

THK

LM SYSTEM

High Performance / Low Cost

THK Linear Actuator Type GL



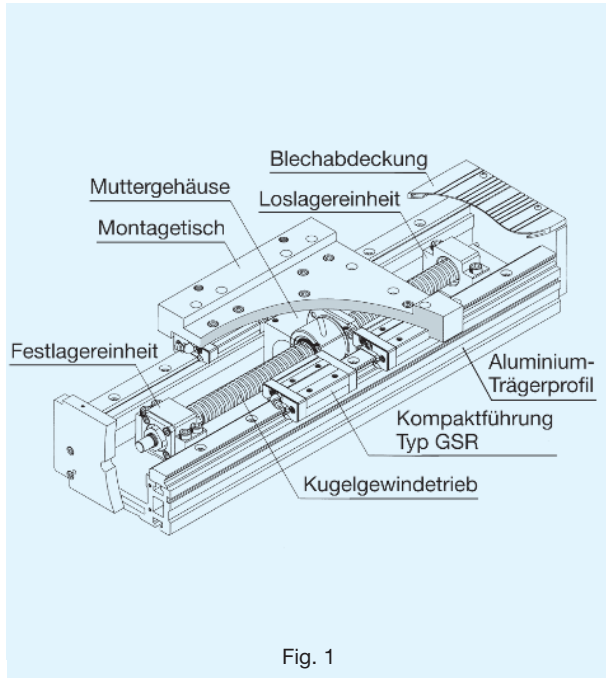
THK CO., LTD.
TOKYO, JAPAN

Catalog. No. 175-EU



THK Linear Actuator with Ball Screw Drive

Typ GL15B & GL20B



Rigid Construction

Incorporating the THK LM Guide Type GSR with a robust aluminum extrusion base and an oversized ballscrew makes the GL15B and GL20B rigidly constructed, compactly designed linear actuators with high load capacities.

High Speed

By utilizing a THK Super Lead Ball Screw, some models can obtain a maximum linear velocity of 2000 mm per second!

Standard Stroke Models from Stock

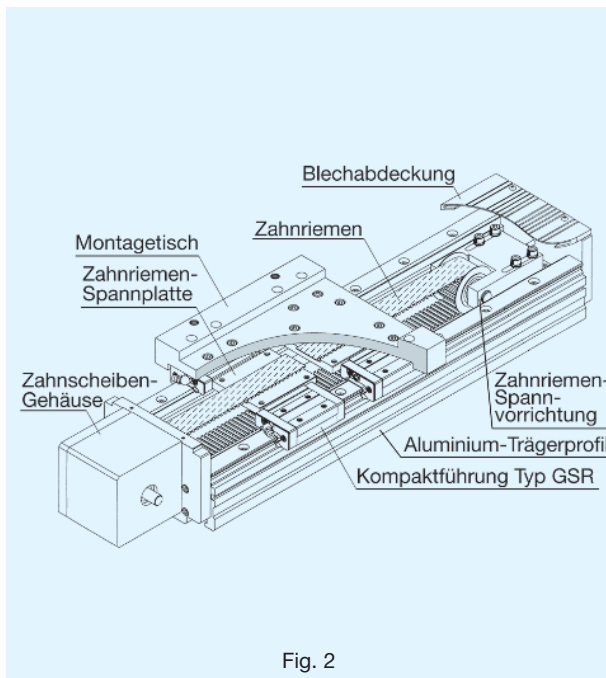
The GL15B and GL20B models are in stock up to 2000 mm*, standard base lengths for quick delivery. (*1500 mm max. for GL15B model)

Unsurpassed Economy

The GL Series Linear Actuators are attractively priced to compete with other, lower performance, products currently available from other manufacturers. Now you too can benefit from a high performance pre-engineered linear actuator solution that is sure to meet your budget requirement.

THK Linear Actuator with Timing Belt Drive

Typ GL15E & GL20E



High Load Capacity / Compact Design

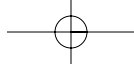
Combining THK LM Guide Type GSR with a robust aluminum extrusion base and a steel reinforced timing belt drive, the GL15E and GL20E models provide a high load capacity linear guide in a compact package .

High Speed

By incorporating a belt drive design, the maximum linear velocity of the GL15E and GL20E models can exceed 3000 mm per second!

Standard Stroke Up to 3m

The GL15E and GL20E models are in stock up to 3000 mm*, standard base lengths for quick delivery. (*2000 mm max. for GL 15E model)



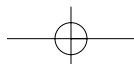
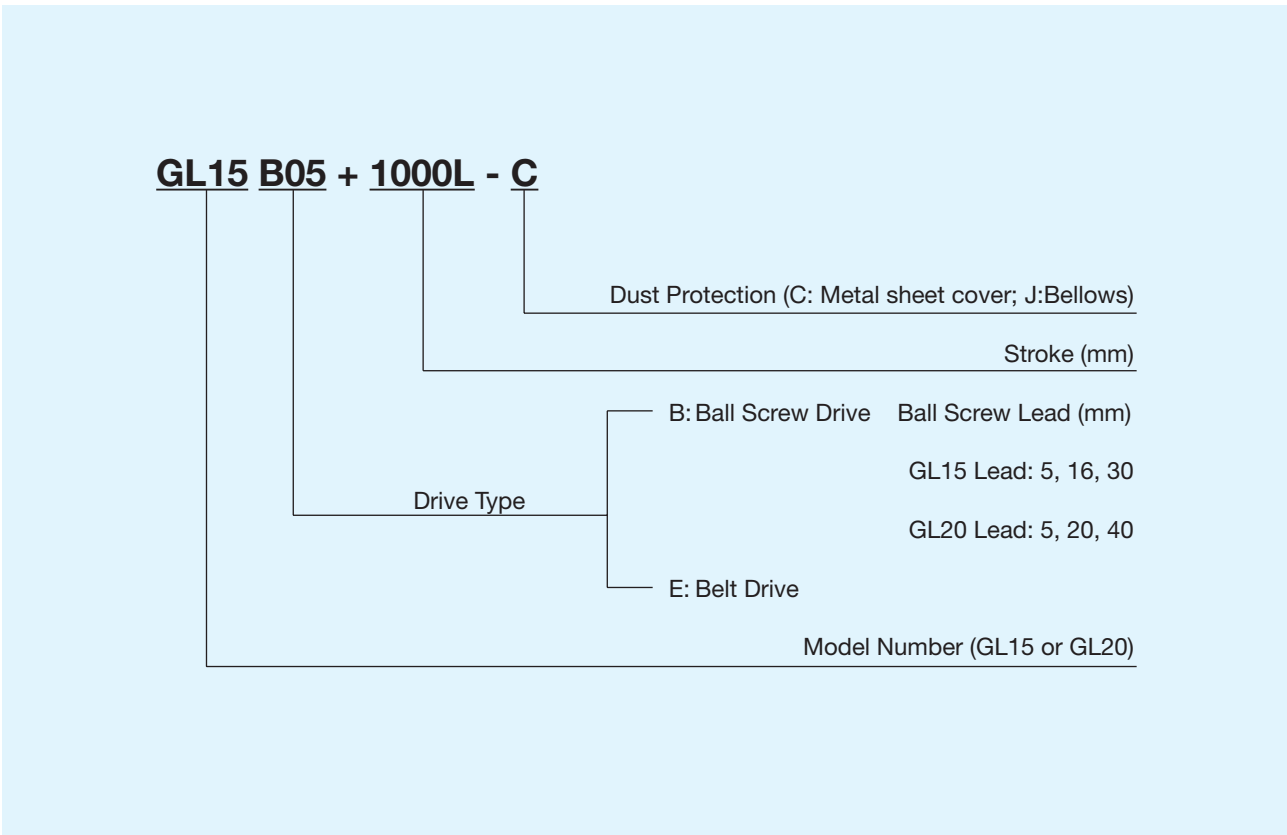
Standard Stroke Lengths (Without Bellows)

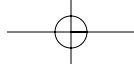
Table 1

Unit: mm

Model Number	Base Length L ₀	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





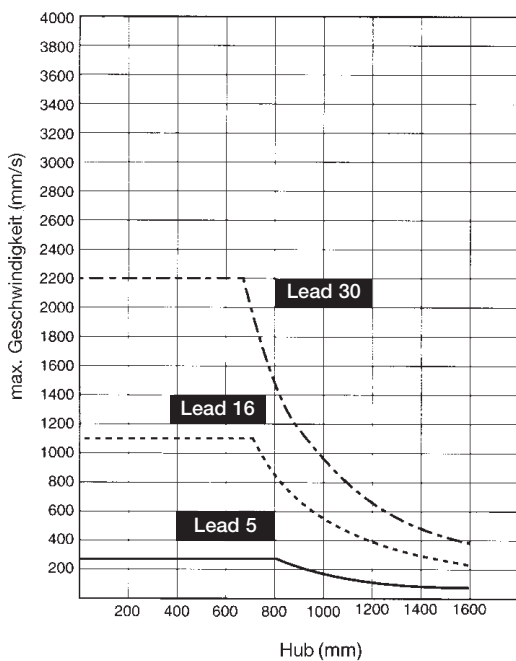
Technical Data

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.

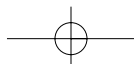
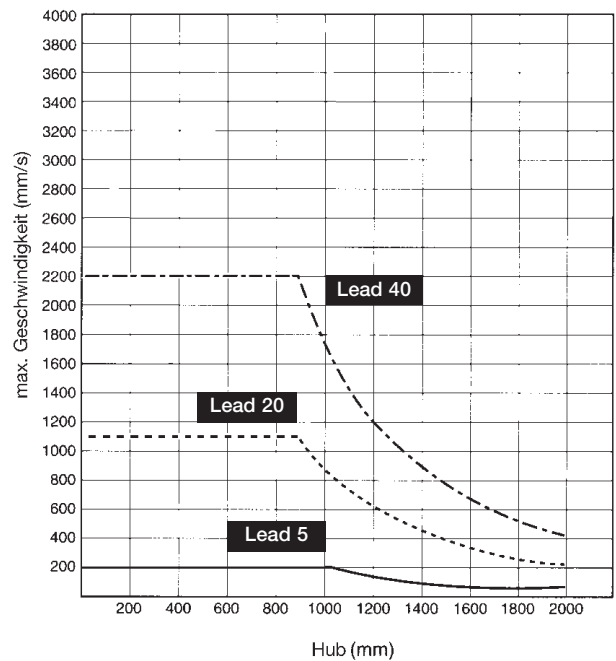
The dynamic load rating of the integrated LM Guides type GSR-T is based on 50 km of travel life. The rating is only valid for the linear guide. In practise and in view of the required lifetime lower values are useful. Please contact your local authorised THK distributors or THK Application Engineers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

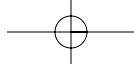
Maximum Speed Data for Ball Screw Drive GL15B und GL20B (Critical Speed)

GL15B

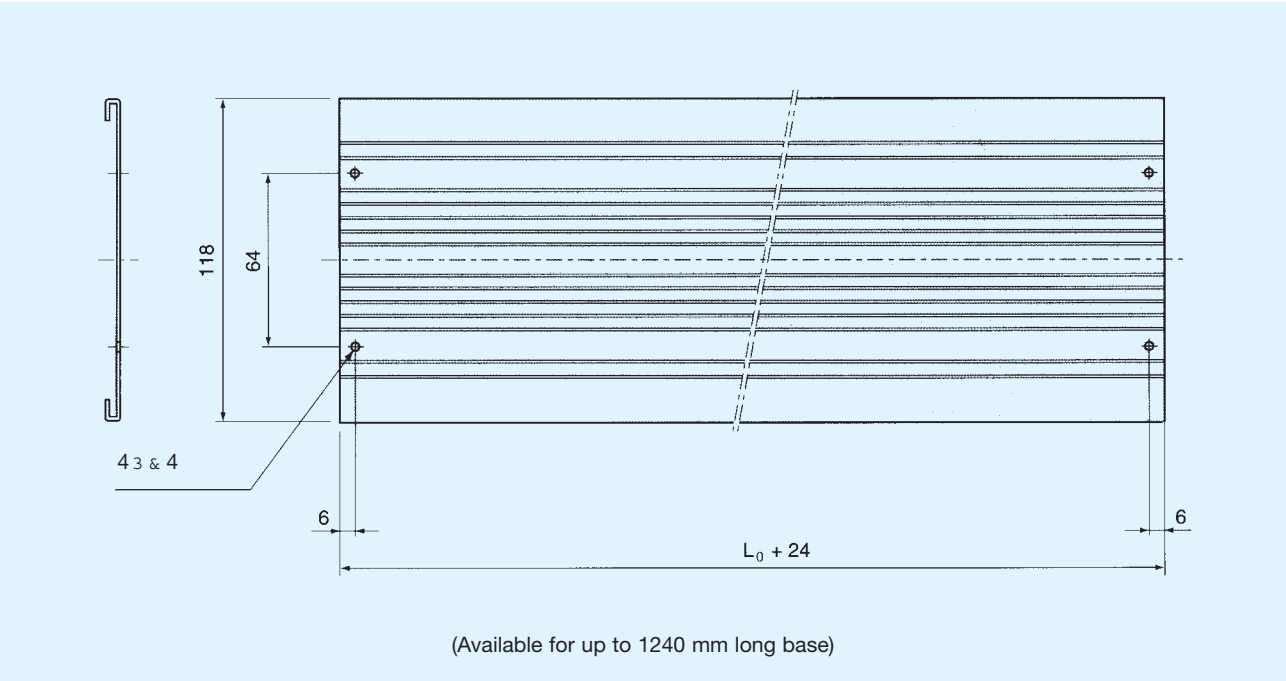


GL20B

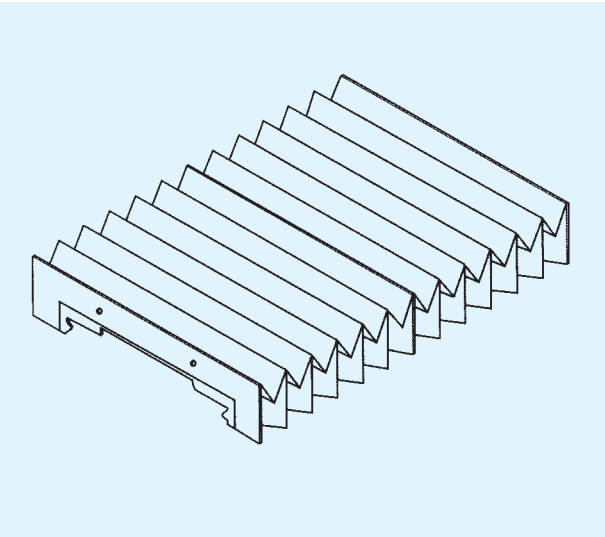




Metal Sheet Cover



Dust Protection Bellows



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

Sensors

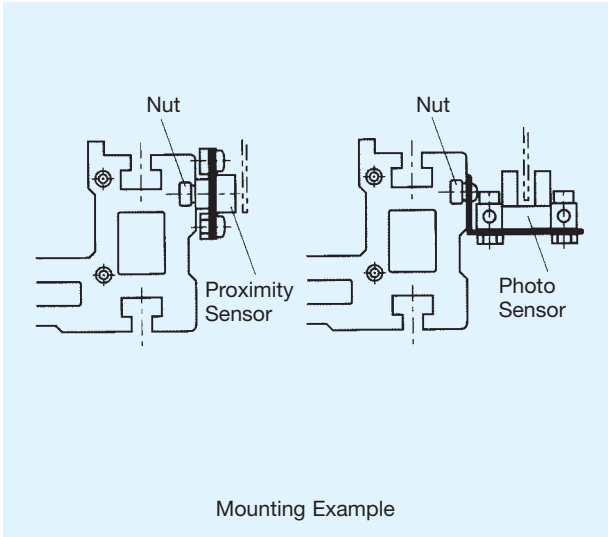
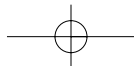
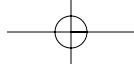


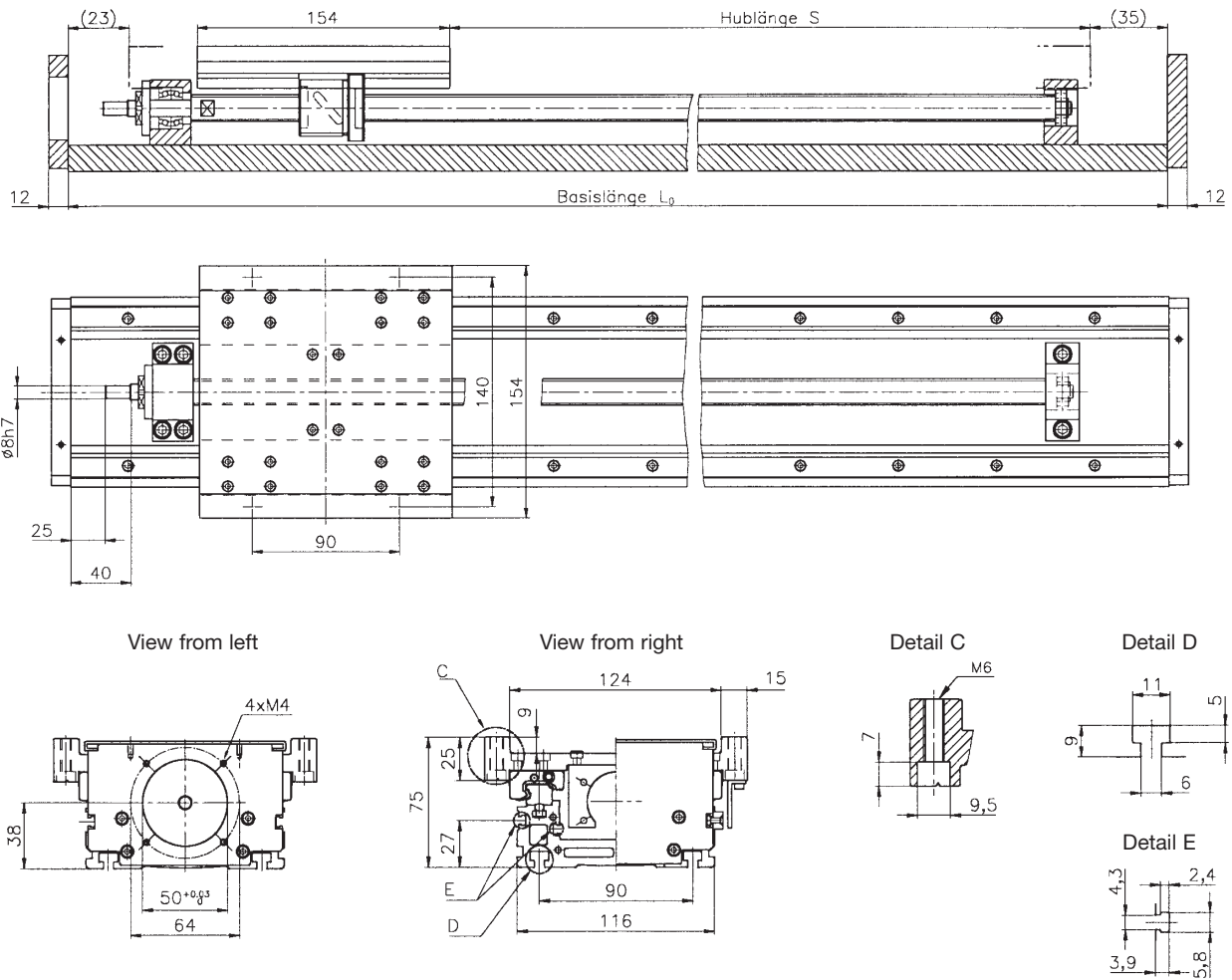
Photo-Sensor	EE-SX671	
Proximity Sensor	TL-W3MC1	NPN normally open
	TL-W3MC2	NPN normally closed
	TL-W3MB1	PNP normally open
	TL-W3MB2	PNP normally closed

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.





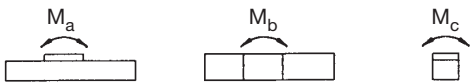
Type GL15B with Ball Screw



LM Guide Specification	
Type	GSR15T
Dyn. Load Rating C (N)	5690 ¹⁾
Stat. Load Rating C ₀ (N)	8430 ¹⁾

¹⁾ The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M _a (Nm)	1130
M _b (Nm)	1040
M _c (Nm)	1140



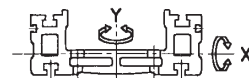
Bearing Specification	
Dyn. Load Rating C (N)	6080
Stat. Load Rating C ₀ (N)	450

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 ₀ (N)	13300	12900	9300
Accuracy	C10		
Axial Clearance	<0.1mm		

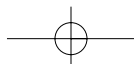
Repeatability	+/-0.02mm
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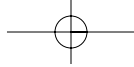
Geometrical Moment of Inertia	
I _x (mm ⁴)	2.0 \pm 10 ⁵
I _y (mm ⁴)	2.7 \pm 10 ⁶
M (kg/m)	7.4 ¹⁾

¹⁾ including rails

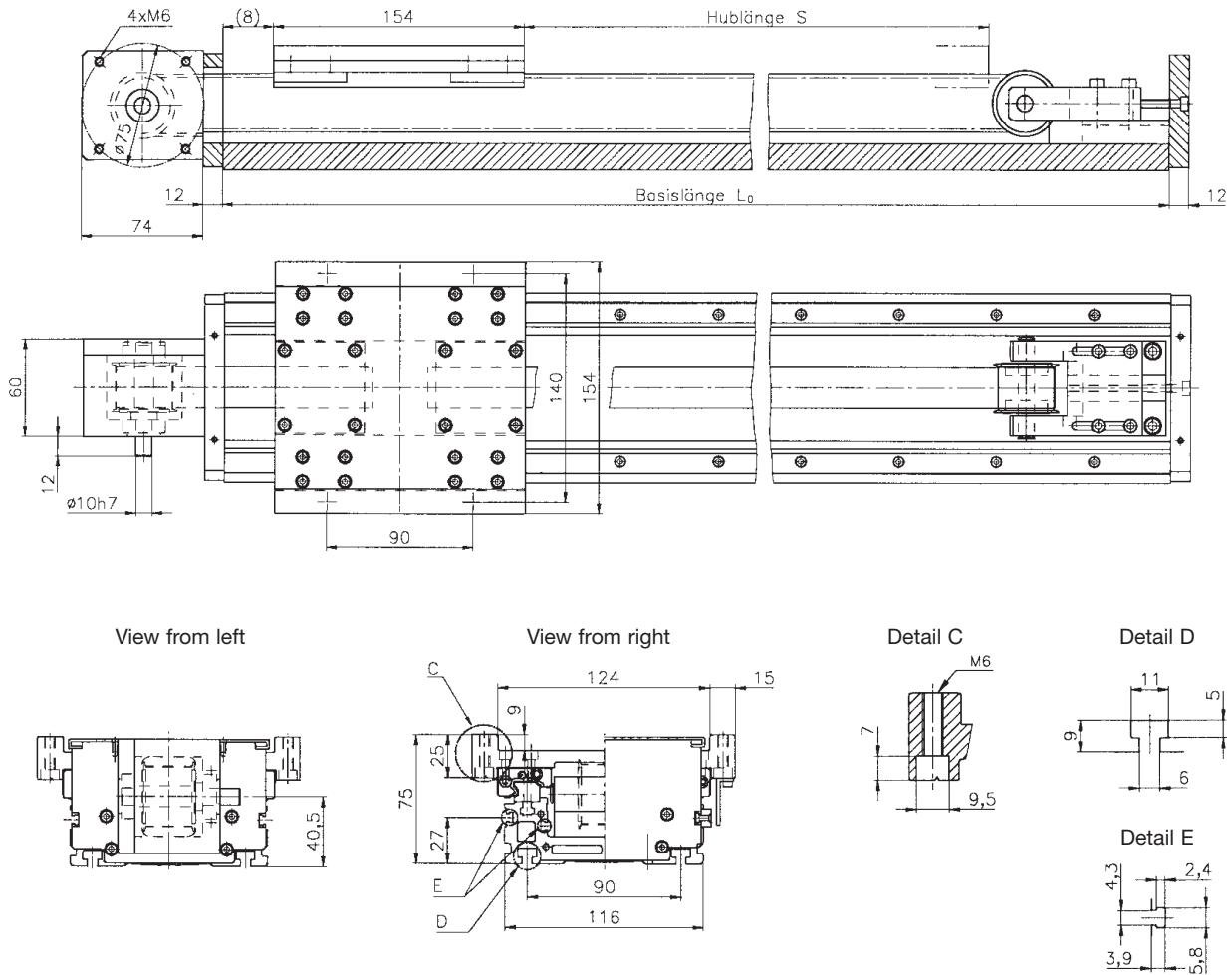


Stroke: S	100	220	340	460	580	820	1000	1180
Base Length: L ₀	340	460	580	700	820	1060	1240	1420





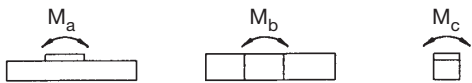
Type GL15E with Belt



LM Guide Specification	
Type	GSR15T
Dyn. Load Rating C (N)	5690 ¹⁾
Stat. Load Rating C ₀ (N)	8430 ¹⁾

¹⁾ The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M _a (Nm)	1130
M _b (Nm)	1040
M _c (Nm)	1140

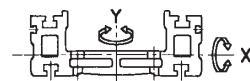


Belt Drive Specification	
Drive Pulley Diameter (mm)	35.01
Tooth Pitch (mm)	5.0
Permissible Tension (N)	765
Belt width (mm)	25

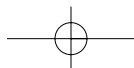
Repeatability	+/-0.08mm
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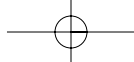
Geometrical Moment of Inertia	
I _x (mm ⁴)	2.0 \geq 10 ⁵
I _y (mm ⁴)	2.7 \geq 10 ⁶
M (kg/m)	7.4 ¹⁾

¹⁾ including rails

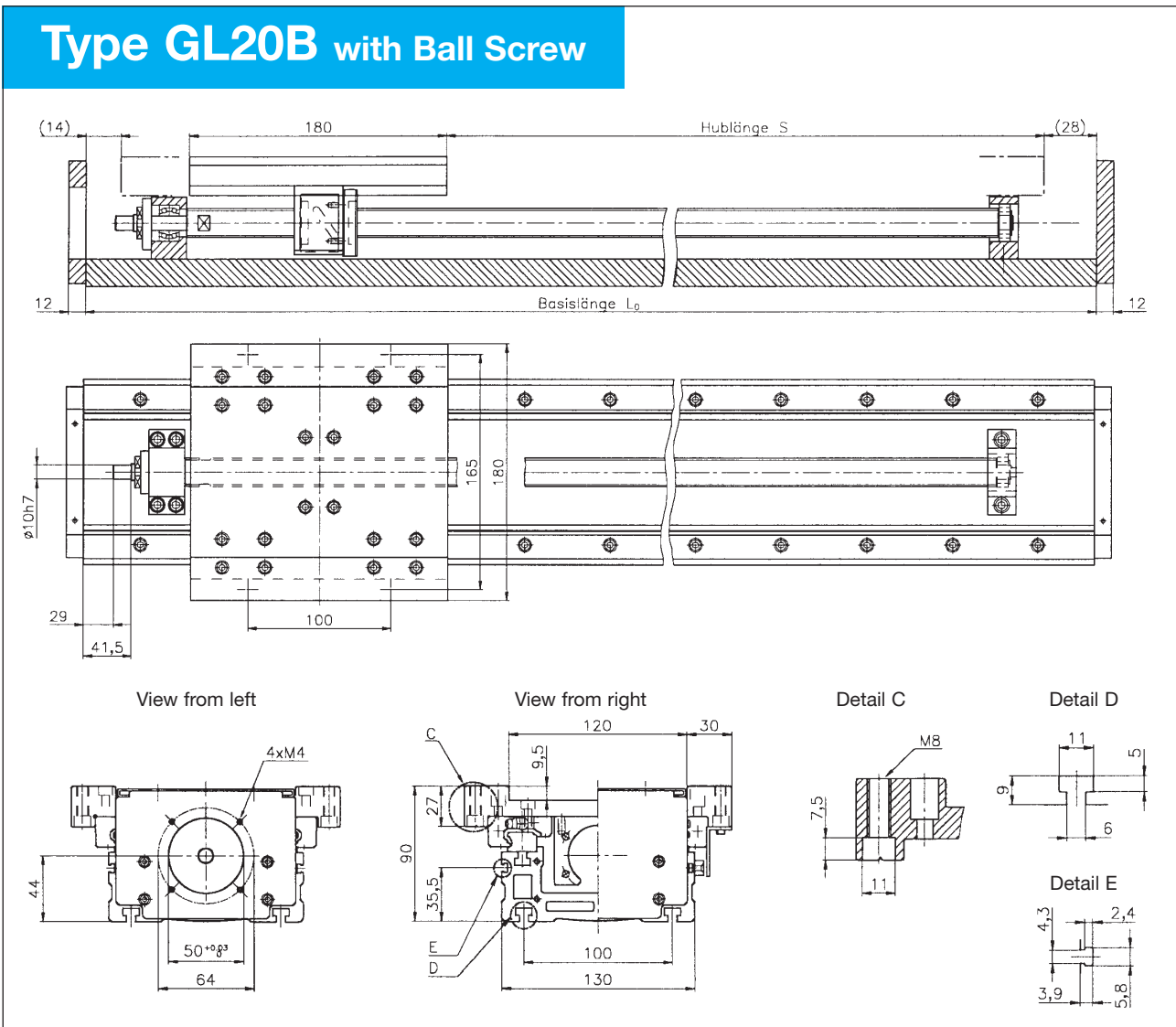


Stroke: S	70	190	310	430	550	790	970	1150	1330	1510	1690
Base Length: L ₀	340	460	580	700	820	1060	1240	1420	1600	1780	1960





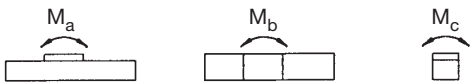
Type GL20B with Ball Screw



LM Guide Specification	
Type	GSR20T
Dyn. Load Rating C (N)	9220 ¹⁾
Stat. Load Rating C ₀ (N)	13200 ¹⁾

¹⁾ The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M _a (Nm)	1970
M _b (Nm)	1810
M _c (Nm)	2000



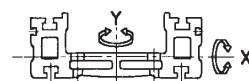
Bearing Specification	
Dyn. Load Rating C (N)	6660
Stat. Load Rating C ₀ (N)	550

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 ₀ (N)	16500	22300	13600
Accuracy	C10		
Axial Clearance	<0.1mm		

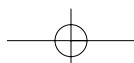
Repeatability	+/-0.02mm
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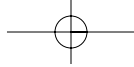
Geometrical Moment of Inertia	
I _x (mm ⁴)	4.63 \pm 10 ⁵
I _y (mm ⁴)	4.68 \pm 10 ⁶
M (kg/m)	10.4 ¹⁾

¹⁾ including rails

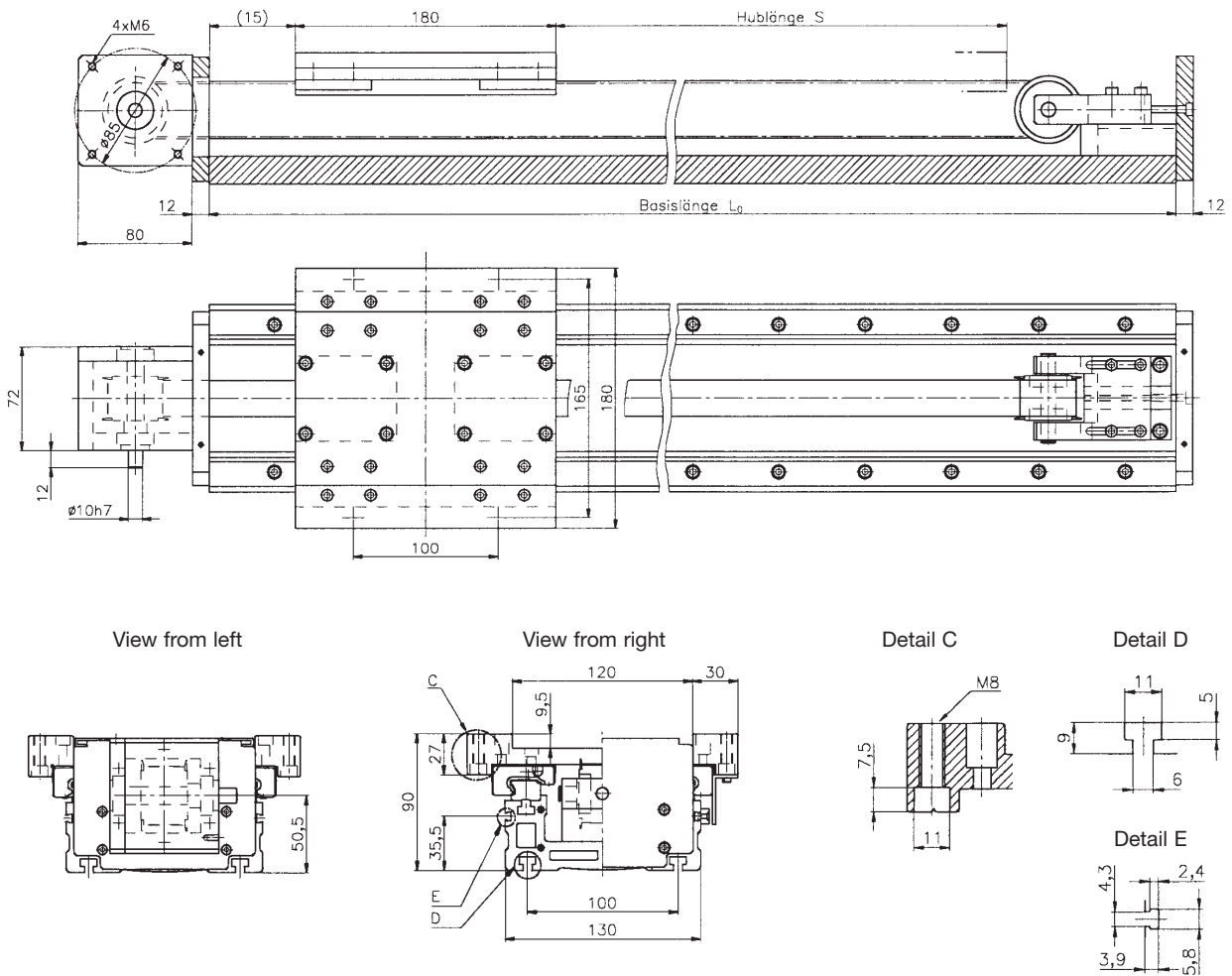


Stroke: S	200	320	440	560	800	980	1160	1340	1520
Base Length: L ₀	460	580	700	820	1060	1240	1420	1600	1780





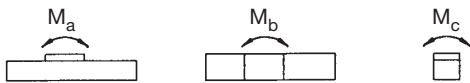
Type GL20E with Belt



LM Guide Specification	
Type	GSR20T
Dyn. Load Rating C (N)	9220 ¹⁾
Stat. Load Rating C ₀ (N)	13200 ¹⁾

¹⁾ The load rating of the LM Guide ist the value of one block.

Static Permissible Moment	
M _a (Nm)	1970
M _b (Nm)	1810
M _c (Nm)	2000

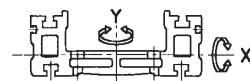


Belt Drive Specification	
Drive Pulley Diameter (mm)	38.2
Tooth Pitch (mm)	5.0
Permissible Tension (N)	765
Belt width (mm)	25

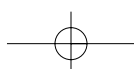
Repeatability	+/-0.08mm
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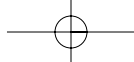
Geometrical Moment of Inertia	
I _x (mm ⁴)	4.63 ± 10 ⁵
I _y (mm ⁴)	4.68 ± 10 ⁶
M (kg/m)	10.4 ¹⁾

¹⁾ including rails



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





Datasheet Linear Actuator Type GL

worked out from _____ **Date** _____
Company _____ **Telephone No.** _____
Contact Person _____ **Fax No.** _____
Road _____
Town _____

Description of the application

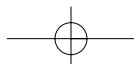
Axis		x	y	z
Mounting Orientation (horizontal, vertical, wall mounted, over head)				
Drive Type Ball Screw B Lead h (GL 15 - 5, 16, 30 mm) (GL 20 - 5, 20, 40 mm) Belt Drive E				
Stroke s	mm			
Max. Speed v	m/s			
Max. Acceleration a	m/s ²			
Weight m	kg			
Center of gravity m LM 1 LM 2 LM 3	mm mm mm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

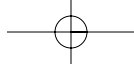
Please enclose a sketch of the application.

Please state following options:

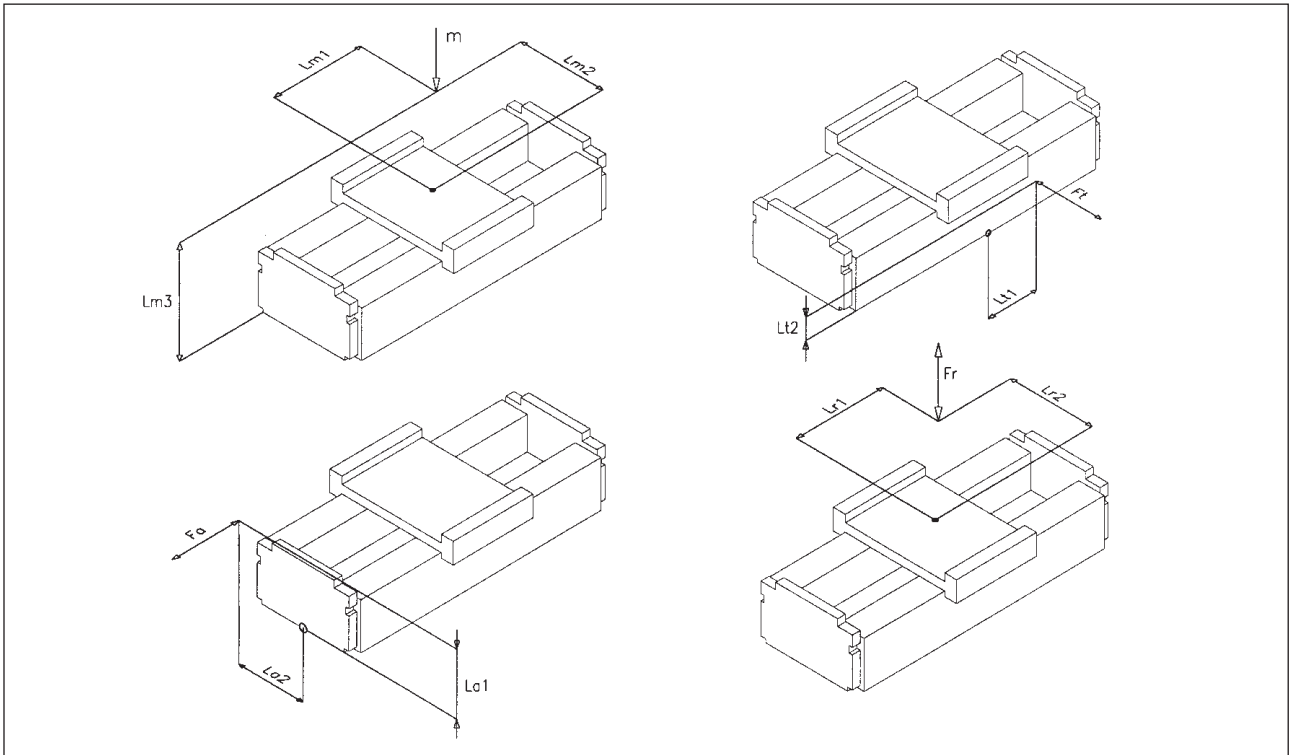
- Bellows
- Metal sheet cover
- Motor adapter (Please enclose the connecting dimensions of the motor)
- Coupling
- Max. torque M=.....(Nm)

- Proximity sensor
- Photo sensor
- Sensor dog

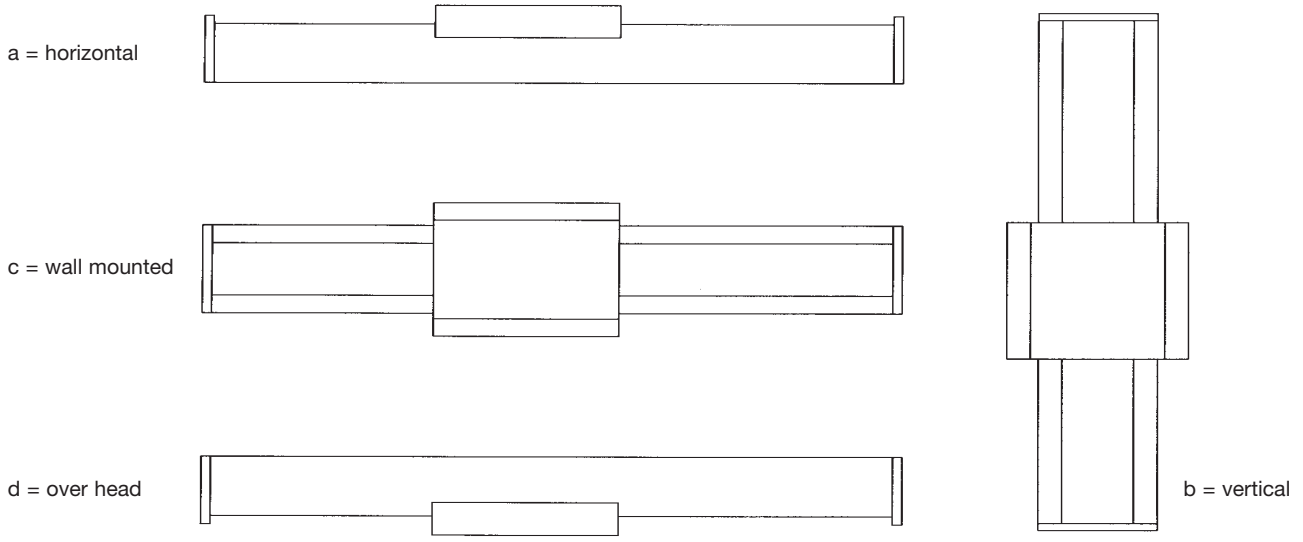




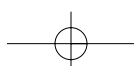
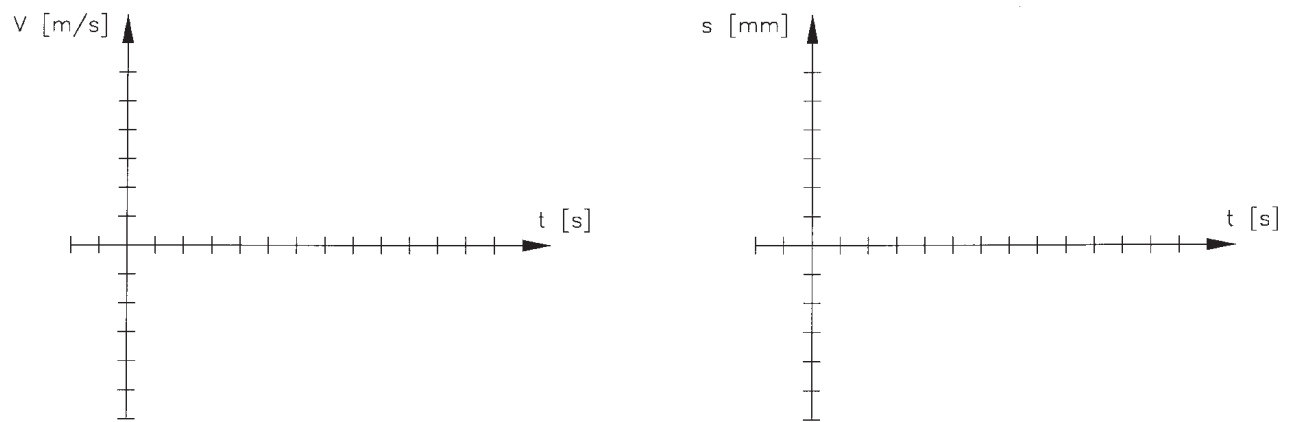
Point of load and center of gravity:



Mounting orientation:



Motion profile:



THK Linear Actuator Type GL



Specifications are subject to change without notice

7/97 Printed in Belgium

Sales & Service

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 Fax: (8 47) 3 10-11 82

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 Norcross, GA. 30071
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THK Los Angeles
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 Fax: (0 11) 2 65-15 89

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 Rm.#526
 Fax: (01) 5 04 45 57
 Rm.#526

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 Fax: (02) 2 97-81 49

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 19-21 Hankow Road
 Tsimshatsui, Kowloon
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 Jalan Bukit Kiara
 50480 Kuala Lumpur
 Tel.: (03) 2 54-70 07
 Fax: (03) 2 54-70 07

Factories

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 GB-Coventry CV2 5DZ
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 Fax: (012 03) 61 10 32

PGM Ireland Ltd.
 18 Cookstown
 Industrial Estate
 IRL-Tallaght, Dublin 24
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 Fax: (01) 4 51 34 69

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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.