

Electric cylinders EPCO, with spindle drive



Electric cylinders EPCO, with spindle drive

Key features



At a glance		
General	Properties	Range of applications
<p>The electric cylinder EPCO is a mechanical linear drive with piston rod and permanently attached motor. The driving component consists of an</p>	<p>electrically actuated spindle that converts the rotary motion of the motor into a linear motion of the piston rod.</p> <ul style="list-style-type: none"> • 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 	<ul style="list-style-type: none"> • 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	Ordering and logistics	Quick to configure
<ul style="list-style-type: none"> • Easy sizing and selection using cycle time charts • No specialist knowledge of electric drive technology required 	<ul style="list-style-type: none"> • All the part components required with a single part number • Motors mounted on electric cylinders 	<ul style="list-style-type: none"> • 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

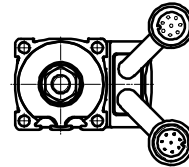
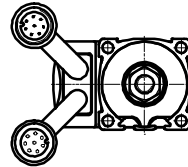
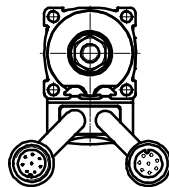
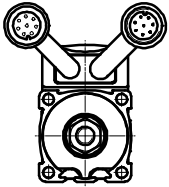
EPCO-16

Standard

Underneath (feature D)

Left (feature L)

Right (feature R)



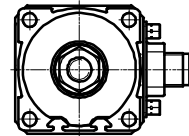
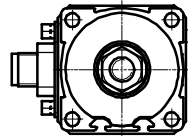
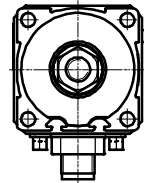
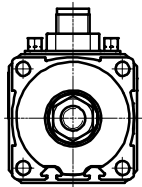
EPCO-25/-40

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



		EPCO	-	16	-	100	-	3P	-		-		-	A	-	ST	-	E	B	
Type																				
EPCO	Electric cylinder																			
Size																				
Stroke [mm]																				
Spindle pitch																				
Piston rod thread type																				
-	Male thread																			
F	Female thread																			
Piston rod extension																				
-	None																			
...E	0 ... 200 mm																			
Position sensing																				
-	None																			
A	Via proximity sensor																			
Motor type																				
ST	Stepper motor																			
Measuring unit																				
-	None																			
E	Encoder																			
Brake																				
-	None																			
B	With brake																			

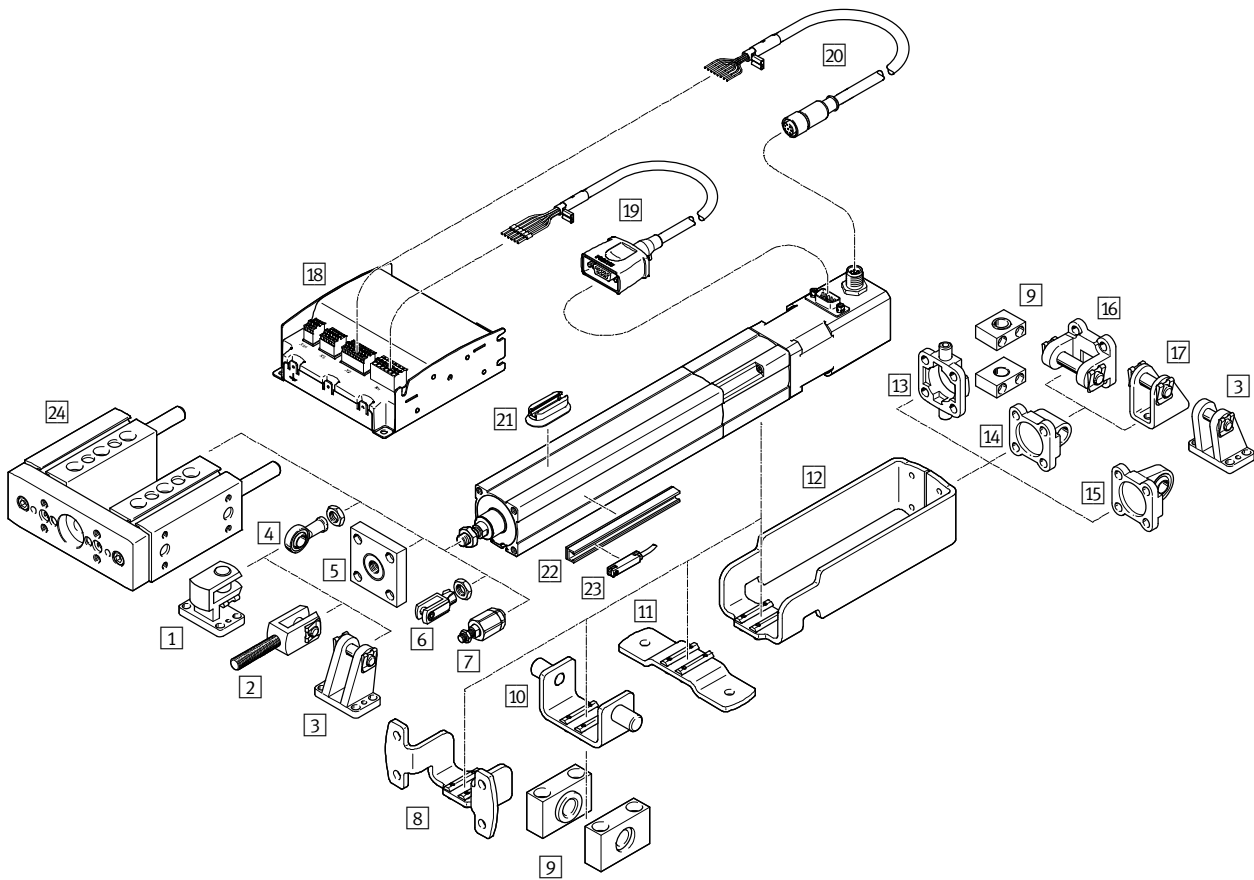
Electric cylinders EPCO, with spindle drive

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	-	-	■	32
2	Rod clevis SGA	-	-	■	33
3	Clevis foot LBG	-	-	■	32
4	Rod eye SGS/CRSGS	■	■	■	33
5	Coupling piece KSG	-	-	■	33
6	Rod clevis SG/CRSG	■	■	■	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.

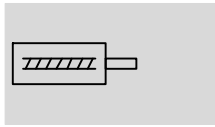
The mass of the motor can be amplified by the lever effect, which can result in the mounting thread being torn out.




Electric cylinders EPCO, with spindle drive

FESTO

Technical data

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 mm ²]	2.28	2.29	9.33	9.40	33.25	33.75
EPCO-...-B	[kg mm ²]	2.97	2.98	10.63	10.70	34.55	35.05
j _s per metre stroke	[kg mm ² /m]	2.53	2.65	4.87	5.78	11.66	16.70
j _L per kg payload	[kg mm ² /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:

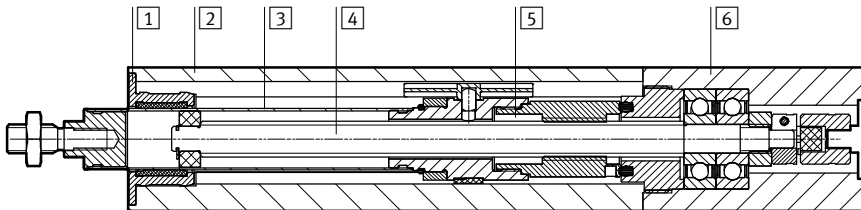
$$J_A = J_0 + j_s \times \text{working stroke [m]} + j_L \times m_{\text{moving payload [kg]}}$$

Electric cylinders EPCO, with spindle drive

Technical data

Materials

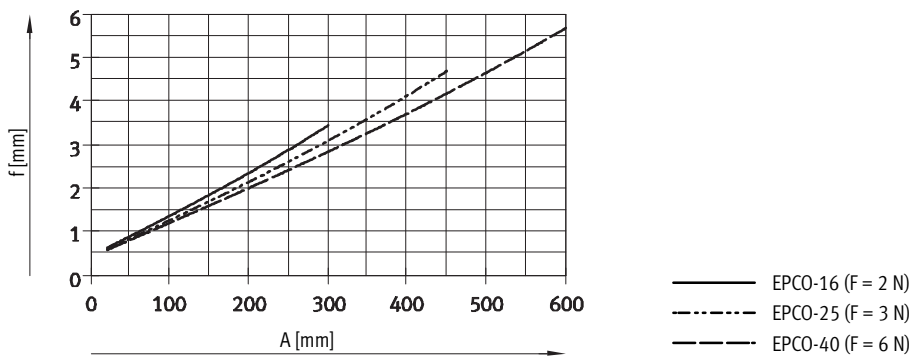
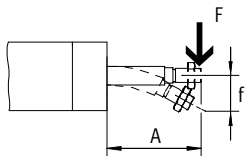
Sectional view



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)

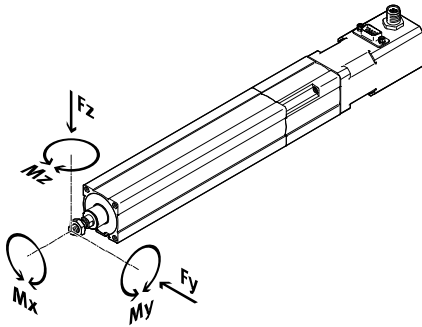
Piston rod deflection f as a function of projection A and lateral force F



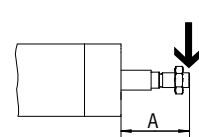
Electric cylinders EPCO, with spindle drive

Technical data

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:

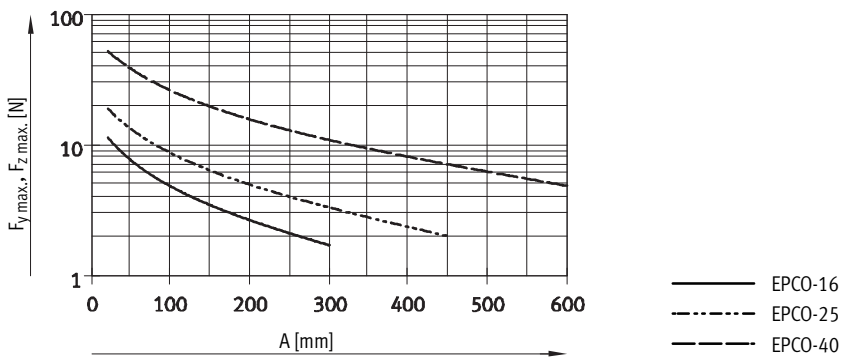


$$\frac{|F_y|}{F_{y_{max}}} + \frac{|F_z|}{F_{z_{max}}} + \frac{|M_y|}{M_{y_{max}}} + \frac{|M_z|}{M_{z_{max}}} \leq 1$$

$$|F_x| \leq F_{x_{max}}$$

$$|M_x| \leq M_{x_{max}}$$

Maximum permissible lateral forces $F_{y_{max}}$ and $F_{z_{max}}$ on the piston rod as a function of projection A



Size	16		25		40	
Spindle design	3P	8P	3P	10P	5P	12.7P
$F_{x_{max}}$ (static) [N]	125	50	350	105	650	250
$M_{x_{max}}$ [Nm]	0		0		0	
$M_{y_{max}}, M_{z_{max}}$ [Nm]	0.6		1.0		3.3	

-  - Note
 PositioningDrives
 engineering software
 → www.festo.com

Electric cylinders EPCO, with spindle drive

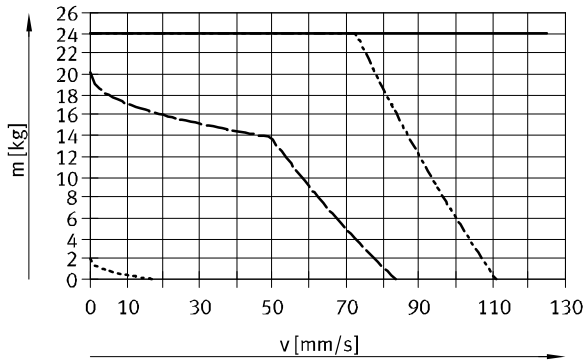
Technical data



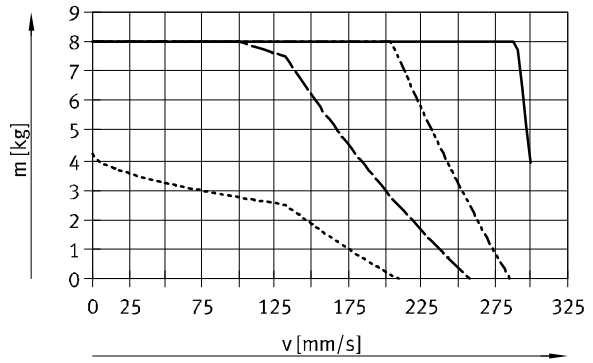
Payload m as a function of speed v and acceleration a

Horizontal mounting position

EPCO-16-3P



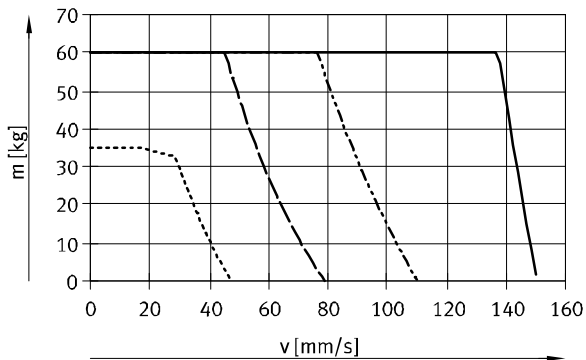
EPCO-16-8P



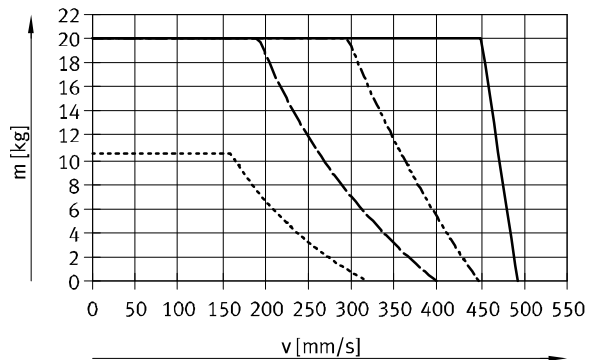
For EPCO-... / EPCO-...-KF

- $a = 0.5 \text{ m/s}^2$
- - - $a = 2.5 \text{ m/s}^2$
- · - $a = 5 \text{ m/s}^2$
- · · $a = 10 \text{ m/s}^2$

EPCO-25-3P



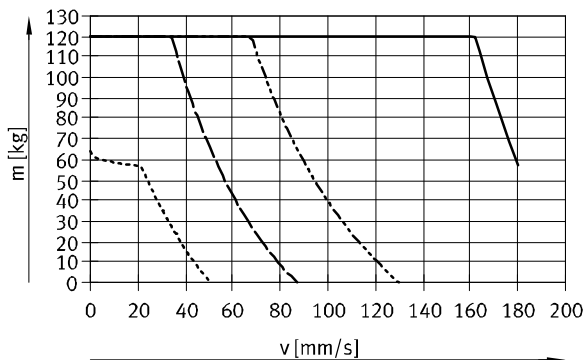
EPCO-25-10P



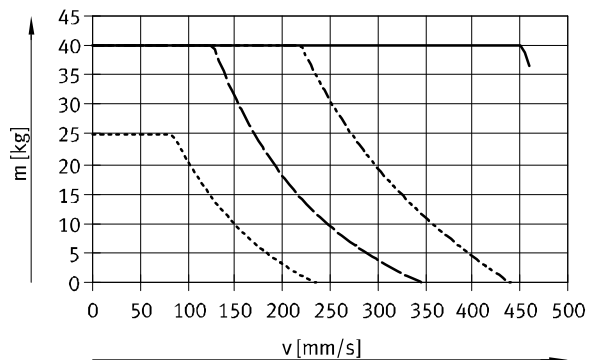
For EPCO-... / EPCO-...-KF

- $a = 0.5 \text{ m/s}^2$
- - - $a = 2.5 \text{ m/s}^2$
- · - $a = 5 \text{ m/s}^2$
- · · $a = 10 \text{ m/s}^2$

EPCO-40-5P



EPCO-40-12.7P



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

- $a = 0.5 \text{ m/s}^2$
- - - $a = 2.5 \text{ m/s}^2$
- · - $a = 5 \text{ m/s}^2$
- · · $a = 10 \text{ m/s}^2$

Electric cylinders EPCO, with spindle drive

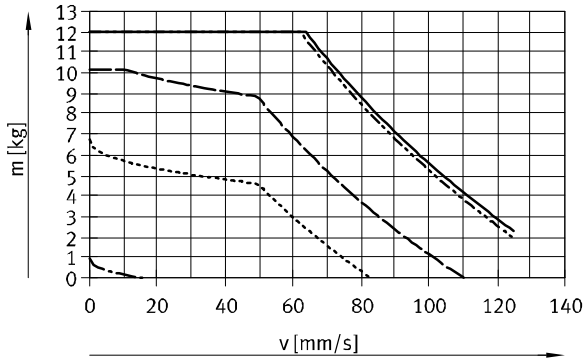
Technical data

Payload m as a function of speed v and acceleration a

Vertical mounting position

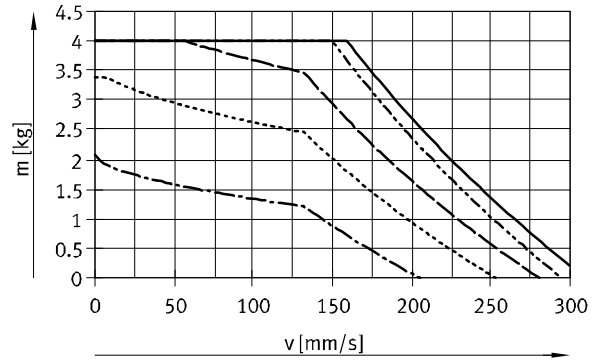
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical payload and speed.

EPCO-16-3P



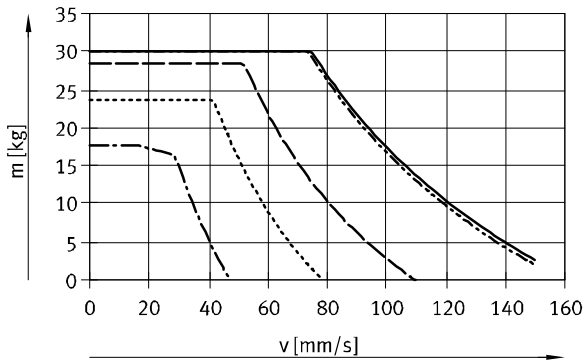
For EPCO-...	For EPCO-...-KF
— $a = 0 \text{ m/s}^2$	— $a = 0 \text{ m/s}^2$
- - - $a = 0.2 \text{ m/s}^2$	- - - $a = 2.3 \text{ m/s}^2$
- · - $a = 2.5 \text{ m/s}^2$	- · - $a = 4.7 \text{ m/s}^2$
· · · $a = 5 \text{ m/s}^2$	· · · $a = 9.6 \text{ m/s}^2$
- - - $a = 10 \text{ m/s}^2$	- - - $a = 9.6 \text{ m/s}^2$

EPCO-16-8P



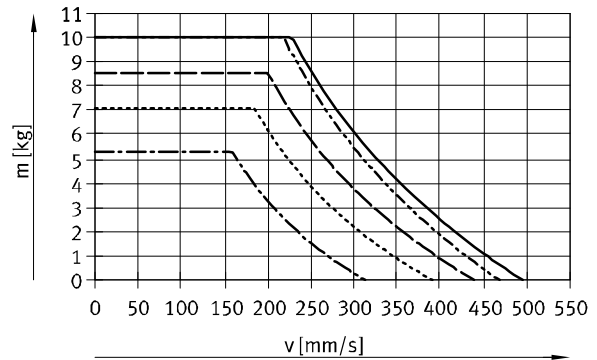
For EPCO-...	For EPCO-...-KF
— $a = 0 \text{ m/s}^2$	— $a = 0 \text{ m/s}^2$
- - - $a = 1.2 \text{ m/s}^2$	- - - $a = 1.2 \text{ m/s}^2$
- · - $a = 2.5 \text{ m/s}^2$	- · - $a = 3.4 \text{ m/s}^2$
· · · $a = 5 \text{ m/s}^2$	· · · $a = 7.8 \text{ m/s}^2$
- - - $a = 10 \text{ m/s}^2$	- - - $a = 7.8 \text{ m/s}^2$

EPCO-25-3P



For EPCO-...	For EPCO-...-KF
— $a = 0 \text{ m/s}^2$	— $a = 0 \text{ m/s}^2$
- - - $a = 0.2 \text{ m/s}^2$	- - - $a = 2.4 \text{ m/s}^2$
- · - $a = 2.5 \text{ m/s}^2$	- · - $a = 4.9 \text{ m/s}^2$
· · · $a = 5 \text{ m/s}^2$	· · · $a = 9.8 \text{ m/s}^2$
- - - $a = 10 \text{ m/s}^2$	- - - $a = 9.8 \text{ m/s}^2$

EPCO-25-10P



For EPCO-...	For EPCO-...-KF
— $a = 0 \text{ m/s}^2$	— $a = 0 \text{ m/s}^2$
- - - $a = 1.2 \text{ m/s}^2$	- - - $a = 1.6 \text{ m/s}^2$
- · - $a = 2.5 \text{ m/s}^2$	- · - $a = 3.9 \text{ m/s}^2$
· · · $a = 5 \text{ m/s}^2$	· · · $a = 8.3 \text{ m/s}^2$
- - - $a = 10 \text{ m/s}^2$	- - - $a = 8.3 \text{ m/s}^2$

Further technical data for the guide

unit EAGF-P1

→ www.festo.com/eagf-p1

Electric cylinders EPCO, with spindle drive

Technical data

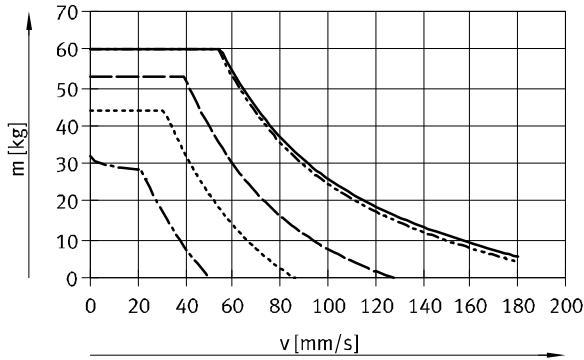


Payload m as a function of speed v and acceleration a

Vertical mounting position

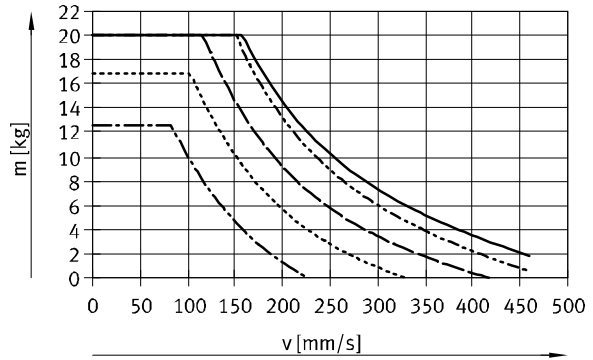
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical payload and speed.

EPCO-40-5P



For EPCO-...	For EPCO-...-KF
— $a = 0 \text{ m/s}^2$	— $a = 0 \text{ m/s}^2$
- - - $a = 0.2 \text{ m/s}^2$	- - - $a = 2.4 \text{ m/s}^2$
- - - $a = 2.5 \text{ m/s}^2$	- - - $a = 4.8 \text{ m/s}^2$
- - - $a = 5 \text{ m/s}^2$	- - - $a = 9.7 \text{ m/s}^2$
- - - $a = 10 \text{ m/s}^2$	- - - $a = 9.7 \text{ m/s}^2$

EPCO-40-12.7P



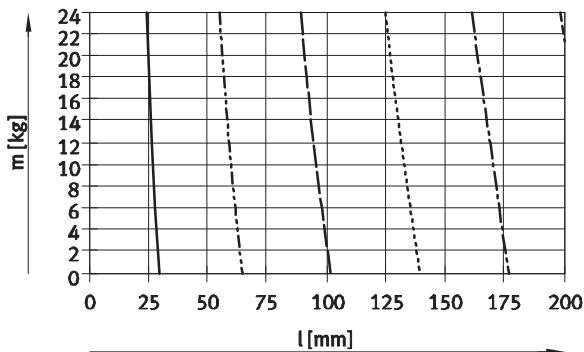
For EPCO-...	For EPCO-...-KF
— $a = 0 \text{ m/s}^2$	— $a = 0 \text{ m/s}^2$
- - - $a = 1.2 \text{ m/s}^2$	- - - $a = 1.8 \text{ m/s}^2$
- - - $a = 2.5 \text{ m/s}^2$	- - - $a = 4.0 \text{ m/s}^2$
- - - $a = 5 \text{ m/s}^2$	- - - $a = 8.5 \text{ m/s}^2$
- - - $a = 10 \text{ m/s}^2$	- - - $a = 8.5 \text{ m/s}^2$

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

Horizontal mounting position

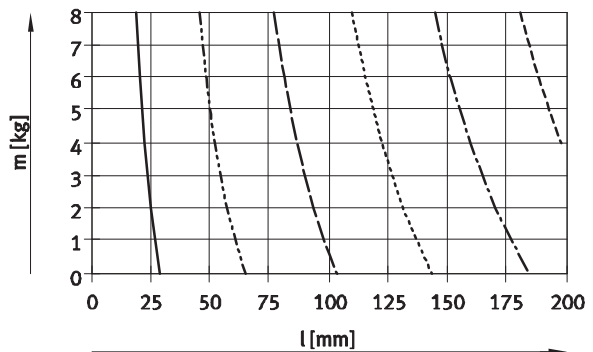
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

EPCO-16-3P



For EPCO-...	For EPCO-...-KF
— $t = 0.30 \text{ s}$	— $t = 0.30 \text{ s}$
- - - $t = 0.60 \text{ s}$	- - - $t = 0.60 \text{ s}$
- - - $t = 0.90 \text{ s}$	- - - $t = 0.90 \text{ s}$
- - - $t = 1.20 \text{ s}$	- - - $t = 1.20 \text{ s}$
- - - $t = 1.50 \text{ s}$	- - - $t = 1.55 \text{ s}$
- - - $t = 1.80 \text{ s}$	- - - $t = 1.85 \text{ s}$

EPCO-16-8P



For EPCO-...	For EPCO-...-KF
— $t = 0.15 \text{ s}$	— $t = 0.15 \text{ s}$
- - - $t = 0.30 \text{ s}$	- - - $t = 0.30 \text{ s}$
- - - $t = 0.45 \text{ s}$	- - - $t = 0.45 \text{ s}$
- - - $t = 0.60 \text{ s}$	- - - $t = 0.65 \text{ s}$
- - - $t = 0.75 \text{ s}$	- - - $t = 0.80 \text{ s}$
- - - $t = 0.90 \text{ s}$	- - - $t = 0.95 \text{ s}$

Further technical data for the guide unit EAGF-P1

→ www.festo.com/eagf-p1

Electric cylinders EPCO, with spindle drive

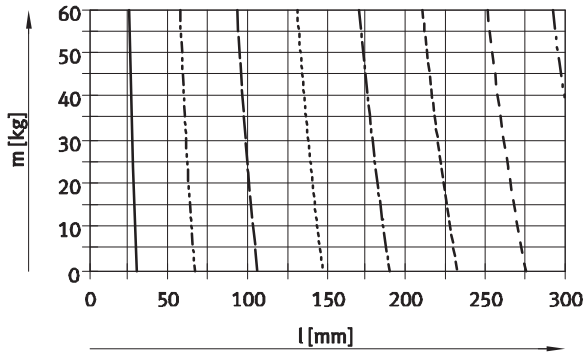
Technical data

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

Horizontal mounting position

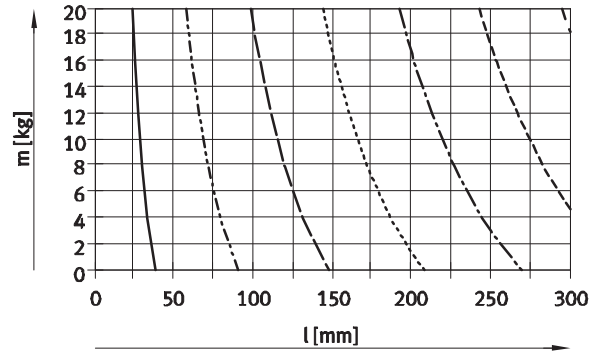
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

EPCO-25-3P



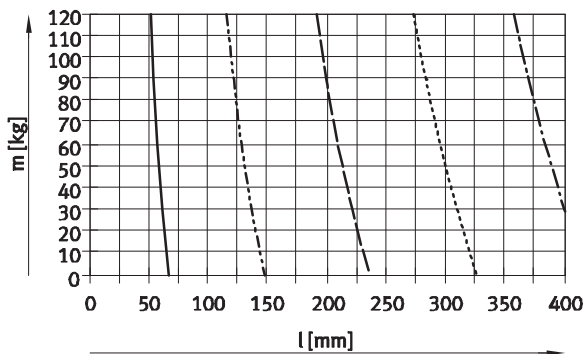
For EPCO-...	For EPCO-...-KF
— t = 0.30 s	t = 0.30 s
- - - t = 0.60 s	t = 0.60 s
— t = 0.90 s	t = 0.90 s
- - - t = 1.20 s	t = 1.20 s
- - - t = 1.50 s	t = 1.50 s
- - - t = 1.80 s	t = 1.80 s
- - - t = 2.10 s	t = 2.10 s
- - - t = 2.40 s	t = 2.40 s

EPCO-25-10P



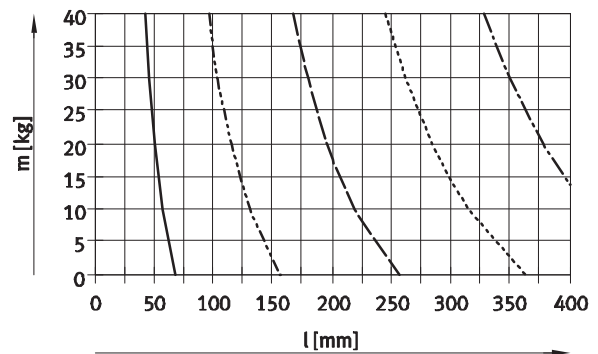
For EPCO-...	For EPCO-...-KF
— t = 0.15 s	t = 0.15 s
- - - t = 0.30 s	t = 0.30 s
— t = 0.45 s	t = 0.45 s
- - - t = 0.60 s	t = 0.60 s
- - - t = 0.75 s	t = 0.80 s
- - - t = 0.90 s	t = 0.95 s
- - - t = 1.05 s	t = 1.10 s

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

Electric cylinders EPCO, with spindle drive

Technical data

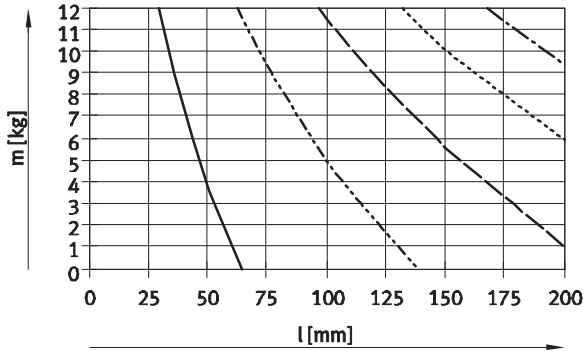


Payload m as a function of travel distance l and positioning time t

Vertical mounting position

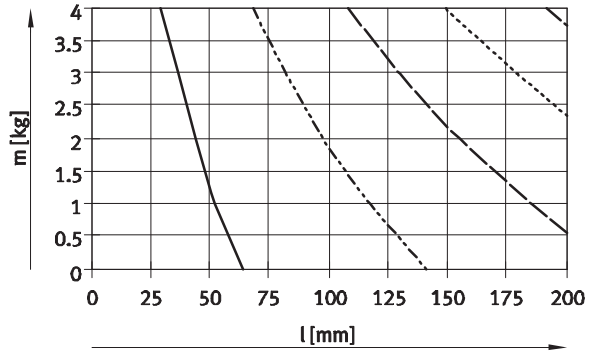
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

EPCO-16-3P



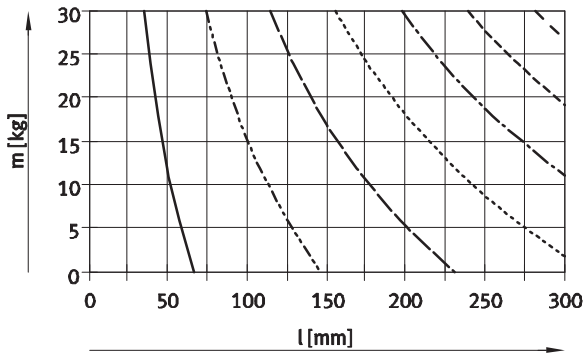
For EPCO-...	For EPCO-...-KF
— $t = 0.60$ s	— $t = 0.60$ s
- - - $t = 1.20$ s	- - - $t = 1.25$ s
- · - $t = 1.80$ s	- · - $t = 1.85$ s
· · · $t = 2.40$ s	· · · $t = 2.50$ s
- · - · $t = 3.00$ s	- · - · $t = 3.10$ s

EPCO-16-8P



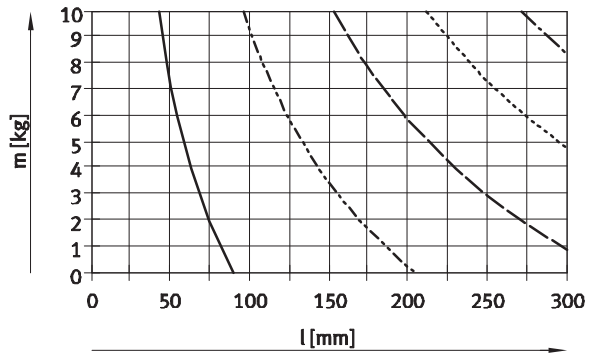
For EPCO-...	For EPCO-...-KF
— $t = 0.30$ s	— $t = 0.35$ s
- - - $t = 0.60$ s	- - - $t = 0.65$ s
- · - $t = 0.90$ s	- · - $t = 1.00$ s
· · · $t = 1.20$ s	· · · $t = 1.30$ s
- · - · $t = 1.50$ s	- · - · $t = 1.65$ s

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

Electric cylinders EPCO, with spindle drive

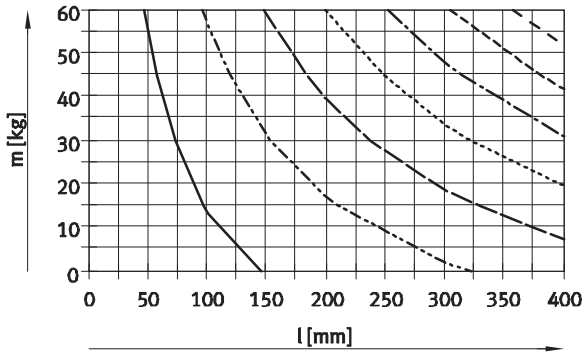
Technical data

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

Vertical mounting position

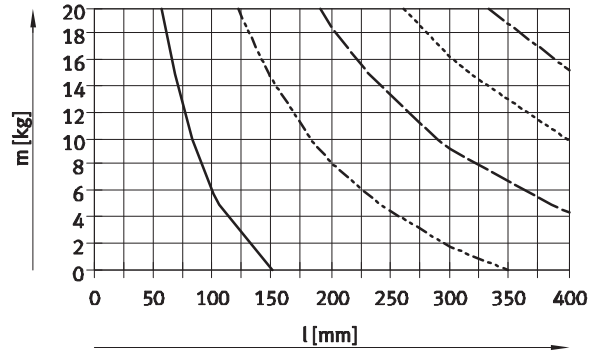
The moving tare weight of the guide unit (EPCO-...-KF) results in longer positioning times with identical payload and travel distance.

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

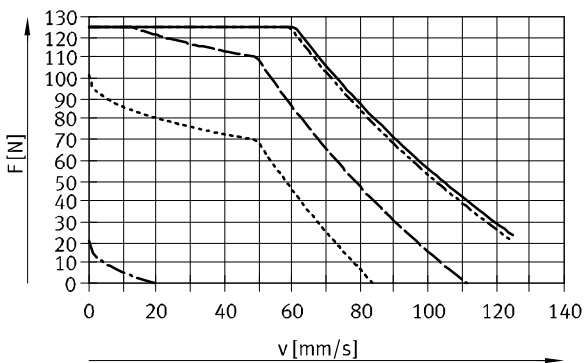


For EPCO-...	For EPCO-...-KF
— t = 0.50 s	- - - t = 0.55 s
- - - t = 1.00 s	- - - t = 1.10 s
- - - t = 1.50 s	- - - t = 1.60 s
- - - t = 2.00 s	- - - t = 2.15 s
- - - t = 2.50 s	- - - t = 2.70 s

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

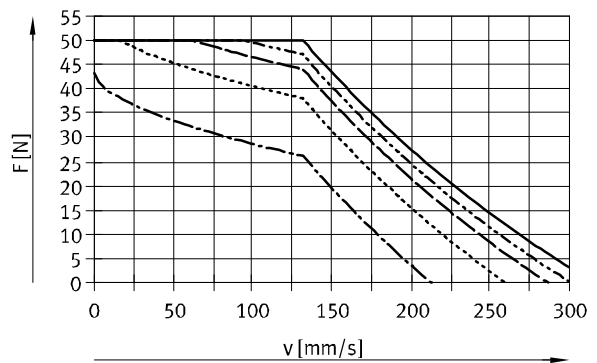
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical feed force and speed.

EPCO-16-3P



For EPCO-...	For EPCO-...-KF
— a = 0 m/s ²	- - - a = 0 m/s ²
- - - a = 0.2 m/s ²	- - - a = 2.3 m/s ²
- - - a = 2.5 m/s ²	- - - a = 4.7 m/s ²
- - - a = 5 m/s ²	- - - a = 9.6 m/s ²
- - - a = 10 m/s ²	- - - a = 9.6 m/s ²

EPCO-16-8P



For EPCO-...	For EPCO-...-KF
— a = 0 m/s ²	- - - a = 0 m/s ²
- - - a = 1.2 m/s ²	- - - a = 1.2 m/s ²
- - - a = 2.5 m/s ²	- - - a = 3.4 m/s ²
- - - a = 5 m/s ²	- - - a = 7.8 m/s ²
- - - a = 10 m/s ²	- - - a = 7.8 m/s ²

Further technical data for the guide unit EAGF-P1

→ www.festo.com/eagf-p1

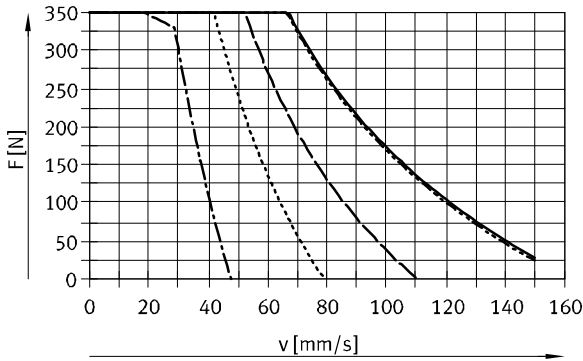
Electric cylinders EPCO, with spindle drive

Technical data

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

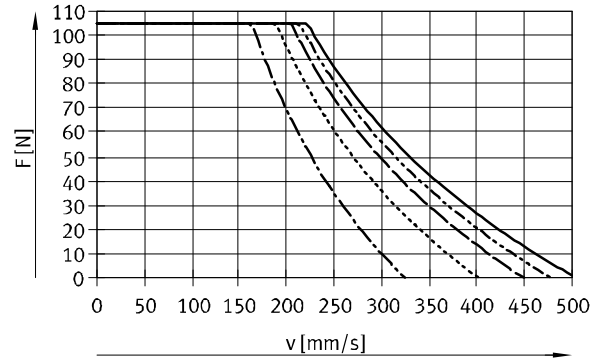
The moving tare weight of the guide unit (EPCO-...-KF) results in lower acceleration values with identical feed force and speed.

EPCO-25-3P



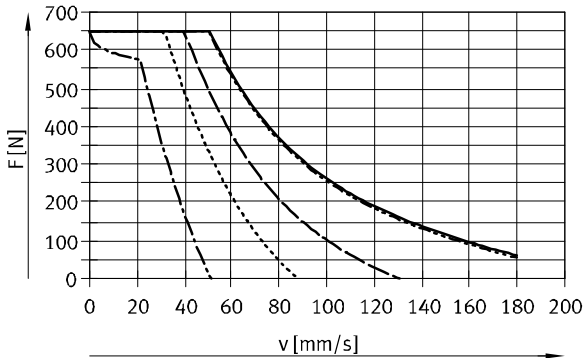
For EPCO-...	For EPCO-...-KF
— a = 0 m/s ²	a = 0 m/s ²
- - - a = 0.2 m/s ²	a = 2.4 m/s ²
- - - a = 2.5 m/s ²	a = 4.9 m/s ²
- - - a = 5 m/s ²	a = 9.8 m/s ²
- - - a = 10 m/s ²	

EPCO-25-10P



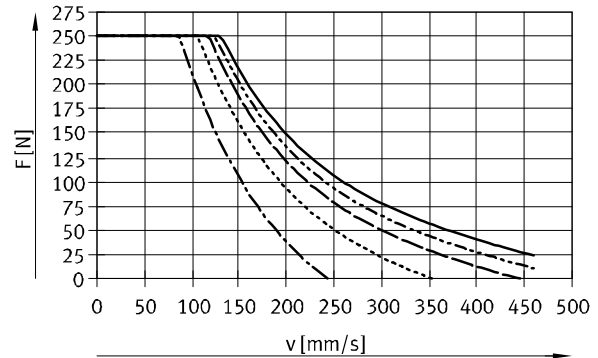
For EPCO-...	For EPCO-...-KF
— a = 0 m/s ²	a = 0 m/s ²
- - - a = 1.2 m/s ²	a = 1.6 m/s ²
- - - a = 2.5 m/s ²	a = 3.9 m/s ²
- - - a = 5 m/s ²	a = 8.3 m/s ²
- - - a = 10 m/s ²	

EPCO-40-5P



For EPCO-...	For EPCO-...-KF
— a = 0 m/s ²	a = 0 m/s ²
- - - a = 0.2 m/s ²	a = 2.4 m/s ²
- - - a = 2.5 m/s ²	a = 4.8 m/s ²
- - - a = 5 m/s ²	a = 9.7 m/s ²
- - - a = 10 m/s ²	

EPCO-40-12.7P



For EPCO-...	For EPCO-...-KF
— a = 0 m/s ²	a = 0 m/s ²
- - - a = 1.2 m/s ²	a = 1.8 m/s ²
- - - a = 2.5 m/s ²	a = 4.0 m/s ²
- - - a = 5 m/s ²	a = 8.5 m/s ²
- - - a = 10 m/s ²	

Further technical data for the guide unit EAGF-P1

→ www.festo.com/eagf-p1

Electric cylinders EPCO, with spindle drive

Technical data

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.

$$F_x \leq F_{x\max.}$$

and

$$v_x \leq v_{x\max.}$$

Mean feed force (to DIN 69051-4)

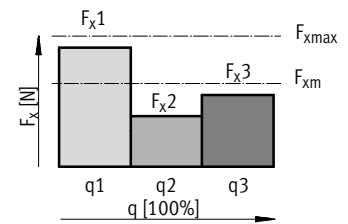
During operation, the continuous feed force may be briefly exceeded up to the maximum feed force. The continu-

ous feed force must, however, be adhered to when averaged over a movement cycle.

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

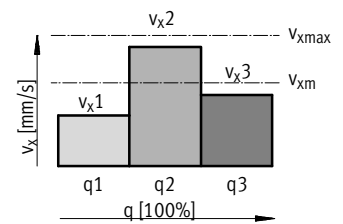
$$F_{xm} = \sqrt[3]{\sum F_x^3 \times \frac{v_x}{v_{xm}} \times \frac{q}{100}} =$$

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



Mean feed speed (to DIN 69051-4)

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



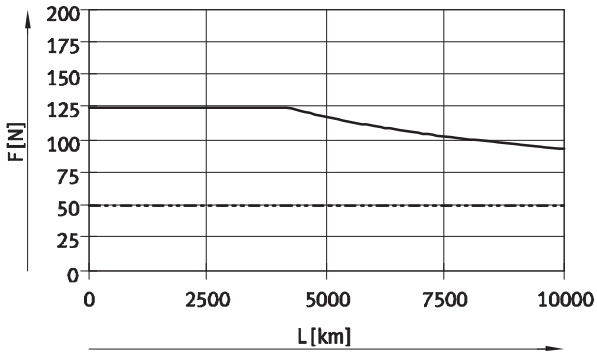
F_x	Feed force	v_x	Feed speed
F_{xm}	Mean feed force	v_{xm}	Mean feed speed
$F_{x\max}$	Max. feed force	$v_{x\max}$	Max. feed speed
$F_{x\text{continuous}}$	Continuous feed force		
q	Time		

Electric cylinders EPCO, with spindle drive

Technical data

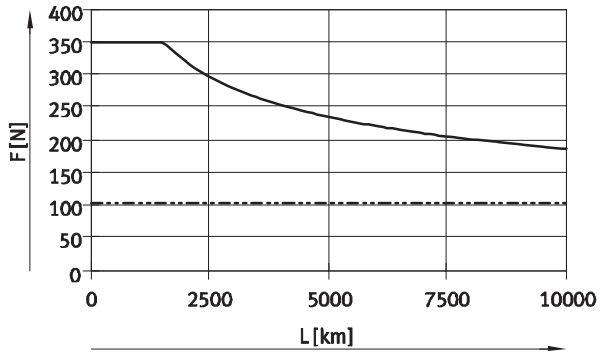
Mean feed force F as a function of running performance L (to DIN 69051-4)

EPCO-16



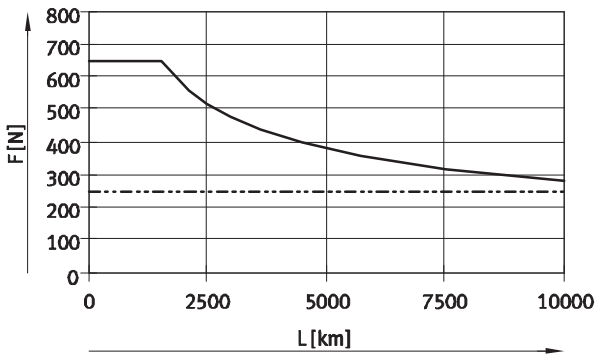
— EPCO-16-3P
- - - EPCO-16-8P

EPCO-25



— EPCO-25-3P
- - - EPCO-25-10P

EPCO-40



— EPCO-40-5P
- - - EPCO-40-12.7P

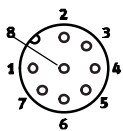
Note

- 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.

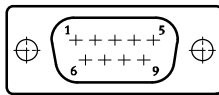
Pin allocation

Motor

EPCO-16

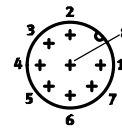


EPCO-25/-40



Encoder

EPCO-16/-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⁾
-	-

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.

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.

Electric cylinders EPCO, with spindle drive

Technical data

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

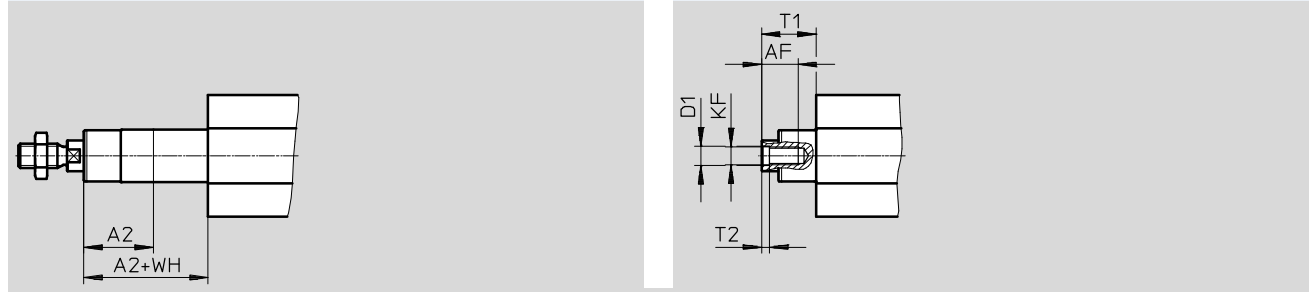
Size	L3				L4	L5	L6	MM	∅C1	∅C2
	EPCO-...									
[mm]	-E	-B	-EB		-0.15	-0.1				
16	70±1	70±1	96±1.5	96±1.5	16	3.7	10	8	7	10
25	66±1	94.4±1.2	114.4±1.3	127.4±1.3	18	4.2	12	10	9	13
40	73.5±0.8	102.5±1.1	123.5±1.1	138±1.1	21.5	4.7	14	12	10	17

Electric cylinders EPCO, with spindle drive

Technical data

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


Electric cylinders EPCO, with spindle drive


Technical data

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

Electric cylinders EPCO, with spindle drive

Ordering data – Modular products

Ordering table						
Size	16	25	40	Condi- tions	Code	Enter code
0 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

- - + +

Electric cylinders EPCO, with spindle drive

Accessories

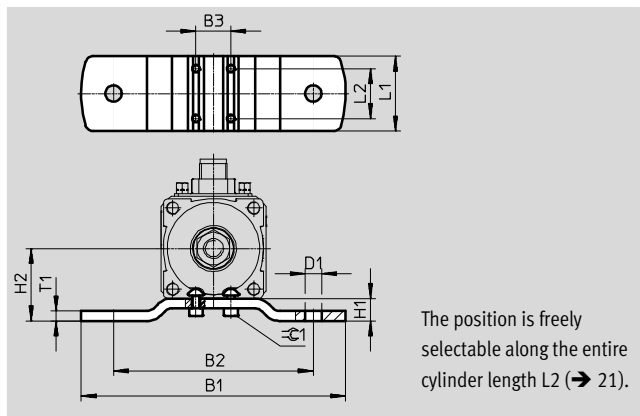


Foot mounting EAHF

Material:

Galvanised steel

RoHS-compliant



Dimensions and ordering data							
For size	B1	B2	B3	D1 Ø	H1	H2	L1
[mm]							
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	L2	T1	≈C1	CRC ¹⁾	Weight	Part No.	Type
[mm]					[g]		
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).

Electric cylinders EPCO, with spindle drive

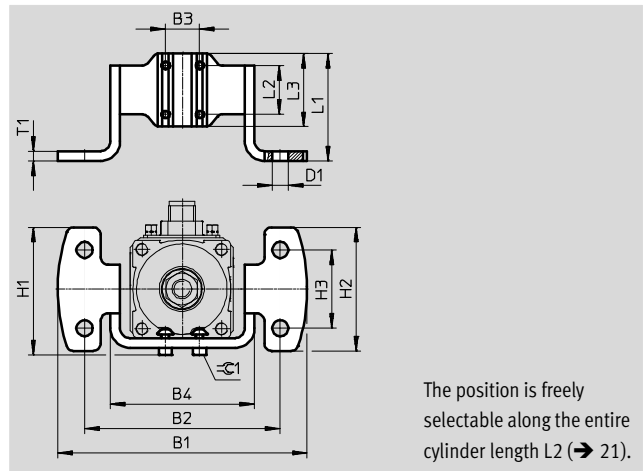
Accessories

Flange mounting EAHH

Material:

Galvanised steel

RoHS-compliant



Dimensions and ordering data									
For size	B1	B2	B3	B4	D1	H1	H2	H3	L1
[mm]					∅				
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	L2	L3	T1	≈C1	CRC ¹⁾	Weight	Part No.	Type
[mm]						[g]		
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).

Electric cylinders EPCO, with spindle drive

Accessories

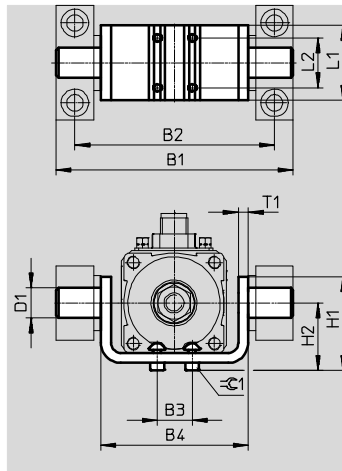


Swivel mounting EAHS

Material:

Galvanised steel

RoHS-compliant



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

Dimensions and ordering data							
For size	B1	B2	B3	B4	D1	H1	H2
[mm]					∅ e9		
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	L1	L2	T1	≈∅1	CRC ¹⁾	Weight	Part No.	Type
[mm]						[g]		
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).

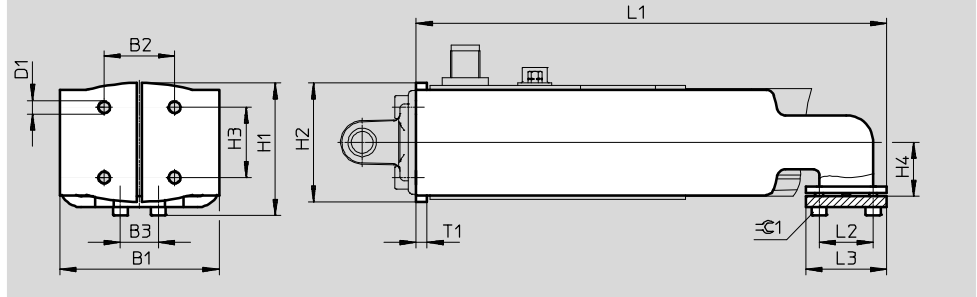
Electric cylinders EPCO, with spindle drive

Accessories

Adapter kit EAHA

Material:
Galvanised steel

RoHS-compliant



Dimensions and ordering data								
For size	B1	B2	B3	D1	H1	H2	H3	H4
[mm]								
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	L1	L2	L3	T1	≈CRC1	CRC ¹⁾	Weight	Part No.	Type
[mm]							[g]		
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).

Electric cylinders EPCO, with spindle drive

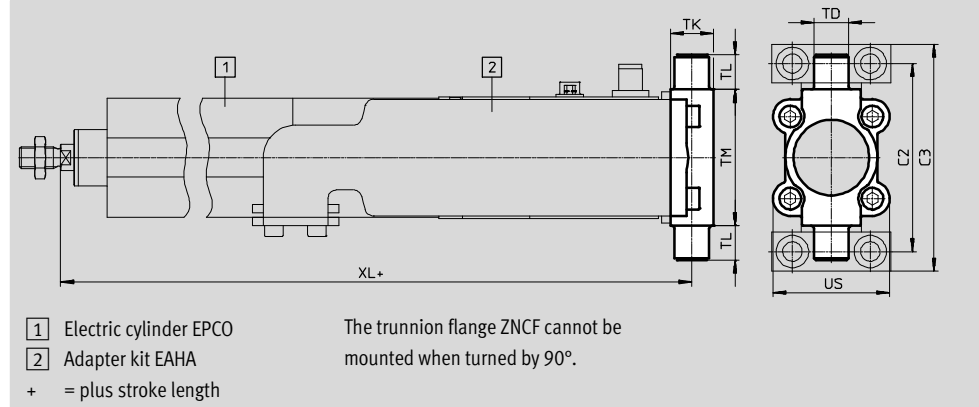
Accessories



Trunnion flange ZNCF

Material:
ZNCF: Stainless steel casting

Free of copper and PTFE
RoHS-compliant

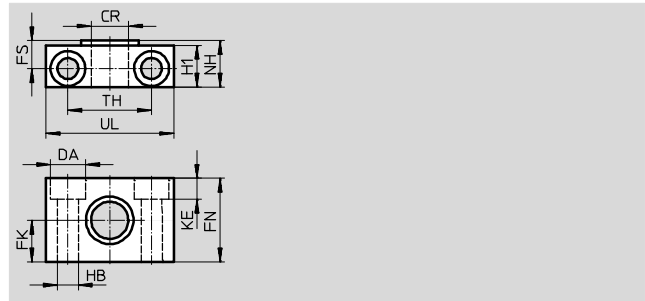


Dimensions and ordering data															
For size	C2	C3	TD	TK	TL	TM	US	XL				CRC ¹⁾	Weight	Part No.	Type
[mm]			∅ e9					EPCO-...	-E	-B	-EB		[g]		
40	87	105	16	20	16	63	54	306.7	335.7	356.7	371.2	2	285	174412	ZNCF-40

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.

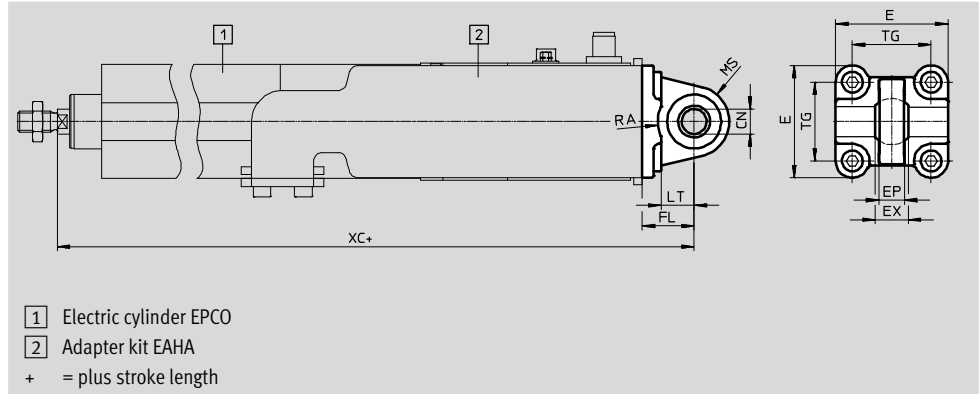
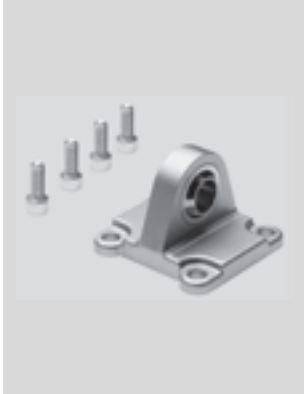
Electric cylinders EPCO, with spindle drive

Accessories

Swivel flange SNCS

Material:
Die-cast aluminium

Free of copper and PTFE
RoHS-compliant



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

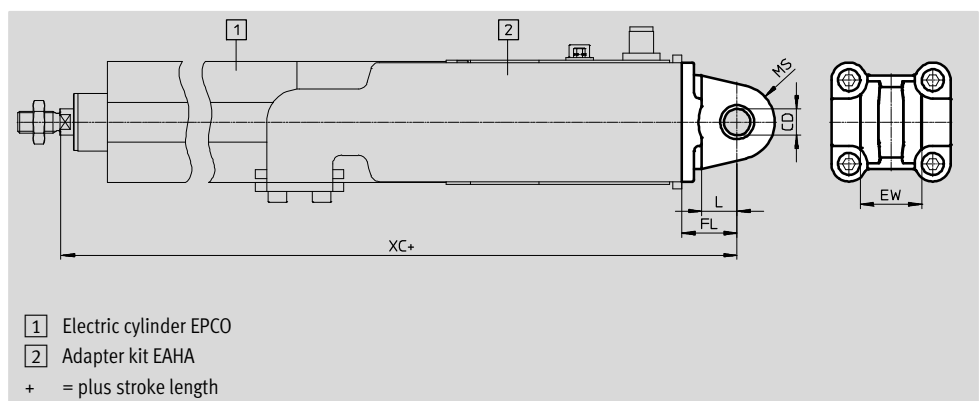
For size	XC				CRC ¹⁾	Weight	Part No.	Type
	EPCO-...	-E	-B	-EB				
[mm]						[g]		
40	321.7	350.7	371.7	386.2	2	122	174398	SNCS-40

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



Dimensions and ordering data													
For size	CD	EW	FL	L	MR	XC				CRC ¹⁾	Weight	Part No.	Type
	∅		±0.2		-0.5	EPCO-...	-E	-B	-EB				
[mm]	H9	h12									[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

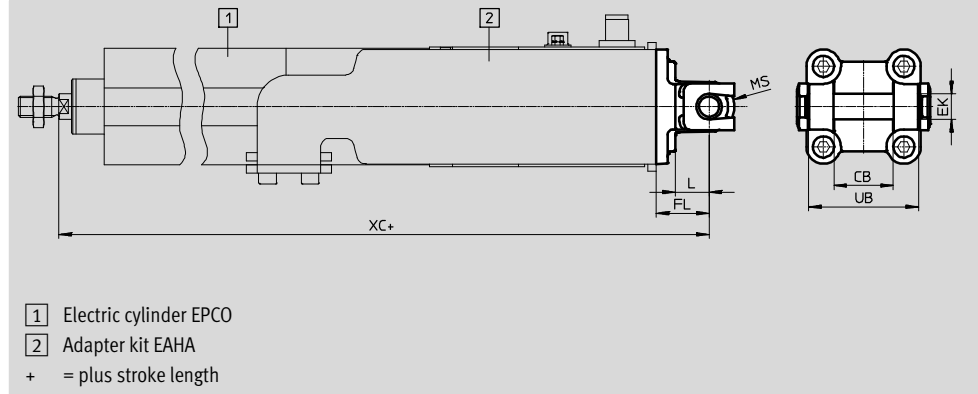
Accessories



Swivel flange SNCB

Material:
Die-cast aluminium

Free of copper and PTFE
RoHS-compliant








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

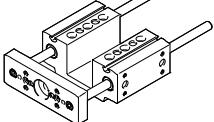
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial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

Ordering data – Mounting attachments				Technical data → Internet: clevis foot			
Designation	For size	Part No.	Type	Designation	For size	Part No.	Type
Clevis foot LBG				Right-angle clevis foot LQG			
	40	31762	LBG-40		40	31769	LQG-40
Clevis foot LBN							
	16	6058	LBN-12/16				
	25	6059	LBN-20/25				
	40	195861	LBN-40				

Electric cylinders EPCO, with spindle drive

Accessories

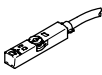
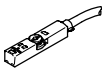
Ordering data – Piston rod attachments				Technical data → Internet: piston rod attachment			
Designation	For size	Part No.	Type	Designation	For size	Part No.	Type
Rod eye SGS				Rod clevis SG			
	16	9254	SGS-M6		16	3110	SG-M6
	25	9255	SGS-M8		25	3111	SG-M8
	40	9261	SGS-M10x1,25		40	6144	SG-M10x1,25
Self-aligning rod coupler FK				Rod clevis SGA			
	16	2061	FK-M6		40	32954	SGA-M10x1,25
	25	2062	FK-M8				
	40	6140	FK-M10x1,25				
Coupling piece KSG							
	40	32963	KSG-M10x1,25				

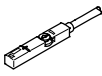


Ordering data – Guide unit			Technical data → Internet: eagf	
	For size	Stroke [mm]	Part No.	Type
	16	50	3192932	EAGF-P1-KF-16-50
		100	3192934	EAGF-P1-KF-16-100
		150	3192936	EAGF-P1-KF-16-150
		200	3192938	EAGF-P1-KF-16-200
		75, 125, 175	3192939	EAGF-P1-KF-16-
		25	50	3192943
	25	100	3192945	EAGF-P1-KF-25-100
		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
	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-


Electric cylinders EPCO, with spindle drive

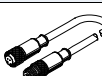
Accessories

FESTO

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

Electric cylinders EPCO, with spindle drive

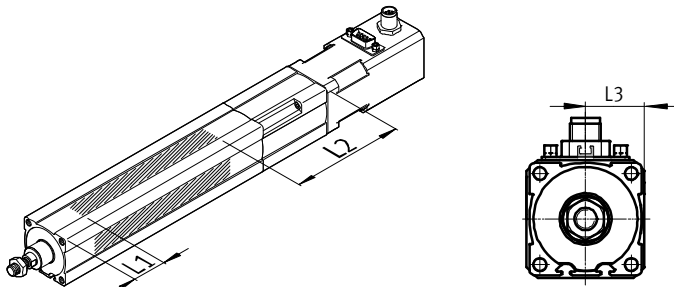
Accessories

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

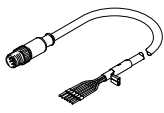
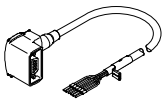
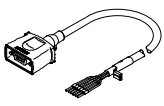
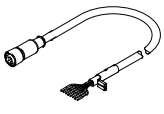
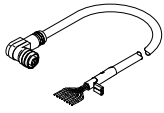
Ordering data – Sensor mounting for T-slot

	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

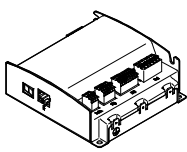
Electric cylinders EPCO, with spindle drive

Accessories

FESTO

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	

Product Range and Company Overview

A Complete Suite and Company Overview

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



Electromechanical
Electromechanical actuators, motors, controllers & drivers



Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 16,000 employees in 60 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

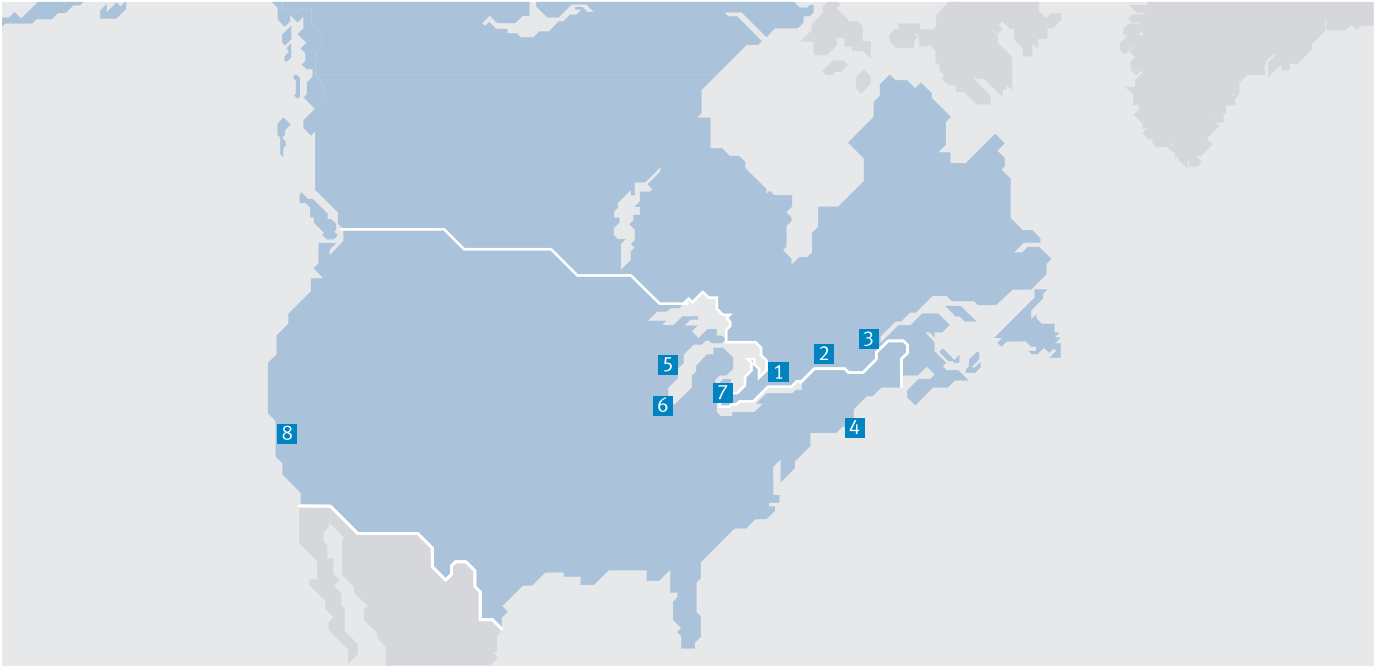


© Copyright 2013, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.



Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmental friendly printing plant.

Festo North America



**1 Festo Canada
Headquarters
Festo Inc.**
5300 Explorer Drive
Mississauga, ON
L4W 5G4

2 Montréal
5600, Trans-Canada
Pointe-Claire, QC
H9R 1B6

3 Québec City
2930, rue Watt#117
Québec, QC
G1X 4G3



**4 Festo United States
Headquarters
Festo Corporation**
395 Moreland Road
Hauppauge, NY
11788

5 Appleton
North 922 Tower View Drive, Suite N
Greenville, WI
54942

7 Detroit
1441 West Long Lake Road
Troy, MI
48098

6 Chicago
85 W Algonquin - Suite 340
Arlington Heights, IL
60005

8 Silicon Valley
4935 Southfront Road, Suite F
Livermore, CA
94550

Festo Regional Contact Center

Canadian Customers

Commercial Support:
Tel: 1 877 GO FESTO (1 877 463 3786)
Fax: 1 877 FX FESTO (1 877 393 3786)
Email: festo.canada@ca.festo.com

Technical Support:

Tel: 1 866 GO FESTO (1 866 463 3786)
Fax: 1 877 FX FESTO (1 877 393 3786)
Email: technical.support@ca.festo.com

USA Customers

Commercial Support:
Tel: 1 800 99 FESTO (1 800 993 3786)
Fax: 1 800 96 FESTO (1 800 963 3786)
Email: customer.service@us.festo.com

Technical Support:

Tel: 1 866 GO FESTO (1 866 463 3786)
Fax: 1 800 96 FESTO (1 800 963 3786)
Email: product.support@us.festo.com