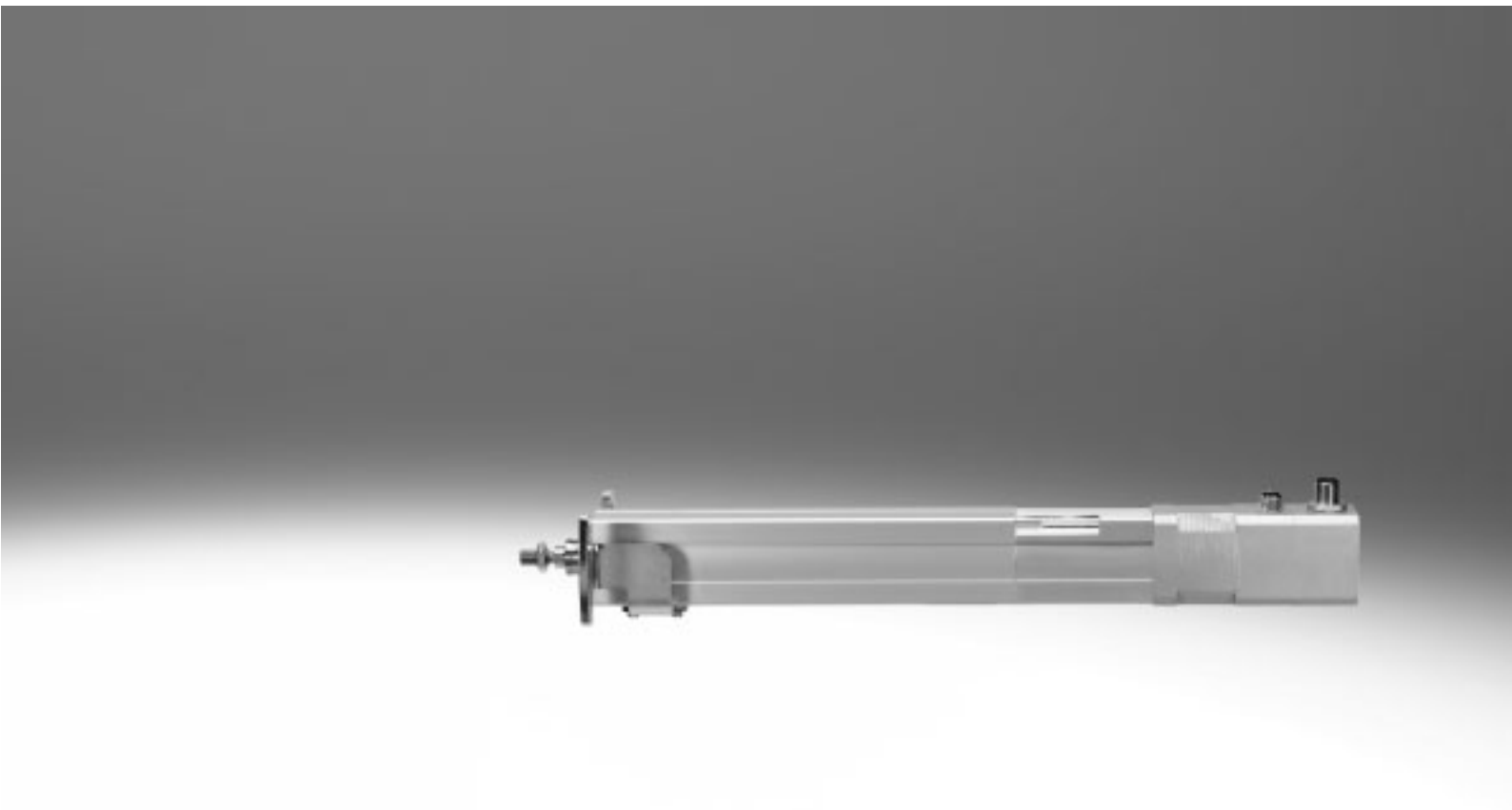
Electric cylinders EPCO, with spindle drive

FESTO



Electric cylinders EPCO, with spindle drive

Key features

At a glance

General

The electric cylinder EPCO is a mechanical linear drive with piston rod and permanently attached motor. The driving component consists of an electrically actuated spindle that converts the rotary motion of the motor into a linear motion of the piston rod.

Properties

- With recirculating ball spindle
- Optionally with female thread
- Optionally with holding brake
- Degree of protection IP40
- Compact dimensions
- Extensive mounting accessories for various installation situations

Range of applications

- Suitable for simple applications in factory automation that in the past were mostly carried out using pneumatic solutions

Optimised Motion Series (OMS)

A package that makes positioning easier than ever before.
The Optimised Motion Series is as easy to handle as a pneumatic cylinder, but with the functionality of an electric drive.

Simple to select

- Easy sizing and selection using cycle time charts
- No specialist knowledge of electric drive technology required

Ordering and logistics

- All the part components required with a single part number
- Motors mounted on electric cylinders

Quick to configure

- Parameterisation and commissioning via web server/browser
- Parameterise up to 7 freely definable positions directly on the PC

For simple positioning tasks

Electric cylinder EPCO

Controller CMMO

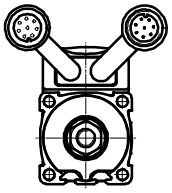
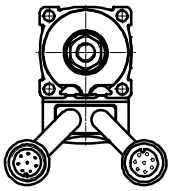
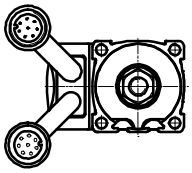
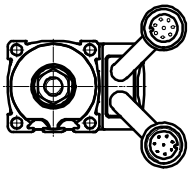
➔ 36

Electric cylinders EPCO, with spindle drive

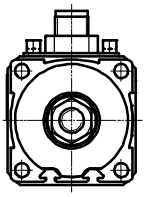
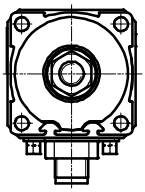
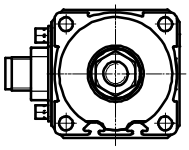
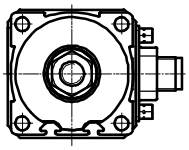
Key features

Motor mounting variants

EPCO-16

Standard	Underneath (feature D)	Left (feature L)	Right (feature R)
			

EPCO-25/-40

Standard	Underneath (feature D)	Left (feature L)	Right (feature R)
			

Electric cylinder EPCO with guide unit EAGF-P1

The guide unit protects ISO standard cylinders from torsion when these are subjected to high torque loads. It offers high precision guiding for workpiece handling and other applications.
The guide unit can optionally be ordered via the modular product system.

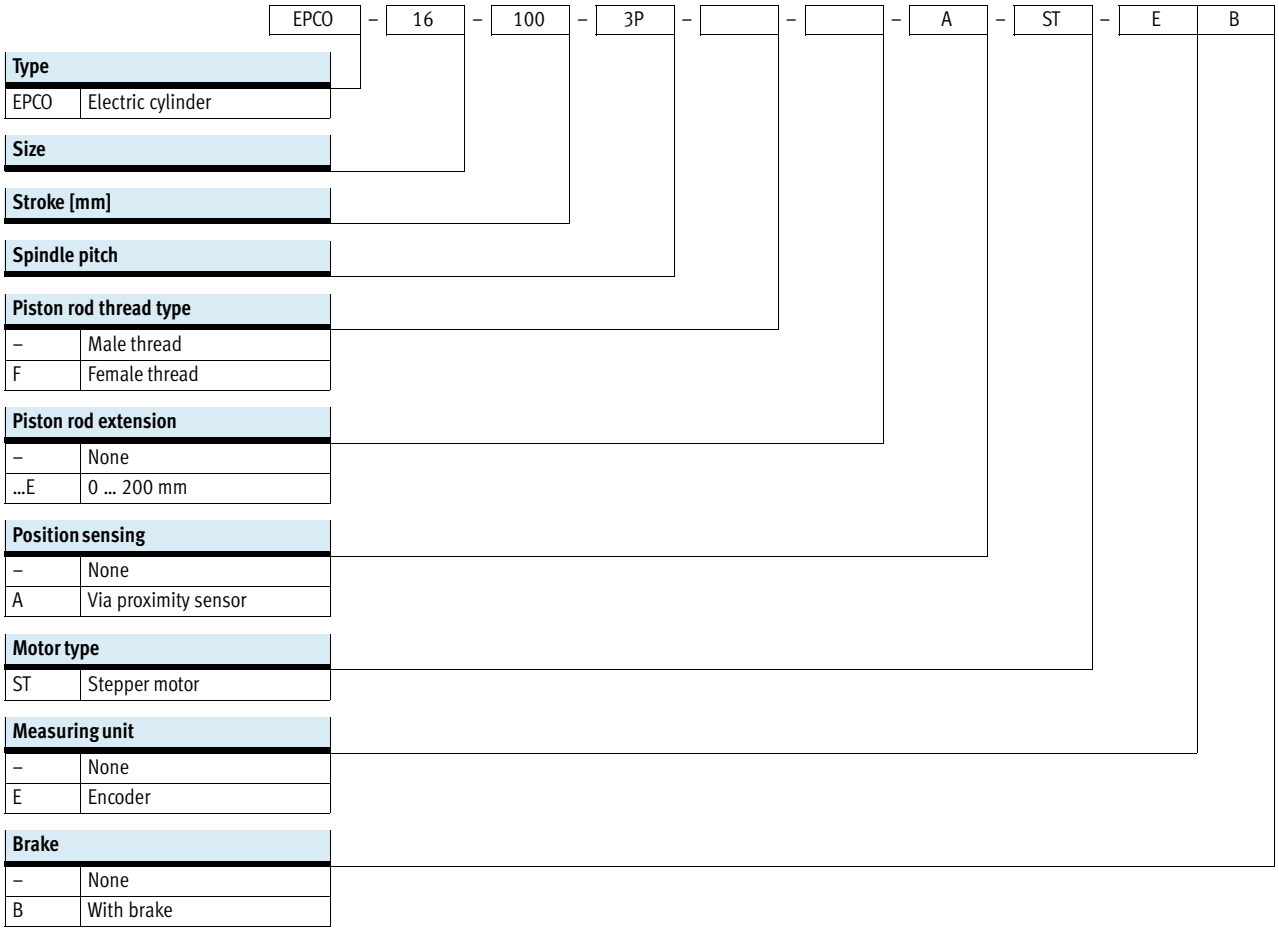
Integrated mounting interfaces allow direct mounting for numerous multi-axis combinations, including connection to:

- Toothed belt axis ELGR
- Rotary drive ERMO
- Mini slide DGSL

Technical data
➔ 13
Ordering data
EPCO with guide unit EAGF assembled
➔ 24
Guide unit EAGF as an accessory
➔ 33

Electric cylinders EPCO, with spindle drive

Type codes



Electric cylinders EPCO, with spindle drive

Type codes

–		–		+	2.5E	+	C5	DIO	N

Cable outlet direction	
–	Top (standard)
D	Underneath
L	Left
R	Right

Guide unit	
–	None
KF	Recirculating ball bearing guide with two guide rods

Connecting cable to motor controller	
1.5E	1.5 m, straight plug
1.5EA	1.5 m, angled plug
2.5E	2.5 m, straight plug
2.5EA	2.5 m, angled plug
5E	5 m, straight plug
5EA	5 m, angled plug
7E	7 m, straight plug
7EA	7 m, angled plug
10E	10 m, straight plug
10EA	10 m, angled plug

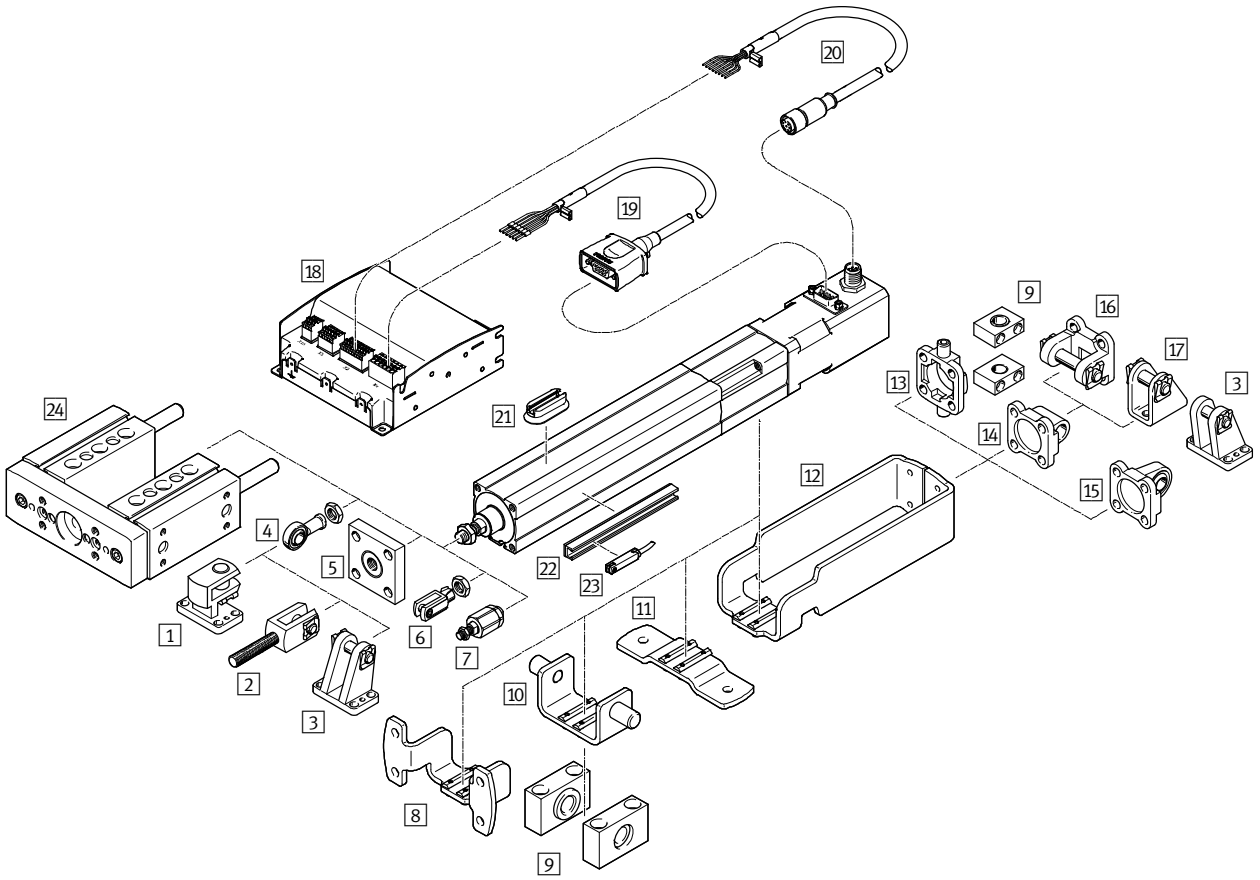
Controller type	
–	None
C5	CMMO, 5 A

Bus protocol/activation	
–	None
DIO	Digital I/O interface
LK	IO-Link

Switching input/output	
–	None
N	NPN
P	PNP

Electric cylinders EPCO, with spindle drive

Peripherals overview



Mounting attachments and accessories						
	Description	For size			→ Page/Internet
		16	25	40	
1 Right-angle clevis foot LQG	For rod eye SGS	–	–	■	32
2 Rod clevis SGA	For rod eye SGS, for swivelling cylinder mounting	–	–	■	33
3 Clevis foot LBG	For rod eye SGS, for spherical bearing	–	–	■	32
4 Rod eye SGS/CRSGS	For spherical bearing	■	■	■	33
5 Coupling piece KSG	For compensating radial deviations	–	–	■	33
6 Rod clevis SG/CRSG	Permits a swivel motion of the cylinder in one plane	■	■	■	33

Electric cylinders EPCO, with spindle drive

Peripherals overview

FESTO

Mounting attachments and accessories						
		Description	For size			→ Page/Internet
			16	25	40	
7	Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	■	33
8	Flange mounting EAHH	– For mounting the electric cylinder via the profile – Position freely selectable along the cylinder length	■	■	■	27
9	Trunnion support LNZG	For mounting the cylinder in combination with swivel mounting or trunnion flange	■	■	■	30
10	Swivel mounting EAHS	Position freely selectable along the cylinder length	■	■	■	28
11	Foot mounting EAHF	Position freely selectable along the cylinder length	■	■	■	26
12	Adapter kit EAHA	For mounting swivel flange and trunnion flange on the front side. The only motor connection that can be ordered with this adapter kit is for top or bottom mounting.	■	■	■	29
13	Trunnion flange ZNCF	For spherical bearing. It cannot be mounted when turned by 90°	–	–	■	30
14	Swivel flange SNCL	For spherical bearing	■	■	■	31
15	Swivel flange SNCS	For spherical bearing	–	–	■	31
16	Swivel flange SNCB/SNCB-...-R3	For spherical bearing	–	–	■	32
17	Clevis foot LBN	For spherical bearing	■	■	■	32
18	Controller CMMO	For parameterising and positioning the electric cylinder	■	■	■	36
19	Motor cable NEBM	For connecting the motor and controller	■	■	■	36
20	Encoder cable NEBM	For connecting the encoder and controller	■	■	■	36
21	Mounting kit CRSMB	For proximity sensor SME/SMT-8	■	■	■	35
22	Sensor rail SAMH	– For proximity sensor SME/SMT-8 – Size 25 only with proximity sensor SMT-8	■	■	■	35
23	Proximity sensor SME/SMT-8	For homing or position sensing	■	■	■	34
24	Guide unit EAGF-P1	For protecting electric cylinders against rotation at high torque loads	■	■	■	33

Note

For applications involving high loads, the cylinder must not be mounted exclusively via the mounting thread on the front.

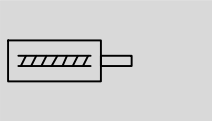
The mass of the motor can be amplified by the lever effect, which can result in the mounting thread being torn out.

Electric cylinders EPCO, with spindle drive

Technical data

FESTO

Function



- Size
  16 ... 40
- Stroke length
  50 ... 400 mm
- www.festo.com

General technical data				
Size		16	25	40
Design		Electric cylinder with recirculating ball spindle and motor		
Piston rod thread				
Male thread		M6	M8	M10x1.25
Female thread		M4	M6	M8
Working stroke	[mm]	50 ... 200	50 ... 300	50 ... 400
Stroke reserve	[mm]	0		
Max. torsion angle of the piston rod	[°]	≤ ±2	≤ ±1.5	≤ ±1
Impact energy at the end positions	[J]	0.1x 10^{-3}	0.2x 10^{-3}	0.4x 10^{-3}
Position sensing		Via proximity sensor		
Type of mounting		Via female thread		
		Via accessories		
Mounting position		Any		

Mechanical data							
Size		16		25		40	
Spindle design		3P	8P	3P	10P	5P	12.7P
Spindle pitch[1]	[mm/rev]	3	8	3	10	5	12.7
Spindle diameter	[mm]	8	8	10	10	12	12.7
Max. payload							
Horizontal[2]	[kg]	24	8	60	20	120	40
Vertical	[kg]	12	4	30	10	60	20
Max. feed force F_x	[N]	125	50	350	105	650	250
Max. speed	[mm/s]	125	300	150	500	180	460
Max. acceleration	[m/s^2]	10					
Reversing backlash[3]	[mm]	≤ 0.1					
Repetition accuracy	[mm]	±0.02					

1) Nominal value varies due to component tolerances.
2) Note max. lateral force.
3) In new condition.

Electrical data				
Size		16	25	40
Motor				
Nominal voltage	[V DC]	24		
Nominal current	[A]	1.4	3	4.2
Brake				
Nominal voltage	[V DC]	24 ±10%		
Rated output	[W]	8		
Holding torque	[Nm]	0.09	0.5	1.13
Mass moment of inertia	[kgmm^2]	1.8	8.2	29

Electric cylinders EPCO, with spindle drive

Technical data

Electrical data				
Size		16	25	40
Encoder				
Rotary position encoder		Incremental		
Rotary position encoder measuring principle		Opto-electrical		
Pulses/revolution	[1/rev]	500		
Interface		RS422, TTL, AB channel, zero index		
Operating voltage of encoder	[V DC]	5		

Operating and environmental conditions		
Ambient temperature[1]	[°C]	0 ... +50
Storage temperature	[°C]	–20 ... +60
Relative air humidity	[%]	0 ... 85 (non-condensing)
Degree of protection to IEC 60529		IP40
Corrosion resistance class CRC[2]		1
Duty cycle	[%]	100
CE marking (see declaration of conformity)		To EU EMC Directive[3]
Certification		c UL us Recognized (OL)
		RCM trademark

1) Note operating range of proximity sensors.
2) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).
3) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

Weight [kg]				
Size	16	25	40	
Basic weight with 0 mm stroke				
EPCO-...	0.62	1.04	2.49	
EPCO-...-E	0.62	1.13	2.59	
EPCO-...-B	0.68	1.22	2.71	
EPCO-...-EB	0.68	1.28	2.77	
EPCO-...-KF	1.22 ... 1.28	2.12 ... 2.36	4.40 ... 4.68	
Additional weight per 100 mm stroke				
EPCO-...	0.17	0.34	0.55	
EPCO-...-KF	0.25	0.45	0.73	
Moving load with 0 mm stroke				
EPCO-...	0.07	0.15	0.42	
EPCO-...-KF	0.23	0.45	0.98	
Moving load per 100 mm stroke				
EPCO-...	0.020	0.026	0.049	
EPCO-...-KF	0.10	0.136	0.229	

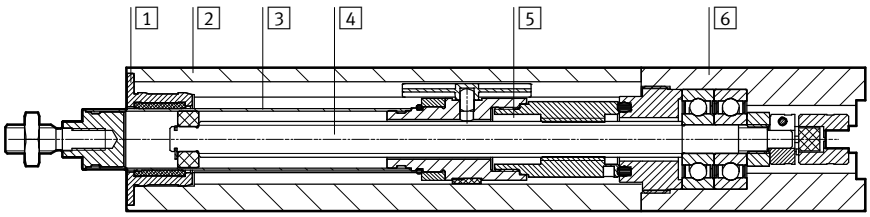
Mass moment of inertia							
Size		16		25		40	
Spindle design		3P	8P	3P	10P	5P	12.7P
J_0 with 0 mm stroke							
EPCO-...	[kg mm²]	2.28	2.29	9.33	9.40	33.25	33.75
EPCO-...-B	[kg mm²]	2.97	2.98	10.63	10.70	34.55	35.05
j_S per metre stroke	[kg mm²/m]	2.53	2.65	4.87	5.78	11.66	16.70
j_L per kg payload	[kg mm²/kg]	0.23	1.62	0.23	2.54	0.64	4.09

The mass moment of inertia J_A of the electric cylinder is calculated as follows:

$J_A = J_0 + j_S \times \text{working stroke [m]} + j_L \times m_{\text{moving payload}}$ [kg]

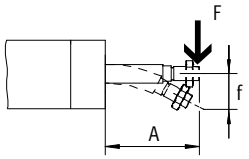
Materials

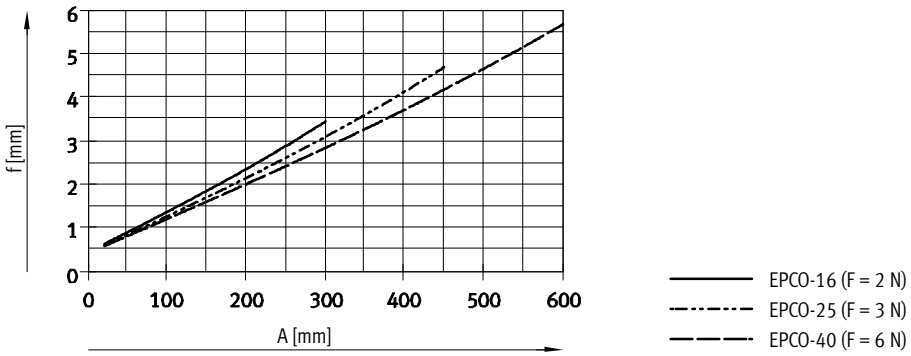
Sectional view



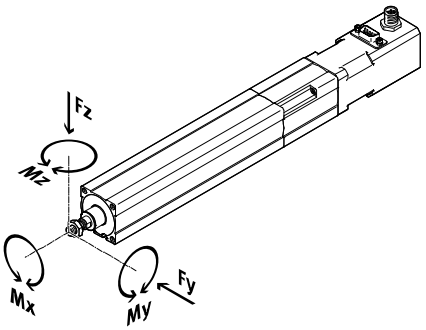
Electric cylinder		
1	Bearing cap	Wrought aluminium alloy
2	Cylinder barrel	Wrought aluminium alloy
3	Piston rod	High-alloy stainless steel
4	Spindle	Steel
5	Spindle nut	Steel
6	Drive cover	Wrought aluminium alloy
	Note on materials	RoHS-compliant
		Contains PWIS (paint-wetting impairment substances)

Piston rod deflection f as a function of projection A and lateral force F

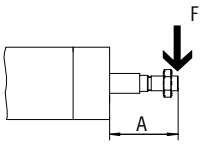




Maximum permissible loads on the piston rod



If there are two or more forces and torques simultaneously acting on the piston rod, the following equations must be satisfied:

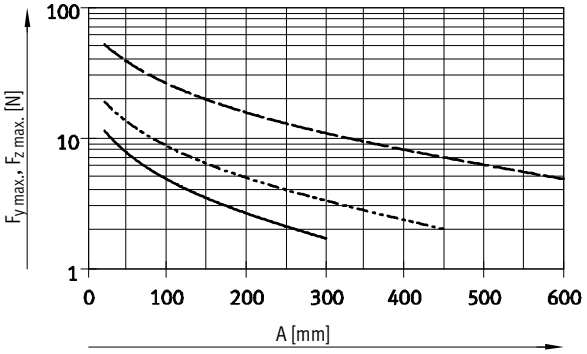


$$\frac{|Fy|}{Fy_{max.}} + \frac{|Fz|}{Fz_{max.}} + \frac{|My|}{My_{max.}} + \frac{|Mz|}{Mz_{max.}} \leq 1$$

$$|Fx| \leq Fxmax$$

$$|Mx| \leq Mxmax$$

Maximum permissible lateral forces Fy_{max} and Fz_{max} on the piston rod as a function of projection A



Size		16		25		40	
Spindle design		3P	8P	3P	10P	5P	12.7P
Fx_{max} (static)	[N]	125	50	350	105	650	250
Mx_{max}	[Nm]	0		0		0	
My_{max}, Mz_{max}	[Nm]	0.6		1.0		3.3	

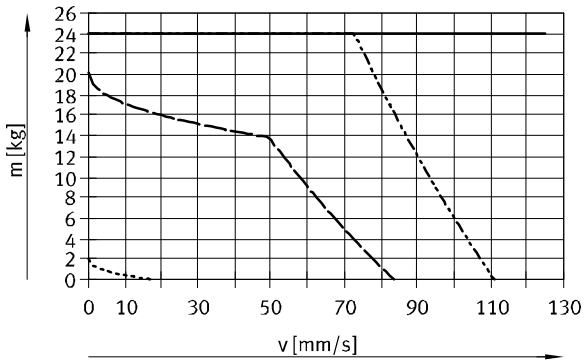
Note

PositioningDrives engineering software
➔ www.festo.com

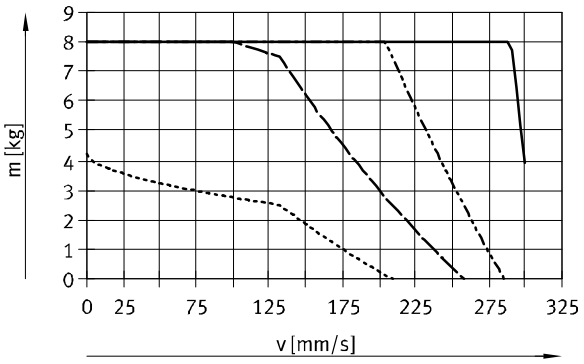
Payload m as a function of speed v and acceleration a

Horizontal mounting position

EPCO-16-3P



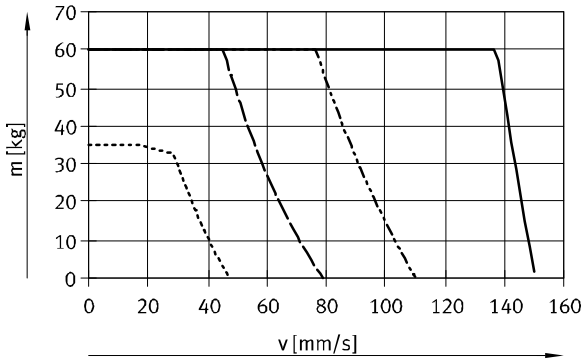
EPCO-16-8P



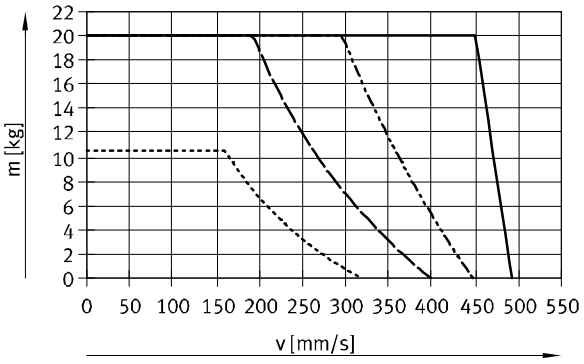
For EPCO-... / EPCO-...-KF

- a = 0.5 m/s²
- a = 2.5 m/s²
- a = 5 m/s²
- a = 10 m/s²

EPCO-25-3P



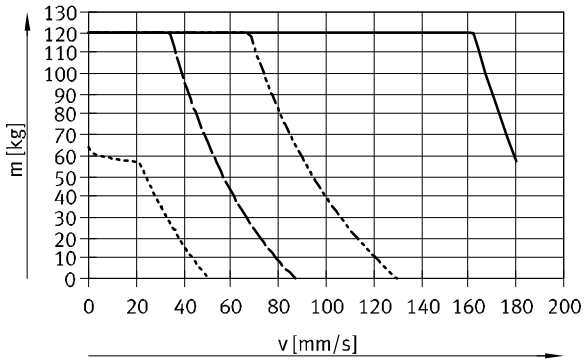
EPCO-25-10P



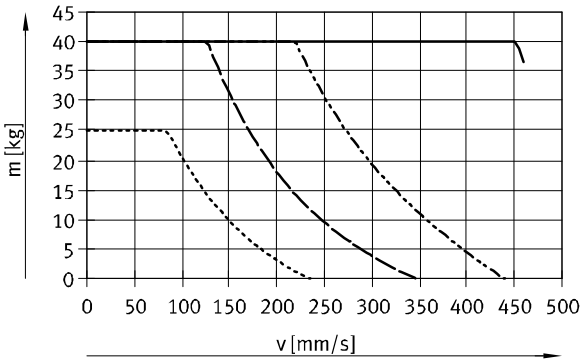
For EPCO-... / EPCO-...-KF

- a = 0.5 m/s²
- a = 2.5 m/s²
- a = 5 m/s²
- a = 10 m/s²

EPCO-40-5P



EPCO-40-12.7P



For EPCO-... / EPCO-...-KF

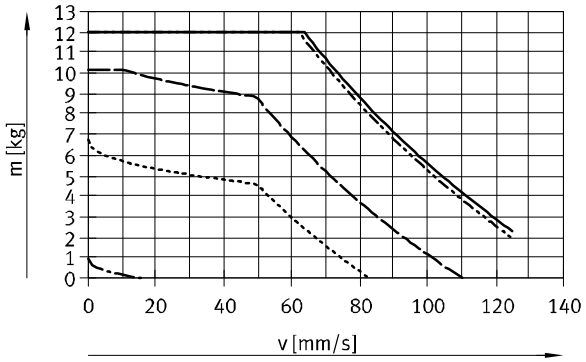
- a = 0.5 m/s²
- a = 2.5 m/s²
- a = 5 m/s²
- a = 10 m/s²

Payload m as a function of speed v and acceleration a

Vertical mounting position

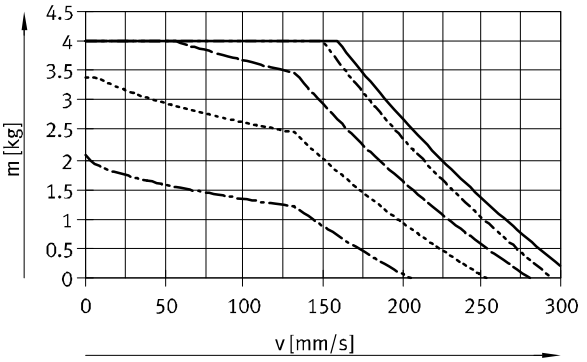
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical payload and speed.

EPCO-16-3P



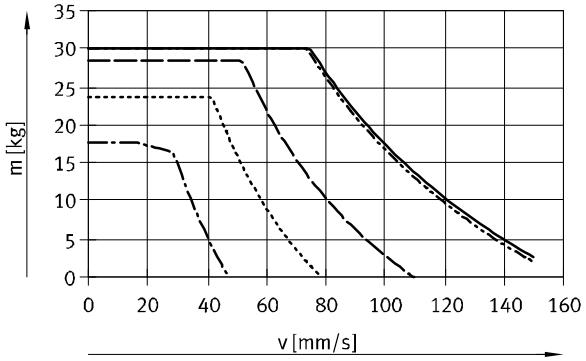
For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 0.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 2.3 m/s²
a = 5 m/s²	a = 4.7 m/s²
a = 10 m/s²	a = 9.6 m/s²

EPCO-16-8P



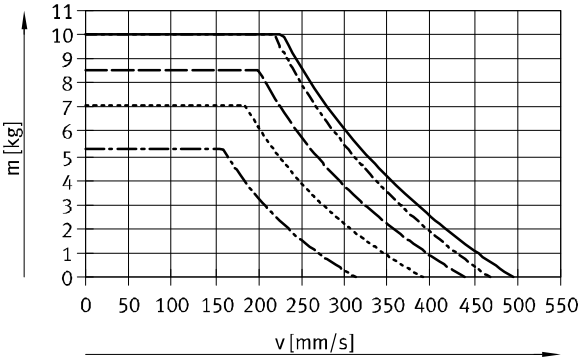
For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 1.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 1.2 m/s²
a = 5 m/s²	a = 3.4 m/s²
a = 10 m/s²	a = 7.8 m/s²

EPCO-25-3P



For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 0.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 2.4 m/s²
a = 5 m/s²	a = 4.9 m/s²
a = 10 m/s²	a = 9.8 m/s²

EPCO-25-10P



For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 1.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 1.6 m/s²
a = 5 m/s²	a = 3.9 m/s²
a = 10 m/s²	a = 8.3 m/s²

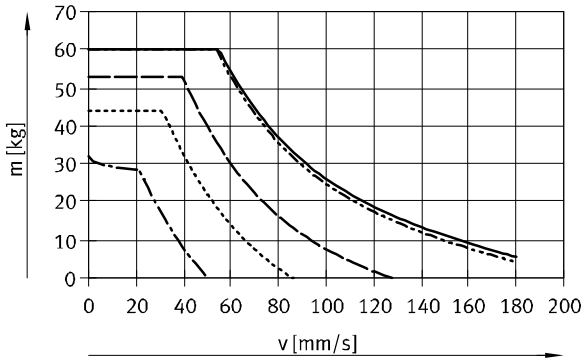
Further technical data for the guide unit EAGF-P1
➔ www.festo.com/eagf-p1

Payload m as a function of speed v and acceleration a

Vertical mounting position

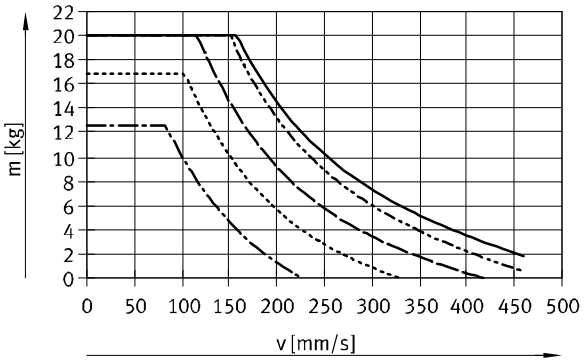
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical payload and speed.

EPCO-40-5P



For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 0.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 2.4 m/s²
a = 5 m/s²	a = 4.8 m/s²
a = 10 m/s²	a = 9.7 m/s²

EPCO-40-12.7P



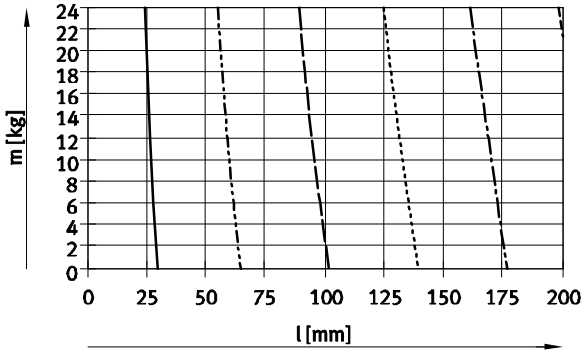
For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 1.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 1.8 m/s²
a = 5 m/s²	a = 4.0 m/s²
a = 10 m/s²	a = 8.5 m/s²

Payload m as a function of travel distance l and positioning time t

Horizontal mounting position

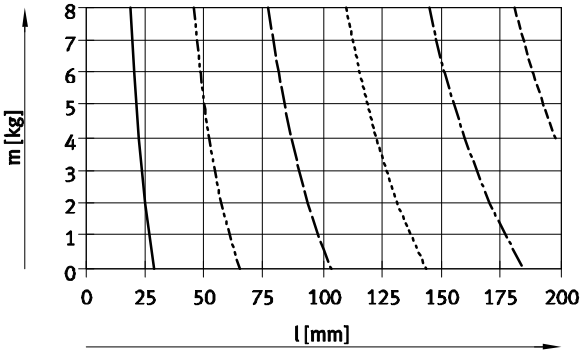
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

EPCO-16-3P



For EPCO-...	For EPCO-...-KF
t = 0.30 s	t = 0.30 s
t = 0.60 s	t = 0.60 s
t = 0.90 s	t = 0.90 s
t = 1.20 s	t = 1.20 s
t = 1.50 s	t = 1.55 s
t = 1.80 s	t = 1.85 s

EPCO-16-8P



For EPCO-...	For EPCO-...-KF
t = 0.15 s	t = 0.15 s
t = 0.30 s	t = 0.30 s
t = 0.45 s	t = 0.45 s
t = 0.60 s	t = 0.65 s
t = 0.75 s	t = 0.80 s
t = 0.90 s	t = 0.95 s

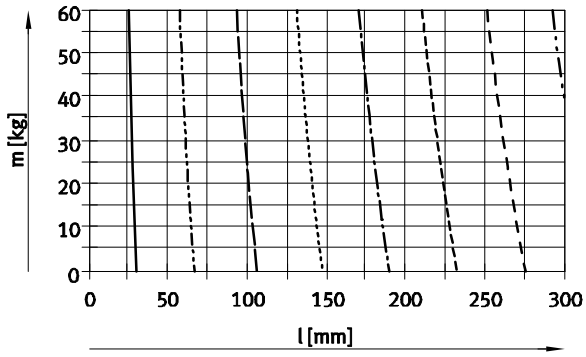
Further technical data for the guide unit EAGF-P1
➔ www.festo.com/eagf-p1

Payload m as a function of travel distance l and positioning time t

Horizontal mounting position

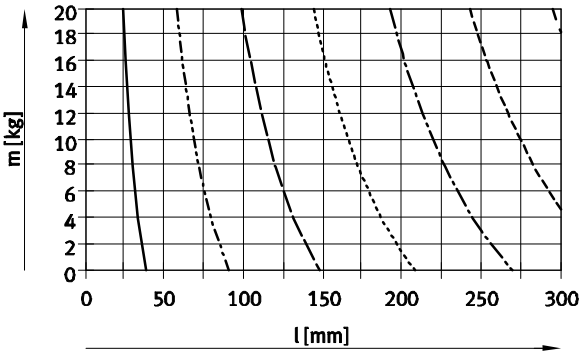
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

EPCO-25-3P



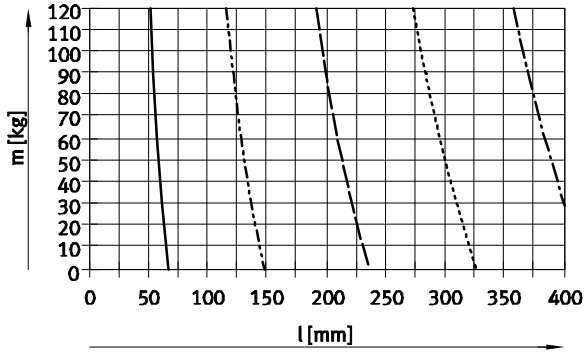
For EPCO-...	For EPCO-...-KF
t = 0.30 s	t = 0.30 s
t = 0.60 s	t = 0.60 s
t = 0.90 s	t = 0.90 s
t = 1.20 s	t = 1.20 s
t = 1.50 s	t = 1.50 s
t = 1.80 s	t = 1.80 s
t = 2.10 s	t = 2.10 s
t = 2.40 s	t = 2.40 s

EPCO-25-10P



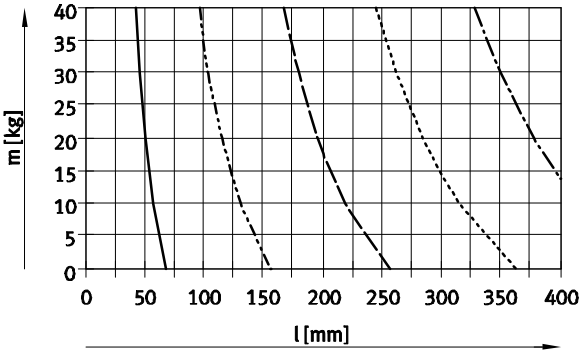
For EPCO-...	For EPCO-...-KF
t = 0.15 s	t = 0.15 s
t = 0.30 s	t = 0.30 s
t = 0.45 s	t = 0.45 s
t = 0.60 s	t = 0.60 s
t = 0.75 s	t = 0.80 s
t = 0.90 s	t = 0.95 s
t = 1.05 s	t = 1.10 s

EPCO-40-5P



For EPCO-...	For EPCO-...-KF
t = 0.50 s	t = 0.50 s
t = 1.00 s	t = 1.00 s
t = 1.50 s	t = 1.55 s
t = 2.00 s	t = 2.05 s
t = 2.50 s	t = 2.55 s

EPCO-40-12.7P



For EPCO-...	For EPCO-...-KF
t = 0.25 s	t = 0.25 s
t = 0.50 s	t = 0.50 s
t = 0.75 s	t = 0.80 s
t = 1.00 s	t = 1.05 s
t = 1.25 s	t = 1.30 s

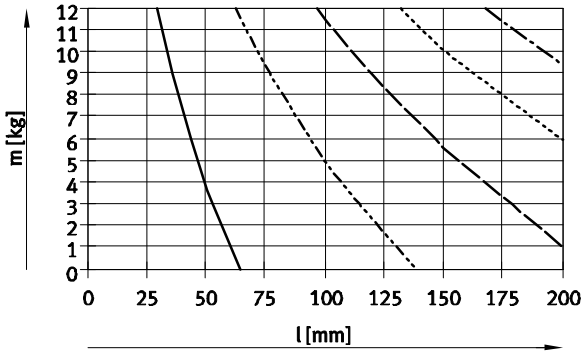
Further technical data for the guide unit EAGF-P1
➔ www.festo.com/eagf-p1

Payload m as a function of travel distance l and positioning time t

Vertical mounting position

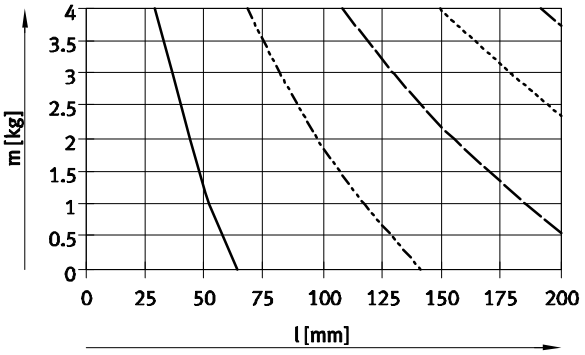
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

EPCO-16-3P



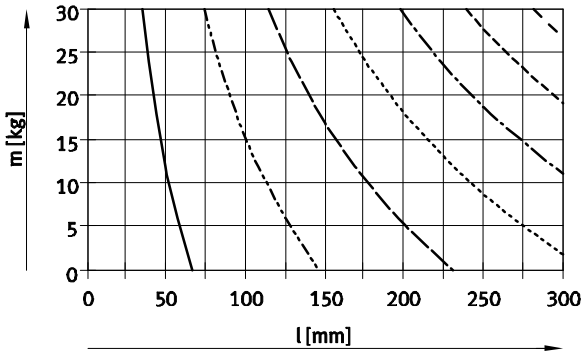
	For EPCO-...	For EPCO-...-KF
———	t = 0.60 s	t = 0.60 s
—·—·—	t = 1.20 s	t = 1.25 s
— — —	t = 1.80 s	t = 1.85 s
·····	t = 2.40 s	t = 2.50 s
—·—·—	t = 3.00 s	t = 3.10 s

EPCO-16-8P



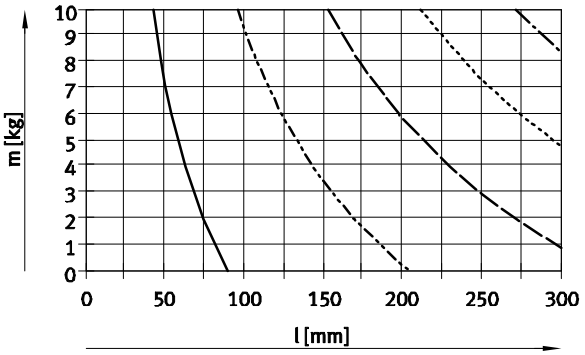
	For EPCO-...	For EPCO-...-KF
———	t = 0.30 s	t = 0.35 s
—·—·—	t = 0.60 s	t = 0.65 s
— — —	t = 0.90 s	t = 1.00 s
·····	t = 1.20 s	t = 1.30 s
—·—·—	t = 1.50 s	t = 1.65 s

EPCO-25-3P



	For EPCO-...	For EPCO-...-KF
———	t = 0.60 s	t = 0.60 s
—·—·—	t = 1.20 s	t = 1.20 s
— — —	t = 1.80 s	t = 1.85 s
·····	t = 2.40 s	t = 2.45 s
—·—·—	t = 3.00 s	t = 3.05 s
– – – –	t = 3.60 s	t = 3.70 s
– – – —·	t = 4.20 s	t = 4.30 s

EPCO-25-10P



	For EPCO-...	For EPCO-...-KF
———	t = 0.30 s	t = 0.30 s
—·—·—	t = 0.60 s	t = 0.65 s
— — —	t = 0.90 s	t = 0.95 s
·····	t = 1.20 s	t = 1.25 s
—·—·—	t = 1.50 s	t = 1.60 s

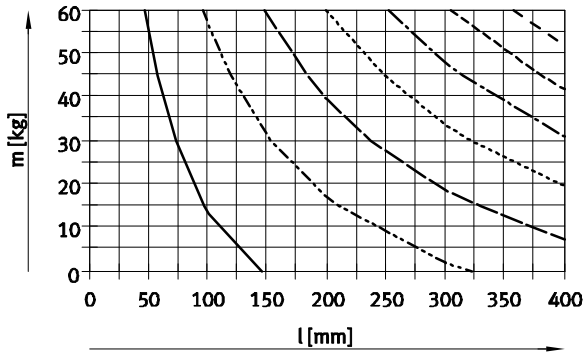
Further technical data for the guide unit EAGF-P1
➔ www.festo.com/eagf-p1

Payload m as a function of travel distance l and positioning time t

Vertical mounting position

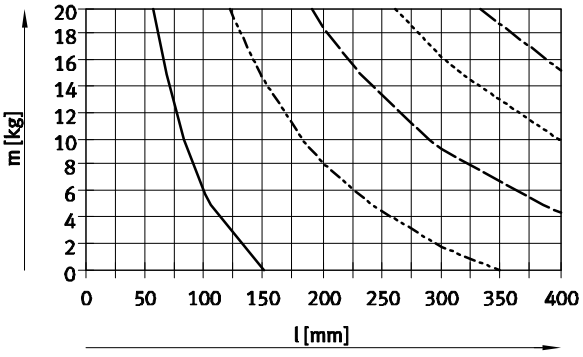
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

EPCO-40-5P



For EPCO-...	For EPCO-...-KF
t = 1.00 s	t = 1.05 s
t = 2.00 s	t = 2.05 s
t = 3.00 s	t = 3.10 s
t = 4.00 s	t = 4.10 s
t = 5.00 s	t = 5.15 s
t = 6.00 s	t = 6.20 s
t = 7.00 s	t = 7.20 s

EPCO-40-12.7P

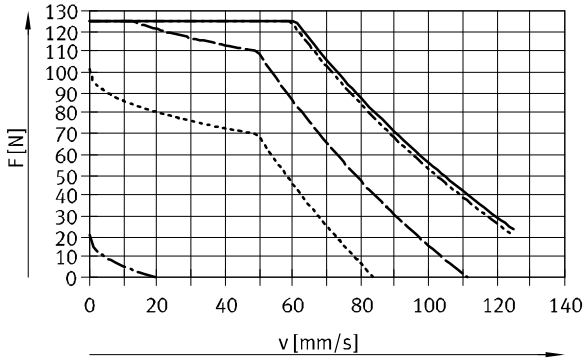


For EPCO-...	For EPCO-...-KF
t = 0.50 s	t = 0.55 s
t = 1.00 s	t = 1.10 s
t = 1.50 s	t = 1.60 s
t = 2.00 s	t = 2.15 s
t = 2.50 s	t = 2.70 s

Feed force F as a function of speed v and acceleration a

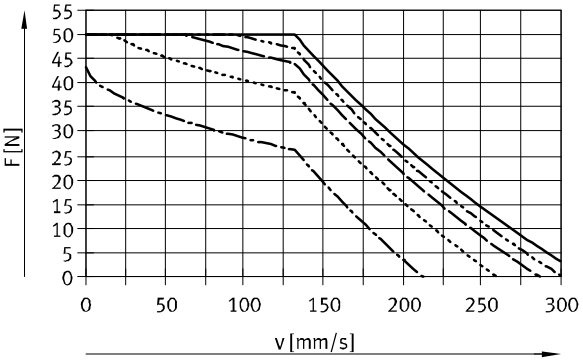
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical feed force and speed.

EPCO-16-3P



For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 0.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 2.3 m/s²
a = 5 m/s²	a = 4.7 m/s²
a = 10 m/s²	a = 9.6 m/s²

EPCO-16-8P



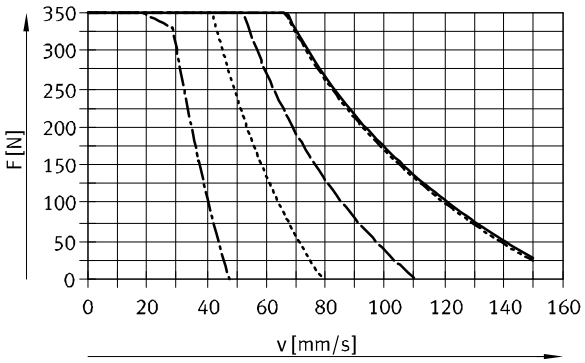
For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 1.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 1.2 m/s²
a = 5 m/s²	a = 3.4 m/s²
a = 10 m/s²	a = 7.8 m/s²

Further technical data for the guide unit EAGF-P1
➔ www.festo.com/eagf-p1

Feed force F as a function of speed v and acceleration a

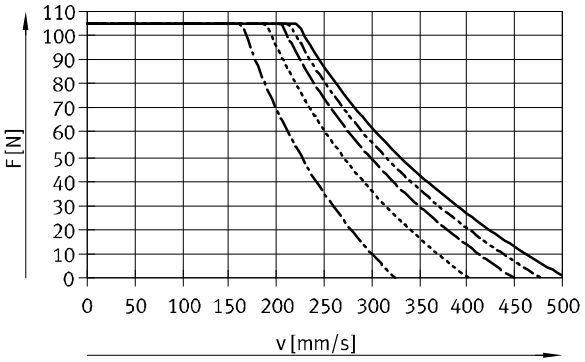
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical feed force and speed.

EPCO-25-3P



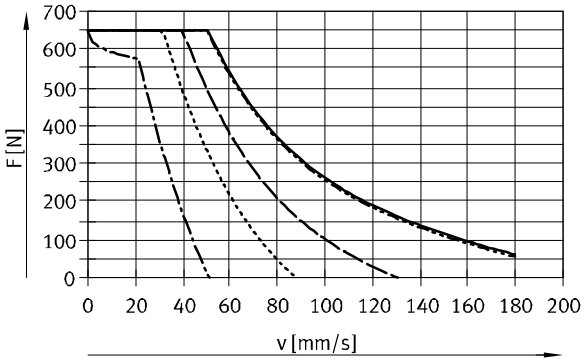
For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 0.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 2.4 m/s²
a = 5 m/s²	a = 4.9 m/s²
a = 10 m/s²	a = 9.8 m/s²

EPCO-25-10P



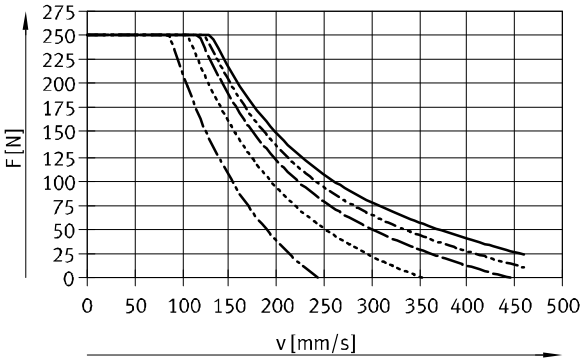
For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 1.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 1.6 m/s²
a = 5 m/s²	a = 3.9 m/s²
a = 10 m/s²	a = 8.3 m/s²

EPCO-40-5P



For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 0.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 2.4 m/s²
a = 5 m/s²	a = 4.8 m/s²
a = 10 m/s²	a = 9.7 m/s²

EPCO-40-12.7P



For EPCO-...	For EPCO-...-KF
a = 0 m/s²	
a = 1.2 m/s²	a = 0 m/s²
a = 2.5 m/s²	a = 1.8 m/s²
a = 5 m/s²	a = 4.0 m/s²
a = 10 m/s²	a = 8.5 m/s²

Further technical data for the guide unit EAGF-P1
➔ www.festo.com/eagf-p1

Calculating the mean feed force F_{xm} with the electric cylinder EPCO

The peak feed force value must not exceed the maximum feed force within a movement cycle. The peak value is generally achieved in vertical operation during the acceleration phase of the upwards stroke. If the maximum feed force is exceeded, this can increase wear and thus shorten the service life of the ball screw spindle. The maximum speed must likewise not be exceeded.

$F_x \leq F_{xmax.}$

and

$v_x \leq v_{xmax.}$

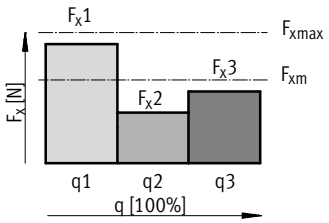
Mean feed force (to DIN 69051-4)

During operation, the continuous feed force may be briefly exceeded up to the maximum feed force. The continuous feed force must, however, be adhered to when averaged over a movement cycle.

$F_{xm} \leq F_{xdauer}$

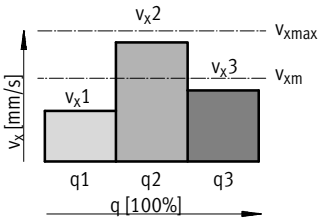
$$F_{xm} = \sqrt[3]{\sum F_x^{\,3} \times \frac{v_x}{v_{xm}} \times \frac{q}{100}} =$$

$$F_{xm} = \sqrt[3]{F_{x1}^{\,3} \times \frac{v_{x1}}{v_{xm}} \times \frac{q_1}{100} + F_{x2}^{\,3} \times \frac{v_{x2}}{v_{xm}} \times \frac{q_2}{100} + F_{x3}^{\,3} \times \frac{v_{x3}}{v_{xm}} \times \frac{q_3}{100} + \ldots}$$



Mean feed speed (to DIN 69051-4)

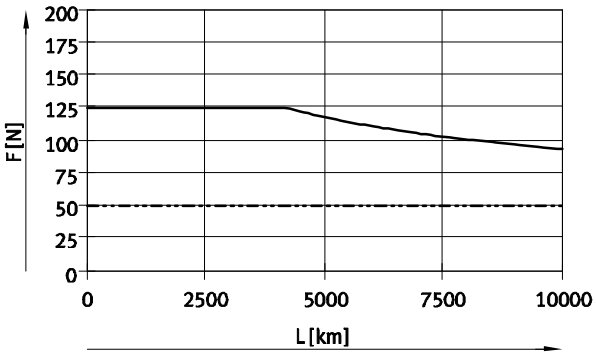
$$v_{xm} = \sum v_x \times \frac{q}{100} = v_{x1} \times \frac{q_1}{100} + v_{x2} \times \frac{q_2}{100} + v_{x3} \times \frac{q_3}{100} + \ldots$$



F_x	Feed force	v_x	Feed speed
F_{xm}	Mean feed force	v_{xm}	Mean feed speed
F_{xmax}	Max. feed force	v_{xmax}	Max. feed speed
$F_{xcontinuous}$	Continuous feed force		
q	Time		

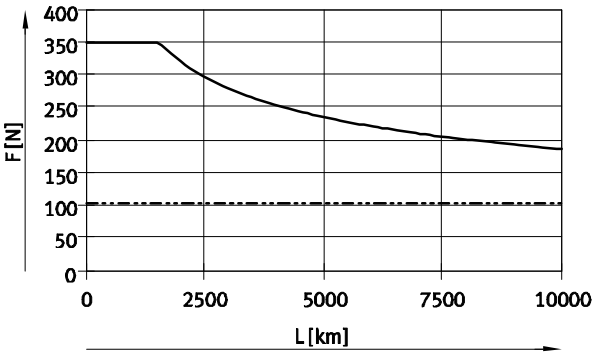
Mean feed force F as a function of running performance L (to DIN 69051-4)

EPCO-16



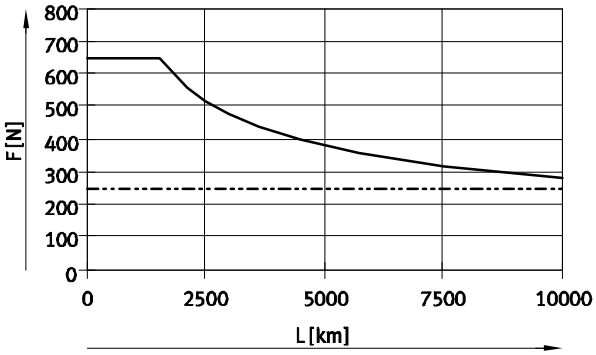
EPCO-16-3P
EPCO-16-8P

EPCO-25



EPCO-25-3P
EPCO-25-10P

EPCO-40



EPCO-40-5P
EPCO-40-12.7P

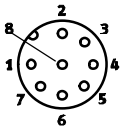
Note

- The specifications for running performance are based on experimentally determined and theoretically calculated data. The running performance attainable in practice can deviate considerably from the specified curves under different parameters.

Pin allocation

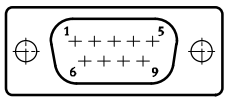
Motor

EPCO-16



PIN	Function
1	String A
2	String A/
3	String B
4	String B/
5	n.c.
6	n.c.
7	Brake +24 V DC[1]
8	Brake GND[1]
–	–

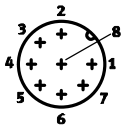
EPCO-25/-40



PIN	Function
1	String A
2	String A/
3	String B
4	String B/
5	n.c.
6	n.c.
7	Brake +24 V DC[1]
8	Brake GND[1]
9	n.c.

Encoder

EPCO-16/-25/-40

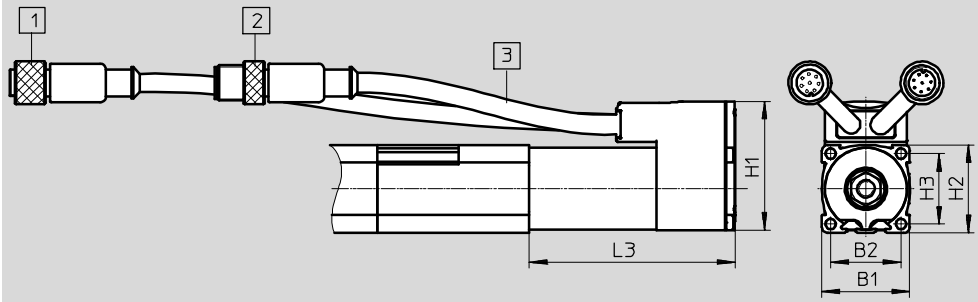


PIN	Function
1	Signal trace A
2	Signal trace A/
3	Signal trace B
4	Signal trace B/
5	GND encoder
6	Signal trace N
7	Signal trace N/
8	VCC auxiliary supply +5 V
GND	Shield on plug housing

1) Only on motors with brake.

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

Size 16

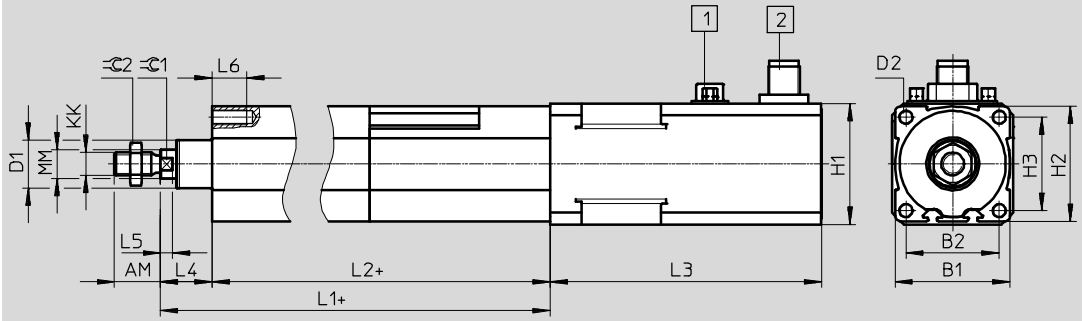


1 Motor connection:
Round plug M12, 8-pin, socket
cable length: 350 mm

2 Encoder connection:
Round plug M12, 8-pin, pins
cable length: 250 mm

3 Min. bending radius of the cables: 60 mm

Size 25, 40



1 Motor connection:
SUB-D plug, 9-pin, pins

2 Encoder connection:
Round plug M12, 8-pin, pins

\+ = plus stroke length

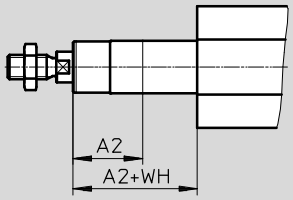
Size	AM	B1	B2	D1	D2	H1	H2	H3	KK	L1	L2
				∅	∅						
[mm]	–0.5			±0.05							±1
16	12	30	24	13.27	M4	44	30	24	M6	143	127
25	16	40	32.5	17.27	M5	$42^{+0.3}$	40	32.5	M8	174.6	156.6
40	19	55	42	26.52	M6	56.4	55	42	M10x1.25	214.2	192.7

Size	L3				L4	L5	L6	MM	⌀C1	⌀C2
	EPCO-...									
[mm]		-E	-B	-EB		–0.15		–0.1		
16	70±1	70±1	96±1.5	96±1.5	16	3.7	10	8	7	10
25	66±1	94.4±1.2	114.4±1.3	127.4±1.3	18	4.2	12	10	9	13
40	73.5±0.8	102.5±1.1	123.5±1.1	138±1.1	21.5	4.7	14	12	10	17

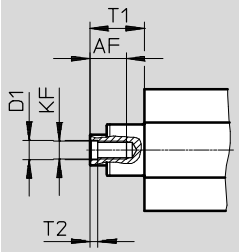
Dimensions Download CAD data ➔ **www.festo.com**

Variants

E – Extended piston rod



F – Female piston rod thread



Size [mm]	A2 max.	AF	KF	T1	T2	D1	WH
16	100	10	M4	16	1.5	4.3	16
25	150	12	M6	18	2.6	6.4	18
40	200	14	M8	21.5	3.3	8.4	21.5

Ordering data – EPCO-16 (stock items)

Stroke [mm]	Part No.	Type	Stroke [mm]	Part No.	Type
Spindle pitch 3 mm, with encoder			Spindle pitch 8 mm, with encoder		
50	**1476415**	**EPCO-16-50-3P-ST-E**	50	**1476522**	**EPCO-16-50-8P-ST-E**
100	**1476417**	**EPCO-16-100-3P-ST-E**	100	**1476524**	**EPCO-16-100-8P-ST-E**
150	**1476419**	**EPCO-16-150-3P-ST-E**	150	**1476526**	**EPCO-16-150-8P-ST-E**
200	**1476421**	**EPCO-16-200-3P-ST-E**	200	**1476528**	**EPCO-16-200-8P-ST-E**

Ordering data – EPCO-25 (stock items)

Stroke [mm]	Part No.	Type	Stroke [mm]	Part No.	Type
Spindle pitch 3 mm, with encoder			Spindle pitch 10 mm, with encoder		
50	**1470698**	**EPCO-25-50-3P-ST-E**	50	**1470769**	**EPCO-25-50-10P-ST-E**
100	**1470700**	**EPCO-25-100-3P-ST-E**	100	**1470771**	**EPCO-25-100-10P-ST-E**
150	**1470702**	**EPCO-25-150-3P-ST-E**	150	**1470773**	**EPCO-25-150-10P-ST-E**
200	**1470704**	**EPCO-25-200-3P-ST-E**	200	**1470775**	**EPCO-25-200-10P-ST-E**
300	**1470706**	**EPCO-25-300-3P-ST-E**	300	**1470777**	**EPCO-25-300-10P-ST-E**

Ordering data – EPCO-40 (stock items)

Stroke [mm]	Part No.	Type	Stroke [mm]	Part No.	Type
Spindle pitch 5 mm, with encoder			Spindle pitch 12.7 mm, with encoder		
50	**1472501**	**EPCO-40-50-5P-ST-E**	50	**1472617**	**EPCO-40-50-12.7P-ST-E**
100	**1472503**	**EPCO-40-100-5P-ST-E**	100	**1472619**	**EPCO-40-100-12.7P-ST-E**
150	**1472505**	**EPCO-40-150-5P-ST-E**	150	**1472621**	**EPCO-40-150-12.7P-ST-E**
200	**1472507**	**EPCO-40-200-5P-ST-E**	200	**1472623**	**EPCO-40-200-12.7P-ST-E**
300	**1472509**	**EPCO-40-300-5P-ST-E**	300	**1472625**	**EPCO-40-300-12.7P-ST-E**

Note

Variants ordered via modular product system ➔ 24

Note

Position sensing is only possible in combination with feature "A" (position sensing) ➔ 24 (modular product system)

Electric cylinders EPCO, with spindle drive

Ordering data – Modular products

Ordering table

Size			16	25	40	Condi-tions	Code		Enter code
M	Module no.		**1476585**	**1470874**	**1472887**				
	Function		Electric cylinder				**EPCO**		EPCO
	Size		16	25	40		**-...**		
	Stroke	[mm]	50				**-...**		
			75						
			100						
			125						
			150						
			175						
			200						
			–	250					
			–	300					
			–		350				
			–		400				
	Spindle pitch	[mm]	3	3			**-...P**		
					5				
			8						
				10					
					12.7				
O	Piston rod thread type		Male thread						
			Female thread				**-F**		
	Piston rod extension	[mm]	None						
			1 ... 100	1 ... 150	1 ... 200		**-...E**		
	Position sensing		None						
			Via proximity sensor			1	**-A**		
M	Motor type		Stepper motor				**-ST**		ST

1 **A** Must be selected if encoder E is not selected.

M Mandatory data
O Options

Transfer order code

	EPCO	–		–		–		–		–		–		–	**ST**

Ordering table

Size		16	25	40	Condi-tions	Code		Enter code
O	Measuring unit	None						
		Encoder				**-E**		
	Brake	None						
		Brake				**B**		
	Cable outlet direction	Top (standard)						
		Underneath				**-D**		
		Left				**-L**		
		Right				**-R**		
	Guide unit	Recirculating ball bearing guide with two guide rods			2	**-KF**		
	Connecting cable to motor controller, suitable for use with energy chains	1.5 m, straight plug				**+1.5E**		
		1.5 m, angled plug			3	**+1.5EA**		
		2.5 m, straight plug			3	**+2.5E**		
		2.5 m, angled plug			3	**+2.5EA**		
		5 m, straight plug			3	**+5E**		
		5 m, angled plug			3	**+5EA**		
		7 m, straight plug			3	**+7E**		
		7 m, angled plug			3	**+7EA**		
		10 m, straight plug			3	**+10E**		
		10 m, angled plug			3	**+10EA**		
	Controller type	None						
		CMMO, 5 A				**+C5**		
	Bus protocol/activation	None						
		Digital I/O interface			4	**DIO**		
		IO-Link			4	**LK**		
	Switching input/output	None						
		NPN			4 5	**N**		
		PNP			4	**P**		

2 **KF** Not with piston rod extension ...E
3 **1.5E, 1.5EA, 2.5E, 2.5EA, 5E, 5EA, 7E, 7EA, 10E, 10EA, C5** Only with encoder E
4 **DIO, LK, N, P** Must be selected if controller type +C5 is selected
5 **N** Not with IO-Link LK

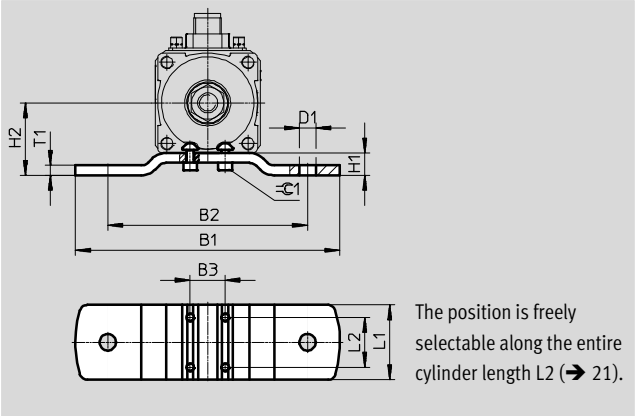
M Mandatory data
O Options

Transfer order code

	–		–		+		+					

Foot mounting EAHF

Material:
Galvanised steel
RoHS-compliant



The position is freely selectable along the entire cylinder length L2 (➔ 21).

Dimensions and ordering data

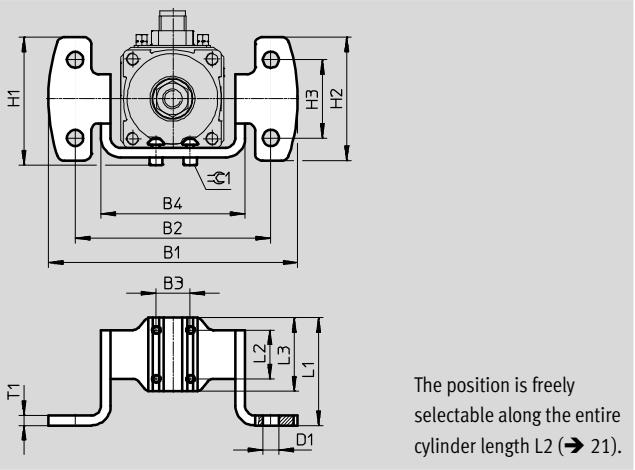
For size [mm]	B1	B2	B3	D1 ∅	H1	H2	L1
16	86	60	10	5.5	7	22	30
25	106	80	14	6.6	9	29	30
40	130	100	18	9	10.5	38	40

For size [mm]	L2	T1	=C1	CRC[1)]	Weight [g]	Part No.	Type
16	20	3	2.5	1	60	**1434903**	**EAHF-P1-16**
25	20	4	2.5	1	100	**1434904**	**EAHF-P1-25**
40	20	4	4	1	160	**1434905**	**EAHF-P1-40**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Flange mounting EAHH

Material:
Galvanised steel
RoHS-compliant



The position is freely selectable along the entire cylinder length L2 (➔ 21).

Dimensions and ordering data

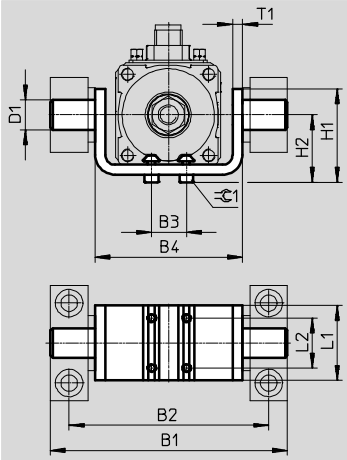
For size [mm]	B1	B2	B3	B4	D1 ∅	H1	H2	H3	L1
16	77.2	60	10	45	5.5	38.3	34.6	20	43
25	102	80	14	59	6.6	52.3	50.6	32	44
40	119	100	18	76	9	64.5	56	36	54

For size [mm]	L2	L3	T1	⫃1	CRC[1)]	Weight [g]	Part No.	Type
16	20	30	3	2.5	1	80	**1434906**	**EAHH-P1-16**
25	20	30	4	2.5	1	150	**1434907**	**EAHH-P1-25**
40	20	40	4	4	1	240	**1434908**	**EAHH-P1-40**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Swivel mounting EAHS

Material:
Galvanised steel
RoHS-compliant



The position is freely selectable along the entire cylinder length L2 (➔ 21).

Dimensions and ordering data

For size [mm]	B1	B2	B3	B4	D1 ∅ e9	H1	H2
16	71	60	10	45	8	33	21
25	95	80	14	59	12	37.5	27
40	118	100	18	76	16	55	36.5

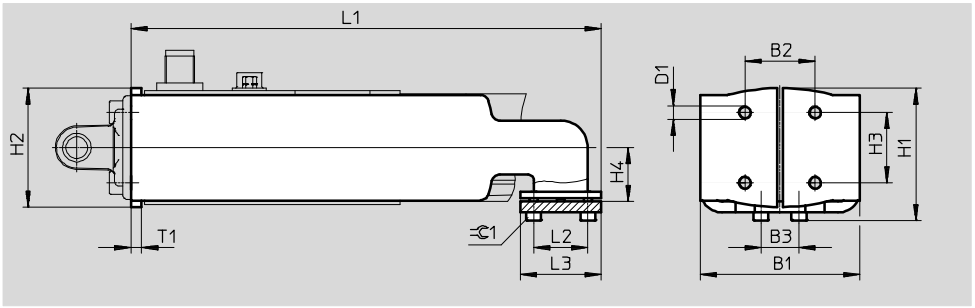
For size [mm]	L1	L2	T1	⌀1	CRC[1)]	Weight [g]	Part No.	Type
16	30	20	3	2.5	1	80	**1434909**	**EAHS-P1-16**
25	30	20	4	2.5	1	140	**1434910**	**EAHS-P1-25**
40	40	20	4	4	1	260	**1434911**	**EAHS-P1-40**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Adapter kit EAHA

Material:
Galvanised steel

RoHS-compliant



Dimensions and ordering data

For size [mm]	B1	B2	B3	D1	H1	H2	H3	H4
16	45	18	10	M4	35.9	29.8	18	15
25	59	26	14	M5	49	44	26	20
40	76	38	18	M6	66.9	60.8	38	27.5

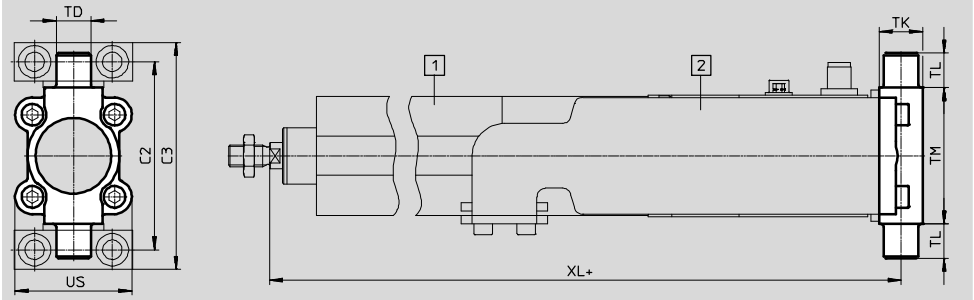
For size [mm]	L1	L2	L3	T1	⌯1	CRC[1)]	Weight [g]	Part No.	Type
16	139	20	30	3	2.5	1	210	**1434900**	**EAHA-P1-16**
25	174	20	30	4	2.5	1	480	**1434901**	**EAHA-P1-25**
40	193.4	20	40	4	4	1	770	**1434902**	**EAHA-P1-40**

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. For dry indoor applications or transport and storage protection. Also applies to parts behind covers, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Trunnion flange ZNCF

Material:
ZNCF: Stainless steel casting

Free of copper and PTFE
RoHS-compliant



1 Electric cylinder EPCO
2 Adapter kit EAHA
\+ = plus stroke length

The trunnion flange ZNCF cannot be mounted when turned by 90°.

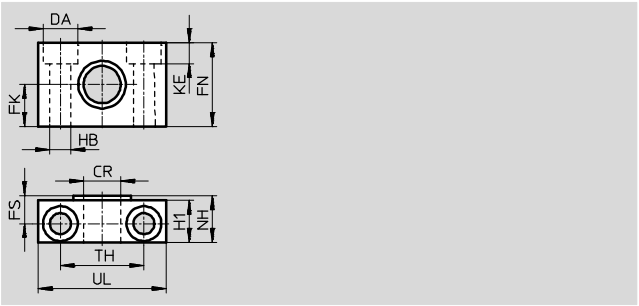
Dimensions and ordering data

For size	C2	C3	TD ∅	TK	TL	TM	US	XL EPCO-...				CRC[1]	Weight	Part No.	Type
[mm]			e9						-E	-B	-EB		[g]		
40	87	105	16	20	16	63	54	306.7	335.7	356.7	371.2	2	285	**174412**	**ZNCF-40**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Trunnion support LNZG

Material:
Trunnion support: Anodised aluminium
Plain bearing: Plastic
Free of copper and PTFE
RoHS-compliant



Dimensions and ordering data

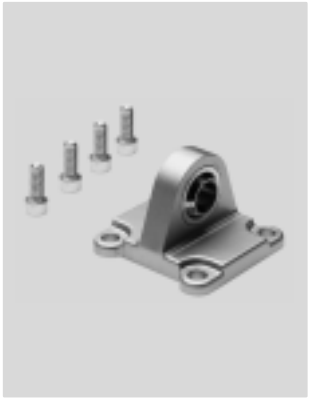
For size	CR ∅	DA ∅	FK ∅	FN	FS	H1	HB ∅	KE	NH	TH	UL	CRC[1]	Weight	Part No.	Type
[mm]	D11	H13	±0.1				H13			±0.2			[g]		
16	8	8	10	20	7.5	11	4.5	4.6	13	20	30	2	26	**1434912**	**LNZG-16**
25	12	11	15	30	10.5	15	6.6	6.8	18	32	46	2	83	**32959**	**LNZG-32**
40	16	15	18	36	12	18	9	9	21	36	55	2	129	**32960**	**LNZG-40/50**

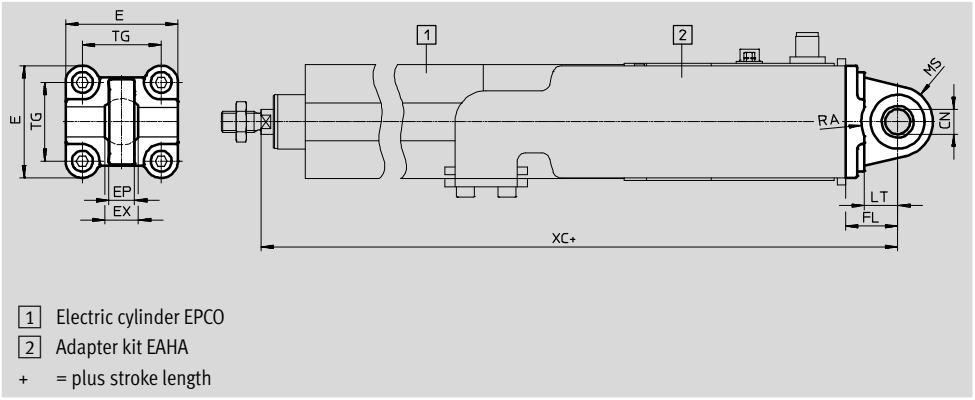
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Swivel flange SNCS

Material:
Die-cast aluminium

Free of copper and PTFE
RoHS-compliant





1 Electric cylinder EPCO
2 Adapter kit EAHA
\+ = plus stroke length

Dimensions and ordering data

For size	CN ∅	E	EP	EX	FL	LT	MS	RA	TG
[mm]			+0.2		±0.2			+1	
40	12+0.015	54–0.5	12	16	25	16	17+0.5	17.5	38

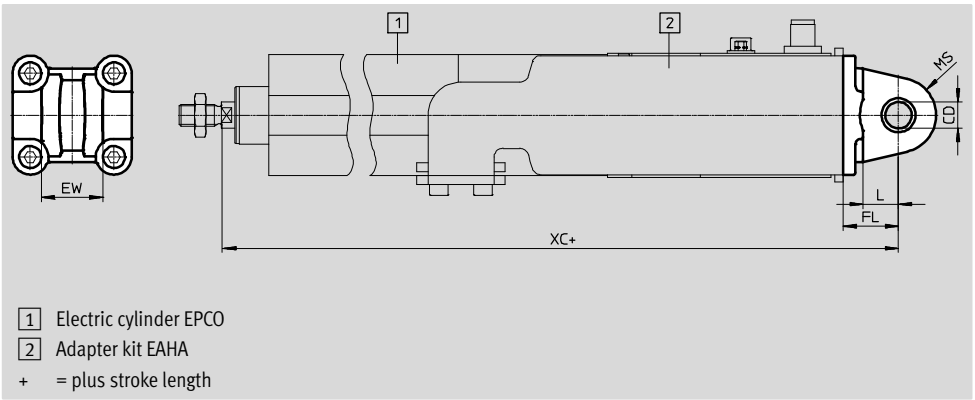
For size	XC				CRC[1)]	Weight	Part No.	Type
	EPCO-...							
[mm]		-E	-B	-EB		[g]		
40	321.7	350.7	371.7	386.2	2	122	**174398**	**SNCS-40**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

Swivel flange SNCL

Material:
Wrought aluminium alloy

Free of copper and PTFE
RoHS-compliant



1 Electric cylinder EPCO
2 Adapter kit EAHA
\+ = plus stroke length

Dimensions and ordering data

For size	CD ∅	EW	FL	L	MR	XC				CRC[1)]	Weight	Part No.	Type
						EPCO-...							
[mm]	H9	h12	±0.2		–0.5		-E	-B	-EB		[g]		
16	6	12	16	10	6	237	237	263	263	2	21	**537791**	**SNCL-16**
25	8	16	20	14	8	269.6	298	318	331	2	41	**537793**	**SNCL-25**
40	12	28	25	16	12	321.7	350.7	371.7	386.2	2	95	**174405**	**SNCL-40**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

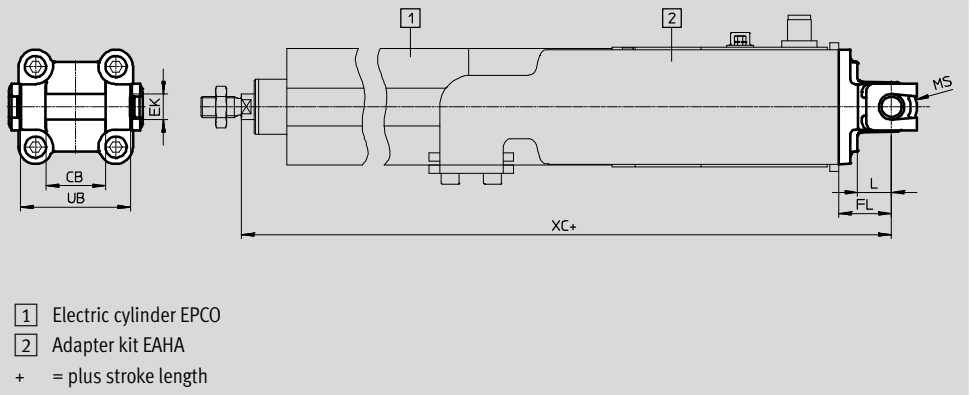
Electric cylinders EPCO, with spindle drive

Accessories

Swivel flange SNCB

Material:
Die-cast aluminium

Free of copper and PTFE
RoHS-compliant



1 Electric cylinder EPCO
2 Adapter kit EAHA
\+ = plus stroke length

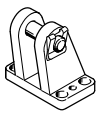
Dimensions and ordering data

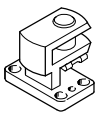
For size	CB	EK ∅	FL	L	MR	UB	XC EPCO-...				CRC[1]	Weight	Part No.	Type
[mm]	H14	e8	±0.2			h14		-E	-B	-EB		[g]		
40	28	12	25	16	12	52	321.7	350.7	371.7	386.2	2	155	**174391**	**SNCB-40**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

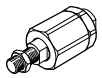
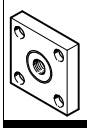
Ordering data – Mounting attachments

Technical data ➔ Internet: clevis foot

Designation	For size	Part No.	Type
Clevis foot LBG			
	40	**31762**	**LBG-40**
Clevis foot LBN			
	16	**6058**	**LBN-12/16**
	25	**6059**	**LBN-20/25**
	40	**195861**	**LBN-40**

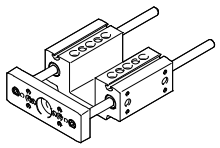
Designation	For size	Part No.	Type
Right-angle clevis foot LQG			
	40	**31769**	**LQG-40**

Ordering data – Piston rod attachments Technical data ➔ Internet: piston rod attachment

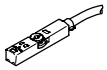
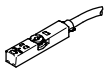
Designation	For size	Part No.	Type
Rod eye SGS			
	16	**9254**	**SGS-M6**
	25	**9255**	**SGS-M8**
	40	**9261**	**SGS-M10x1,25**
Self-aligning rod coupler FK			
	16	**2061**	**FK-M6**
	25	**2062**	**FK-M8**
	40	**6140**	**FK-M10x1,25**
Coupling piece KSG			
	40	**32963**	**KSG-M10x1,25**

Designation	For size	Part No.	Type
Rod clevis SG			
	16	**3110**	**SG-M6**
	25	**3111**	**SG-M8**
	40	**6144**	**SG-M10x1,25**
Rod clevis SGA			
	40	**32954**	**SGA-M10x1,25**

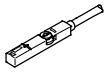
Ordering data – Guide unit Technical data ➔ Internet: eagf

	For size	Stroke [mm]	Part No.	Type
	16	50	**3192932**	**EAGF-P1-KF-16-50**
		100	**3192934**	**EAGF-P1-KF-16-100**
		150	**3192936**	**EAGF-P1-KF-16-150**
		200	**3192938**	**EAGF-P1-KF-16-200**
		75, 125, 175	**3192939**	**EAGF-P1-KF-16-**
	25	50	**3192943**	**EAGF-P1-KF-25-50**
		100	**3192945**	**EAGF-P1-KF-25-100**
		150	**3192947**	**EAGF-P1-KF-25-150**
		200	**3192949**	**EAGF-P1-KF-25-200**
		300	**3192951**	**EAGF-P1-KF-25-300**
		75, 125, 175, 250	**3192952**	**EAGF-P1-KF-25-**
	40	50	**3192955**	**EAGF-P1-KF-40-50**
		100	**3192957**	**EAGF-P1-KF-40-100**
		150	**3192959**	**EAGF-P1-KF-40-150**
		200	**3192961**	**EAGF-P1-KF-40-200**
		300	**3192963**	**EAGF-P1-KF-40-300**
		75, 125, 175, 250, 350, 400	**3192966**	**EAGF-P1-KF-40-**

Ordering data – Proximity sensor for T-slot, magneto-resistive — Technical data ➔ Internet: smt

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	**574335**	**SMT-8M-A-PS-24V-E-2,5-OE**
			Plug M8x1, 3-pin	0.3	**574334**	**SMT-8M-A-PS-24V-E-0,3-M8D**
			Plug M12x1, 3-pin	0.3	**574337**	**SMT-8M-A-PS-24V-E-0,3-M12**
		NPN	Cable, 3-wire	2.5	**574338**	**SMT-8M-A-NS-24V-E-2,5-OE**
			Plug M8x1, 3-pin	0.3	**574339**	**SMT-8M-A-NS-24V-E-0,3-M8D**
N/C contact						
	Inserted in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	7.5	**574340**	**SMT-8M-A-PO-24V-E-7,5-OE**

Ordering data – Proximity sensor for T-slot, magnetic reed — Technical data ➔ Internet: sme

	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part No.	Type
N/O contact						
	Inserted in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	**543862**	**SME-8M-DS-24V-K-2,5-OE**
				5.0	**543863**	**SME-8M-DS-24V-K-5,0-OE**
			Cable, 2-wire	2.5	**543872**	**SME-8M-ZS-24V-K-2,5-OE**
			Plug M8x1, 3-pin	0.3	**543861**	**SME-8M-DS-24V-K-0,3-M8D**
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	**150855**	**SME-8-K-LED-24**
			Plug M8x1, 3-pin	0.3	**150857**	**SME-8-S-LED-24**
N/C contact						
	Inserted in the slot lengthwise, flush with the cylinder profile	Contacting	Cable, 3-wire	7.5	**160251**	**SME-8-O-K-LED-24**

Note

Position sensing is only possible in combination with feature "A" (position sensing) ➔ 24 (modular product system)

Ordering data – Connecting cable — Technical data ➔ Internet: km8

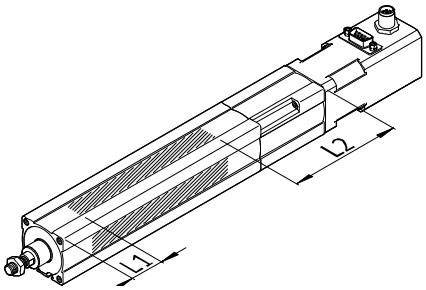
	Description	Connection	Cable length [m]	Part No.	Type
Straight socket					
	Union nut M8, both ends	3-pin	0.5	**175488**	**KM8-M8-GSGD-0,5**
			1.0	**175489**	**KM8-M8-GSGD-1**
			2.5	**165610**	**KM8-M8-GSGD-2,5**
			5.0	**165611**	**KM8-M8-GSGD-5**

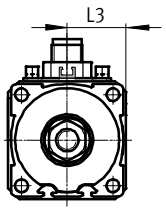
Sensor mounting

The sensor mountings can only be attached within the highlighted area due to the asymmetry of the internal magnets.

The proximity sensors may not switch reliably if they are mounted outside of this area.

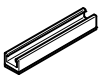
The overall length of the sensor rail SAMH corresponds to the length of the sensing range plus approx. 10 mm adjustment range on either side for the proximity sensors.



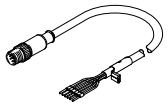
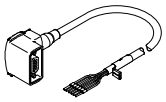
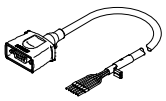
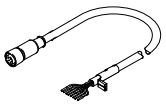
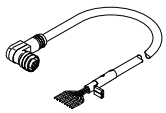


Size	L1	L2	L3
16	29	95	15
25	33	121	20
40	40	150	27.5

Ordering data – Sensor mounting for T-slot

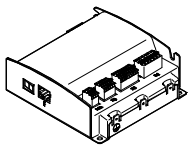
	For size	Description	Length [mm]	Part No.	Type
Sensor rail					
	16, 25, 40	Size 25 can only be used with proximity sensor SMT-8 (magneto-resistive).	50	**1600093**	**SAMH-N8-SR-50**
			100	**1600118**	**SAMH-N8-SR-100**
Mounting kit					
	16, 25, 40	–	35	**525565**	**CRSMB-8-32/100**

Ordering data – Cables[1)]

	For size	Description	Cable length [m]	Part No.	Type
Motor cable					
	16	Straight plug			
		– Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1449600**	**NEBM-M12G8-E-1.5-Q5-LE6**
			2.5	**1449601**	**NEBM-M12G8-E-2.5-Q5-LE6**
			5.0	**1449602**	**NEBM-M12G8-E-5-Q5-LE6**
			7.0	**1449603**	**NEBM-M12G8-E-7-Q5-LE6**
			10.0	**1449604**	**NEBM-M12G8-E-10-Q5-LE6**
	25/-40	Angled plug			
		– Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1450736**	**NEBM-S1W9-E-1.5-Q5-LE6**
			2.5	**1450737**	**NEBM-S1W9-E-2.5-Q5-LE6**
			5.0	**1450738**	**NEBM-S1W9-E-5-Q5-LE6**
			7.0	**1450739**	**NEBM-S1W9-E-7-Q5-LE6**
			10.0	**1450740**	**NEBM-S1W9-E-10-Q5-LE6**
		Straight plug			
		– Min. bending radius: 62 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1450368**	**NEBM-S1G9-E-1.5-Q5-LE6**
			2.5	**1450369**	**NEBM-S1G9-E-2.5-Q5-LE6**
			5.0	**1450370**	**NEBM-S1G9-E-5-Q5-LE6**
			7.0	**1450371**	**NEBM-S1G9-E-7-Q5-LE6**
			10.0	**1450372**	**NEBM-S1G9-E-10-Q5-LE6**
Encoder cable					
	16/-25/-40	Straight plug			
		– Min. bending radius: 68 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1451586**	**NEBM-M12G8-E-1.5-LE8**
			2.5	**1451587**	**NEBM-M12G8-E-2.5-LE8**
			5.0	**1451588**	**NEBM-M12G8-E-5-LE8**
			7.0	**1451589**	**NEBM-M12G8-E-7-LE8**
			10.0	**1451590**	**NEBM-M12G8-E-10-LE8**
	25/-40	Angled plug			
		– Min. bending radius: 68 mm – Suitable for use with energy chains – Ambient temp.: –40 … +80 °C	1.5	**1451674**	**NEBM-M12W8-E-1.5-LE8**
			2.5	**1451675**	**NEBM-M12W8-E-2.5-LE8**
			5.0	**1451676**	**NEBM-M12W8-E-5-LE8**
			7.0	**1451677**	**NEBM-M12W8-E-7-LE8**
			10.0	**1451678**	**NEBM-M12W8-E-10-LE8**

1) Other cable lengths on request.

Ordering data – Motor controller Technical data ➔ Internet: cmmo

	Description	Part No.	Type
	With I/O interface		
	Switching input/output PNP	**1512316**	**CMMO-ST-C5-1-DIOP**
	Switching input/output NPN	**1512317**	**CMMO-ST-C5-1-DION**
	With IO-Link		
	Switching input/output PNP	**1512320**	**CMMO-ST-C5-1-LKP**