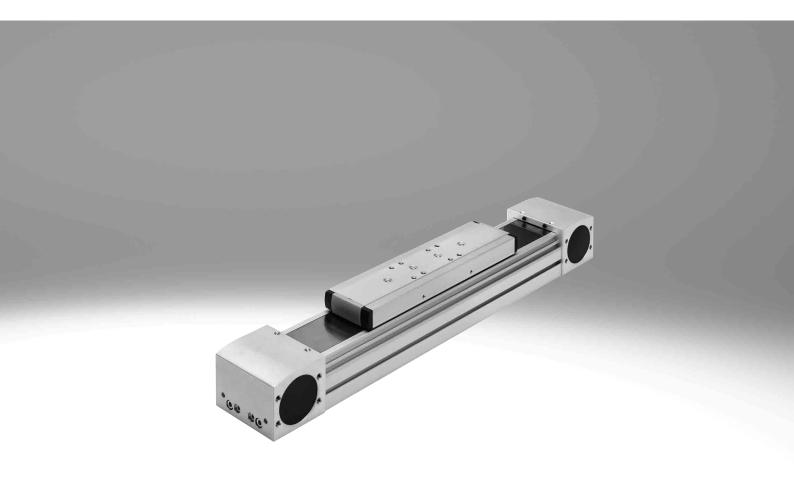
Toothed belt axes ELGA-TB





★/★ Festo core product range

Covers 80% of your automation tasks

Worldwide: Always in stock

Superb: Festo quality at an attractive price
Easy: Simplified procurement and warehousing

★ Generally ready for dispatch from the factory within 24 hours In stock at 13 Service Centres worldwide

More than 2200 products

☆ Generally ready for dispatch from the factory within 5 days Assembled for you at 4 Service Centres worldwide Up to 6 × 10¹² variants per product family

Selection aid

Overview of toothed belt and spindle axes

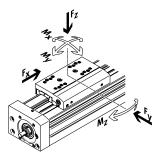
Toothed belt axes

- Speeds of up to 10 m/s
- Acceleration of up to 50 m/s²
- Repetition accuracy of up to ±0.08 mm
- Strokes of up to 8500 mm (longer strokes on request)
- Flexible motor mounting

Spindle axes

- Speeds of up to 2 m/s
- Acceleration of up to 20 m/s^2
- Repetition accuracy of up to ±0.003 mm
- Strokes of up to 3000 mm





oothed belt axes	l e	V	Mx	My	Mz	Characteristics
he	F _x [N]	[m/s]	[Nm]	[Nm]	[Nm]	Characteristics
		[111/3]	[iviii]	[iviii]	[iviii]	
avy-duty recirculating ball	bearing guide					
EGC-HD-TB	1,50	12	1410	275	275	F1 (12 2) 21 22 1 1 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2 2 1 2
	≥ 450	3	140	275	275	Flat drive unit with rigid, closed profile
	1000	5	300	500	500	Precision DUO guide rail with high load capacity
	1800	5	900	1450	1450	Ideal as a base axis for linear gantries and cantilever axes
TO THE REAL PROPERTY.						
ecirculating ball bearing gu	ide					
EGC-TB-KF	150	1.0	10.5	140	140	0
	50	3	3.5	10	10	Rigid, closed profile
	100	5	16	132	132	Precision guide rail with high load capacity
	350	5	36	228	228	Small drive pinions reduce required driving torque
	800	5	144	680	680	Space-saving position sensing
	2500	5	529	1820	1820	
FIGATO VE						
ELGA-TB-KF	1250	1.5	146	1422	1422	1. 1. 1. 1. 16. d. 11. fr
	350	5	16	132	132	Internal guide and toothed belt
	800	5	36	228	228	Precision guide rail with high load capacity
	1300	5	104	680	680	Guide and toothed belt protected by cover strip
	2000	5	167	1150	1150	High feed forces
ELGA-TB-KF-F1						
	260	5	16	132	132	Suitable for use in the food zone
	1 600	5	36	228	228	"Clean look": smooth, easy-to-clean surfaces
	1000	5	104	680	680	Internal guide and toothed belt
	1000		120,	"		Precision guide rail with high load capacity
						Guide and toothed belt protected by cover strip
						• Guide and toothed belt protected by cover strip
ELGC-TB-KF						
	75	1.2	5.5	4.7	4.7	Internal guide and toothed belt
	120	1.5	29.1	31.8	31.8	Precision guide rail with high load capacity
	250	1.5	59.8	56.2	56.2	Guide and toothed belt protected by cover strip
ELGR-TB						
LEGIK-1D	50	3	2.5	20	20	Cost-optimised rod guide
	100	3	5	40	40	Ready-to-install unit
	Ma I			I	I	
	350	3	15	124	124	Linear bushings with high load capacity for dynamic operation

Selection aid

Overview of toothed belt and spindle axes

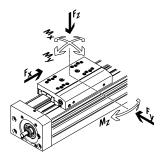
Toothed belt axes

- Speeds of up to 10 m/s
- ullet Acceleration of up to 50 m/s 2
- Repetition accuracy of up to ±0.08 mm
- Strokes of up to 8500 mm (longer strokes on request)
- Flexible motor mounting

Spindle axes

- Speeds of up to 2 m/s
- Acceleration of up to 20 m/s²
- Repetition accuracy of up to ±0.003 mm
- Strokes of up to 3000 mm





oothed belt axes						
ype	F _x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Characteristics
oller guide						
ELGA-TB-RF	-					
S.	350	10	11	40	40	Heavy-duty roller bearing guide
	800	10	30	180	180	Guide and toothed belt protected by cover strip
	1300	10	100	640	640	Speeds of up to 10 m/s
						Lower weight than axes with guide rails
ELGA-TB-RF-F1	l.		l .	I		
	260	10	8.8	32	32	Suitable for use in the food zone
	600	10	24	144	144	"Clean look": smooth, easy-to-clean surfaces
	1000	10	80	512	512	Heavy-duty roller bearing guide
						Guide and toothed belt protected by cover strip
						Lower weight than axes with guide rails
*						
lain-bearing guide						
ELGA-TB-G						
	350	5	5	30	10	Guide and toothed belt protected by cover strip
	800	5	10	60	20	For simple handling tasks
	1300	5	120	120	40	As a drive component for external guides
						Insensitive to harsh ambient conditions
ELGR-TB-GF						
	50	1	1	10	10	Cost-optimised rod guide
	100	1	2.5	20	20	Ready-to-install unit
	350	1	1	40	40	Heavy-duty plain bearings for use in harsh environmental conditions

Selection aid

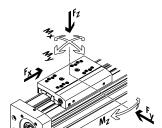
Overview of toothed belt and spindle axes

Toothed belt axes

- Speeds of up to 10 m/s
- Acceleration of up to 50 m/s²
- Repetition accuracy of up to ±0.08 mm
- Strokes of up to 8500 mm (longer strokes on request)
- Flexible motor mounting

Spindle axes

- Speeds of up to 2 m/s
- $\bullet \ \ \text{Acceleration of up to 20 m/s}^2$
- Repetition accuracy of up to ±0.003 mm
- Strokes of up to 3000 mm



Coordinate system

oindle axes	1	I.	1	1	1	1
pe	F _x	V	Mx	My	Mz	Characteristics
	[N]	[m/s]	[Nm]	[Nm]	[Nm]	
eavy-duty recirculating ball	bearing guide					
EGC-HD-BS						
	400	0.5	140	275	275	Flat drive unit with rigid, closed profile
	650	1.0	300	500	500	Precision DUO guide rail with high load capacity
	1500	1.5	900	1450	1450	Ideal as a base axis for linear gantries and cantilever axes
circulating ball bearing gui	de					
EGC-BS-KF						
	400	0.5	16	132	132	Rigid, closed profile
	650	1.0	36	228	228	Precision guide rail with high load capacity
	1500	1.5	144	680	680	For the highest requirements in terms of feed force and accuracy
	3000	2.0	529	1820	1820	Space-saving position sensing
ELGA-BS-KF	1.50	10.5	144	1400	1400	T.,
	650	0.5	16	132	132	Internal guide and ball screw drive
	1600	1.0	36	228	228	Precision guide rail with high load capacity
	3400	1.5	104	680	680	For the highest requirements in terms of feed force and accuracy
	6400	2.0	167	1150	1150	Guide and ball screw drive protected by cover strip
						Space-saving position sensing
ELGC-BS-KF						
	40	0.6	1.3	1.1	1.1	Internal guide and ball screw drive
	100	0.6	5.5	4.7	4.7	Guide and ball screw drive protected by cover strip
	200	0.8	29.1	31.8	31.8	Space-saving position sensing
	350	1.0	59.8	56.2	56.2	
EGSK						
LUJK	57	0.33	13	3.7	3.7	Spindle axes with maximum precision, compactness and rigidity
	133	1.10	28.7	9.2	9.2	Recirculating ball bearing guide and ball screw drive without caged ball
	184	0.83	60	20.4	20.4	bearings
	239	1.10	79.5	26.4	26.4	Standard designs in stock
	392	1.10	231	77.3	77.3	- Standard designs in stock
	392	1.40	231	11.3	11.3	

At a glance

ELGA-TB-KF/-KF-F1 - Recirculating ball bearing guide



- Internal, precision recirculating ball bearing guide with high load capacity for high torque loads
- Stainless steel cover strip provides basic protection for guide and toothed belt
- Easy maintenance thanks to easily accessible lubrication connections
- One additional slide can be selected

[1] Displacement encoder (optional)
The position of the slide can be sensed directly when using the incremental displacement encoder. This means that all elasticities of the drive train can be detected and can be corrected by the motor controller (>> page 15)

- Suitable for use in the food zone (ELGA-...-F1)
- Toothed belt material can be selected from:
 - Chloroprene rubber for long service life
- Coated PU with steel reinforcements for long service life and resilience to certain cooling lubricants
- Uncoated PU, FDA-compliant



ELGA-TB-RF/-RF-F1 - Roller guide



- Guide backlash = 0 mm
- Very good operating behaviour under torque load
- Suitable for use in the food zone (ELGA-...-F1)
- Sturdy alternative to the recirculating ball bearing guide
- Drive for external guides, especially for high speeds
- Toothed belt material can be selected from:
 - Chloroprene rubber for long service life
- Coated PU with steel reinforcements for long service life and resilience to certain cooling lubricants
- Uncoated PU, FDA-compliant





- For small and medium loads
- · Low guide backlash
- Drive for external guides
- For simple handling tasks
- Toothed belt material can be selected from:
 - Chloroprene rubber for long service life
 - Coated PU with steel reinforcements for long service life and resilience to certain cooling lubricants

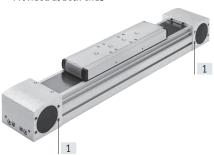
Sealing air connections

[1] Sealing air connections

- Application of negative pressure minimises the dispersal of abraded particles into the environment
- Provided at both ends
- Application of positive pressure prevents dirt from getting into the axis

Flexible motor connection

The motor position can be freely selected on 4 sides and can be changed at any time.





Complete system comprising toothed belt axis, motor, motor controller and motor mounting kit



Motor



Servo motor: EMMT-AS, EMME-AS, EMMS-AS Stepper motor: EMMS-ST



Note

A range of specially matched complete solutions is available for the toothed belt axis ELGA and the motors.

→ Page 94

→ Page 94

Servo drive



Servo drive: CMMT-AS Servo drive for extra-low voltage: CMMT-ST

Motor mounting kit

Axial kit



Kit comprising:

- Motor flange
- Coupling housing
- Coupling
- Screws

Characteristic values of the axes

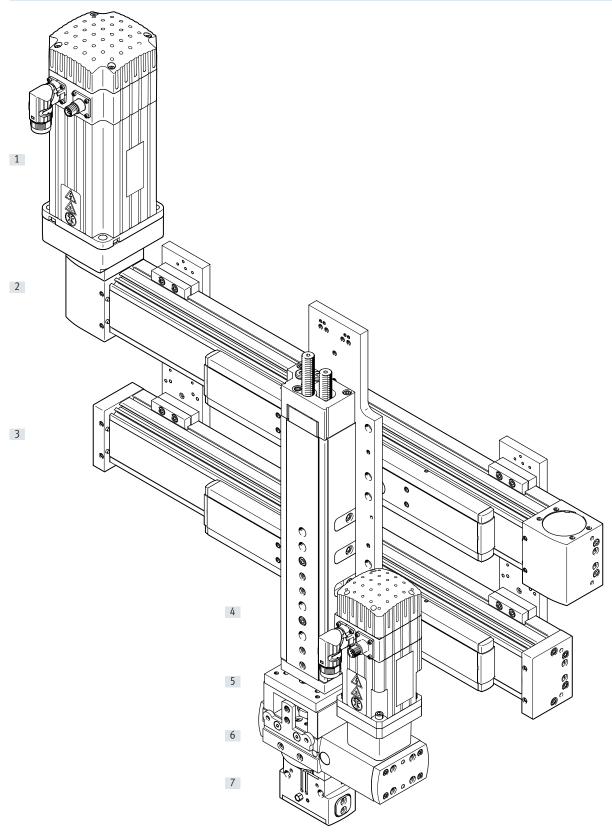
The specifications shown in the table are maximum values.

The precise values for each of the variants can be found in the relevant data sheet in the catalogue.

Version	Size	Working stroke	Speed	Repetition accuracy	Feed force	Guide characteristics					→ Page/
						Forces an	d torques				Internet
						Fy Fz	Fz	Mx	My	Mz	
		[mm]	[m/s]	[mm]	[N]	[N]	[N]	[Nm]	[Nm]	[Nm]	
ELGA-TB-KF – Recirculating ball	bearing guide										
	70	50 5000	5	±0.08	350	1500	1850	16	132	132	10
	80	50 8500	5	±0.08	800	2500	3050	36	228	228	
	120	50 8500	5	±0.08	1300	5500	6890	104	680	680	
	150	50 7000	5	±0.08	2000	11000	11000	167	1150	1150	
ELGA-TB-KF-F1 – Recirculating b	all bearing guide	e. suitable for use	in the food zone	2							
	70	50 5000	5	±0.08	260	1500	1850	16	132	132	30
	80	50 8500	5	±0.08	600	2500	3050	36	228	228	1
	120	50 8500	5	±0.08	1000	5500	6890	104	680	680	1
ELGA-TB-RF – Roller guide											
	70	50 7000	10	±0.08	350	500	500	11	40	40	46
	80	50 7000	10	±0.08	800	800	800	30	180	180	
	120	50 7400	10	±0.08	1300	2000	2000	100	640	640	
ELGA-TB-RF-F1 – Roller guide, su	itable for use in	the food zone									
	70	50 7000	10	±0.08	260	400	400	8.8	32	32	64
	80	50 7000	10	±0.08	600	640	640	24	144	144	1
	120	50 7400	10	±0.08	1000	1600	1600	80	512	512	
ELGA-TB-G – Plain-bearing guide	9										
£ \	70	50 8500	5	±0.08	350	80	400	5	30	10	80
	80	50 8500	5	±0.08	800	200	800	10	60	20	1
	120	50 8500	5	±0.08	1300	380	1600	20	120	40	



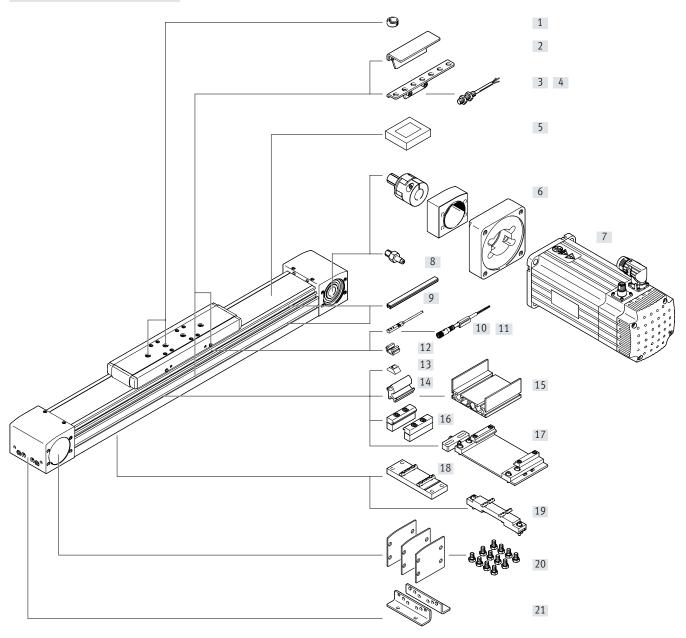
System product for handling and assembly technology



Syste	System components and accessories							
		Description	→ Internet					
[1]	Motors	Servo and stepper motors, with or without gear unit	motor					
[2]	Axes	Wide range of combinations possible within handling and assembly technology	axis					
[3]	Guide axes	To support force and torque capacity in multi-axis applications	guide axis					
[4]	Drives	Wide range of combinations possible within handling and assembly technology	drive					
[5]	Adapter	For drive/drive and drive/gripper connections	gripper					
[6]	Semi-rotary drives	Wide range of variations possible within handling and assembly technology	semi-rotary drive					
[7]	Gripper	Wide range of variations possible within handling and assembly technology	gripper					

Peripherals overview





Peripherals overview

Access	Accessories						
	Туре	Description	→ Page/Internet				
1]	Centring pin/sleeve	For centring loads and attachments on the slide	108				
	ZBS, ZBH	Included in the scope of delivery:					
		- For size 70: 2x ZBS-5					
		- For size 80, 120, 150: 2x ZBH-9					
2]	Switch lug	For sensing the slide position	105				
	SF-EGC						
3]	Sensor bracket	For mounting the inductive proximity switches (round design) on the axis	106				
	HWS-EGC						
4]	Proximity switch, M8	Inductive proximity switch, round design	110				
	SIEN-M8						
5]	Clamping element	Tool for retensioning the cover strip	108				
	EADT						
[6]	Axial kit	For axial motor mounting (comprises: coupling, coupling housing and motor flange)	94				
	EAMM						
7]	Motor	Motors specially matched to the axis, with or without gear unit, with or without brake	94				
	EMME, EMMS						
8]	Drive shaft	Can, if required, be used as an alternative interface	99				
	EAMB	 No drive shaft is required for the axis/motor combinations → page 94 					
9]	Slot cover	For protection against contamination	108				
	ABP						
10]	Proximity switch, T-slot	Inductive proximity switch, for T-slot	109				
	SIES-8M	The order code SA, SB includes 1 switch lug in the scope of delivery					
[11]	Connecting cable	For proximity switch	110				
	NEBU, SIM						
12]	Clip	For mounting the proximity switch cable in the slot	108				
	SMBK						
13]	Slot nut	For mounting attachments	108				
	NST						
14]	Adapter kit	For mounting the support profile on the axis	109				
	DHAM						
15]	Support profile	For mounting and guiding an energy chain	109				
	HMIA						
16]	Profile mounting	For mounting the axis on the side of the profile	101				
	MUE						
17]	Adjusting kit	For mounting the axis on a vertical surface. Once mounted, the axis can be aligned horizontally	104				
	EADC-E16						
18]	Central support	For mounting the axis on the profile from underneath	102				
	EAHF-L5						
19]	Adjusting kit	Is height-adjustable. Can be used to easily compensate for any unevenness in the bearing surface	103				
-	EADC-E15						
20]	Cover kit	For covering the sides of the drive cover	108				
	EASC-L5						
21]	Foot mounting	For mounting the axis on the end cap	100				
-	HPE	With higher forces and torques, the axis should be mounted using the profile					

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Type codes

001	Series
ELGA	Gantry axis
002	Drive system
ТВ	Toothed belt
003	Guide
KF	Recirculating ball bearing guide
004	Size
70	70
80	80
120	120
150	150
005	Stroke
	50 8500
006	Stroke reserve
Н	0 999
007	Additional slide
	None
ZR	1 slide right
ZL	1 slide left

800	Additional characteristics	
	None	
F1	Food-safe according to supplementary information on materials	
009	Displacement encoder	
	None	
M1	With displacement encoder, incremental, resolution 2.5 µm	
M2	With displacement encoder, incremental, resolution 10 µm	
010	Displacement encoder attachment position	
	None	
F	Front	
В	Rear	
011	Toothed belt material	
	Standard	
PU1	Uncoated PU, FDA-compliant	
PU2	Coated PU	
012	Operating instructions	
	With operating instructions	
DN	Without operating instructions	



- **Ø** - Size 70 ... 150

- Stroke length 50 ... 8500 mm





General technical data							
Size		70	80	120	150		
Design		Electromechanical ax	kis with toothed belt				
Guide		Recirculating ball be	aring guide				
Mounting position	Any						
Working stroke	[mm]	50 5000	50 8500	50 8500	50 7000		
Max. feed force F _x	[N]	350	800	1300	2000		
Max. no-load torque ¹⁾	[Nm]	0.6	1	2.8	4		
Max. no-load resistance to shifting ¹⁾	[N]	41.9	50.3	76.2	108.3		
Max. driving torque	[Nm]	5.02	15.92	34.1	73.85		
Max. speed	[m/s]	5					
Max. acceleration	50	50					
Repetition accuracy	[mm]	±0.08	±0.08				

¹⁾ At 0.2 m/s

Operating and environmental con-	ditions	
Ambient temperature ¹⁾	[°C]	-10 +60
Degree of protection		IP40
Duty cycle	[%]	100

¹⁾ Note operating range of proximity switches

Weight [kg]				
Size	70	80	120	150
Basic weight with 0 mm stroke ¹⁾	2.97	4.70	15.68	32.83
Additional weight per 1000 mm stroke	3.94	5.13	10.64	17.22
Moving mass				
ELGA	0.90	1.90	4.19	7.24
ELGAZL/ZR	0.74	1.53	3.24	5.84

¹⁾ Incl. slide

Toothed belt					
Size		70	80	120	150
Pitch	[mm]	3	5	5	8
Elongation ¹⁾				·	
ELGA	[%]	0.213	0.168	0.21	0.258
ELGAPU2	[%]	0.105	0.1	0.122	0.083
Effective diameter	[mm]	28.65	39.79	52.52	73.85
Feed constant	[mm/rev]	90	125	165	232

At max. feed force

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Data sheet

Mass moment of inertia					
Size		70	80	120	150
Jo	[kg mm ²]	243	982	4099	15426
J _H per metre stroke	[kg mm ² /m]	19	93	215	586
J _L per kg payload	[kg mm ² /kg]	205	396	690	1363
J _W for additional slide	[kg mm ²]	186	761	2891	9869

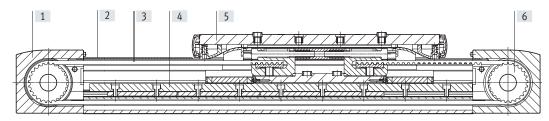
The mass moment of inertia J_A of the entire axis is calculated as follows:

 $The \ mass \ moment \ of \ inertia \ J_A \ of \ the \\ \qquad J_A = \ \ J_O + K \ x \ J_W + J_H \ x \ working \ stroke \ [m] + J_L \ x \ m_{payload} \ [kg]$

K = Number of additional slides

Materials

Sectional view



Axis					1
Size		70	80	120	150
[1]	Drive cover	Anodised wrought aluminium	n alloy		
[2]	Cover strip	Stainless steel strip, non-corroding			
[3]	Toothed belt				
	ELGA	Polychloroprene with glass co	ord and nylon coating		
	ELGAPU2	Polyurethane with steel cord	and nylon covering		
[4]	Guide rail	Stainless steel		Tempered steel	
[5]	Slide	Anodised wrought aluminium	n alloy		
[6]	Belt pulley	High-alloy stainless steel			
	Note on materials	RoHS-compliant			
		Contains paint-wetting impairment substances			

Technical data – Displacement e	echnical data – Displacement encoder Dimensions → page 26					
Туре		ELGAM1	ELGAM2			
Resolution	[ìm]	2.5	10			
Max. travel speed	[m/s]	4	4			
with displacement encoder						
Encoder signal		5 V TTL; A/A, B/B; reference signal (N/N) cyc	lical every 5 mm (zero pulse)			
Signal output		Line driver, alternating, resistant to sustain	Line driver, alternating, resistant to sustained short circuit			
Electrical connection		8-pin plug, round design, M12				
Cable length	[mm]	160				

Operating and environmental conditions – Displacement encoder				
Ambient temperature	[°C]	-10 +70		
Degree of protection		IP64		
CE marking (see declaration of conformity	y)	In accordance with EU EMC Directive ¹⁾		

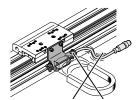
¹⁾ For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

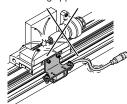
Note regarding use

The spindle axis with displacement encoder is not designed for the following sample applications:

• Magnetic field

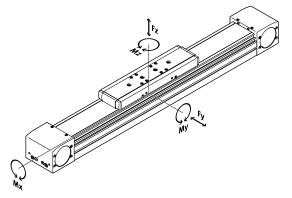


• Welding application

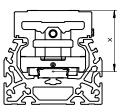


Characteristic load values

The indicated forces and torques refer to the centre of the guide. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect. These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



Distance from the slide surface to the centre of the guide



Distance from the slide surface to the centre of the guide					
Size		70	80	120	150
Dimension x	[mm]	37	50	70	86

Max. permissible forces and torques for a service life of 5000 km						
Size		70	80	120	150	
Fy _{max} .	[N]	1500	2500	5500	11000	
Fz _{max} .	[N]	1850	3050	6890	11000	
Mx _{max} .	[Nm]	16	36	104	167	
My _{max} .	[Nm]	132	228	680	1150	
Mz _{max.}	[Nm]	132	228	680	1150	



Note

For a guide system to have a service life of 5000 km, the load comparison factor must have a value of fv \leq 1, based on the maximum permissible forces and torques for a service life of 5000 km.

If the axis is subjected to two or more of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

Calculating the load comparison factor:

$$f_v = \frac{\left| F_{y1} \right|}{F_{y2}} + \frac{\left| F_{z1} \right|}{F_{z2}} + \frac{\left| M_{x1} \right|}{M_{x2}} + \frac{\left| M_{y1} \right|}{M_{y2}} + \frac{\left| M_{z1} \right|}{M_{z2}} \leq 1$$

 F_1/M_1 = dynamic value F_2/M_2 = maximum value

Calculating the service life

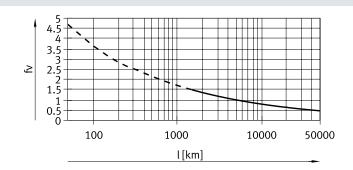
The service life of the guide depends on the load. To be able to make a statement as to the service life of the guide, the graph below plots the load comparison factor fv against the service life.

These values are only theoretical. You must consult your local Festo contact for a load comparison factor fv greater than 1.5.

Load comparison factor f_v as a function of service life

Example:

A user wants to move an X kg load. Using the formula (\rightarrow page 16) gives a value of 1.5 for the load comparison factor f_v . According to the graph, the guide would have a service life of approx. 1500 km. Reducing the acceleration reduces the Mz and My values. A load comparison factor f_v of 1 now gives a service life of 5000 km.



- ∎ - Note

Engineering software PositioningDrives www.festo.com The software can be used to calculate a guide workload for a service life of 5000 km.

 f_{ν} > 1.5 are only theoretical comparison values for the recirculating ball bearing guide.

Comparison of the characteristic load values for 5000 km with dynamic forces and torques of recirculating ball bearing guides

The characteristic load values of bearing guides are standardised to ISO and JIS using dynamic and static forces and torques. These forces and torques are based on an expected service life of the guide system of 100 km according to ISO or 50 km according to JIS.

As the characteristic load values are dependent on the service life, the maximum permissible forces and torques for a 5000 km service life cannot be compared with the dynamic forces and torques of bearing guides to ISO/JIS.

To make it easier to compare the guide capacity of linear axes ELGA with bearing guides, the table below lists the theoretically permissible forces and torques for a calculated service life of 100 km. This corresponds to the dynamic forces and torques to ISO.

These 100 km values have been calculated mathematically and are only to be used for comparing with dynamic forces and torques to ISO. The drives must not be loaded with these characteristic values as this could damage the axes.

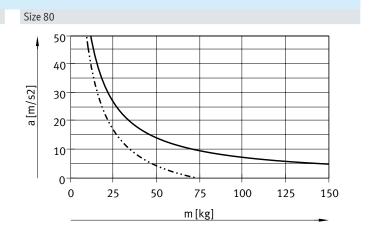
Max. permissible force	Max. permissible forces and torques for a theoretical service life of 100 km (from a guide perspective only)						
Size		70	80	120	150		
Fy _{max} .	[N]	5520	9200	20240	40480		
Fz _{max} .	[N]	6808	11224	25355	40480		
Mx _{max.}	[Nm]	59	132	383	615		
My _{max.}	[Nm]	486	839	2502	4232		
Mz _{max} .	[Nm]	486	839	2502	4232		

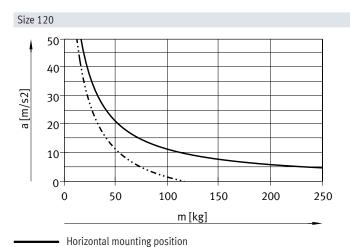
Max. acceleration a as a function of payload m

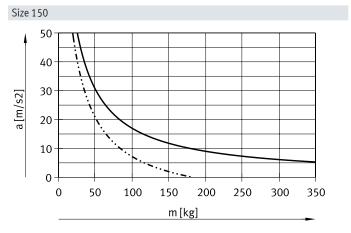
Size 70

50
40
30
20
10
0
10
20
30
40
50
60

m[kg]

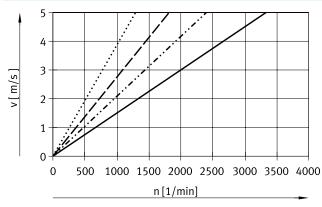






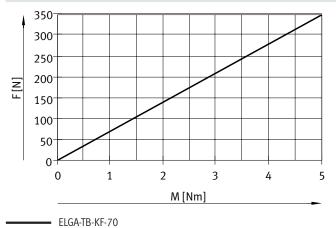
Speed v as a function of rotational speed n

Vertical mounting position

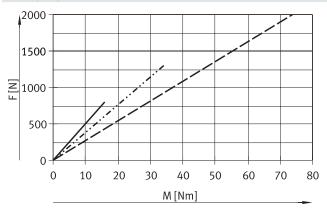


Theoretical feed force F as a function of input torque M

Size 70

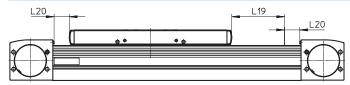


Size 80/120/150



ELGA-TB-KF-80
----- ELGA-TB-KF-120
---- ELGA-TB-KF-150

Stroke reserve



 The stroke reserve is a safety distance from the mechanical end position and is not used in normal operation The sum of the nominal stroke and 2x stroke reserve must not exceed the maximum permissible working stroke L19 = Nominal stroke

L20 = Stroke reserve

- The stroke reserve length can be freely selected
- The stroke reserve is defined via the "stroke reserve" characteristic in the modular product system.

Example:

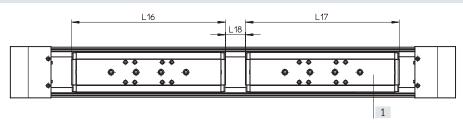
Type ELGA-TB-KF-70-500-20H-... Nominal stroke = 500 mm 2x stroke reserve = 40 mmWorking stroke = 540 mm

(540 mm = 500 mm + 2x 20 mm)

Working stroke reduction

For axis ELGA with additional slide ZL/ZR

For a toothed belt axis with additional slide, the working stroke is reduced by the length of the additional slide and the distance between the two slides



L16 = Slide length

L17 = Additional slide length

L18 = Distance between the two slides

[1] Additional slide

Example:

Type ELGA-TB-KF-70-500-...-ZR

Working stroke without

additional slide = 500 mm L18 = 50 mm L16, L17 = 221 mm

Working stroke with additional slide = 229 mm

(500 mm - 50 mm - 221 mm)

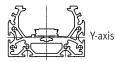
Dimensions – Additional slide					
Size		70	80	120	150
Length L17	[mm]	221	246	335	378.4
Min. distance between the slides L18	[mm]	≥ 50	≥ 50	≥ 50	≥ 50

Toothed belt axes ELGA-TB-KF, with recirculating ball bearing guide

Data sheet

Second moment of area

Z-axis

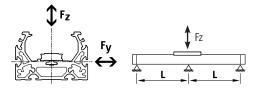


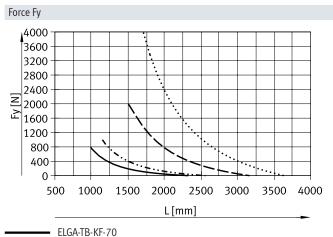
Size		70	80	120	150
ly	[mm ⁴]	1.46x10 ⁵	2.57x10 ⁵	1.26x10 ⁶	4.62x10 ⁶
Iz	[mm ⁴]	4.59x10 ⁵	9.14x10 ⁵	4.37x10 ⁶	12.32x10 ⁶

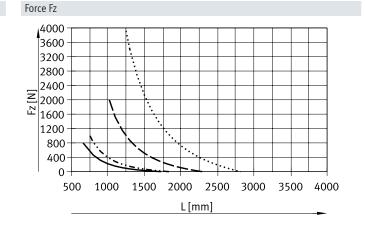
Maximum permissible support spacing L (without profile mounting MUE/central support EAHF) as a function of force F

In order to limit deflection in the case of large strokes, the axis may need to be supported.

The following graphs can be used to determine the maximum permissible support spacing I as a function of force F acting on the axis. The deflection is f = 0.5 mm.







Recommended deflection limits

Adherence to the following deflection limits is recommended so as not to impair the functionality of the axes.

Greater deformation can result in increased friction, greater wear and reduced service life.

Size	Dynamic deflection (moving load)	Static deflection (stationary load)
70 150	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length

Central lubrication

The lubrication connections enable the guide of the toothed belt axis ELGA-TB-KF to be permanently lubricated in applications in humid or wet ambient conditions using semi- or fully automatic relubrication devices.

- The connection options are already available in the standard design of the axes
- There is a dedicated lubrication connection for the spindle nut and the two ball cassettes

Slide dimensions

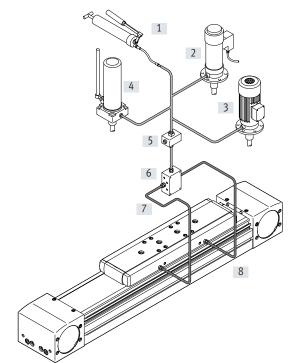
→ page 24

Structure of a central lubrication system

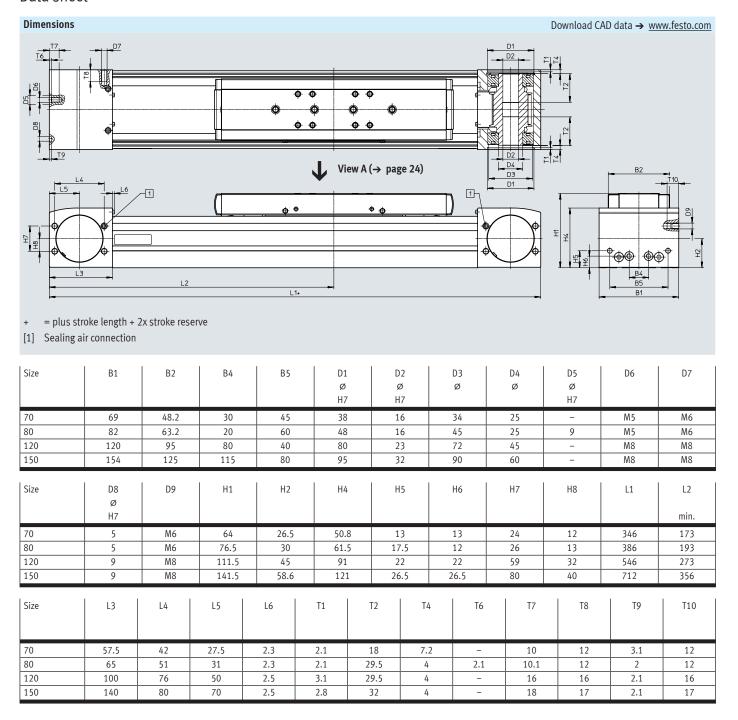
A central lubrication system requires various additional components. The illustration shows different options (using a hand pump, pneumatic container pump or electric container pump) required as a minimum for designing a central lubrication system. Festo does not sell these additional components; however, they can be obtained from the following companies:

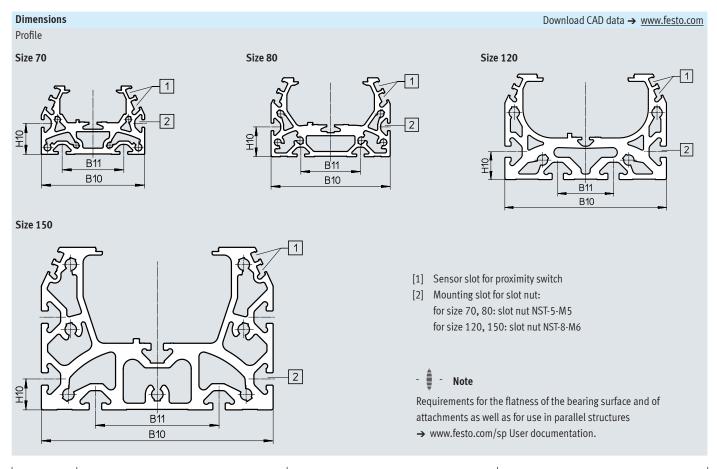
- Lincoln
- Bielomatik
- SKF (Vogel)

Festo recommends these companies because they can supply all the necessary components.

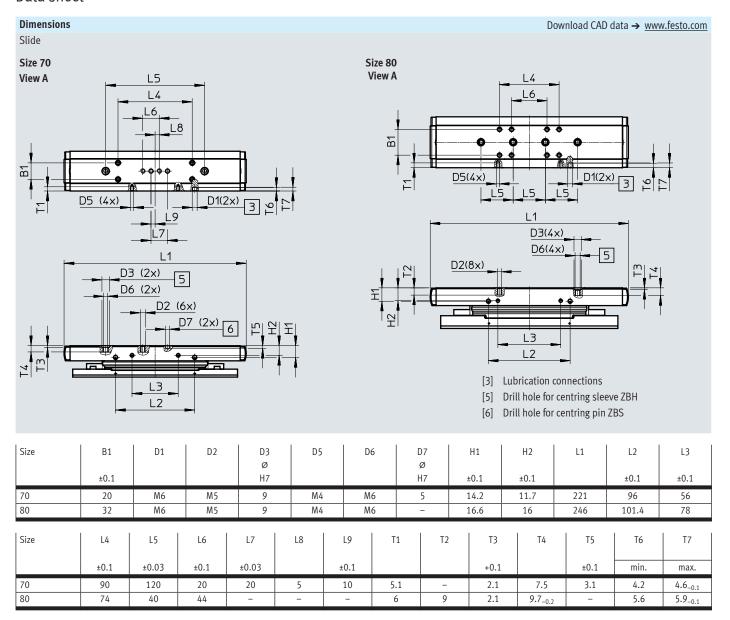


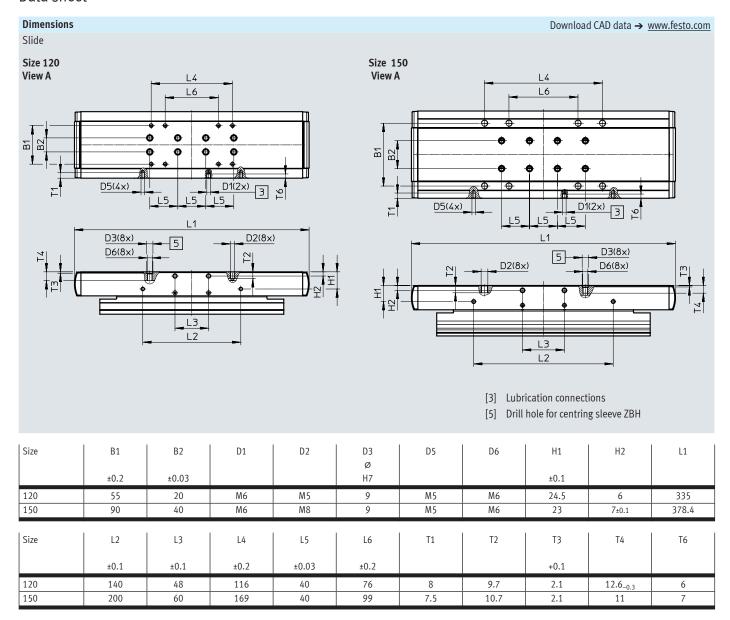
- [1] Hand pump
- [2] Pneumatic container pump
- [3] Electric container pump
- [4] Manually operated container pump
- [5] Nipple block
- [6] Distributor block
- [7] Tubing or piping
- [8] Fittings

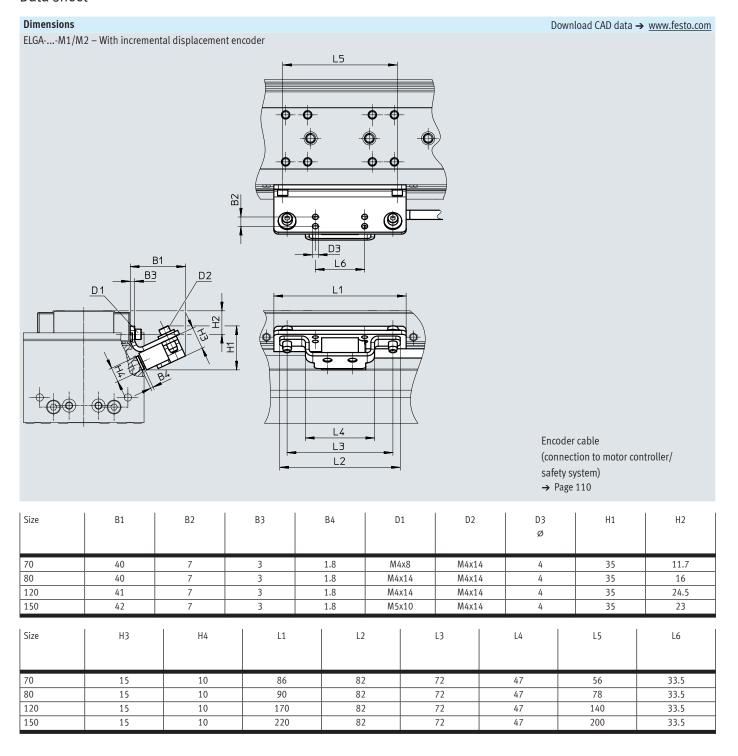




Size	B10	B11	H10
70	67	40	20
80	80	40	20
120	116	40	20
150	150	80	20







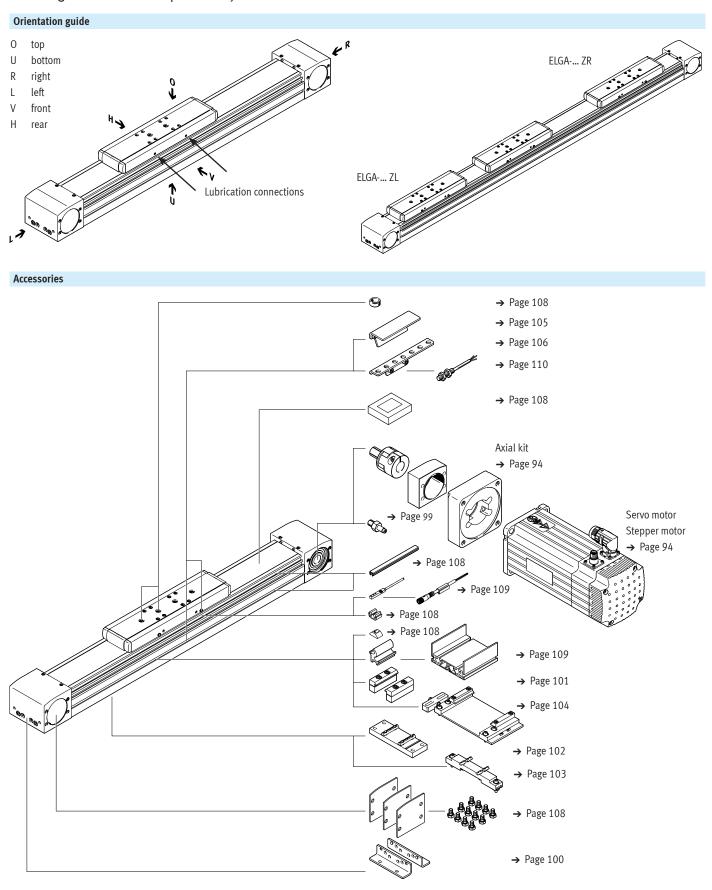
Ordering data

Key features:

- Stroke reserve: 0 mm
- Standard slide

Size	Stroke [mm]	Part no.	Туре
70	300	☆ 8041851	ELGA-TB-KF-70-300-0H
	400	☆ 8041852	ELGA-TB-KF-70-400-0H
	500	☆ 8041853	ELGA-TB-KF-70-500-0H
	600	☆ 8041854	ELGA-TB-KF-70-600-0H
	800	☆ 8041855	ELGA-TB-KF-70-800-0H
	1000	☆ 8041856	ELGA-TB-KF-70-1000-0H
	1200	☆ 8041857	ELGA-TB-KF-70-1200-0H
80	400	☆ 8041858	ELGA-TB-KF-80-400-0H
00	500	☆ 8041859	ELGA-TB-KI-60-400-011
	600	☆ 8041860	ELGA-TB-KF-80-600-0H
	800	☆ 8041861	ELGA-TB-KF-80-800-0H
	1000	☆ 8041862	ELGA-TB-KF-80-1000-0H
	1200	☆ 8041863	ELGA-TB-KF-80-1200-0H
120	400	☆ 8041864	ELGA-TB-KF-120-400-0H
	500	☆ 8041865	ELGA-TB-KF-120-500-0H
	600	☆ 8041866	ELGA-TB-KF-120-600-0H
	800	☆ 8041867	ELGA-TB-KF-120-800-0H
	1000	☆ 8041868	ELGA-TB-KF-120-1000-0H
	1200	☆ 8041869	ELGA-TB-KF-120-1200-0H
	1500	☆ 8041870	ELGA-TB-KF-120-1500-0H

Ordering data - Modular product system



Ordering data – Modular product system

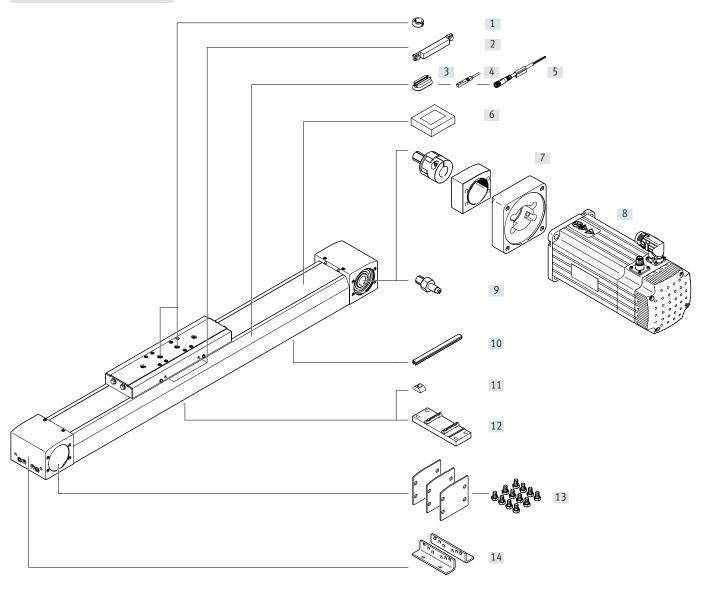
Ordering table								
Size		70	80	120	150	Conditions	Code	Enter cod
Module no.		8024914	8024915	8024916	8024917			
Design		Linear axis					ELGA	ELGA
Function		Toothed belt					☆ -TB	-TB
Guide		Recirculating ba	all bearing guide				☆ -KF	-KF
Size	[mm]	70	80	120	150		☆	
Stroke length	[mm]	1 5000	1 8500	1 8500	1 7000		☆	
Stroke reserve	[mm]	0 999 (0 = no	o stroke reserve)			[1]	☆ H	
Additional slide		None					☆	
		1 slide left				☆ -ZL		
		1 slide right					☆ -ZR	
Displacement encoder, incremental		None				☆		
		Resolution 2.5	μm				-M1	
		Resolution 10 µm				-M2		
Displacement encoder attachment position		None				☆		
		Rear			[2]	В		
		Front			[2]	F		
Material of toothed belt		Chloroprene ru	bber					
		Coated PU				-PU2		
Operating instructions		With operating	instructions				☆	
		Without operat	ing instructions				☆ -DN	

^{[1] ...} H The sum of the nominal stroke and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length

^[2] **B, F** Only with displacement encoder M1, M2

Peripherals overview – For the food zone





Peripherals overview – For the food zone

Access	sories		1
	Type	Description	→ Page/Internet
[1]	Centring pin/sleeve ZBS, ZBH	 For centring loads and attachments on the slide Included in the scope of delivery: For size 70: 2x ZBS-5 For size 80, 120, 150: 2x ZBH-9 	108
[2]	Switch lug EAPM	For sensing the slide position	107
[3]	Mounting kit CRSMB	For mounting the inductive proximity switches (round design) on the axis	107
[4]	Proximity switch, T-slot SME-8M	For sensing the slide position	110
[5]	Connecting cable NEBU	For proximity switch	110
[6]	Clamping element EADT	Tool for retensioning the cover strip	108
[7]	Axial kit EAMM	For axial motor mounting (comprises: coupling, coupling housing and motor flange)	94
[8]	Motor EMME, EMMS	Motors specially matched to the axis, with or without gear unit, with or without brake	94
[9]	Drive shaft EAMB	 Can, if required, be used as an alternative interface No drive shaft is required for the axis/motor combinations → page 100 	99
[10]	Slot cover ABP	For protection against contamination	108
11]	Slot nut NST	For mounting attachments	108
12]	Central support EAHF-L5	For mounting the axis on the profile from underneath	102
13]	Cover kit EASC-L5	For covering the sides of the drive cover	108
14]	Foot mounting HPE	For mounting the axis on the end cap With higher forces and torques, the axis should be mounted using the profile	100

Toothed belt axes ELGA-TB-KF-F1, with recirculating ball bearing guide

Data sheet - For the food zone



- Ø -

Size

70 ... 120

- | -

Stroke length 50 ... 8500 mm

www.festo.com



General technical data				
Size		70	80	120
Design		Electromechanical axis with toothed b	elt	
Guide		Recirculating ball bearing guide		
Mounting position		Any		
Working stroke	[mm]	50 5000	50 8500	50 8500
Max. feed force F _x	[N]	260	600	1000
Max. no-load torque ¹⁾	[Nm]	0.8	1.5	4.5
Max. no-load resistance to shifting ¹⁾	[N]	55.8	75.4	122
Max. driving torque	[Nm]	3.72	11.9	26.2
Max. speed	[m/s]	5		
Max. acceleration	[m/s ²]	50		
Repetition accuracy	[mm]	±0.08		

¹⁾ At 0.2 m/s

Operating and environmental conditions				
Ambient temperature ¹⁾	[°C]	−10 +60		
Degree of protection		IP40		
Duty cycle	[%]	100		
Food-safe ²⁾		→ Supplementary material information		

 $^{1) \}quad \hbox{Note operating range of proximity switches.} \\$

Additional information www.festo.com/sp → Certificates.

Weight [kg]				
Size	70	80	120	
Basic weight with 0 mm stroke ¹⁾	3.01	4.70	15.68	
Additional weight per 1000 mm stroke	4.00	5.13	10.64	
Moving mass				
ELGA	0.9	1.9	4.19	
ELGAZL/ZR	0.74	1.53	3.24	

¹⁾ Incl. slide

Data sheet – For the food zone

Toothed belt				
Size		70	80	120
Pitch	[mm]	3	5	5
Elongation ¹⁾	[%]	0.105	0.1	0.122
Effective diameter	[mm]	28.65	39.79	52.52
Feed constant	[mm/rev]	90	125	165

¹⁾ At max. feed force

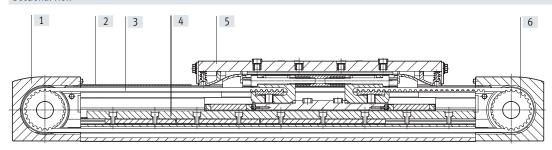
Mass moment of inertia						
Size		70	80	120		
Jo	[kg mm ²]	245	976	4065		
J _H per metre stroke	[kg mm ² /m]	24.4	76.8	176.5		
J _L per kg payload	[kg mm ² /kg]	205	396	690		
J _W for additional slide	[kg mm ²]	186	761	2891		

The mass moment of inertia J_A of the entire axis is calculated as follows:

$$J_A = J_0 + K x J_W + J_H x$$
 working stroke [m] + $J_L x m_{payload}$ [kg]

K = Number of additional slides

Materials Sectional view

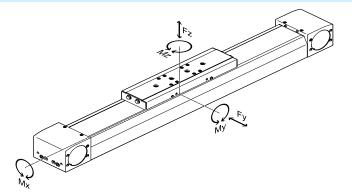


Axis				
Size		70	80	120
[1]	Drive cover	Anodised wrought aluminium alloy		
[2]	Cover strip	Stainless steel strip, non-corroding		
[3]	Toothed belt	Polyurethane with steel cord		
[4]	Guide rail	Stainless steel		Tempered steel
[5]	Slide	Anodised wrought aluminium alloy		
[6]	Belt pulley	High-alloy stainless steel		
	Note on materials	RoHS-compliant		
		Contains paint-wetting impairment subs	tances	

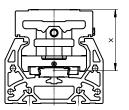
Data sheet - For the food zone

Characteristic load values

The indicated forces and torques refer to the centre of the guide. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect. These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



Distance from the slide surface to the centre of the guide



Distance from the slide surface to the centre of the guide					
Size		70	80	120	
Dimension x	[mm]	37	50	70	

Max. permissible forces and torques for a service life of 5000 km						
Size		70	80	120		
Fy _{max} .	[N]	1500	2500	5500		
Fz _{max} .	[N]	1850	3050	6890		
Mx _{max} .	[Nm]	16	36	104		
My _{max} .	[Nm]	132	228	680		
Mz _{max.}	[Nm]	132	228	680		



Note

For a guide system to have a service life of 5000 km, the load comparison factor must have a value of fv \leq 1, based on the maximum permissible forces and torques for a service life of 5000 km.

If the axis is subjected to two or more of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

Calculating the load comparison factor:

$$f_v = \frac{\left| F_{y1} \right|}{F_{y2}} + \frac{\left| F_{z1} \right|}{F_{z2}} + \frac{\left| M_{x1} \right|}{M_{x2}} + \frac{\left| M_{y1} \right|}{M_{y2}} + \frac{\left| M_{z1} \right|}{M_{z2}} \leq 1$$

 F_1/M_1 = dynamic value F_2/M_2 = maximum value

Data sheet – For the food zone

Calculating the service life

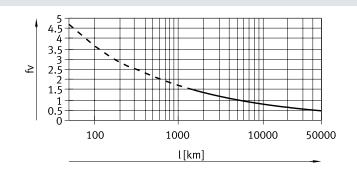
The service life of the guide depends on the load. To be able to make a statement as to the service life of the guide, the graph below plots the load comparison factor fv against the service life.

These values are only theoretical. You must consult your local Festo contact for a load comparison factor fv greater than 1.5.

Load comparison factor f_v as a function of service life

Example:

A user wants to move an X kg load. Using the formula (\rightarrow page 34) gives a value of 1.5 for the load comparison factor f_v . According to the graph, the guide would have a service life of approx. 1500 km. Reducing the acceleration reduces the Mz and My values. A load comparison factor f_v of 1 now gives a service life of 5000 km.



· 🖣 - Note

Engineering software PositioningDrives www.festo.com The software can be used to calculate a guide workload for a service life of 5000 km.

 f_{ν} > 1.5 are only theoretical comparison values for the recirculating ball bearing guide.

Comparison of the characteristic load values for 5000 km with dynamic forces and torques of recirculating ball bearing guides

The characteristic load values of bearing guides are standardised to ISO and JIS using dynamic and static forces and torques. These forces and torques are based on an expected service life of the guide system of 100 km according to ISO or 50 km according to JIS.

As the characteristic load values are dependent on the service life, the maximum permissible forces and torques for a 5000 km service life cannot be compared with the dynamic forces and torques of bearing guides to ISO/JIS.

To make it easier to compare the guide capacity of linear axes ELGA with bearing guides, the table below lists the theoretically permissible forces and torques for a calculated service life of 100 km. This corresponds to the dynamic forces and torques to ISO.

These 100 km values have been calculated mathematically and are only to be used for comparing with dynamic forces and torques to ISO. The drives must not be loaded with these characteristic values as this could damage the axes.

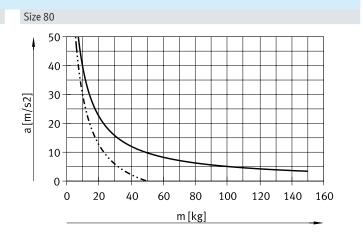
Max. permissible forces and torques for a theoretical service life of 100 km (from a guide perspective only)						
Size		70	80	120		
Fy _{max} .	[N]	5520	9200	20240		
Fz _{max} .	[N]	6808	11224	25355		
Mx _{max} .	[Nm]	59	132	383		
My _{max} .	[Nm]	486	839	2502		
Mz _{max} .	[Nm]	486	839	2502		

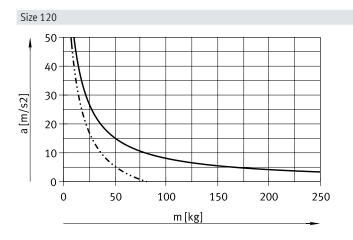
Data sheet - For the food zone

Max. acceleration a as a function of payload m

Size 70

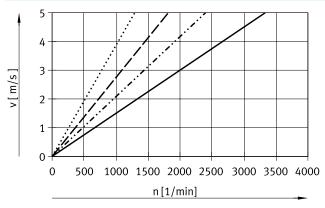
50
40
30
20
10
0
10
20
30
40
50
60
m[kg]





Horizontal mounting position
Vertical mounting position

Speed v as a function of rotational speed n

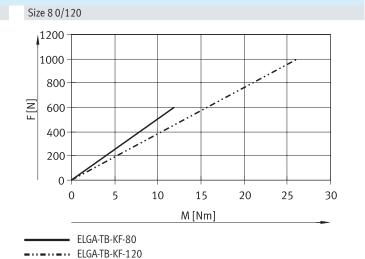


Data sheet - For the food zone

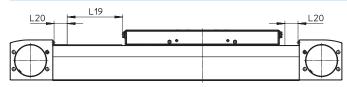
Theoretical feed force F as a function of input torque M

Size 70

350
250
250
150
100
50
0
1 2 3 4 5
M [Nm]



Stroke reserve



 The stroke reserve is a safety distance from the mechanical end position and is not used in normal operation

ELGA-TB-KF-70

 The sum of the nominal stroke and 2x stroke reserve must not exceed the maximum permissible working stroke L19 = Nominal stroke L20 = Stroke reserve

- The stroke reserve length can be freely selected
- The stroke reserve is defined via the "stroke reserve" characteristic in the modular product system.

Example:

Type ELGA-TB-KF-70-500-20H-...

Nominal stroke = 500 mm

2x stroke reserve = 40 mm

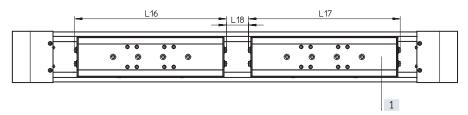
Working stroke = 540 mm

(540 mm = 500 mm + 2x 20 mm)

Working stroke reduction

For axis ELGA with additional slide ZL/ZR

For a toothed belt axis with additional slide, the working stroke is reduced by the length of the additional slide and the distance between the two slides



L16 = Slide length

L17 = Additional slide length

L18 = Distance between the two slides

[1] Additional slide

Example:

Type ELGA-TB-KF-70-500-...-ZR

Working stroke without

additional slide = 500 mmL18 = 50 mmL16, L17 = 221 mm

Working stroke with additional slide = 229 mm

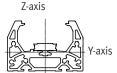
(500 mm - 50 mm - 221 mm)

Dimensions – Additional slide				
Size		70	80	120
Length L17	[mm]	221	246	335
Min. distance between the slides L18	[mm]	≥ 50	≥ 50	≥ 50

Toothed belt axes ELGA-TB-KF-F1, with recirculating ball bearing guide

Data sheet - For the food zone

Second moment of area

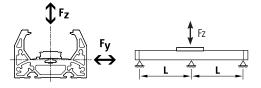


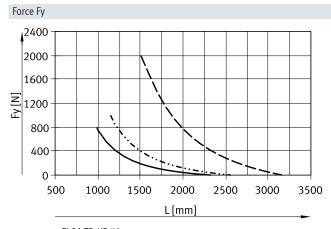
Size		70	80	120
ly	[mm ⁴]	1.69x10 ⁵	2.95x10 ⁵	1.35x10 ⁶
Iz	[mm ⁴]	4.84x10 ⁵	9.78x10 ⁵	4.50x10 ⁶

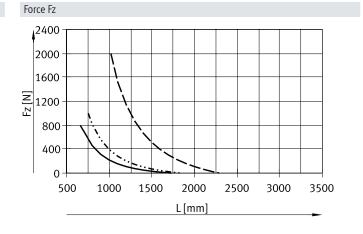
Maximum permissible support spacing L (without profile mounting MUE/central support EAHF) as a function of force F

In order to limit deflection in the case of large strokes, the axis may need to be supported.

The following graphs can be used to determine the maximum permissible support spacing I as a function of force F acting on the axis. The deflection is f = 0.5 mm.







Recommended deflection limits

Adherence to the following deflection limits is recommended so as not to impair the functionality of the axes.

Greater deformation can result in increased friction, greater wear and reduced service life.

Size	Dynamic deflection (moving load)	Static deflection (stationary load)
70 120	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length

Data sheet - For the food zone

Central lubrication

The lubrication connections enable the guide of the toothed belt axis ELGA-TB-KF-F1 to be permanently lubricated in applications in humid or wet ambient conditions using semi- or fully automatic relubrication devices.

- The connection options are already available in the standard design of the axes
- There is a dedicated lubrication connection for the spindle nut and the two ball cassettes

Slide dimensions

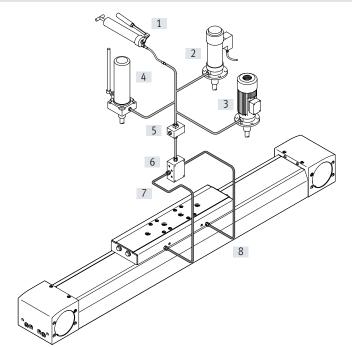
→ Page 42

Structure of a central lubrication system

A central lubrication system requires various additional components. The illustration shows different options (using a hand pump, pneumatic container pump or electric container pump) required as a minimum for designing a central lubrication system. Festo does not sell these additional components; however, they can be obtained from the following companies:

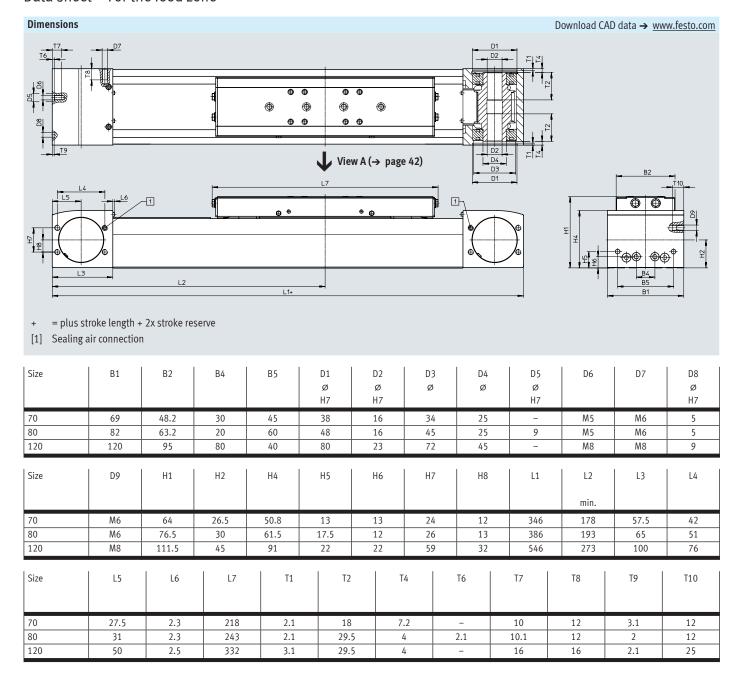
- Lincoln
- Bielomatik
- SKF (Vogel)

Festo recommends these companies because they can supply all the necessary components.



- [1] Hand pump
- [2] Pneumatic container pump
- [3] Electric container pump
- [4] Manually operated container pump
- [5] Nipple block
- [6] Distributor block
- [7] Tubing or piping
- [8] Fittings

Data sheet - For the food zone

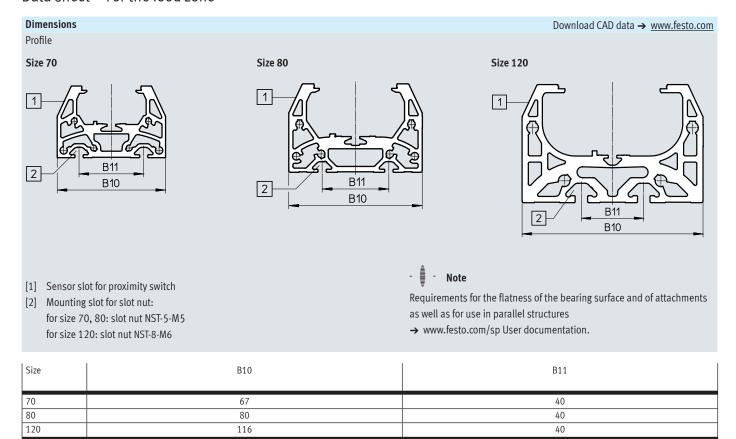


- 🖣 - Note

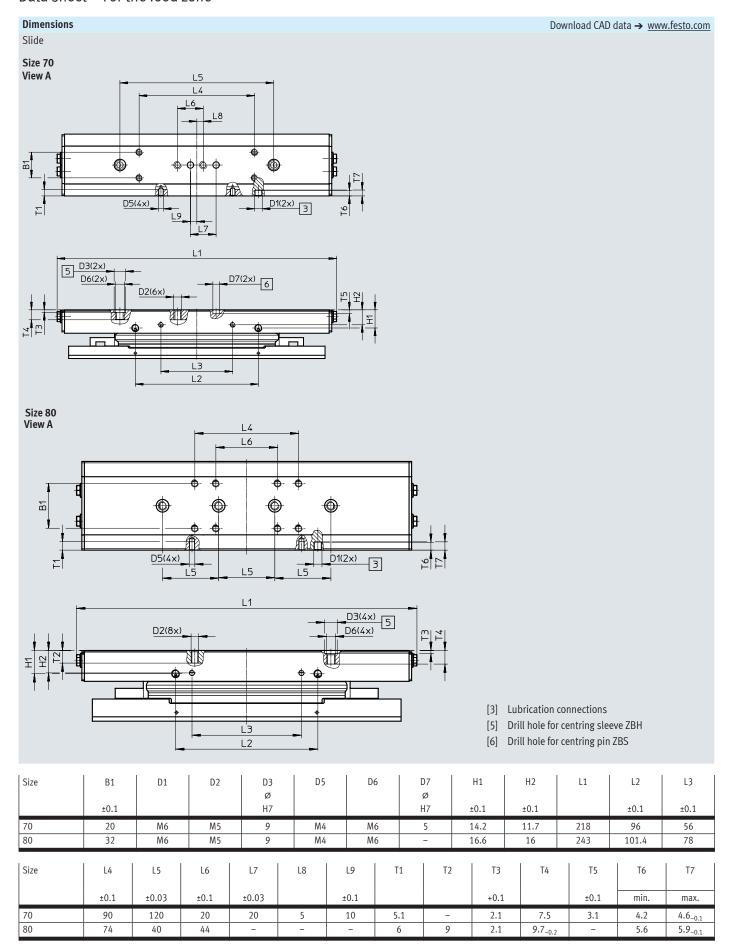
The roller carriages of the standard design will be greased for the variant ELGA-TB-KF--F1. This will be done in accordance with the guidelines Doc.23 from FHFDG

As part of this process, the standard grease except for small residual quantities will be replaced with a grease with NSF H1 approval.

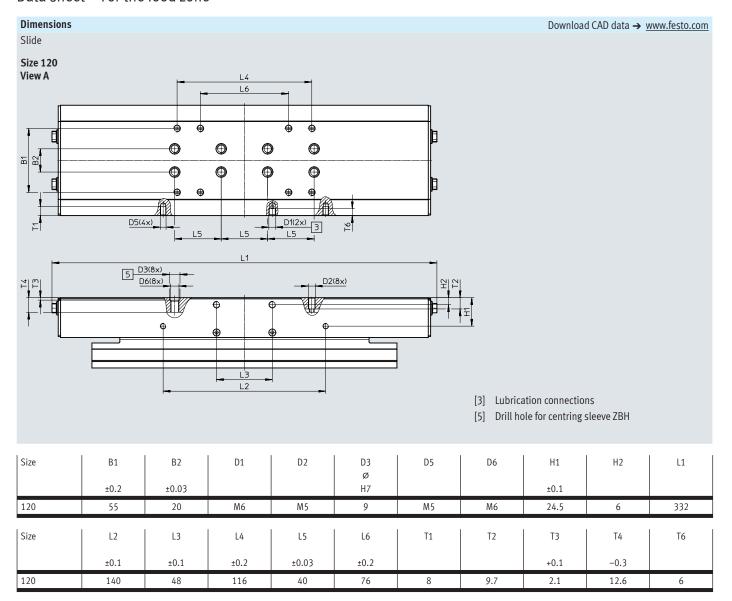
Data sheet – For the food zone



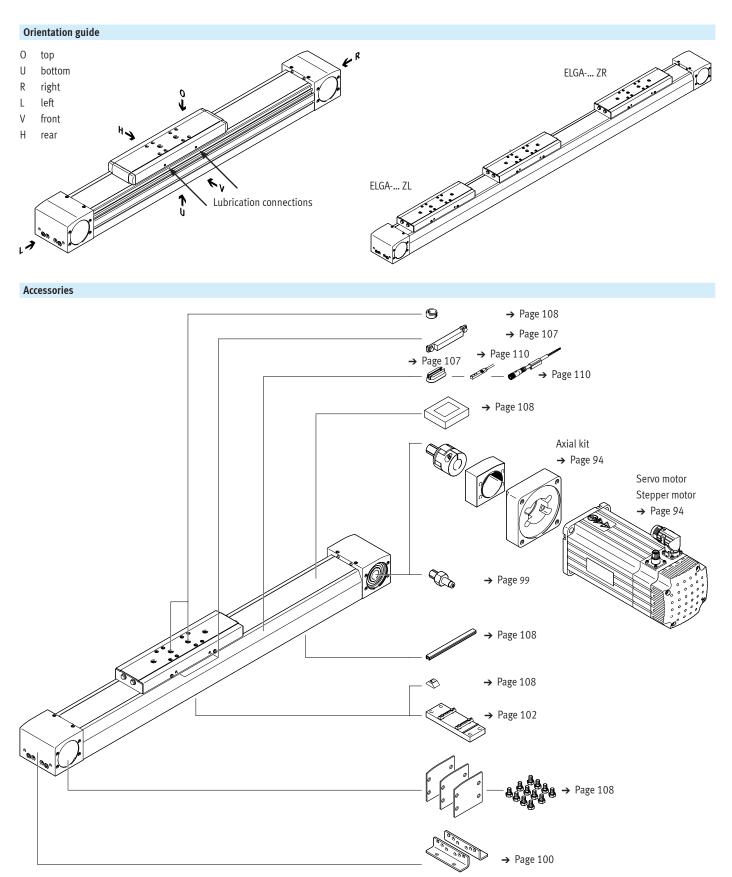
Data sheet - For the food zone



Data sheet – For the food zone



Ordering data – Modular product system – For the food zone



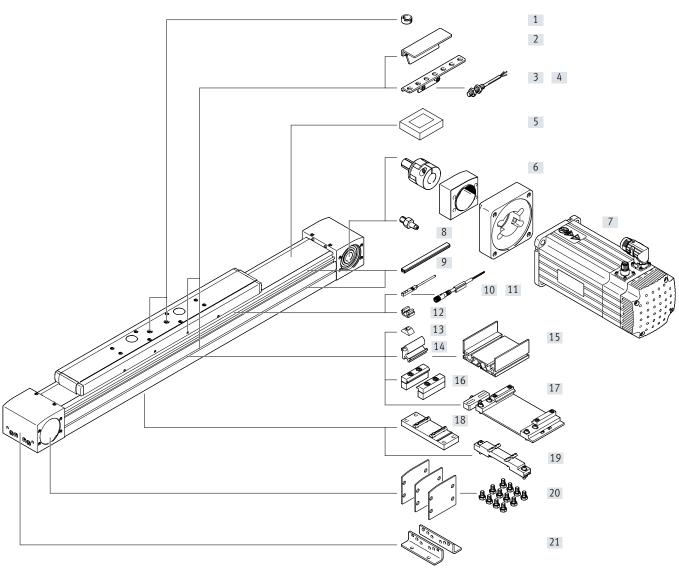
Ordering data – Modular products – For the food zone

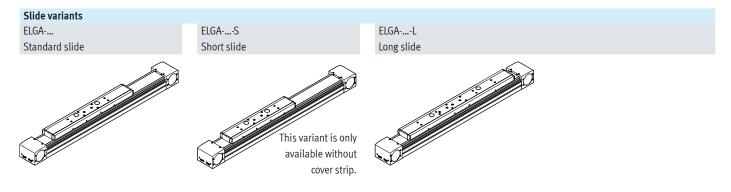
Ordering table								
Size		70	80	120	Conditions	Code		Ent
Module no.		8024914	8024915	8024916				
Design		Linear axis				ELGA		ELG.
Function		Toothed belt				-TB		-TB
Guide		Recirculating ball bearing guide				-KF		-KF
Size	[mm]	70	80	120				
Stroke length	[mm]	1 5000	1 8500	1 8500				
Stroke reserve	[mm]	0 999 (0 = no s	troke reserve)		[1]	Н		
Additional slide		None	None					
		1 slide left				-ZL		
		1 slide right	1 slide right			-ZR		
Additional features Fo		Food-safe as per s	Food-safe as per supplementary material information			-F1		-F1
Material of toothed belt Uncoated PU					-PU1		-PU1	
Operating instructions		With operating in:	With operating instructions				1	
		Without operating	ginstructions			-DN		

^{[1] ...} H The sum of the nominal stroke and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length

Peripherals overview







Peripherals overview

access	iories	Description	1 5 "
	Type/order code	Description	→ Page/Internet
1]	Centring pin/sleeve	For centring loads and attachments on the slide	108
	ZBS, ZBH	Included in the scope of delivery:	
		- For size 70, 80, 120: 2x ZBH-9	
2]	Switch lug	For sensing the slide position	105
	SA, SB, SC, SD, SE, SF		
3]	Sensor bracket	For mounting the inductive proximity switches (round design) on the axis	106
	SC, SD, SE, SF		
4]	Proximity switch, M8	Inductive proximity switch, round design	110
	SC, SD, SE, SF	• The order code SC, SD, SE, SF includes 1 switch lug and max. 2 sensor brackets in the scope of delivery	
5]	Clamping element	Tool for retensioning the cover strip	108
	EADT		
6]	Axial kit	For axial motor mounting (comprises: coupling, coupling housing and motor flange)	94
	EAMM		
7]	Motor	Motors specially matched to the axis, with or without gear unit, with or without brake	94
	EMME, EMMS		
8]	Drive shaft	Can, if required, be used as an alternative interface	99
	EA	 No drive shaft is required for the axis/motor combinations → page 94 	
9]	Slot cover	For protection against contamination	108
•	NS, NC		
10]	Proximity switch, T-slot	Inductive proximity switch, for T-slot	109
	SA, SB	The order code SA, SB includes 1 switch lug in the scope of delivery	
11]	Connecting cable	For proximity switch (order code SE and SF)	110
•	CA		
12]	Clip	For mounting the proximity switch cable in the slot	108
•	CM		
13]	Slot nut	For mounting attachments	108
•	NM		
14]	Adapter kit	For mounting the support profile on the axis	109
	DHAM		
15]	Support profile	For mounting and guiding an energy chain	109
-,	HMIA		
16]	Profile mounting	For mounting the axis on the side of the profile	101
	MA		
17]	Adjusting kit	For mounting the axis on a vertical surface. Once mounted, the axis can be aligned horizontally	104
	EADC-E16		
18]	Central support	For mounting the axis on the profile from underneath	102
- 4	EAHF-L5		
19]	Adjusting kit	Is height-adjustable. Can be used to easily compensate for any unevenness in the bearing surface	103
- 1	EADC-E15	G - any and and any and and any	**
20]	Cover kit	For covering the sides of the drive cover	108
- 0]	EASC-L5	The section of the different core	
21]	Foot mounting	For mounting the axis on the end cap	100
1	MF	With higher forces and torques, the axis should be mounted using the profile	1-00

Toothed belt axes ELGA-TB-RF, with roller guide

Type codes

001	Series	
ELGA	Gantry axis	
002	Drive system	
TB	Toothed belt	
ТВ	lootiled belt	
003	Guide	
RF	Roller bearing	
004	Size	
70	70	
80	80	
120	120	
005	Stroke	
	50 7400	
	Charles	
006	Stroke reserve	
Н	0 999	
007	Slide design	
	Standard	
S	Slide, short	
L	Slide, long	
008	Protection against particles	
	Standard	
P0	Without strip cover	
009	Additional characteristics	
	None	
F1	Food-safe according to supplementary information on materials	
010	Toothed belt material	
	Standard	
PU1	Uncoated PU, FDA-compliant	
PU2	Coated PU	
011	Foot mounting [units]	
	None	
MF	1	
012	Profile mounting	
	None	
MA	1 50	$\dagger \lnot \dagger$
013	Proximity sensor, inductive, slot 8, N/O contact, cable 7.5 m	
	•	
	None	
SA	None 1 6	

014	Proximity sensor, inductive, slot 8, N/C contact, cable 7.5 m
	None
SB	16
015	Proximity sensor, inductive, M8, PNP, N/O contact, cable 2.5 m [units]
	None
SC	1 99
016	Proximity sensor, inductive, M8, PNP, N/C contact, cable 2.5 m [units]
CD	None
SD	1 99
017	Proximity sensor, inductive, M8, PNP, N/O contact, plug M8 [units]
CE	None 1 99
SE	1 99
018	Proximity sensor, inductive, M8, PNP, N/C contact, plug M8 [units]
	None
SF	199
019	Connecting cable, M8, 2.5 m [units]
	None
CA	1 99
020	Cover, sensor slot [units]
NC	None
NS	1 50
021	Mounting slot covering
	None
NC	1 50
022	Slot nut for mounting slot
	None
NM	199
023	Cable clip [units]
	None
CM	10, 20, 30, 40, 50, 60, 70, 80, 90
024	Drive shaft [units]
	None
EA	1 4
025	Operating instructions
025 DN	Operating instructions With operating instructions Without operating instructions

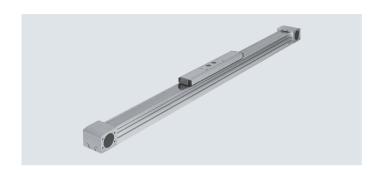


- **Ø** - Size 70 ... 120

- Stroke length

50 ... 7400 mm





General technical data				
Size		70	80	120
Design		Electromechanical axis with to	othed belt	
Guide		Roller guide		
Mounting position		Any		
Working stroke				
ELGA	[mm]	50 7000	50 7000	50 7400
ELGAS	[mm]	50 7000	50 7000	50 7400
ELGAL	[mm]	50 6900	50 6900	50 7200
Max. feed force F _x	[N]	350	800	1300
Max. no-load torque ¹⁾	[Nm]	0.66	1.35	3
Max. no-load resistance to shifting ¹⁾	[N]	46	68	114
Max. driving torque	[Nm]	5	15.9	34.1
Max. speed	[m/s]	10	·	
Max. acceleration	[m/s ²]	50		
Repetition accuracy	[mm]	±0.08		

¹⁾ At 0.2 m/s

Operating and environmental conditions				
Ambient temperature ¹⁾	[°C]	-10 +60		
Degree of protection				
ELGA		IP40		
ELGAP0		IP00		
Duty cycle	[%]	100		

¹⁾ Note operating range of proximity switches

Weight [kg]			
Size	70	80	120
Basic weight with 0 mm stroke ¹⁾			
ELGA	2.78	6.25	17.39
ELGAS	2.39	5.62	15.82
ELGAL	3.33	7.49	21.44
Additional weight per 1000 mm stroke			
ELGA	3.29	5.17	10.81
ELGAP0	3.18	5.06	10.66
Moving mass			
ELGA	0.80	2.01	5.08
ELGAS	0.70	1.85	4.65
ELGAL	1.03	2.53	6.63

¹⁾ Incl. slide

Toothed belt axes ELGA-TB-RF, with roller guide

Data sheet

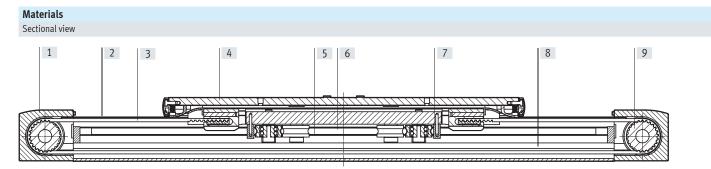
Toothed belt					
Size		70	80	120	
Pitch	[mm]	3	5	5	
Elongation ¹⁾					
ELGA	[%]	0.213	0.168	0.21	
ELGAPU2	[%]	0.105	0.1	0.122	
Effective diameter	[mm]	28.65	39.79	52.52	
Feed constant	[mm/rev]	90	125	165	

¹⁾ At max. feed force

Mass moment of inertia					
Size		70	80	120	
Jo					
ELGA	[kg mm ²]	232	1044	4935	
ELGAS	[kg mm ²]	207	968	4592	
ELGAL	[kg mm ²]	278	1247	6006	
J _H per metre stroke	[kg mm²/m]	19	97	221	
J _L per kg payload	[kg mm²/kg]	205	396	690	

The mass moment of inertia J_A of the entire axis is calculated as follows:

 $J_A = J_O + J_H x$ working stroke [m] + $J_L x$ m_{payload} [kg]

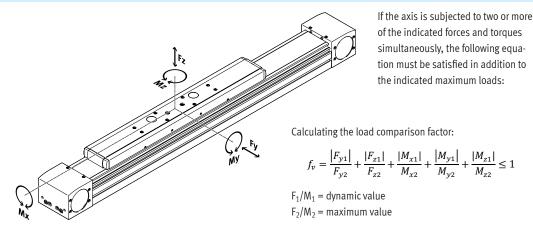


Axis		
[1]	Drive cover	Anodised wrought aluminium alloy
[2]	Cover strip	Stainless steel strip, non-corroding
[3]	Toothed belt	
	ELGA	Polychloroprene with glass cord and nylon coating
	ELGAPU2	Polyurethane with steel cord and nylon covering
[4]	Slide	Anodised wrought aluminium alloy
[5]	Castor	Hardened rolled steel
[6]	Guide rod	Hardened and hard-chromium plated tempered steel
[7]	Scraper	Oil-impregnated felt
[8]	Profile	Anodised wrought aluminium alloy
[9]	Toothed belt pulley	High-alloy stainless steel
	Note on materials	RoHS-compliant
		Contains paint-wetting impairment substances

Characteristic load values

The indicated forces and torques refer to the slide surface. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect.

These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



Max. permissible forces	Max. permissible forces and torques for a service life of 10000 km						
Size		70	80	120			
Fy _{max} .	[N]	500	800	2000			
Fz _{max} .	[N]	500	800	2000			
Mx _{max} .	[Nm]	11	30	100			
My _{max.}							
ELGA	[Nm]	20	90	320			
ELGAS	[Nm]	20	90	320			
ELGAL	[Nm]	40	180	640			
Mz _{max} .							
ELGA	[Nm]	20	90	320			
ELGAS	[Nm]	20	90	320			
ELGAL	[Nm]	40	180	640			

Calculating the service life

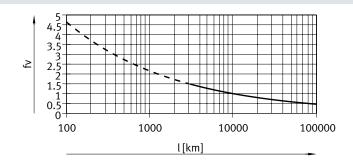
The service life of the guide depends on the load. To be able to make a statement as to the service life of the guide, the graph below plots the load comparison factor fv against the service life.

These values are only theoretical. You must consult your local Festo contact for a load comparison factor fv greater than 1.5.

Load comparison factor f_{ν} as a function of service life

Example:

A user wants to move an X kg load. Using the formula (\rightarrow page 51) gives a value of 1.5 for the load comparison factor f_v . According to the graph, the guide would have a service life of approx. 3000 km. Reducing the acceleration reduces the Mz and My values. A load comparison factor f_v of 1 now gives a service life of 10000 km.





Note

Engineering software PositioningDrives www.festo.com The software can be used to calculate a guide workload for a service life of 5000 km.

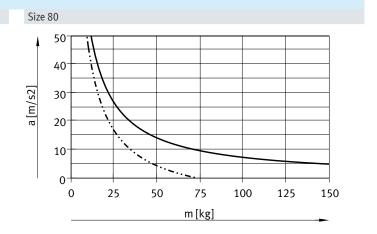
 $f_{\nu}\!>\!1.5$ are only theoretical comparison values for the recirculating ball bearing guide.

Max. acceleration a as a function of payload m

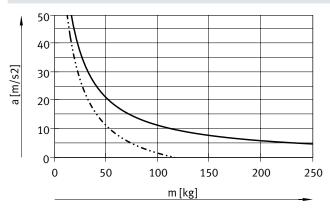
Size 70

50
40
30
20
10
0 10 20 30 40 50 60

m [kg]

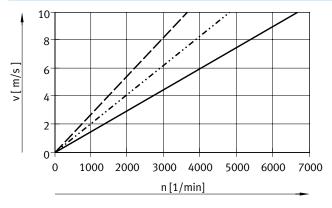


Size 120



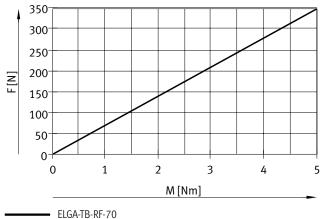
Horizontal mounting positionVertical mounting position

Speed v as a function of rotational speed n

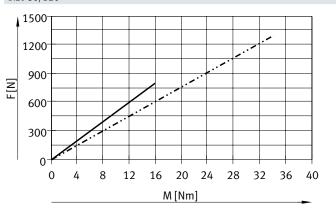


Theoretical feed force F as a function of input torque M

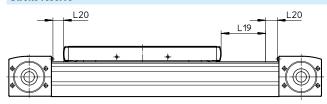
Size 70



Size 80/120



Stroke reserve



 The stroke reserve is a safety distance from the mechanical end position and is not used in normal operation The sum of the nominal stroke and 2x stroke reserve must not exceed the maximum permissible working stroke L19 = Nominal stroke

L20 = Stroke reserve

- The stroke reserve length can be freely selected
- The stroke reserve is defined via the "stroke reserve" characteristic in the modular product system.

Example:

Type ELGA-TB-RF-70-500-20H-...

Nominal stroke = 500 mm

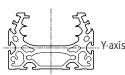
2x stroke reserve = 40 mm

Working stroke = 540 mm

(540 mm = 500 mm + 2x 20 mm)

Second moment of area

Z-axis

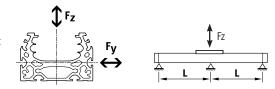


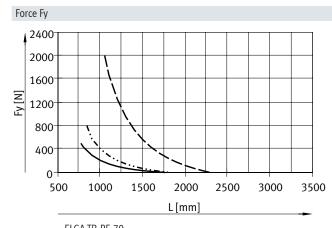
Size		70	80	120
ly	[mm ⁴]	1.39x10 ⁵	2.70x10 ⁵	1.42x10 ⁶
Iz	[mm ⁴]	4.33x10 ⁵	1.02x10 ⁶	5.02x10 ⁶

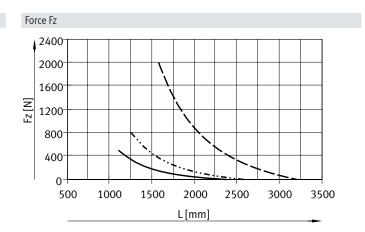
Maximum permissible support spacing L (without profile mounting MUE/central support EAHF) as a function of force F

In order to limit deflection in the case of large strokes, the axis may need to be supported.

The following graphs can be used to determine the maximum permissible support spacing I as a function of force F acting on the axis. The deflection is f = 0.5 mm.





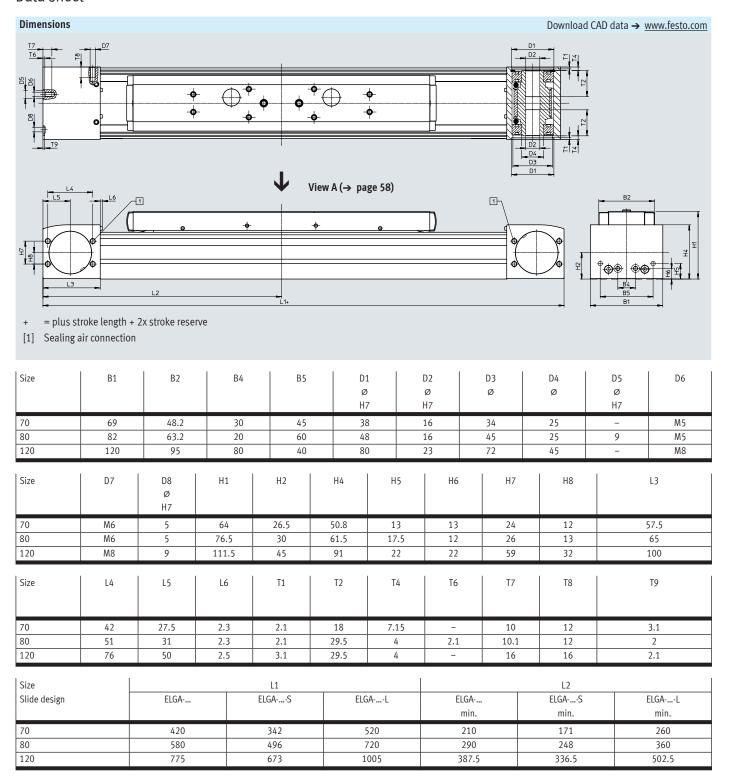


Recommended deflection limits

Adherence to the following deflection limits is recommended so as not to impair the functionality of the axes.

Greater deformation can result in increased friction, greater wear and reduced service life.

Size	Dynamic deflection (moving load)	Static deflection (stationary load)
70 120	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length



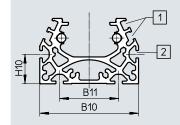
Download CAD data → www.festo.com

Data sheet

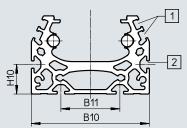
Dimensions

Profile

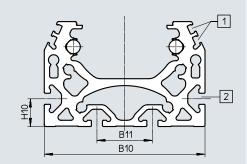
Size 70







Size 120



- [1] Sensor slot for proximity switch
- [2] Mounting slot for slot nut: for size 70, 80: slot nut NST-5-M5 for size 120: slot nut NST-8-M6

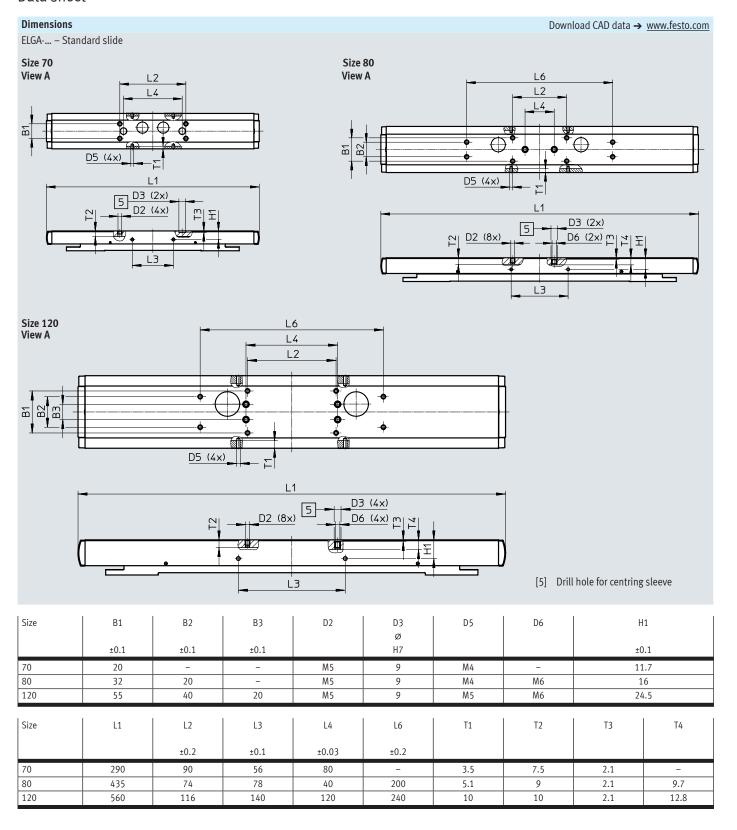
Size	B10	B11	H10
70	67	40	20
70 80	67 80	40	20 20

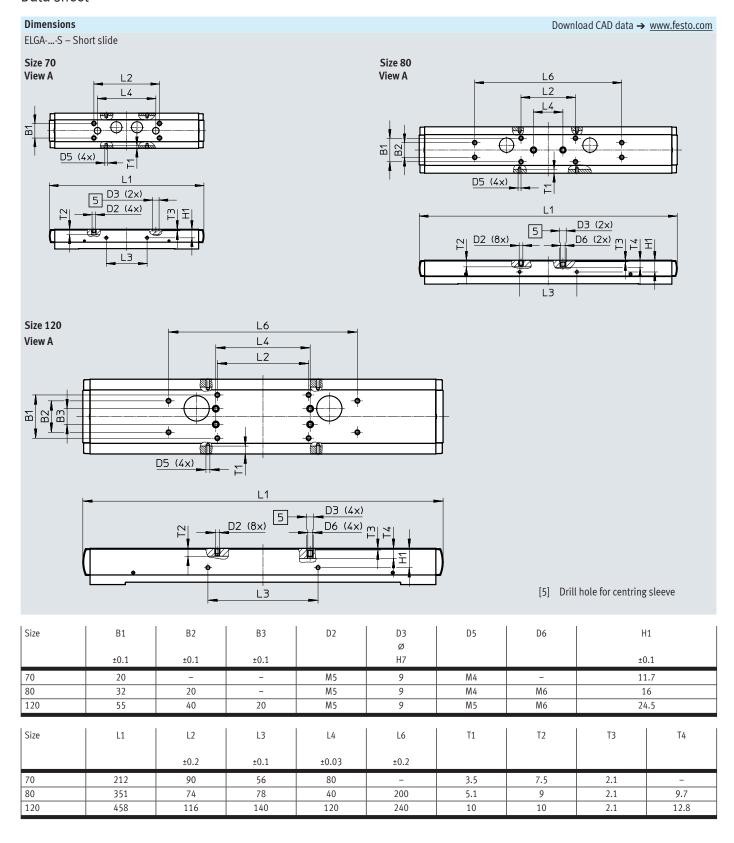


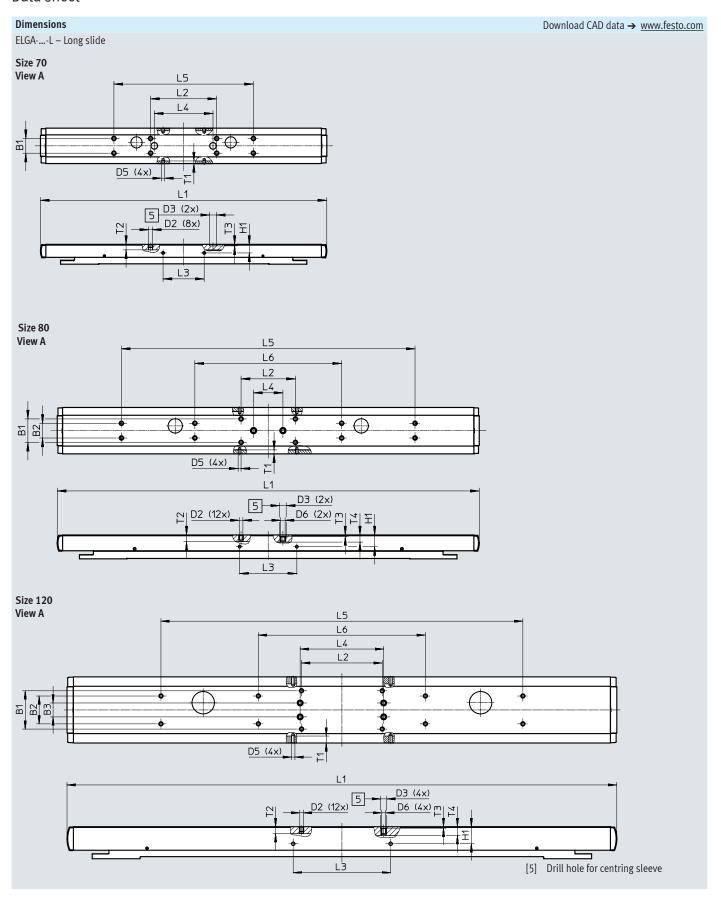
Note

Requirements for the flatness of the bearing surface and of attachments as well as for use in parallel structures

→ www.festo.com/sp User documentation

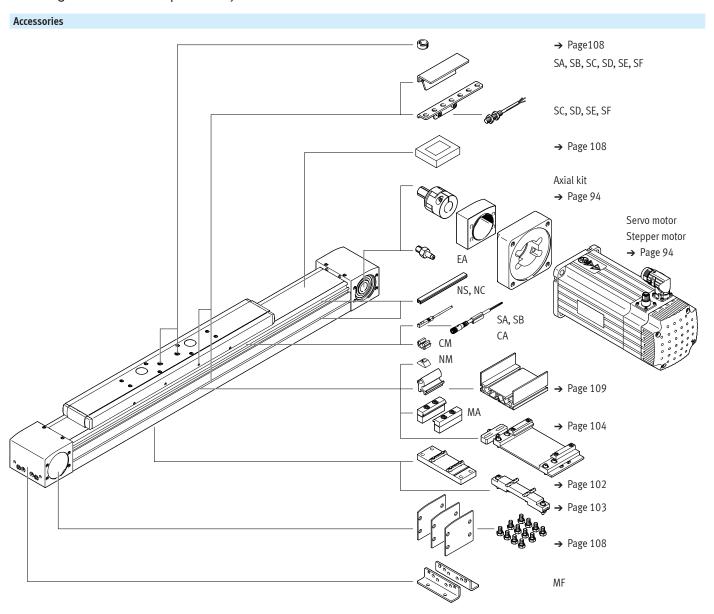






Size	B1	B2	В3	D2	D3	D5
					Ø	
	±0.1	±0.1	±0.1		H7	
70	20	-	-	M5	9	M4
80	32	20	-	M5	9	M4
120	55	40	20	M5	9	M5
	1	ı	ı	ı	ı	1
Size	D6	H1	L1	L2	L3	L4
		±0.1		±0.2	±0.1	±0.03
70			200			
70	-	11.7	390	90	56	80
80	M6	16	575	74	78	40
120	M6	24.5	790	116	140	120
Size	1	l 12	I _{T4}	l 12	T2	l = T/
Size	L5	L6	T1	T2	Т3	T4
	±0.2	±0.2				
70	190	-	3.5	7.5	2.1	-
80	400	200	5.1	9	2.1	9.7
1	400	200	J2	,		*

Ordering data – Modular product system



Ordering data – Modular product system

Ordering table							
Size		70	80	120	Conditions	Code	Enter cod
Module no.		1371245	1371246	1371247			
Design		Linear axis				ELGA	ELGA
Function		Toothed belt				☆ -TB	-TB
Guide		Roller guide				☆ -RF	-RF
Size	[mm]	70	80	120		☆	
Stroke length	[mm]	1 7000	1 7000	1 7400		☆	
Stroke reserve	[mm]	0 999 (0 = no s	stroke reserve)		[1]	☆ H	
Slide design		Standard slide				☆	
·		50 7000	50 7000	50 7400			
		Short slide			[2]	☆-S	
		50 7000	50 7000	50 7400			
		Long slide				☆ -L	
		50 6900	50 6900	50 7200			
Protection against particles		Standard	'	,		☆	
		Without cover stri	ip			☆ -P0	
Material of toothed belt		Chloroprene rubb	per				
		Coated PU				-PU2	
Accessories		Accessories enclo	osed separately			+	+
Foot mounting		1				MF	
Profile mounting		1 50				MA	
Proximity switch (SIES),	N/O contact, 7.5 m cable	1 6				SA	
inductive, slot type 0, PNP,	N/C contact, 7.5 m cable	1 6				SB	
incl. switch lug							
Proximity switch (SIEN),	N/O contact, 2.5 m cable	1 99				SC	
inductive, M8, PNP,	N/C contact, 2.5 m cable	1 99				SD	
incl. switch lug	N/O contact, M8 plug	1 99				SE	
with sensor bracket	N/C contact, M8 plug	1 99				SF	
Connecting cable 2.5 m, M8, 3-w	vire	1 99				CA	
Sensor slot cover		1 50 (1 = 2 uni	<u> </u>			NS	
Mounting slot cover		1 50 (1 = 2 uni	its, 500 mm)			NC	
Slot nut for mounting slot		1 99				NM	
Clip for sensor slot			0, 60, 70, 80, 90			CM	
Drive shaft		1 4				EA	
Operating instructions		With operating in					
		Without operating	g instructions			-DN	

^{[1] ...} H The sum of the nominal stroke and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length

^[2] **S** Only with P0

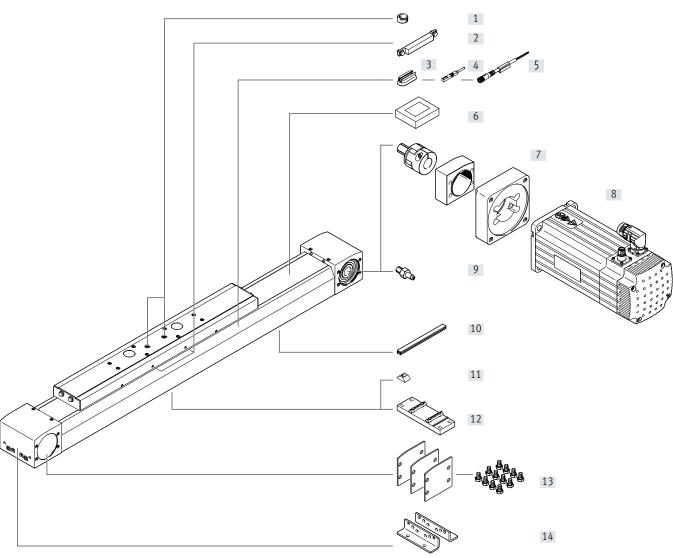


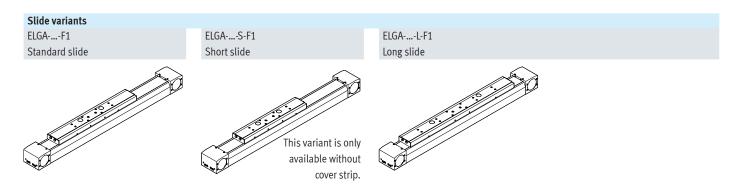
The code SA, SB includes a switch lug in the scope of delivery.

The code SC, SD, SE, SF includes one switch lug and max. two sensor brackets in the scope of delivery.

Peripherals overview – For the food zone







Peripherals overview – For the food zone

Acces			1
	Type/order code	Description	→ Page/Internet
[1]	Centring pin/sleeve	For centring loads and attachments on the slide	108
	ZBS, ZBH	Included in the scope of delivery:	
		- For size 70, 80, 120: 2x ZBH-9	
[2]	Switch lug	For sensing the slide position	107
	EAPM		
[3]	Mounting kit	For mounting the proximity switches on the axis	107
	CRSMB		
[4]	Proximity switch, T-slot	For sensing the slide position	110
	SME-8M		
[5]	Connecting cable	For proximity switch	110
	NEBU		
6]	Clamping element	Tool for retensioning the cover strip	108
	EADT		
[7]	Axial kit	For axial motor mounting (comprises: coupling, coupling housing and motor flange)	94
	EAMM		
[8]	Motor	Motors specially matched to the axis, with or without gear unit, with or without brake	94
	EMME, EMMS		
9]	Drive shaft	Can, if required, be used as an alternative interface	99
	EA	No drive shaft is required for the axis/motor combinations → page 94	
[10]	Slot cover	For protection against contamination	108
	NC		
[11]	Slot nut	For mounting attachments	108
	NM		
12]	Central support	For mounting the axis on the profile from underneath	102
	EAHF-L5		
13]	Cover kit	For covering the sides of the drive cover	108
	EASC-L5		
14]	Foot mounting	For mounting the axis on the end cap.	100
	MF		

Data sheet - For the food zone



- **Ø** -

Size

70 ... 120



Stroke length 50 ... 7400 mm



www.festo.com



General technical data				
Size		70	80	120
Design		Electromechanical axis with	toothed belt	
Guide		Roller guide		
Mounting position		Any		
Working stroke				
ELGA	[mm]	50 7000	50 7000	50 7400
ELGAS	[mm]	50 7000	50 7000	50 7400
ELGAL	[mm]	50 6900	50 6900	50 7200
Max. feed force F _x	[N]	260	600	1000
Max. no-load torque ¹⁾	[Nm]	1.03	1.93	5.67
Max. no-load resistance to shifting ¹⁾	[N]	72	97	216
Max. driving torque	[Nm]	3.7	11.9	26.2
Max. speed	[m/s]	10		
Max. acceleration	[m/s ²]	50	-	
Repetition accuracy	[mm]	±0.08		

¹⁾ At 0.2 m/s

Operating and environmental conditions					
Ambient temperature ¹⁾	[°C]	-10 +60			
Degree of protection	Degree of protection				
ELGA	'	IP40			
ELGAP0	'	IP00			
Duty cycle	[%]	100			
Food-safe ²⁾		→ Supplementary material information			

Note operating range of proximity switches.

Additional information www.festo.com/sp → Certificates.

Weight [kg]			
Size	70	80	120
Basic weight with 0 mm stroke ¹⁾			
ELGA	2.81	6.17	17.17
ELGAS	2.43	5.56	15.65
ELGAL	3.38	7.36	21.11
Additional weight per 1000 mm stroke			
ELGA	3.36	4.87	10.34
ELGAP0	3.24	4.77	10.19
Moving mass			
ELGA	0.82	2.04	5.14
ELGAS	0.75	1.97	4.87
ELGAL	1.04	2.55	6.69

¹⁾ Incl. slide

Data sheet – For the food zone

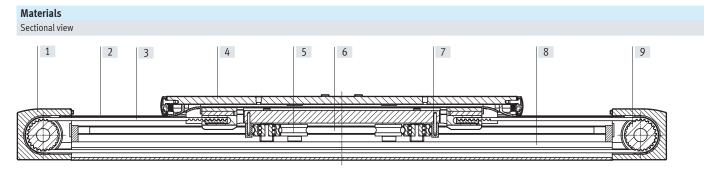
Toothed belt				
Size		70	80	120
Pitch	[mm]	3	5	5
Elongation ¹⁾	[%]	0.105	0.1	0.122
Effective diameter	[mm]	28.65	39.79	52.52
Feed constant	[mm/rev]	90	125	165

¹⁾ At max. feed force

Mass moment of inertia				
Size		70	80	120
Jo				
ELGA	[kg mm ²]	237	1062	4937
ELGAS	[kg mm ²]	209	975	4554
ELGAL	[kg mm ²]	282	1265	6008
J _H per metre stroke	[kg mm ² /m]	23	110	264
J _L per kg payload	[kg mm ² /kg]	205	396	690

The mass moment of inertia J_A of the entire axis is calculated as follows:

 $J_A = J_O + J_H x$ working stroke [m] + $J_L x$ m_{payload} [kg]

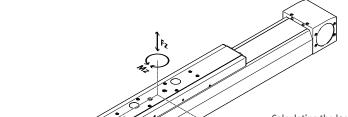


Axis			
[1]	Drive cover	Anodised wrought aluminium alloy	
[2]	Cover strip	Stainless steel strip, non-corroding	
[3]	Toothed belt	Polyurethane with steel cord	
[4]	Slide	Anodised wrought aluminium alloy	
[5]	Castor	Hardened rolled steel (lubricant approved for the food zone)	
[6]	Guide rod	Hardened tempered steel	
[7]	Scraper	Oil-impregnated felt (lubricating oil approved for the food zone)	
[8]	Profile	Anodised wrought aluminium alloy	
[9]	Toothed belt pulley	High-alloy stainless steel	
	Note on materials	RoHS-compliant	
		Contains paint-wetting impairment substances	

Data sheet - For the food zone

Characteristic load values

The indicated forces and torques refer to the slide surface. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect. These values must not be exceeded during dynamic operation. Special attention must be paid to the cushioning phase.



If the axis is subjected to two or more of the indicated forces and torques simultaneously, the following equation must be satisfied in addition to the indicated maximum loads:

Calculating the load comparison factor:

$$f_v = \frac{\left| F_{y1} \right|}{F_{y2}} + \frac{\left| F_{z1} \right|}{F_{z2}} + \frac{\left| M_{x1} \right|}{M_{x2}} + \frac{\left| M_{y1} \right|}{M_{y2}} + \frac{\left| M_{z1} \right|}{M_{z2}} \leq 1$$

 $F_1/M_1 = dynamic value$ $F_2/M_2 = maximum value$

Max. permissible forces and torques for a service life of 10000 km				
Size		70	80	120
Fy _{max.}	[N]	400	640	1600
Fz _{max} .	[N]	400	640	1600
Mx _{max.}	[Nm]	8.8	24	80
My _{max} .		,	·	
ELGA	[Nm]	16	72	256
ELGAS	[Nm]	16	72	256
ELGAL	[Nm]	32	144	512
Mz _{max} .				
ELGA	[Nm]	16	72	256
ELGAS	[Nm]	16	72	256
ELGAL	[Nm]	32	144	512

Calculating the service life

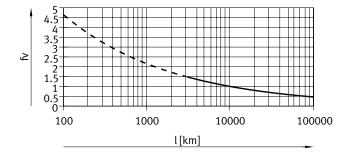
The service life of the guide depends on the load. To be able to make a statement as to the service life of the guide, the graph below plots the load comparison factor fv against the service life.

These values are only theoretical. You must consult your local Festo contact for a load comparison factor fv greater than 1.5.

Load comparison factor f_v as a function of service life

Example:

A user wants to move an X kg load. Using the formula (→ page 68) gives a value of 1.5 for the load comparison factor f_{ν} . According to the graph, the guide would have a service life of approx. 3000 km. Reducing the acceleration reduces the Mz and My values. A load comparison factor f_v of 1 now gives a service life of 10000 km.





The software can be used to calcu-PositioningDrives late a guide workload for a service life of 10000 km. www.festo.com

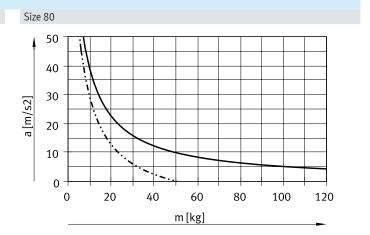
 $f_v > 1.5$ are only theoretical comparison values for the roller bearing guide.

Data sheet – For the food zone

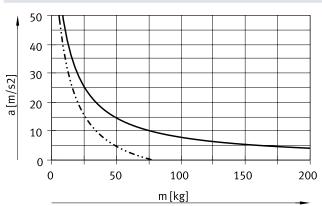
Max. acceleration a as a function of payload m

Size 70

50
40
30
20
10
0
10
20
30
40
50
m [kg]



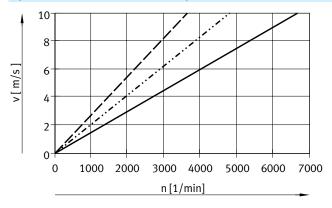
Size 120



Horizontal mounting position

Vertical mounting position

Speed v as a function of rotational speed n

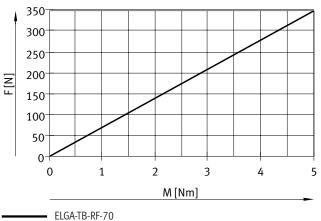


ELGA-TB-RF-70
ELGA-TB-RF-80
ELGA-TB-R-120

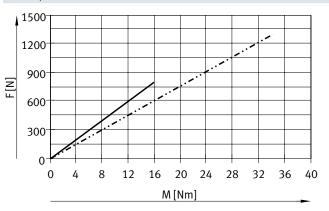
Data sheet - For the food zone

Theoretical feed force F as a function of input torque M

Size 70

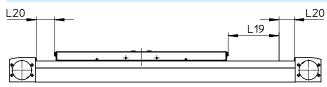


Size 8 0/120



ELGA-TB-RF-80 ---- ELGA-TB-RF-120

Stroke reserve



• The stroke reserve is a safety distance from the mechanical end position and is not used in normal operation

• The sum of the nominal stroke and 2x stroke reserve must not exceed the maximum permissible working stroke

Nominal stroke

L20 = Stroke reserve

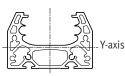
- The stroke reserve length can be freely selected
- The stroke reserve is defined via the "stroke reserve" characteristic in the modular product system.

Example:

Type ELGA-TB-RF-70-500-20H-... Nominal stroke = 500 mm = 40 mm 2x stroke reserve Working stroke = 540 mm (540 mm = 500 mm + 2x 20 mm)

Second moment of area

Z-axis



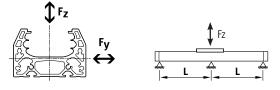
Size		70	80	120
ly	[mm ⁴]	1.48x10 ⁵	2.77x10 ⁵	1.32x10 ⁶
Iz	[mm ⁴]	4.52x10 ⁵	1.00x10 ⁶	4.74x10 ⁶

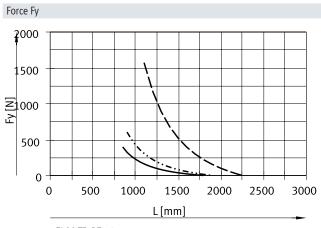
Data sheet – For the food zone

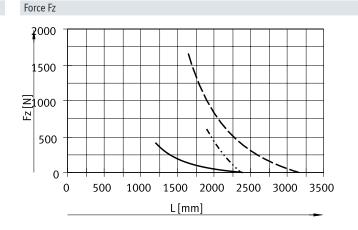
Maximum permissible support spacing L (without central support EAHF) as a function of force F

In order to limit deflection in the case of large strokes, the axis may need to be supported.

The following graphs can be used to determine the maximum permissible support spacing l as a function of force F acting on the axis. The deflection is f = 0.5 mm.







ELGA-TB-RF-70

ELGA-TB-RF-80

ELGA-TB-RF-120

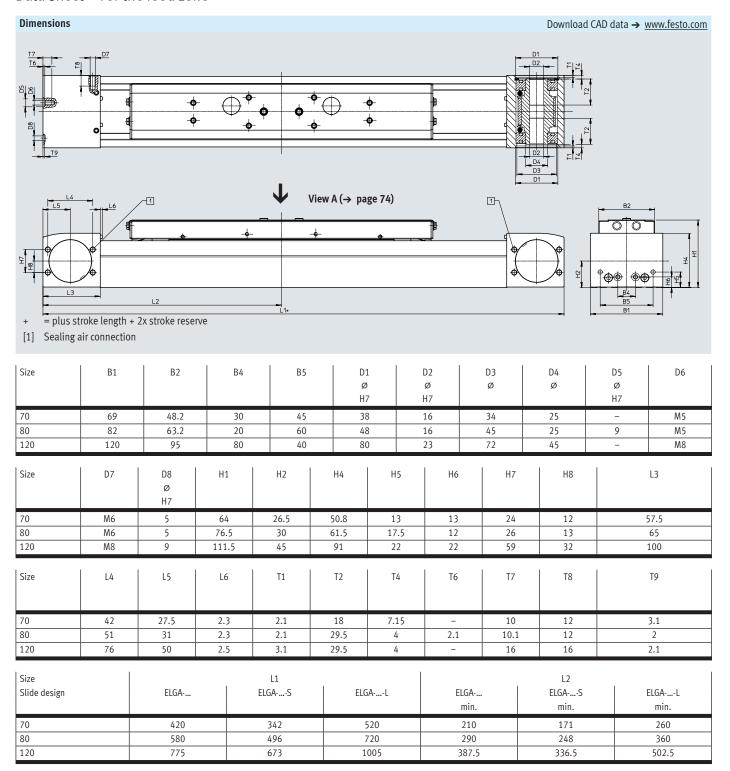
Recommended deflection limits

Adherence to the following deflection limits is recommended so as not to impair the functionality of the axes.

Greater deformation can result in increased friction, greater wear and reduced service life.

Size	Dynamic deflection (moving load)	Static deflection (stationary load)
70 120	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length

Data sheet – For the food zone



Data sheet – For the food zone

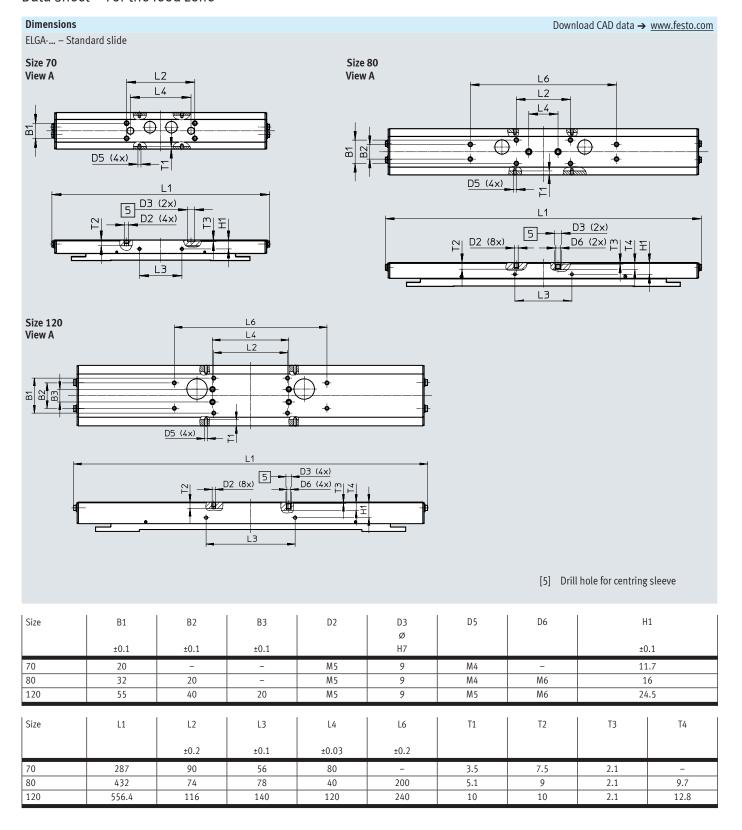
Size	B10	B11
70	/7	10
70	67	40
70 80	67 80	40 40



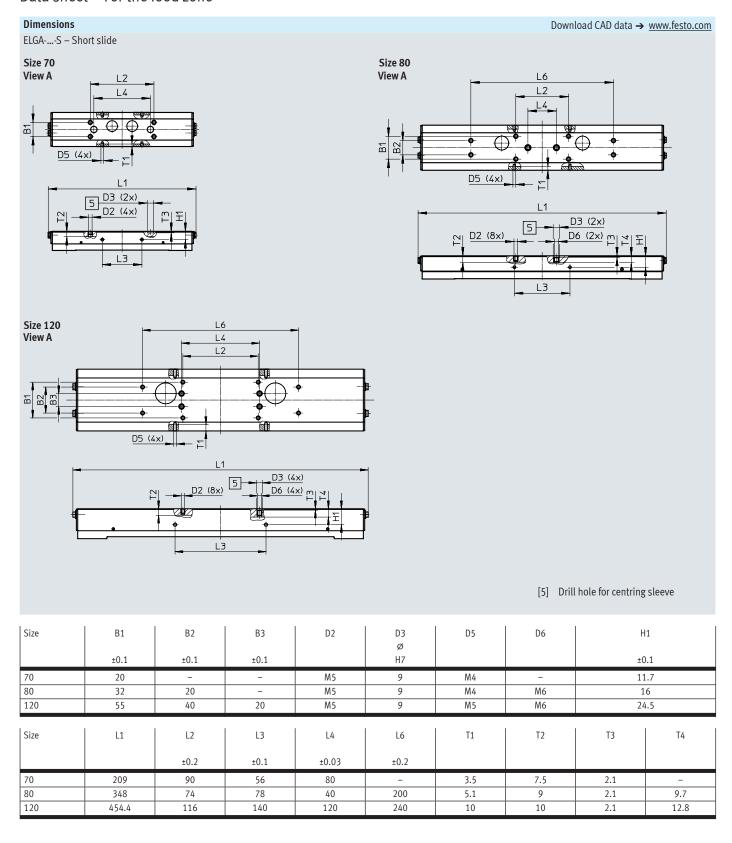
Requirements for the flatness of the bearing surface and of attachments as well as for use in parallel structures

→ www.festo.com/sp User documentation

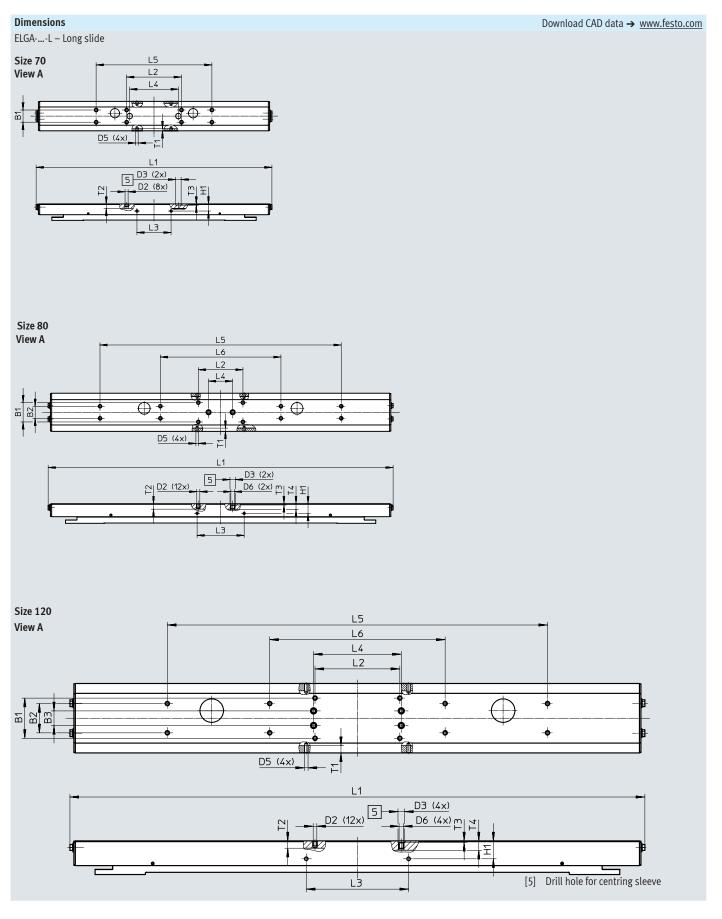
Data sheet - For the food zone



Data sheet – For the food zone



Data sheet - For the food zone



Data sheet – For the food zone

Size	B1	B2	В3	D2	D3	D5
					Ø	
	±0.1	±0.1	±0.1		H7	
70	20	-	-	M5	9	M4
80	32	20	-	M5	9	M4
120	55	40	20	M5	9	M5
		ı	1	1	ı	1
Size	D6	H1	L1	L2	L3	L4
		.0.1		.0.2	.01	.0.03
		±0.1		±0.2	±0.1	±0.03
70	-	11.7	387	90	56	80
80	M6	16	572	74	78	40
120	M6	24.5	786.4	116	140	120
l c:	1 15	1	T4	T2		Ι τ.
Size	L5	L6	T1	T2	Т3	T4
	±0.2	±0.2				
70	190	-	3.5	7.5	2.1	-
80	400	200	5.1	9	2.1	9.7
120	520	240	10	10	2.1	12.8

Ordering data – Modular products – For the food zone

Accessories → Page 108 → Page 107 → Page 110 → Page 110 → Page 107 → Page 108 Axial kit → Page 94 Servo motor Stepper motor → Page 94 EΑ NCNM → Page 102 Page 108 MF

Ordering data – Modular products – For the food zone

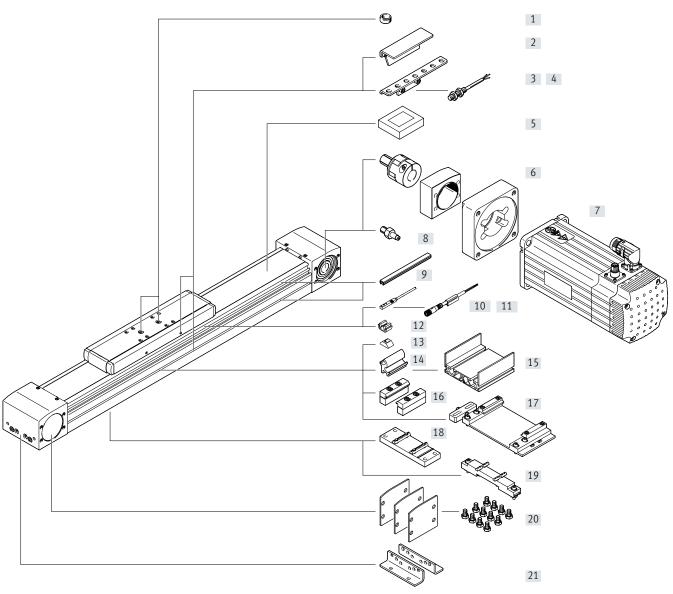
Ordering table							
Size		70	80	120	Conditions	Code	Enter code
Module no.		1371245	1371246	1371247			
Design		Linear axis				ELGA	ELGA
Function		Toothed belt				-TB	-TB
Guide		Roller guide				-RF	-RF
Size	[mm]	70	80	120			
Stroke length	[mm]	1 7000	1 7000	1 7400			
Stroke reserve	[mm]	0 999 (0 = no	stroke reserve)		[1]	Н	
Slide design		Standard slide					
		1 7000	1 7000	1 7400			
		Short slide			[2]	-S	
		1 7000	1 7000	1 7400			
		Long slide				-L	
		1 6900	1 6900	1 7200			
Protection against particles		Standard					
		Without cover st	rip			-P0	
Additional features		Food-safe as pe	r supplementary materia	l information		-F1	-F1
Material of toothed belt		Uncoated PU				-PU1	-PU1
Accessories		Accessories enc	losed separately			+	+
Foot mounting		1				MF	
Mounting slot cover		1 50 (1 = 2 ui	nits, 500 mm)			NC	
Slot nut for mounting slot		1 99				NM	
Drive shaft 1 4			1 4			EA	
Operating instructions		With operating i	With operating instructions				
		Without operation	ng instructions			-DN	

^{[1] ...} **H** The sum of the nominal stroke and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length

^[2] S Only with P0

Peripherals overview





Peripherals overview

Access	sories		
	Type/order code	Description	→ Page/Internet
[1]	Centring pin/sleeve ZBS, ZBH	For centring loads and attachments on the slide Included in the scope of delivery: For size 70: 2x ZBS-5 For size 80, 120: 2x ZBH-9	108
[2]	Switch lug SA, SB, SC, SD, SE, SF	For sensing the slide position	105
[3]	Sensor bracket SC, SD, SE, SF	For mounting the inductive proximity switches (round design) on the axis	106
[4]	Proximity switch, M8 SC, SD, SE, SF	Inductive proximity switch, round design The order code SC, SD, SE, SF includes 1 switch lug and max. 2 sensor brackets in the scope of delivery	110
[5]	Clamping element EADT	Tool for retensioning the cover strip	108
[6]	Axial kit EAMM	For axial motor mounting (comprises: coupling, coupling housing and motor flange)	94
[7]	Motor EMME, EMMS	Motors specially matched to the axis, with or without gear unit, with or without brake	94
[8]	Drive shaft EA	 Can, if required, be used as an alternative interface No drive shaft is required for the axis/motor combinations → page 94 	99
[9]	Slot cover NS, NC	For protection against contamination	108
[10]	Proximity switch, T-slot SA, SB	 Inductive proximity switch, for T-slot The order code SA, SB includes 1 switch lug in the scope of delivery 	109
[11]	Connecting cable	For proximity switch (order code SE and SF)	110
[12]	Clip CM	For mounting the proximity switch cable in the slot	108
[13]	Slot nut NM	For mounting attachments	108
[14]	Adapter kit DHAM	For mounting the support profile on the axis	109
[15]	Support profile HMIA	For mounting and guiding an energy chain	109
[16]	Profile mounting MA	For mounting the axis on the side of the profile	101
[17]	Adjusting kit EADC-E16	For mounting the axis on a vertical surface. Once mounted, the axis can be aligned horizontally	104
[18]	Central support EAHF-L5	For mounting the axis on the profile from underneath	102
[19]	Adjusting kit EADC-E15	Is height-adjustable. Can be used to easily compensate for any unevenness in the bearing surface	103
[20]	Cover kit EASC-L5	For covering the sides of the drive cover	108
[21]	Foot mounting MF	For mounting the axis on the end cap With higher forces and torques, the axis should be mounted using the profile	100

Toothed belt axes ELGA-TB-G, with plain-bearing guide

Type codes

001	Series	013	Proximity sensor, inductive, M8, PNP, N/O contact, cable 2.5 m [units]
ELGA	Gantry axis		None
1002	Drive system	SC	199
002 TB	Drive system Toothed belt	014	Proximity sensor, inductive, M8, PNP, N/C contact, cable 2.5 m [units]
10	lootiled belt		None
003	Guide	SD	1 99
G	Basic variant		
004	Size	015	Proximity sensor, inductive, M8, PNP, N/O contact, plug M8 [units]
		CE	None
70	70	SE	1 99
80 120	80 120	016	Proximity sensor, inductive, M8, PNP, N/C contact, plug M8 [units]
120	120	010	None
005	Stroke	SF	1 99
	50 8500		1
		017	Connecting cable, M8, 2.5 m [units]
006	Stroke reserve [mm]		None
Н	0 999	CA	199
007	Protection against particles	018	Cover, sensor slot [units]
	Standard		None
P0	Without strip cover	NS	1 50
008	Toothed belt material	019	Mounting slot cover, 2x, 500 mm [units]
000	Standard Standard	017	None
PU2	Coated PU	NC	1 50
102	Coateuro		1 90
009	Foot mounting [units]	020	Slot nut for mounting slot
	None		None
MF	1	NM	199
010	Profile mounting	021	Cable clip [units]
	None		None
MA	150	CM	10, 20, 30, 40, 50, 60, 70, 80, 90
011	Proximity sensor, inductive, slot 8, PNP, N/O contact, cable 7.5 m [units]	022	Drive shaft [units]
	None		None
SA	16	EA	1 4
012	Proximity sensor, inductive, slot 8, PNP, N/C contact, cable 7.5 m [units]	023	Operating instructions
	None		With operating instructions
SB	16	DN	Without operating instructions
55	1 0		

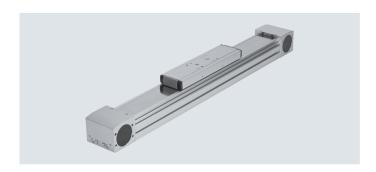


Size 70 ... 120

,

Stroke length 50 ... 8500 mm





General technical data	General technical data					
Size		70	80	120		
Design		Electromechanical axis with	toothed belt			
Guide		Plain-bearing guide				
Mounting position		Any				
Working stroke	[mm]	50 8500	50 8500	50 8500		
Max. feed force F _x	[N]	350	800	1300		
Max. no-load torque ¹⁾	[Nm]	0.5	1	3		
Max. no-load resistance to shifting ¹⁾	[N]	35	50	114		
Max. driving torque	[Nm]	5	15.9	34.1		
Max. speed ²⁾	[m/s]	5				
Max. acceleration	[m/s ²]	50				
Repetition accuracy	[mm]	±0.08				

¹⁾ At 0.2 m/s

²⁾ At higher speeds, the wear on the guide will increase

Operating and environmental conditions				
Ambient temperature ¹⁾	[°C]	-10 +60		
Degree of protection				
ELGA		IP40		
ELGAP0		IP00		
Duty cycle	[%]	100		

¹⁾ Note operating range of proximity switches

Weight [kg]					
Size	70	80	120		
Basic weight with 0 mm stroke (including slide)	2.16	4	11.8		
Additional weight per 1000 mm stroke	2.64	3.56	7.45		
Moving mass	0.57	1.1	3.06		

Toothed belt				
Size		70	80	120
Pitch	[mm]	3	5	5
Elongation ¹⁾		•	·	
ELGA	[%]	0.213	0.168	0.21
ELGAPU2	[%]	0.105	0.1	0.122
Effective diameter	[mm]	28.65	39.79	52.52
Feed constant	[mm/rev]	90	125	165

¹⁾ At max. feed force

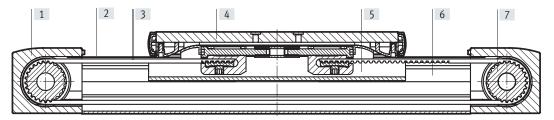
Mass moment of inertia					
Size		70	80	120	
Jo	[kg mm ²]	175	666	3201	
J _H per metre stroke	[kg mm ² /m]	19	93	215	
J _L per kg payload	[kg mm ² /kg]	205	396	690	

The mass moment of inertia J_A of the entire axis is calculated as follows:

 $J_A = J_O + J_H x$ working stroke [m] + $J_L x$ m_{payload} [kg]

Materials

Sectional view



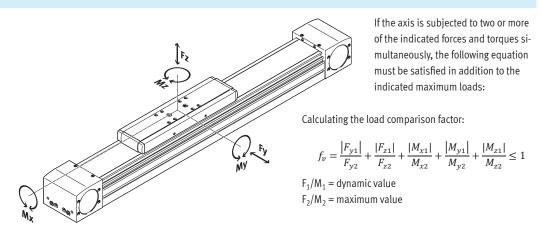
Axis		
[1]	Drive cover	Anodised wrought aluminium alloy
[2]	Cover strip	Stainless steel strip, non-corroding
[3]	Toothed belt	
	ELGA	Polychloroprene with glass cord and nylon coating
	ELGAPU2	Polyurethane with steel cord and nylon covering
[4]	Slide	Anodised wrought aluminium alloy
[5]	Slide elements	Polyacetal
[6]	Profile with integrated guide	Anodised wrought aluminium alloy
[7]	Toothed belt pulley	High-alloy stainless steel
	Note on materials	RoHS-compliant
		Contains paint-wetting impairment substances

Characteristic load values

The indicated forces and torques refer to the slide surface. The point of application of force is the point where the centre of the guide and the longitudinal centre of the slide intersect.

These values must not be exceeded during dynamic operation. Special attention must be paid to the deceleration phase.

In the event of high torques My and Mz, the guide may lock automatically during dynamic operation. Therefore, make sure that the feed force is applied as close as possible to the slide.



Permissible forces and torques						
Size		70	80	120		
Fy _{max} .	[N]	80	200	380		
Fz _{max} .	[N]	400	800	1600		
Mx _{max} .	[Nm]	5	10	20		
My _{max.}	[Nm]	30	60	120		
Mz _{max} .	[Nm]	10	20	40		

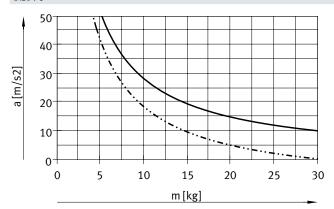
The plain-bearing guide is subject to wear. This depends on the load, on the travel speed and on the length of the pause between the travel cycles. A higher speed has a more critical effect on wear than a higher load. The values given above refer to a maximum travel speed of 0.5 m/s and a pause longer than 5 s.

The plain-bearing guide is not backlash-free. The toothed belt axis ELGA-TB-RF or ELGA-TB-KF is recommended for applications that need to be backlash-free, or applications involving high torque loads.

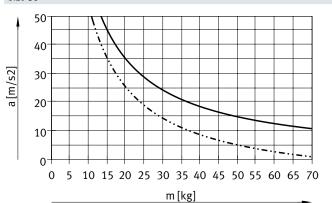
Engineering software PositioningDrives www.festo.com

Max. acceleration a as a function of payload m

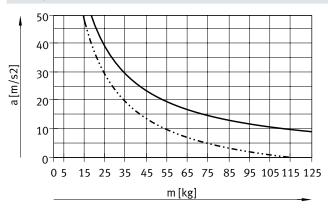
Size 70



Size 80



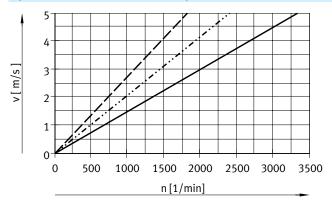
Size 120



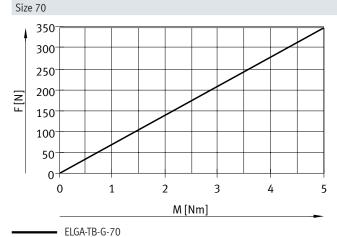
Horizontal mounting position

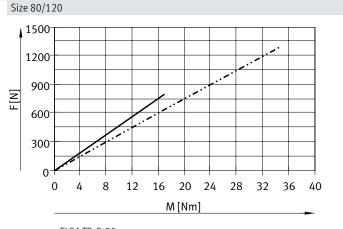
• • • Vertical mounting position

Speed v as a function of rotational speed n

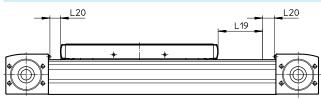


Theoretical feed force F as a function of input torque M





Stroke reserve



 The stroke reserve is a safety distance from the mechanical end position and is not used in normal operation

- The sum of the nominal stroke and 2x stroke reserve must not exceed the maximum permissible working stroke
- L19 = Nominal stroke
- L20 = Stroke reserve
- The stroke reserve length can be freely selected
- The stroke reserve is defined via the "stroke reserve" characteristic in the modular product system.

Example:

Type ELGA-TB-G-70-500-20H-... Nominal stroke = 500 mm

2x stroke reserve = 40 mm
Working stroke = 540 mm
(540 mm = 500 mm + 2x 20 mm)

The toothed belt axis ELGA-TB-G features a safety distance to the end positions as standard.

Size	70	80	120
Safety distance per end position [mm]	4.5	5	5

Second moment of area

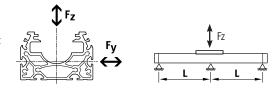


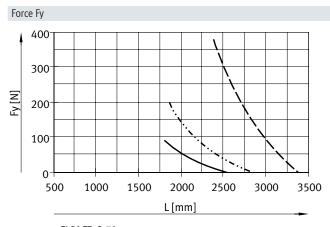
Size		70	80	120
ly	[mm ⁴]	1.47x10 ⁵	2.77x10 ⁵	1.23x10 ⁶
Iz	[mm ⁴]	4.25x10 ⁵	9.07x10 ⁵	4.03x10 ⁶

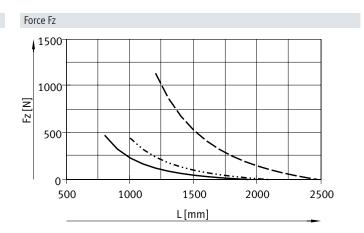
Maximum permissible support spacing L (without profile mounting MUE/central support EAHF) as a function of force F

In order to limit deflection in the case of large strokes, the axis may need to be supported.

The following graphs can be used to determine the maximum permissible support spacing l as a function of force F acting on the axis. The deflection is f = 0.5 mm.



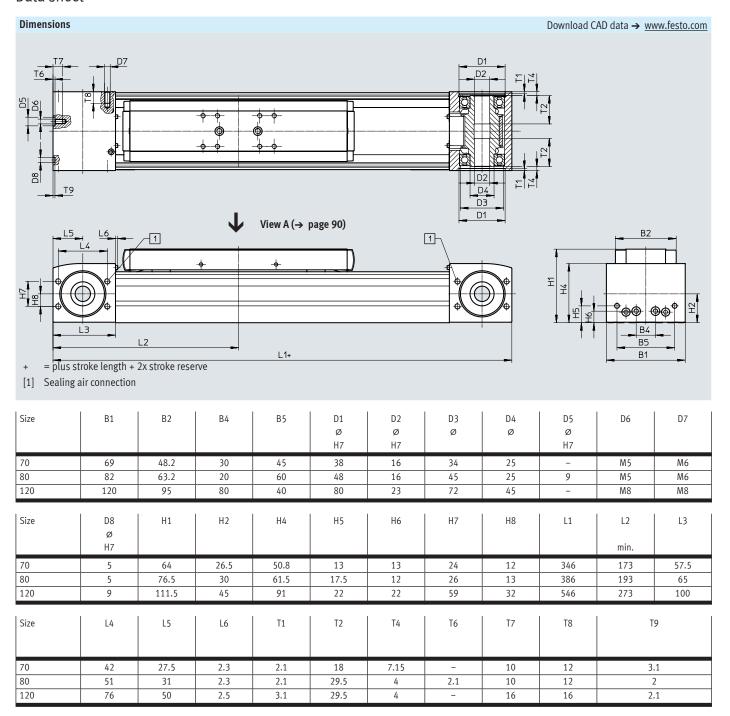




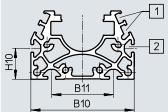
Recommended deflection limits

Adherence to the following deflection limits is recommended so as not to impair the functionality of the axes. Greater deformation can result in increased friction, greater wear and reduced service life.

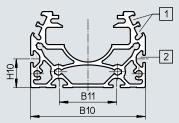
		Static deflection (stationary load)	
70 120	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length	

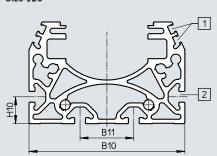


Dimensions Profile Size 70 Size 80 Size 120



- [1] Sensor slot for proximity switch
- [2] Mounting slot for slot nut: for size 70, 80: slot nut NST-5-M5 for size 120: slot nut NST-8-M6



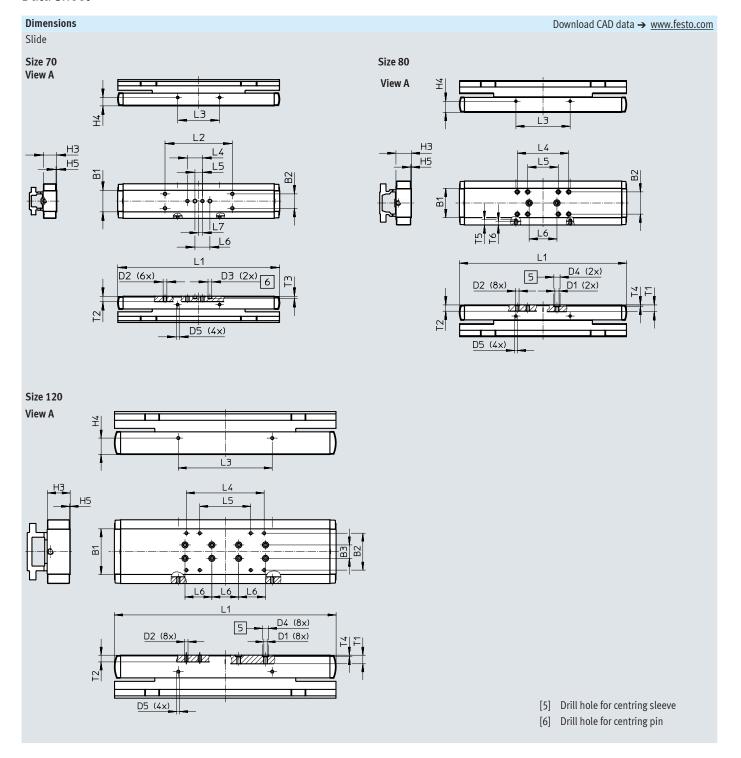


Size	B10	B11	H10
70	7-		**
70	67	40	20
80	67 80	40	20 20



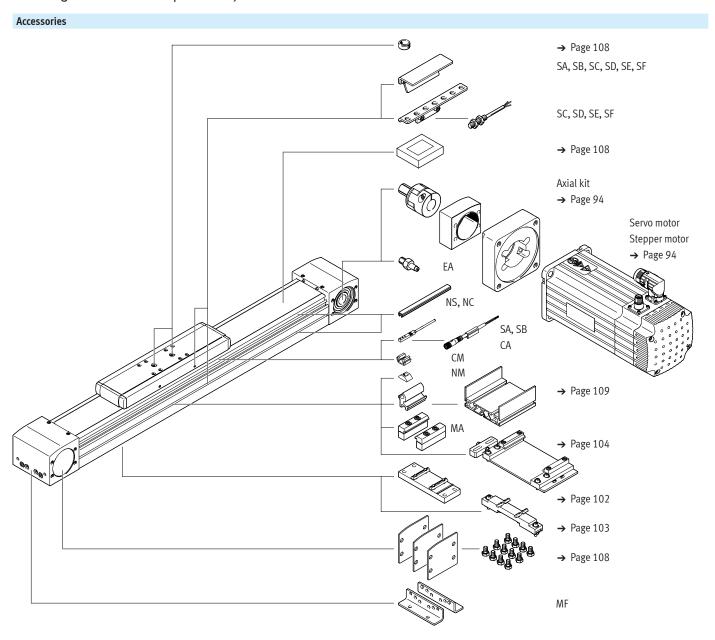
Requirements for the flatness of the bearing surface and of attachments as well as for use in parallel structures

→ www.festo.com/sp User documentation



Size	B1	B2	В3	D1	D2	D3 Ø	D4 Ø	D5
70	30	20±0.1	-	-	M5	5 ^{H7}	-	M4
80	42	32±0.2	-	M6	M5	-	9 ^{H7}	M4
120	68	55±0.2	20±0.03	M6	M5	-	9 ^{H7}	M5
Size	Н3	H4	H5	L1	L2	L3	L4	L5
		±0.1			±0.1	±0.1		
70	17.7	11.7	1	216.6	90	56	20±0.1	10±0.1
80	22.2	16	1	240.6	_	78	74±0.2	44±0.2
120	33.8	24.5	1	330.4	-	140	116±0.2	76±0.2
Size	L6	L7	T1	T2	Т3	T4	Т5	Т6
	±0.03				+0.1	+0.1		
70	20	5	_	7.5	3.1	_	_	_
80	40	_	9.7	9	-	2.1	8	6
120	40	_	12.8	10	_	2.1	_	-

Ordering data – Modular product system



Ordering data – Modular product system

Ordering table		1			1		
Size		70	80	120	Conditions	Code	Enter cod
Module no.		570502	570503	570504			
Design		Linear axis				ELGA	ELGA
Function		Toothed belt				-TB	-TB
Guide		Plain-bearing gui	ide			-G	-G
Size	[mm]	70	80	120			
Stroke length	[mm]	1 8500					
Stroke reserve	[mm]	0 999 (0 = no	stroke reserve)		[1]	Н	
Protection against particles		Standard					
		Without cover str	ip			-P0	
Material of toothed belt		Chloroprene rubl	ber				
		Coated PU	Coated PU			-PU2	
Accessories		Accessories enclosed separately				+	+
Foot mounting		1				MF	
Profile mounting		1 50				MA	
Proximity switch (SIES), inductive, slot type 8, PNP,	N/O contact, 7.5 m cable	1 6				SA	
incl. switch lug	N/C contact, 7.5 m cable	1 6				SB	
Proximity switch (SIEN), inductive,	N/O contact, 2.5 m cable	1 99				SC	
M8, PNP,	N/C contact, 2.5 m cable	1 99	1 99 1 99			SD	
incl. switch lug with sensor bracket	N/O contact, M8 plug	1 99				SE	
	N/C contact, M8 plug	1 99				SF	
Connecting cable 2.5 m, M8, 3-wire		1 99				CA	
Sensor slot cover	1 50 (1 = 2 units, 500 mm)				NS		
Mounting slot cover	1 50 (1 = 2 units, 500 mm)				NC		
Slot nut for mounting slot		199				NM	
Clip for sensor slot		10, 20, 30, 40, 5	10, 20, 30, 40, 50, 60, 70, 80, 90			CM	
Drive shaft		1 4				EA	
Operating instructions		With operating in	structions				
		Without operatin	g instructions			-DN	

^{[1] ...} **H** The sum of the nominal stroke and 2x stroke reserve must be at least 50 mm and must not exceed the maximum stroke length

The code SA, SB includes a switch lug in the scope of delivery. The code SC, SD, SE, SF includes one switch lug and max. two sensor brackets in the scope of delivery.



- Note

Depending on the combination of motor and drive, it may not be possible to reach the maximum feed force of the drive.

Permissible axis/motor combinations with	ovial kit		
Motor/gear unit ¹⁾	Axial kit		Data sheets → Internet: eamm-a
Motor/gear unit->	AXIAI KIL		Data sneets → Internet: eamm-a
Туре	Part no.	Туре	
ELGA-TB70			
With servo motor			
EMMS-AS-70	1202331	EAMM-A-N38-70A	
With servo motor and gear unit			
EMMS-AS-55	☆ 1202253	EAMM-A-N38-60G	
EMGA-60-P-GSAS-55			
EMMT-AS-60, EMME-AS-60	1456616	EAMM-A-N38-60H	
EMGA-60-P-GEAS-60			
EMMS-AS-70	☆ 1202253	EAMM-A-N38-60G	
EMGA-60-P-GSAS-70			
With stepper motor			
EMMS-ST-87	☆ 3324111	EAMM-A-N38-87A	
With stepper motor and gear unit			
EMMS-ST-57	☆ 1202253	EAMM-A-N38-60G	
EMGA-60-P-GSST-57			
With integrated drive and gear unit			
EMCA-EC-67	1456616	EAMM-A-N38-60H	
EMGC-60			

¹⁾ The input torque must not exceed the max. permissible transferable torque of the axial kit.

Permissible axis/motor combinations with a		
Motor/gear unit ¹⁾	Axial kit	Data sheets → Internet: eamm-a
Туре	Part no.	Туре
ELGA-TB80		
With servo motor		
EMMT-AS-100, EMME-AS-100,	1201894	EAMM-A-N48-100A
EMMS-AS-100		
With servo motor and gear unit		
EMMS-AS-55	☆ 1972527	EAMM-A-N48-60G
EMGA-60-P-GSAS-55		
EMMT-AS-60, EMME-AS-60	1456618	EAMM-A-N48-60H
EMGA-60-P-GEAS-60		
EMMS-AS-70	☆ 1972527	EAMM-A-N48-60G
EMGA-60-P-GSAS-70		
EMMS-AS-70	☆ 1258793	EAMM-A-N48-80G
EMGA-80-P-GSAS-70		
EMMT-AS-80, EMME-AS-80	☆ 1258793	EAMM-A-N48-80G
EMGA-80-P-GEAS-80		
EMMT-AS-100, EMME-AS-100,	☆ 1258793	EAMM-A-N48-80G
EMMS-AS-100		
EMGA-80-P-GSAS-100		
With stepper motor and gear unit		
EMMS-ST-57	☆ 1972527	EAMM-A-N48-60G
EMGA-60-P-GSST-57		
EMMS-ST-87	☆ 1258793	EAMM-A-N48-80G
EMGA-80-P-GSST-87		
With integrated drive and gear unit		•
EMCA-EC-67	1456618	EAMM-A-N48-60H
EMGC-60		

¹⁾ The input torque must not exceed the max. permissible transferable torque of the axial kit.

Toothed belt axes ELGA-TB

Permissible axis/motor combinations with	ı axial kit		
Motor/gear unit ¹⁾	Axial kit		Data sheets → Internet: eamm-a
Туре	Part no.	Туре	
ELGA-TB120			
With servo motor			
EMMS-AS-140	1201691	EAMM-A-N80-140A	
With servo motor and gear unit			
EMMS-AS-70	☆ 2372096	EAMM-A-N80-80G	
EMGA-80-P-GSAS-70			
EMMT-AS-80, EMME-AS-80	☆ 2372096	EAMM-A-N80-80G	
EMGA-80-P-GEAS-80			
EMMT-AS-100, EMME-AS-100,	☆ 2372096	EAMM-A-N80-80G	
EMMS-AS-100			
EMGA-80-P-GSAS-100			
EMMT-AS-100, EMME-AS-100,	☆ 1201695	EAMM-A-N80-120G	
EMMS-AS-100			
EMGA-120-P-GSAS-100	1 100115		
EMMS-AS-140	☆ 1201695	EAMM-A-N80-120G	
EMGA-120-P-GSAS-140			
With stepper motor and gear unit		1	
EMMS-ST-87	☆ 2372096	EAMM-A-N80-80G	
EMGA-80-P-GSST-87			

 $^{1) \}quad \text{ The input torque must not exceed the max. permissible transferable torque of the axial kit.} \\$

Permissible axis/motor combinations with a	xial kit		
Motor/gear unit ¹⁾	Axial kit		Data sheets → Internet: eamm-a
Туре	Part no.	Туре	
ELGA-TB150			
With servo motor			
EMMS-AS-140	3657226	EAMM-A-L95-140A-G2	
EMMS-AS-190	3659562	EAMM-A-L95-190A-G2	
With servo motor and gear unit	•		
EMMS-AS-70	3660191	EAMM-A-L95-80G-G2	
EMGA-80-P-GSAS-70			
EMMT-AS-80, EMME-AS-80	3660191	EAMM-A-L95-80G-G2	
EMGA-80-P-GEAS-80			
EMMT-AS-100, EMME-AS-100,	3660191	EAMM-A-L95-80G-G2	
EMMS-AS-100			
EMGA-80-P-GSAS-100			
EMMT-AS-100, EMME-AS-100,	☆ 3659941	EAMM-A-L95-120G-G2	
EMMS-AS-100			
EMGA-120-P-GSAS-100			
EMMS-AS-140	☆ 3659941	EAMM-A-L95-120G-G2	
EMGA-120-P-GSAS-140			
With stepper motor and gear unit	·		
EMMS-ST-87	3660191	EAMM-A-L95-80G2	
EMGA-80-P-GSST-87			

¹⁾ The input torque must not exceed the max. permissible transferable torque of the axial kit.

Individual components of the axial ki	1			
Axial kit	Comprising:	1 .	1	La
	Motor flange	Coupling	Coupling housing	Screw set
art no.	Part no.	Part no.	Part no.	Part no.
ype	Туре	Туре	Туре	Туре
LGA-TB70				
₹ 1202253	1190015	558001	1345947	1202262
EAMM-A-N38-60G	EAMF-A-38D-60G/H	EAMD-32-32-11-16X20	EAMK-A-N38-38D	EAHM-L5-M6-40
1456616	1190015	1377840	1345947	1202262
EAMM-A-N38-60H	EAMF-A-38D-60G/H	EAMD-32-32-14-16X20	EAMK-A-N38-38D	EAHM-L5-M6-40
1202331	1202337	558001	1345947	1202288
EAMM-A-N38-70A	EAMF-A-38D-70A	EAMD-32-32-11-16X20	EAMK-A-N38-38D	EAHM-L5-M6-35
☆ 3324111	3319868	558001	1345947	1202288
EAMM-A-N38-87A	EAMF-A-38D-87A	EAMD-32-32-11-16X20	EAMK-A-N38-38D	EAHM-L5-M6-35
LGA-TB80				
☆ 1972527	1460111	558001	1345949	4984529
EAMM-A-N48-60G	EAMF-A-48C-60G/H	EAMD-32-32-11-16X20	EAMK-A-N48-48C	EAHM-L5-M6-45
1456618	1460111	1377840	1345949	4984529
EAMM-A-N48-60H	EAMF-A-48C-60G/H	EAMD-32-32-14-16X20	EAMK-A-N48-48C	EAHM-L5-M6-45
☆ 1258793	1190375	1781043	1345949	1201874
EAMM-A-N48-80G	EAMF-A-48C-80G	EAMD-42-40-20-16X25-U	EAMK-A-N48-48C	EAHM-L5-M6-50
1201894	1201924	558002	1345949	1201874
EAMM-A-N48-100A	EAMF-A-48C-100A	EAMD-42-40-19-16X25	EAMK-A-N48-48C	EAHM-L5-M6-50
LGA-TB120				
☆ 2372096	2372201	558004	1345953	1201712
EAMM-A-N80-80G	EAMF-A-80A-80G	EAMD-56-46-20-23X27	EAMK-A-N80-80A	EAHM-L5-M8-60
☆ 1201695	1190702	1188801	1345953	1201712
EAMM-A-N80-120G	EAMF-A-80A-120G	EAMD-56-46-25-23X27	EAMK-A-N80-80A	EAHM-L5-M8-60
1201691	1190796	558005	1345953	1201751
EAMM-A-N80-140A	EAMF-A-80A-140A	EAMD-56-46-24-23X27	EAMK-A-N80-80A	EAHM-L5-M8-75
LGA-TB150				
3660191	3305700	3717812	3712650	_
EAMM-A-L95-80G-G2	EAMF-A-95B-80G	EAMD-67-51-20-32X32-U	EAMK-A-L95-95A/B-G2	
	3659724	558006	3712650	567496
EAMM-A-L95-120G-G2	EAMF-A-95A-120G-G2	EAMD-67-51-25-32X32-U	EAMK-A-L95-95A/B-G2	EAHM-L2-M8-70
3657226	558023	558008	3712650	567497
EAMM-A-L95-140A-G2	EAMF-A-95A-140A	EAMD-67-51-24-32X32-U	EAMK-A-L95-95A/B-G2	EAHM-L2-M8-80
3659562	1378473	1379269	3712650	567497
EAMM-A-L95-190A-G2	EAMF-A-95A-190A	EAMD-67-51-32-32X32-U	EAMK-A-L95-95A/B-G2	EAHM-L2-M8-80



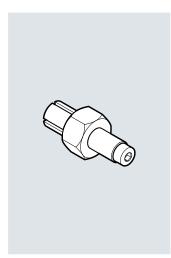
- Note

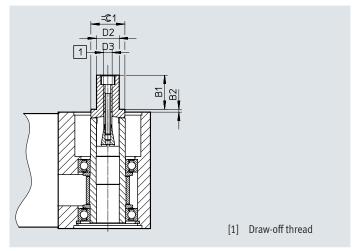
For the optimum selection of axis/ motor combinations

→ Engineering software PositioningDrives www.festo.com

Drive shaft EAMB

Alternative interface For ELGA-TB-KF/-KF-F1 For ELGA-TB-RF/-RF-F1 For ELGA-TB-G (order code EA)



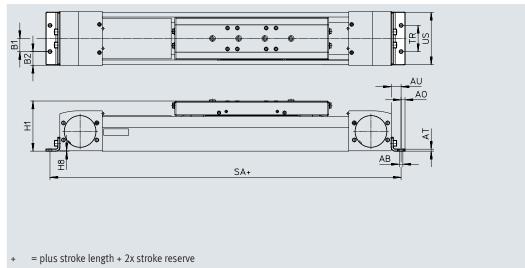


Dimensions and ordering data								
For size	B1	B2	D2	D3	= ©1	Weight	Part no.	Туре
			Ø			[g]		
70	21	1.85	15	M6	21	70	1344642	EAMB-24-9-15X21-16X20
80	21	2	15	M6	21	70	558036	EAMB-24-6-15X21-16X20
120	26	2	25	M10	30	201	558037	EAMB-34-6-25X26-23X27
150	30	3	35	M12	36	463	558038	EAMB-44-7-35X30-32X32

Foot mounting HPE

For ELGA-TB-KF/-KF-F1 For ELGA-TB-G (order code MF) Material: Galvanised steel RoHS-compliant





Dimensions and or	dering data							
For size	AB	A0	AT	AU	B1	B2	H1	Н8
	Ø							
70	5.5	6	3	13	20	14.5	64	0.5
80	5.5	6	3	13	20	21	76.5	0.5
120	9	8	6	22	40	20	111.5	0.5
150		12		2.5	40	3.5	141.5	1

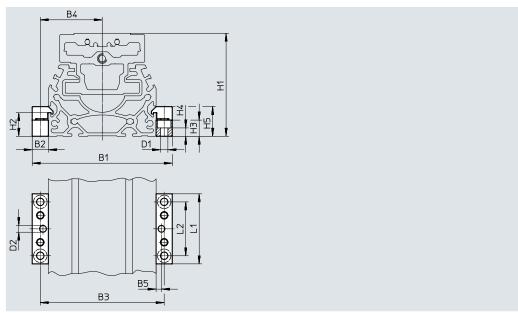
For size			TR	US			
	ELGA-TB-KF	ELGA-TB-RF	ELGA-TB-RF-S	ELGA-TB-RF-L	ELGA-TB-G		
70	372	446	368	546	372	40	67
80	416	610	526	750	416	40	80
120	590	819	717	1049	590	80	116
150	762	-	-	_	-	80	150

For size	Weight [g]	Part no.	Туре
70	115	558321	HPE-70
80	150	558322	HPE-80
120	578	558323	HPE-120
150	1181	3002636	HPE-150

Profile mounting MUE

For ELGA-TB-KF For ELGA-TB-RF For ELGA-TB-G (order code MA) Material: Anodised aluminium RoHS-compliant





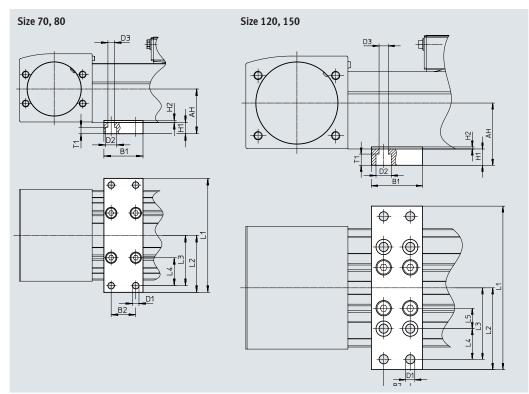
Dimensions and	Dimensions and ordering data												
For size	B1	B2	В3	B4	B5	D1	D2	H1	H2				
						Ø	Ø						
							H7						
70	91	12	79	39.5	4	5.5	5	64	17.5				
80	104	12	92	46	4	5.5	5	76.5	17.5				
400							_	T	4.6				
120	154	19	135	67.5	4	9	5	111.5	16				

For size	H3	H4	H5	L1	L2	Weight [g]	Part no.	Туре
70	12	6.2	22	52	40	80	☆ 558043	MUE-7 0/80
80	12	6.2	22	52	40	80	☆ 558043	MUE-7 0/80
120	14	5.5	29.5	90	40	290	☆ 558044	MUE-12 0/185
150	14	5.5	29.5	90	40	290	☆ 558044	MUE-12 0/185

Central support EAHF

For ELGA-TB-KF/-KF-F1 For ELGA-TB-RF/-RF-F1 For ELGA-TB-G Material: Anodised aluminium RoHS-compliant



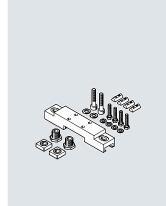


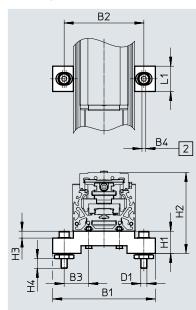
Dimensions and ord	Dimensions and ordering data												
For size	AH	B1	B2	D1	D2	D3	H1	L1					
				Ø	Ø	Ø							
70	36.5	35	22	5.8	10	5.8	10	102					
80	40							112					
120	61	50	26	9	15	9	16	160					
150	74.6							200					

For size	L2	L3	L4	L5	T1	Weight	Part no.	Туре
						[g]		
70	51	45	25	-	5.7	113	2349256	EAHF-L5-70-P
80	56	50	30			123	3535188	EAHF-L5-80-P
120	80	70	30	20	11	384	2410274	EAHF-L5-120-P
150	100	90	50	-		495	3535189	EAHF-L5-150-P

Adjusting kit EADC-E15

Material: EADC-E15-8 0/120: Wrought aluminium alloy EADC-E15-185: Steel ROHS-compliant





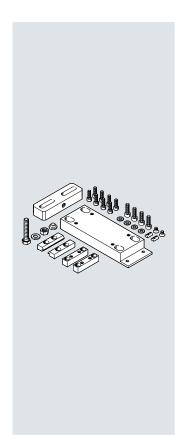
[2] Width of elongate hole

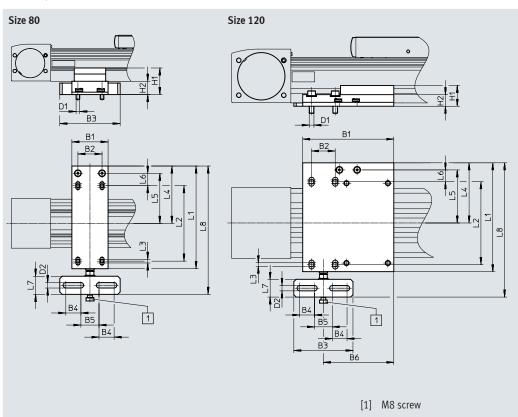
Dimensions and o	Dimensions and ordering data												
For size	B1	B2	B3	B4	D1	H1							
70	134	104	32	5	M8	29							
80	134	104	32	5	M8	29							
120	170	140	50	5	M8	29							
150	236	209	64.5	5	M8	29							

For size	H2	Н3	H4	L1	Weight	Part no.	Туре
					[g]		
70	93	9	12.6	33	386	8047566	EADC-E15-80-E7
80	105.5	9	12.6	33	386	8047566	EADC-E15-80-E7
120	140.5	9	12.6	33	388	8047567	EADC-E15-120-E7
150	170.5	9	12.6	33	569	8047568	EADC-E15-185-E7

Adjusting kit EADC-E16

Material: Wrought aluminium alloy RoHS-compliant



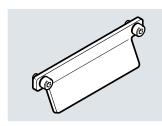


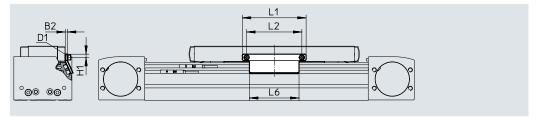
Dimensions and ordering data												
For size	B1	B2	В3	B4	B5	B6	D1	D2	H1	H2	L1	L2
80	60	40	100	25	30	-	M6	9	44	22	170	125
120	154	40	100	25	30	119	M8	9	35.1	19.6	184	140

For size	L3	L4	L5	L6	L7	L8	Weight [g]	Part no.	Туре
80	6	95	83	20.5	30	212.5	828	8047577	EADC-E16-80-E7
120	6	101.7	89.7	20	30	227	1134	8047578	EADC-E16-120-E7

Switch lug SF-EGC-1

for sensing via proximity switch SIES-8M For ELGA-TB-KF For ELGA-TB-RF For ELGA-TB-G (order code SA or SB) Material: Galvanised steel RoHS-compliant





Dimensions and ordering data											
For size	B2	D1	H1	L1	L2	L6	Weight	Part no.	Туре		
							[g]				
70	3	M4	4.65	70	56	50	50	☆ 558047	SF-EGC-1-70		
80	3	M4	4.65	90	78	70	63	☆ 558048	SF-EGC-1-80		
120	3	M5	8	170	140	170	147	☆ 558049	SF-EGC-1-120		
150	3	M5	10	230	200	230	246	☆ 558051	SF-EGC-1-185		

Toothed belt axes ELGA-TB

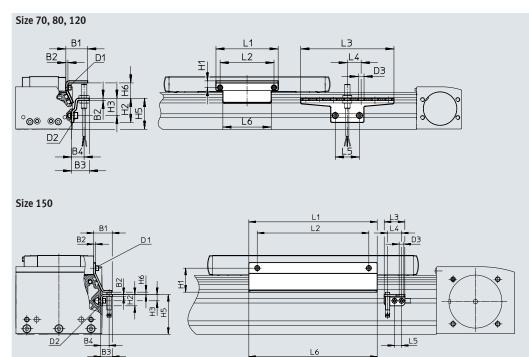
Accessories

Switch lug SF-EGC-2

For sensing with proximity switch SIEN-M8B (order code SC, SD, SE or SF) or SIES-8M For ELGA-TB-KF For ELGA-TB-RF Material: Galvanised steel RoHS-compliant **Sensor bracket HWS-EGC**For proximity switch SIEN-M8B (order code SC, SD, SE or SF)

Material: Galvanised steel RoHS-compliant





Dimensions and	, ,								
For size	B1	B2	B3	B4	D1	D2	D3	H1	H2
							Ø		
70	31.5	3	25.5	18	M4	M5	8.4	9.5	35
80	31.5	3	25.5	18	M4	M5	8.4	9.5	35
120	32	3	25.5	18	M5	M5	8.4	13.2	65
150	33	3	21	15	M5	M5	8.4	43	20
	<u>'</u>								
For size	H3	H5	H6	L1	L2	L3	L4	L5	L6
			max.						
70	25	45	13.5	70	56	135	20	35	50
80	25	45	23.5	90	78	135	20	35	70
120	55	75	24	170	140	215	20	35	170
150	11	71	4.5	230	200	37	25	12.5	230

For size	Weight [g]	Part no.	Туре
	Switch lug		
70	100	558052	SF-EGC-2-70
80	130	558053	SF-EGC-2-80
120	277	558054	SF-EGC-2-120
150	390	558056	SF-EGC-2-185

F	or size	Weight [g]	Part no.	Туре
Г		Sensor bracket		
7	0	110	558057	HWS-EGC-M5
8	0	110	558057	HWS-EGC-M5
1	20	217	570365	HWS-EGC-M8-B
1	50	58	560517	HWS-EGC-M8: KURZ



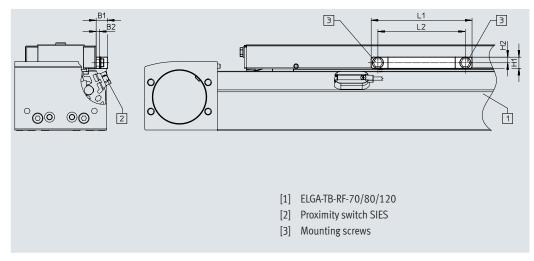
The proximity switches SIEN-M8B cannot be mounted in the area of the

profile mounting MUE.

Switch lug EAPM

for sensing via proximity switch SME-8M For ELGA-TB-KF-F1 For ELGA-TB-RF-F1 Material: Wrought aluminium alloy RoHS-compliant





Dimensions and ord	ering data								
For size	B1	B2	H1	H2	L1	L2	Weight	Part no.	Туре
							[g]		
70	10	3	10	5	70	56	46	2417032	EAPM-L5-70-SLM
80	10	3	10	5	90	78	66	2671318	EAPM-L5-80-SLM
120	10	3	16	8	170	140	146	2671326	EAPM-L5-120-SLM

Ordering data	ı		ı	
	For size	Description	Part no.	Туре
Mounting kit CRSMB				
	70 120	For proximity switch SME-8M/SME-8 For ELGA-TB-KF-F1 For ELGA-TB-RF-F1	525565	CRSMB-8-32

Toothed belt axes ELGA-TB

ordering data						1 .
	For size	Description	Order code	Part no.	Туре	PE ¹⁾
ot nut NST	70,80	For mounting slot	NM	150016	NST-5-M5	1
	70,80	For ELGA-TB-KF/-KF-F1	- INIVI	150914		
		• For ELGA-TB-RF/-RF-F1	-	8047843 8047878	NST-5-M5-10 NST-5-M5-50	10
	120, 150	• For ELGA-TB-G	NIAA		NST-8-M6	50
	120, 150	TOT ELGITTE G	NM _	150915 8047868	NST-8-M6-10	1 10
			-	8047869		50
				8047809	NST-8-M6-50	50
entring pin/sleeve						
	For ELGA-TB-KF/-KF					
الملاك	70	For slide	-	150928	ZBS-5	10
	70, 80, 120, 150			150927	ZBH-9	
	For ELGA-TB-RF/-RF	-F1				
	70, 80, 120	For slide	-	150927	ZBH-9	10
	For ELGA-TB-G					
	70	For slide	-	150928	ZBS-5	10
	80, 120			150927	ZBH-9	
lot cover ABP						
ot cover ABP	70.00	- Farmanatina alat	NC.	454604	ADD C	12
	70, 80	• For mounting slot	NC	151681	ABP-5	2
	120, 150	Every 0.5 m For ELGA-TB-KF/-KF-F1		151682	ABP-8	
		· ·				
		• For ELGA-TB-RF/-RF-F1				
		For ELGA-TB-G				
lot cover ABP-S						
lot cover Abr 3	70 150	For sensor slot	NS	563360	ABP-5-S1	2
	70 150	• Every 0.5 m	113	303300	7.51	-
		• For ELGA-TB-KF				
1		For ELGA-TB-RF				
		• For ELGA-TB-G				
		TOT ELECTION O				
lip SMBK	T		1		I	
	70 150	For sensor slot, for attaching the proximity switch cables	CM	534254	SMBK-8	10
		For ELGA-TB-KF				
•		For ELGA-TB-RF				
		For ELGA-TB-G				
amping componer	nt EADT					
	70,80	Tool for retensioning the cover strip	_	8058451	EADT-S-L5-70	1
$\langle\!\langle\rangle\!\rangle$	120, 150			8058450	EADT-S-L5-120	
Y /	.,				-	
over kit EASC						
	70	For covering the sides of the drive cover	_	8049255	EASC-L5-70	3
	80			8049254	EASC-L5-80	
	120	\dashv		8049253	EASC-L5-120	
ASA P	150	\dashv		8049244	EASC-L5-120	
1 世界 2 4 4 6 6 7	1 1 2 0	1	1	0049244	EW2C-F3-130	

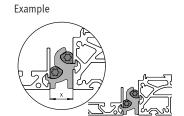
¹⁾ Packaging unit

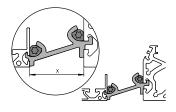
Mounting options between axis and support profile

Depending on the adapter kit, the spacing between the axis and the support profile is:

x = 20 mm or 50 mm

The support profile must be mounted using at least 2 adapter kits. For longer strokes, an adapter kit must be used every 500 mm.





Ordering data					
	For size	Description	Part no.	Type	PE ¹⁾
Adapter kit DHAM					
	80	For mounting the support profile on the axis	562241	DHAM-ME-N1-CL	1
	120, 150	 Spacing between axis and profile is 20 mm For ELGA-TB-KF For ELGA-TB-RF For ELGA-TB-G 	562242	DHAM-ME-N2-CL	
	70,80	 For mounting the support profile on the axis Spacing between axis and profile is 50 mm For ELGA-TB-KF For ELGA-TB-RF 	574560	DHAM-ME-N1-50-CL	
	120, 150	• For ELGA-TB-G	574561	DHAM-ME-N2-50-CL	
Support profile HA	MIA				
	70 150	 For guiding an energy chain For ELGA-TB-KF For ELGA-TB-RF For ELGA-TB-G 	539379	HMIA-E07-	1

¹⁾ Packaging unit

,	s for ELGA-TB-KF, ELGA-	ŕ					
Ordering data – P	roximity switches for T-	slot, inductive					Data sheets → Internet: sies
	Type of mounting	Electrical connection	Switching output	Cable length [m]	Order code	Part no.	Туре
N/O contact	<u>'</u>	<u>'</u>		<mark>.</mark>			
	Insertable in the	Cable, 3-wire	PNP	7.5	SA	551386	SIES-8M-PS-24V-K-7,5-0E
E235	slot from above,	Plug M8x1, 3-pin		0.3	_	551387	SIES-8M-PS-24V-K-0,3-M8D
Ser Marine	flush with the	Cable, 3-wire	NPN	7.5	_	551396	SIES-8M-NS-24V-K-7,5-OE
	cylinder profile	Plug M8x1, 3-pin		0.3	-	551397	SIES-8M-NS-24V-K-0,3-M8D
N/C contact							
	Insertable in the	Cable, 3-wire	PNP	7.5	SB	551391	SIES-8M-PO-24V-K-7,5-OE
STATE OF THE PARTY	slot from above,	Plug M8x1, 3-pin		0.3	_	551392	SIES-8M-PO-24V-K-0,3-M8D
SEL MALINE	flush with the	Cable, 3-wire	NPN	7.5	-	551401	SIES-8M-NO-24V-K-7,5-OE
	cylinder profile	Plug M8x1, 3-pin		0.3	_	551402	SIES-8M-NO-24V-K-0,3-M8D

	Proximity switches M8 (round design), in Electrical connection	LED		Switching	Cable length	Order code	Part no.	Data sheets → Internet: si
				output	[m]			
O contact				DND	10.5	Too	4.50004	CIEN MOD DC IVI
	Cable, 3-wire			PNP NPN	2.5	SC _	★ 150386 ★ 150384	SIEN-M8B-PS-K-L SIEN-M8B-NS-K-L
				INPIN	2.5	_	7 150364	SIEN-MOD-NO-V-F
~ D	Plug M8x1, 3-pin	•		PNP	-	SE	★ 150387	SIEN-M8B-PS-S-L
				NPN	-	-	★ 150385	SIEN-M8B-NS-S-L
C contact								
~	Cable, 3-wire			PNP	2.5	SD	150390	SIEN-M8B-PO-K-L
		•		NPN	2.5	-	150388	SIEN-M8B-NO-K-L
	Bl. Mo. t. o. :			DNID		CT	470004	CIEN MAD DO C.I
	Plug M8x1, 3-pin			PNP NPN	-	ST _	150391 150389	SIEN-M8B-PO-S-L SIEN-M8B-NO-S-L
				INPIN	_	_	150569	SIEN-MOB-NO-S-L
,	es for ELGA-TB-KF-F1, ELGA-TB-RF-F1							
iering data –	Proximity switches for T-slot, magnetic re Type of mounting	ea Switchi		Electrical con	nastion	Cable length	Part no.	Data sheets → Internet: si
	Type of mounting	output	-	Electrical com	песноп	[m]	Part 110.	Туре
10 comboot		output				[111]		
O contact	Insertable in the mounting kit from	Contact	ting	Cable, 3-wire		2.5	★ 543862	SME-8M-DS-24V-K-2,5-0E
	above	Contact	5	cable, 5 wire		5.0	★ 543863	SME-8M-DS-24V-K-5,0-0E
				Cable, 2-wire		2.5	★ 543872	SME-8M-ZS-24V-K-2,5-0E
				Plug M8x1, 3		0.3	★ 543861	SME-8M-DS-24V-K-0,3-M8D
C contact								
S)	Insertable in the mounting kit lengthwise	Contact	ting	Cable, 3-wire		7.5	160251	SME-8-O-K-LED-24
<i></i>	teligtiiwise							
nnostina soble								
	es for ELGA-TB			!				
	Connecting cables			!				The second secon
			Elect	rical connection	n, right	Cable length	Part no.	Data sheets → Internet: ne
dering data –	Connecting cables Electrical connection, left					[m]		Туре
dering data –	Connecting cables			rical connection		[m] 2.5	159420	Type SIM-M8-3GD-2,5-PU
dering data –	Connecting cables Electrical connection, left					[m] 2.5 2.5	159420 ★ 541333	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin		Cabl	e, open end, 3-	wire	[m] 2.5 2.5 5	159420 ★ 541333 ★ 541334	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8G3-K-5-LE3
dering data –	Connecting cables Electrical connection, left		Cabl		wire	[m] 2.5 2.5 5 2.5	159420 ★ 541333 ★ 541334 ★ 541338	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8G3-K-5-LE3 NEBU-M8W3-K-2.5-LE3
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin		Cabl	e, open end, 3-	wire	[m] 2.5 2.5 5	159420 ★ 541333 ★ 541334	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8G3-K-5-LE3
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin	, ELGA	Cable	e, open end, 3-	wire	[m] 2.5 2.5 5 2.5	159420 ★ 541333 ★ 541334 ★ 541338	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8G3-K-5-LE3 NEBU-M8W3-K-2.5-LE3
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin		Cable Cable	e, open end, 3-	wire	[m] 2.5 2.5 5 2.5	159420 ★ 541333 ★ 541334 ★ 541338	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8G3-K-5-LE3 NEBU-M8W3-K-2.5-LE3 NEBU-M8W3-K-5-LE3
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin Encoder cables for displacement encoder.		Cable Cable	e, open end, 3- e, open end, 3-	wire	[m] 2.5 2.5 5 2.5 5	159420 ★ 541333 ★ 541334 ★ 541338 ★ 541341	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8W3-K-5-LE3 NEBU-M8W3-K-5-LE3 Data sheets → Internet: ne
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin Encoder cables for displacement encoder.	El	Cable Cable -M1/-M	e, open end, 3- e, open end, 3-	wire	[m] 2.5 2.5 5 2.5 5 Cable length	159420 ★ 541333 ★ 541334 ★ 541338 ★ 541341	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8W3-K-5-LE3 NEBU-M8W3-K-5-LE3 Data sheets → Internet: ne
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin Encoder cables for displacement encoder, left	El	Cable Cable -M1/-M	e, open end, 3- e, open end, 3- M2 I connection, ri	wire	[m] 2.5 2.5 5 2.5 5 Cable length [m]	159420	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8W3-K-5-LE3 NEBU-M8W3-K-5-LE3 Data sheets → Internet: nei
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin Encoder cables for displacement encoder, left	El	Cable Cable -M1/-M	e, open end, 3- e, open end, 3- M2 I connection, ri	wire	[m] 2.5 2.5 5 2.5 5 Cable length [m] 5 10 15	159420	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8W3-K-5-LE3 NEBU-M8W3-K-5-LE3 Data sheets → Internet: net Type NEBM-M12G8-E-5-S1G9-V3
lering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin Encoder cables for displacement encoder, left	El	Cable Cable -M1/-M	e, open end, 3- e, open end, 3- M2 I connection, ri	wire	[m] 2.5 2.5 5 2.5 5 Cable length [m] 5 10	159420	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8W3-K-5-LE3 NEBU-M8W3-K-5-LE3 Data sheets → Internet: ne Type NEBM-M12G8-E-5-S1G9-V3 NEBM-M12G8-E-10-S1G9-V3
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin Encoder cables for displacement encoder, Electrical connection, left Displacement encoder ELGAM1/-N	El	Cable Cable -M1/-M	e, open end, 3- e, open end, 3- M2 I connection, ri	wire	[m] 2.5 2.5 5 2.5 5 Cable length [m] 5 10 15	159420 ★ 541333 ★ 541334 ★ 541338 ★ 541341 Part no. 1599105 1599106 1599107	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8W3-K-5-LE3 NEBU-M8W3-K-5-LE3 Data sheets → Internet: ne Type NEBM-M12G8-E-5-S1G9-V3 NEBM-M12G8-E-10-S1G9-V3 NEBM-M12G8-E-15-S1G9-V3
dering data –	Connecting cables Electrical connection, left Straight socket, M8x1, 3-pin Angled socket, M8x1, 3-pin Encoder cables for displacement encoder, left Displacement encoder ELGAM1/-N	El	Cable Cable -M1/-M	e, open end, 3- e, open end, 3- M2 I connection, ri	wire	[m] 2.5 2.5 5 2.5 5 Cable length [m] 5 10 15	159420 ★ 541333 ★ 541334 ★ 541338 ★ 541341 Part no. 1599105 1599106 1599107	Type SIM-M8-3GD-2,5-PU NEBU-M8G3-K-2.5-LE3 NEBU-M8W3-K-5-LE3 NEBU-M8W3-K-5-LE3 Data sheets → Internet: nel Type NEBM-M12G8-E-5-S1G9-V3 NEBM-M12G8-E-15-S1G9-V3 NEBM-M12G8-E-15-S1G9-V3

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