

Passive guide axes EGC-FA, without drive



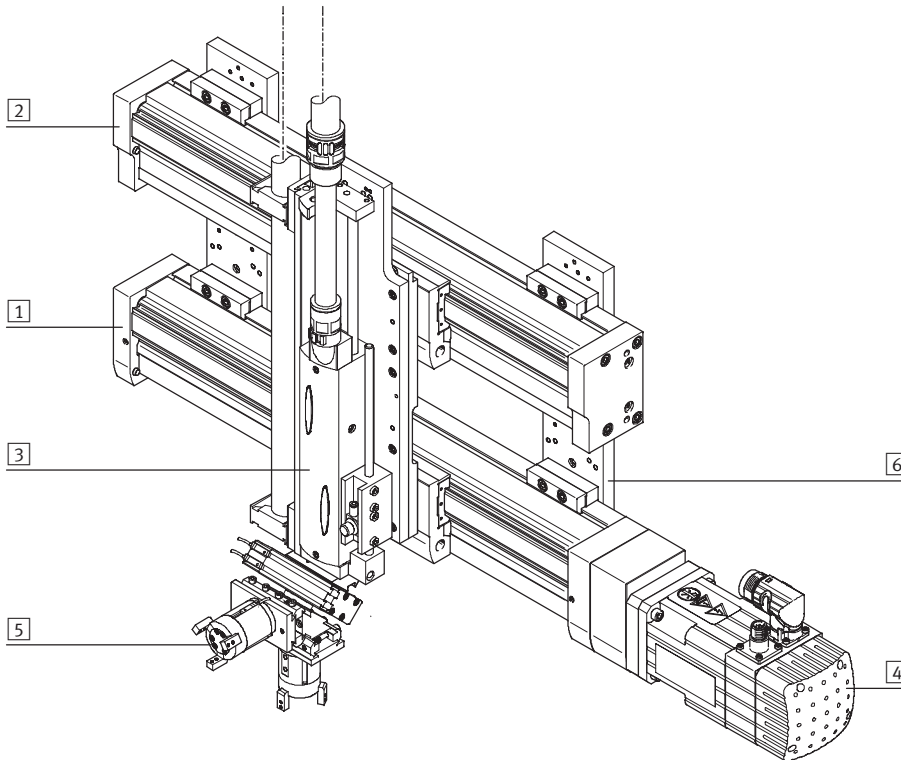
Passive guide axes EGC-FA, without drive

Key features

At a glance

- Driveless linear guide unit with guide and freely movable slide
- The passive guide axis/heavy-duty guide is designed to increase force and torque capacities in multi-axis applications
- Higher torsional resistance
- Reduced vibration with dynamic loads
- Drive axes and passive guide axes/heavy-duty guides can be arranged adjacent to or above one another

System product for handling and assembly technology



System components and accessories

	Brief description	→ Page/Internet	
1	Axes	Wide range of combinations possible within handling and assembly technology	axis
2	Passive guide axes	For increasing force and torque capacities in multi-axis applications	passive guide axis
3	Drives	Wide range of combinations possible within handling and assembly technology	drive
4	Motors	Servo and stepper motors, with or without gear unit	motor
5	Grippers	Wide range of variations possible within handling and assembly technology	gripper
6	Adapters	For drive/drive and drive/gripper connections	adapter kit

Passive guide axes EGC-FA, without drive

Key features

Passive guide axes and the corresponding drives

Passive guide axis DGC-FA



- Can be combined with:
 - Linear drive DGC-KF
- For size 8 ... 63
- Load capacity to max. 6,890 N or 380 Nm

Passive guide axis EGC-FA



- Can be combined with:
 - Toothed belt axis EGC-TB
 - Spindle axis EGC-BS
- For size 70 ... 185
- Load capacity to max. 15,200 N or 1,820 Nm

Passive guide axis FDG-ZR-RF



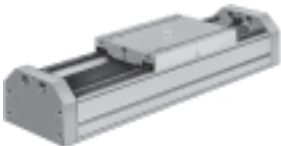
- Can be combined with:
 - Toothed belt axis DGE-ZR-RF
- For size 25 ... 63
- Load capacity to max. 1,500 N or 600 Nm

Passive guide axis FDG-P/-ZR/-SP



- Can be combined with:
 - Linear drive DGPL
 - Toothed belt axis DGE-ZR-KF
 - Spindle axis DGE-SP-KF
- For size 18 ... 63
- Load capacity to max. 14,050 N or 1,820 Nm

Heavy-duty guide HD



- Size HD8 ... HD40
- Stroke lengths of 10 ... 2,160 mm
- Load capacity to max. 5,600 N or 560 Nm

Passive guide axes EGC-FA, without drive

Type codes

	EGC	-	70	-	500	-	FA	-		-	GK
Type											
EGC	Passive guide axis										
Size											
Stroke [mm]											
Guide											
FA	Passive guide axis										
Stroke reserve											
Slide											
GK	Standard slide										
GP	Standard slide, protected										

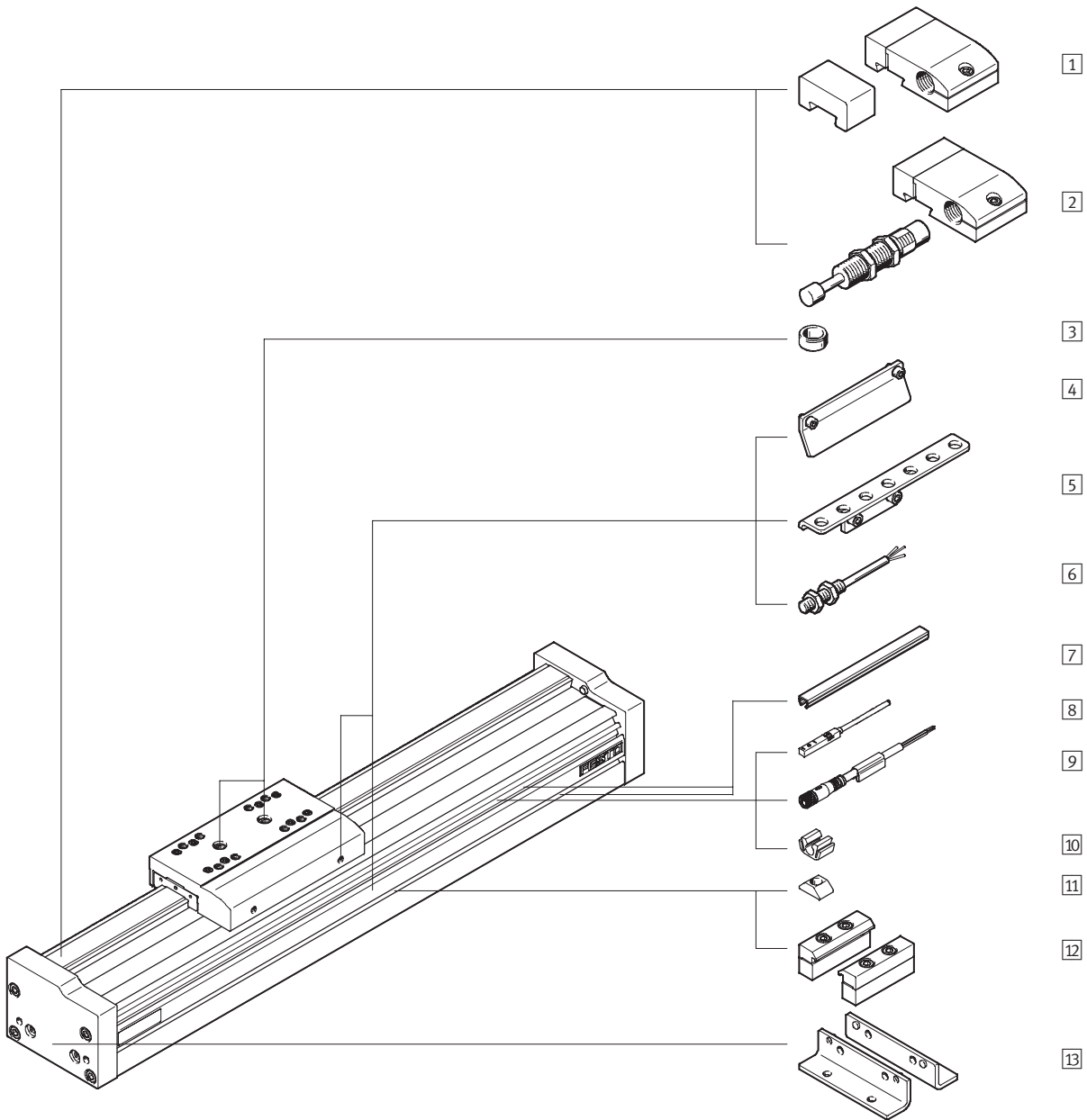
Passive guide axes EGC-FA, without drive

Type codes

→		ZUB –	F2MX2Z	–	DN
Additional slide					
...K	1 through 2				
Accessories enclosed separately					
F	Foot mounting				
...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, cable 7.5 m				
...Z	Proximity sensor (SIES), inductive, slot type 8, PNP, N/C contact, cable 7.5 m				
...A	Emergency buffer with retainer				
...C	Shock absorber with retainer				
...O	Proximity sensor (SIEN), inductive, M8, PNP, N/O contact, cable 2.5 m				
...P	Proximity sensor (SIEN), inductive, M8, PNP, N/C contact, cable 2.5 m				
...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	Plug socket with cable				
...CL	Cable clip				
Operating instructions					
DN	No				

Passive guide axes EGC-FA, without drive

Peripherals overview





Passive guide axes EGC-FA, without drive

Peripherals overview

Variants and accessories		
Type	Brief description	→ Page/Internet
1 Emergency buffer with retainer A	For avoiding damage at the end stop in the event of malfunction	22
2 Shock absorber with retainer C	For avoiding damage at the end stop in the event of malfunction	22
3 Centring pin/sleeve ZBS, ZBH	<ul style="list-style-type: none"> For centring loads and attachments on the slide 6 centring pins/sleeves included in the scope of delivery of the axis 	24
4 Switching lug X, Z, O, P, W, R	For sensing the slide position	22
5 Sensor bracket O, P, W, R	Adapter for mounting the inductive proximity sensors (round design) on the axis	23
6 Proximity sensor, M8 O, P, W, R	<ul style="list-style-type: none"> Inductive proximity sensor, round design The order code O, P, W, R includes 1 switching lug and max. 2 sensor brackets in the scope of delivery 	25
7 Slot cover B, S	<ul style="list-style-type: none"> For protecting against ingress of dirt 	24
8 Proximity sensor, slot type 8 X, Z	<ul style="list-style-type: none"> Inductive proximity sensor, for slot type 8 The order code X, Z includes 1 switching lug in the scope of delivery 	25
9 Plug socket with cable V	For proximity sensor (order code W and R)	25
10 Clip CL	For mounting the proximity sensor cable in the slot	24
11 Slot nut Y	For mounting attachments	24
12 Profile mounting M	For mounting the axis on the profile	21
13 Foot mounting F	For mounting the axis on the end cap	20

Passive guide axes EGC-FA, without drive

Technical data

-  Size
70 ... 185
-  Stroke length
50 ... 8,500 mm



General technical data						
Size			70	80	120	185
Constructional design	Passive axis					
Guide	Recirculating ball bearing guide					
Mounting position	Any					
Working stroke	GK/GP	[mm]	50 ... 5,000	50 ... 8,500	50 ... 8,500	50 ... 8,500
Max. speed		[m/s]	5			
Max. acceleration		[m/s ²]	50			

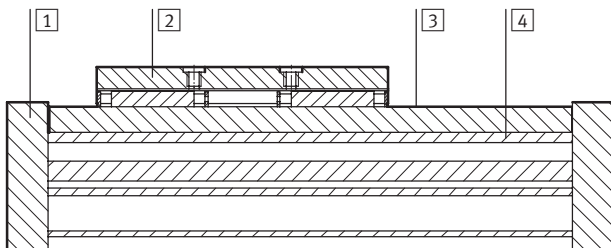
Operating and environmental conditions		
Ambient temperature	[°C]	-10 ... +60
Protection class	IP40	

Weight [kg]						
Size			70	80	120	185
Basic weight with 0 mm stroke ¹⁾	GK/GP		1.2	2	7.3	20.8
Additional weight per 1,000 mm stroke			4.2	6.2	15	29
Moving mass	GK/GP		0.3	0.55	2	6
Additional slide	K		0.3	0.55	2	6

1) Incl. slide

Materials

Sectional view



Axis	
1	End cap Wrought aluminium alloy, anodised
2	Slide Wrought aluminium alloy, anodised
3	Guide rail High-alloy steel
4	Profile Wrought aluminium alloy, anodised
Note on materials	RoHS-compliant Contains PWIS (paint-wetting impairment substances)

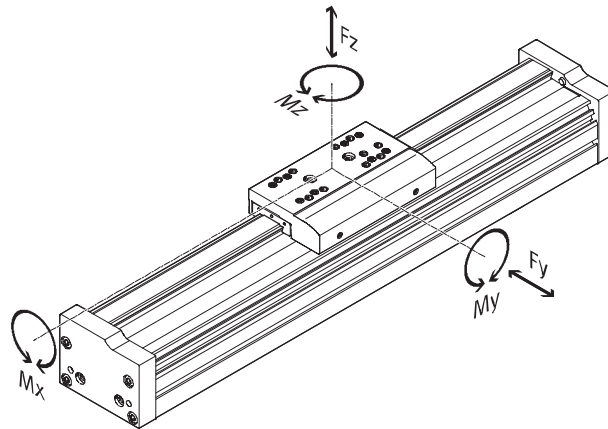
Passive guide axes EGC-FA, without drive

Technical data

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.

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



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

Calculation of the guide comparison index:

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

Permissible forces and torques		70	80	120	185
F _{y,max.}	[N]	1,850	3,050	6,890	15,200
F _{z,max.}	[N]	1,850	3,050	6,890	15,200
M _{x,max.}	[Nm]	16	36	144	529
M _{y,max.}	GK/GP [Nm]	51	97	380	1,157
M _{z,max.}	GK/GP [Nm]	51	97	380	1,157

Service life

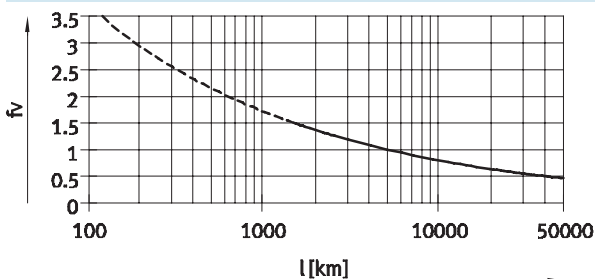
The service life of the guide depends on the load. To provide a rough indication of the service life of the guide,

the graph below plots the guide comparison index f_v against the service life.

This chart only lists theoretical values. Consultation with your local contact person at Festo is mandatory for guide

comparison indexes f_v greater than 1.5.

Guide comparison index f_v as a function of service life



Example:

A user wants to move an X kg load. Using the above calculation gives a value of 1.5 for the guide comparison index. According to the graph, the guide would have a service life of

approx. 1,500 km. Reducing the acceleration reduces the Mz and My values. A guide comparison index of 1 now gives a service life of 5,000 km.

Note

Design software
PositioningDrives
www.festo.com

The load comparison factor f_v can also be calculated using the sizing software.

f_v values > 1.5 are only theoretical comparison values for the recirculating ball bearing guide.

Passive guide axes EGC-FA, without drive

Technical data

Stroke reserve

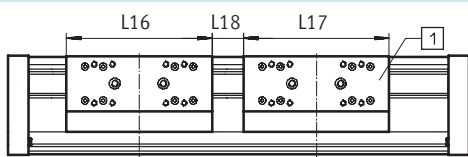
<p>The selected stroke corresponds in principle to the required working stroke. The variant GK does not have a wiper seal on the guide. This variant therefore additionally has a safety distance between the drive cap and slide that is not designated as part of the working stroke.</p>	<p>A safety distance (similar to GK) between the drive cap and slide can be defined for the variant GP using the modular product system via the “stroke reserve” feature. With the variant GK, the stroke reserve and safety distance are added for each end position.</p>	<ul style="list-style-type: none"> • 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 	<p>Example: EGC-70-500-FA-20H-... Working stroke = 500 mm 2x stroke reserve = 40 mm Total length = 540 mm (540 mm = 500 mm + 2x 20 mm)</p>
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Size	70	80	120	185
Safety distance with GK [mm] (per end position)	10.5	13	18	21

Working stroke reduction

With standard slide GK/GP with additional slide K

L16 = Slide length
L17 = Additional slide length
L18 = Distance between both slides



<ul style="list-style-type: none"> • For a guide axis with additional slide, the working stroke is reduced by the length of the additional slide and the distance between both slides 	<ul style="list-style-type: none"> • With the variant GP, the additional slide is also protected 	<p>Example: Type EGC-70-500-FA-...-GK-1K Working stroke without additional slide = 500 mm L18 = 20 mm L17 = 100 mm L16 = 100 mm</p>	<p>Working stroke with additional slide = 380 mm (500 mm – 20 mm – 100 mm)</p>
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Dimensions – Additional slide								
Size	70		80		120		185	
	GK	GP	GK	GP	GK	GP	GK	GP
Length L17 [mm]	100	121	120	146	200	236	280	
Min. distance between the slides L18 [mm]	–	21	–	26	–	36	–	

Working stroke reduction per side

With integrated emergency buffer NPE/shock absorber YSRW with shock absorber retainer KYE

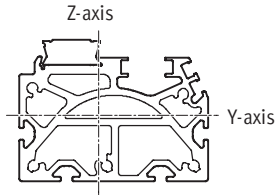
<p>With a guide axis with emergency buffer, the working stroke is reduced by the total dimension of the emergency buffer/shock absorber and shock absorber retainer.</p>	<p>The rubber buffer in the cap must be removed.</p>
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Size	70	80	120	185
With emergency buffer [mm]	43	68	98	133
With shock absorber [mm]	42	63	84	107

Passive guide axes EGC-FA, without drive

Technical data

2nd moment of area

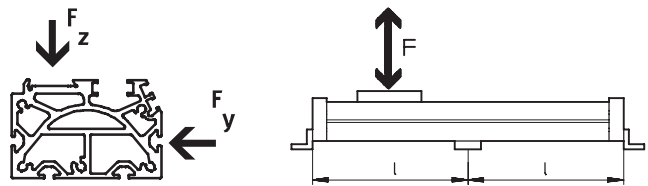


Size	70	80	120	185
I_y [mm ⁴]	3.95×10^5	8.44×10^5	4.62×10^6	2.34×10^7
I_z [mm ⁴]	5.77×10^5	1.16×10^6	5.65×10^6	2.74×10^7

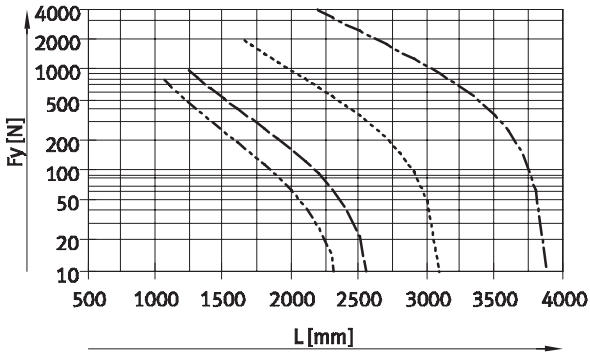
Maximum permissible support span L (without profile mounting) as a function of force F

In order to limit deflection for large strokes, the axis may need to be supported.

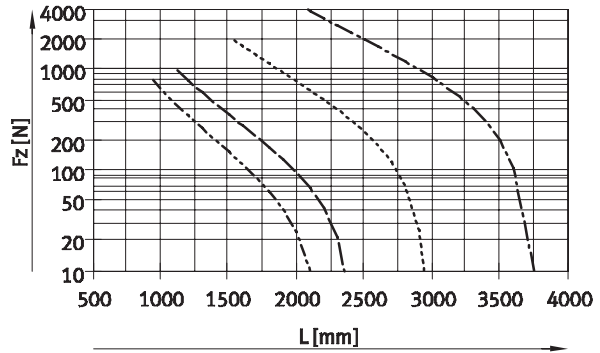
The following graphs serve to determine the maximum permissible support span l as a function of force F acting on the axis. The deflection is $f = 0.5$ mm.



Force F_y



Force F_z



- EGC-70
- EGC-80
- EGC-120
- EGC-185

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.

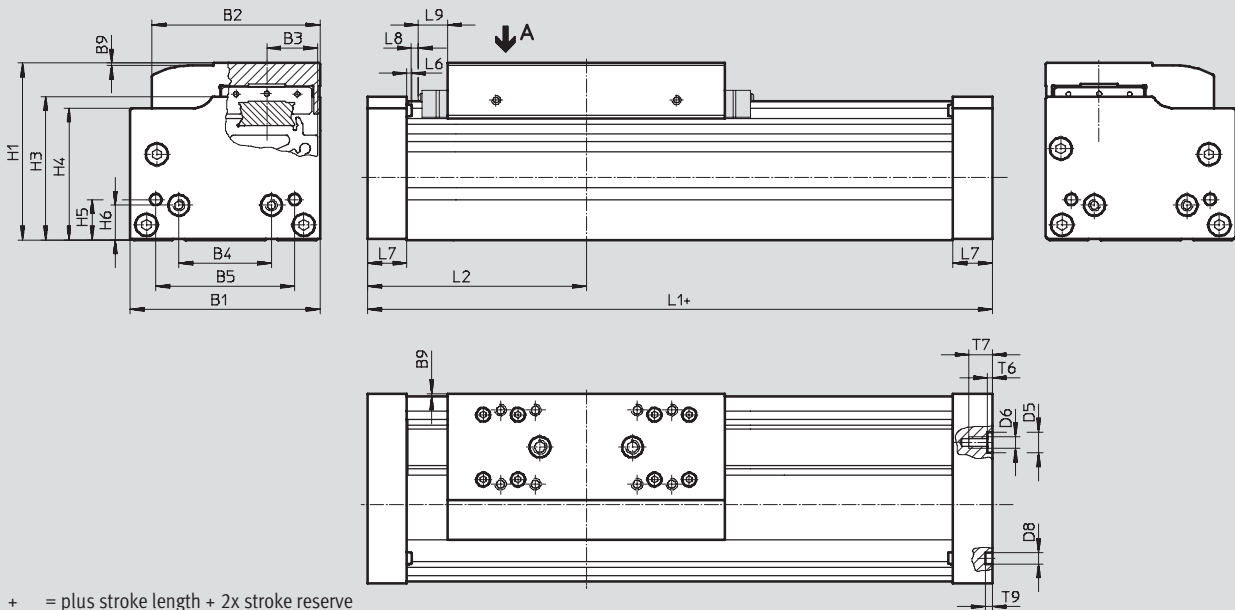
Size	Dyn. deflection (load moving)	Stat. deflection (stationary load)
70 ... 185	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length

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Technical data

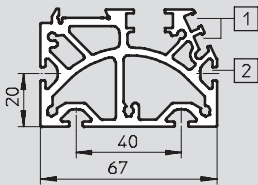
Dimensions

Download CAD data → www.festo.com

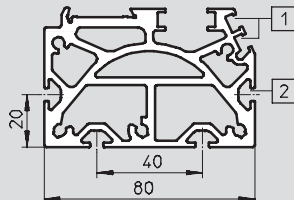


Profile

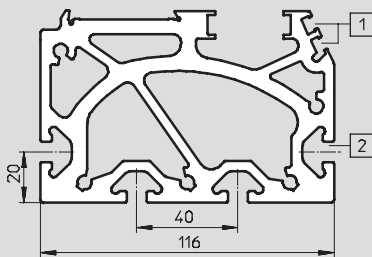
Size 70



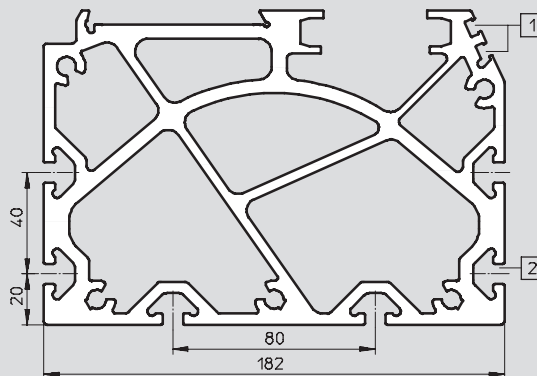
Size 80




Size 120



Size 185



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

 Note

To avoid distortion in the slide, the bearing surfaces of the attachments must maintain a minimum flatness of 0.01 mm.

Passive guide axes EGC-FA, without drive

Technical data

Size	B1	B2	B3	B4	B5	B9	D5 ∅ H7
70	69	58.6	16.5	30	45	1	–
80	82	72.6	22	40	60	1	9
120	120	107	33	80	40	1	–
185	186	169	53	120	80	1	–

Size	D6	D8 ∅ H7	H1	H3	H4	H5	H6	L1
								GK
70	M5	5	64	50.5	47	13	13	163
80	M5	5	76.5	62	57	17.5	15	190
120	M8	9	111.5	89	82	22	22	306
185	M10	9	172.5	141	131.5	25	25	406

Size	L2	L6	L7	L8	L9	T6	T7	T9
	GK							
70	81.5	1.8	16	3	10.5	–	10	3.1
80	95	2	17	3	13	2.1	10	3.1
120	153	2	30	3	18	–	16	2.1
185	203	2	37	3	21	–	20	2.1

Passive guide axes EGC-FA, without drive

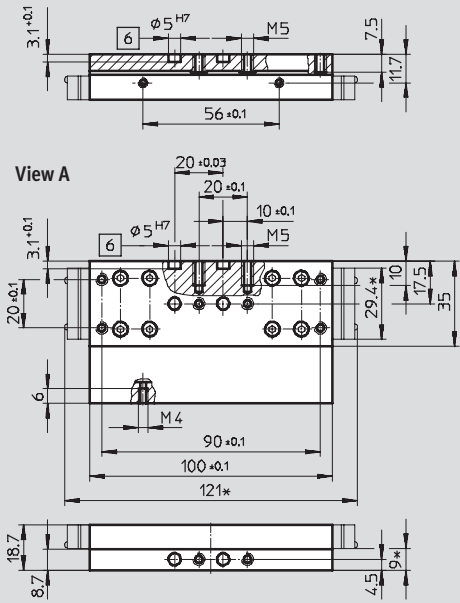
Technical data

Dimensions

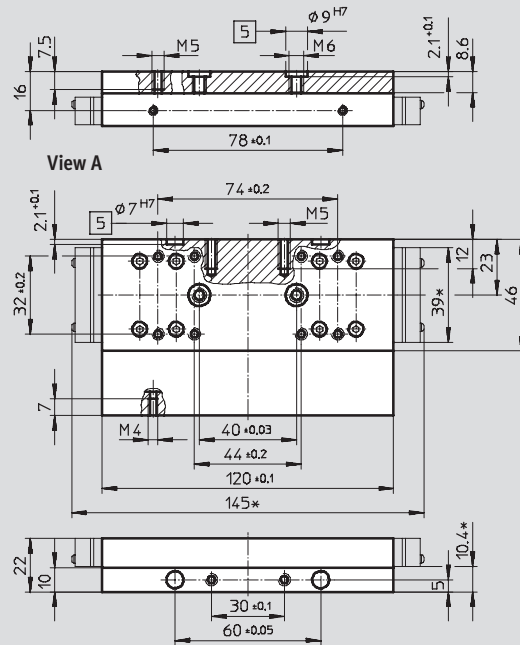
Download CAD data → www.festo.com

GK – standard slide/GP – standard slide, protected

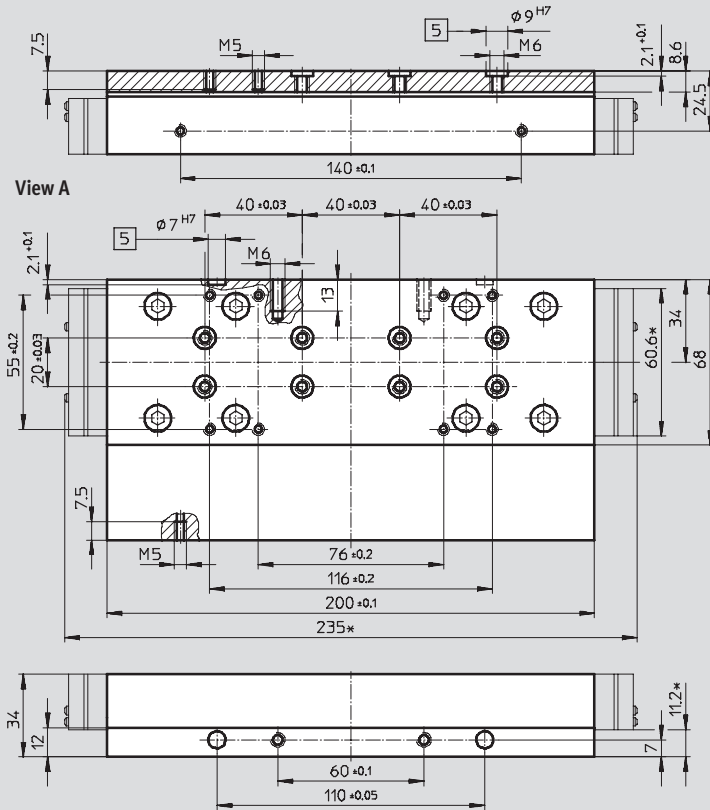
Size 70



Size 80



Size 120



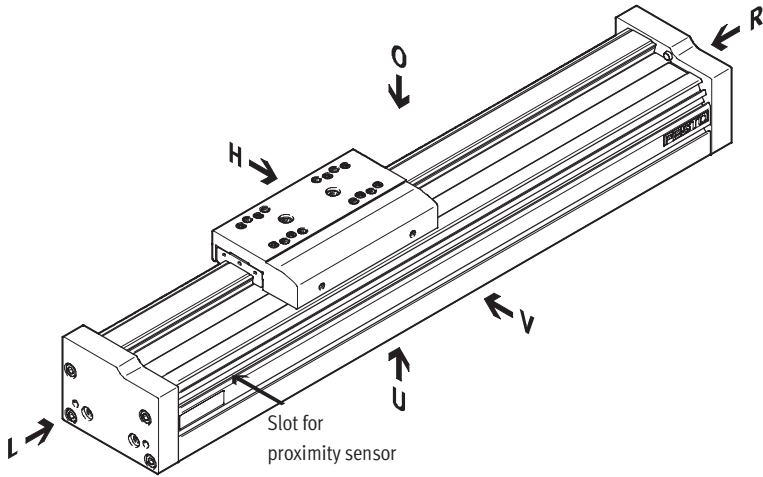
- 5 Hole for centring sleeve
- 6 Hole for centring pin
- * Protected version

Passive guide axes EGC-FA, without drive

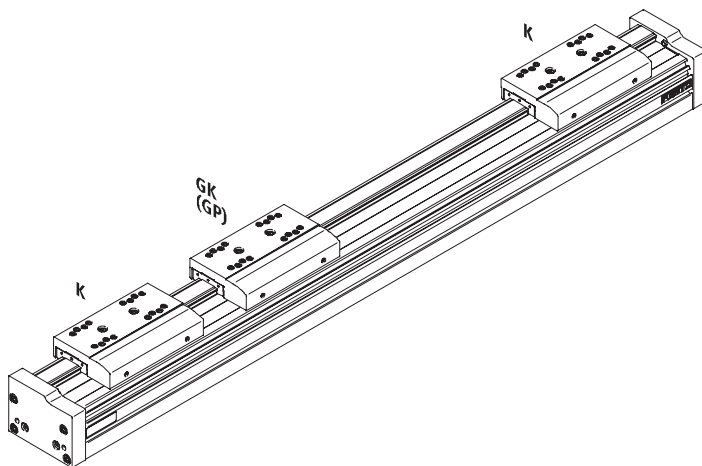
Ordering data – Modular products

Order code

Mandatory data



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

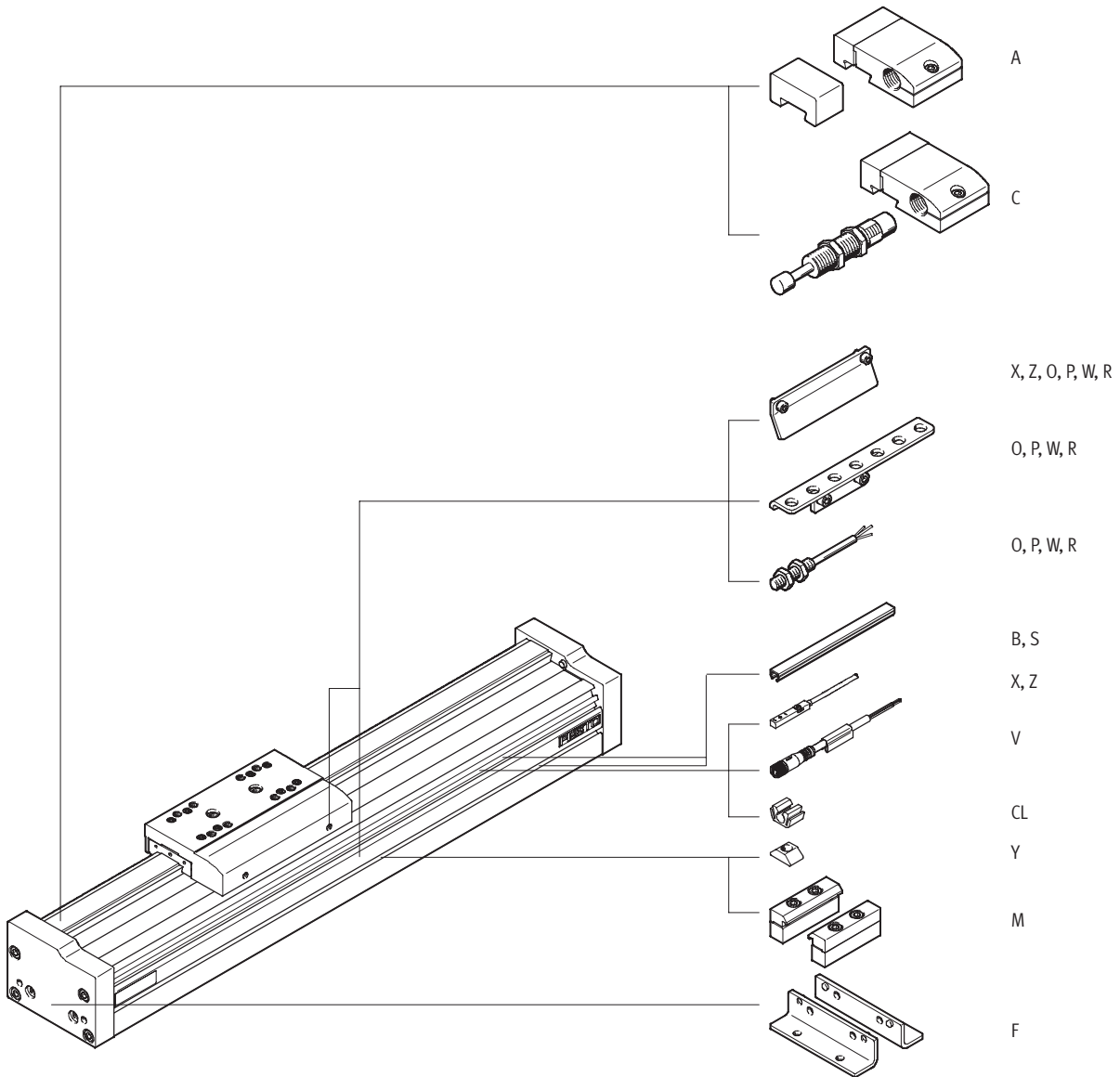


Passive guide axes EGC-FA, without drive

Ordering data – Modular products

Order code

Accessories



Passive guide axes EGC-FA, without drive

Ordering data – Modular products

Ordering table							
Size	70	80	120	185	Condi- tions	Code	Enter code
M Module No.	558 864	558 865	558 866	558 868			
Design	Passive guide axis					EGC	EGC
Size	70	80	120	185		-...	-...
Stroke [mm]	50 ... 5,000	50 ... 8,500	50 ... 8,500	50 ... 8,500	¹	-...	-...
Guide	Passive guide axis					-FA	-FA
Stroke reserve [mm]	0 ... 999 (0 = no stroke reserve)				¹	-...H	
Slide	Standard slide					-GK	
	Standard slide, protected				-	-GP	
O Additional slide	1 ... 2				²	-...K	

- ¹ -... The sum of the stroke length and 2x stroke reserve must not exceed the maximum stroke length
² ... **K** If the protected slide variant (GP) is selected, then the additional slide is also protected
 No additional slides (K) can be ordered for long strokes → product configurator. If required, please contact your local Festo office

Order code

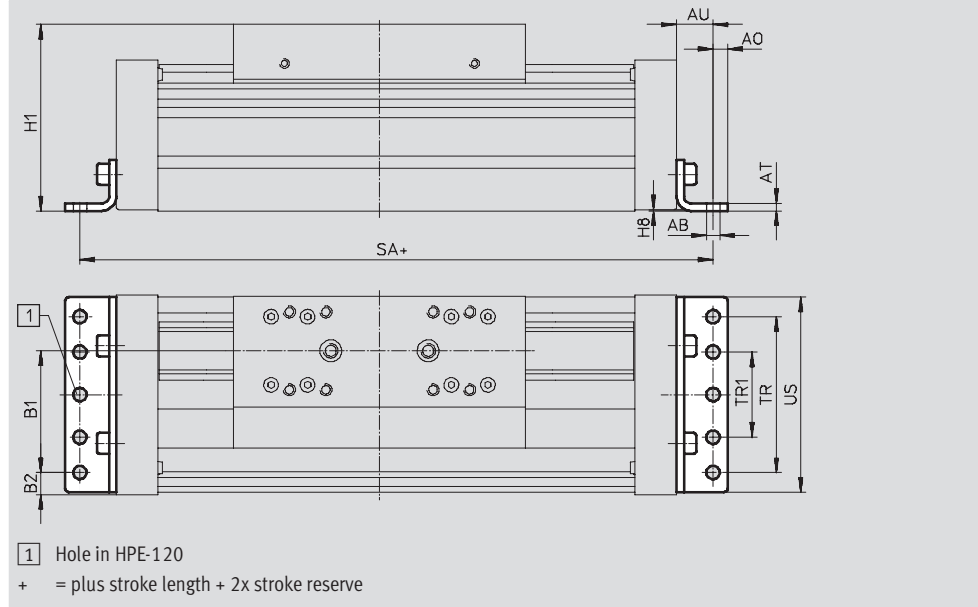
EGC - - - **FA** - - - -

Passive guide axes EGC-FA, without drive

Accessories

Foot mounting HPE
(order code F)

Material:
Galvanised steel
RoHS-compliant



Dimensions and ordering data								
For size	AB ∅	A0	AT	AU	B1	B2	H1	H8
70	5.5	6	3	13	37	14.5	64	0.5
80	5.5	6	3	15	38	21	76.5	0.5
120	9	8	6	22	65	20	111.5	0.6
185	9	12	8	25	118	13	172.5	0.5

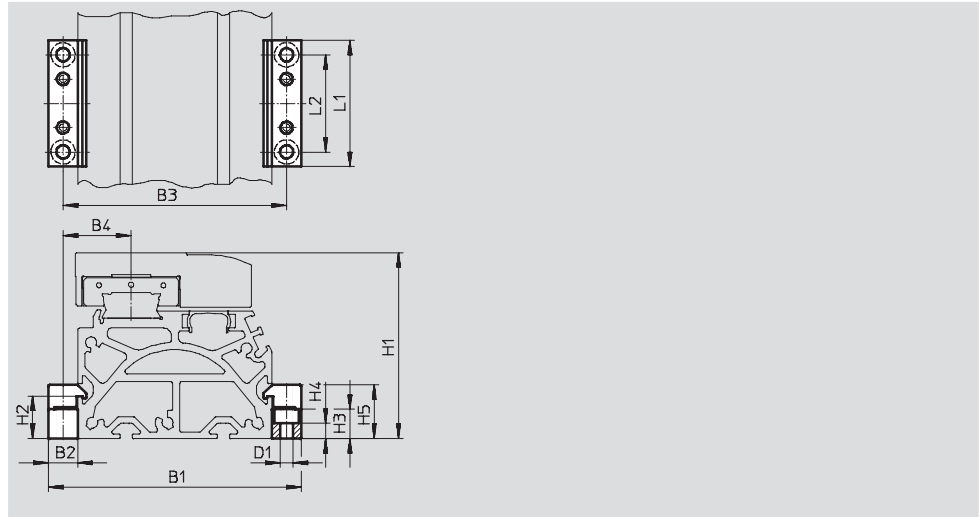
For size	SA	TR	TR1	US	Weight [g]	Part No.	Type
	GK						
70	189	40	-	67	115	558 321	HPE-70
80	220	40	-	80	150	558 322	HPE-80
120	350	80	-	116	578	558 323	HPE-120
185	456	160	80	182	1,438	558 325	HPE-185

Passive guide axes EGC-FA, without drive

Accessories

Profile mounting MUE
(order code M)

Material:
Anodised aluminium
RoHS-compliant



Dimensions and ordering data								
For size	B1	B2	B3	B4	D1 ∅	H1	H2	H3
70	91	12	79	22.5	5.5	64	17.5	12
80	104	12	92	28	5.5	76.5	17.5	12
120	154	19	135	42.5	9	111.5	16	14
185	220	19	201	62.5	9	172.5	16	14

For size	H4	H5	L1	L2	Weight [g]	Part No.	Type
70	6.2	22	52	40	80	558 043	MUE-70/80
80	6.2	22	52	40	80	558 043	MUE-70/80
120	5.5	29.5	90	40	290	558 044	MUE-120/185
185	5.5	29.5	90	40	290	558 044	MUE-120/185

Passive guide axes EGC-FA, without drive

Accessories

Shock absorber retainer KYE

Emergency buffer NPE → 24

Shock absorber YSRW → 24

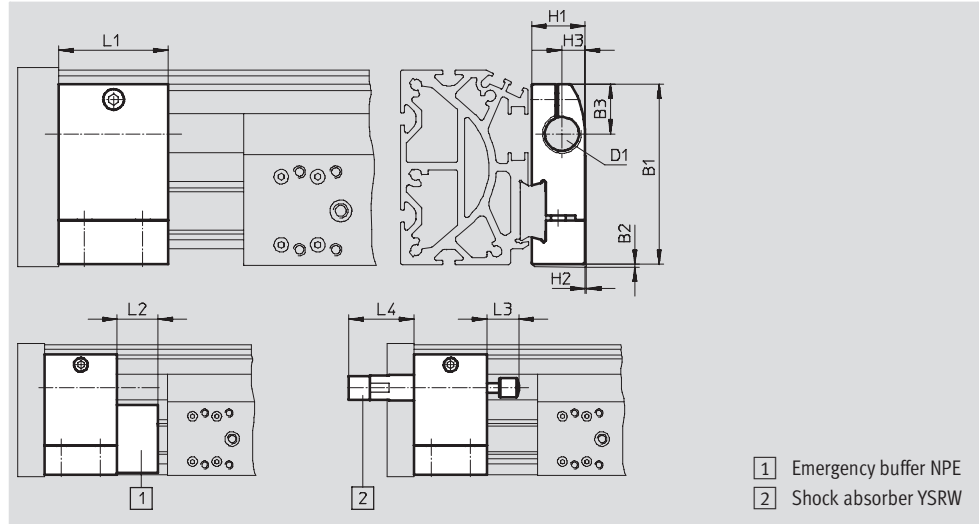
(order code A or C)

Material:

Anodised aluminium

RoHS-compliant

Cannot be used in combination with the variant GP.



- 1 Emergency buffer NPE
- 2 Shock absorber YSRW

Dimensions and ordering data														
For size	B1	B2	B3	D1	H1	H2	H3	L1	L2	L3	L4	Weight [g]	Part No.	Type
70	57.5	1	16.5	M12X1	18.2	0.5	7.5	30	15	14	32	75	557 584	KYE-70
80	74.2	1	20.5	M16X1	22	0.5	9.5	45	25	20	41	170	557 585	KYE-80
120	108.5	1	26	M22X1.5	31	1	14	60	40	26	48.5	680	557 586	KYE-120
185	168	1	37	M26X1.5	42	4	18	75	60	34	58.5	1,075	557 587	KYE-185

Switch lug SF-EGC-1

for sensing using proximity sensor

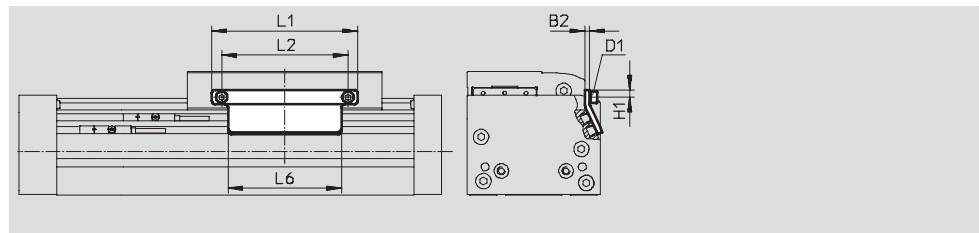
SIES-8M

(order code X or Z)

Material:

Galvanised steel

RoHS-compliant



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	558 047	SF-EGC-1-70
80	3	M4	4.65	90	78	70	60	558 048	SF-EGC-1-80
120	3	M5	8	170	140	170	150	558 049	SF-EGC-1-120
185	3	M5	10	230	200	230	245	558 051	SF-EGC-1-185

Passive guide axes EGC-FA, without drive

Accessories

Switch lug SF-EGC-2

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

Material:

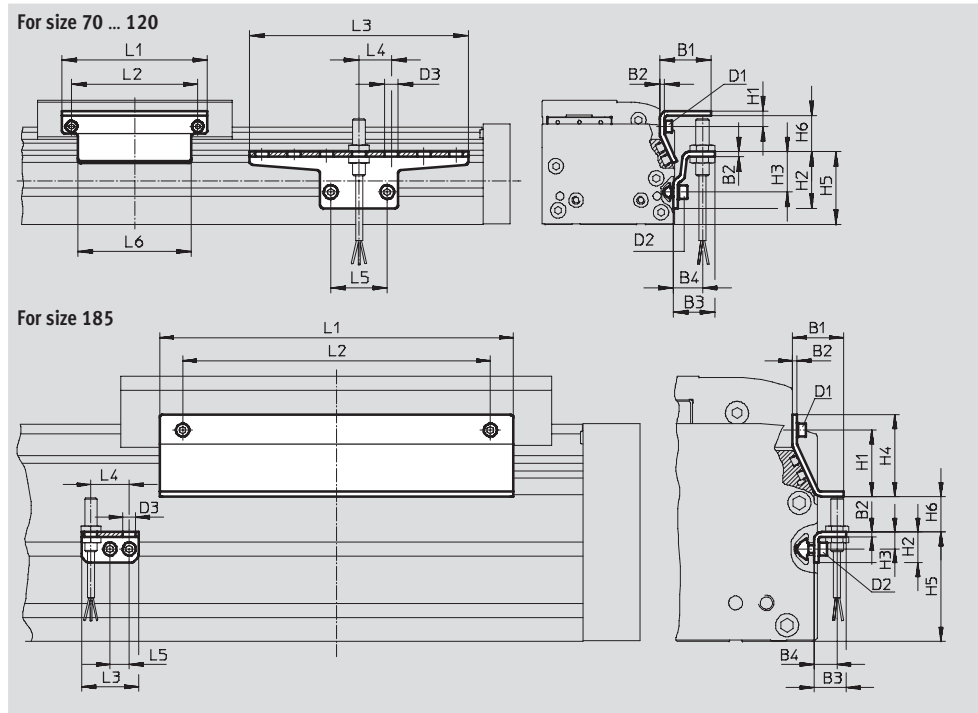
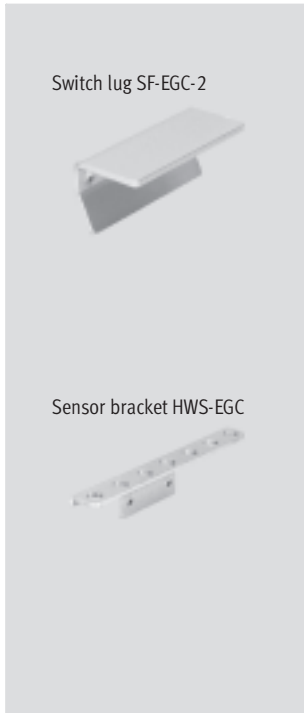
Galvanised steel
RoHS-compliant

Sensor bracket HWS-EGC

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

Material:

Galvanised steel
RoHS-compliant



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
185	33	3	25.5	15	M5	M5	8.4	43	20

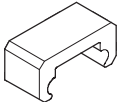
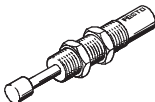


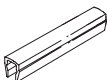
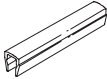

For size	H3	H4	H5	H6 max.	L1	L2	L3	L4	L5	L6
70	25	-	45	13.5	70	56	135	20	35	50
80	25	-	45	23.5	90	78	135	20	35	70
120	55	-	75	24	170	140	215	20	35	170
185	11	53	71	25.5	230	200	37	25	12.5	230

For size	Weight [g]	Part No.	Type
Switch lug			
70	100	558 052	SF-EGC-2-70
80	130	558 053	SF-EGC-2-80
120	280	558 054	SF-EGC-2-120
185	390	558 056	SF-EGC-2-185

For size	Weight [g]	Part No.	Type
Sensor bracket			
70	110	558 057	HWS-EGC-M5
80	110	558 057	HWS-EGC-M5
120	200	558 058	HWS-EGC-M8
185	60	560 517	HWS-EGC-M8:KURZ

Passive guide axes EGC-FA, without drive

Accessories

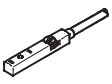
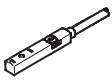
Ordering data						
	For size	Remarks	Order code	Part No.	Type	PU ¹⁾
Emergency buffer NPE						
	70	For use in combination with shock absorber retainer KYE	A	562 581	NPE-70	1
	80			562 582	NPE-80	
	120			562 583	NPE-120	
	185			562 584	NPE-185	
Shock absorber YSRW Technical data → Internet: ysrw						
	70	For use in combination with shock absorber retainer KYE	C	191 194	YSRW-8-14	1
	80			191 196	YSRW-12-20	
	120			191 197	YSRW-16-26	
	185			191 198	YSRW-20-34	
Slot nut NST						
	70, 80	For mounting slot	Y	150 914	NST-5-M5	1
	120, 185			150 915	NST-8-M6	1
Centring pin/sleeve ZBS/ZBH²⁾						
	70	For slide	-	150 928	ZBS-5	10
	80, 120, 185			150 927	ZBH-9	10
Slot cover ABP						
	70, 80	For mounting slot every 0.5 m	B	151 681	ABP-5	2
	120, 185			151 682	ABP-8	
Slot cover ABP-S						
	70 ... 185	For sensor slot every 0.5 m	S	563 360	ABP-5-S1	2
Clip SMBK						
	70 ... 185	For sensor slot, for securing the proximity sensor cable	CL	534 254	SMBK-8	1



1) Packaging unit quantity



2) 6 centring pins/sleeves included in the scope of delivery of the axis

Passive guide axes EGC-FA, without drive

Accessories

Ordering data – Proximity sensors for T-slot, inductive						Technical data → Internet: sies	
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type	
N/O contact							
	Insertable in the slot lengthwise, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	551 386	SIES-8M-PS-24V-K-7,5-OE	
			Plug M8x1, 3-pin	0.3	551 387	SIES-8M-PS-24V-K-0,3-M8D	
		NPN	Cable, 3-wire	7.5	551 396	SIES-8M-NS-24V-K-7,5-OE	
			Plug M8x1, 3-pin	0.3	551 397	SIES-8M-NS-24V-K-0,3-M8D	
N/C contact							
	Insertable in the slot lengthwise, flush with the cylinder profile	PNP	Cable, 3-wire	7.5	551 391	SIES-8M-PO-24V-K-7,5-OE	
			Plug M8x1, 3-pin	0.3	551 392	SIES-8M-PO-24V-K-0,3-M8D	
		NPN	Cable, 3-wire	7.5	551 401	SIES-8M-NO-24V-K-7,5-OE	
			Plug M8x1, 3-pin	0.3	551 402	SIES-8M-NO-24V-K-0,3-M8D	

Ordering data – Inductive proximity sensors M8						Technical data → Internet: sien	
	Electrical connection		Switching output	LED	Cable length [m]	Part No.	Type
	Cable	Plug M8					
N/O contact							
	3-wire	–	PNP	■	2.5	150 386	SIEN-M8B-PS-K-L
	–	3-pin	PNP	■		150 387	SIEN-M8B-PS-S-L
N/C contact							
	3-wire	–	PNP	■	2.5	150 390	SIEN-M8B-PO-K-L
	–	3-pin	PNP	■		150 391	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	159 420	SIM-M8-3GD-2,5-PU	
			2.5	541 333	NEBU-M8G3-K-2.5-LE3	
			5	541 334	NEBU-M8G3-K-5-LE3	
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	2.5	541 338	NEBU-M8W3-K-2.5-LE3	
			5	541 341	NEBU-M8W3-K-5-LE3	