B1-G6-03	B1-G6-05	B1-G6-09		
	NEMA23	TL-220P (N)	350W	B1-G7-03	B1-G7-05	B2-G7-09		
		TL-230P (N)	440W	B1-G7-03	B2-G7-05	B2-G7-09		

Note: B1: VR□F-B (NIDEC-SHIMPO CORPORATION); B2: VR□F-C (NIDEC-SHIMPO CORPORATION)

[Dimensional Drawing]

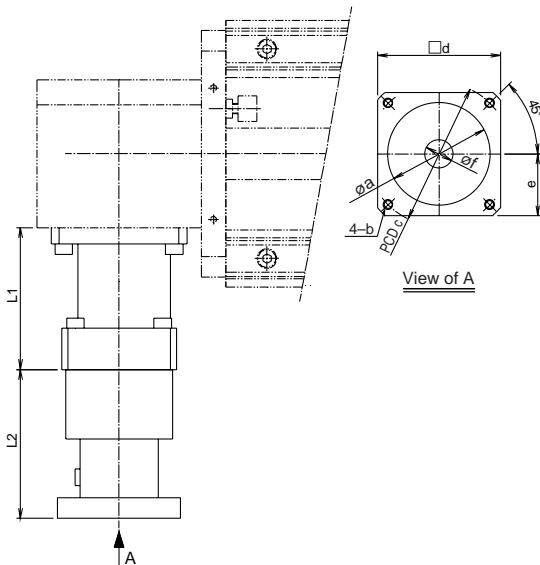


Table 10: Motor Bracket Dimensional Drawing Unit: mm

Bracket Symbol	Motor bracket dimensions							
	a	b	c	d	e	f	L1	L2
B1-G1-□□	30	M4 depth 10	46	40	21	8	69	72.5
B1-G2-□□	30	M3 depth 8	45	38	21	8	69	72.5
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-□□	30	M4 depth 10	46	42	21	6.35	69	75.5
B2-G3-□□	50	M5 depth 10	70	60	30	14	86	98.5
B2-G4-□□	50	M4 depth 10	70	60	30	11	86	98.5
B2-G5-□□	50	M4 depth 10	70	60	30	14	86	98.5
B2-G6-□□	50	M5 depth 10	70	60	30	12.7	86	72.5
B2-G7-□□	38.1	M5 depth 10	66.7	60	30	12.7	69	80.5

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.

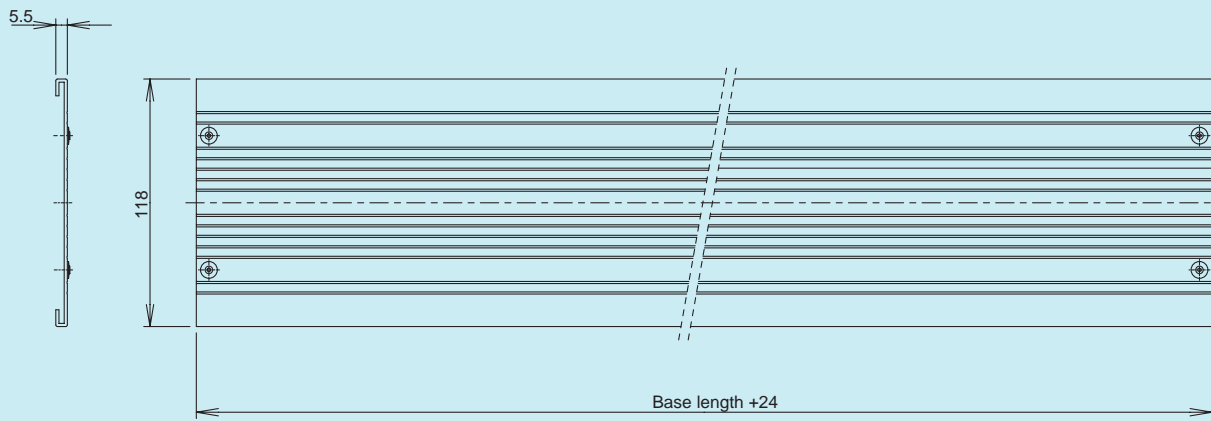


Figure 9: Cover Outline View

Note: Cover deflection increases depending on the base length. To prevent this deflection, a cover receiver is provided for the table (see the following figure). This cover receiver comes as a standard with models having a base length of 1,000 mm or more.

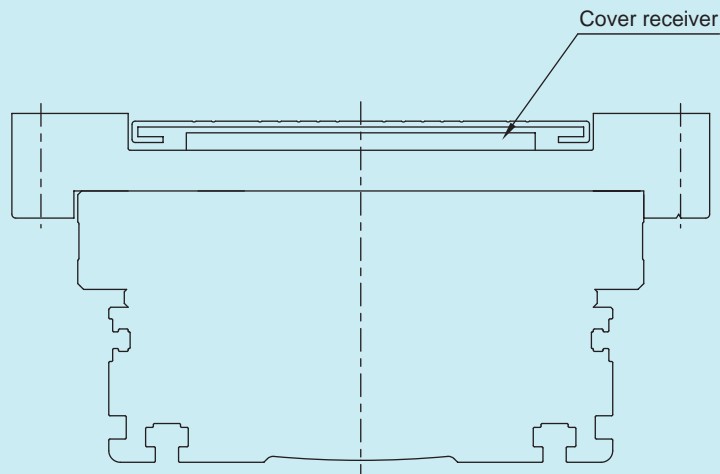
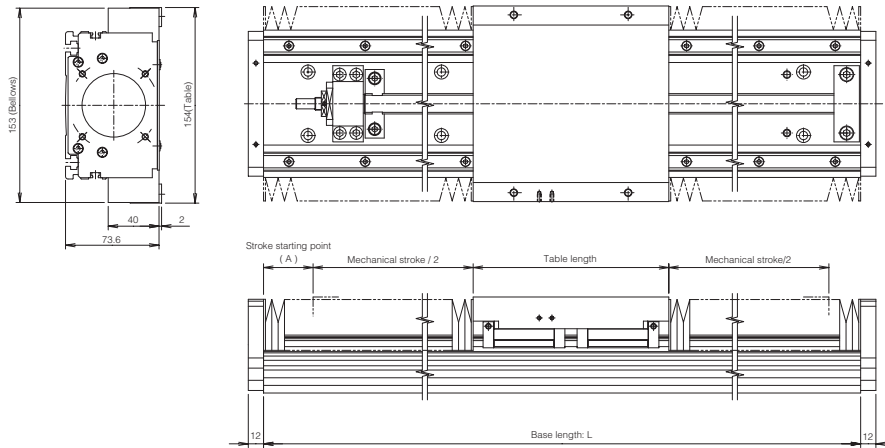


Figure 10: Section View of a Model with a Cover Receiver

Bellows

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

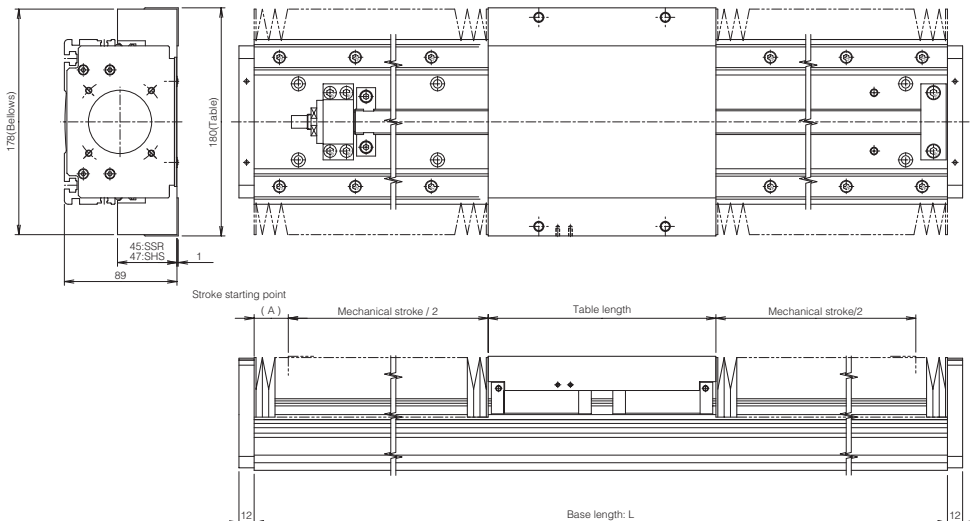
[GL15N Model, Ball Screw Driven]



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

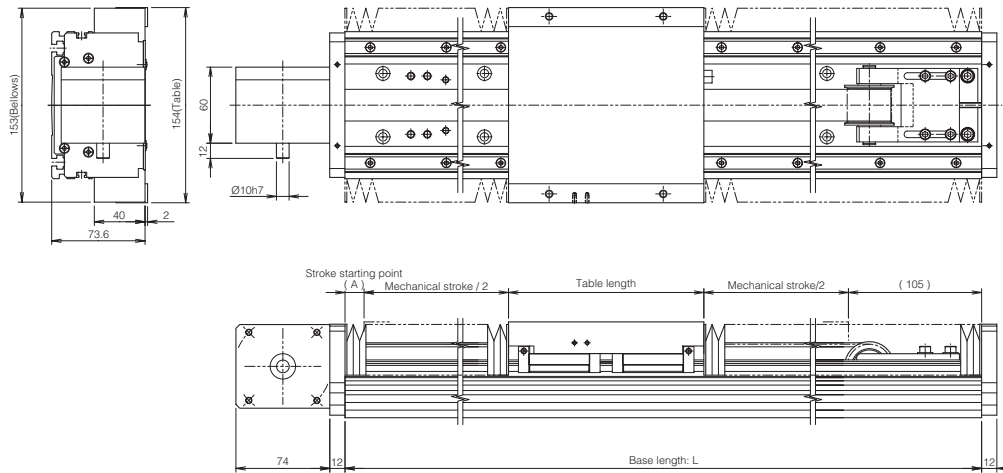
[GL20N Model, Ball Screw Driven]



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

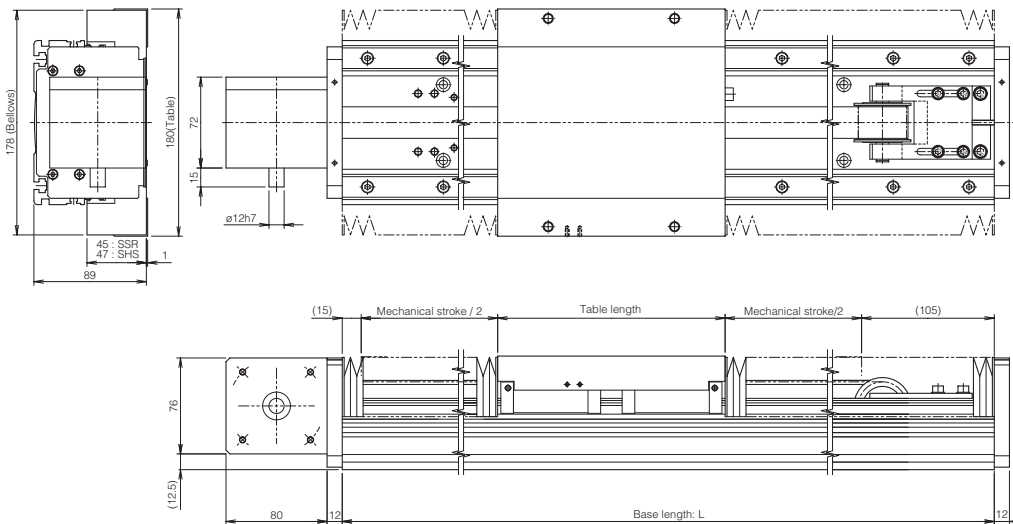
[GL15N Model, Belt Driven]



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

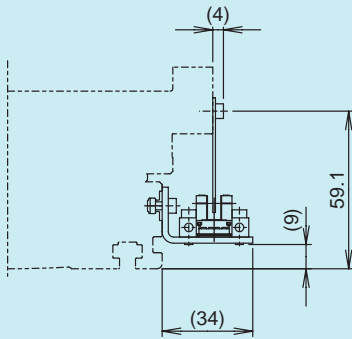
The GL-N model allows various sensors to be set to the T groove at the side of the base.

[Control Number]

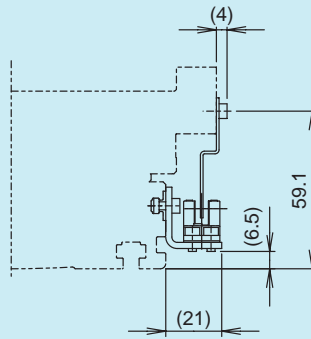
Type	Sensor model number	Manufacturer	Symbol
Photo sensor	EE-SX671	OMRON	A
	EE-SX674		B
Proximity sensor	TL-W3MC1		C

[Dimensional Drawing]

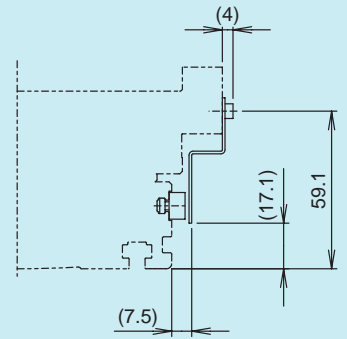
GL15N



A: EE-SX671 (OMRON)

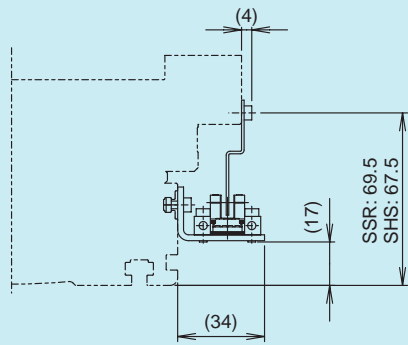


B: EE-SX674 (OMRON)

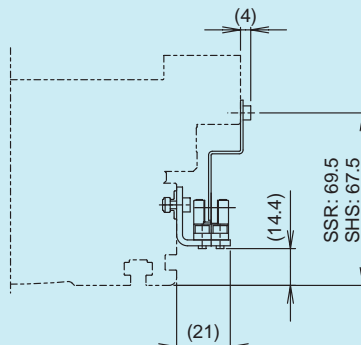


C: TL-W3MC1 (OMRON)

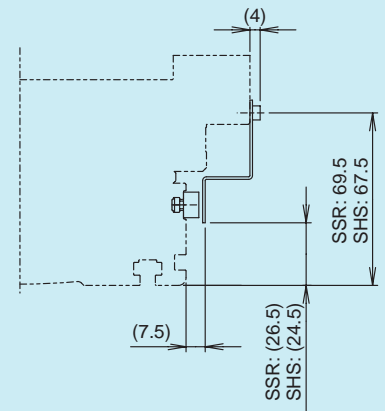
GL20N



A: EE-SX671 (OMRON)



B: EE-SX674 (OMRON)



C: TL-W3MC1 (OMRON)

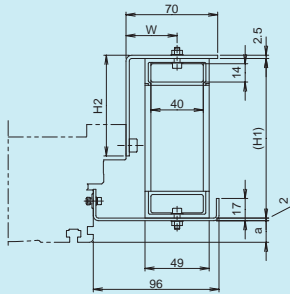
● Cable Carrier

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

[Control Number]

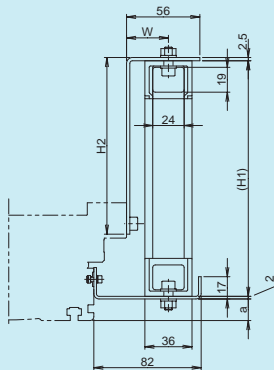
Cable carrier model number	Manufacturer	Symbol	Cable carrier model number	Manufacturer	Symbol
TKP0180-2B-R28	Tsubakimoto Chain	A	TKP0320-2B-R75	Tsubakimoto Chain	F
TKP0180-2B-R37		B	TKP0320-3B-R37		G
TKP0180-2B-R50		C	TKP0320-3B-R50		H
TKP0320-2B-R37		D	TKP0320-3B-R75		I
TKP0320-2B-R50		E	KSH24-R42		Kunimori Kagaku

[Dimensional Drawing]



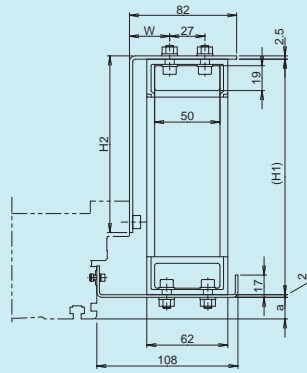
Unit: mm

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				



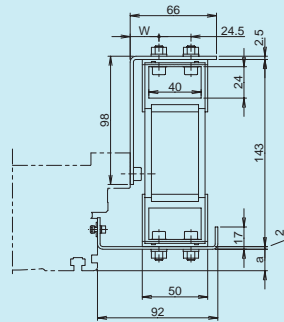
Unit: mm

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				

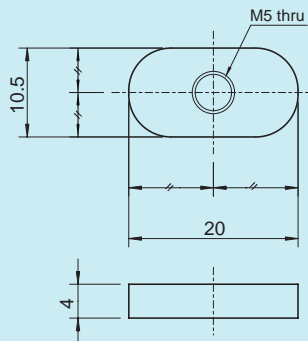


Unit: mm

Symbol	Cable carrier model number	Dimensions			
		W		a	
		GL15N	GL20N	GL15N	GL20N
J	KSH24-R42	28	22	8.6	16.5

[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	

THK LM Actuator GL-N

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.

- “LM Guide”, “Caged Ball”, “” and “QZ” are the registered trademarks of THK Co., Ltd.
- 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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