## **FESTO**



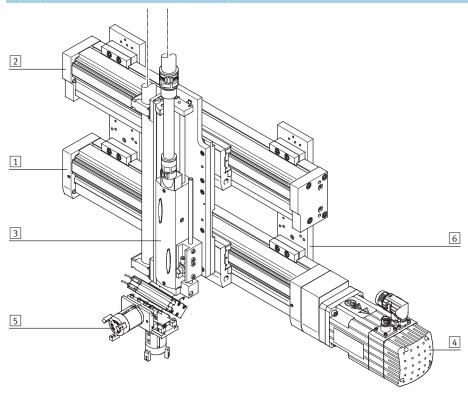
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Key features

### At a glance

- Driveless linear guide unit with guide and freely movable slide
- Passive guide axes are designed to increase force and torque in multi-axis applications
- Higher torsional resistance
- Reduced vibrations with dynamic loads
- Drive axes and passive guide axes 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	Guide axes	For increasing force and torque in multi-axis applications	guide axis		
3	Drives	Wide range of combinations possible within handling and assembly technology	drive		
4	Motors	Servo and stepper motors, with or without gearing	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		

Key features

### **FESTO**

### Slide variants

Standard slide

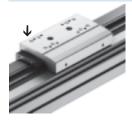






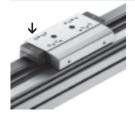
### **Guide options**

Protected version



 The protected guide cleans the guide rail and protects the recirculating ball bearing guide with the aid of an additional wiper

### With central lubrication



- The lubrication adapter enables the guide to be permanently lubricated using semi or fully automatic relubrication devices
- The adapters are suitable for oils and greases
- Both lubrication adapters must be connected

### 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

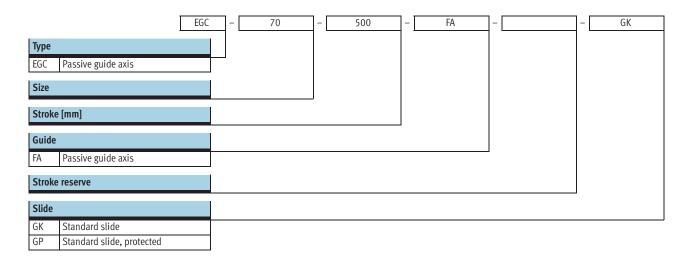
### Passive guide axis FDG-P/-ZR/-SP



- 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

# Passive guide axes EGC-FA, without drive Type codes

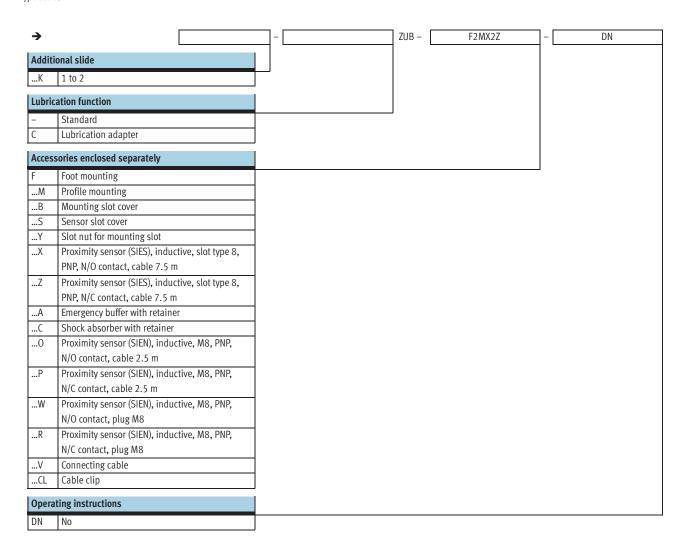
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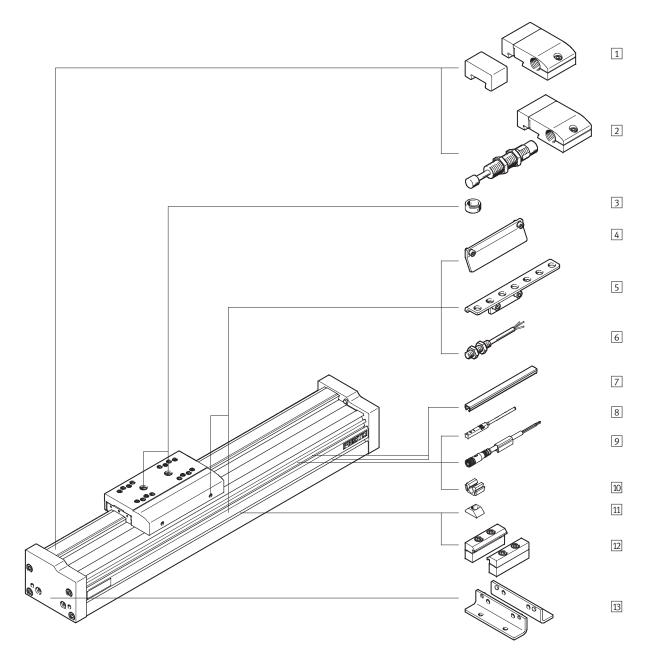
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Type codes



## Passive guide axes EGC-FA, without drive Peripherals overview

**FESTO** 



## Passive guide axes EGC-FA, without drive Peripherals overview



alla	nts and accessories		1 -
	Туре	Brief description	→ Page/Internet
1	Emergency buffer with retainer	For avoiding damage at the end stop in the event of malfunction	24
	A		
2	Shock absorber with retainer	For avoiding damage at the end stop in the event of malfunction	24
	C		
3	Centring pin/sleeve	For centring loads and attachments on the slide	26
	ZBS, ZBH	• 2 centring pins/sleeves included in the scope of delivery of the axis	
4	Switching lug	For sensing the slide position	24
	X, Z, O, P, W, R		
5	Sensor bracket	Adapter for mounting the inductive proximity sensors (round design) on the axis	25
	O, P, W, R		
6	Proximity sensor, M8	Inductive proximity sensor, round design	27
	O, P, W, R	• The order code O, P, W, R includes 1 switching lug and max. 2 sensor brackets in the scope	
		of delivery	
7	Slot cover	For protecting against ingress of dirt	26
	B, S		
8	Proximity sensor, slot type 8	Inductive proximity sensor, for slot type 8	27
	X <b>,</b> Z	• The order code X, Z includes 1 switching lug in the scope of delivery	
9	Plug socket with cable	For proximity sensor (order code W and R)	27
	V		
lO	Clip	For mounting the proximity sensor cable in the slot	26
	CL		
1	Slot nut	For mounting attachments	26
	Υ		
2	Profile mounting	For mounting the axis on the profile	23
	M		
3	Foot mounting	For mounting the axis on the end cap	22
	F		

## Passive guide axes EGC-FA, without drive Technical data

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Function



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



General technical data							
Size			70	70 80 120 185			
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 <b>,</b> 500	
Max. speed		[m/s]	5				
Max. acceleration		[m/s <sup>2</sup> ]	50				

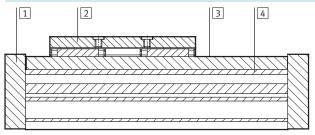
Operating and environmental conditions					
Ambient temperature	[°C]	-10 +60			
Protection class		IP40			

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

1) Incl. slide

### Materials





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

Technical data

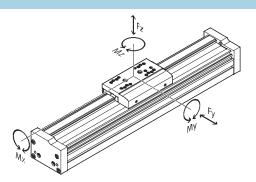
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### Characteristic load values

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

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

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



Calculating the load comparison factor:

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

Permissible forces and torques							
Size			70	80	120	185	
Fy <sub>max</sub> .		[N]	1,850	3,050	6,890	15,200	
Fz <sub>max</sub>		[N]	1,850	3,050	6,890	15,200	
Mx <sub>max</sub> .		[Nm]	16	36	144	529	
My <sub>max</sub> .	GK/GP	[Nm]	51	97	380	1,157	
Mz <sub>max</sub> .	GK/GP	[Nm]	51	97	380	1,157	

### Service life

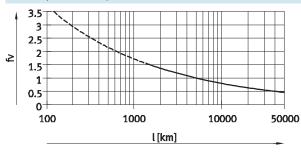
The service life of the guide depends on the load. To provide a rough indication of the service life of the guide, the graph below plots the load comparison factor  $f_{\text{V}}$  against the service life.

These values are only theoretical.

Consultation with your local contact person at Festo is mandatory for load

comparison factors  $f_{\nu}$  greater than 1.5.

### Load comparison factor f<sub>V</sub> as a function of service life



### Example:

A user wants to move an X kg load. Using the above formula gives a value of 1.5 for the load comparison factor. 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 load comparison factor of 1 now gives a service life of 5,000 km.

### Note

PositioningDrives sizing software www.festo.com The workload for a service life of 5,000 km can be calculated with the help of the sizing software.

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



Technical data

Stroke reserve						
Stroke length	Stroke reserve					
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.	A safety distance (similar to GK) between the drive cap and slide be defined for the variants GP a GK-C using the modular produc system via the "stroke reserve" feature. With the variant GK, the stroke reserve and safety distanadded for each end position.	e can freely selected  The sum of the s 2x stroke reserve the maximum wee	<ul> <li>The stroke reserve length can be freely selected</li> <li>The sum of the stroke length and 2x stroke reserve must not exceed the maximum working stroke</li> </ul>		Example: EGC-70-500-FA-20H Working stroke 2x stroke reserve  Total length (540 mm = 500 mm + 2x 20	
Size	70	80	120		185	
L9 = 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

- With a guide axis with additional slide, the working stroke is reduced by the length of the additional slide and the distance between both slides
- With the variant GP, the additional slide is also protected
- If the variant GK-C is ordered, the additional slide is also supplied with lubrication adapters

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

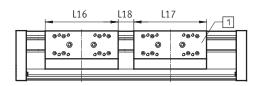
1 Additional slide

Type EGC-70-500-FA-...-GK-1K
Working stroke without
additional slide = 500 mm

L18 = 20 mm L16, L17 = 100 mm

Example:
Type EGC-70-500-FA-...-GK-1K Working stroke with

additional slide = 380 mm (500 mm - 20 mm - 100 mm)



Dimensions – Additional slide									
Size		70 8		80		120		185	
Variant		GK	GP	GK	GP or GK-C	GK	GP or GK-C	GK	GK-C
Length L17	[mm]	100	121	120	146	200	236	280	322
Min. distance between	[mm]	-	21	-	26	-	36	-	42
the slides L18									

### Working stroke reduction per side

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

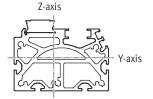
- With a guide axis with emergency buffer, the working stroke is reduced by the total dimension of the emergency buffer/shock absorber and shock absorber retainer
- The rubber buffer in the cap must be removed
- Shock absorbers must not be used in combination with GK-C

Size	70	80	120	185
With emergency buffer [mm]	43	68	98	133
With shock absorber [mm]	42	63	84	107



Technical data

### 2nd moment of area

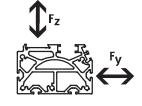


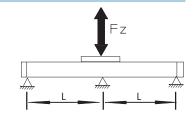
Size	70	80	120	185
ly [mr	n <sup>4</sup> ] 3.95x10 <sup>5</sup>	8.44x10 <sup>5</sup>	4.62x10 <sup>6</sup>	2.34x10 <sup>7</sup>
Iz [mr	n <sup>4</sup> ] 5.77x10 <sup>5</sup>	1.16x10 <sup>6</sup>	5.65x10 <sup>6</sup>	2.74x10 <sup>7</sup>

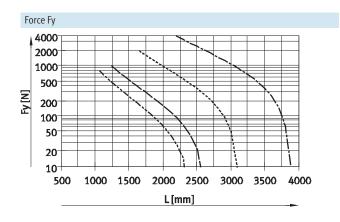
### Maximum permissible support span L (without profile mounting) as a function of force F

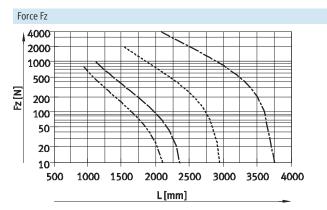
In order to limit deflection in the case of large strokes, the axis may need to be supported.

The following graphs can be used 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.









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

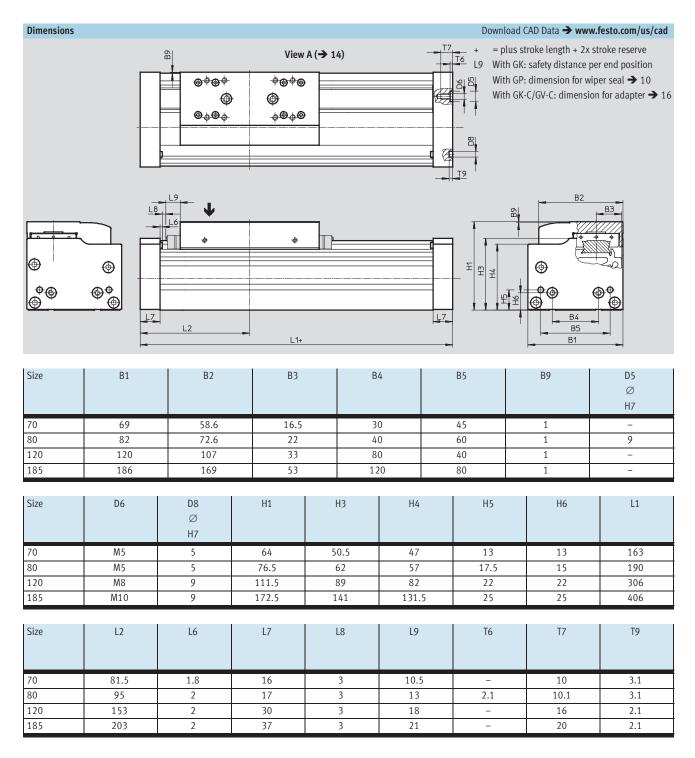
### Recommended deflection limits

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.

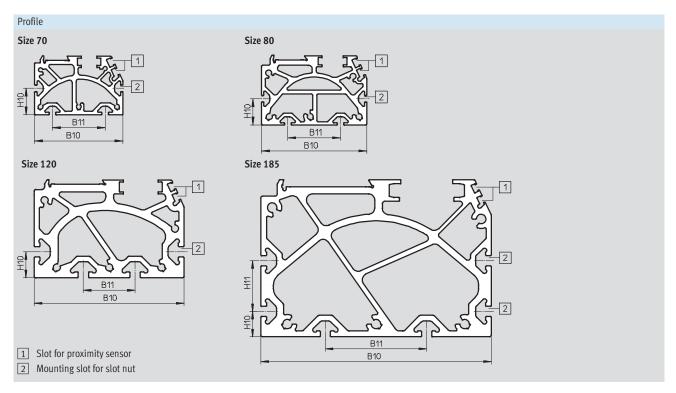
Size	/	Stat. deflection (stationary load)
70 185	0.05% of the axis length, max. 0.5 mm	0.1% of the axis length





# Passive guide axes EGC-FA, without drive Technical data



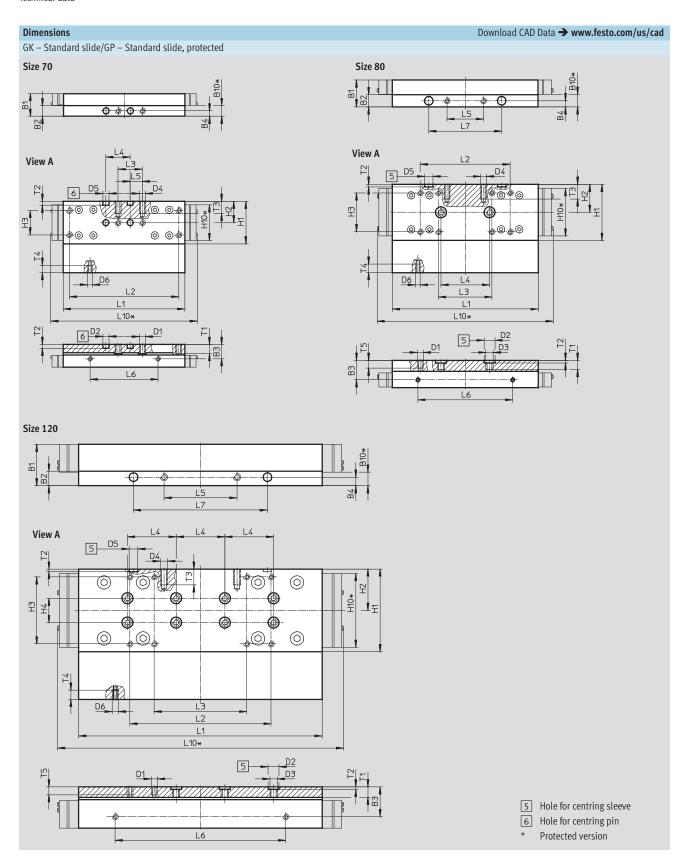


Size	B10	B11	H10	H11
70	67	40	20	-
80	80	40	20	-
120	116	40	20	-
185	182	80	20	40

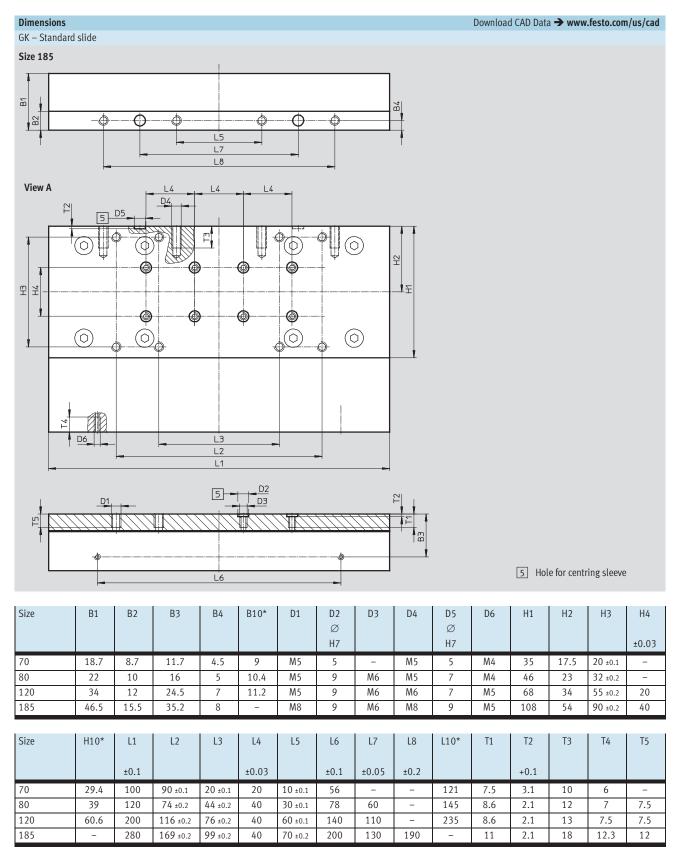
### Note

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







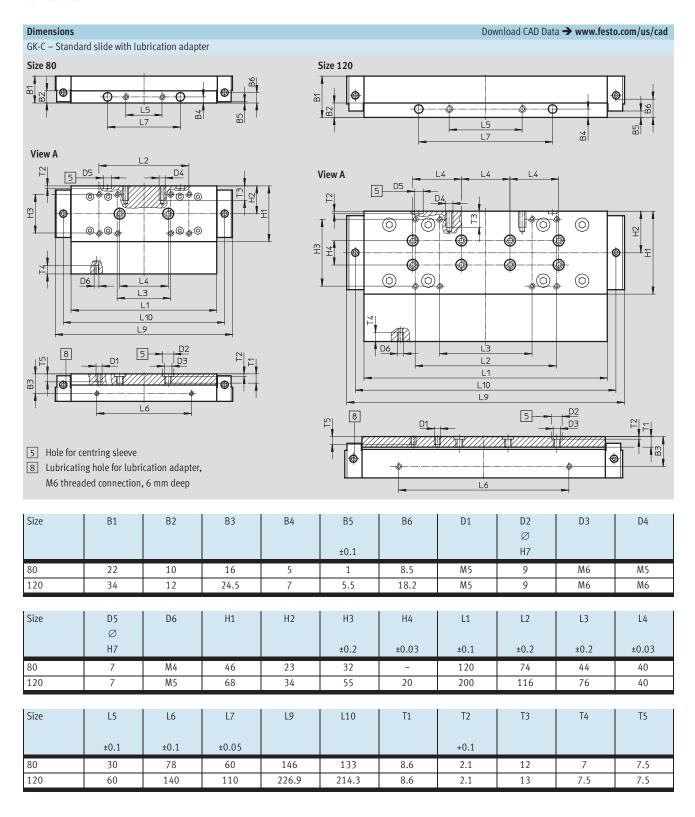


<sup>\*</sup> Protected version

# -O- New Lubrication adapter

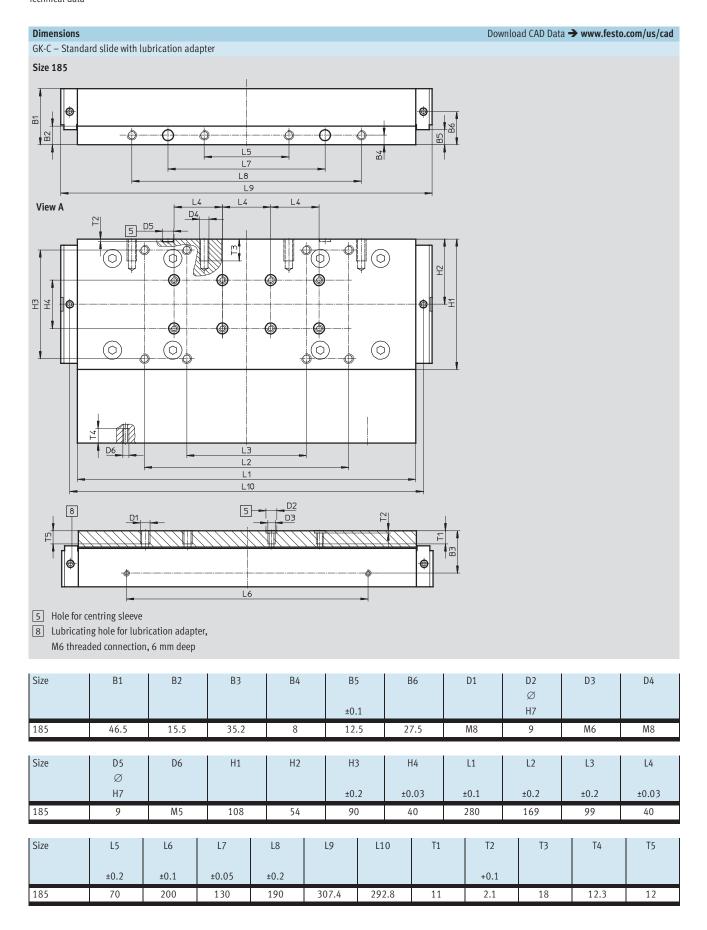
## Passive guide axes EGC-FA, without drive

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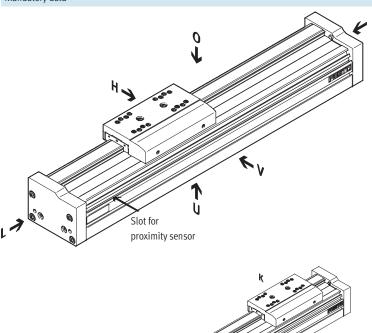
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**FESTO** 



Mandatory data



- 0 top
- underneath
- right
- left
- front
- rear

18



# Order code Accessories X, Z, O, P, W, R O, P, W, R O, P, W, R B, S X, Z ٧ $\mathsf{CL}$ Μ F



**FESTO** 

01	dering table							
Si	ze e	70	80	120	185	Condition	Code	Enter
						S		code
M	Module No.	558 864	558 865	558 866	558 868			
	Design	Passive guide ax	(is				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 ax	kis				-FA	-FA
	Stroke reserve [mm]	0 999 (0 = no	stroke reserve)			1	H	
	Slide	Standard slide					-GK	
		Standard slide,	protected		-		-GP	
0	Additional slide	1 2				2	K	
	Lubrication function	Standard						
		_	Lubrication ada	pter			-C	

The sum of the stroke length and 2x stroke reserve must not exceed the maximum stroke length.

Order code											
	EGC	-	-	-	FA	] –	-	-	-	-	

<sup>1 -...</sup> 2 ... **K** If the protected slide variant (GP) is selected, then the additional slide is also protected.  $If the slide with lubrication \ adapter (GK-C) is selected, then the \ additional \ slide (KL, KR) is \ also \ supplied \ with \ lubrication \ adapter.$ Additional slides (K) cannot be ordered for long strokes  $\Rightarrow$  product configurator. Please contact your local contact person at Festo if necessary.



	dering table		1 = -	l	1	1	l		1-	
iz	e		70	80	120	185	Condition	Code	Enter	
							S		code	ì
	Accessories		Accessories encl	losed separately				ZUB-	ZUB-	
)	Foot mounting		1					F		
	Profile mounting		1 50					M		
	Cover	Mounting slot	1 50 (1 = 2 ur	nits, 500 mm)				В		
		Sensor slot	1 50 (1 = 2 ur	nits, 500 mm)				S		
	Slot nut for mounting slot		1 99					Ү		
	Proximity sensor (SIES),	N/O contact, cable 7.5 m	1 6			X				
	inductive, slot type 8, PNP,	N/C contact cable / 5 m				Z	-	_		
	cl. switch lug		1 0			2				
	Emergency buffer with retain	ner	1 2				3	A		
	Shock absorber with retained	er	1 2				4	C		
	Proximity sensor (SIEN),	N/O contact, cable 2.5 m	1 99					0		
	inductive, M8, PNP, incl.	N/C contact, cable 2.5 m	1 99					Р		
	switch lug with sensor	N/O contact, plug M8	1 99					W		_
	bracket	N/C contact, plug M8	1 99					R		_
	Plug socket with cable 2.5 n	n, M8, 3-wire	1 99					V		_
	Cable clip		10, 20, 30, 40,	50, 60, 70, 80, 9	90			CL		_
	Operating instructions		Express waiver -	no operating ins	tructions to be	included (already		-DN		_
			available) (opera	ating instructions	in PDF format	are available free o	f			
			charge on the In	ternet at www.fes	sto.com)					

[5] A EIHEIGENCY DUNEI WITH LEIGHNEL A COMMUNICA WITH STIAC OF, ON-C AND SHOCK ADSOLDER WITH LEIGHNE	3	A	mergency buffer with retainer A cannot be combined with slide GP, GK-C and shock absorber with retainer
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### Note

The code X, Z includes a switch lug in the scope of delivery. The code O, P, W, R includes one switch lug and max. two sensor brackets in the scope of delivery.

Transfer order code				
ZUB –				-

<sup>4 ...</sup> **C** Shock absorber with retainer C cannot be combined with slide GP, GK-C and emergency buffer with retainer A.

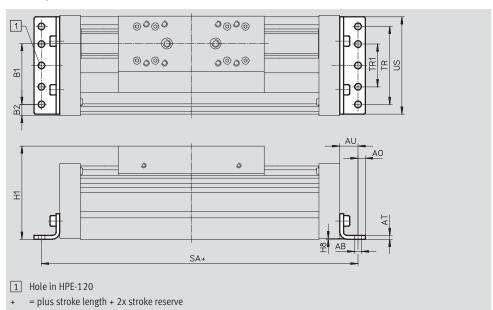
# Passive guide axes EGC-FA, without drive Accessories

**FESTO** 

Foot mounting HPE (order code F)

Material: Galvanised steel RoHS-compliant





Dimensions and o	Dimensions and ordering data													
For size	AB ∅	A0	AT	AU	B1	B2	H1	Н8						
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 GK	TR	TR1	US	Weight [g]	Part No. Type
70	189	40	-	67	115	558321 HPE-70
80	220	40	-	80	150	558322 HPE-80
120	350	80	-	116	578	558323 HPE-120
185	456	160	80	182	1,438	558325 HPE-185

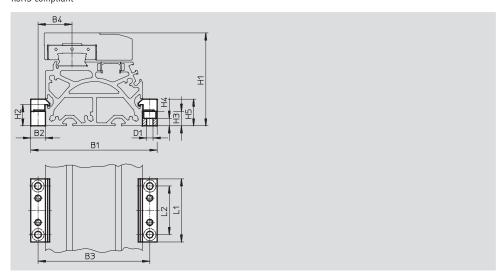
# Passive guide axes EGC-FA, without drive Accessories



Profile mounting MUE

Material: (order code M) Anodised aluminium RoHS-compliant





Dimensions and o	Dimensions and ordering data													
For size	B1	B2	В3	B4	D1 ∅	H1	H2	Н3						
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		Weight [g]	Part No. Type
70	6.2	22	52	40	80	558043 MUE-70/80
80	6.2	22	52	40	80	558043 MUE-70/80
120	5.5	29.5	90	40	290	558044 MUE-120/185
185	5.5	29.5	90	40	290	558044 MUE-120/185

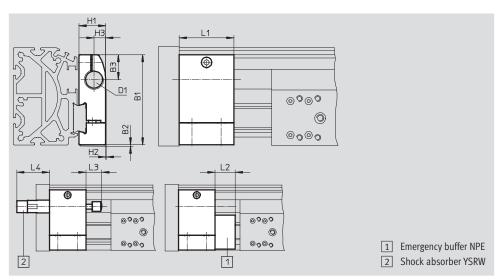
**FESTO** 

Accessories

Shock absorber retainer KYE

Emergency buffer NPE → 26 Shock absorber YSRW → 26 Material: Anodised aluminium RoHS-compliant Cannot be used in combination with the variant GP or GK-C.





Dimensions and o	Dimensions and ordering data													
For size	B1	B2	В3	D1	H1	H2	Н3	L1	L2	L3	L4	Weight	Part No.	Туре
												[g]		
70	57.5	1	16.5	M12X1	18.2	0.5	7.5	30	15	14	32	75	557584	KYE-70
80	74.2	1	20.5	M16X1	22	0.5	9.5	45	25	20	41	170	557585	KYE-80
120	108.5	1	26	M22X1.5	31	1	14	60	40	26	48.5	680	557586	KYE-120
185	168	1	37	M26X1.5	42	4	18	75	60	34	58.5	1,075	557587	KYE-185

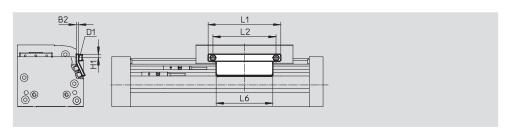
### Switch lug SF-EGC-1

for sensing using proximity sensor SIES-8M

(order code X or Z)

Material: Galvanised steel RoHS-compliant





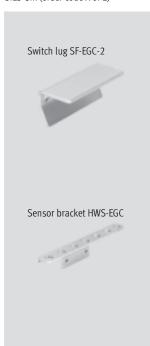
Dimensions and o	Dimensions and ordering data													
For size	B2	D1	H1	L1	L2	L6	Weight [g]	Part No.	Туре					
70	3	M4	4.65	70	56	50	50	558047	SF-EGC-1-70					
80	3	M4	4.65	90	78	70	60	558048	SF-EGC-1-80					
120	3	M5	8	170	140	170	150	558049	SF-EGC-1-120					
185	_	M5	10	230	200	230	245	558051	SF-EGC-1-185					

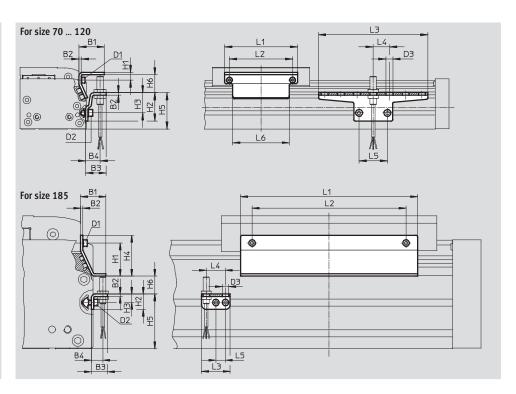
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Accessories

### 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	В3	B4	D1	D2	D3	H1	H2
							Ø		
70	31.5	3	25.5	18	M4	M5	8.4	9.5	35
80	31.5	3	25.5	18	M4	M5	8.4	9.5	35
120	32	3	25.5	18	M5	M5	8.4	13.2	65
185	33	3	25.5	15	M5	M5	8.4	43	20

For size	Н3	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.	Туре
	Switch lug		
70	100	558052	SF-EGC-2-70
80	130	558053	SF-EGC-2-80
120	280	558054	SF-EGC-2-120
185	390	558056	SF-EGC-2-185

	For size	Weight [g]	Part No.	Туре
1		Sensor bracket	:	
1	70	110	558057	HWS-EGC-M5
1	80	110	558057	HWS-EGC-M5
1	120	200	558058	HWS-EGC-M8
]	185	60	560517	HWS-EGC-M8:KURZ

# Passive guide axes EGC-FA, without drive Accessories

**FESTO** 

Туре	PU <sup>1</sup>
NPE-70	1
NPE-80	
NPE-120	
NPE-185	
Technical dat	ta → Internet: ysr
YSRW-8-14	1
YSRW-12-20	
YSRW-16-26	
YSRW-20-34	
,	
NST-5-M5	1
NST-8-M6	
ZBS-5	10
ZBH-9	
	•
ABP-5	2
ABP-8	
ABP-5-S1	2
	'
SMBK-8	10
SI	MBK-8

Packaging unit quantity
 2 centring pins/sleeves included in the scope of delivery of the axis

# Passive guide axes EGC-FA, without drive Accessories



Ordering data	a – Proximity sensors for T	-slot, inductive					Technical data → Internet: sies
	Type of mounting	Electrical connection	Switching	Cable length	Order code	Part No.	Туре
			output	[m]			
N/O contact							
	Insertable in the slot	Cable, 3-wire	PNP	7.5	Х	551386	SIES-8M-PS-24V-K-7,5-OE
SET WILL	from above, flush with	Plug M8x1, 3-pin		0.3	-	551387	SIES-8M-PS-24V-K-0,3-M8D
	the cylinder profile	Cable, 3-wire	NPN	7.5	-	551396	SIES-8M-NS-24V-K-7,5-OE
		Plug M8x1, 3-pin		0.3	-	551397	SIES-8M-NS-24V-K-0,3-M8D
		·	•		•		
N/C contact							
	Insertable in the slot	Cable, 3-wire	PNP	7.5	Z	551391	SIES-8M-PO-24V-K-7,5-0E
SET SET	from above, flush with	Plug M8x1, 3-pin		0.3	-	551392	SIES-8M-PO-24V-K-0,3-M8D
	the cylinder profile	Cable, 3-wire	NPN	7.5	-	551401	SIES-8M-NO-24V-K-7,5-OE
		Plug M8x1, 3-pin		0.3	-	551402	SIES-8M-NO-24V-K-0,3-M8D

Ordering data	- Inductive proximity sensors M8						Technical data → Internet: sien
	Electrical connection	LED	Switching	Cable length	Order code	Part No.	Туре
			output	[m]			
N/O contact							
	Cable, 3-wire	•	PNP	2.5	0	150386	SIEN-M8B-PS-K-L
	Plug M8x1, 3-pin	•	PNP	-	W	150387	SIEN-M8B-PS-S-L
N/C contact							
	Cable, 3-wire	•	PNP	2.5	Р	150390	SIEN-M8B-PO-K-L
	Plug 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	Part No.	Туре
			[m]		
	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

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