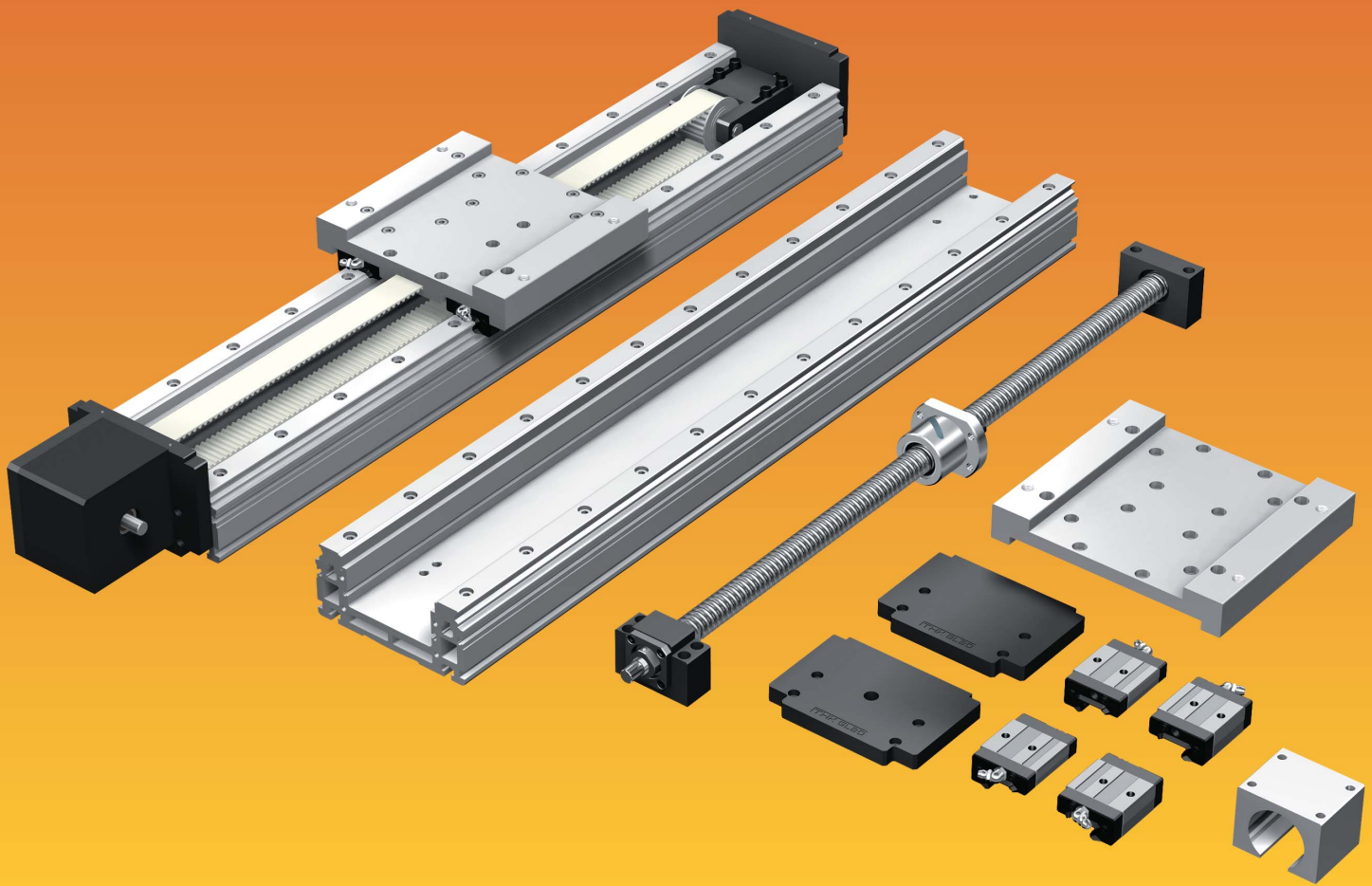




LM ACTUATOR

Low Price Simple Actuator
LM Assembly Kit Also Available

GL



THK CO., LTD.
TOKYO, JAPAN

Catalog No. 175-9E

How to contact your authorised distributor

Distribution Centres

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Linear Division

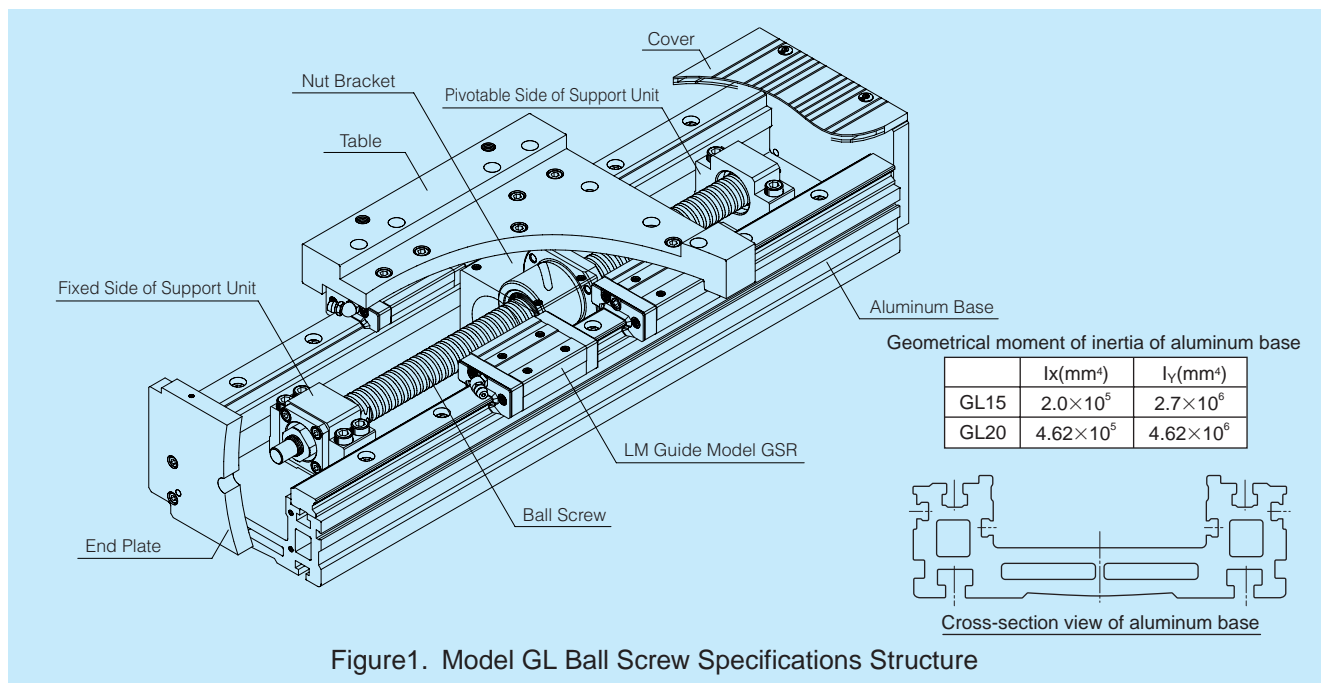
T 01709 789 949

E linear@acorn-ind.co.uk

W www.acorn-ind.co.uk/linear

LM Actuator Model GL

Model GL Ball Screw Specifications



Single-axis actuator with built-in THK threaded Ball Screw that combines an LM Guide model GSR to the aluminum base of the model GL. We have three types of Ball Screw leads available to allow selection to meet your specific transfer equipment and uses.

Features

- **Enables manufacturing of actuator that corresponds to it use**
Allows you to manufacture the actuator that matches your specifications because you can select the parts.
- **Short delivery time**
All parts are standardized to enable manufacturing with short delivery times.
- **Lightweight and highly rigid**
The base aluminum extrusion material and cross section form employs a hollow construction that has superior rigidity allow the actuator to be lightweight and rigid.
- **Right and left hand Ball Screw specifications available**
Right and left hand Ball Screw specifications are available to meet your requirements. Right and left hand screws enable simultaneous operation of the top table.
- **Ball Screw lead**
Ball Screws with a precision transfer of 5 mm or high speed transfer of 40 mm are available to correspond to a variety of needs.

Model GL Belt Specifications

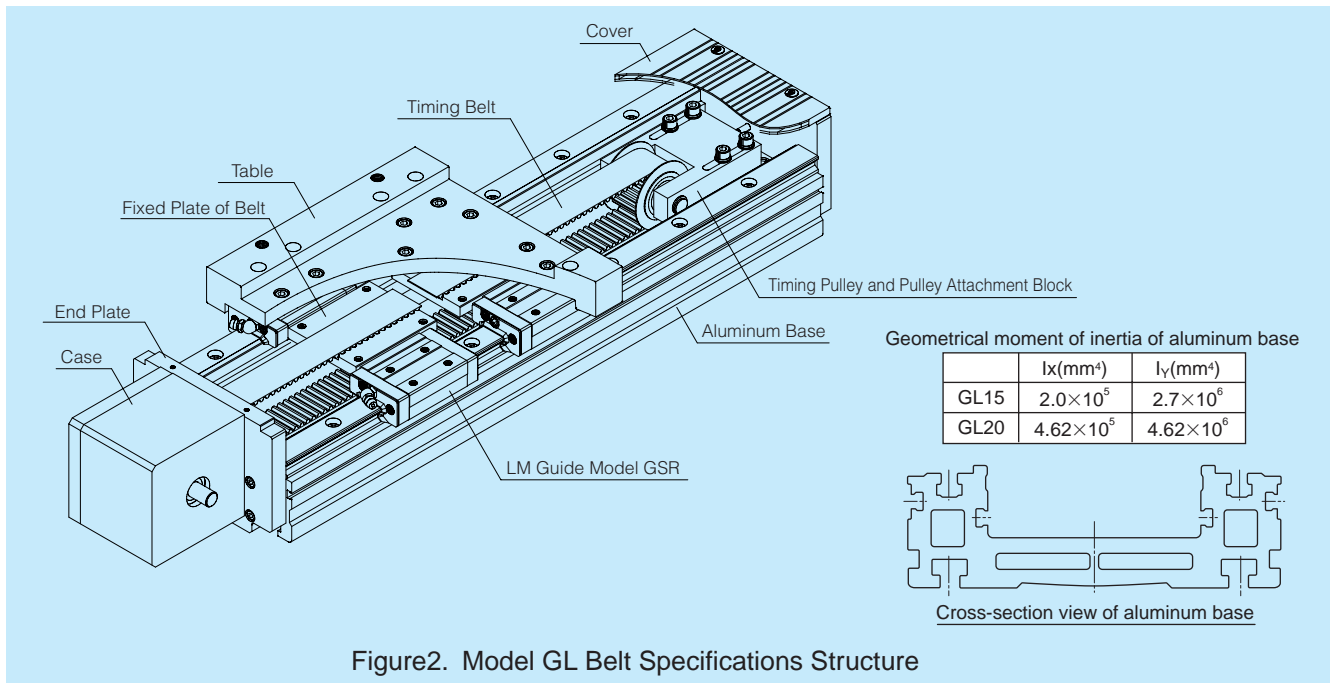


Figure2. Model GL Belt Specifications Structure

Single-axis actuator with built-in high rigidity belt (steel core) that combines an LM Guide model GSR to the aluminum base of the model GL.

Features

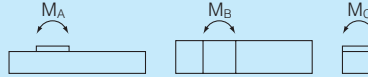
- Enables high-speed transfer**
 LM Guide model GSR without clearance and highly rigid belt enable high speeds.
- Corresponds to long strokes**
 Long strokes can be manufactured that is impossible with Ball Screws. (Contact for THK strokes that are not standard.)
- Short delivery time**
 All parts are standardized to enable manufacturing with short delivery times.
- Lightweight and highly rigid**
 The base aluminum extrusion material and cross section form employs a hollow construction that has superior rigidity allow the actuator to be lightweight and rigid.

Note: If the Model GL Belt Specifications is hung on the wall, the belt may drop. Please contact us for further details.

Ball Screw Specifications

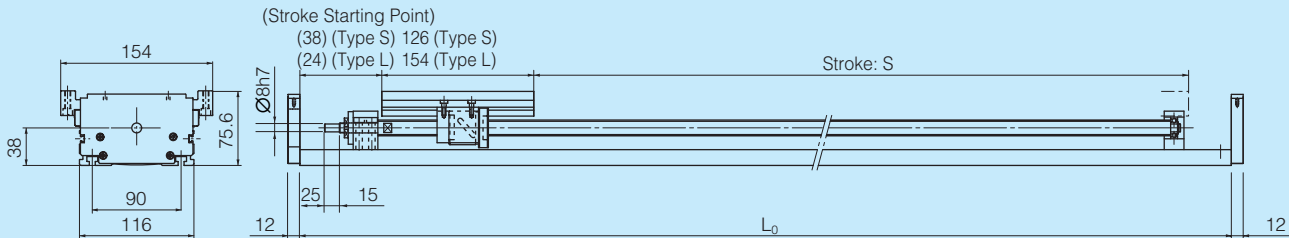
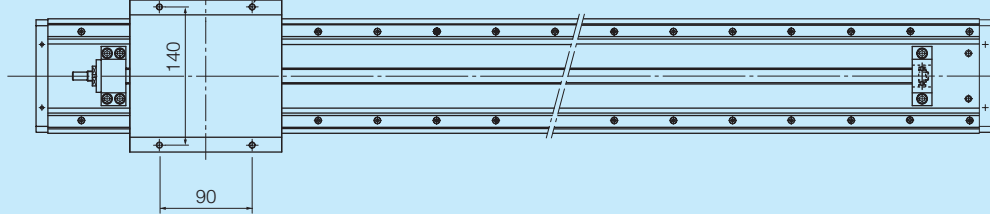
● Model GL15 Pre-assembled Diagram

Repeatable Positioning Accuracy	±0.02 mm		
Moment of Load (N·m) Note 1	Type S	M _A 84.3 M _B 79.4 M _C 130.4	
	Type L	M _A 121.6 M _B 114.7 M _C 171.6	



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.

4-M6 Through (Helisert Insertion: 2D)
From Back Side Ø9.5 C-Bore Depth: 7

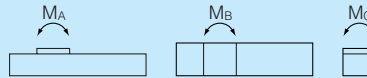


Stroke: S	100	220	340	460	580	820	1000	1180
Base Length: L ₀	340	460	580	700	820	1060	1240	1420

* Table shows stroke using type L table.

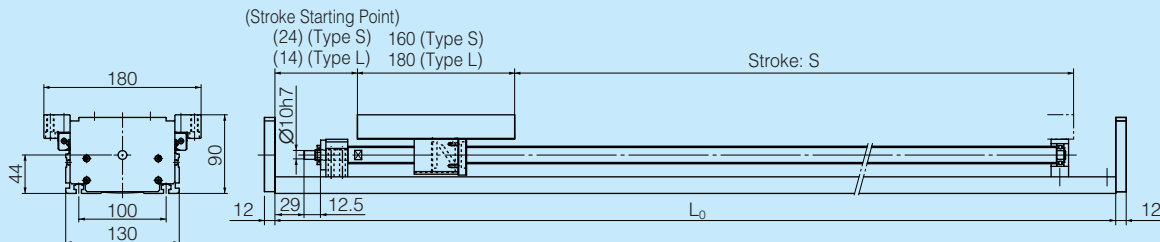
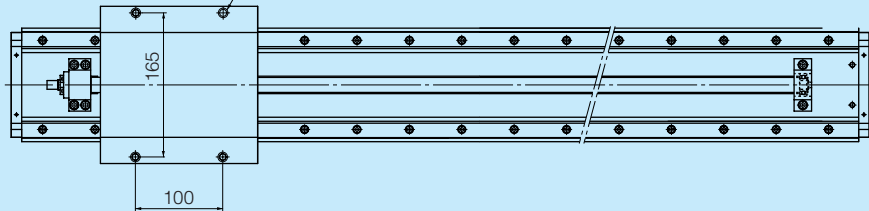
● Model GL20 Pre-assembled Diagram

Repeatable Positioning Accuracy	±0.02 mm		
Moment of Load (N·m) Note 1	Type S	M _A 170.6 M _B 160.8 M _C 237.2	
	Type L	M _A 217.6 M _B 195.8 M _C 311.8	



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.

4-M8 Through (Helisert Insertion: 2D)
From Back Side Ø11 C-Bore Depth: 7.5

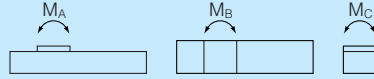


Stroke: S	200	320	440	560	800	980	1160	1340	1520
Base Length: L ₀	460	580	700	820	1060	1240	1420	1600	1780

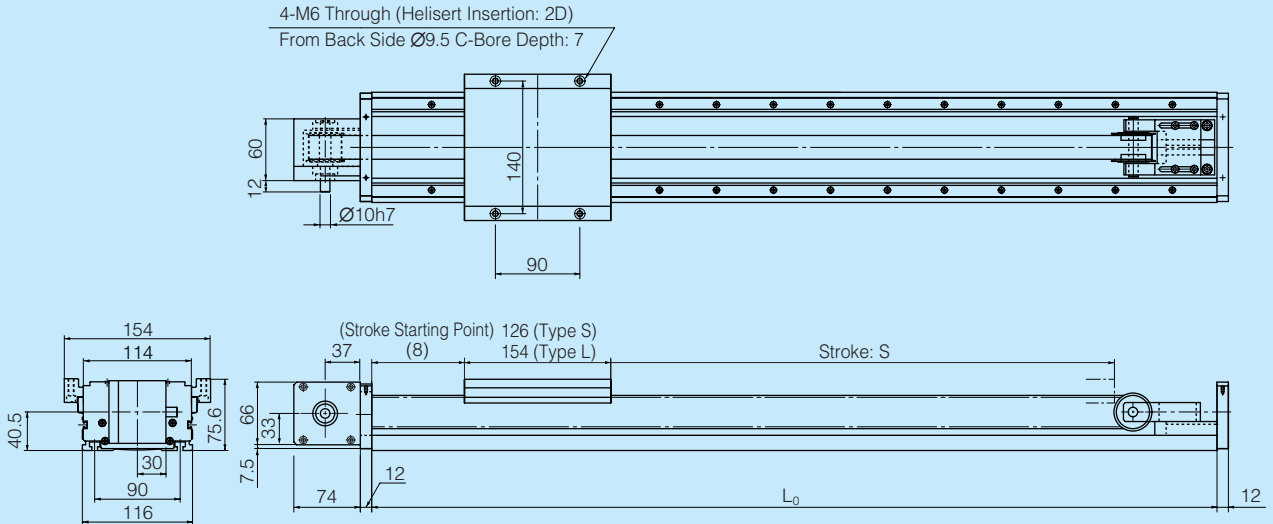
Belt Specifications

Model GL15 Pre-assembled Diagram

Repeatable Positioning Accuracy	±0.08 mm		
Moment of Load (N-m) Note 1	Type S	M _A 84.3 M _B 79.4 M _C 130.4	
	Type L	M _A 121.6 M _B 114.7 M _C 171.6	



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.

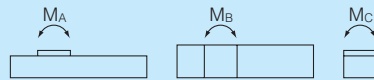


Stroke: S	70	190	310	430	550	790	970	1150	1330	1510	1690
Base Length: L ₀	340	460	580	700	820	1060	1240	1420	1600	1780	1960

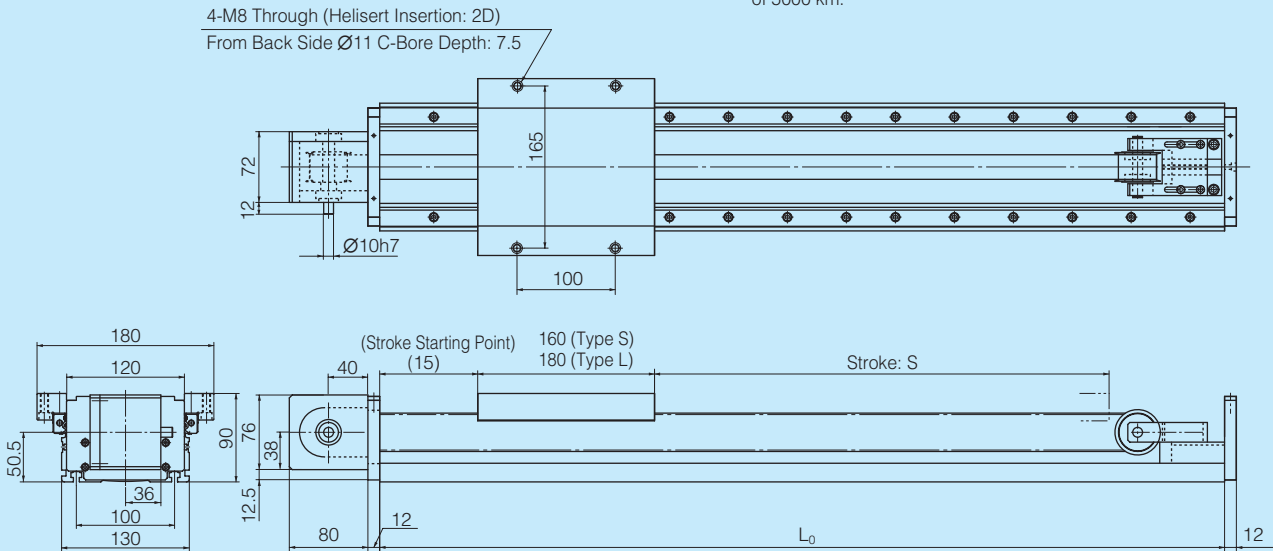
* Table shows stroke using type L table.
Maximum stroke is +30 mm for type S table specifications.

Model GL20 Pre-assembled Diagram

Repeatable Positioning Accuracy	±0.08 mm		
Moment of Load (N-m) Note 1	Type S	M _A 170.6 M _B 160.8 M _C 237.2	
	Type L	M _A 217.6 M _B 195.0 M _C 311.8	



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.



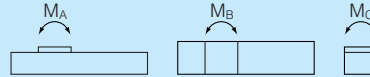
Stroke: S	160	280	400	520	760	940	1120	1300	1480	1660	1900	2020	2200	2700
Base Length: L ₀	460	580	700	820	1060	1240	1420	1600	1780	1960	2200	2320	2500	3000

* Table shows stroke using type L table.
Maximum stroke is +20 mm for type S table specifications.

Ball Screw Specifications

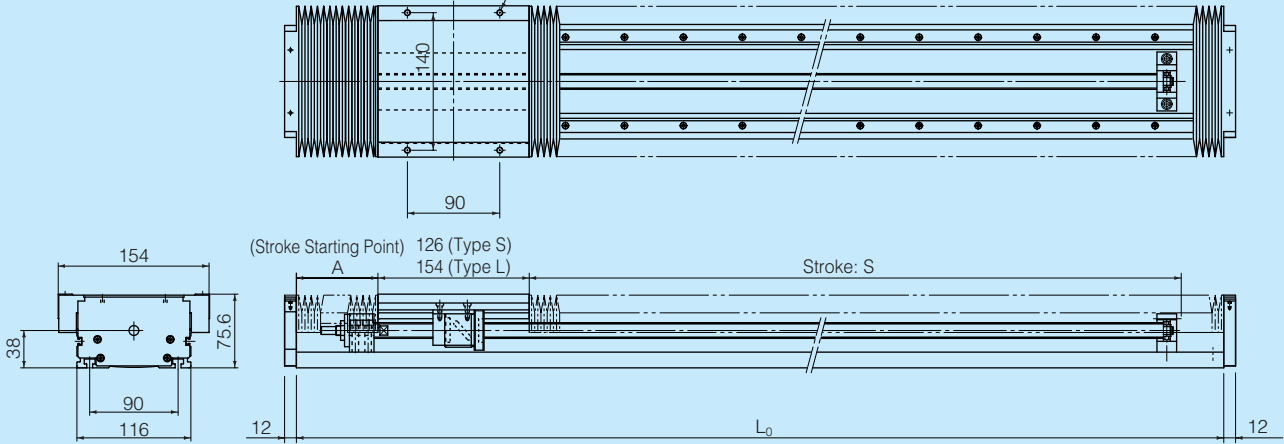
● Model GL15 Pre-assembled Diagram With Twill Braid

Repeatable Positioning Accuracy	±0.02 mm			
Moment of Load (N·m) Note 1	Type S	M _A 84.3	M _B 79.4	M _C 130.4
	Type L	M _A 121.6	M _B 114.7	M _C 171.6



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.

4-M6 Through (Helisert Insertion: 2D)
From Back Side Ø9.5 C-Bore Depth: 7

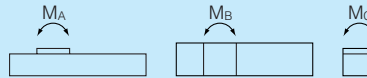


Stroke: S	100	200	340	455	560	770	910	1070
Base Length: L_0	340	460	580	700	820	1060	1240	1420
Stroke Starting Point: A	Type S	57	57	57	59.5	67	82	102
	Type L	43	43	43	45.5	53	68	88

* Table shows stroke using type L table.

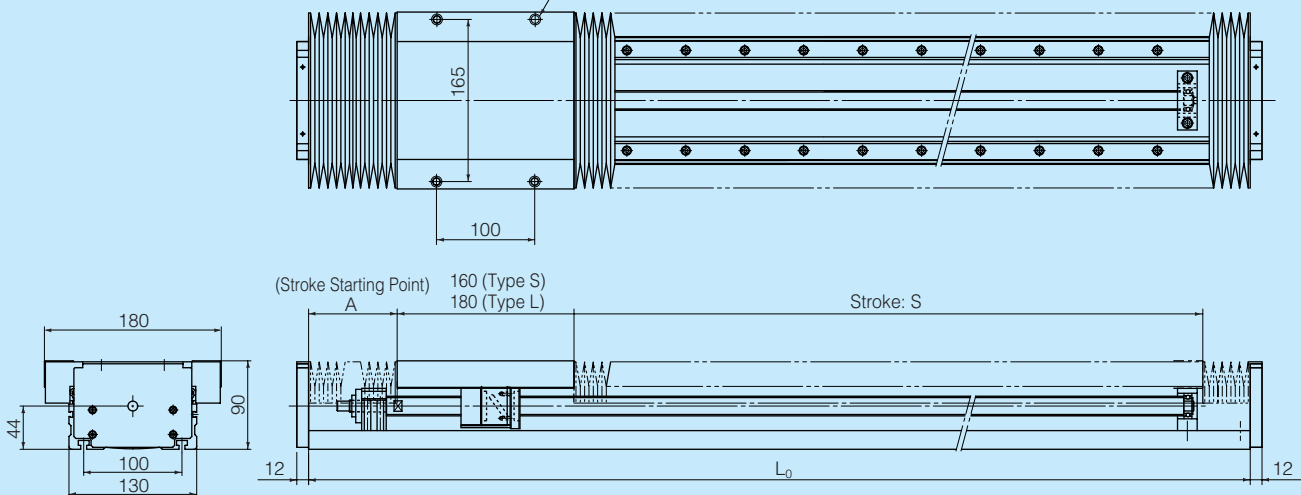
● Model GL20 Pre-assembled Diagram With Twill Braid

Repeatable Positioning Accuracy	±0.02 mm			
Moment of Load (N·m) Note 1	Type S	M _A 170.6	M _B 160.8	M _C 237.2
	Type L	M _A 217.6	M _B 195.8	M _C 311.8



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.

4-M8 Through (Helisert Insertion: 2D)
From Back Side Ø11 C-Bore Depth: 7.5

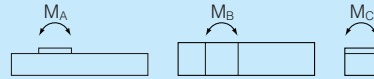


Stroke: S	200	320	440	560	780	940	1100	1260	1400
Base Length: L_0	460	580	700	820	1060	1240	1420	1600	1780
Stroke Starting Point: A	Type S	50	50	50	50	60	70	80	90
	Type L	40	40	40	40	50	60	70	80

Belt Specifications

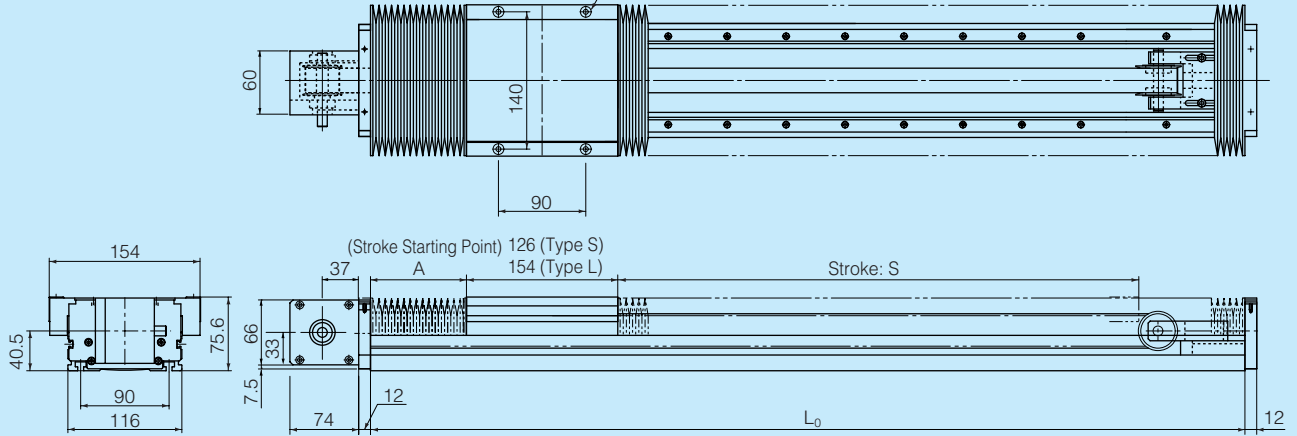
● Model GL15 Pre-assembled Diagram With Twill Braid

Repeatable Positioning Accuracy	±0.08 mm		
Moment of Load (N-m) Note 1	Type S	M _A 84.3 M _B 79.4 M _C 130.4	
	Type L	M _A 121.6 M _B 114.7 M _C 171.6	



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.

4-M6 Through (Helisert Insertion: 2D)
From Back Side Ø9.5 C-Bore Depth: 7

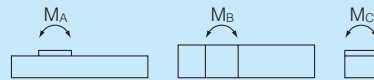


Stroke: S	50	160	280	380	480	700	840	980	1120	1260	1400
Base Length: L ₀	340	460	580	700	820	1060	1240	1420	1600	1780	1960
Stroke Starting Point: A	30	40	50	65	80	105	125	145	165	185	205

* Table shows stroke using type L table.
Maximum stroke is +28 mm for type S table specifications.
Stroke starting point A is the same for both type S table and type L table.

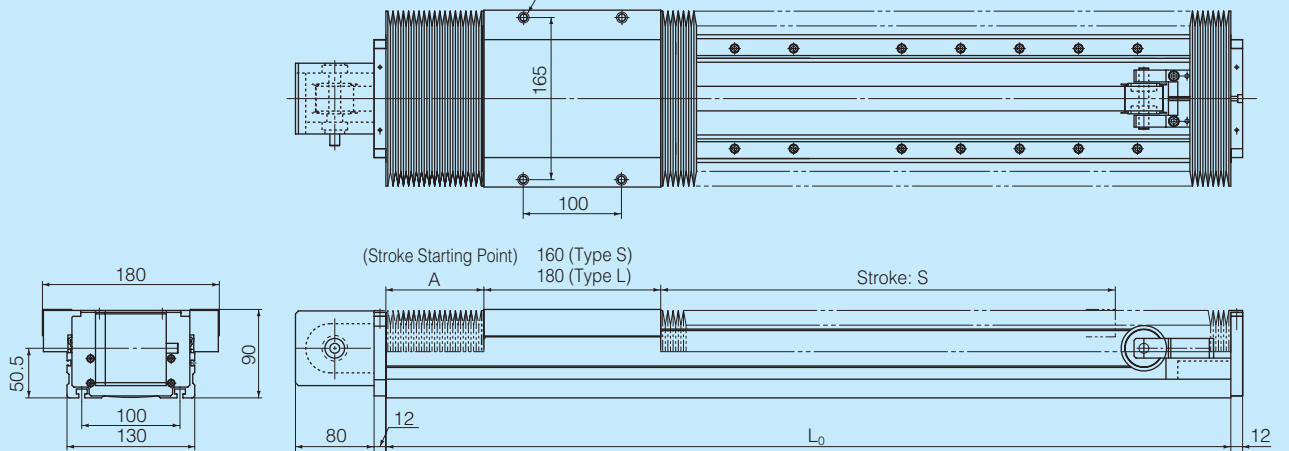
● Model GL20 Pre-assembled Diagram With Twill Braid

Repeatable Positioning Accuracy	±0.08 mm		
Moment of Load (N-m) Note 1	Type S	M _A 170.6 M _B 160.8 M _C 237.2	
	Type L	M _A 217.6 M _B 195.0 M _C 311.8	



Note 1: The value of the moment of load is the longevity travel distance of 5000 km.

4-M8 Through (Helisert Insertion: 2D)
From Back Side Ø11 C-Bore Depth: 7.5

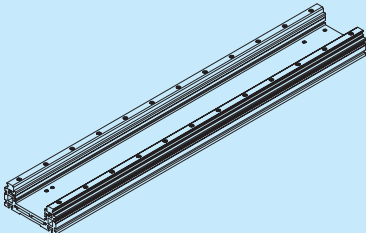
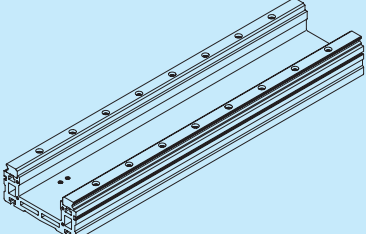
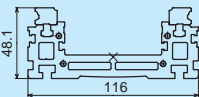
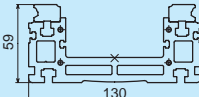


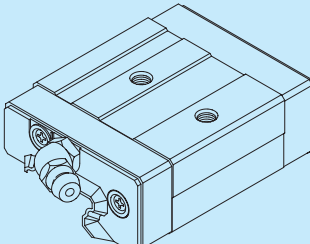
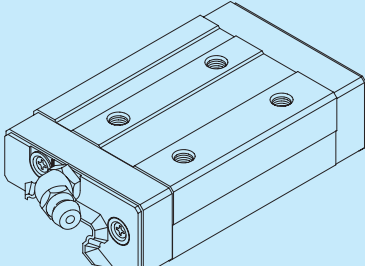
Stroke: S	140	240	340	440	660	820	990	1140	1280	1420	1620	1700	1840	2260
Base Length: L ₀	460	580	700	820	1060	1240	1420	1600	1780	1960	2200	2320	2500	3000
Stroke Starting Point: A	40	50	80	100	110	120	125	145	160	180	200	220	240	280

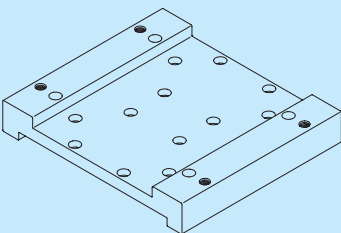
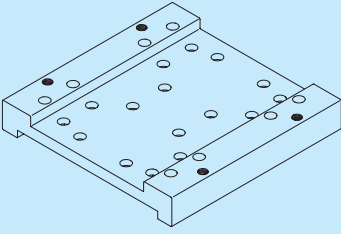
* Table shows stroke using type L table.
Maximum stroke is +20 mm for type S table specifications.
Stroke starting point A is the same for both type S table and type L table.

Enabling You to Get Assembly Kit Parts at Low Prices

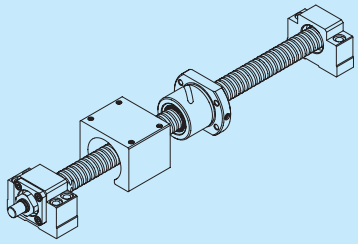
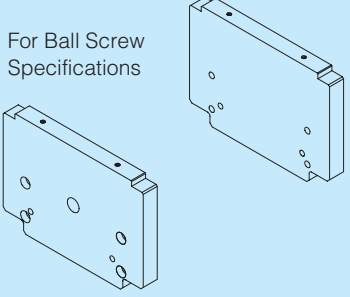
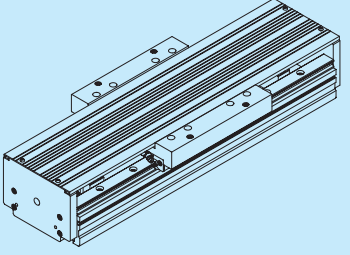
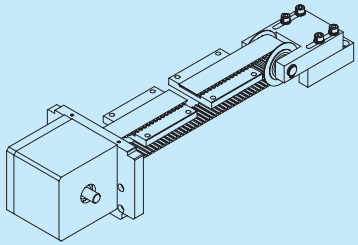
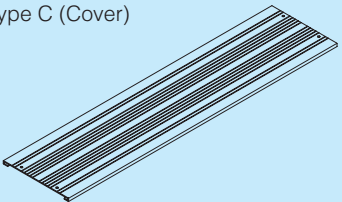
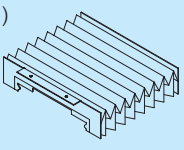
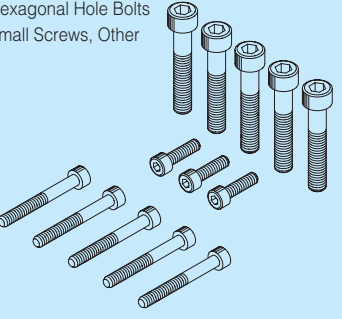
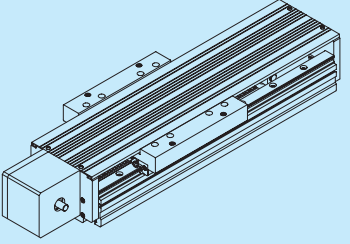
Quick Delivery At Low Prices

Base with Rail	
Model GL15 (Model GL15 with LM rail)	
	
Type	Model GL20 (Model GL20 with LM rail)
	
Specifications	Model GL15 dimensions on cross-section view Cross Section Dimensions W116 × H48.1
	
	Model GL20 dimensions on cross-section view Cross Section Dimensions W130 × H59
	
Name	Example GL15-034
	Base Length 340 mm Model number

LM Block	
Type V (Short Type)	
	
Type T (Long Type)	
	
For Mid-sized Loads Short Type Type V	For Heavy Loads Long Type Type T
Blocks for Type M	
GSR15V	GSR15T
Blocks for Type L	
GSR20V	GSR20T
Example GL15-V4	
Quantity	Block Type V or T
Model number	

Top Table	
Type S (Short Type)	
	
Type L (Long Type)	
	
Main Dimensions	
Model GL15 main dimensions	
For Short W154 × L126	
For Long W154 × L154	
Model GL20 main dimensions	
For Short W180 × L160	
For Long W180 × L180	
Example GL20-L	
Table Type S or L	
Model number	

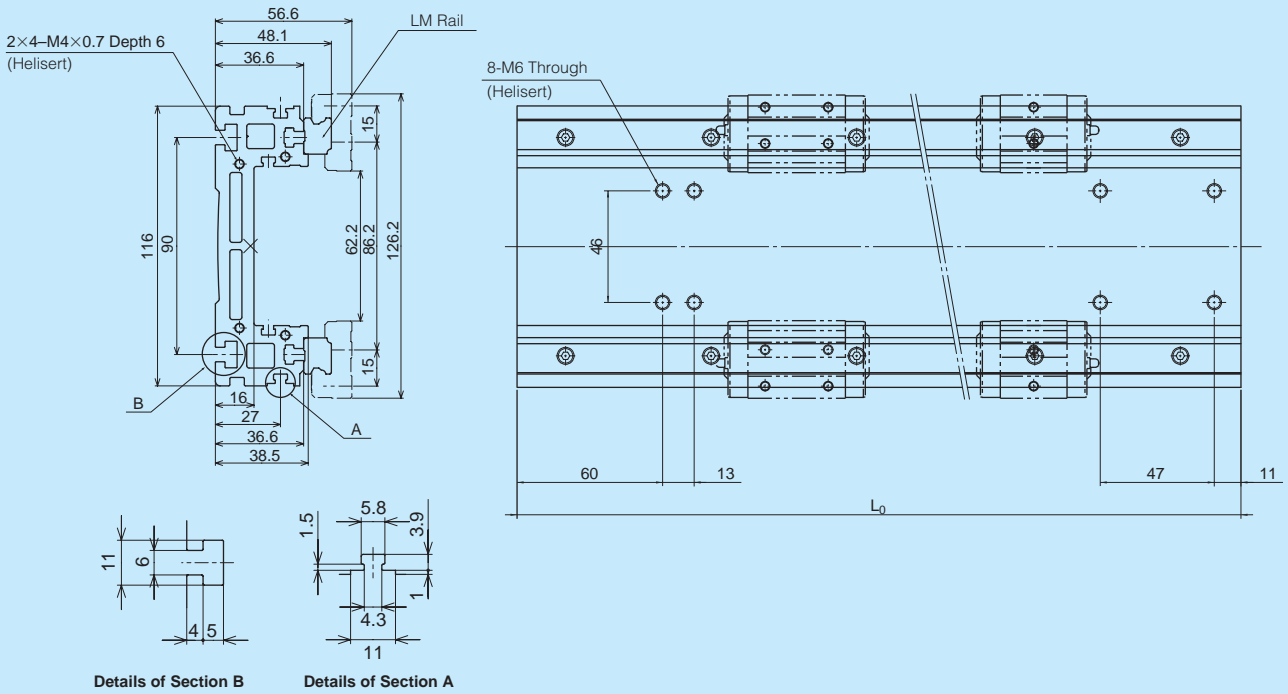
Delivery of Standard Assembly Kit in One Week *1

Drive System		Options		Pre-assembled Diagram										
Type B (Ball Screw Kit) 		Type P (End Plate) 2 in 1 For Ball Screw Specifications 		Ball Screw Assembly Kit 										
Type E (Belt Kit) 		Type C (Cover)  Type J (Twill Braid) 												
		Bolt For Assembly (Accessory Parts) Hexagonal Hole Bolts Small Screws, Other 		Belt Assembly Kit 										
<table border="1"> <thead> <tr> <th></th> <th>Ball Screw</th> <th>Belt</th> </tr> </thead> <tbody> <tr> <td rowspan="2">Model GL15</td> <td> ϕ15 Lead 30 </td> <td> Pitch 5 Belt Width 25 </td> </tr> <tr> <td> ϕ16 Lead 5 Lead 16 </td> <td> Number of Pulley Teeth 22 </td> </tr> <tr> <td>Model GL20</td> <td> ϕ20 Lead 5 Lead 20 Lead 40 </td> <td> Pitch 5 Belt Width 25 Number of Pulley Teeth 24 </td> </tr> </tbody> </table>		Ball Screw	Belt		Model GL15	ϕ 15 Lead 30	Pitch 5 Belt Width 25	ϕ 16 Lead 5 Lead 16	Number of Pulley Teeth 22	Model GL20	ϕ 20 Lead 5 Lead 20 Lead 40	Pitch 5 Belt Width 25 Number of Pulley Teeth 24		
	Ball Screw	Belt												
Model GL15	ϕ 15 Lead 30	Pitch 5 Belt Width 25												
	ϕ 16 Lead 5 Lead 16	Number of Pulley Teeth 22												
Model GL20	ϕ 20 Lead 5 Lead 20 Lead 40	Pitch 5 Belt Width 25 Number of Pulley Teeth 24												
Example GL15-034-B05 Ball Screw Lead 5 mm Drive System Ball Screw Type Base Length 340 mm Model number		Example: End Plate GL15-P End Plate Model number												
GL15-034-E Drive System Belt Type Base Length 340 mm Model number		Example: Cover GL15-034-C Cover Base Length 340 mm Model number												
		Example: Twill Braid GL15-034-J Twill Braid Base Length 340 mm Model number												

*1 (Number of days can vary according to region.)

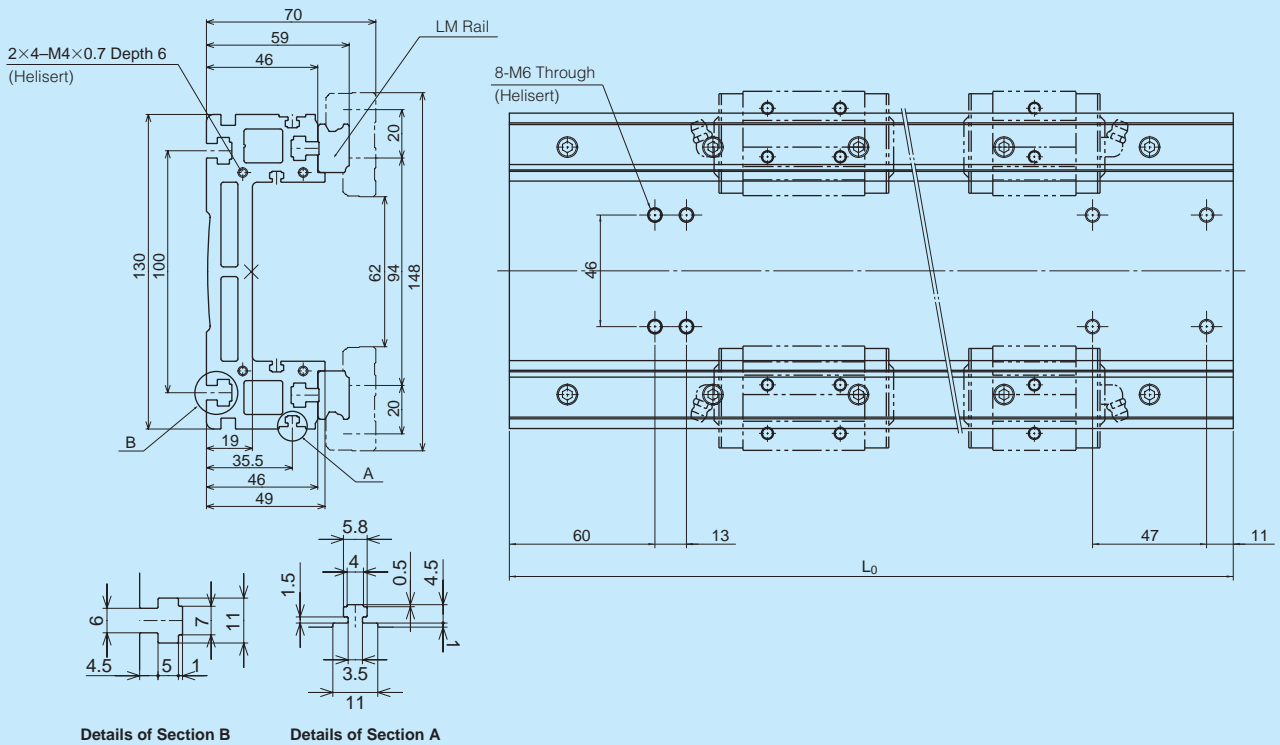
Base Dimension with Rail

● Type M (Used on GSR15)



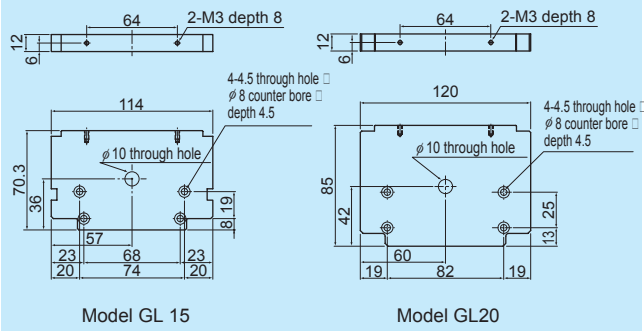
* See standard lengths and strokes table on page 3,4 for details of L₀.

● Type L (Used on GSR20)



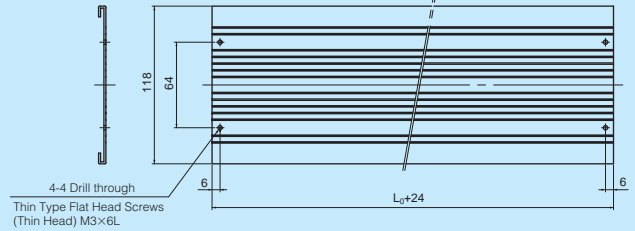
* See standard lengths and strokes table on page 3,4 for details of L₀.

End Plate

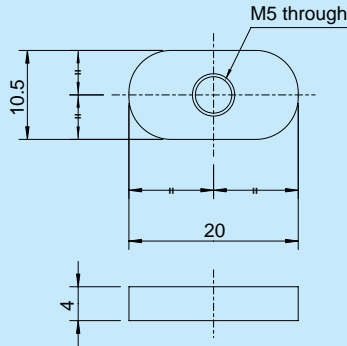


Cover

Material: Aluminum Surface Processing: Anodic Oxide Coating



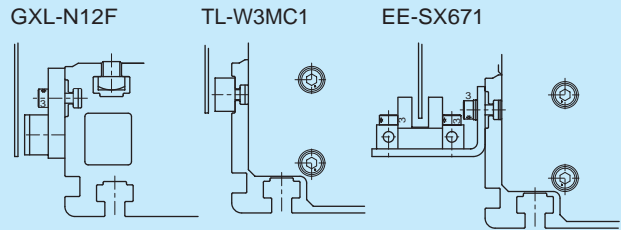
Dimensional Drawing of Plate Nut for Base Mounting



Base length: mm	340	460	580	700	820	1060	1240	1420
n	4	4	6	6	8	10	10	12
Base length: mm	1600	1780	1960	2200	2320	2500	3000	
n	14	14	16	16	18	18	20	

The plate nut for base mounting is included.

Example of Sensor Attachment



Proximity Sensor	GLX-N12F (SUNX)
Photo Micro Sensor	TL-W3MC1 (Omron)
	EE-SX671 (Omron)

Configuration of Numbers

The following shows the numbering of model GL.

GL□□-□□□-□4-□-□-□-□-□□□□

1 2 3 4 5 6 7 8

1 Model Number	GL15 GL20	6 End Plate Code* ²	No Code: No End Plate P: With End Plate
2 Base Length	034: 340mm to 300: 3000mm	7 Cover Code* ¹	No Code: None C: With Cover J: With Twill Braid
3 LM Block Code	V4: Short Type T4: Long Type	8 Assembly Code:	ASSY* ³ KIT* ⁴
4 Top Table Code	S: Short Type L: Long Type		
5 Drive System Code	B05: Ball Screw Lead 5 mm B16: Ball Screw Lead 16 mm (Only GL15) B20: Ball Screw Lead 20 mm (Only GL20) B30: Ball Screw Lead 30 mm (Only GL15) B40: Ball Screw Lead 40 mm (Only GL20) E: Belt Drive		

*1 An end plate is only used for the Ball Screw drive. No information needs to be entered for the belt of a rodless cylinder drive.

*2 The cover can be as long as the base length of 1240 mm.

*3 For a finished assembly that has been assembled and adjusted, add "ASSY" to the end of the model number code.

*4 For a kit part, add "KIT" to the end of the model number code.

Ex. 1 (Pre-assembled Part)

GL15-082-T4-L-B30-P-J-ASSY

Ex. 2 (Kit Part)

GL20-070-T4-L-E-C-KIT

If you have ordered kit parts, we will deliver all parts together.

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 “” 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.
- We have exercised great care in preparing this catalog, but it is still possible that are misspellings, omissions of letters, etc. THK assumes no responsibility or liability for damage resulting from such errors possibly contained herein.
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