

# THK

## LM SYSTEM

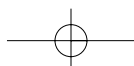
High Performance / Low Cost

# THK Linear Actuator Type GL

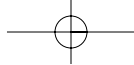


**THK CO., LTD.**  
TOKYO, JAPAN

Catalog. No. 175-EU







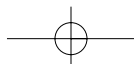
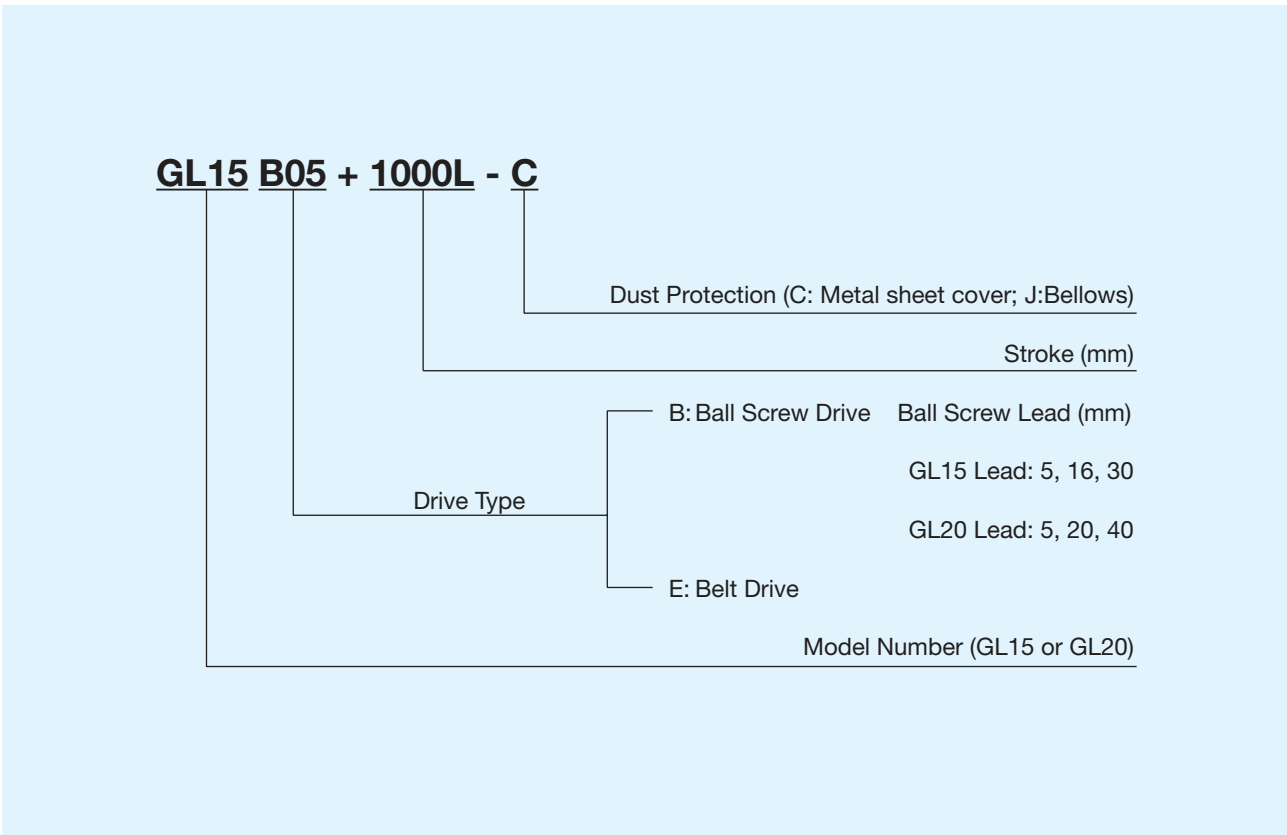
## Standard Stroke Lengths (Without Bellows)

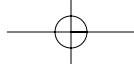
Table 1

Unit: mm

Model Number	Base Length L <sub>0</sub>	340	460	580	700	820	1060	1240	1420	1600	1780	1960	2200	2320	2500	3000
GL15B	Stroke (Ball Screw)	100	220	340	460	580	820	1000	1180	—	—	—	—	—	—	—
GL15E	Stroke (Belt Drive)	70	190	310	430	550	790	970	1150	1330	1510	1690	—	—	—	—
GL20B	Stroke (Ball Screw)	—	200	320	440	560	800	980	1160	1340	1520	—	—	—	—	—
GL20E	Stroke (Belt Drive)	—	160	280	400	520	760	940	1120	1300	1480	1660	1900	2020	2200	2700

## Model Number Coding





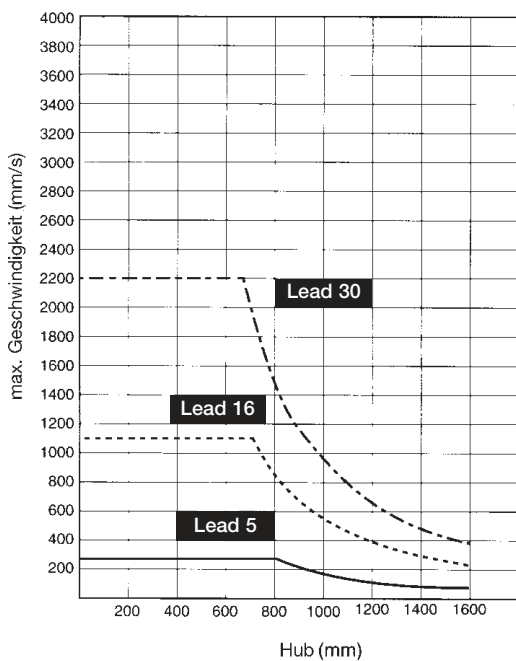
## Technical Data

The dynamic and static load capacity of the LM Guide, ball screw and support bearing is used to determine the life-time and the safety factor, which is depending on the application, specific lead conditions and motion profiles. Please compare the technical data with the values of the catalogue No. 200-1AE page 176ff (GSR) and catalogue No. 75-1BE (Rolled Ball Screws). You will find the technical data on page 6 to 9.

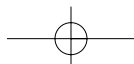
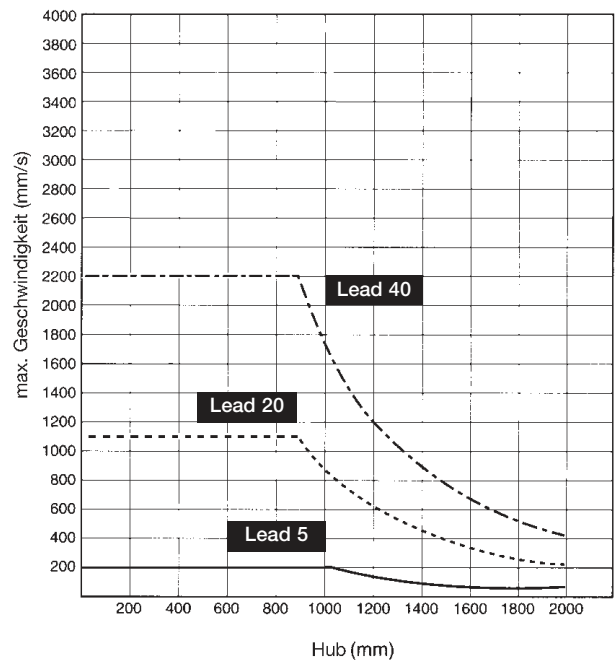
The dynamic load rating of the integrated LM Guides type GSR-T is based on 50 km of travel life. The rating is only valid for the linear guide. In practise and in view of the required lifetime lower values are useful. Please contact your local authorised THK distributors or THK Application Engineers to obtain the engineering assistance on your application requirements.

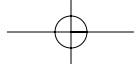
### Maximum Speed Data for Ball Screw Drive GL15B und GL20B (Critical Speed)

#### GL15B

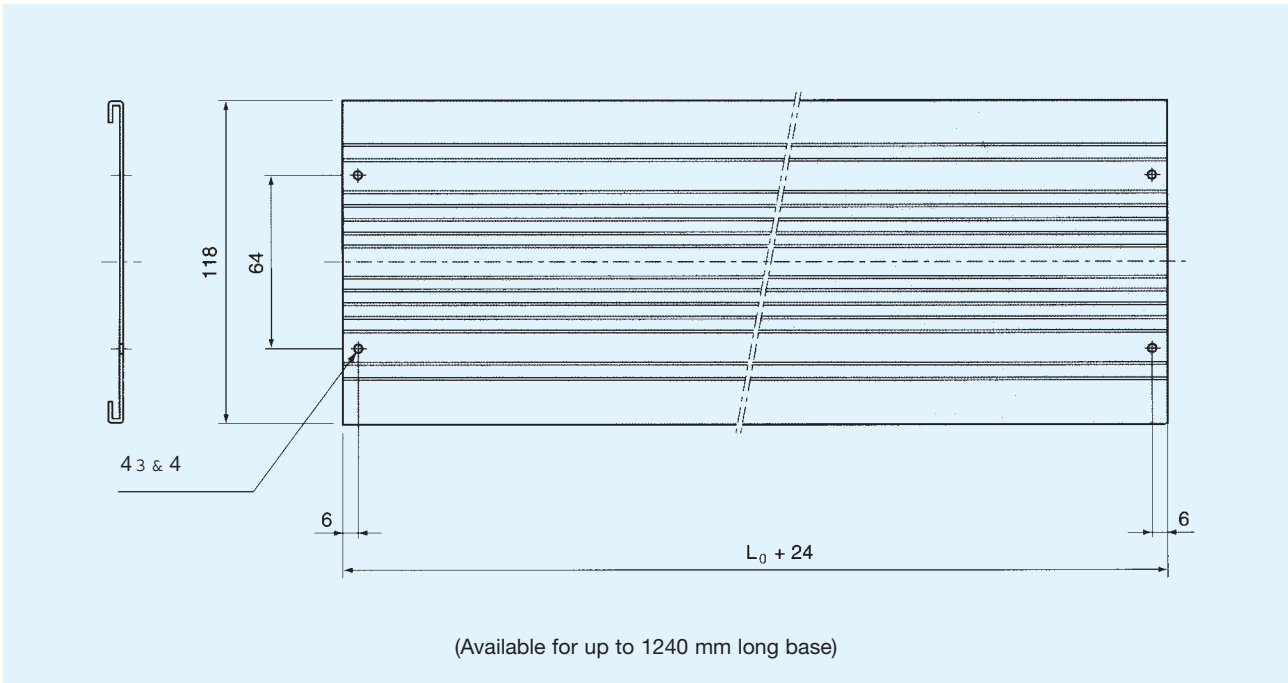


#### GL20B

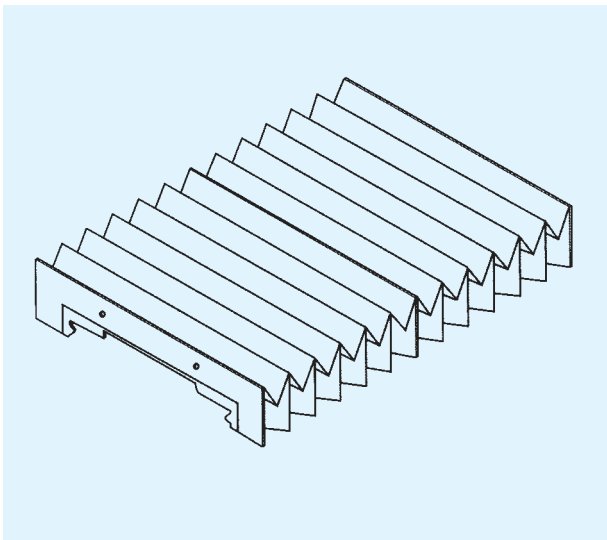




## Metal Sheet Cover



## Dust Protection Bellows



THK will supply bellows for dust protection.  
(Please contact THK).

## Sensors

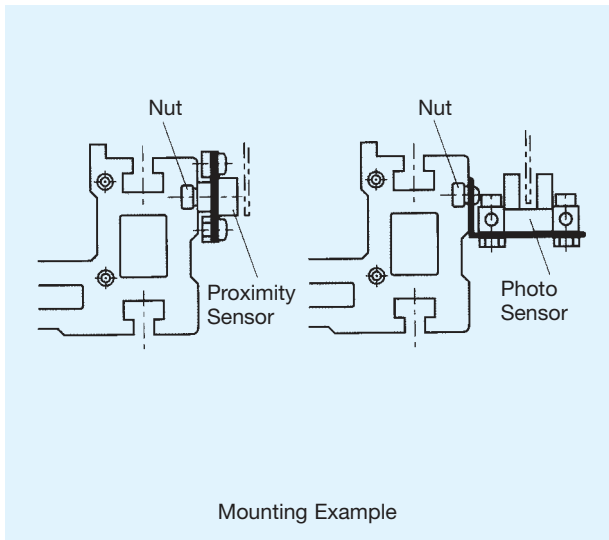
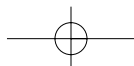
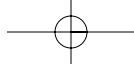


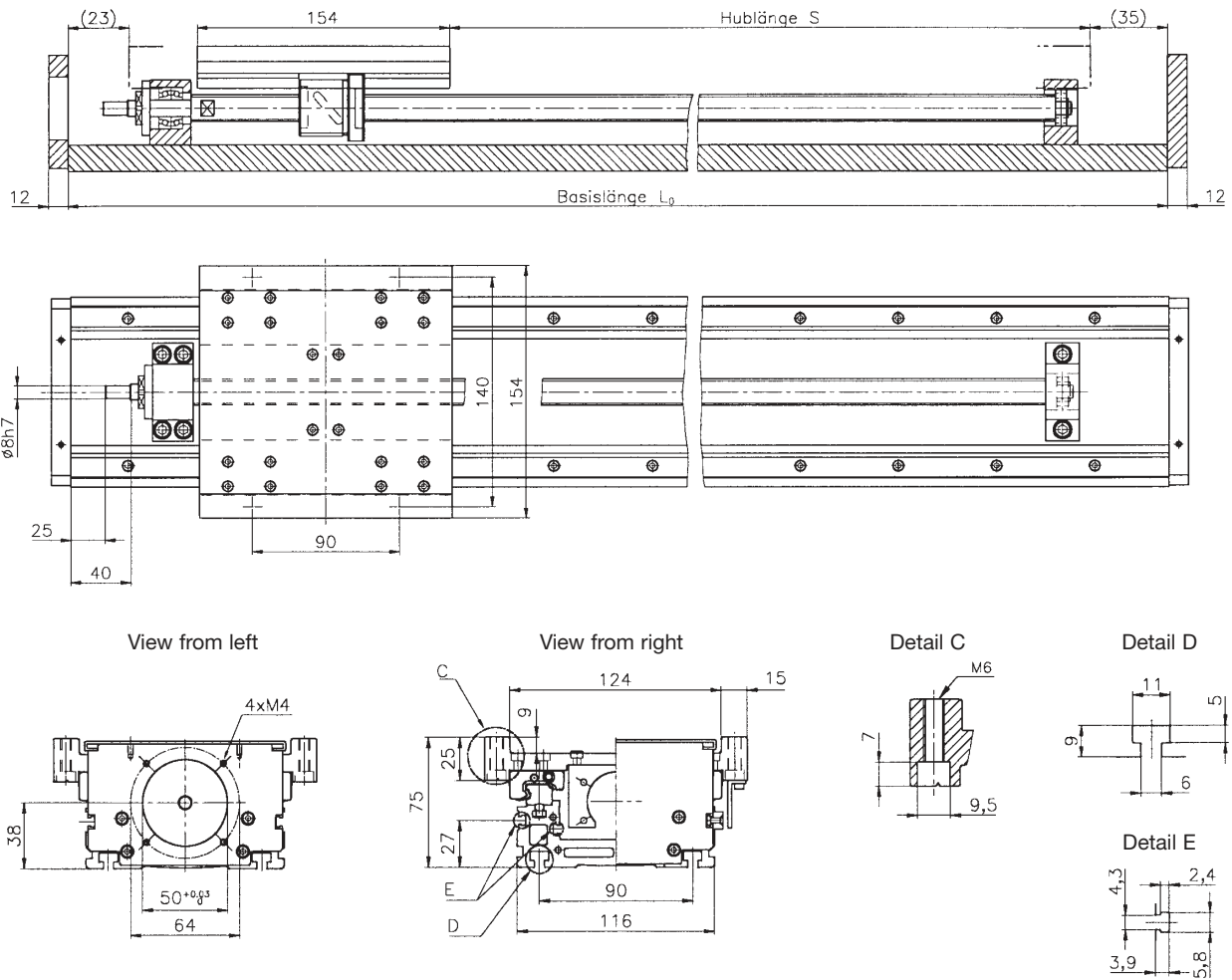
Photo-Sensor	EE-SX671	
Proximity Sensor	TL-W3MC1	NPN normally open
	TL-W3MC2	NPN normally closed
	TL-W3MB1	PNP normally open
	TL-W3MB2	PNP normally closed

THK provides proximity sensor kits, that can be directly mounted to the T-Slots, located on either side of the linear actuator base. All sensors can be delivered ex stock.





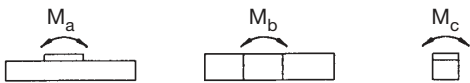
# Type GL15B with Ball Screw



LM Guide Specification	
Type	GSR15T
Dyn. Load Rating C (N)	5690 <sup>1)</sup>
Stat. Load Rating C <sub>0</sub> (N)	8430 <sup>1)</sup>

<sup>1)</sup> The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M <sub>a</sub> (Nm)	1130
M <sub>b</sub> (Nm)	1040
M <sub>c</sub> (Nm)	1140



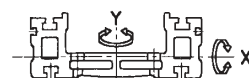
Bearing Specification	
Dyn. Load Rating C (N)	6080
Stat. Load Rating C <sub>0</sub> (N)	450

Ball Screw Specification			
Outer Diam. of Screw (mm)	16	16	15
Lead (mm)	5	16	30
Dyn. Load Rating C (N)	5400	5800	4300
Stat. Load Rating C <sub>0</sub> (N)	13300	12900	9300
Accuracy	C10		
Axial Clearance	<0.1mm		

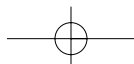
Repeatability	+/-0.02mm
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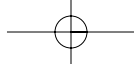
Geometrical Moment of Inertia	
I <sub>x</sub> (mm <sup>4</sup> )	2.0 $\pm$ 10 <sup>5</sup>
I <sub>y</sub> (mm <sup>4</sup> )	2.7 $\pm$ 10 <sup>6</sup>
M (kg/m)	7.4 <sup>1)</sup>

<sup>1)</sup> including rails

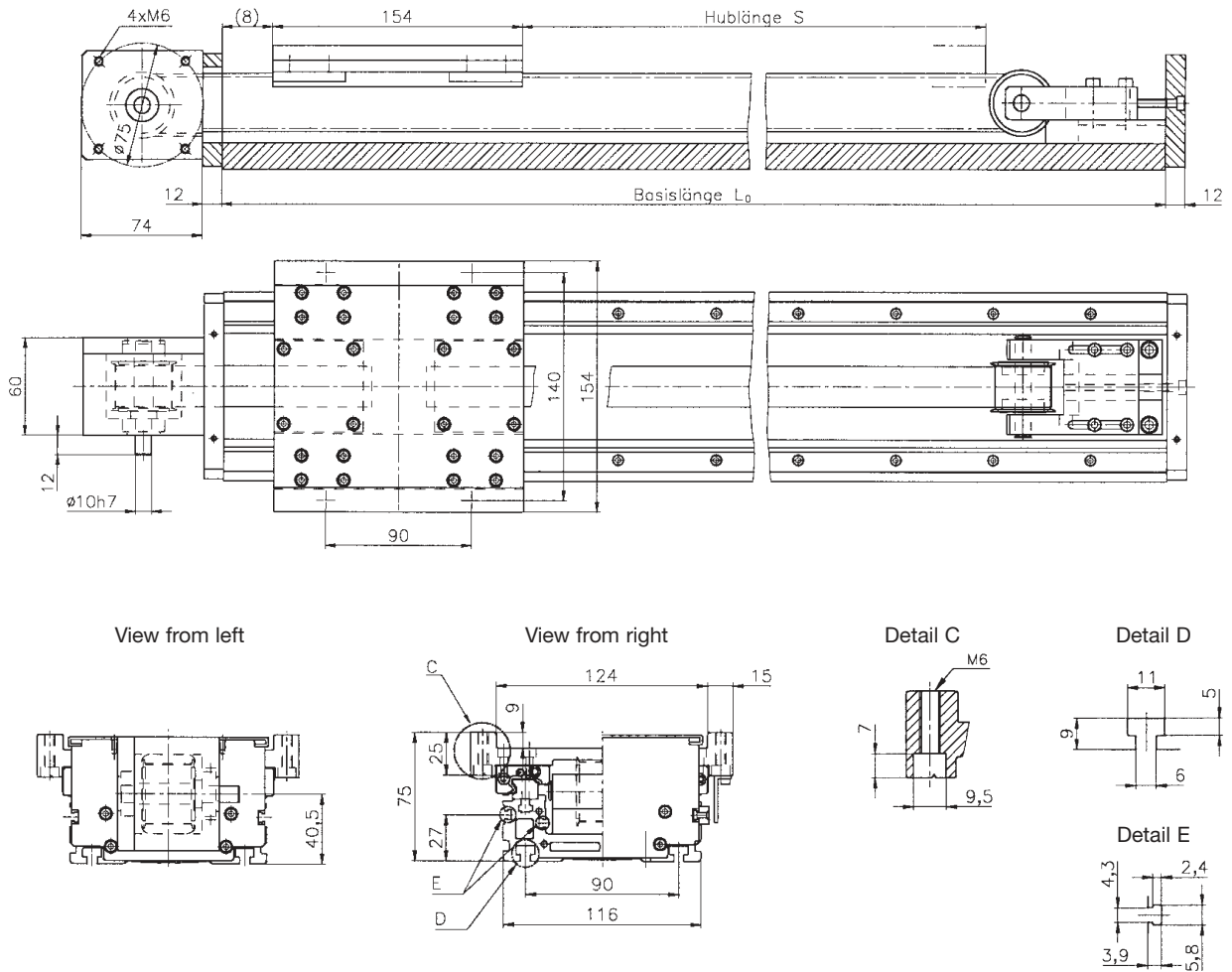


Stroke: S	100	220	340	460	580	820	1000	1180
Base Length: L <sub>0</sub>	340	460	580	700	820	1060	1240	1420





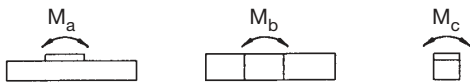
# Type GL15E with Belt



LM Guide Specification	
Type	GSR15T
Dyn. Load Rating C (N)	5690 <sup>1)</sup>
Stat. Load Rating C <sub>0</sub> (N)	8430 <sup>1)</sup>

<sup>1)</sup> The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M <sub>a</sub> (Nm)	1130
M <sub>b</sub> (Nm)	1040
M <sub>c</sub> (Nm)	1140

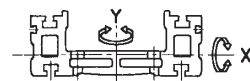


Belt Drive Specification	
Drive Pulley Diameter (mm)	35.01
Tooth Pitch (mm)	5.0
Permissible Tension (N)	765
Belt width (mm)	25

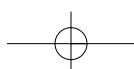
Repeatability	+/-0.08mm
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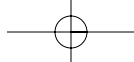
Geometrical Moment of Inertia	
I <sub>x</sub> (mm <sup>4</sup> )	2.0 $\pm$ 10 <sup>5</sup>
I <sub>y</sub> (mm <sup>4</sup> )	2.7 $\pm$ 10 <sup>6</sup>
M (kg/m)	7.4 <sup>1)</sup>

<sup>1)</sup> including rails

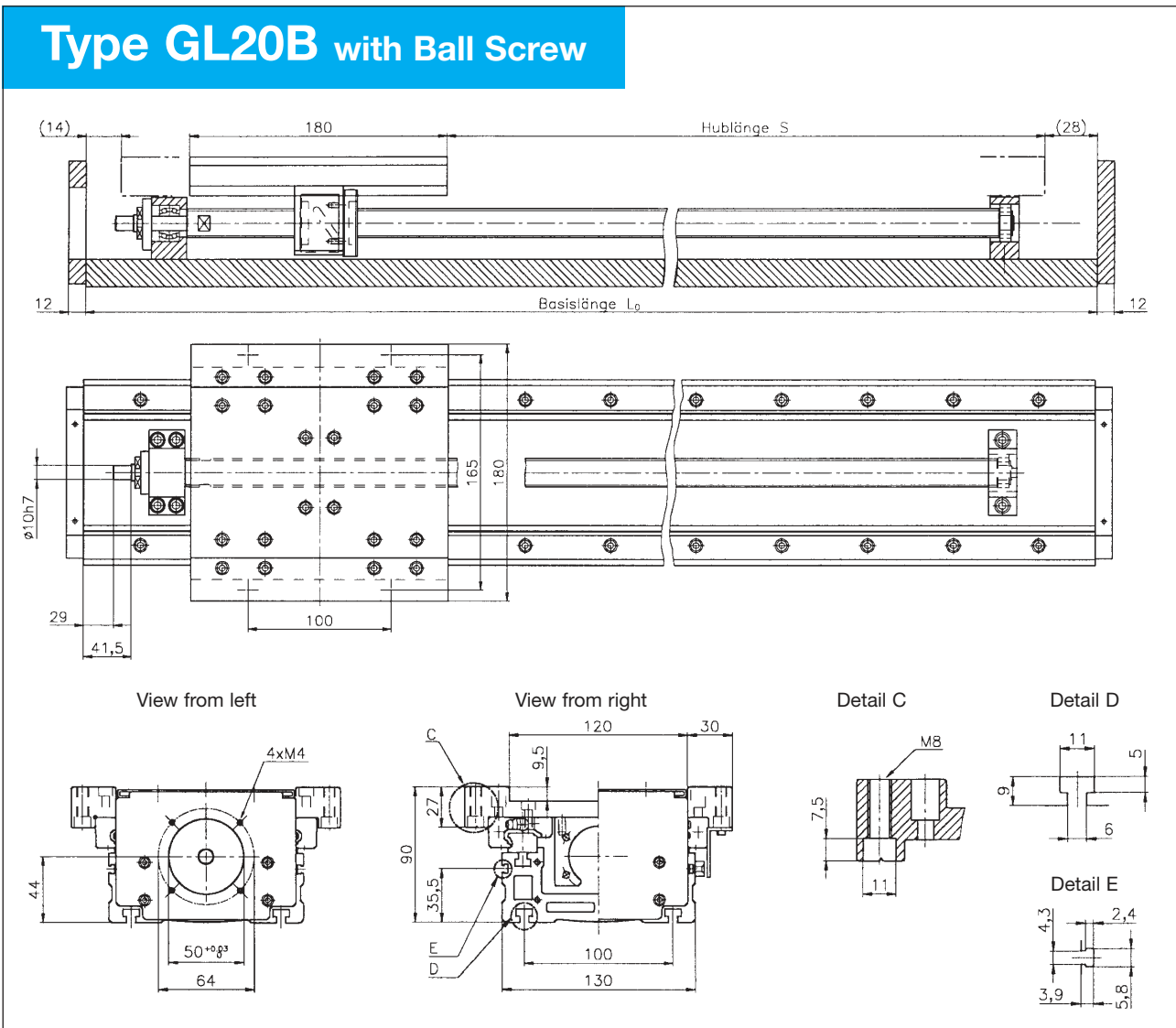


Stroke: S	70	190	310	430	550	790	970	1150	1330	1510	1690
Base Length: L <sub>0</sub>	340	460	580	700	820	1060	1240	1420	1600	1780	1960





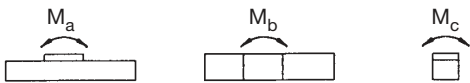
## Type GL20B with Ball Screw



LM Guide Specification	
Type	GSR20T
Dyn. Load Rating C (N)	9220 <sup>1)</sup>
Stat. Load Rating C <sub>0</sub> (N)	13200 <sup>1)</sup>

<sup>1)</sup> The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M <sub>a</sub> (Nm)	1970
M <sub>b</sub> (Nm)	1810
M <sub>c</sub> (Nm)	2000



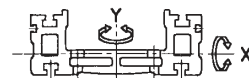
Bearing Specification	
Dyn. Load Rating C (N)	6660
Stat. Load Rating C <sub>0</sub> (N)	550

Ball Screw Specification			
Outer Diam. of Screw (mm)	20	20	20
Lead (mm)	5	20	40
Dyn. Load Rating C (N)	6000	7700	5400
Stat. Load Rating C <sub>0</sub> (N)	16500	22300	13600
Accuracy	C10		
Axial Clearance	<0.1mm		

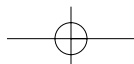
Repeatability	+/-0.02mm
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Geometrical Moment of Inertia	
I <sub>x</sub> (mm <sup>4</sup> )	4.63 $\pm$ 10 <sup>5</sup>
I <sub>y</sub> (mm <sup>4</sup> )	4.68 $\pm$ 10 <sup>6</sup>
M (kg/m)	10.4 <sup>1)</sup>

<sup>1)</sup> including rails

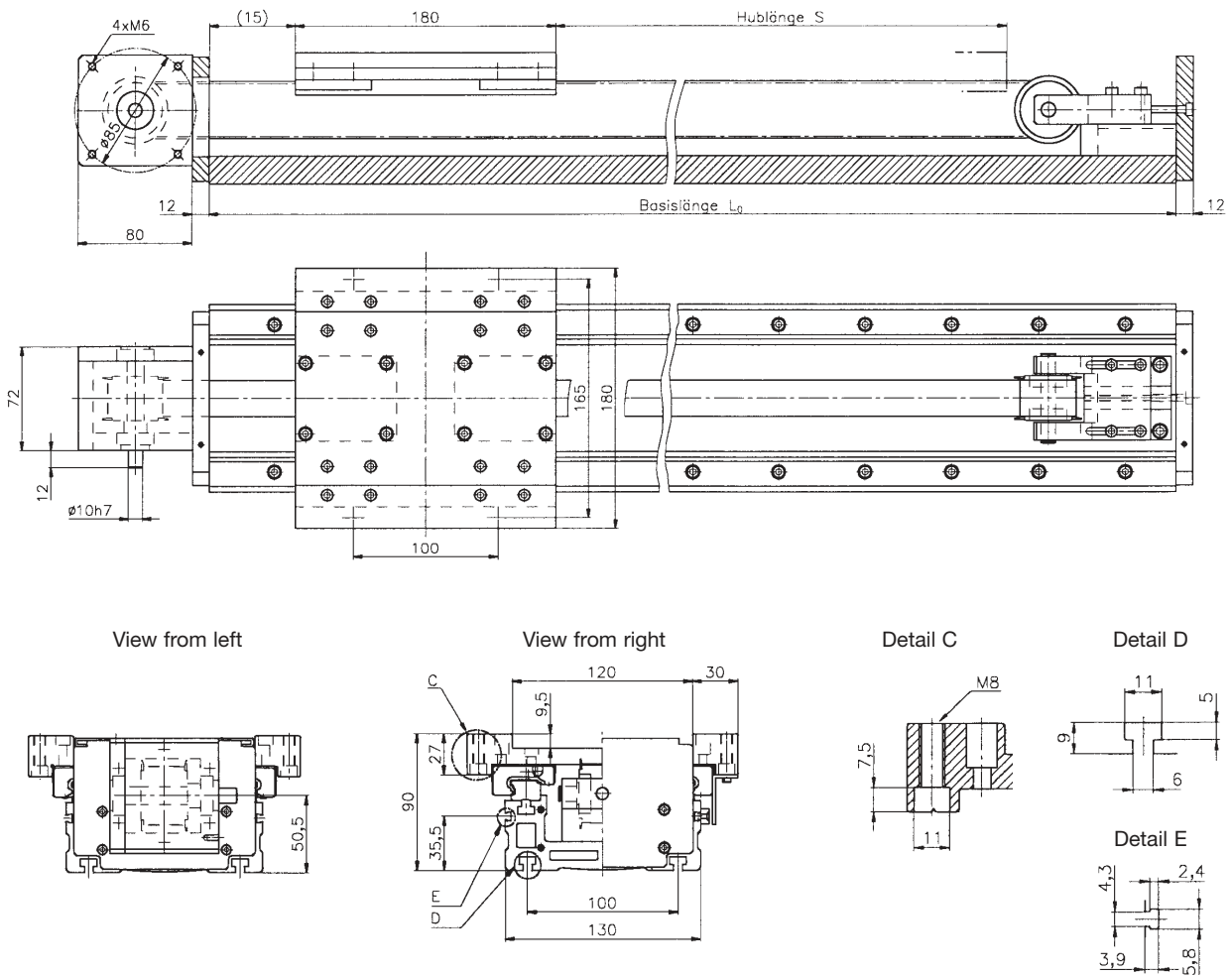


Stroke: S	200	320	440	560	800	980	1160	1340	1520
Base Length: L <sub>0</sub>	460	580	700	820	1060	1240	1420	1600	1780





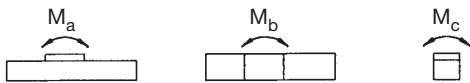
# Type GL20E with Belt



LM Guide Specification	
Type	GSR20T
Dyn. Load Rating C (N)	9220 <sup>1)</sup>
Stat. Load Rating C <sub>0</sub> (N)	13200 <sup>1)</sup>

<sup>1)</sup> The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M <sub>a</sub> (Nm)	1970
M <sub>b</sub> (Nm)	1810
M <sub>c</sub> (Nm)	2000

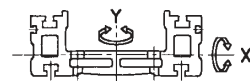


Belt Drive Specification	
Drive Pulley Diameter (mm)	38.2
Tooth Pitch (mm)	5.0
Permissible Tension (N)	765
Belt width (mm)	25

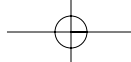
Repeatability	+/-0.08mm
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Geometrical Moment of Inertia	
I <sub>x</sub> (mm <sup>4</sup> )	4.63 ± 10 <sup>5</sup>
I <sub>y</sub> (mm <sup>4</sup> )	4.68 ± 10 <sup>6</sup>
M (kg/m)	10.4 <sup>1)</sup>

<sup>1)</sup> including rails



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



**Datasheet Linear Actuator Type GL**

<b>worked out from</b> _____	<b>Date</b> _____
<b>Company</b> _____	<b>Telephone No.</b> _____
<b>Contact Person</b> _____	<b>Fax No.</b> _____
<b>Road</b> _____	
<b>Town</b> _____	

**Description of the application**

\_\_\_\_\_

\_\_\_\_\_

\_\_\_\_\_

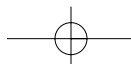
Axis	x	y	z
<b>Mounting Orientation</b> (horizontal, vertical, wall mounted, over head)			
<b>Drive Type</b> <b>Ball Screw B</b> Lead h (GL 15 - 5, 16, 30 mm) (GL 20 - 5, 20, 40 mm)			
<b>Belt Drive E</b>			
<b>Stroke s</b>	mm		
<b>Max. Speed v</b>	m/s		
<b>Max. Acceleration a</b>	m/s <sup>2</sup>		
<b>Weight m</b>	kg		
<b>Center of gravity m</b> LM 1 LM 2 LM 3	mm mm mm		
<b>Additional Load F</b> (r, t, a)	N		
<b>Point of Load F</b> (r, t, a) Lr1/Lr2 Lt1/Lt2 La1/La2	mm mm mm		
<b>Positioning Accuracy</b>	mm		
<b>Positioning Repeatability</b>	mm		
<b>Required lifetime</b>	h km		

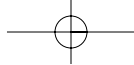
**Please enclose a sketch of the application.**

**Please state following options:**

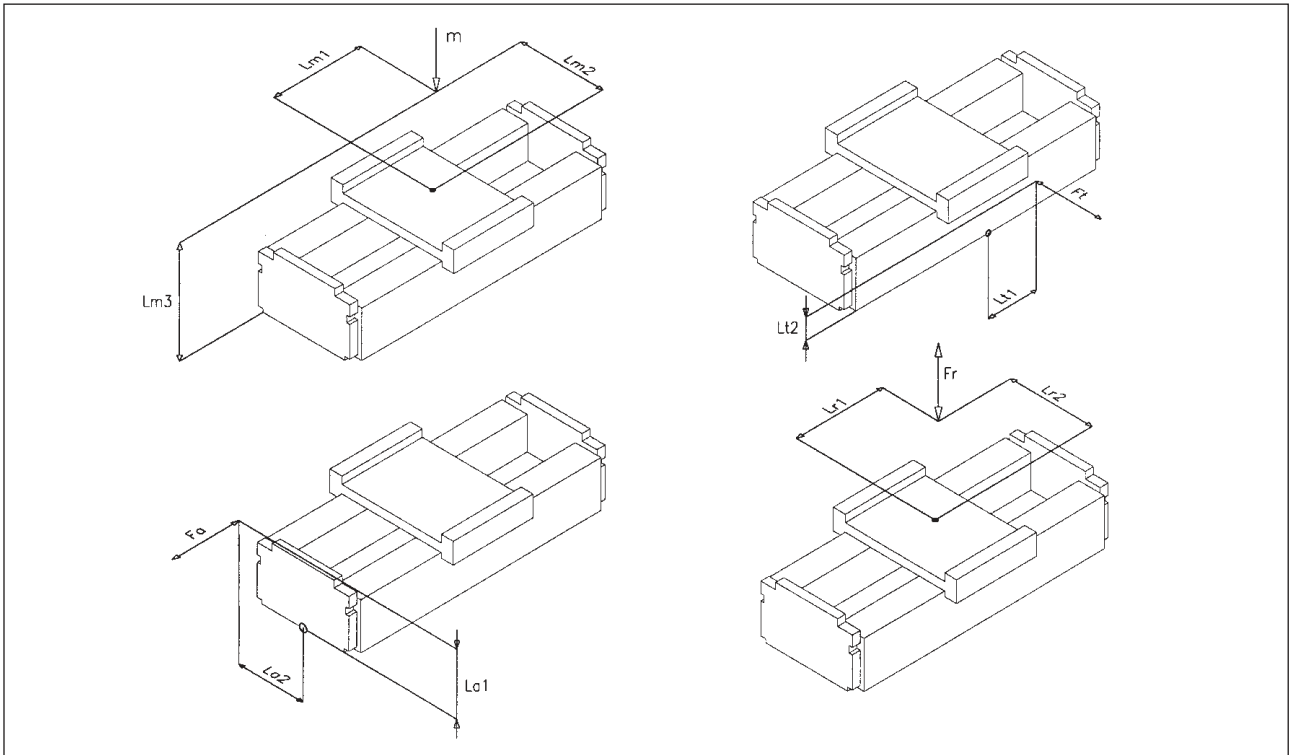
- Bellows
- Metal sheet cover
- Motor adapter (Please enclose the connecting dimensions of the motor)
- Coupling
- Max. torque M=.....(Nm)

- Proximity sensor
- Photo sensor
- Sensor dog

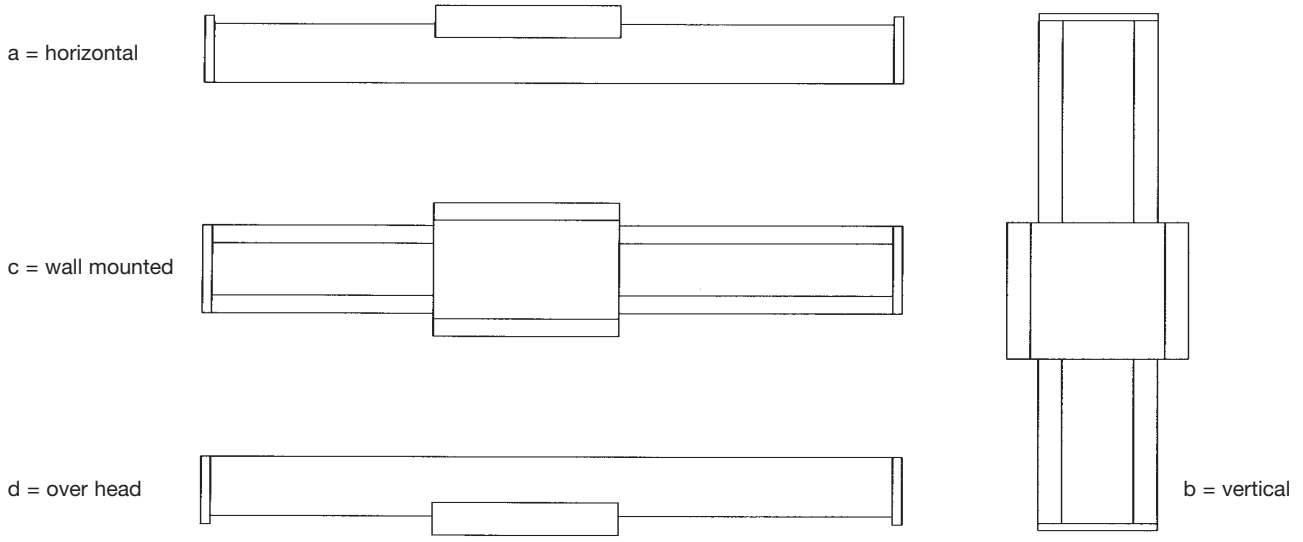




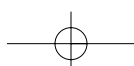
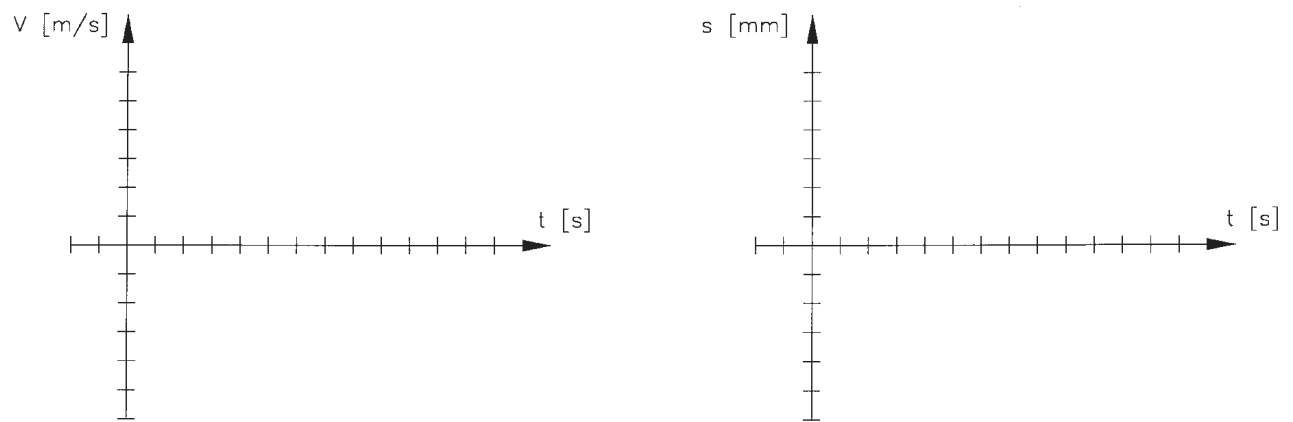
**Point of load and center of gravity:**



**Mounting orientation:**



**Motion profile:**



# THK Linear Actuator Type GL



Specifications are subject to change without notice

7/97 Printed in Belgium

## Sales & Service

### Germany

**THK GmbH**  
**Head Office Düsseldorf**  
 Hubert-Wollenberg-Str. 15  
 40878 Ratingen  
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 Fax: (0 21 02) 74 25-29 9

### Branch Office Stuttgart

Kleines Wegle 5  
 71691 Freiberg/Neckar  
 Tel.: (0 71 41) 27 57-0  
 Fax: (0 71 41) 27 57-90

### Distributors:

Postal code  
 20-29, 30-31, 34, 37-38  
**SNR WÄZLAGER GMBH**  
 Friedrich-Hagemann Str.66  
 33719 Bielefeld  
 Tel.: (05 21) 9 24 00-0  
 Fax: (05 21) 9 24 00 90

Postal code  
 32-33, 4, 5 (without 55)

**Indunorm**  
**Bewegungstechnik GmbH**  
 Keniastr. 12  
 47269 Duisburg  
 Tel.: (02 03) 76 91-0  
 Fax: (02 03) 76 91 29 1

Postal code  
 35-36, 55, 60-97

**Nadella GmbH**  
 Tränkestr. 7  
 70597 Stuttgart  
 Tel.: (07 11) 7 20 63-0  
 Fax: (07 11) 7 20 63 25

### Switzerland

**Bachofen-AG**  
 Ackerstraße 42  
 8610 Uster  
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 Fax: (01) 9 44 12 33

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 26 Alston Drive  
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 MK13 9HA  
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 Fax: (0 19 08) 22 21 61

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**THK Italy**  
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 20052 Monza (MI)  
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 Fax: (0 39) 2 84 25 27

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**THK France**  
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 3 rue Henri Dunant  
 CE 2204  
 91922 Bondoufle Cedex  
 Tel.: (1) 69 91 43 70  
 Fax: (1) 60 86 45 75

### USA

**THK Chicago**  
 200 East Commerce Drive  
 Schaumburg, IL. 60173  
 Tel.: (8 47) 3 10-11 11  
 Fax: (8 47) 3 10-11 82

### THK New Jersey

300 F, RT.17, South  
 Mahwah, NJ. 07430  
 Tel.: (2 01) 5 29-19 50  
 Fax: (2 01) 5 29-19 62

### THK Atlanta

6135-E Northbelt Drive  
 Norcross, GA. 30071  
 Tel.: (4 04) 8 40-79 90  
 Fax: (4 04) 8 40-78 97

### THK Los Angeles

6000 Phyllis Drive  
 Cypress, CA. 90630  
 Tel.: (7 14) 8 91-67 52  
 Fax: (7 14) 8 94-93 15

### Canada

**THK Canada**  
 130 Matheson Blvd. E., U. 1  
 Mississauga, Ontario  
 Canada L4Z 1Y6  
 Tel.: (9 05) 7 12-29 22  
 Fax: (9 05) 7 12-29 25

### Brasil

**THK Brasil Ltda.**  
 Rua Dr. Arthur Zapponi, 57  
 Freguesia DO O  
 Sao Paulo - S.P.  
 C.E.P. 02840-170  
 Tel.: (0 11) 8 57-99 11  
 Fax: (0 11) 2 65-15 89

### China

**THK Beijing**  
 Kunlun Hotel Room No.526  
 2 Xin Yuan Lu  
 Chaoyang District Beijing  
 Tel.: (01) 5 00 33 88  
 Rm.#526  
 Fax: (01) 5 04 45 57  
 Rm.#526

### Taiwan

**THK Taiwan**  
 C611 SHIH, 6F, No. 7  
 Wu-Chuan 1 Rd.  
 Wu-Ku Kung Yeh Chu  
 Hsin Chuang City  
 Taipei Hsien  
 Tel.: (02) 2 99-79 30  
 Fax: (02) 2 97-81 49

### Hongkong

**THK Shouzan Co., Ltd.**  
 4/Fl., Hanyee Bldg., Flat C  
 19-21 Hankow Road  
 Tsimshatsui, Kowloon  
 Tel.: 3 76 10 91, 3 76 12 52  
 Fax: 3 76 07 49

### Malaysia

**THK Malaysia**  
 19-12-1, Mont Kiara Palma  
 Jalan Mont Kiara, Off  
 Jalan Bukit Kiara  
 50480 Kuala Lumpur  
 Tel.: (03) 2 54-70 07  
 Fax: (03) 2 54-70 07

## Factories

### Europe

**PGM Ball Screws Ltd.**  
 Bodmin Road, Wyken  
 GB-Coventry CV2 5DZ  
 Tel.: (012 03) 84 19 00  
 Fax: (012 03) 61 10 32

### PGM Ireland Ltd.

18 Cookstown  
 Industrial Estate  
 IRL-Tallaght, Dublin 24  
 Tel.: (01) 4 51 39 22  
 Fax: (01) 4 51 34 69

### Japan

**Head Office**  
 3-11-6 Nishi-Gotanda  
 Shinagawa-Ku  
 Tokyo 141  
 Tel.: (03) 54 34-03 51  
 Fax: (03) 54 34-03 53

### Plants in:

Kofu, Yamaguchi,  
 Yamagata, Mie, Tokyo,  
 Nagoya, Osaka, Gifu,  
 etc.