Toothed belt axes EGC-HD-TB, with heavy-duty guide

FESTO

Electromechanical drives

Selection aid

Overview of toothed belt and spindle axes

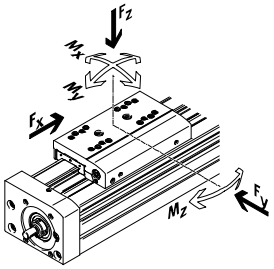
Toothed belt axes

- 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

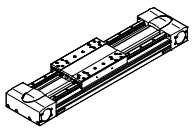
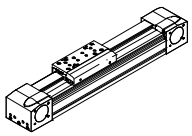
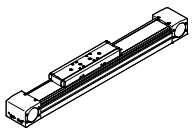
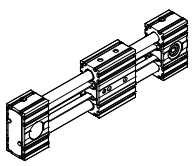
Spindle axes

- 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



Toothed belt axes

Type	F_x [N]	v [m/s]	Mx [Nm]	My [Nm]	Mz [Nm]	Properties
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, resilient DUO guide rail • 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, resilient guide rail • Small drive pinions reduce necessary 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, resilient guide rail • Guide and toothed belt protected by cover strip • High feed forces
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 • Resilient ball bearings for dynamic operation

Electromechanical drives

Selection aid

Overview of toothed belt and spindle axes

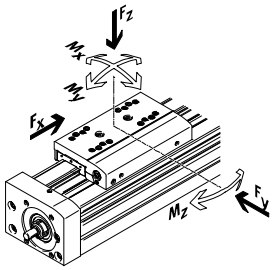
Toothed belt axes

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

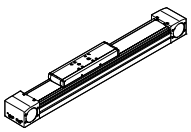
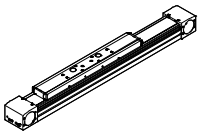
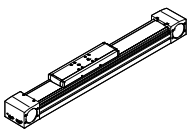
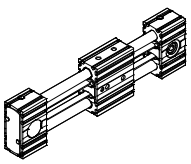
Spindle axes

- 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]	Properties
Roller bearing guide						
ELGA-TB-RF						
	350 800 1300	10 10 10	11 30 100	40 180 640	40 180 640	• Sturdy 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 • Sturdy 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
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 an actuator for external guides • Insensitive to harsh environmental 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 environmental conditions

Electromechanical drives

Selection aid

Overview of toothed belt and spindle axes

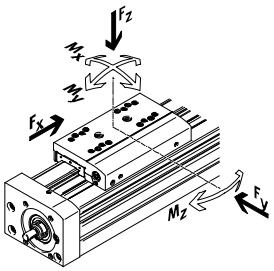
Toothed belt axes

- 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

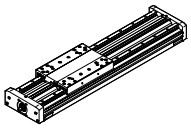
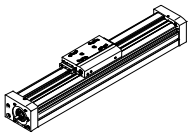
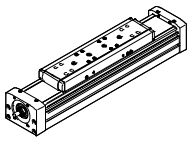
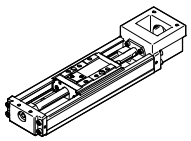
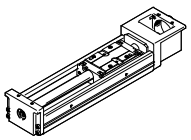
Spindle axes

- 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]	Properties
Heavy-duty recirculating ball bearing guide						
EGC-HD-BS						
	300 600 1300	0.5 1.0 1.5	140 300 900	275 500 1450	275 500 1450	• Flat drive unit with rigid, closed profile • Precision, resilient DUO guide rail • Ideal as a basic axis for linear gantries and cantilever axes
Recirculating ball bearing guide						
EGC-BS-KF						
	300 600 1300 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, resilient guide rail • For extremely high requirements for speed force and precision • Space-saving position sensing
ELGA-BS-KF						
	300 600 1300 3000	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 for feed force and precision • 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
EGSP						
	112 212 466 460	0.6 0.6 2.0 2.0	36.3 81.5 90.3 258	12.5 31.6 32.1 94	12.5 31.6 32.1 94	• Spindle axes with maximum precision, compactness and rigidity • Recirculating ball bearing guide with caged ball bearings • Ball screw sizes 33, 46 with caged ball bearings

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Key features

At a glance

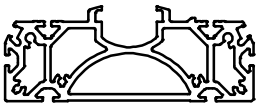
- New heavy-duty guide for:
  - Maximum loads and torques
  - High feed forces and speeds
  - Long service life
- Precision, resilient DUO guide rail
- Ideal as a basic axis for linear gantries and cantilever axes
- In addition to its technical data, the toothed belt axis also offers an excellent price/performance ratio
- Space-saving position sensing with proximity sensor in the profile slot
- Wide range of options for mounting on drives

Flexible motor mounting

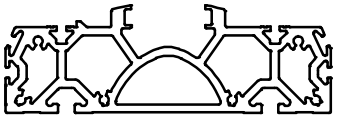
The motor position can be freely selected on four sides and can be changed at any time.

Flat unit with rigid, closed profile

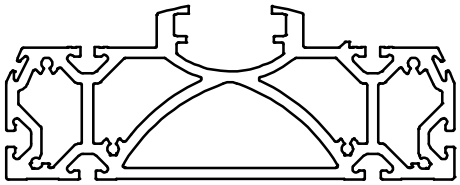
EGC-HD-125



EGC-HD-160

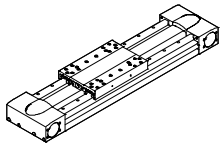


EGC-HD-220



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	Feed force	Guide characteristics				
						Forces and torques				
		[mm]	[m/s]	[mm]	[N]	Fy [N]	Fz [N]	Mx [Nm]	My [Nm]	Mz [Nm]
Recirculating ball bearing guide										
	125	50 … 3000	3	+0.08	450	3650	3650	140	275	275
	160	50 … 5000	5	+0.08	1000	5600	5600	300	500	500
	220	50 … 4750	5	+0.1	1800	13000	13000	900	1450	1450

Note

PositioningDrives sizing software
www.festo.com

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Key features

Slide variants

Standard slide

Standard slide, protected

With additional slide

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

Toothed belt axis with recirculating ball bearing guide

Motor ➔24

1 Servo motor EMME-AS, EMMS-AS
2 Gear unit EMGA

Note

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

Motor controller — Technical data ➔ Internet: motorcontroller

Servo motor controller
CMMP-AS

Motor mounting kit ➔24

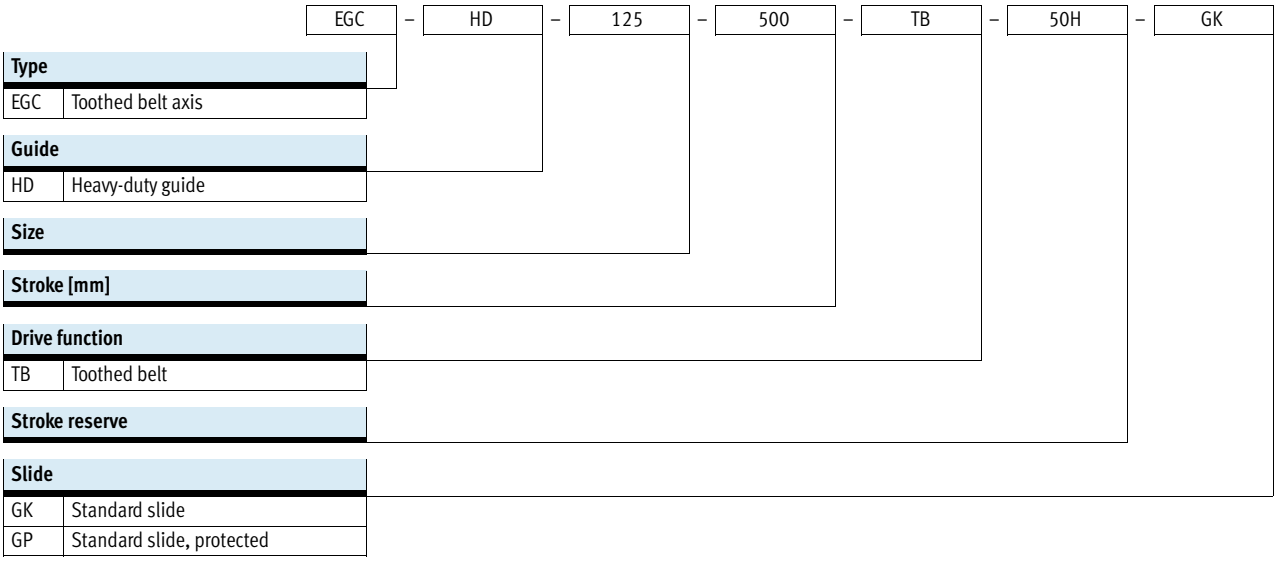
Axial kit

Kit comprising:

- Motor flange
- Coupling housing
- Coupling
- Screws

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Type codes



Type	
EGC	Toothed belt axis

Guide	
HD	Heavy-duty guide

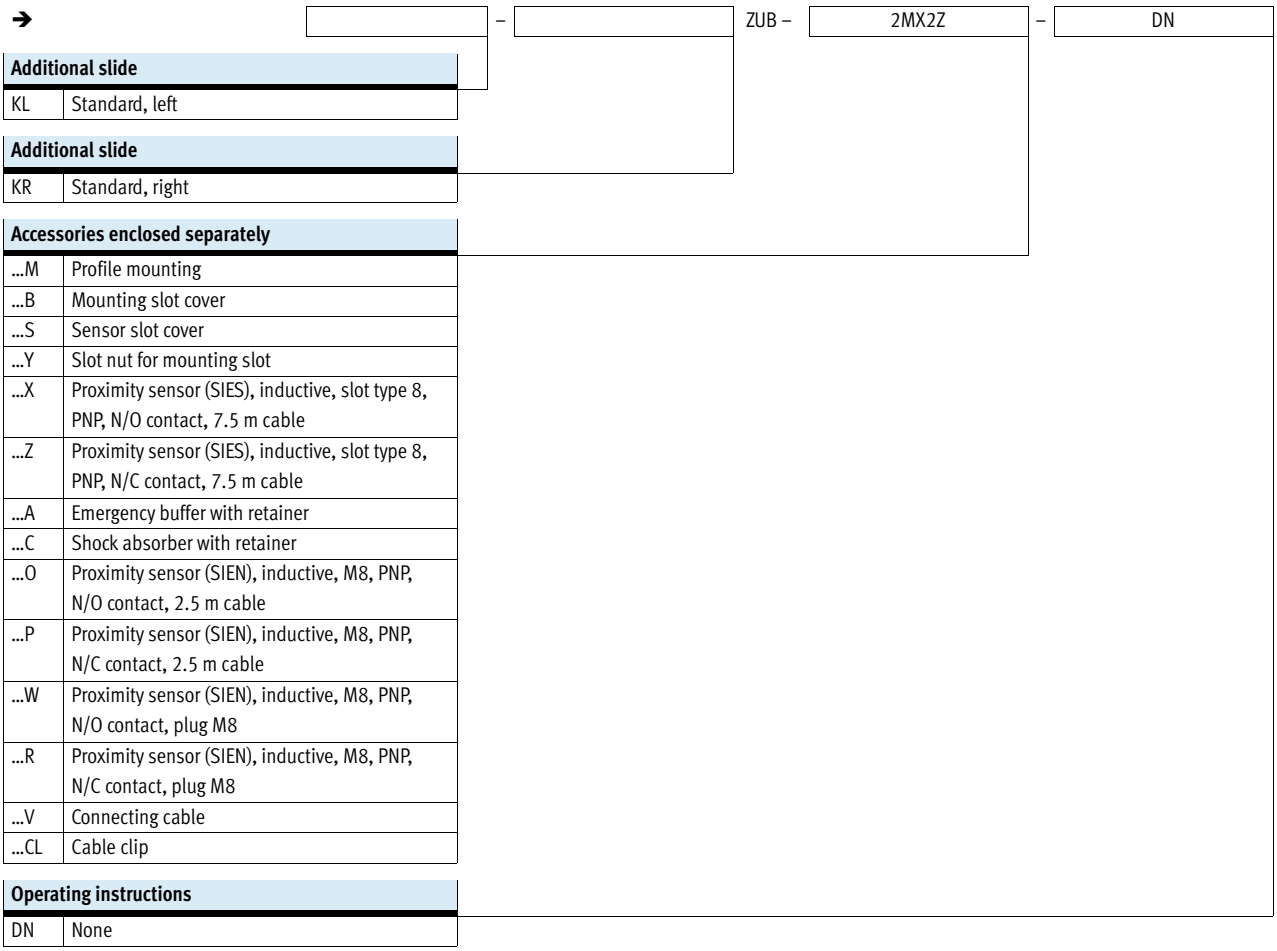
Size	

Stroke [mm]	

Drive function	
TB	Toothed belt

Stroke reserve	

Slide	
GK	Standard slide
GP	Standard slide, protected



Additional slide	
KL	Standard, left

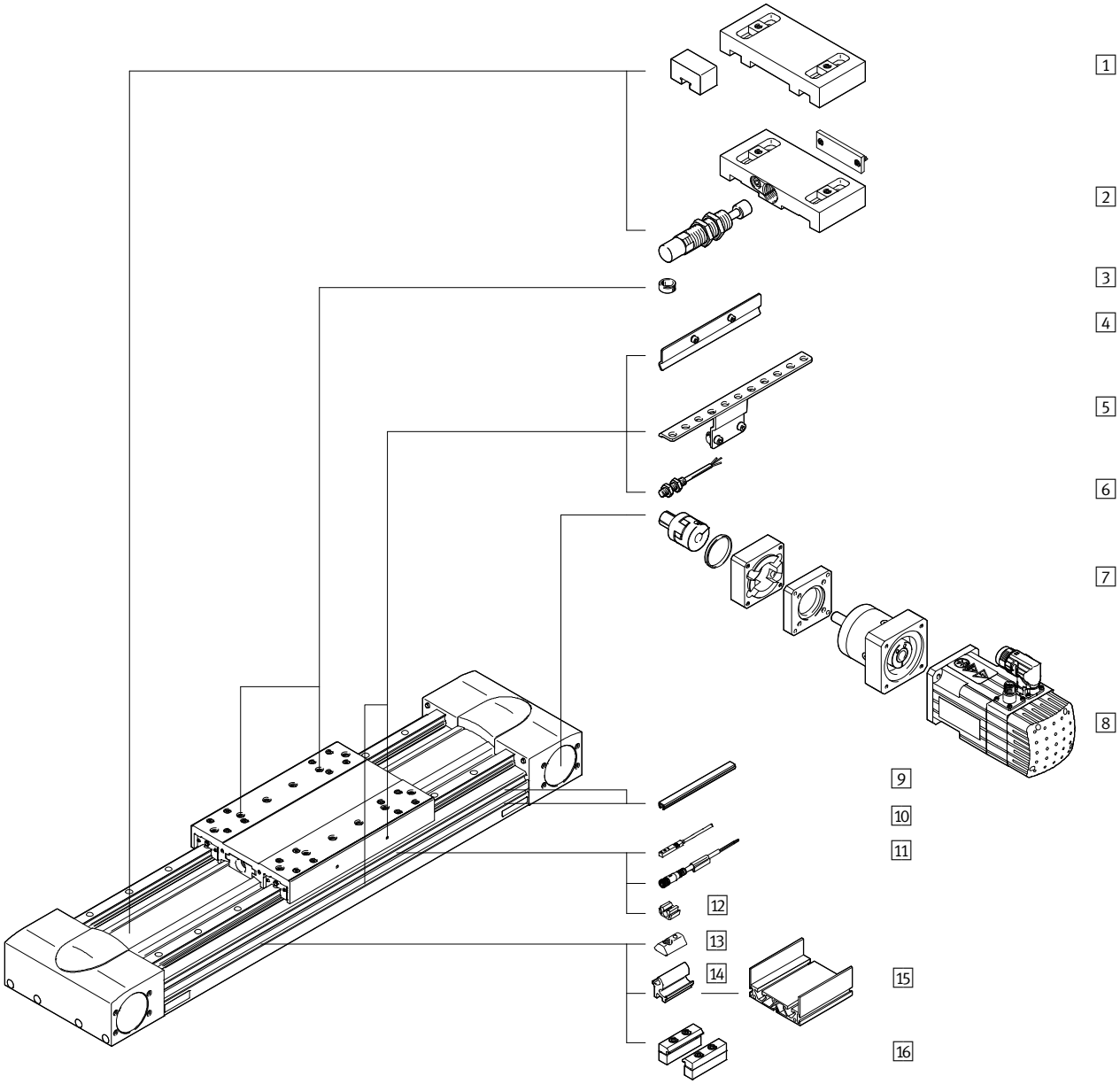
Additional slide	
KR	Standard, right

Accessories enclosed separately	
...M	Profile mounting
...B	Mounting slot cover
...S	Sensor slot cover
...Y	Slot nut for mounting slot
...X	Proximity sensor (SIES), inductive, slot type 8, PNP, N/O contact, 7.5 m cable
...Z	Proximity sensor (SIES), inductive, slot type 8, PNP, N/C contact, 7.5 m cable
...A	Emergency buffer with retainer
...C	Shock absorber with retainer
...O	Proximity sensor (SIEN), inductive, M8, PNP, N/O contact, 2.5 m cable
...P	Proximity sensor (SIEN), inductive, M8, PNP, N/C contact, 2.5 m cable
...W	Proximity sensor (SIEN), inductive, M8, PNP, N/O contact, plug M8
...R	Proximity sensor (SIEN), inductive, M8, PNP, N/C contact, plug M8
...V	Connecting cable
...CL	Cable clip

Operating instructions	
DN	None

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Peripherals overview



Toothed belt axes EGC-HD-TB, with heavy-duty guide

Peripherals overview

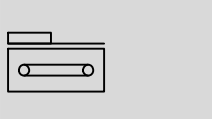
Variants and accessories			
	Type	Description	➔ Page/Internet
1	Emergency buffer with retainer A	For avoiding damage at the end stop in the event of malfunction	26
2	Shock absorber with retainer C	For avoiding damage at the end stop in the event of malfunction	26
3	Centring pin/sleeve ZBS, ZBH	• For centring loads and attachments on the slide • 2 centring pins/sleeves included in the scope of delivery of the axis	28
4	Switch lug X, Z, O, P, W, R	For sensing the slide position	26
5	Sensor bracket O, P, W, R	Adapter for mounting the inductive proximity sensors (round design) on the axis	26
6	Proximity sensor, M8 O, P, W, R	• Inductive proximity sensor, round design • The order code O, P, W, R includes 1 switch lug and max. 2 sensor brackets	29
7	Axial kit EAMM-A	For axial motor mounting (consisting of: coupling, coupling housing and motor flange)	24
8	Motor EMME, EMMS	Motors specially matched to the axis, with gear unit, with or without brake	24
9	Slot cover B, S	• For protecting against the ingress of dirt	28
10	Proximity sensor, T-slot X, Z	• Inductive proximity sensor, for T-slot • The order code X, Z includes 1 switch lug	29
11	Connecting cable V	For proximity sensor (order code W and R)	29
12	Clip CL	For mounting the proximity sensor cable in the slot	28
13	Slot nut Y	For mounting attachments	28
14	Adapter kit DHAM	For mounting the support profile on the axis	35
15	Auflageprofil HMIA	For mounting and guiding an energy chain	35
16	Profile mounting M	For mounting the axis on the profile	25

Toothed belt axes EGC-HD-TB, with heavy-duty guide

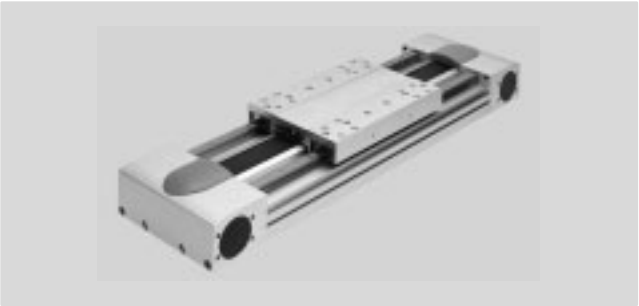
Technical data

FESTO

Function



- Size
  125 … 220
- Stroke length
  50 … 5000 mm
- www.festo.com



General technical data				
Size		125	160	220
Design		Electromechanical axis with toothed belt		
Guide		Recirculating ball bearing guide		
Mounting position		Any		
Working stroke	[mm]	50 … 3000	50 … 5000	50 … 4750
Max. feed force F_x	[N]	450	1000	1800
Max. no-load torque[1)]	[Nm]	1.1	2.1	4.1
Max. no-load resistance to shifting[1)]	[N]	30.79	105.5	123.8
Max. driving torque	[Nm]	7.2	20	59.58
Max. speed				
EGC-…-GK	[m/s]	3	5	
EGC-…-GP	[m/s]	–	3	
Max. acceleration	[m/s²]	40	50	
Repetition accuracy	[mm]	+0.08		+0.1

1) At 0.2 m/s

Operating and environmental conditions		
Ambient temperature	[°C]	–10 … +60
Protection class		IP40
Duty cycle	[%]	100

Weight [g]			
Size	125	160	220
Basic weight with 0 mm stroke[1)]	4720	9050	25510
Additional weight per 10 mm stroke	73	107	210
Slide			
EGC-…-GK	1218	2571	6317
EGC-…-GP	–	2643	6417
Additional slide			
EGC-…-GK	1026	2022	5498
EGC-…-GP	–	2134	5598

1) Incl. slide

Toothed belt				
Size		125	160	220
Pitch	[mm]	3	5	8
Width	[mm]	30.3	40.0	50.5
Expansion[1)]	[%]	0.31	0.23	0.29
Effective diameter	[mm]	32.47	39.79	66.21
Feed constant	[mm/rev.]	102	125	208

1) At max. feed force

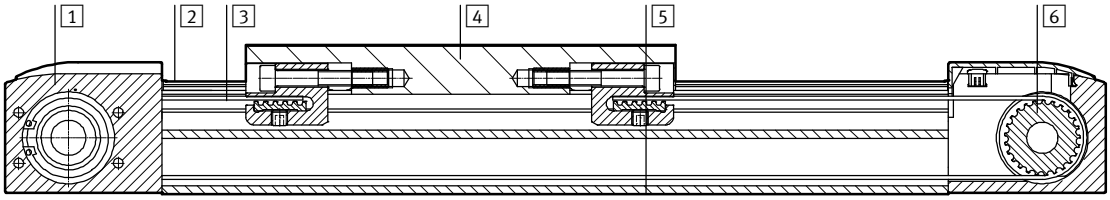
Mass moment of inertia				
Size		125	160	220
J_O	[kg cm^2]	4,639	14.49	108.99
J_S per metre stroke	[kg cm^2/m]	0.38	1.267	6.269
J_L per kg effective load	[kg cm^2/kg]	2.635	3.96	10.96
J_W Additional slide	[kg cm^2]	3.3	11.734	80.66

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

$J_A = J_O + J_W + J_S \times \text{working stroke [m]} + J_L \times m_{\text{effective load}}$ [kg]

Materials

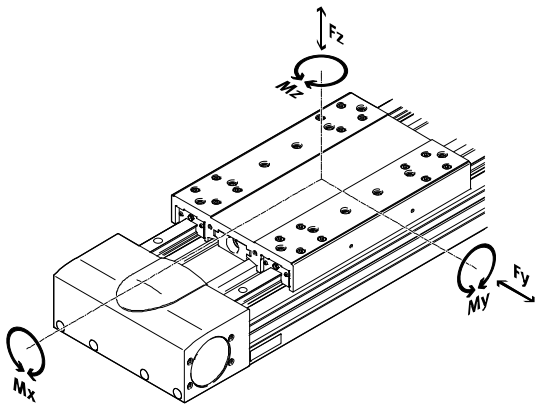
Sectional view



Axis		
1	Drive cover	Anodised wrought aluminium alloy
2	Guide rail	Coated and corrosion-resistant steel
3	Toothed belt	Polychloroprene with glass cord and nylon coating
4	Slide	Anodised wrought aluminium alloy
5	Profile	Anodised wrought aluminium alloy
6	Toothed belt disc	High-alloy stainless steel
	Note on materials	Conforms to RoHS
		Contains PWIS (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.



Max. permissible forces and torques for a service life of 5000 km

Size		125	160	220
$Fy_{max.}$	[N]	3650	5600	13000
Fz_{max}	[N]	3650	5600	13000
$Mx_{max.}$	[Nm]	140	300	900
$My_{max.}$	[Nm]	275	500	1450
$Mz_{max.}$	[Nm]	275	500	1450

- Note

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

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

Calculating the load comparison factor:

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

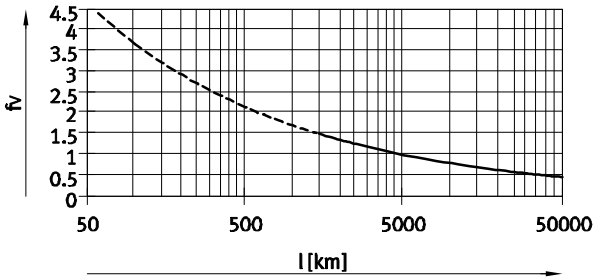
Calculating service life

The service life of the guide depends on the load. To provide a rough indication of the service life of the guide, the graph below plots the load comparison factor f_v against the service life.

These values are only theoretical. You must consult your local contact person at Festo for load comparison factors f_v 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 ➔ 12 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

PositioningDrives sizing software www.festo.com

The guide workload for a service life of 5000 km can be calculated with the help of the sizing software.

$f_v > 1.5$ 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 roller 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 for 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 max. permissible forces and torques for a service life of 5000 km cannot be compared with the dynamic forces and torques of roller bearing guides to ISO/JIS.

To make it easier to compare the guide capacity of linear axes EGC with roller 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.

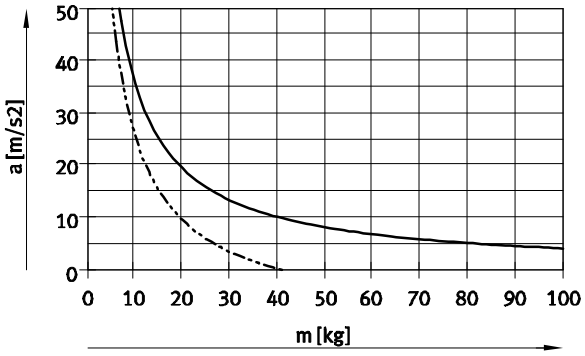
These 100 km values have been calculated mathematically and are only to be used for comparing with dynamic forces and torques to ISO. The drives must not be loaded with these characteristic values as this could damage them.

Max. permissible forces and torques for a theoretical service life of 100 km (from a guide perspective only)

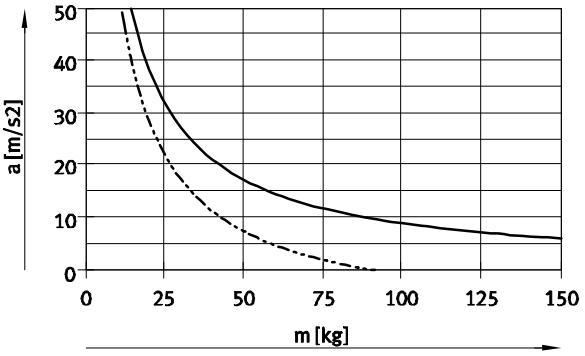
Size		125	160	220
$Fy_{max.}$	[N]	13447	20631	47892
$Fz_{max.}$	[N]	13447	20631	47892
$Mx_{max.}$	[Nm]	516	1105	3316
$My_{max.}$	[Nm]	1013	1842	5342
$Mz_{max.}$	[Nm]	1013	1842	5342

Maximum acceleration a as a function of applied load m

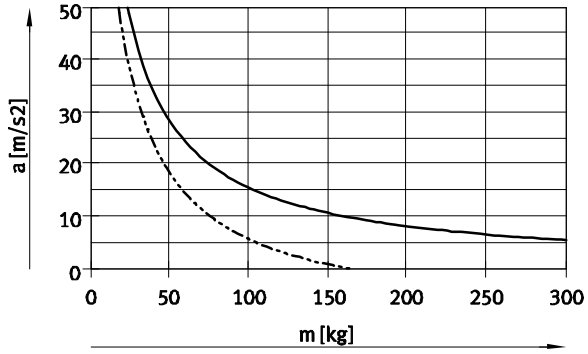
EGC-HD-125



EGC-HD-160

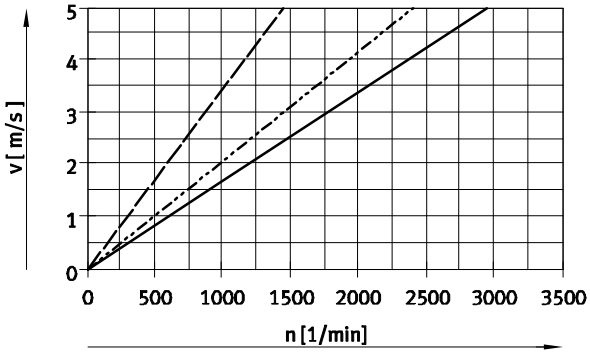


EGC-HD-220



Horizontal mounting position
Vertical mounting position

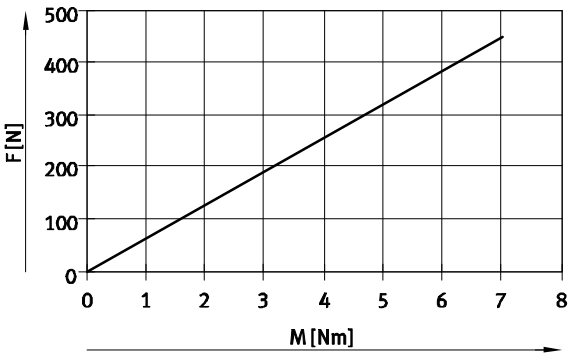
Speed v as a function of rotational speed n



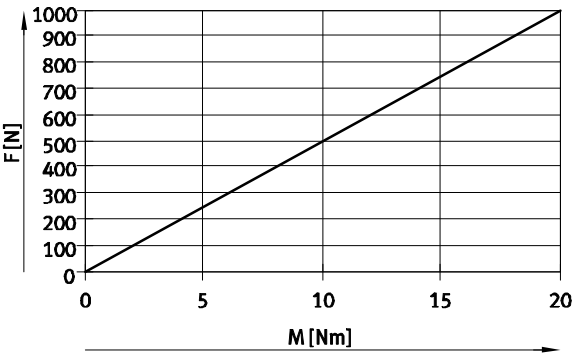
EGC-HD-125
EGC-HD-160
EGC-HD-220

Theoretical feed force F as a function of input torque M

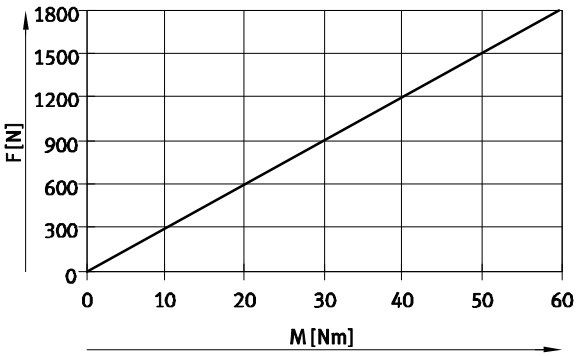
EGC-HD-125



EGC-HD-160



EGC-HD-220



Stroke reserve

Stroke length — Stroke reserve

The selected stroke corresponds in principle to the required working stroke. The variants GK do not have a long-term lubrication unit on the guide. These variants therefore additionally have a safety distance between the drive cap and slide that is not designated as part of the working stroke.

A safety distance (similar to GK) between the drive cap and slide can be defined for the variants GP using the modular product system via the stroke reserve feature. With the variants GK, the stroke reserve and safety distance are added for each end position.

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

Example:
Type:
EGC-HD-125-500-TB-20H-...
Working stroke = 500 mm
2x stroke reserve = 40 mm

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

Size	125	160	220
L9 = safety distance with GK [mm] (per end position)	12.5	15.5	20

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Technical data

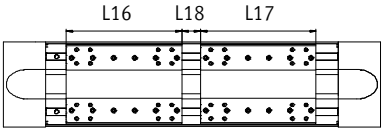
FESTO

Working stroke reduction

With standard slide GK/GP with additional slide KL/KR

- With a toothed belt axis with additional slide, the working stroke is reduced by the length of the additional slide L17 and the distance between both slides L18
- If the variant GP is ordered, the additional slide is also protected

L16 = Length of slide
L17 = Length of additional slide
L18 = Distance between both slides



Example:

Type: EGC-HD-220-1000-TB-...-GP-KR
L18 = 100 mm

Working stroke = 1000 mm – 328 mm – 100 mm = 572 mm

Dimensions – Additional slide

Size		125	160		220	
Variant		GK	GK	GP	GK	GP
Length L17	[mm]	202	220	250	302	328

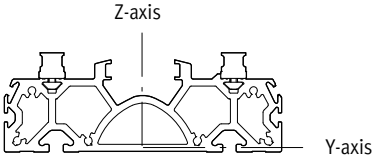
Working stroke reduction per side

With integrated emergency buffer NPE/shock absorber YSRW with shock absorber retainer EAYH-L2

- With a toothed belt axis, the working stroke is reduced by the total dimension of the emergency buffer/shock absorber and shock absorber retainer.

Size		125	160	220
With emergency buffer	[mm]	65	93	98
With shock absorber	[mm]	66	94	99

Second moment of area

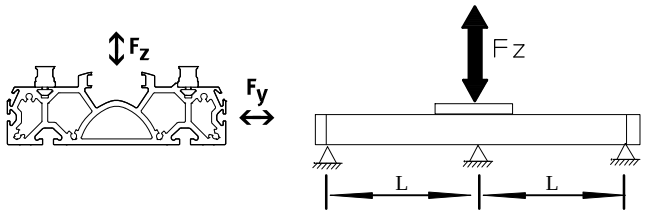


Size		125	160	220
Iy	[mm^4]	6.89x10^5	12.9x10^5	55.8x10^5
Iz	[mm^4]	40.9x10^5	98.9x10^5	351x10^5

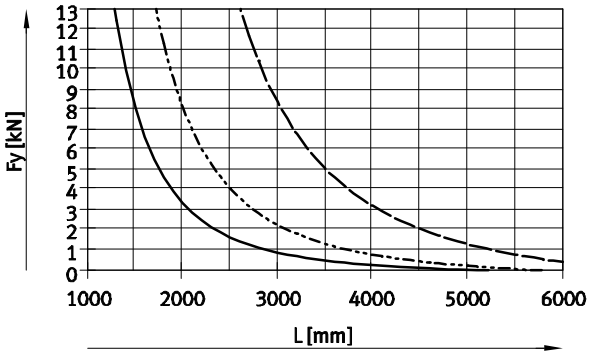
Maximum permissible support spacing L (without profile mounting) as a function of force F

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

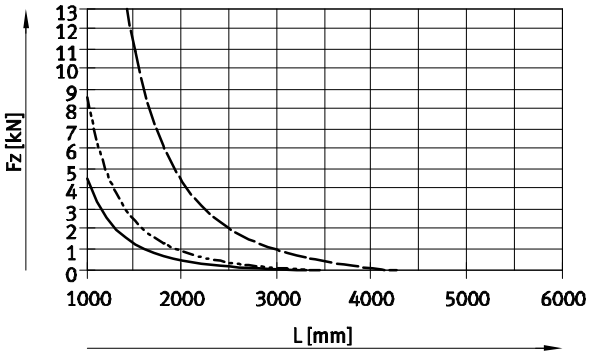
The following graphs help to determine the maximum permissible support spacing l as a function of force F acting on the axis. The deflection is f = 0.5 mm.



Force Fy



Force Fz



EGC-HD-125-TB
EGC-HD-160-TB
EGC-HD-220-TB

Recommended deflection limits

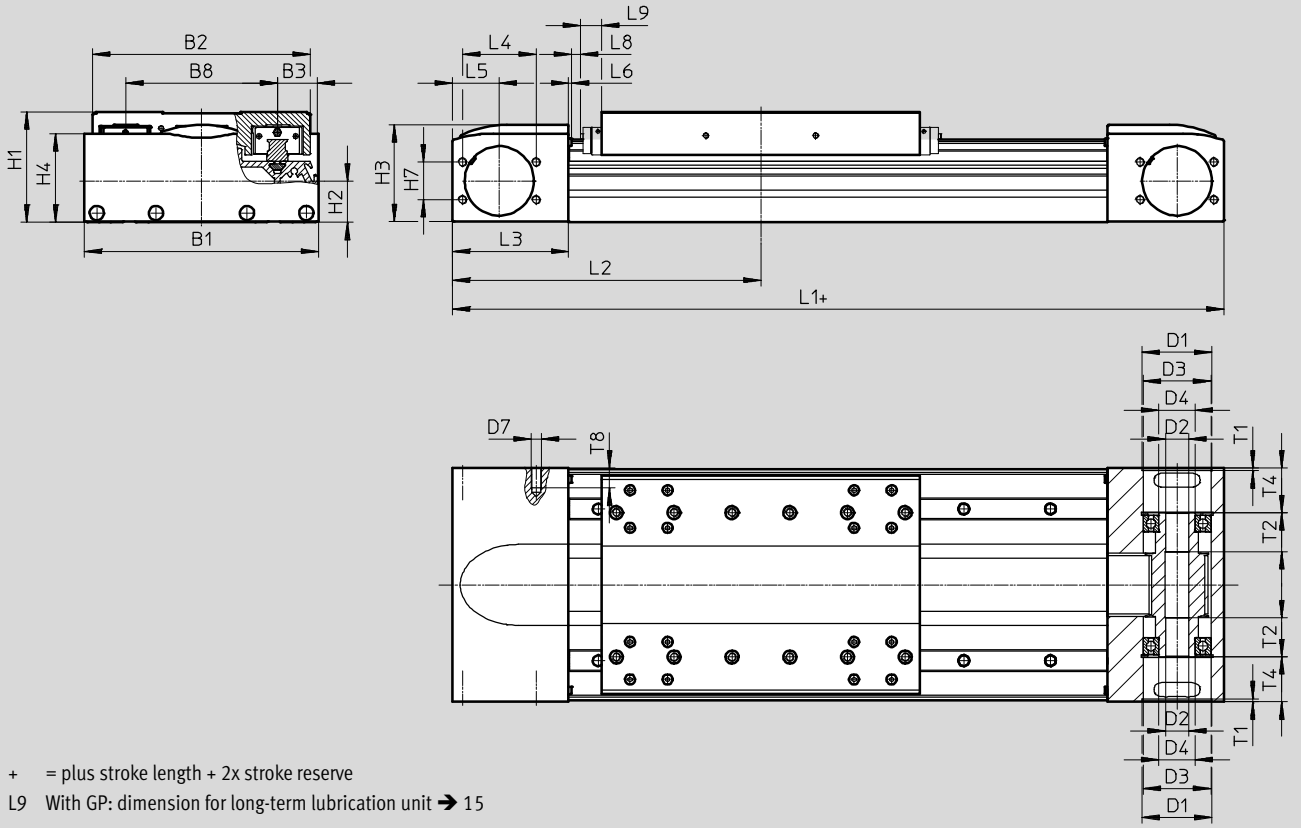
Adherence to the following deflection limits is recommended so as not to impair the functional performance of the axes. Greater deformation can result in increased friction, greater wear and reduced service life.

Size	Dyn. deflection (moving load)	Stat. deflection (stationary load)
125 … 220	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length

Toothed belt axes EGC-HD-TB, with heavy-duty guide

Technical data

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



\+ = plus stroke length + 2x stroke reserve

L9 With GP: dimension for long-term lubrication unit ➔ 15

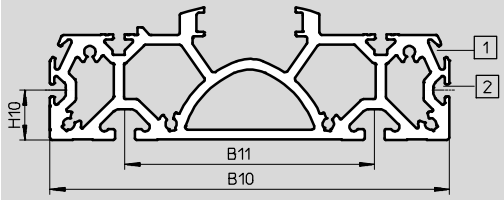
Size	B1	B2	B3	B8	D1 ∅ H7	D2 ∅ H7	D3 ∅	D4 ∅	D7
125	124	120	21	80	43	16	42	25	M6
160	162	150.7	27.5	105	48	16	47	25	M6
220	224	204.2	40	140	80	23	75	45	M8

Size	H1	H2	H3	H4	H7	L1	L2 min.	L3	L4
125	64	26.1	55.8	50.8	24	346	173	57.5	46
160	76.5	28.7	67.5	61.5	26	417	208.5	80.5	51
220	111.5	45.2	98	91.1	59	576	288	115	76

Size	L5	L6	L8	L9	T1	T2	T4	T8
125	27.5	1.8	2	–	2.1	27	23.65	13
160	32.5	2	0.55	14.9	3.1	27	31.1	14
220	50	2	2	18	3.1	29.5	47.5	16

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

Profile

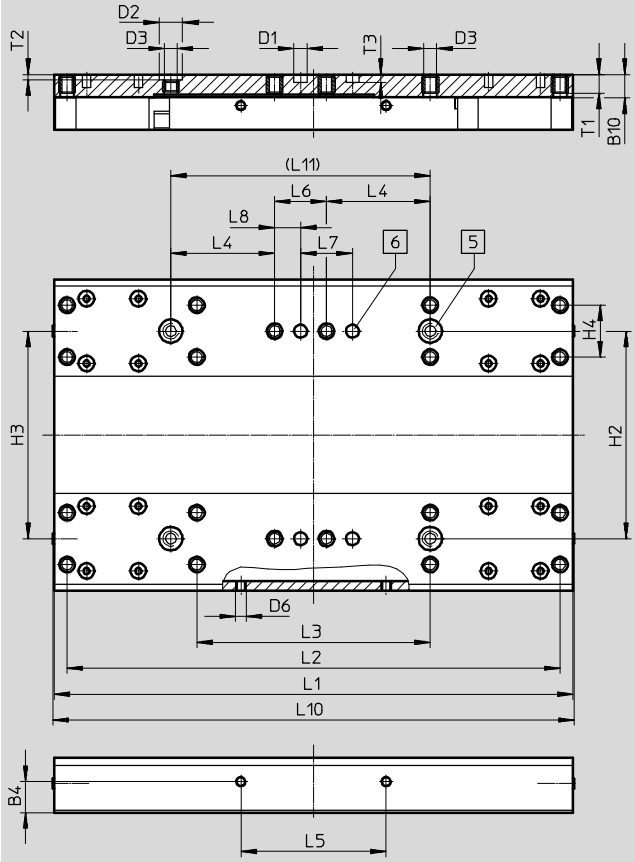


1 Sensor slot for proximity sensor
2 Mounting slot for slot nut

Size	B10	B11	H10
125	122	80	20
160	160	100	20
220	220	140	20

GK – Standard slide

Size 125



5 Hole for centring sleeve ZBH
6 Hole for centring pin ZBS

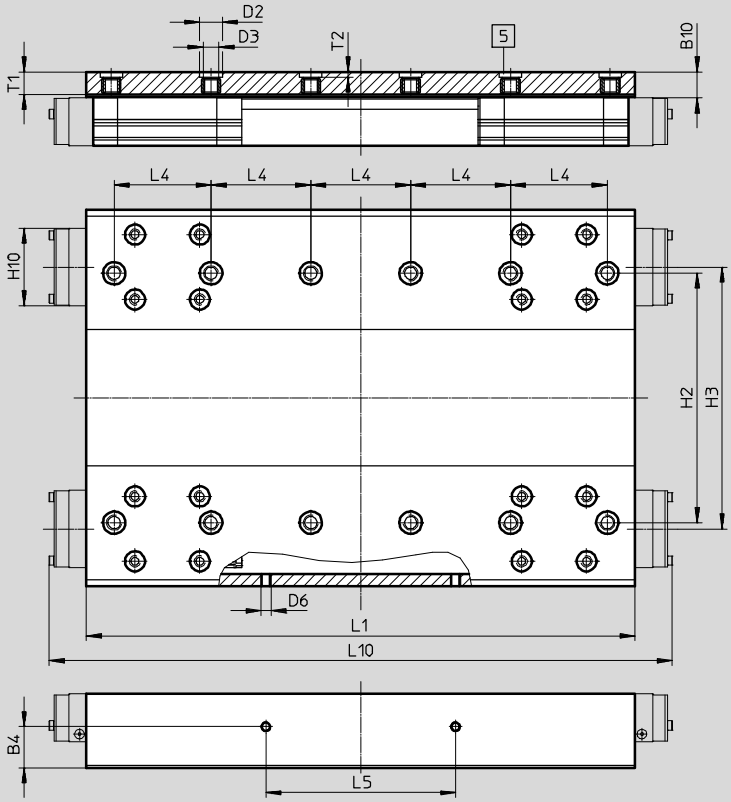
Size	B4 ±0.1	B10	D1 ∅ H7	D2 ∅ H7	D3	D6	H2 ±0.03	H3 ±0.05	H4 ±0.1	L1 ±0.1	L2 ±0.2	L3 ±0.1
125	12	9	5	9	M5	M4	80	80	20	200	190	90

Size	L4 ±0.1	L5 ±0.2	L6 ±0.1	L7 ±0.03	L8 ±0.1	L10	L11 ±0.03	T1	T2 +0.1	T3 +0.1
125	40	56	20	20	10	202	100	7.8	2.1	3.1

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

GK – Standard slide/GP – Standard slide, protected

Size 160



5 Hole for centring sleeve ZBH

Size	B4	B10*)	D2 ∅	D3	D6	H2	H3
	±0.1		H7			±0.03	±0.05
160	16.5	10.5	9	M6	M4	100	105

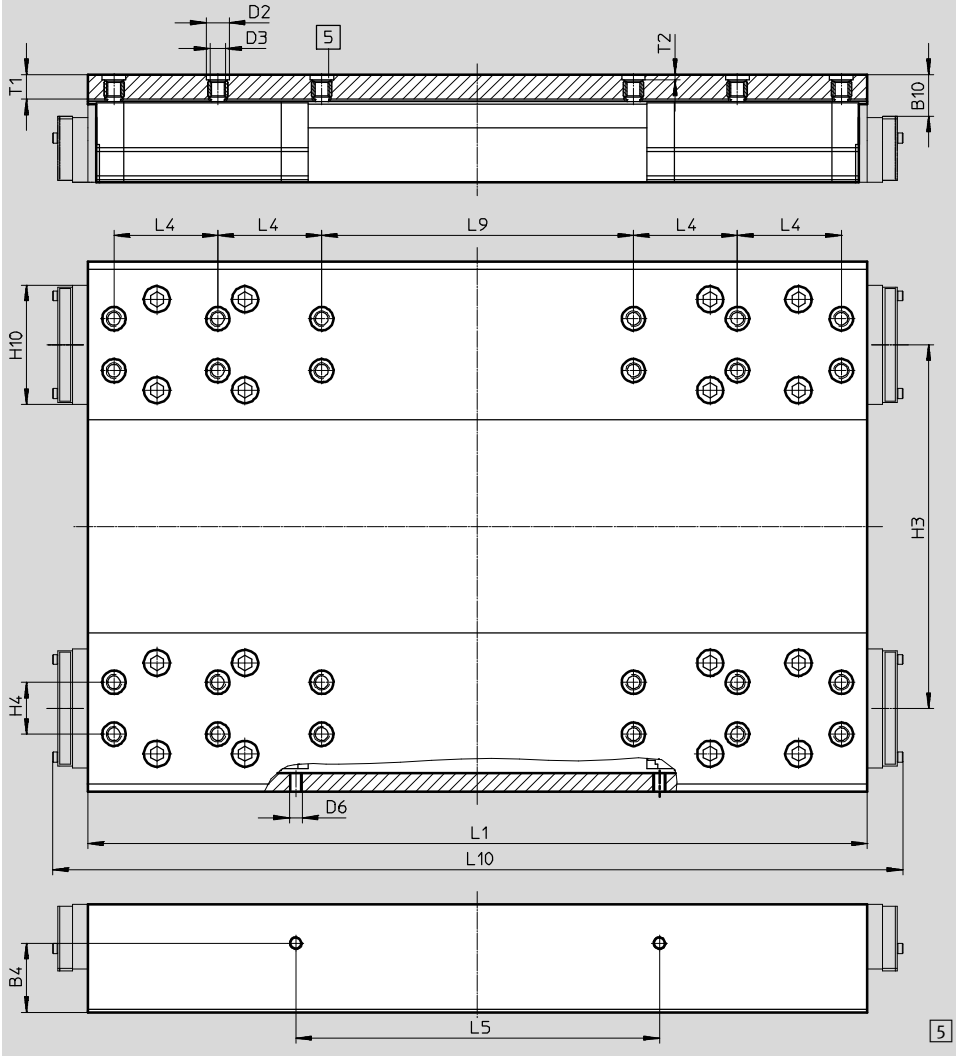
Size	H10*)	L1	L4	L5	L10*)	T1	T2
		±0.1	±0.03	±0.1			+0.1
160	31	220	40	76	250	9	2.1

*) Protected version

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

GK – Standard slide/GP – Standard slide, protected

Size 220



5 Hole for centring sleeve ZBH

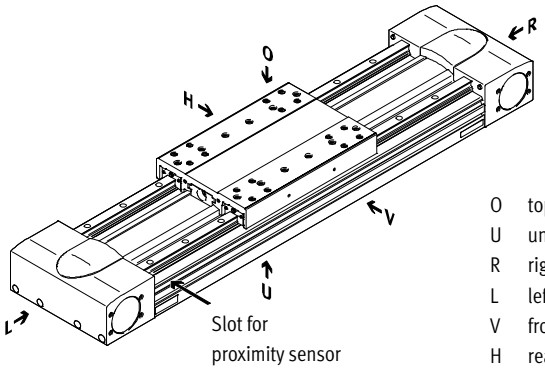
Size	B4 ±0.1	B10*)	D2 ∅ H7	D3	D6	H3 ±0.05	H4 ±0.03	H10*)
220	26.6	16	9	M6	M5	140	20	45.95

Size	L1 ±0.1	L4 ±0.03	L5 ±0.1	L9 ±0.03	L10*)	T1	T2 +0.1
220	302	40	140	120	328	9.5	2.1

*) Protected version

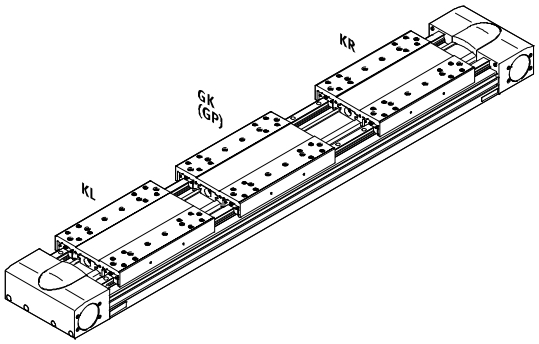
Order code

Mandatory data

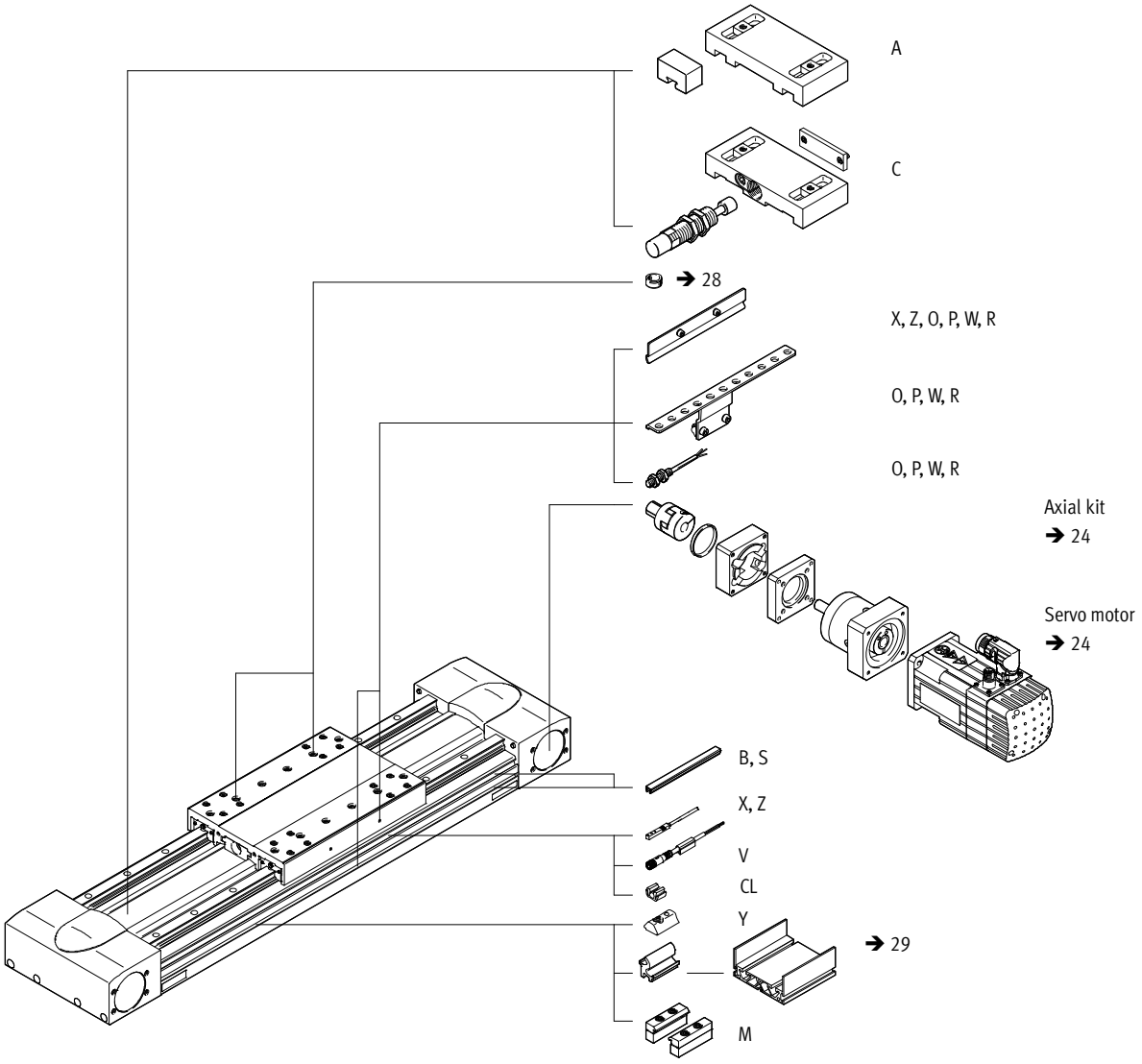


Slot for
proximity sensor

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



Accessories



Toothed belt axes EGC-HD-TB, with heavy-duty guide

Ordering data – Modular products

Ordering table

	Size		125	160	220	Condi-tions	Code		Enter code
M	Module No.		**556823**	**556824**	**556825**				
	Design		Linear axis				**EGC**		EGC
	Guide		Heavy-duty guide				**-HD**		-HD
	Size		125	160	220		**-...**		-...
	Stroke	[mm]	50 ... 3000	50 ... 5000	50 ... 4750	1	**-...**		-...
	Function		Toothed belt				**-TB**		-TB
	Stroke reserve	[mm]	0 ... 999 (0 = no stroke reserve)			1	**-...H**		
	Slide		Standard slide				**-GK**		
			–	Standard slide, protected			**-GP**		
O	Additional slide	Left	Additional slide, standard, on left			2	**-KL**		
		Right	Additional slide, standard, on right			2	**-KR**		
	Accessories		Accessories enclosed separately				**ZUB-**		ZUB-
	Profile mounting		1 ... 50				**...M**		
	Cover	Mounting slot	1 ... 50 (1 = 2x 500 mm pieces)			4	**...B**		
		Sensor slot	1 ... 50				**...S**		
	Slot nut for mounting slot		1 ... 99			4	**...Y**		
	Proximity sensor (SIES), inductive, slot type 8, PNP, incl. switch lug	N/O contact, 7.5 m cable	1 ... 6				**...X**		
		N/C contact, 7.5 m cable	1 ... 6				**...Z**		
	Emergency buffer with retainer		1 ... 2			3	**...A**		
	Shock absorber with retainer		1 ... 2			3	**...C**		
	Proximity sensor (SIEN), inductive, M8, PNP, incl. switch lug with sensor bracket	N/O contact, 2.5 m cable	1 ... 99				**...O**		
		N/C contact, 2.5 m cable	1 ... 99				**...P**		
		N/O contact, plug M8	1 ... 99				**...W**		
		N/C contact, plug M8	1 ... 99				**...R**		
	Connecting cable, M8, 3-wire, 2.5 m		1 ... 99				**...V**		
	Cable clip		10, 20, 30, 40, 50, 60, 70, 80, 90				**...CL**		
	Operating instructions		Express waiver - no user documentation to be included (already available) (operating instructions in PDF format are available free of charge on the Internet at http://www.festo.com)				**-DN**		

1 **-...** The sum of the stroke length in mm and 2x the stroke reserve in mm must not exceed the maximum stroke length in mm.

2 **KL, KR** If the protected slide variant (GP) is selected, then the additional slide (KL, KR) is also protected.

3 **... A, ... C** Cannot be combined with slide GP.

4 **B, Y** Scope of delivery with size 160 for both slot sizes (➔ 34).

M Mandatory data
O Options

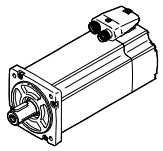
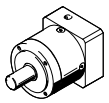
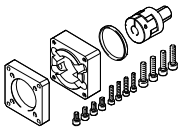
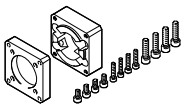
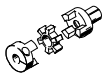
Order code

	EGC	–	HD	–		–		–	TB	–		–		–		–	

- Note

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

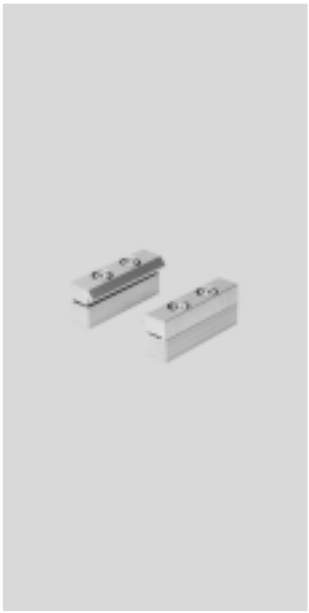
Permissible axis/motor combinations with axial kit – With gear unit Technical data ➔ Internet: eamm-a

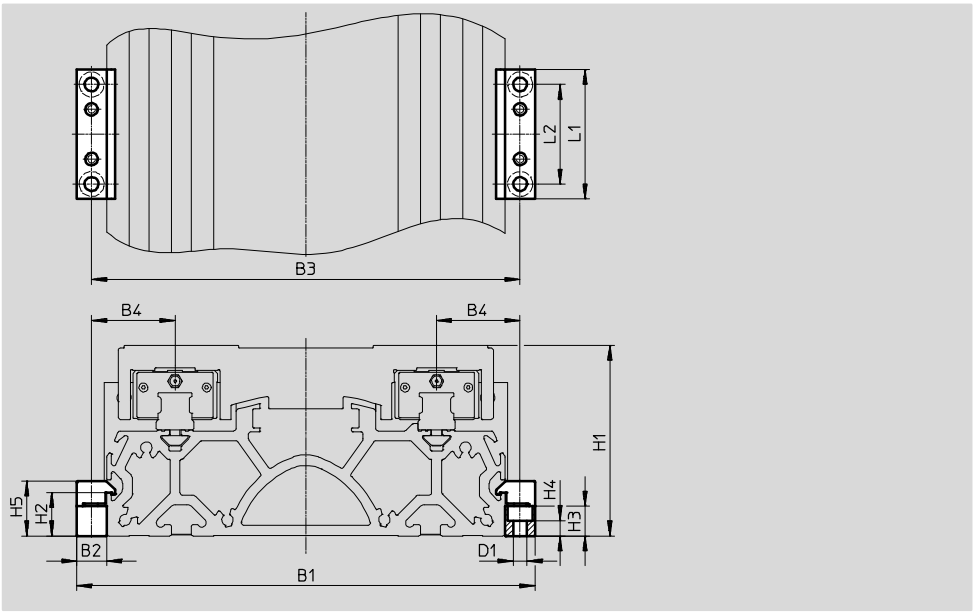
Motor[1]	Gear unit	Axial kit	Axial kit comprises:		
			Motor flange	Coupling	Centring ring
					
Type	Type	Part No. Type	Part No. Type	Part No. Type	Part No. Type
EGC-HD-125					
With servo motor					
EMMS-AS-55-...	**EMGA-60-P-G...-SAS-55**	**1190076** **EAMM-A-M43-60G**	**1597579** **EAMF-A-43D-60G/H**	**558001** **EAMD-32-32-11-16X20**	**575962** **EAML-43-4-43**
EMME-AS-60-...	**EMGA-60-P-G...-EAS-60**	**1456612** **EAMM-A-M43-60H**	**1597579** **EAMF-A-43D-60G/H**	**1377840** **EAMD-32-32-14-16X20**	**575962** **EAML-43-4-43**
EMMS-AS-70-...	**EMGA-60-P-G...-SAS-70**	**1190076** **EAMM-A-M43-60G**	**1597579** **EAMF-A-43D-60G/H**	**558001** **EAMD-32-32-11-16X20**	**575962** **EAML-43-4-43**
With stepper motor					
EMMS-ST-57-...	**EMGA-60-P-G...-SST-57**	**1190076** **EAMM-A-M43-60G**	**1597579** **EAMF-A-43D-60G/H**	**558001** **EAMD-32-32-11-16X20**	**575962** **EAML-43-4-43**
With integrated drive					
EMCA-ST-67-...	**EMGC-60-...**	**1456612** **EAMM-A-M43-60H**	**1597579** **EAMF-A-43D-60G/H**	**1377840** **EAMD-32-32-14-16X20**	**575962** **EAML-43-4-43**
EGC-HD-160					
With servo motor					
EMME-AS-60-...	**EMGA-60-P-G...-EAS-60**	**1456614** **EAMM-A-M48-60H**	**1460111** **EEAMF-A-48C-60G/H**	**3420022** **EAMD-42-40-14-16X25-U**	**558031** **EAML-48-4-48**
EMMS-AS-70-...	**EMGA-80-P-G...-SAS-70**	**1190421** **EAMM-A-M48-80G**	**1190375** **EAMF-A-48C-80G**	**1781043** **EAMD-42-40-20-16X25-U**	**558031** **EAML-48-4-48**
EMME-AS-80-...	**EMGA-80-P-G...-EAS-80**	**1190421** **EAMM-A-M48-80G**	**1190375** **EAMF-A-48C-80G**	**1781043** **EAMD-42-40-20-16X25-U**	**558031** **EAML-48-4-48**
EMMS-AS-100-...	**EMGA-80-P-G...-SAS-100**	**1190421** **EAMM-A-M48-80G**	**1190375** **EAMF-A-48C-80G**	**1781043** **EAMD-42-40-20-16X25-U**	**558031** **EAML-48-4-48**
With stepper motor					
EMMS-ST-87-...	**EMGA-80-P-G...-SST-87**	**1190421** **EAMM-A-M48-80G**	**1190375** **EAMF-A-48C-80G**	**1190375** **EAMF-A-48C-80G**	**1190375** **EAMF-A-48C-80G**
With integrated drive					
EMCA-ST-67-...	**EMGC-60-...**	**1456614** **EAMM-A-M48-60H**	**1460111** **EAMF-A-48C-60G/H**	**3420022** **EAMD-42-40-14-16X25-U**	**558031** **EAML-48-4-48**
EGC-HD-220					
With servo motor					
EMMS-AS-100-...	**EMGA-120-P-G...-SAS-100**	**1190774** **EAMM-A-M80-120G**	**1190702** **EAMF-A-80A-120G**	**1781045** **EAMD-56-46-25-23X27-U**	**1209006** **EAML-80-6-80**
EMMS-AS-140-...	**EMGA-120-P-G...-SAS-140**	**1190774** **EAMM-A-M80-120G**	**1190702** **EAMF-A-80A-120G**	**1781045** **EAMD-56-46-25-23X27-U**	**1209006** **EAML-80-6-80**

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

Profile mounting MUE
(order code M)

Materials:
Anodised aluminium
RoHS-compliant





Dimensions and ordering data

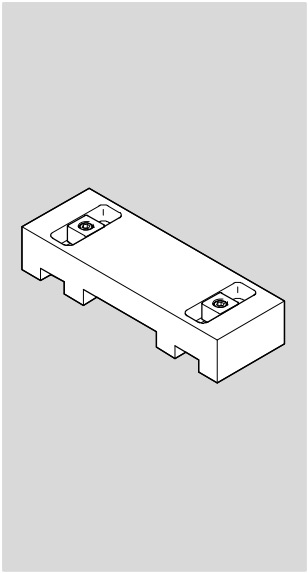
For size	B1	B2	B3	B4	D1 ∅	H1	H2	H3
125	146	12	134	27	5.5	64	17.5	12
160	184	12	172	33.5	5.5	76.5	17.5	12
220	258	19	239	49.5	9	111.5	16	14

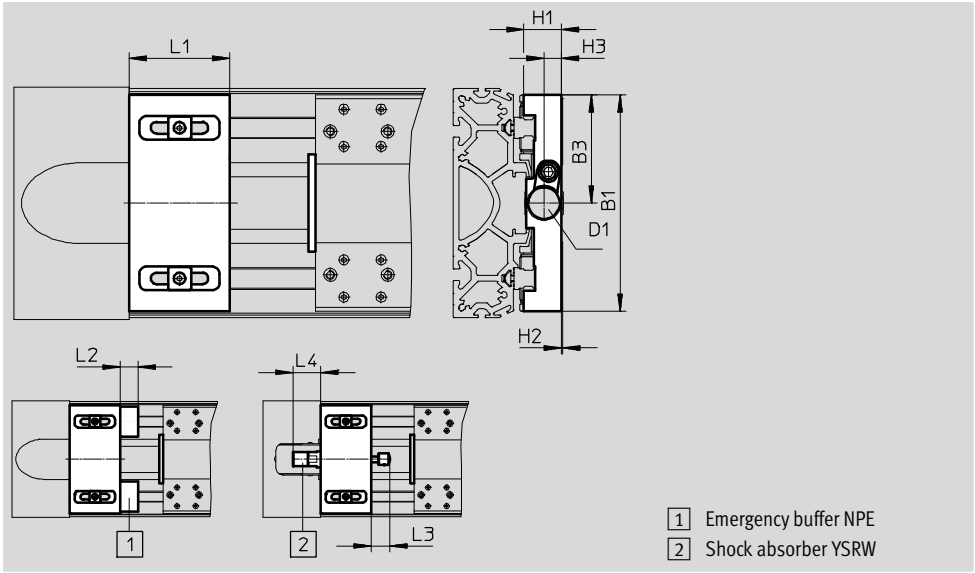
For size	H4	H5	L1	L2	Weight [g]	Part No.	Type
125	6.2	22	52	40	80	**558043**	**MUE-70/80**
160	6.2	22	52	40	80	**558043**	**MUE-70/80**
220	5.5	29.5	90	40	290	**558044**	**MUE-120/185**

Shock absorber retainer, retainer EAYH
Emergency buffer NPE ➔ 28
Shock absorber YSRW ➔ 28
(order code A or C)

Materials:
Anodised aluminium
RoHS-compliant

Cannot be used in combination with the variants GP.



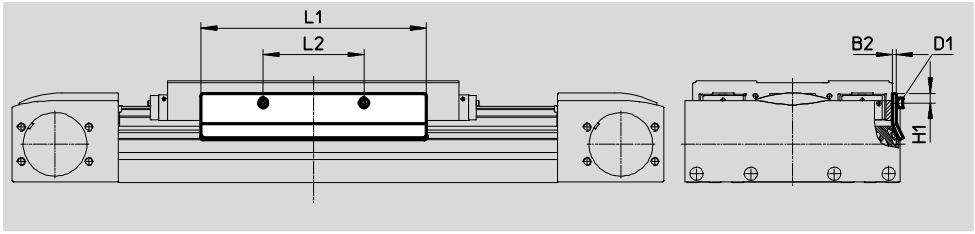


Dimensions and ordering data

For size	B1	B3	D1	H1	H2	H3	L1	L2	L3	L4 Min.	Weight [g]	Part No.	Type
Shock absorber retainer													
125	120	60	M16x1	19.8	0.4	9.7	50	–	20	36	286	**1653251**	**EAYH-L2-125**
160	150.7	75.3	M22x1.5	26.2	0.8	12.3	70	–	26	38.5	622	**1653250**	**EAYH-L2-160**
220	204	102	M26x1.5	38.7	0.1	15	70	–	34	63.5	1218	**1653253**	**EAYH-L2-220**
Retainer for emergency buffer													
125	120	–	–	19.8	0.4	–	50	17	–	–	260	**1662803**	**EAYH-L2-125-N**
160	150.7	–	–	26.2	0.8	–	70	25	–	–	617	**1669259**	**EAYH-L2-160-N**
220	204	–	–	38.7	0.1	–	70	30	–	–	1195	**1669260**	**EAYH-L2-220-N**

Switch lug SF-EGC-HD-1
For sensing via proximity sensor SIES-8M
(order code X or Z)

Materials:
Galvanised steel
RoHS-compliant



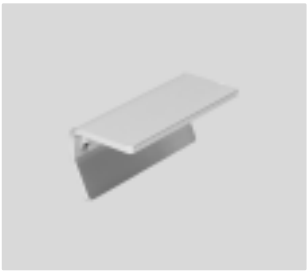
Dimensions and ordering data

For size	B2	D1	H1	L1	L2	Weight [g]	Part No.	Type
125	2	M4x8	7.8	150	56	70	**570027**	**SF-EGC-HD-1-125**
160	3	M4x8	7.3	170	76	160	**1645872**	**SF-EGC-HD-1-160**
220	3	M5x10	11.5	250	140	310	**1645866**	**SF-EGC-HD-1-220**

Switch lug SF-EGC-HD-2

For sensing via proximity sensor SIEN-M8B (order code O, P, W or R) or SIES-8M (order code X or Z)

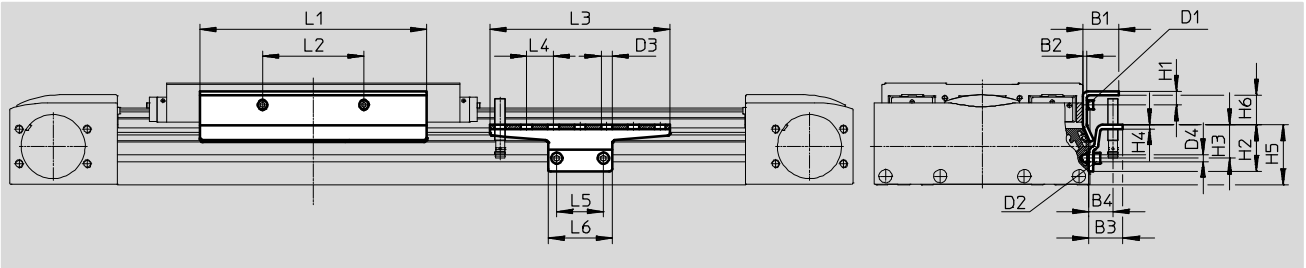
Materials:
Galvanised steel
RoHS-compliant



Sensor bracket HWS-EGC

For proximity sensor SIEN-M8B (order code O, P, W or R)

Materials:
Galvanised steel
RoHS-compliant



Dimensions and ordering data

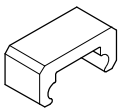
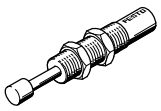
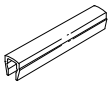
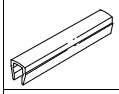
For size	B1	B2	B3	B4	D1	D2	D3 ∅	D4 ∅	H1	H2
125	24	2	25.5	18	M4x8	M5x8	8.4	5.2	9	35
160	27	3	25.5	18	M4x8	M5x8	8.4	5.2	10.3	35
220	31	3	25.5	18	M5x10	M5x14	8.4	5.2	11.5	65

For size	H3	H4	H5	H6	L1	L2	L3	L4	L5	L6
125	25	3	45	14	150	56	135	20	35	48
160	25	3	45	22.2	170	76	135	20	35	48
220	55	3	75	18.4	250	140	215	20	35	48

For size	Weight [g]	Part No.	Type
	Switch lug		
125	122	**570030**	**SF-EGC-HD-2-125**
160	261	**1645865**	**SF-EGC-HD-2-160**
220	430	**1645868**	**SF-EGC-HD-2-220**

For size	Weight [g]	Part No.	Type
	Sensor bracket		
125	110	**558057**	**HWS-EGC-M5**
160	110	**558057**	**HWS-EGC-M5**
220	217	**570365**	**HWS-EGC-M8-B**

Ordering data

	For size	Comment	Order code	Part No.	Type	PU[1]
Emergency buffer NPE						
	125	Use in combination with retainer EAYH	A	**1662475**	**NPE-125**	1
	160			**1672593**	**NPE-160**	
	220			**1672598**	**NPE-220**	
Shock absorber YSRW					Technical data ➔ Internet: ysrw	
	125	Use in combination with shock absorber retainer EAYH	C	**191196**	**YSRW-12-20**	1
	160			**191197**	**YSRW-16-26**	
	220			**191198**	**YSRW-20-34**	
Slot nut NST						
	125, 160[3]	For mounting slot	Y	**150914**	**NST-5-M5**	1
				8047843	**NST-5-M5-10**	10
				8047878	**NST-5-M5-50**	50
	160[4], 220	For mounting slot	Y	**150915**	**NST-8-M6**	1
				8047868	**NST-8-M6-10**	10
				8047869	**NST-8-M6-50**	50
Centring pin/sleeve ZBS/ZBH[2]						
	125	For slide	–	**150928**	**ZBS-5**	10
	125 ... 220			**150927**	**ZBH-9**	
Slot cover ABP						
	125, 160[3]	For mounting slot Every 0.5 m	B	**151681**	**ABP-5**	2
	160[4], 220			**151682**	**ABP-8**	
Slot cover ABP-S						
	125 ... 220	For sensor slot Every 0.5 m	S	**563360**	**ABP-5-S1**	2
Clip SMBK						
	125 ... 220	For sensor slot, for attaching the proximity sensor cables	CL	**534254**	**SMBK-8**	10

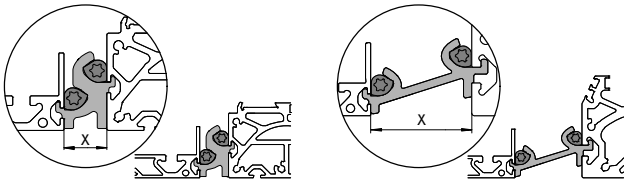
1) Packaging unit quantity
2) 2 centring pins/sleeves included in the scope of delivery of the axis
3) For mounting slot at side
4) For mounting slot underneath

Mounting options between axis and support profile

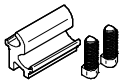
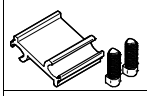
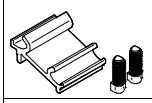
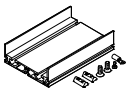
Depending on the adapter kit, the spacing between the axis and the support profile is:
x = 20 mm or 50 mm

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:

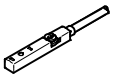
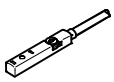


Ordering data

	For size	Comment	Part No.	Type	PU[1]
Adapter kit DHAM					
	160	• For mounting the support profile on the axis • Spacing between axis and profile is 20 mm	**562241**	**DHAM-ME-N1-CL**	1
	220		**562242**	**DHAM-ME-N2-CL**	
	125, 160	• For mounting the support profile on the axis • Spacing between axis and profile is 50 mm	**574560**	**DHAM-ME-N1-50-CL**	
	220		**574561**	**DHAM-ME-N2-50-CL**	
Support profile HMIA					
	70 … 120	• 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]	Order code	Part No.	Type
N/O contact							
	Insertable in the slot from above, flush with the cylinder profile	Cable, 3-wire	PNP	7.5	X	**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	Z	**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 sensors M8 (round design), inductive — Technical data ➔ Internet: sien

	Electrical connection	LED	Switching output	Cable length [m]	Order code	Part No.	Type
N/O contact							
	Cable, 3-wire	■	PNP	2.5	O	**150386**	**SIEN-M8B-PS-K-L**
	Plug connector M8x1, 3-pin	■	PNP	–	W	**150387**	**SIEN-M8B-PS-S-L**
N/C contact							
	Cable, 3-wire	■	PNP	2.5	P	**150390**	**SIEN-M8B-PO-K-L**
	Plug connector M8x1, 3-pin	■	PNP	–	R	**150391**	**SIEN-M8B-PO-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**