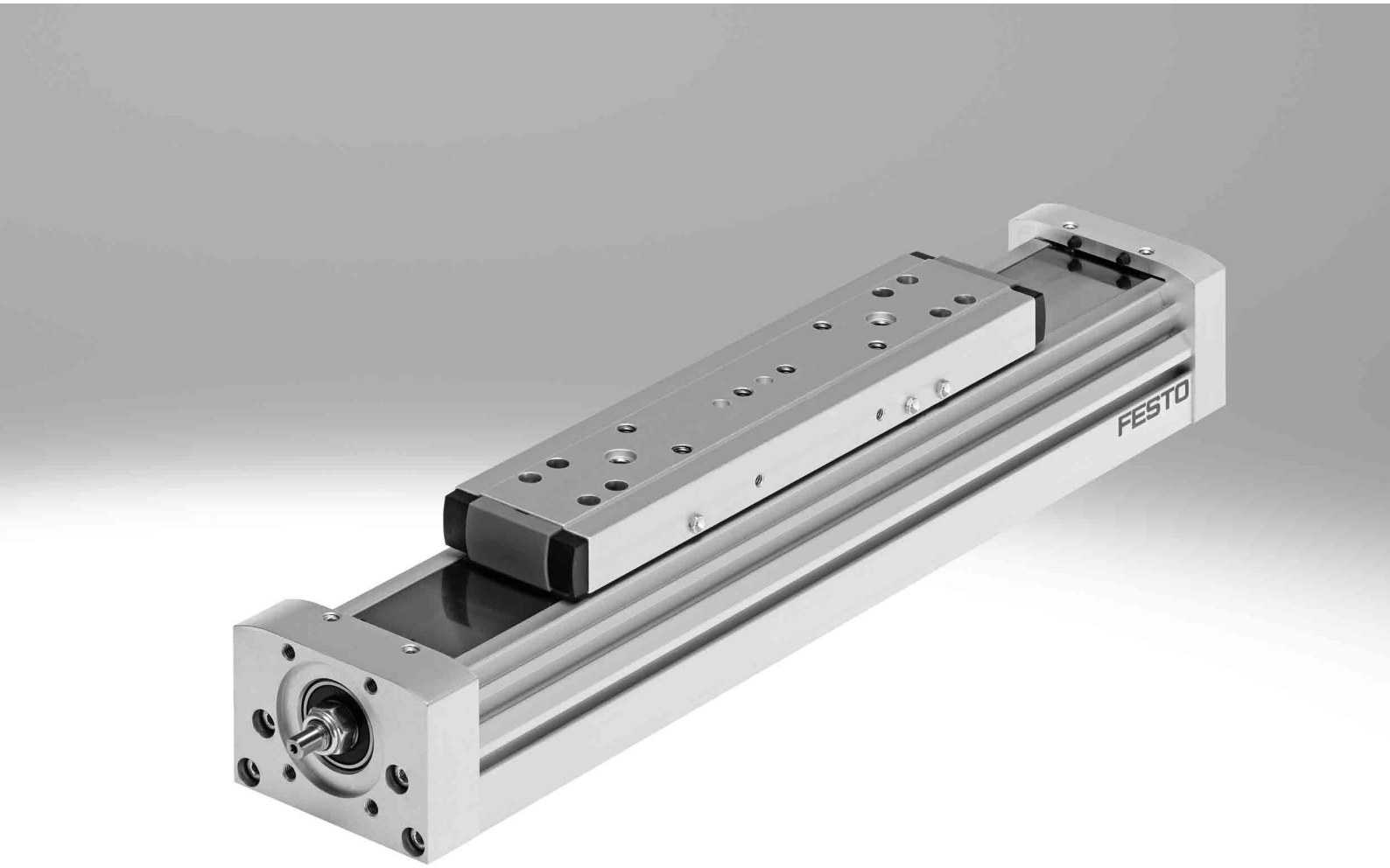
Spindle axes ELGA-BS



Electromechanical drives

Selection aid

FESTO

Overview of toothed belt and spindle axes

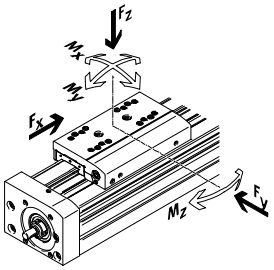
Toothed belt axes

- 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

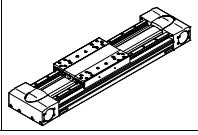
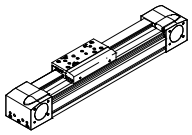
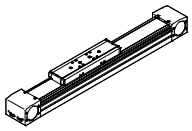
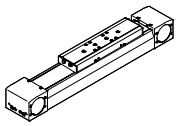
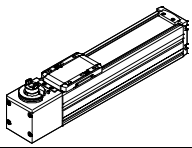
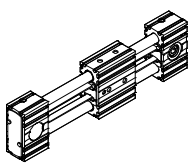
Spindle axes

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

Coordinate system



Toothed belt axes

Type	F_x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Key features
Heavy-duty recirculating ball bearing guide						
EGC-HD-TB						
	450 1000 1800	3 5 5	140 300 900	275 500 1450	275 500 1450	• Flat drive unit with rigid, closed profile • Precision DUO guide rail with high load capacity • Ideal as a basic axis for linear gantries and cantilever axes
Recirculating ball bearing guide						
EGC-TB-KF						
	50 100 350 800 2500	3 5 5 5 5	3.5 16 36 144 529	10 132 228 680 1820	10 132 228 680 1820	• Rigid, closed profile • Precision guide rail with high load capacity • Small drive pinions reduce required driving torque • Space-saving position sensing
ELGA-TB-KF						
	350 800 1300 2000	5 5 5 5	16 36 104 167	132 228 680 1150	132 228 680 1150	• Internal guide and toothed belt • Precision guide rail with high load capacity • Guide and toothed belt protected by cover strip • High feed forces
ELGA-TB-KF-F1						
	260 600 1000	5 5 5	16 36 104	132 228 680	132 228 680	• Suitable for use in the food zone • “Clean Look”: smooth, easy to clean surfaces • Internal guide and toothed belt • Precision guide rail with high load capacity • Guide and toothed belt protected by cover strip
ELGC-TB-KF						
	75 120 250	1.2 1.5 1.5	5.5 29.1 59.8	4.7 31.8 56.2	4.7 31.8 56.2	• Internal guide and toothed belt • Precision guide rail with high load capacity • Guide and toothed belt protected by cover strip
ELGR-TB						
	50 100 350	3 3 3	2.5 5 15	20 40 124	20 40 124	• Cost-optimised rod guide • Ready-to-install unit • Ball bearings with high load capacity for dynamic operation

Electromechanical drives

Selection aid

FESTO

Overview of toothed belt and spindle axes

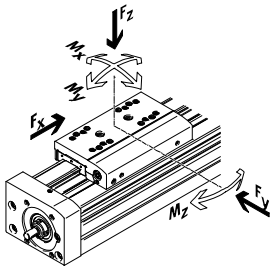
Toothed belt axes

- Speeds of up to 10 m/s
- 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

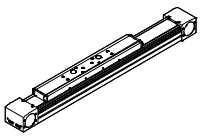
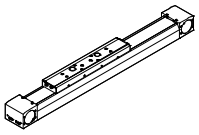
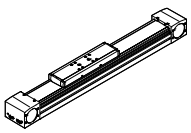
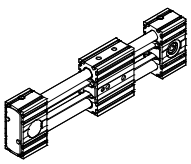
Spindle axes

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

Coordinate system



Toothed belt axes

Type	F_x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Key features
Roller bearing guide						
ELGA-TB-RF						
	350 800 1300	10 10 10	11 30 100	40 180 640	40 180 640	• Heavy-duty roller bearing guide • Guide and toothed belt protected by cover strip • Speeds of up to 10 m/s • Lower weight than axes with guide rails
ELGA-TB-RF-F1						
	260 600 1000	10 10 10	8.8 24 80	32 144 512	32 144 512	• Suitable for use in the food zone • “Clean Look”: smooth, easy to clean surfaces • Heavy-duty roller bearing guide • Guide and toothed belt protected by cover strip • Lower weight than axes with guide rails
Plain-bearing guide						
ELGA-TB-G						
	350 800 1300	5 5 5	5 10 120	30 60 120	10 20 40	• Guide and toothed belt protected by cover strip • For simple handling tasks • As a drive component for external guides • Insensitive to harsh operating conditions
ELGR-TB-GF						
	50 100 350	1 1 1	1 2.5 1	10 20 40	10 20 40	• Cost-optimised rod guide • Ready-to-install unit • Heavy-duty plain bearings for use in harsh operating conditions

Electromechanical drives

Selection aid

Overview of toothed belt and spindle axes

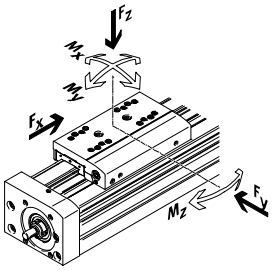
Toothed belt axes

- 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

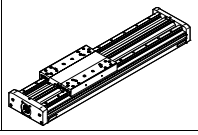
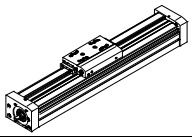
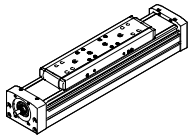
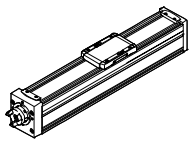
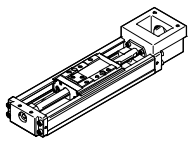
Spindle axes

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

Coordinate system



Spindle axes

Type	F_x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Key features
Heavy-duty recirculating ball bearing guide						
EGC-HD-BS						
	400 650 1500	0.5 1.0 1.5	140 300 900	275 500 1450	275 500 1450	• Flat drive unit with rigid, closed profile • Precision DUO guide rail with high load capacity • Ideal as a basic axis for linear gantries and cantilever axes
Recirculating ball bearing guide						
EGC-BS-KF						
	400 650 1500 3000	0.5 1.0 1.5 2.0	16 36 144 529	132 228 680 1820	132 228 680 1820	• Rigid, closed profile • Precision guide rail with high load capacity • For the highest requirements in terms of feed force and accuracy • Space-saving position sensing
ELGA-BS-KF						
	650 1600 3400 6400	0.5 1.0 1.5 2.0	16 36 104 167	132 228 680 1150	132 228 680 1150	• Internal guide and ball screw • Precision guide rail with high load capacity • For the highest requirements in terms of feed force and accuracy • Guide and ball screw protected by cover strip • Space-saving position sensing
ELGC-BS-KF						
	40 100 200 350	0.6 0.6 0.8 1.0	1.3 5.5 29.1 59.8	1.1 4.7 31.8 56.2	1.1 4.7 31.8 56.2	• Internal guide and ball screw • Guide and ball screw protected by cover strip • Space-saving position sensing
EGSK						
	57 133 184 239 392	0.33 1.10 0.83 1.10 1.48	13 28.7 60 79.5 231	3.7 9.2 20.4 26 77.3	3.7 9.2 20.4 26 77.3	• Spindle axes with maximum precision, compactness and rigidity • Recirculating ball bearing guide and ball screw without caged ball bearings • Standard designs in stock

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

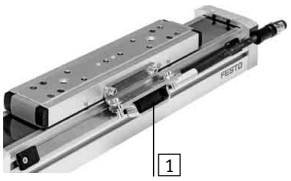
Key features

At a glance



- Stainless steel cover band with magnetic seal provides basic protection for guide and spindle. This also minimises particulate emissions for use in clean environments
- Internal, precision recirculating ball bearing guide with high load capacity for high torque loads
- Easy maintenance thanks to easily accessible lubrication connections

Displacement encoder (optional)



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 13)

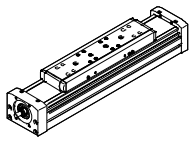
Sealing air connections



1 Sealing air connections
- Application of negative pressure minimises the dispersal of abraded particles into the environment
- Application of gauge pressure prevents dirt from getting into the axis

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 technical data section.

Version	Size	Working stroke	Speed	Repetition accuracy	Max. Feed force	Guide characteristics				
						Forces and torques				
						Fy	Fz	Mx	My	Mz
		[mm]	[m/s]	[mm]	[N]	[N]	[N]	[Nm]	[Nm]	[Nm]
Recirculating ball bearing guide										
	70	50 … 900	0.5	±0.02	650	1500	1850	16	132	132
	80	50 … 1940	1.0	±0.02	1600	2500	3050	36	228	228
	120	50 … 2460	1.5	±0.02	3400	5500	6890	104	680	680
	150	50 … 3000	2.0	±0.02	6400	5500	11000	167	1150	1150

Note

Engineering software
PositioningDrives
www.festo.com

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

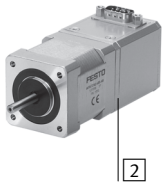
Key features

Complete system comprising spindle axis, motor, motor controller and motor mounting kit



Motor ➔ page 32





1 Servo motor EMME-AS, EMMS-AS
2 Stepper motor EMMS-ST

- Note

A range of specially adapted complete solutions is available for the spindle axis ELGA and the motors.

Motor controller Technical data ➔ Internet: motor controller

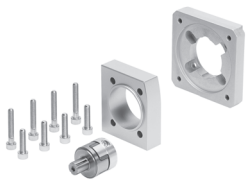




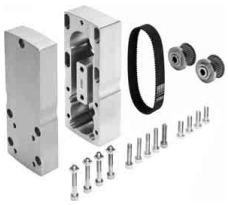
1 Servo motor controller CMMP-AS
2 Stepper motor controller CMMS-ST

Motor attachment set

Axial kit ➔ page 32



Parallel kit ➔ page 36

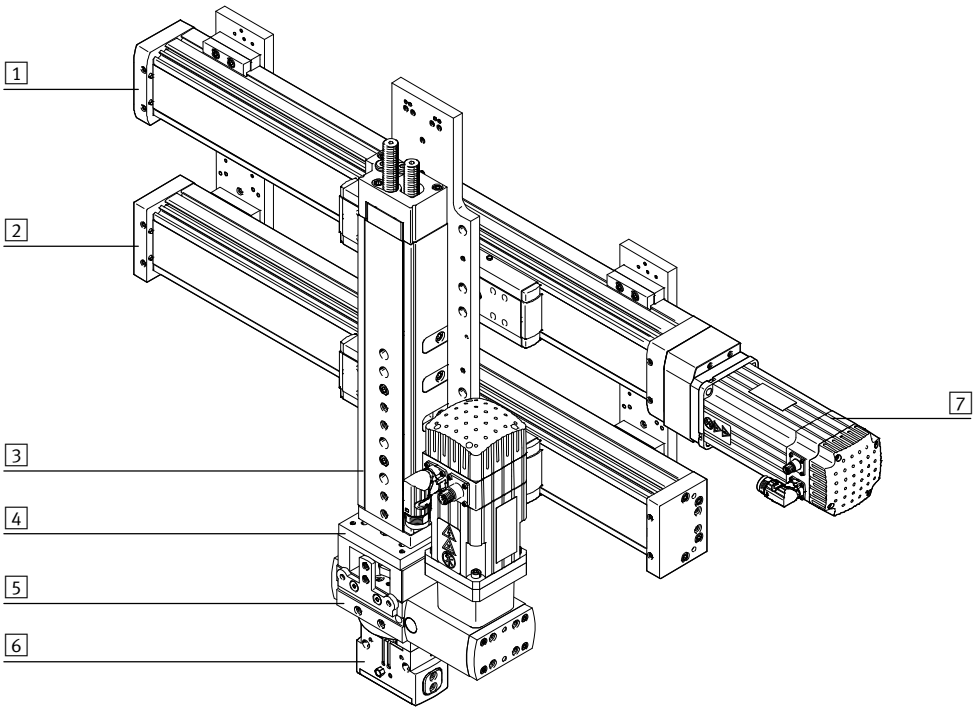


There are complete kits for both parallel and axial motor mounting.

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Key features

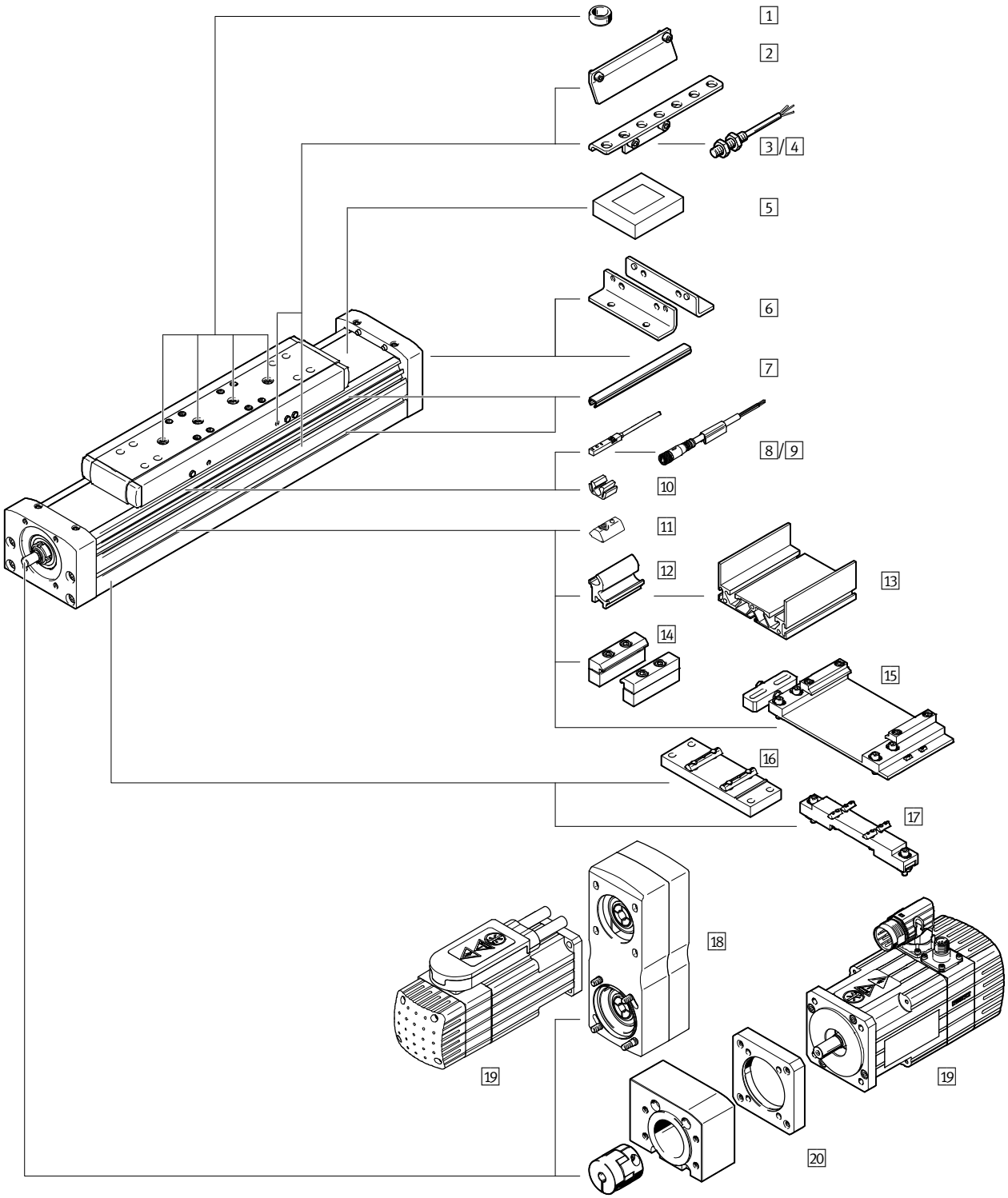
System product for handling and assembly technology



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

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Peripherals overview



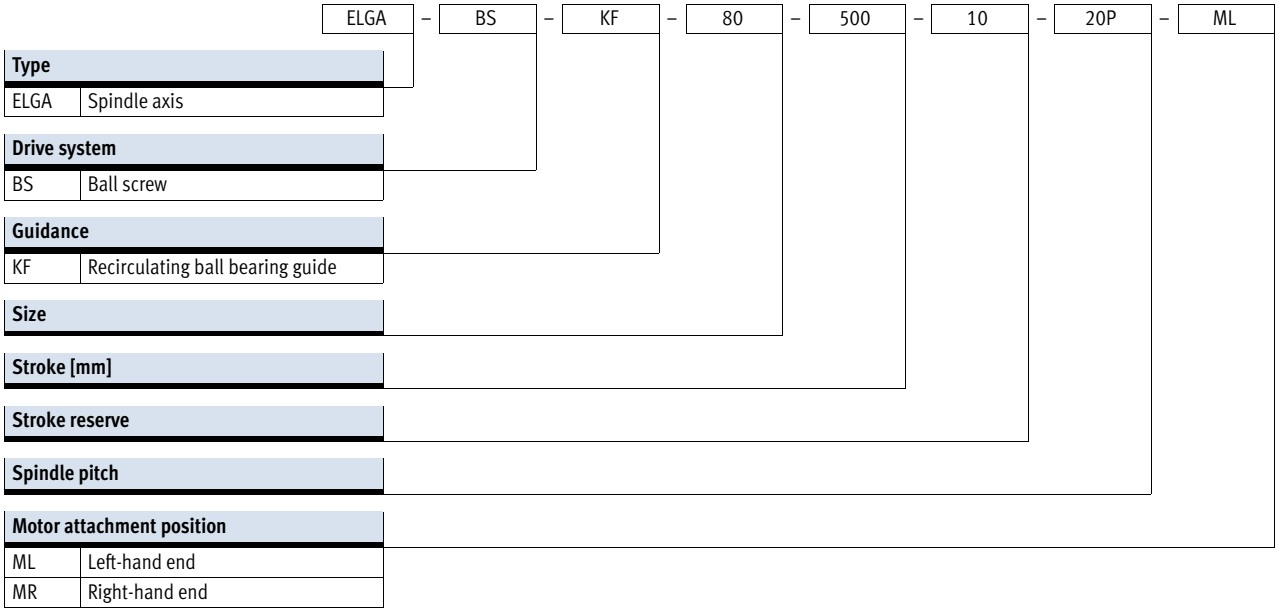
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Peripherals overview

Accessories			
	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, 150: 2x ZBH-9	45
2	Switch lug SF-EGC	For sensing the slide position	43
3	Sensor bracket HWS-EGC	For mounting the inductive proximity sensors (round design) on the axis	44
4	Proximity sensor, M8 SIEN-M8	Inductive proximity sensor, round design	47
5	Clamping component EADT	Tool for retensioning the cover strip	45
6	Foot mounting HPE	• For mounting the axis on the end cap • With higher forces and torques, the axis should be mounted using the profile	38
7	Slot cover ABP	For protecting against contamination	45
8	Proximity sensor, T-slot SIES-8M	Inductive proximity sensor, for T-slot	46
9	Connecting cable NEBU, SIM	For proximity sensor	47
10	Clip SMBK	For mounting the proximity sensor cable in the slot	45
11	Slot nut NST	For mounting attachments	45
12	Adapter kit DHAM	For mounting the support profile on the axis	46
13	Support profile HMIA	For mounting and guiding an energy chain	46
14	Profile mounting MUE	For mounting the axis on the side of the profile	39
15	Adjusting kit EADC-E16	Used to mount the axis on a vertical surface. Following mounting, the axis can be aligned horizontally	42
16	Central support EAHF-L5	For mounting the axis from underneath on the profile	40
17	Adjusting kit EADC-E15	It is height-adjustable. Can be used to compensate any unevenness in the bearing surface	41
18	Parallel kit EAMM-U	For parallel motor mounting (comprising: housing, clamping sleeve, toothed belt pulley, toothed belt)	36
19	Motor EMME, EMMS	Motors specially matched to the axis, with or without gear unit, with or without brake	32
20	Axial kit EAMM-A	For axial motor mounting (consisting of: coupling, coupling housing and motor flange)	32

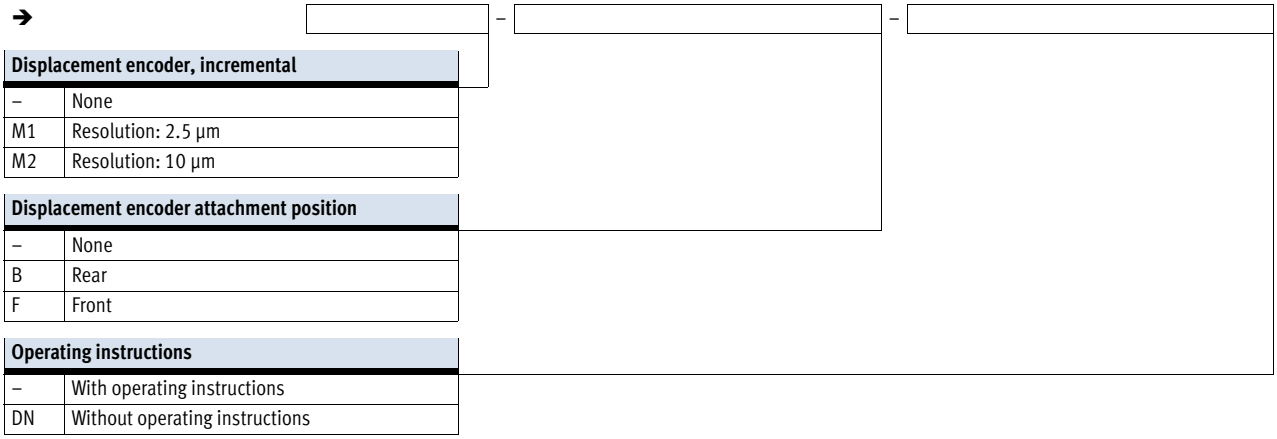
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Type codes



Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Type codes



Displacement encoder, incremental	
–	None
M1	Resolution: 2.5 µm
M2	Resolution: 10 µm

Displacement encoder attachment position	
–	None
B	Rear
F	Front

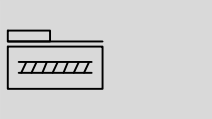
Operating instructions	
–	With operating instructions
DN	Without operating instructions

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

FESTO

Function



Size
70 ... 150

Stroke length
50 ... 3000 mm

www.festo.com



General technical data							
Size		70	80		120		150
Spindle pitch		10	10	20	10	25	40
Design		Electromechanical axis with ball screw					
Guidance		Recirculating ball bearing guide					
Mounting position		Any					
Working stroke	[mm]	50 ... 900	50 ... 1940		50 ... 2460		50 ... 3000
Max. feed force F_x[1]	[N]	650	1600		3400		6400
No-load torque	[Nm]	0.17	0.3	0.35	1.0	1.0	2.2
At min. travel speed	[m/s]	0.05	0.1		0.2		0.2
No-load torque	[Nm]	0.45	0.75	0.75	2.25	2.25	6.5
At max. travel speed	[m/s]	0.5	0.5	1	0.6	1.5	2
Max. radial force[2]	[N]	220	250		500		4000
Max. speed	[m/s]	0.5	0.5	1	0.6	1.5	2
Max. rotational speed[3]	[rpm]	3000	3000		3600		3000
Max. acceleration	[m/s²]	15					
Repetition accuracy	[mm]	±0.02					

1) Maximum feed force affects service life (➔ page LEERER MERKER)
2) At the drive shaft
3) Rotational speed and speed are stroke-dependent

Operating and environmental conditions		
Ambient temperature	[°C]	–10 ... +60
Degree of protection		IP40
Duty cycle	[%]	100

Weight [g]					
Size	70	80	120	150
Basic weight with 0 mm stroke[1]	2160	3800	10500	25100
Additional weight per 10 mm stroke	33	46	99	210
Moving load	804	1370	4459	10514

1) Incl. slide

Spindle							
Size		70	80		120		150
Diameter	[mm]	12	15		25		40
Pitch	[mm/rev.]	10	10	20	10	25	40

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

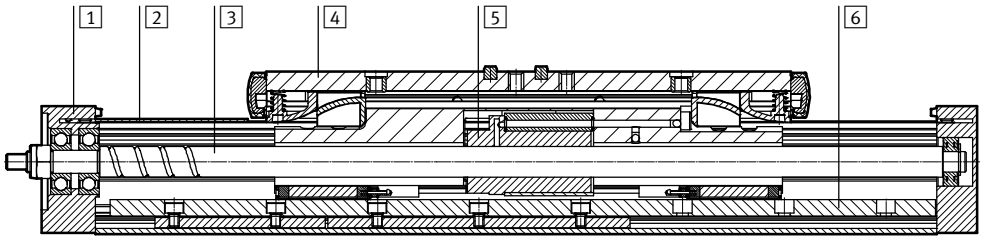
Mass moment of inertia							
Size		70	80		120		150
Spindle pitch		10	10	20	10	25	40
J_O	[kg mm²]	3.8	9.7	9.7	103.8	103.8	863
J_H per metre stroke	[kg mm²/m]	14.2	34.6	34.6	275.6	275.6	1803.1
J_L per kg payload	[kg mm²/kg]	2.53	2.53	10.13	2.53	15.83	40.53

The mass moment of inertia J_{rot} of the rotating parts of the axis is calculated as follows:

$J_{rot} = J_O + J_H \times$ working stroke [m]

Materials

Sectional view



Axis		
1	Drive cover	Anodised wrought aluminium alloy
2	Cover band	Stainless steel band, non-corroding
3	Spindle	Steel
4	Slides	Anodised wrought aluminium alloy
5	Spindle nut	Steel
6	Profile with integrated guide	Anodised wrought aluminium alloy
	Note on materials	RoHS-compliant
		Contains paint-wetting impairment substances

Technical data – Displacement encoder			
Type		ELGA-...-M1	ELGA-...-M2
Resolution	[µm]	2.5	10
Max. travel speed with displacement encoder	[m/s]	4	4
Encoder signal		5 V TTL; A/A, B/B; reference signal (N/N) cyclically every 5 mm (zero pulse)	
Signal output		Line Driver, push-pull, proof against continuous short circuits	
Electrical connection		8-pin plug connector, round design, M12	
Cable length	[mm]	160	

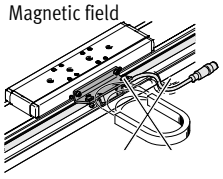
Operating and environmental conditions – Displacement encoder		
Ambient temperature	[°C]	–10 ... +70
Degree of protection		IP64
CE marking (see declaration of conformity)		In accordance with EU EMC Directive[1)]

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

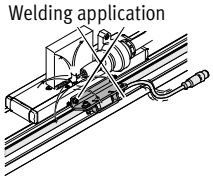
Instructions for use

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

- Magnetic field



- Welding application

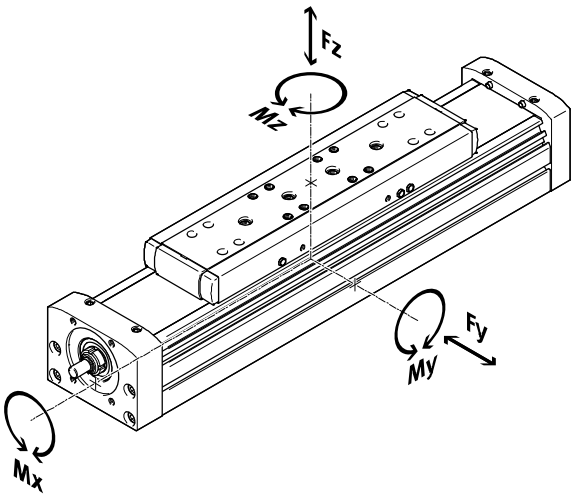


Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

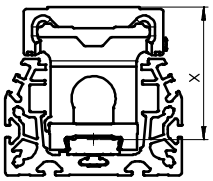
Technical data

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]	51	60	87	111

Max. permissible forces and torques for a service life of 5000 km					
Size		70	80	120	150
$Fy_{max.}$	[N]	1500	2500	5500	5500
$Fz_{max.}$	[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

Basic load ratings							
Size		70	80		120		185
Spindle pitch		10	10	20	10	25	40
Ball screw							
Dynamic $c_{dyn,BS}$	[N]	4000	6800	5700	14100	12700	25000

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:

$$f_v = \frac{|F_{y,dyn}|}{F_{y,max}} + \frac{|F_{z,dyn}|}{F_{z,max}} + \frac{|M_{x,dyn}|}{M_{x,max}} + \frac{|M_{y,dyn}|}{M_{y,max}} + \frac{|M_{z,dyn}|}{M_{z,max}} \leq 1$$

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

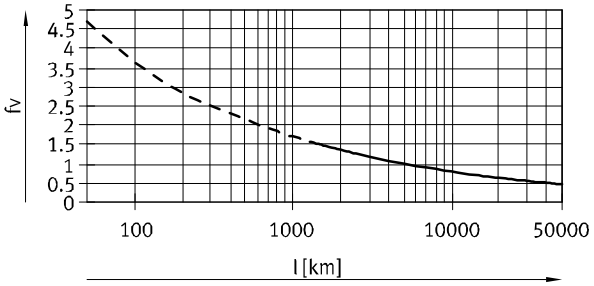
Service life of the guide

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 fv as a function of service life

Example:
A user wants to move an x kg load. Using the formula ➔ page 14 gives a value of 1.5 for the load comparison factor fv. 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 fv 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. fv > 1.5 are 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 roller 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 to ISO or 50 km 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 roller guides to ISO/JIS.

To make it easier to compare the guide capacity of linear axes ELGA with roller 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	150
$Fy_{max.}$	[N]	5520	9200	20240	20240
$Fz_{max.}$	[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

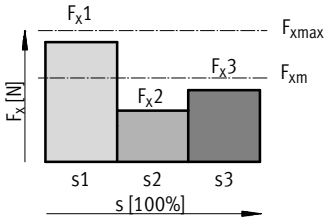
Service life of the spindle

- The service life of the spindle axis depends on the service life of the guide (➔ page 15) and of the lead screw.
  The operating coefficient plays a considerable role in determining the possible service life and it can be determined with the help of the table (➔ page 17)
- The service life ends when the maximum number of switching cycles or maximum running performance has been reached:
  – 5 million switching cycles or service life of 5000 km
- The distance between the foremost and rearmost positions must be at least 2.5 times the spindle pitch per travel cycle.
- The specifications for running performance are based on experimentally determined and theoretically calculated data (at room temperature).
  The running performance that can be achieved in practice can deviate considerably from the specified curves under different parameters

Calculation of the mean feed force F_{xm} with ball screw

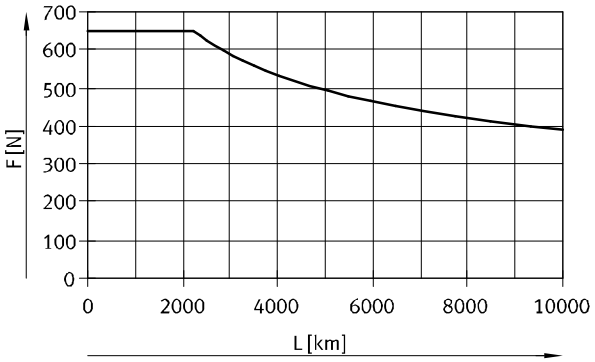
$$F_{xm} = \sqrt[3]{\frac{F_{x1}^{\,3} \times s_1 + \ldots + F_n^{\,3} \times s_n}{s_1 + \ldots + s_n}}$$

F_{xm} = Mean feed force
$F_{x1/n}$ = Feed force of section
$s_{1/n}$ = Share of movement cycle that is travel

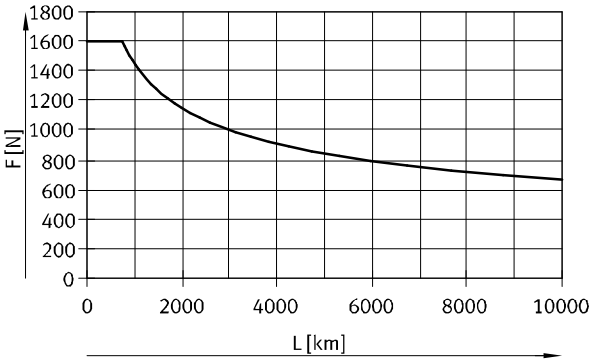


Mean feed force F_{xm} as a function of running performance L, with an operating coefficient f_B of 1.0 at room temperature

Size 70

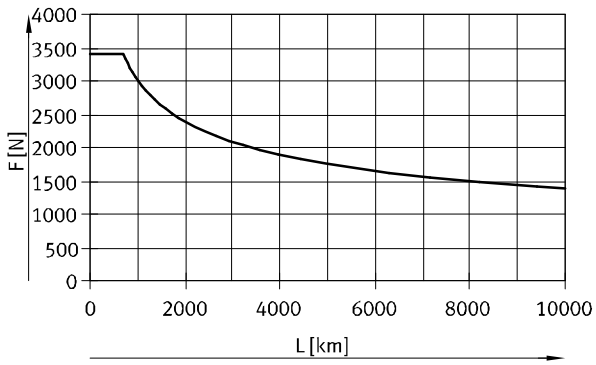


Size 80

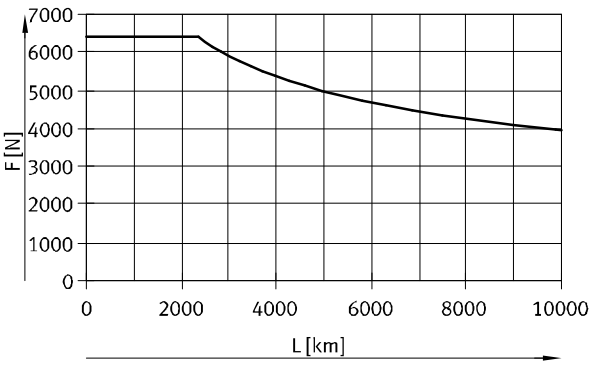


Mean feed force F_{xm} as a function of running performance L, with an operating coefficient f_B of 1.0 at room temperature

Size 120



Size 150



Life cycle taking into account the operating coefficient

$$L_{ist} = \frac{L}{f_B^{\,3}}$$

L_{ist} = Actual service life
L = Target service life (➔ graphs)
f_B = Operating coefficient

Load[1)]	Operating coefficient f_B	Sample application
None	1.0 ... 1.2	Measuring machine
Lightweight	1.2 ... 1.4	Handling, robot technology
Medium	1.4 ... 1.6	Press-in operations
High	1.6 ... 2.0	Construction, agriculture

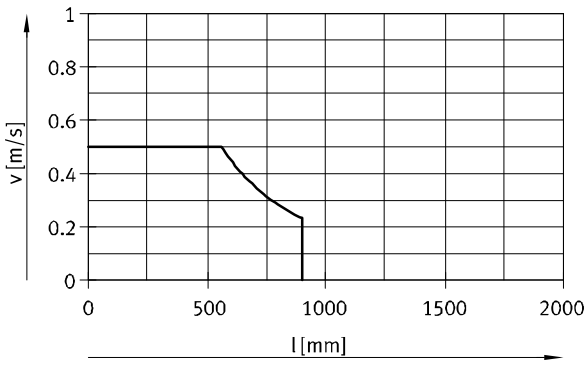
1) Stress caused by impacts, temperature, contamination, shocks or vibration

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

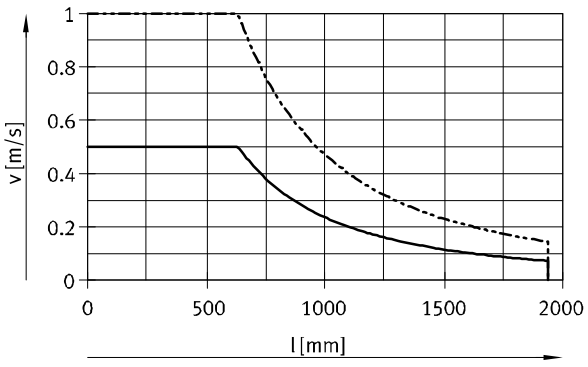
Speed v as a function of working stroke l

Size 70



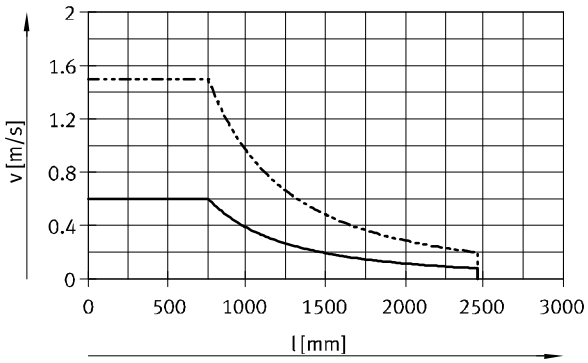
ELGA-70-10P

Size 80



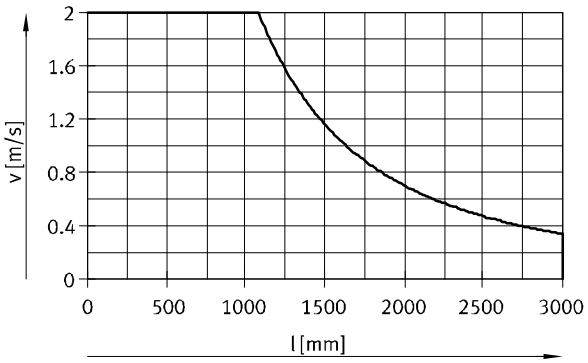
ELGA-80-10P
ELGA-80-20P

Size 120



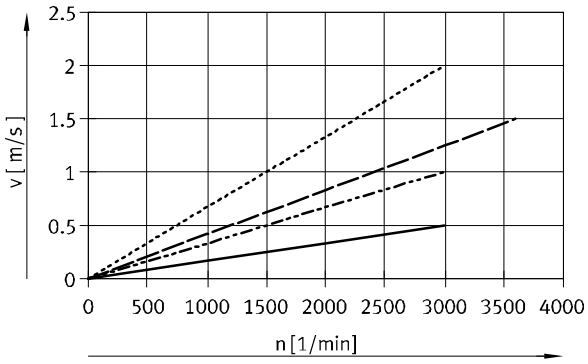
ELGA-120-10P
ELGA-120-25P

Size 150



ELGA-150-40P

Speed v as a function of rotational speed n



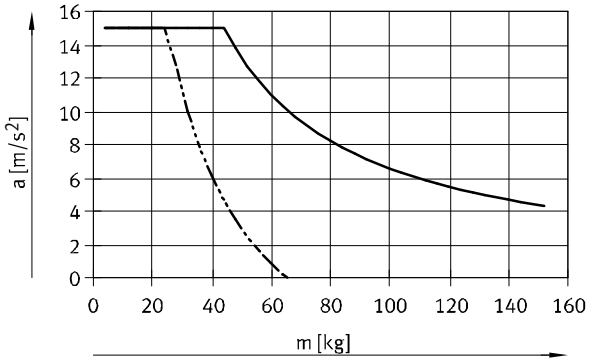
Note

Rotational speed is stroke-dependent.
Note maximum rotational speed.

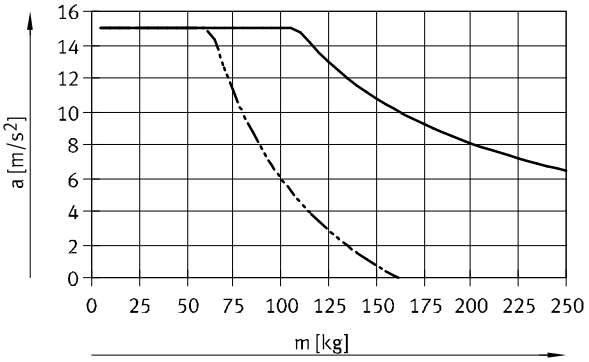
ELGA-70-10P/-80-10P/-120-10P
ELGA-80-20P
ELGA-120-25P
ELGA-150-40P

Max. acceleration a as a function of payload m

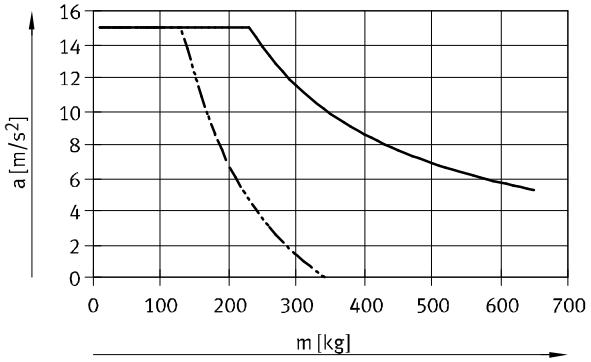
Size 70



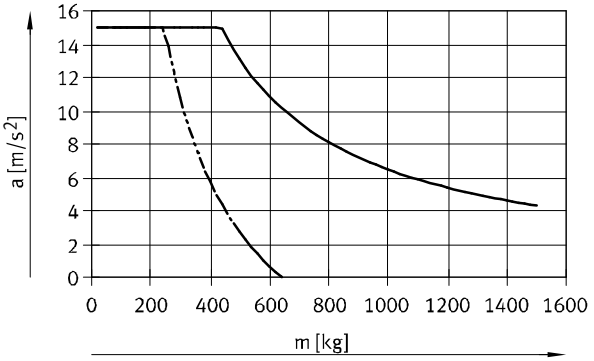
Size 80



Size 120

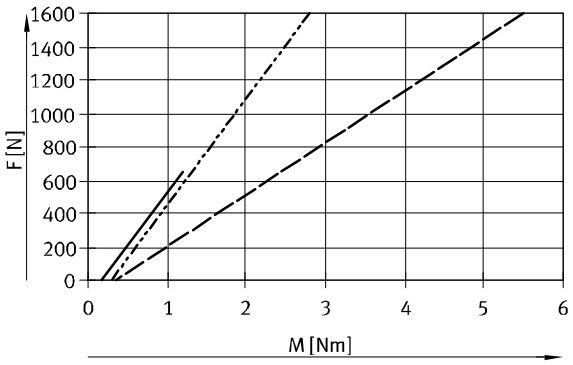


Size 150

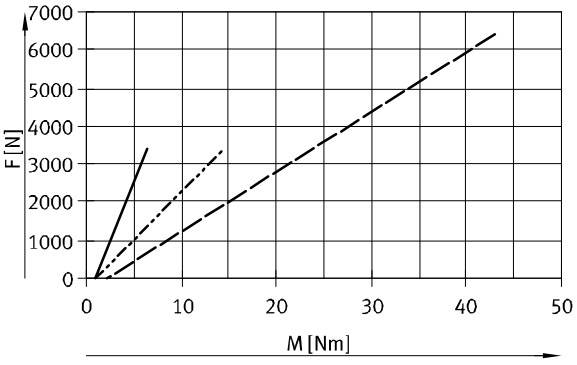


Horizontal mounting position
Vertical mounting position

Theoretical feed force F as a function of input torque M



ELGA-70-10P
ELGA-80-10P
ELGA-80-20P

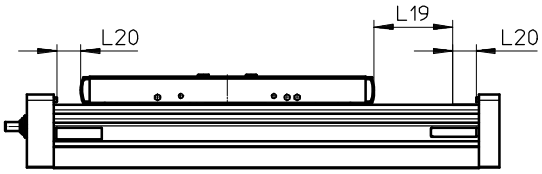


ELGA-120-10P
ELGA-120-25P
ELGA-150-40P

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

Stroke reserve



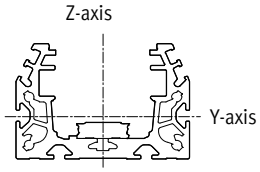
L19 = Nominal stroke
L20 = Stroke reserve

- 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
- The length can be freely selected
- The sum of the nominal stroke and 2x the stroke reserve must not exceed the maximum working stroke

Example:

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

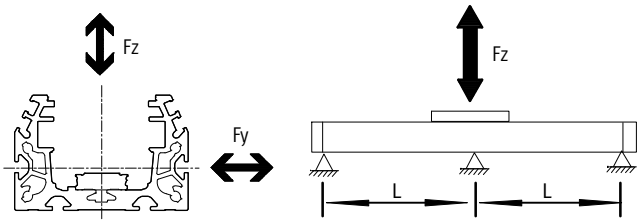
2nd moment of area



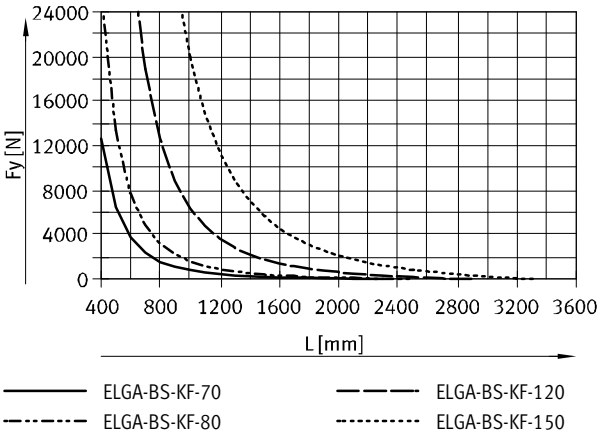
Size		70	80	120	150
Iy	[mm^4]	165x10^3	310x10^3	1.24x10^6	4.70x10^6
Iz	[mm^4]	472x10^3	977x10^3	3.80x10^6	11.81x10^6

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

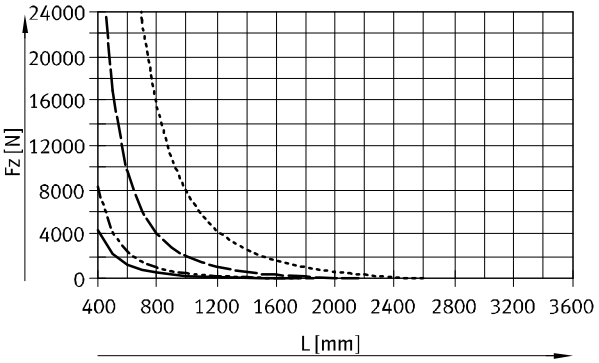
In order to limit deflection in the case of large strokes, the axis may need to be supported.
The following graphs can be used to determine the maximum permissible support spacing l as a function of force F acting on the axis. The deflection is f = 0.5 mm.



Force Fy



Force Fz



ELGA-BS-KF-70
ELGA-BS-KF-80
ELGA-BS-KF-120
ELGA-BS-KF-150

Recommended deflection limits

Adherence to the following deflection limits is recommended so as not to impair the functional performance 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

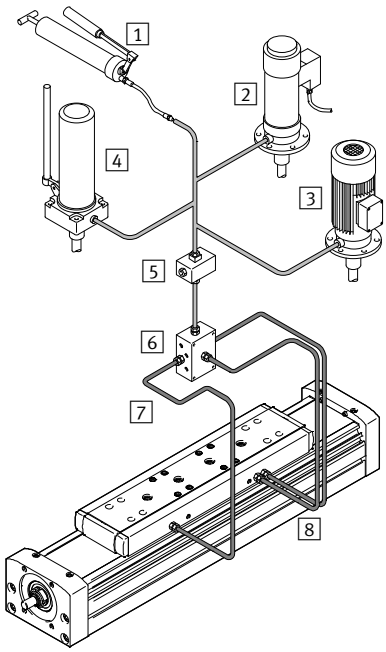
The lubrication connections enable the guide and the ball screw of the spindle axis ELGA-BS-KF to be permanently lubricated in applications in humid or wet ambient conditions using semi- or fully automatic relubrication devices.

- The axes are suitable for oils and greases
- 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 23

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.

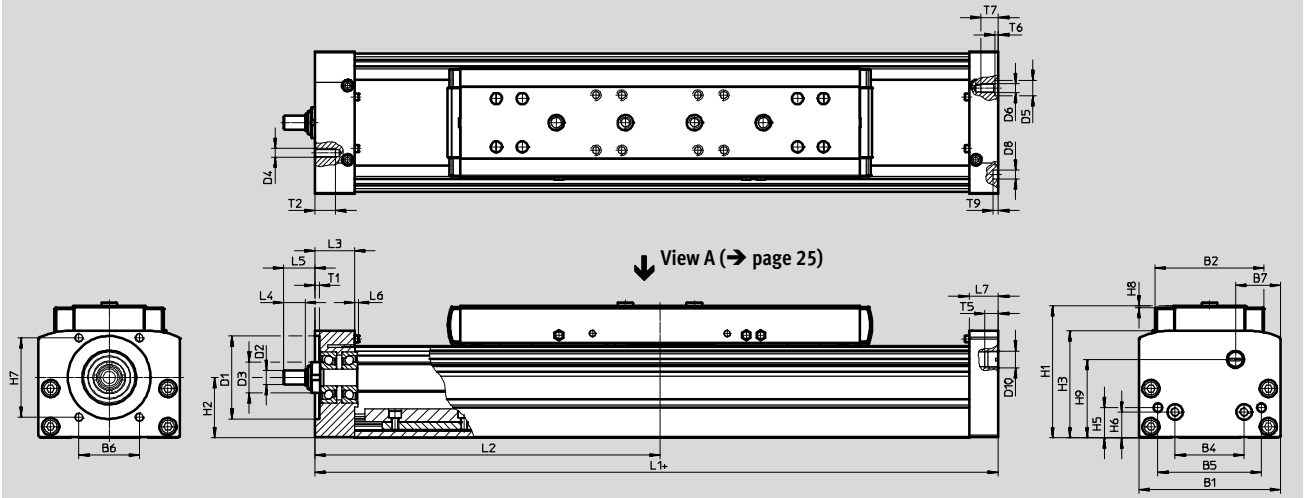


1 Hand pump
2 Pneumatic container pump
3 Electric container pump
4 Manually operated container pump
5 Nipple block
6 Distributor block
7 Tubing or piping
8 Fittings

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

Dimensions Download CAD data ➔ **www.festo.com**



\+ = plus stroke length + 2x stroke reserve

1 Sealing air connection

Size	B1	B2	B4	B5	B6	B7	D1 ∅	D2 ∅	D3 ∅	D4	D5 ∅ H7
70	69	48.2	30	45	29	21.5	38	6	SW13	M5	–
80	82	63.2	40	60	35	26	48	8	18	M5	9
120	120	95	80	40	64	35	62	12	28	M6	–
150	154	125	40	80	80	42	95	25	44	M8	–

Size	D6	D8 ∅ H7	D10	H1	H2	H3	H5	H6	H7	H8	H9	L1
70	M5	5	G1/8	64	28.5	50.5	13	13	36	1	37.5	268
80	M5	5	G1/8	76.5	35	62	17.5	15	46	1	45.5	296
120	M8	9	G1/8	111.5	54	89	22	22	54	1	65.5	409
150	M8	9	G1/8	141.5	72.5	122	26.5	26.5	80	1	91	512

Size	L2 min.	L3	L4	L5	L6	L7	T1	T2	T5	T6	T7	T9
70	133.5	21	8	14	2.3	16	2.5	12	8	–	10	3.1
80	148.2	23	12.5	18	2.3	17	2.5	12	8	2.1	10.1	3.1
120	202.3	33	17.5	25.5	1.8	30	3	15	8	–	16	2.1
150	235.7	43	23	30.5	3.5	37	3	20	8	–	16	2.1

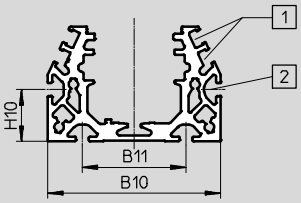
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

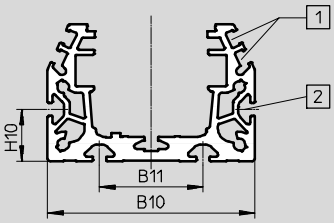
Dimensions Download CAD data ➔ **www.festo.com**

Profile

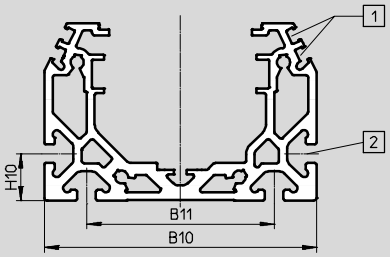
Width 70



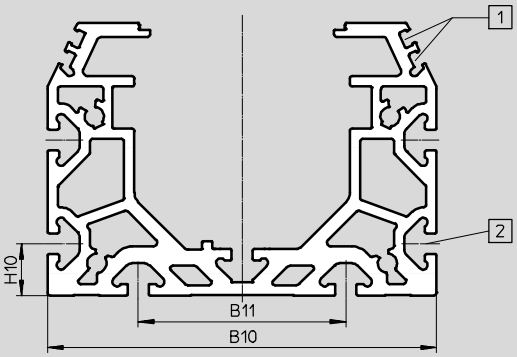
Size 80



Size 120



Size 150



[1] Sensor slot for proximity sensor
[2] Mounting slot for slot nut:
for size 70, 80: slot nut NST-5-M5
for size 120, 150: slot nut NST-8-M6

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

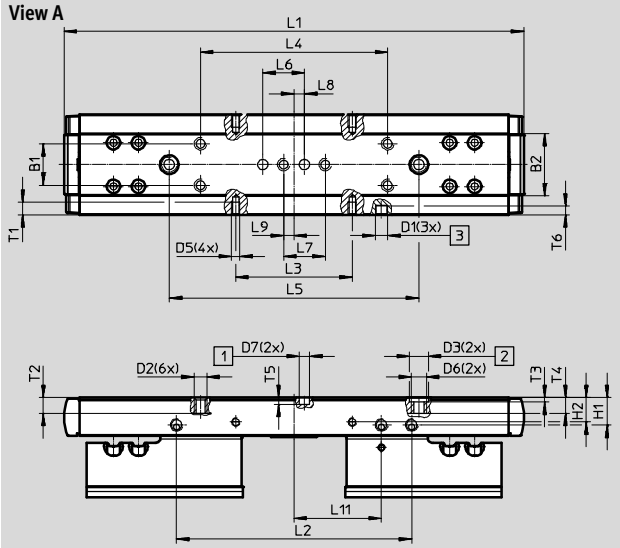
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

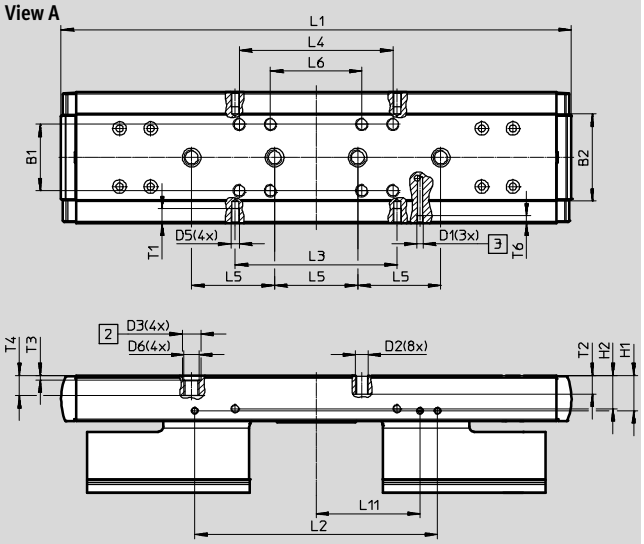
Dimensions Download CAD data ➔ **www.festo.com**

Slide

Width 70
View A



Size 80
View A



1 Hole for centring pin ZBS
2 Hole for centring sleeve ZBH
3 Lubrication connections

Size	B1 ±0.1	B2 ±0.2	D1	D2	D3 ∅ H7	D5	D6	D7 ∅ H7	H1 ±0.1	H2	L1	L2 ±0.1	L3 ±0.1	L4 ±0.1
70	20	30	M6	M5	9	M4	M6	5	13.1	11.7	221	113	56	90
80	32	42	M6	M5	9	M4	M6	–	16.5	16	246	120	78	74

Size	L5 ±0.03	L6 ±0.1	L7 ±0.03	L8	L9	L11	T1	T2	T3 +0.1	T4	T5 +0.1	T6 Min.	T6 Max.
70	120	20	20	5	5	42	6	7.5	2.1	7.5	3.1	4.2	$4.6_{-0.1}$
80	40	44	–	–	–	50.5	8	9	2.1	9.7	–	5.6	$5.9_{-0.1}$

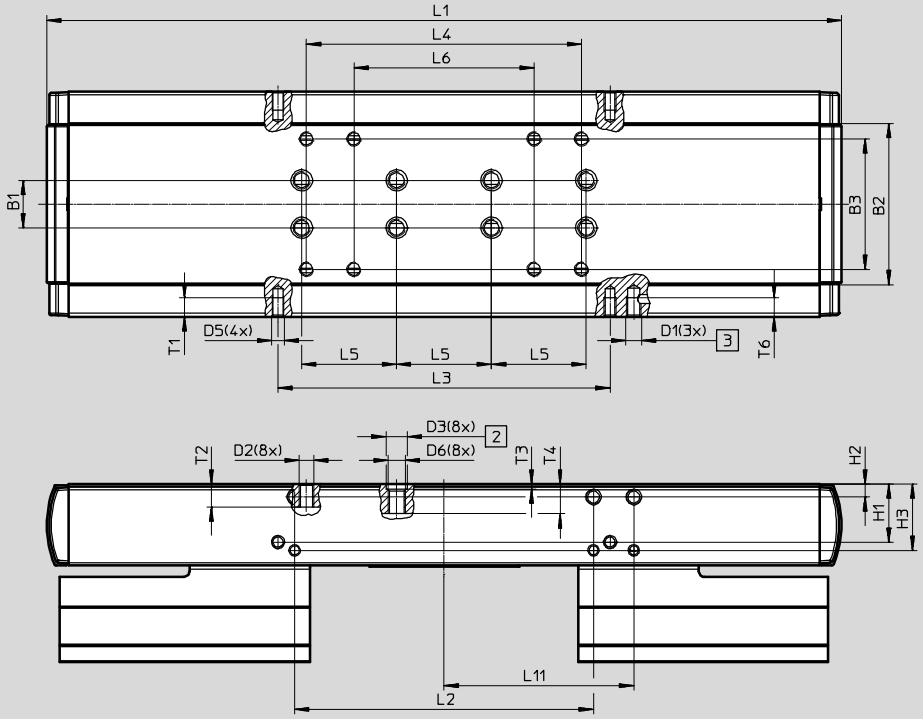
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

Slide

Size 120
View A



2 Hole for centring sleeve ZBH
3 Lubrication connections

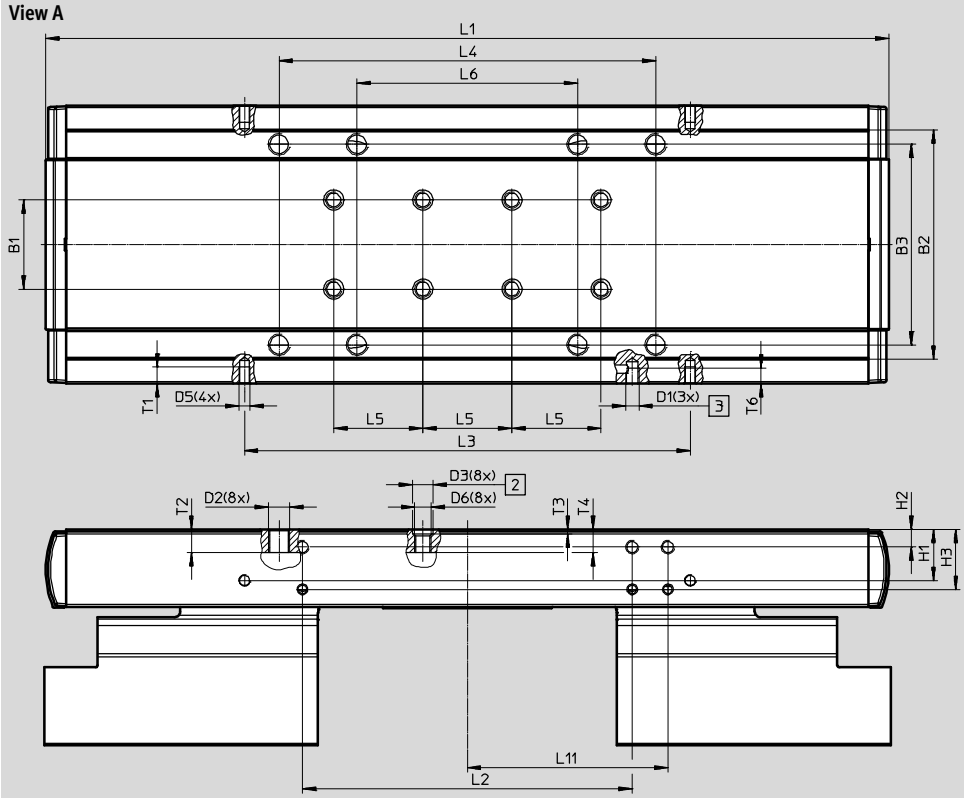
Size	B1	B2	B3	D1	D2	D3	D5	D6	H1	H2	H3	L1
	±0.03	±0.2	±0.1			∅ H7						
120	20	68	55	M6	M5	9	M5	M6	24.5	5.5	28	335

Size	L2	L3	L4	L5	L6	L11	T1	T2	T3	T4	T6
	±0.1	±0.1	±0.2	±0.03	±0.2				+0.1		
120	126	140	116	40	76	80	8	9.7	2.1	12.55	8

Dimensions Download CAD data ➔ **www.festo.com**

Slide

Size 150
View A



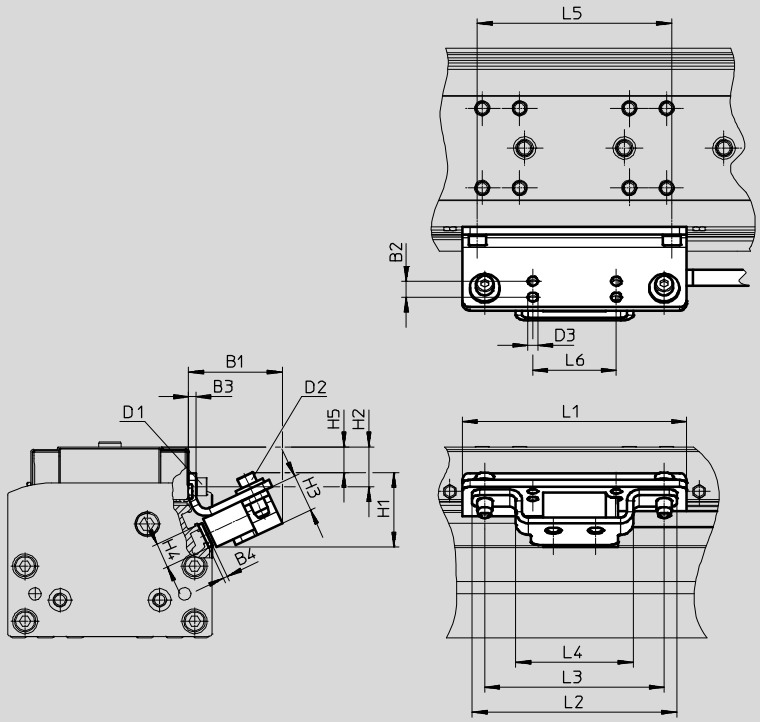
2 Hole for centring sleeve ZBH
3 Lubrication connections

Size	B1 ±0.03	B2 ±0.2	B3 ±0.1	D1	D2	D3 ∅ H7	D5	D6	H1	H2	H3	L1
150	40	103	90	M6	M 8	9	M5	M6	23	8	27	378.4

Size	L2 ±0.1	L3 ±0.1	L4 ±0.2	L5 ±0.03	L6 ±0.2	L11	T1	T2	T3 +0.1	T4	T6
150	148	200	169	40	99	90	7.5	10.7	2.1	14	7

Dimensions Download CAD data ➔ **www.festo.com**

ELGA-...-M1/M2 – With incremental displacement encoder



Encoder cable
(connection to the motor controller/
safety system)
➔ page 47

Size	B1	B2	B3	B4	D1	D2	D3 ∅	H1	H2
70	40	7	3	1.8	M4x8	M4x14	4	35	11.7
80	40	7	3	1.8	M4x14	M4x14	4	35	16
120	41	7	3	1.8	M4x14	M4x14	4	35	24.5
150	42	7	3	1.8	M5x10	M4x14	4	35	23

Size	H3	H4	H5	L1	L2	L3	L4	L5	L6
70	15	10	3.5	86	82	72	47	56	33.5
80	15	10	9	90	82	72	47	78	33.5
120	15	10	21	170	82	72	47	140	33.5
150	15	10	22.4	220	82	72	47	200	33.5

Ordering data – Standard design

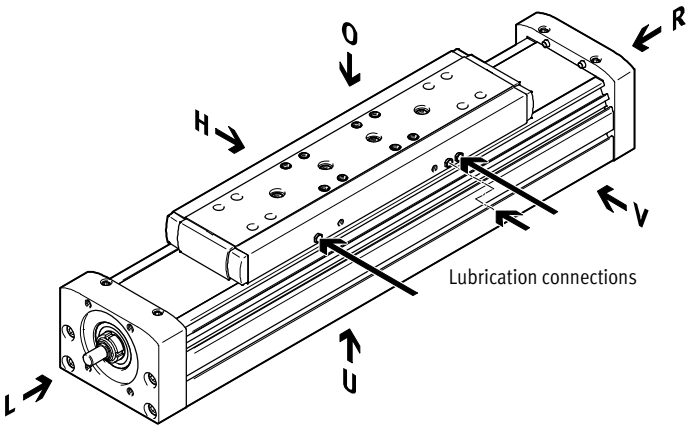
Features:
- Stroke reserve: 0 mm
- Motor attachment position: left-hand side

Size	Pitch [mm/rev]	Stroke [mm]	Part No.	Type
70	10	100	**8041816**	**ELGA-BS-KF-70-100-0H-10P-ML**
		200	**8041817**	**ELGA-BS-KF-70-200-0H-10P-ML**
		300	**8041818**	**ELGA-BS-KF-70-300-0H-10P-ML**
		400	**8041819**	**ELGA-BS-KF-70-400-0H-10P-ML**
		500	**8041820**	**ELGA-BS-KF-70-500-0H-10P-ML**
		600	**8041821**	**ELGA-BS-KF-70-600-0H-10P-ML**
80	10	100	**8041822**	**ELGA-BS-KF-80-100-0H-10P-ML**
		200	**8041823**	**ELGA-BS-KF-80-200-0H-10P-ML**
		300	**8041824**	**ELGA-BS-KF-80-300-0H-10P-ML**
		400	**8041825**	**ELGA-BS-KF-80-400-0H-10P-ML**
		500	**8041826**	**ELGA-BS-KF-80-500-0H-10P-ML**
		600	**8041827**	**ELGA-BS-KF-80-600-0H-10P-ML**
		800	**8041828**	**ELGA-BS-KF-80-800-0H-10P-ML**
	20	100	**8041829**	**ELGA-BS-KF-80-100-0H-20P-ML**
		200	**8041830**	**ELGA-BS-KF-80-200-0H-20P-ML**
		300	**8041831**	**ELGA-BS-KF-80-300-0H-20P-ML**
		400	**8041832**	**ELGA-BS-KF-80-400-0H-20P-ML**
		500	**8041833**	**ELGA-BS-KF-80-500-0H-20P-ML**
		600	**8041834**	**ELGA-BS-KF-80-600-0H-20P-ML**
		800	**8041835**	**ELGA-BS-KF-80-800-0H-20P-ML**
120	10	100	**8041836**	**ELGA-BS-KF-120-100-0H-10P-ML**
		200	**8041837**	**ELGA-BS-KF-120-200-0H-10P-ML**
		300	**8041838**	**ELGA-BS-KF-120-300-0H-10P-ML**
		400	**8041839**	**ELGA-BS-KF-120-400-0H-10P-ML**
		500	**8041840**	**ELGA-BS-KF-120-500-0H-10P-ML**
		600	**8041841**	**ELGA-BS-KF-120-600-0H-10P-ML**
		800	**8041842**	**ELGA-BS-KF-120-800-0H-10P-ML**
	25	100	**8041843**	**ELGA-BS-KF-120-100-0H-25P-ML**
		200	**8041844**	**ELGA-BS-KF-120-200-0H-25P-ML**
		300	**8041845**	**ELGA-BS-KF-120-300-0H-25P-ML**
		400	**8041846**	**ELGA-BS-KF-120-400-0H-25P-ML**
		500	**8041847**	**ELGA-BS-KF-120-500-0H-25P-ML**
		600	**8041848**	**ELGA-BS-KF-120-600-0H-25P-ML**
		800	**8041849**	**ELGA-BS-KF-120-800-0H-25P-ML**

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

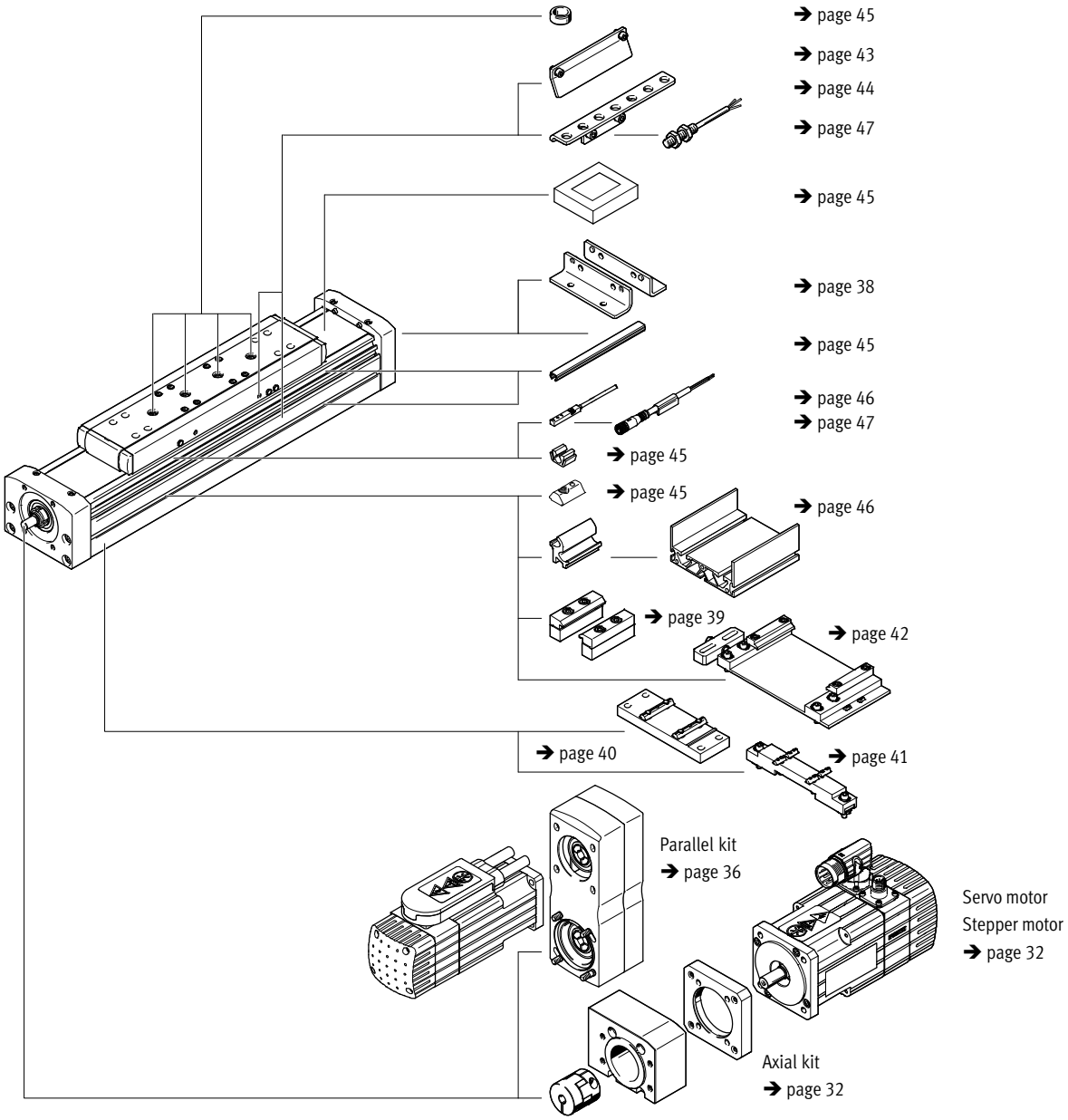
Ordering data – Modular product system

Orientation guide



O	top
U	underneath
R	right
L	left
V	front
H	rear

Accessories



Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Ordering data – Modular product system

Ordering table

Size			70	80	120	150	Condi-tions	Code	Entry code
M	Module no.		**8024918**	**8024919**	**8024920**	**8024921**			
	Design		Linear axis					**ELGA**	ELGA
	Function		Ball screw					**-BS**	-BS
	Guidance		Recirculating ball bearing guide					**-KF**	-KF
	Size	[mm]	70	80	120	150		**-...**	
	Stroke length (without stroke reserve)	Standard [mm]	100; 200; 300; 400; 500; 600; 700; 900	100; 200; 300; 400; 500; 600; 700; 800; 900; 1300; 1440; 1740; 1940	100; 200; 300; 400; 500; 600; 700; 800; 900; 1300; 1400; 1960; 2460	200; 400; 500; 900; 1400; 1900; 2500; 3000			
		Variable [mm]	50 ... 880	50 ... 1920	50 ... 2440	50 ... 2980		**-...**	
	Stroke reserve	[mm]	0 ... 999 (0 = no stroke reserve)				1	**-...H**	
	Spindle pitch		10	10	10	–		**-10P**	
			–	20	–	–		**-20P**	
			–	–	25	–		**-25P**	
			–	–	–	40		**-40P**	
	Motor attachment position		Left-hand end					**-ML**	
			Right-hand end					**-MR**	
O	Displacement encoder, incremental		None						
			Resolution 2.5 µm					**-M1**	
			Resolution 10 µm					**-M2**	
	Displacement encoder attachment position		None						
			Rear				2	**B**	
			Front				2	**F**	
	Operating instructions		With operating instructions						
			Without operating instructions					**-DN**	

1 ... **H** The sum of the nominal stroke and 2x stroke reserve must not exceed the maximum stroke length

2 **B, F** Only with displacement encoder M1, M2

M Mandatory data
O Options

Transfer order code

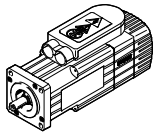
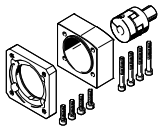
	ELGA	–	BS	–	KF	–		–		–		–		–		–	

- Note

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

The respective no-load driving torque of the kit must be taken into consideration when using parallel kits.

Permissible axis/motor combinations with axial kit — Technical data ➔ Internet: eamm-a

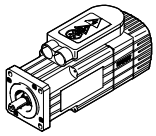
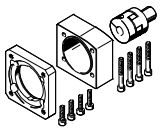
Motor/gear unit[1]	Axial kit	
		
Type	Part No.	Type
ELGA-BS-…-70		
With servo motor		
EMME-AS-40-…	☆ **3637972**	**EAMM-A-S38-40P-G2**
EMMS-AS-40-…	**3637971**	**EAMM-A-S38-40A-G2**
EMMS-AS-55-…	**3637967**	**EAMM-A-S38-55A-G2**
EMMT-AS-60-…	☆ **3637958**	**EAMM-A-S38-60P-G2**
EMME-AS-60-…	☆ **3637958**	**EAMM-A-S38-60P-G2**
With servo motor and gear unit		
EMME-AS-40-… **EMGA-40-P-G…-EAS-40**	**1456647**	**EAMM-A-S38-40G-G2**
EMMS-AS-40-… **EMGA-40-P-G…-SAS-40**	**1456647**	**EAMM-A-S38-40G-G2**
With servo motor and angled gear unit		
EMME-AS-40-… **EMGA-40-A-G…-40P**	**1456647**	**EAMM-A-S38-40G-G2**
With stepper motor		
EMMS-ST-42-…	☆ **3637965**	**EAMM-A-S38-42A-G2**
EMMS-ST-57-…	☆ **3637956**	**EAMM-A-S38-57A-G2**
With stepper motor and gear unit		
EMMS-ST-42-… **EMGA-40-P-G…-SST-42**	**1456647**	**EAMM-A-S38-40G-G2**
With integrated drive		
EMCA-EC-67-…	**1456638**	**EAMM-A-S38-67A-G2**
With integrated drive and gear unit		
EMCA-EC-67-… **EMGC-40-…**	**1456647**	**EAMM-A-S38-40G-G2**

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

Festo core product range

★ Generally ready for shipping ex works in 24 hours
☆ Generally ready for shipping ex works in 5 days

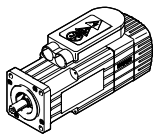
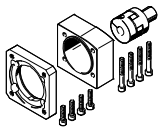
Permissible axis/motor combinations with axial kit — Technical data ➔ Internet: eamm-a

Motor/gear unit[1]	Axial kit	
		
Type	Part No.	Type
ELGA-BS-…-80		
With servo motor		
EMMS-AS-55-…	**3637961**	**EAMM-A-S48-55A-G2**
EMMT-AS-60-…	☆ **3637964**	**EAMM-A-S48-60P-G2**
EMME-AS-60-…	☆ **3637964**	**EAMM-A-S48-60P-G2**
EMMS-AS-70-…	**3637957**	**EAMM-A-S48-70A-G2**
With servo motor and gear unit		
EMME-AS-40-… **EMGA-40-P-G…-EAS-40**	**1456650**	**EAMM-A-S48-40G-G2**
EMMS-AS-40-… **EMGA-40-P-G…-SAS-40**	**1456650**	**EAMM-A-S48-40G-G2**
EMMS-AS-55-… **EMGA-60-P-G…-SAS-55**	**2256701**	**EAMM-A-S48-60G-G2**
EMMT-AS-60-… **EMGA-60-P-G…-EAS-60**	**1456652**	**EAMM-A-S48-60H-G2**
EMME-AS-60-… **EMGA-60-P-G…-EAS-60**	**1456652**	**EAMM-A-S48-60H-G2**
EMMS-AS-70-… **EMGA-60-P-G…-SAS-70**	**2256701**	**EAMM-A-S48-60G-G2**
With servo motor and angled gear unit		
EMME-AS-40-… **EMGA-40-A-G…-40P**	**1456650**	**EAMM-A-S48-40G-G2**
EMMT-AS-60-… **EMGA-60-A-G…-60P**	**1456652**	**EAMM-A-S48-60H-G2**
EMME-AS-60-… **EMGA-60-A-G…-60P**	**1456652**	**EAMM-A-S48-60H-G2**
With stepper motor		
EMMS-ST-57-…	☆ **3637963**	**EAMM-A-S48-57A-G2**
EMMS-ST-87-…	☆ **3637962**	**EAMM-A-S48-87A-G2**
With stepper motor and gear unit		
EMMS-ST-42-… **EMGA-40-P-G…-SST-42**	**1456650**	**EAMM-A-S48-40G-G2**
EMMS-ST-57-… **EMGA-60-P-G…-SST-57**	**2256701**	**EAMM-A-S48-60G-G2**
With integrated drive and gear unit		
EMCA-EC-67-… **EMGC-40**	**1456650**	**EAMM-A-S48-40G-G2**
EMCA-EC-67-… **EMGC-60-…**	**1456652**	**EAMM-A-S48-60H-G2**

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

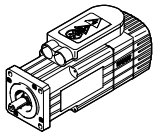
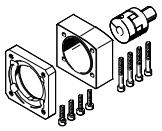
Festo core product range	★ Generally ready for shipping ex works in 24 hours ☆ Generally ready for shipping ex works in 5 days

Permissible axis/motor combinations with axial kit — Technical data ➔ Internet: eamm-a

Motor/gear unit[1]		Axial kit	
			
Type	Part No.	Type	
ELGA-BS-…-120			
With servo motor			
EMMS-AS-70-…	**3637959**	**EAMM-A-S62-70A-G2**	
EMME-AS-80-…	☆ **3637970**	**EAMM-A-S62-80P-G2**	
EMME-AS-100-…	☆ **3637960**	**EAMM-A-S62-100A-G2**	
EMMS-AS-100-…	**3637960**	**EAMM-A-S62-100A-G2**	
EMMS-AS-140-…	**3637969**	**EAMM-A-S62-140A-G2**	
With servo motor and gear unit			
EMMS-AS-55-… **EMGA-60-P-G…-SAS-55**	**2297649**	**EAMM-A-S62-60G-G2**	
EMMT-AS-60-… **EMGA-60-P-G…-EAS-60**	**1456654**	**EAMM-A-S62-60H-G2**	
EMME-AS-60-… **EMGA-60-P-G…-EAS-60**	**1456654**	**EAMM-A-S62-60H-G2**	
EMMS-AS-70-… **EMGA-60-P-G…-SAS-70**	**2297649**	**EAMM-A-S62-60G-G2**	
EMMS-AS-70-… **EMGA-80-P-G…-SAS-70**	**1972530**	**EAMM-A-S62-80G-G2**	
EMME-AS-80-… **EMGA-80-P-G…-EAS-80**	**1972530**	**EAMM-A-S62-80G-G2**	
EMME-AS-100-… **EMGA-80-P-G…-SAS-100**	**1972530**	**EAMM-A-S62-80G-G2**	
EMMS-AS-100-… **EMGA-80-P-G…-SAS-100**	**1972530**	**EAMM-A-S62-80G-G2**	
With servo motor and angled gear unit			
EMMT-AS-60-… **EMGA-60-A-G…-60P**	**1456654**	**EAMM-A-S62-60H-G2**	
EMME-AS-60-… **EMGA-60-A-G…-60P**	**1456654**	**EAMM-A-S62-60H-G2**	
EMME-AS-80-… **EMGA-80-A-G…-80P**	**1972530**	**EAMM-A-S62-80G-G2**	
EMME-AS-100-… **EMGA-80-A-G…-100A**	**1972530**	**EAMM-A-S62-80G-G2**	
With stepper motor			
EMMS-ST-87-…	☆ **3637966**	**EAMM-A-S62-87A-G2**	
With stepper motor and gear unit			
EMMS-ST-57-… **EMGA-60-P-G…-SST-57**	**2297649**	**EAMM-A-S62-60G-G2**	
EMMS-ST-87-… **EMGA-80-P-G…-SST-87**	**1972530**	**EAMM-A-S62-80G-G2**	
With integrated drive and gear unit			
EMCA-EC-67-… **EMGC-60-…**	**1456654**	**EAMM-A-S62-60H-G2**	

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

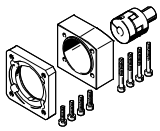
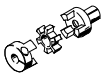
Festo core product range
★ Generally ready for shipping ex works in 24 hours
☆ Generally ready for shipping ex works in 5 days

Permissible axis/motor combinations with axial kit		Technical data ➔ Internet: eamm-a
Motor/gear unit[1]	Axial kit	
		
ELGA-BS-…-150		
With servo motor		
EMME-AS-100-…	**3637955**	**EAMM-A-S95-100A-G2**
EMMS-AS-100-…	**3637955**	**EAMM-A-S95-100A-G2**
EMMS-AS-140-…	**3637954**	**EAMM-A-S95-140A-G2**

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

Festo core product range	★ Generally ready for shipping ex works in 24 hours ☆ Generally ready for shipping ex works in 5 days

Component parts of the axial kit — Technical data ➔ Internet: eamm-a

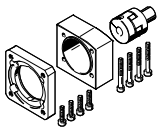
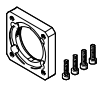
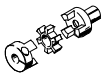
Axial kit	Comprises:			
	Motor flange	Coupling	Coupling housing	Screw set
				
Part No. Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
ELGA-BS-…-70				
3637971 **EAMM-A-S38-40A-G2**	**558175** **EAMF-A-38B-40A**	**558312** **EAMC-30-32-6-6**	**3637942** **EAMK-A-S38-38A/B-G2**	**–**
1456647 **EAMM-A-S38-40G-G2**	**1460097** **EAMF-A-38A-40G**	**562681** **EAMC-30-32-6-10**	**3637942** **EAMK-A-S38-38A/B-G2**	**567488** **EAHM-L2-M5-50**
☆ **3637972** **EAMM-A-S38-40P-G2**	**2219077** **EAMF-A-38B-40P**	**533708** **EAMC-30-32-6-8**	**3637942** **EAMK-A-S38-38A/B-G2**	**–**
☆ **3637965** **EAMM-A-S38-42A-G2**	**560691** **EAMF-A-38B-42A**	**561333** **EAMC-30-32-5-6**	**3637942** **EAMK-A-S38-38A/B-G2**	**–**
3637967 **EAMM-A-S38-55A-G2**	**558176** **EAMF-A-38A-55A**	**551003** **EAMC-30-32-6-9**	**3637942** **EAMK-A-S38-38A/B-G2**	**567488** **EAHM-L2-M5-50**
☆ **3637956** **EAMM-A-S38-57A-G2**	**560692** **EAMF-A-38A-57A**	**551002** **EAMC-30-32-6-6.35**	**3637942** **EAMK-A-S38-38A/B-G2**	**567488** **EAHM-L2-M5-50**
☆ **3637958** **EAMM-A-S38-60P-G2**	**1987412** **EAMF-A-38A-60P**	**1233256** **EAMC-30-32-6-14**	**3637942** **EAMK-A-S38-38A/B-G2**	**567489** **EAHM-L2-M5-55**
1456638 **EAMM-A-S38-67A-G2**	**1490100** **EAMF-A-38A-67A**	**551003** **EAMC-30-32-6-9**	**3637942** **EAMK-A-S38-38A/B-G2**	**567489** **EAHM-L2-M5-55**
ELGA-BS-…-80				
1456650 **EAMM-A-S48-40G-G2**	**4067069** **EAMF-A-48B-40G**	**558029** **EAMC-30-32-8-10**	**3637941** **EAMK-A-S48-48A/B-G2**	**–**
3637961 **EAMM-A-S48-55A-G2**	**558177** **EAMF-A-48B-55A**	**543423** **EAMC-30-32-8-9**	**3637941** **EAMK-A-S48-48A/B-G2**	**–**
☆ **3637963** **EAMM-A-S48-57A-G2**	**560694** **EAMF-A-48B-57A**	**543421** **EAMC-30-32-6.35-8**	**3637941** **EAMK-A-S48-48A/B-G2**	**–**
2256701 **EAMM-A-S48-60G-G2**	**558019** **EAMF-A-48A-60G/H**	**551004** **EAMC-30-32-8-11**	**3637941** **EAMK-A-S48-48A/B-G2**	**567489** **EAHM-L2-M5-55**
1456652 **EAMM-A-S48-60H-G2**	**558019** **EAMF-A-48A-60G/H**	**562682** **EAMC-30-32-8-14**	**3637941** **EAMK-A-S48-48A/B-G2**	**567489** **EAHM-L2-M5-55**
☆ **3637964** **EAMM-A-S48-60P-G2**	**2220620** **EAMF-A-48A-60P**	**562682** **EAMC-30-32-8-14**	**3637941** **EAMK-A-S48-48A/B-G2**	**567489** **EAHM-L2-M5-55**
3637957 **EAMM-A-S48-70A-G2**	**558025** **EAMF-A-48A-70A**	**551004** **EAMC-30-32-8-11**	**3637941** **EAMK-A-S48-48A/B-G2**	**567488** **EAHM-L2-M5-50**
☆ **3637962** **EAMM-A-S48-87A-G2**	**560695** **EAMF-A-48A-87A**	**551004** **EAMC-30-32-8-11**	**3637941** **EAMK-A-S48-48A/B-G2**	**567489** **EAHM-L2-M5-55**

Festo core product range

★ Generally ready for shipping ex works in 24 hours
☆ Generally ready for shipping ex works in 5 days

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories

Component parts of the axial kit				Technical data ➔ Internet: eamm-a
Axial kit	Comprises:			
	Motor flange	Coupling	Coupling housing	Screw set
				
Part No. Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
ELGA-BS-…-120				
2297649 **EAMM-A-S62-60G-G2**	**1460112** **EAMF-A-62A-60G/H**	**525864** **EAMC-40-66-11-12**	**3637940** **EAMK-A-S62-62A/B-G2**	**567495** **EAHM-L2-M6-90**
1456654 **EAMM-A-S62-60H-G2**	**1460112** **EAMF-A-62A-60G/H**	**1452803** **EAMC-40-66-12-14**	**3637940** **EAMK-A-S62-62A/B-G2**	**567495** **EAHM-L2-M6-90**
3637959 **EAMM-A-S62-70A-G2**	**558179** **EAMF-A-62B-70A**	**558313** **EAMC-42-66-11-12**	**3637940** **EAMK-A-S62-62A/B-G2**	**–**
1972530 **EAMM-A-S62-80G-G2**	**2116672** **EAMF-A-62B-80G**	**2138701** **EAMC-42-50-12-20**	**3637940** **EAMK-A-S62-62A/B-G2**	**–**
☆ **3637970** **EAMM-A-S62-80P-G2**	**2222624** **EAMF-A-62B-80P**	**551005** **EAMC-42-50-12-19**	**3637940** **EAMK-A-S62-62A/B-G2**	**–**
☆ **3637966** **EAMM-A-S62-87A-G2**	**560696** **EAMF-A-62B-87A**	**558313** **EAMC-42-66-11-12**	**3637940** **EAMK-A-S62-62A/B-G2**	**–**
☆ **3637960** **EAMM-A-S62-100A-G2**	**558026** **EAMF-A-62A-100A**	**551005** **EAMC-42-50-12-19**	**3637940** **EAMK-A-S62-62A/B-G2**	**567494** **EAHM-L2-M6-80**
3637969 **EAMM-A-S62-140A-G2**	**558022** **EAMF-A-62A-140A**	**558314** **EAMC-42-50-12-24**	**3637940** **EAMK-A-S62-62A/B-G2**	**567495** **EAHM-L2-M6-90**
ELGA-BS-…-150				
3637955 **EAMM-A-S95-100A-G2**	**558182** **EAMF-A-95B-100A**	**558315** **EAMC-56-58-19-25**	**3637939** **EAMK-A-S95-95A/B-G2**	**–**
3637954 **EAMM-A-S95-140A-G2**	**558023** **EAMF-A-95A-140A**	**558316** **EAMC-56-58-24-25**	**3637939** **EAMK-A-S95-95A/B-G2**	**567498** **EAHM-L2-M8-100**

- Note

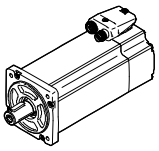
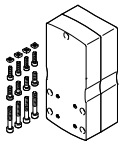
For the optimum selection of axis/ motor combinations

➔ Engineering software PositioningDrives
www.festo.com

Festo core product range

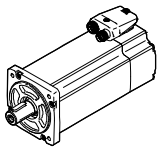
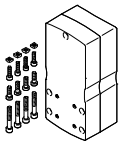
★ Generally ready for shipping ex works in 24 hours
☆ Generally ready for shipping ex works in 5 days

Permissible axis/motor combinations with parallel kit — Technical data ➔ Internet: eamm-u

Motor/gear unit[1]	Parallel kit	
		• Components can be mounted to the kit facing any direction • These parallel kits include a counter bearing EAMG for supporting the axis shaft. Additional information. More information ➔ online eamm-u • Use in combination with third-party motors on request

Type	Part No.	Type
ELGA-BS-KF-70		
With servo motor		
EMME-AS-40-...	**2155239**	**EAMM-U-50-S38-40P-78**
EMMS-AS-40-...	**1217708**	**EAMM-U-50-S38-40A-78**
EMMS-AS-55-...	**1218538**	**EAMM-U-60-S38-55A-91**
With stepper motor		
EMMS-ST-42-...	**1217945**	**EAMM-U-50-S38-42A-78**
EMMS-ST-57-...	**1218568**	**EAMM-U-60-S38-57A-91**
With gear unit		
EMGA-40-P-...	**2283732**	**EAMM-U-60-S38-40G-91**
EMGC-40-P-...	**2283732**	**EAMM-U-60-S38-40G-91**
ELGA-BS-KF-80		
With servo motor		
EMMS-AS-55-...	**1219370**	**EAMM-U-60-S48-55A-91**
EMME-AS-60-...	**2629253**	**EAMM-U-70-S48-60P-96**
EMMS-AS-70-...	**2787320**	**EAMM-U-70-S48-70A-96**
EMMS-AS-70-...	**1217689**	**EAMM-U-86-S48-70A-102**
With stepper motor		
EMMS-ST-57-...	**1219379**	**EAMM-U-60-S48-57A-91**
EMMS-ST-87-...	**1217604**	**EAMM-U-86-S48-87A-177**
With gear unit		
EMGA-40-P-...	**2283760**	**EAMM-U-60-S48-40G-91**
EMGC-40-P-...	**2283760**	**EAMM-U-60-S48-40G-91**
EMGA-60-P-...-SAS/SST[2]	**2801627**	**EAMM-U-70-S48-60G-96**
EMGA-60-P-...-EAS, EMGC-60-P-...[2]	**2801715**	**EAMM-U-70-S48-60H-96**
EMGA-60-P-...-SAS/SST[2]	**1587251**	**EAMM-U-86-S48-60G-102**
EMGA-60-P-...-EAS, EMGC-60-P-...[2]	**1587338**	**EAMM-U-86-S48-60H-102**

1) The input torque must not exceed the maximum permissible transferable torque of the parallel kit.
2) Gear unit drive shaft diameter: EMGA-60-P-...-SAS/-SST11 mm; EMGA-60-P-...-EAS, EMGC-60-P14 mm

Permissible axis/motor combinations with parallel kit			Technical data ➔ Internet: eamm-u
Motor/gear unit[1]	Parallel kit		
			• Components can be mounted to the kit facing any direction • These parallel kits include a counter bearing EAMG for supporting the axis shaft. Additional information. More information ➔ online eamm-u • Use in combination with third-party motors on request
Type	Part No.	Type	
ELGA-BS-KF-120			
With servo motor			
EMMS-AS-70-…	**1217543**	**EAMM-U-86-S62-70A-177**	
EMME-AS-80-…	**2157004**	**EAMM-U-86-S62-80P-177**	
EMME-AS-100-…	**1217381**	**EAMM-U-110-S62-100A-207**	
EMMS-AS-100-…	**1217381**	**EAMM-U-110-S62-100A-207**	
EMMS-AS-140-…	**1219440**	**EAMM-U-145-S62-140A-288**	
With stepper motor			
EMMS-ST-87-…	**1217373**	**EAMM-U-86-S62-87A-177**	
With gear unit			
EMGA-60-P-…-SAS/SST[2]	**1587411**	**EAMM-U-86-S62-60G-177**	
EMGA-60-P-…-EAS, EMGC-60-P-…[2]	**1587453**	**EAMM-U-86-S62-60H-177**	
ELGA-BS-KF-150			
With servo motor			
EMME-AS-100-…	**1220656**	**EAMM-U-110-S95-100A-207**	
EMMS-AS-100-…	**1220656**	**EAMM-U-110-S95-100A-207**	
EMMS-AS-140-…	**1220582**	**EAMM-U-145-S95-140A-288**	
With gear unit			
EMGA-80-P-…	**1589544**	**EAMM-U-110-S95-80G-207**	

1) The input torque must not exceed the maximum permissible transferable torque of the parallel kit.
2) Gear unit drive shaft diameter: EMGA-60-P-…-SAS/-SST11 mm; EMGA-60-P-…-EAS, EMGC-60-P14 mm

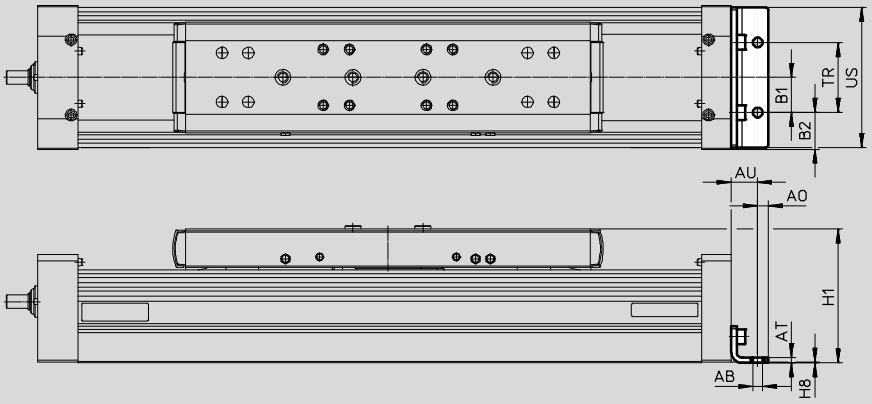
Note

The clamping element EADT is required to adjust the toothed belt pretensioning for EAMM-U-110 and EAMM-U-145.

Foot mounting HPE

Material:
Galvanised steel
RoHS-compliant





\+ = plus stroke length + 2 x stroke reserve

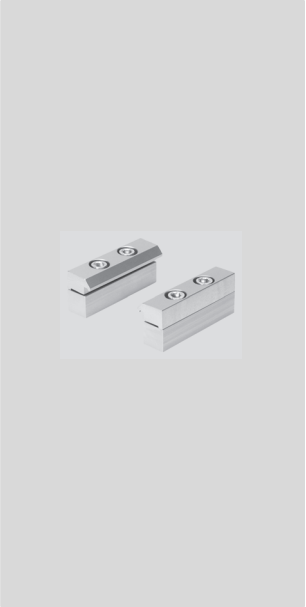
Dimensions and ordering data

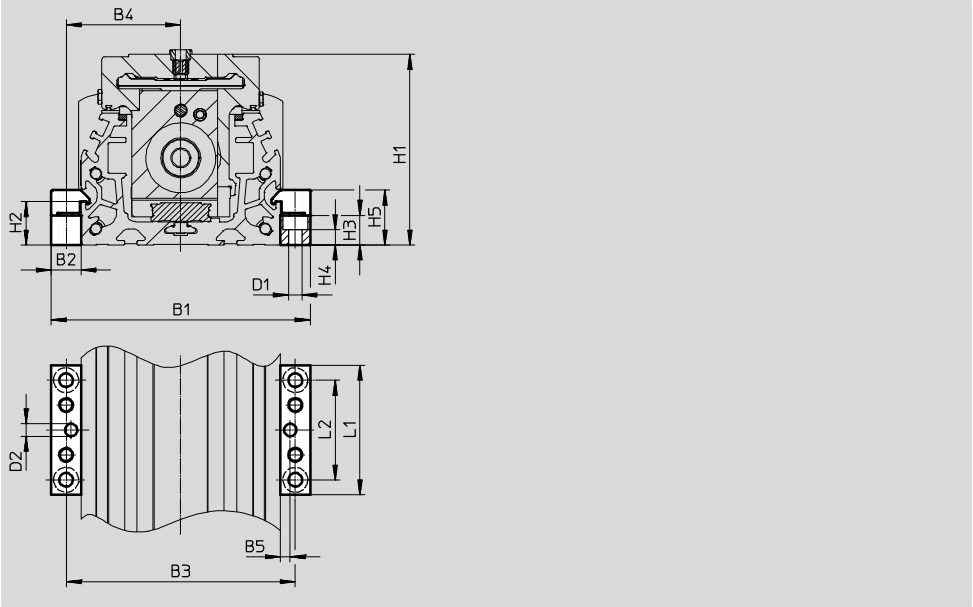
For size	AB ∅	A0	AT	AU	B1	B2	H1	H8
70	5.5	6	3	13	20	14.5	64	0.5
80	5.5	6	3	15	20	21	76.5	0.5
120	9	8	6	22	40	20	111.5	1
150	9	12	8	25	40	35	141.5	1

For size	DR	US	Weight [g]	Part No.	Type
70	40	67	115	**558321**	**HPE-70**
80	40	80	150	**558322**	**HPE-80**
120	80	116	578	**558323**	**HPE-120**
150	80	150	1181	**3002636**	**HPE-150**

Profile mounting MUE

Materials:
Anodised aluminium
RoHS-compliant





Dimensions and ordering data

For size	B1	B2	B3	B4	B5	D1 ∅	D2 ∅ H7	H1	H2
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
120	154	19	135	67.5	4	9	5	111.5	16
150	188	19	169	84.5	4	9	5	141.5	16

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

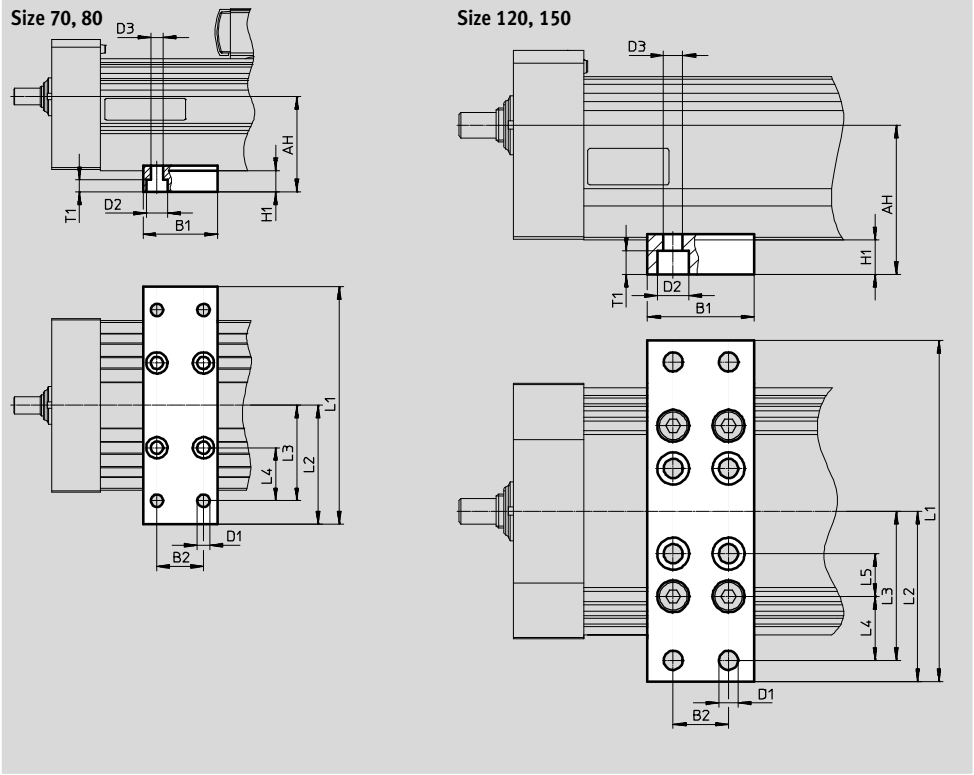
Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories

Central support EAHF

Materials:
Anodised aluminium
RoHS-compliant





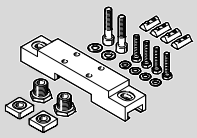
Dimensions and ordering data

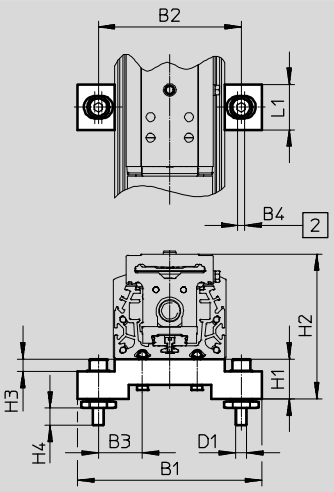
For size	AH	B1	B2	D1 ∅	D2 ∅	D3 ∅	H1	L1
70	38.5	35	22	5.8	10	5.8	10	102
80	45							112
120	70	50	26	9	15	9	16	160
150	88.5							200

For size	L2	L3	L4	L5	T1	Weight [g]	Part No.	Type
70	51	45	25	–	5.7	113	**2349256**	**EAHF-L5-70-P**
80	62	50		–		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

Materials:
EADC-E15-80: Wrought aluminium alloy
EADC-E15-185: Steel
RoHS-compliant





2 Width of hole

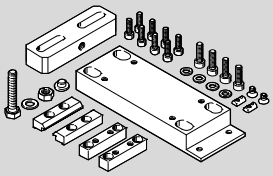
Dimensions and ordering data

For size	B1	B2	B3	B4	D1	H1
70	134	104	32	5	M8	29
80	134	104	32	5	M8	29
120	236	209	64.5	5	M8	29
150	236	209	64.5	5	M8	29

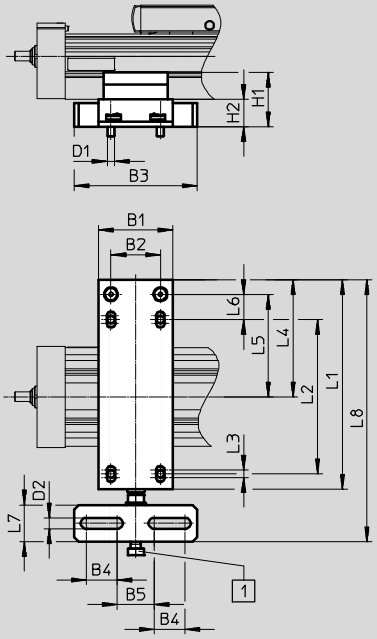
For size	H2	H3	H4	L1	Weight [g]	Part No.	Type
70	93	9	12.6	33	386	**8047566**	**EADC-E15-80-E7**
80	105.5	9	12.6	33	386	**8047566**	**EADC-E15-80-E7**
120	140.5	9	12.6	33	569	**8047568**	**EADC-E15-185-E7**
150	170.5	9	12.6	33	569	**8047568**	**EADC-E15-185-E7**

Adjusting kit EADC-E16

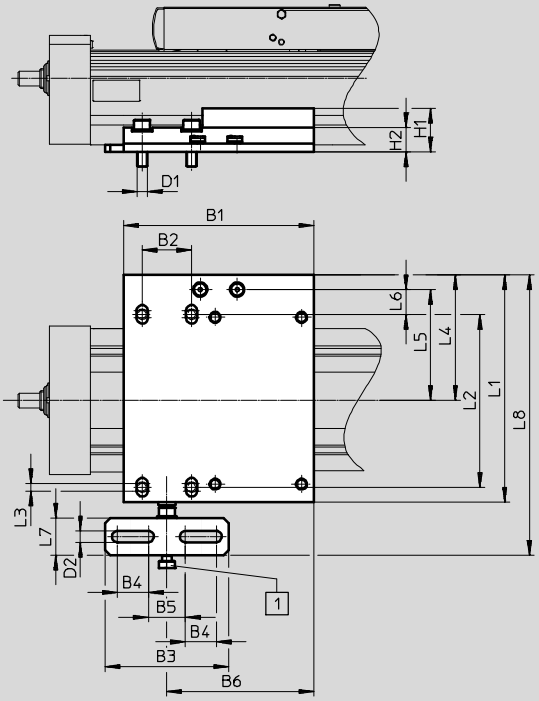
Materials:
Wrought aluminium alloy
RoHS-compliant



Size 80



Size 120



1 Screw M8

Dimensions and ordering data

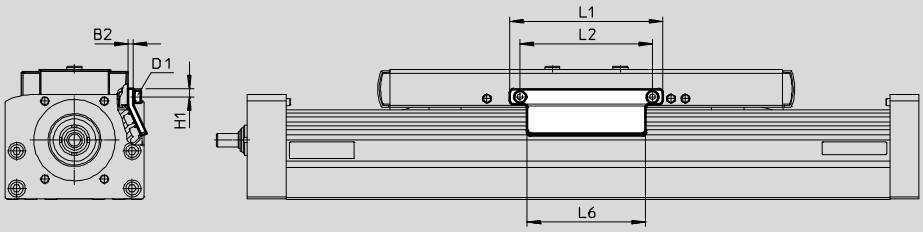
For size	B1	B2	B3	B4	B5	B6	D1	D2	H1	H2	L1	L2
80	60	40	100	25	30	–	M6	9	44	22	170	125
120	154	40	100	25	30	119	M8	9	35.1	19.6	184	140

For size	L3	L4	L5	L6	L7	L8	Weight [g]	Part No.	Type
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

Materials:
Galvanised steel
RoHS-compliant





Installation is possible on either side of the slide.

Dimensions and ordering data

For size	B2	D1	H1	L1	L2	L6	Weight [g]	Part No.	Type
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**

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories

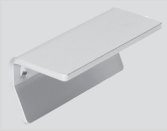
Switch lug SF-EGC-2
For sensing via proximity sensor SIEN-M8B or SIES-8M

Materials:
Galvanised steel
RoHS-compliant

Sensor bracket HWS-EGC
For proximity sensor SIEN-M8B

Materials:
Galvanised steel
RoHS-compliant

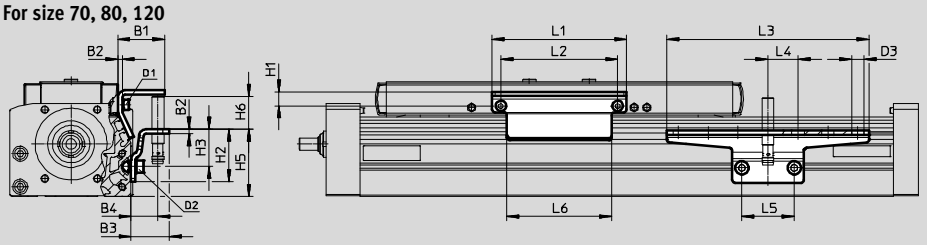
Switch lug SF-EGC-2



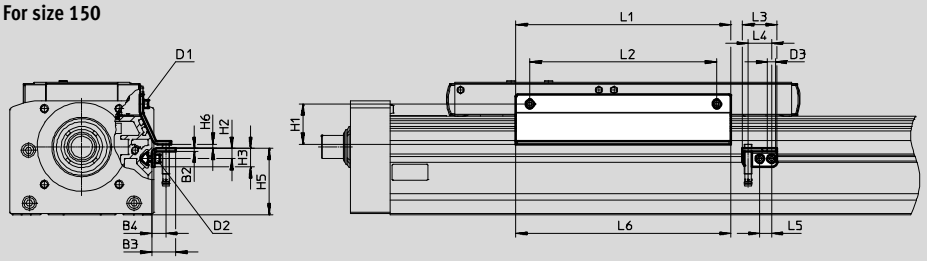
Sensor bracket HWS-EGC



For size 70, 80, 120



For size 150



Installation is possible on either side of the slide.

Dimensions and ordering data

For size	B1	B2	B3	B4	D1	D2	D3 ∅	H1	H2
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	25.5	15	M5	M5	8.4	43	20

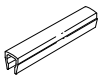
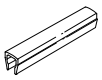
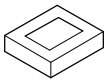
For size	H3	H5	H6 max.	L1	L2	L3	L4	L5	L6
70	25	45	13.5	70	56	135	20	35	50
80	25	45	23.5	90	78	135	20	35	70
120	55	75	24	170	140	215	20	35	170
150	11	71	4.5	230	200	37	25	12.5	230

For size	Weight [g]	Part No.	Type
	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**

For size	Weight [g]	Part No.	Type
	Sensor bracket		
70	110	**558057**	**HWS-EGC-M5**
80	110	**558057**	**HWS-EGC-M5**
120	217	**570365**	**HWS-EGC-M8-B**
150	58	**560517**	**HWS-EGC-M8KURZ**

Spindle axes ELGA-BS-KF, with recirculating ball bearing guide

Accessories

Ordering data					
	For size	Comments	Part No.	Type	PU[1]
Slot nut NST					
	70, 80	For mounting slot	**150914**	**NST-5-M5**	1
			8047843	**NST-5-M5-10**	10
			8047878	**NST-5-M5-50**	50
	120, 150	For mounting slot	**150915**	**NST-8-M6**	1
			8047868	**NST-8-M6-10**	10
			8047869	**NST-8-M6-50**	50
Centring pin ZBS/centring sleeve ZBH					
	70	For slide	**150928**	**ZBS-5**	10
	70, 80, 120, 150		**150927**	**ZBH-9**	
Slot cover ABP					
	70, 80	• For mounting slot • Every 0.5 m	**151681**	**ABP-5**	2
	120, 150		**151682**	**ABP-8**	
Slot cover ABP-S					
	70 ... 150	• For sensor slot • Every 0.5 m	**563360**	**ABP-5-S1**	2
Clip SMBK					
	70 ... 150	For sensor slot, for attaching the proximity sensor cables	**534254**	**SMBK-8**	10
Clamping component EADT					
	70, 80	Tool for retensioning the cover strip	**8058451**	**EADT-S-L5-70**	1
	120, 150		**8058450**	**EADT-S-L5-120**	

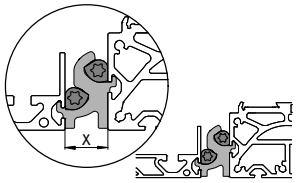
1) Packaging unit

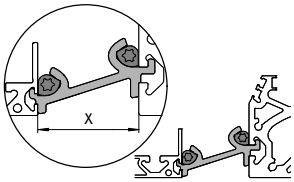
Mounting options between axis and support profile

Depending on the adapter kit, the spacing between the axis and the support profile is:
x = 20 mm or 50 mm

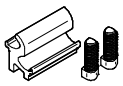
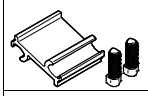
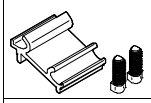
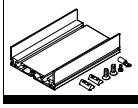
The support profile must be mounted using at least 2 adapter kits. For longer strokes, an adapter kit must be used every 500 mm.

Example



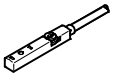
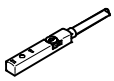


Ordering data

	For size	Comments	Part No.	Type	PU[1]
Adapter kit DHAM					
	80	• For mounting the support profile on the axis • Spacing between axis and profile is 20 mm	**562241**	**DHAM-ME-N1-CL**	1
	120, 150		**562242**	**DHAM-ME-N2-CL**	
	70, 80	• For mounting the support profile on the axis • Spacing between axis and profile is 50 mm	**574560**	**DHAM-ME-N1-50-CL**	
	120, 150		**574561**	**DHAM-ME-N2-50-CL**	
Support profile HMIA					
	70 ... 150	• For guiding an energy chain	**539379**	**HMIA-E07-**	1

1) Packaging unit quantity

Ordering data – Proximity sensor for T-slot, inductive Technical data ➔ Internet: sies

	Type of mounting	Electrical connection	Switching output	Cable length [m]	Part No.	Type
N/O contact						
	Insertable in the slot from above, flush with the cylinder profile	Cable, 3-wire	PNP	7.5	**551386**	**SIES-8M-PS-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	**551387**	**SIES-8M-PS-24V-K-0,3-M8D**
		Cable, 3-wire	NPN	7.5	**551396**	**SIES-8M-NS-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	**551397**	**SIES-8M-NS-24V-K-0,3-M8D**
N/C contact						
	Insertable in the slot from above, flush with the cylinder profile	Cable, 3-wire	PNP	7.5	**551391**	**SIES-8M-PO-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	**551392**	**SIES-8M-PO-24V-K-0,3-M8D**
		Cable, 3-wire	NPN	7.5	**551401**	**SIES-8M-NO-24V-K-7,5-OE**
		Plug connector M8x1, 3-pin		0.3	**551402**	**SIES-8M-NO-24V-K-0,3-M8D**

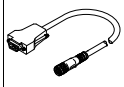
Ordering data – Proximity sensor M8 (round design), inductive — Technical data ➔ Internet: sien

	Electrical connection	LED	Switching output	Cable length [m]	Part No.	Type
N/O contact						
	Cable, 3-wire	■	PNP	2.5	**150386**	**SIEN-M8B-PS-K-L**
			NPN	2.5	**150384**	**SIEN-M8B-NS-K-L**
	Plug connector M8x1, 3-pin	■	PNP	–	**150387**	**SIEN-M8B-PS-S-L**
			NPN	–	**150385**	**SIEN-M8B-NS-S-L**
N/C contact						
	Cable, 3-wire	■	PNP	2.5	**150390**	**SIEN-M8B-PO-K-L**
			NPN	2.5	**150388**	**SIEN-M8B-NO-K-L**
	Plug connector M8x1, 3-pin	■	PNP	–	**150391**	**SIEN-M8B-PO-S-L**
			NPN	–	**150389**	**SIEN-M8B-NO-S-L**

Ordering data – Connecting cables — Technical data ➔ Internet: nebu

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**159420**	**SIM-M8-3GD-2,5-PU**
			2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
			5	**541334**	**NEBU-M8G3-K-5-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
			5	**541341**	**NEBU-M8W3-K-5-LE3**

Ordering data – Encoder cables for displacement encoder ELGA-...-M1/-M2 — Technical data ➔ Internet: nebm

	Electrical connection, left	Electrical connection, right	Cable length [m]	Part No.	Type
	Displacement encoder ELGA-...-M1/-M2	Motor controller CMMP-AS	5	**1599105**	**NEBM-M12G8-E-5-S1G9-V3**
			10	**1599106**	**NEBM-M12G8-E-10-S1G9-V3**
			15	**1599107**	**NEBM-M12G8-E-15-S1G9-V3**
			X[1)]	**1599108**	**NEBM-M12G8-E-...-S1G9-V3**

1) Max. cable length 25 m.

Festo - Your Partner in Automation











1 Festo Inc.

5300 Explorer Drive
Mississauga, ON L4W 5G4
Canada

Festo Customer Interaction Center
Tel: 1 877 463 3786
Fax: 1 877 393 3786
Email: customer.service.ca@festo.com

2 Festo Pneumatic

Av. Ceylán 3,
Col. Tequesquináhuac
54020 Tlalnepantla,
Estado de México

Multinational Contact Center
01 800 337 8669

ventas.mexico@festo.com

3 Festo Corporation

1377 Motor Parkway
Suite 310
Islandia, NY 11749

Festo Customer Interaction Center
1 800 993 3786
1 800 963 3786
customer.service.us@festo.com

4 Regional Service Center

7777 Columbia Road
Mason, OH 45040

Connect with us

www.festo.com/socialmedia

www.festo.com

Subject to change