Linear actuators DLP, Copac

FESTO

Characteristics and type codes

General information

- Diameter
  80 ... 320 mm
- Stroke length
  40 ... 600 mm, additional stroke lengths on request
- Force
  2800 ... 48000 N

The linear actuators Copac are ideally suited for use in water, wastewater, service water, process water and bulk material technology as well as the silo and paper industry.
A clean solution for shut-off, inspection, safety and control slide valves. The linear actuator Copac acts directly on the slide gate and ensures that various positions can be approached accurately.

- Fast or slow valve actuation
- Position sensing
- Internal air channels eliminate protruding tubing and attachments, and thus also undesirable accumulation of contaminants
- Suitable for manual on-site use, as well as automatic operation
- Opening and closing actuated via flange-mounted solenoid valve with port pattern to Namur, or via valve terminals with a choice of 30 different fieldbus protocols
- Sturdy and reliable, even in aggressive environments
- High corrosion resistance
- Mounting hole pattern to
- DIN 3358/ISO 5210 for direct attachment
- Port pattern to Namur VDI/VDE 3845 for mounting solenoid valves

Type codes

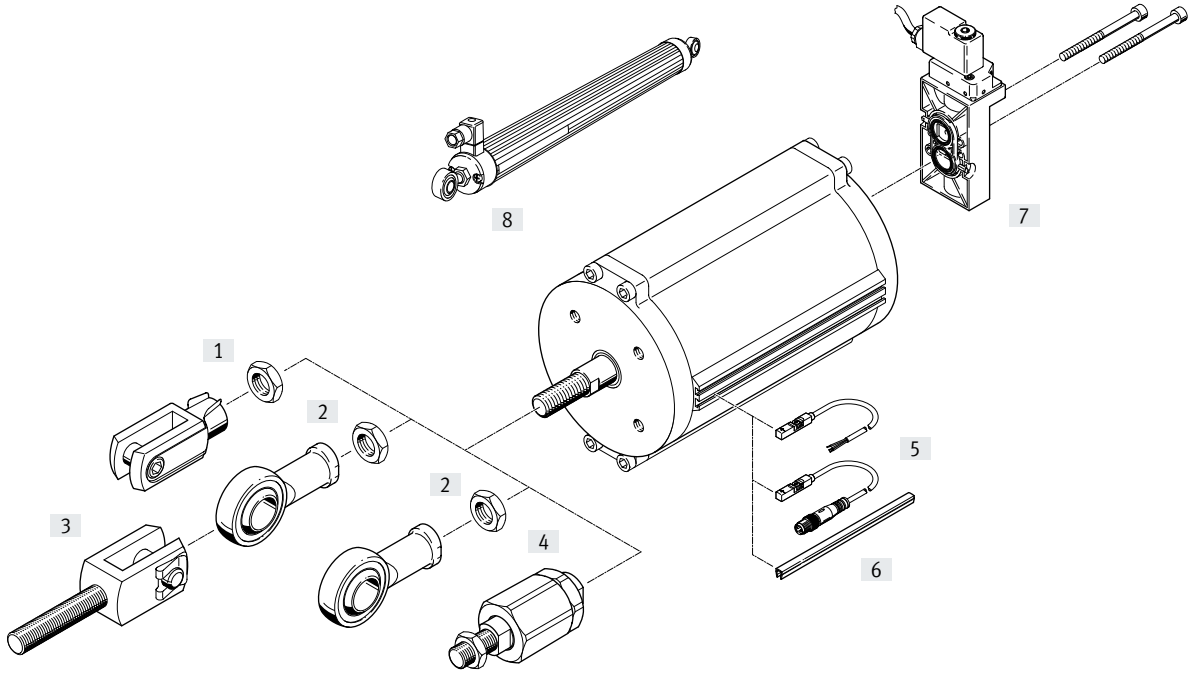
001	Series	
DLP	Double-acting linear drive	

002	Piston diameter	
80	80	
100	100	
125	125	
160	160	
200	200	
250	250	
320	320	

003	Stroke	
...	40 ... 600	

004	Position sensing	
A	For proximity sensor	

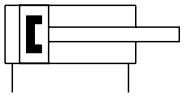
Peripherals overview



Mounting components and accessories

		Description	DLP-8 0/100	DLP-12 5/160	DLP-200 ... 320	→ Page/Internet
[1]	Rod clevis SG	Enables a simple connection between the piston rod and slide gate	■	■	■	9
	Rod clevis, stainless steel CRSG		■	■	–	9
[2]	Rod eye SGS	With spherical bearing	■	■	■	9
	Rod eye, stainless steel CRSGS		■	■	–	9
[3]	Rod clevis SGA	With male thread	■	■	■	9
[4]	Self-aligning rod coupler FK/CRFK	For compensating radial and angular deviations	■	■	■	9
[5]	Proximity switch SMT-8M-A	Magneto-resistive, 5 ... 30 V DC, to EU Explosion Protection Directive (ATEX)	■	■	■	10
	Proximity switch CRSMT-8	Magneto-resistive, corrosion-resistant, to EU Explosion Protection Directive (ATEX)	■	■	■	10
	Proximity switch SDBT	Magneto-resistive, NAMUR, to EU Explosion Protection Directive (ATEX)	■	■	■	10
[6]	Slot cover ABP-5-S	To protect the sensor cables and slots from contamination	■	■	■	11
[7]	Solenoid valves	Namur port pattern, not with [8] or [10]	■	■	■	solenoid valve
[8]	Displacement encoder MLO-POT	Conversion of the linear motion into an electric voltage signal. The maximum stroke is 700 mm.	■	■	■	9

Data sheet



- Stroke length
  40 ... 600 mm, additional stroke lengths on request
- Force
  2800 ... 48000 N

General technical data								
Piston diameter		80	100	125	160	200	250	320
Pneumatic connection		G1/4						
Based on standard		DIN 3358						
Valve connection conforms to standard		VDI/VDE 3845 (NAMUR)						
Mode of operation		Double-acting						
Design		Piston cylinder						
Cushioning		None						
Stroke reserve	[mm]	2				4		
Mounting position		Any						
Position sensing		Via proximity switch						
Valve actuator efficiency	[%]	95						

Operating and environmental conditions		
Operating pressure[1]	[bar]	2 ... 8
Nominal operating pressure	[bar]	6
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature[2)3)]	[°C]	–20 ... +80
Corrosion resistance CRC[4)]		3

1) Depending on the counter force of the valve slide, a higher minimum pressure may be required to actuate the overall system
2) Additional temperature ranges available on request
3) Note operating range of proximity switches
4) Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. Externally visible parts with primarily functional surface requirements which are in direct contact with a normal industrial environment.

ATEX	
ATEX category for gas	II 2G
Type of ignition protection for gas	Ex h IIC T4 Gb
ATEX category for dust	II 2D
Type of ignition protection for dust	Ex h IIIC T120°C Db
Explosion-proof ambient temperature[1)]	–20°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)

1) Note operating range of proximity switches

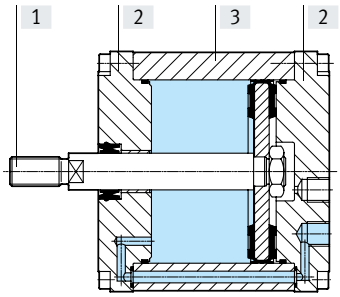
Data sheet

Forces [N] and air consumption [Nl]							
Piston diameter	80	100	125	160	200	250	320
Theoretical force at 6 bar, advancing	3016	4712	7363	12064	18850	29542	48255
Theoretical force at 6 bar, retracting	2827	4524	6881	11581	18080	28698	47501
Theoretical air consumption at 6 bar and 10 mm stroke, pushing	0.35	0.55	0.86	1.41	2.12	3.44	5.63
Theoretical air consumption at 6 bar and 10 mm stroke, pulling	0.33	0.53	0.80	1.35	2.11	3.35	5.54

Weight [g]							
Piston diameter	80	100	125	160	200	250	320
Basic weight with 0 mm stroke	1843	2801	4855	5854	12831	21117	33907
Additional weight per 10 mm stroke	68	80	145	159	187	325	399
Moving mass with 0 mm stroke	624	997	1809	2183	4691	6650	11040
Additional moving mass per 10 mm stroke	25	25	63	63	99	99	99

Materials

Sectional view

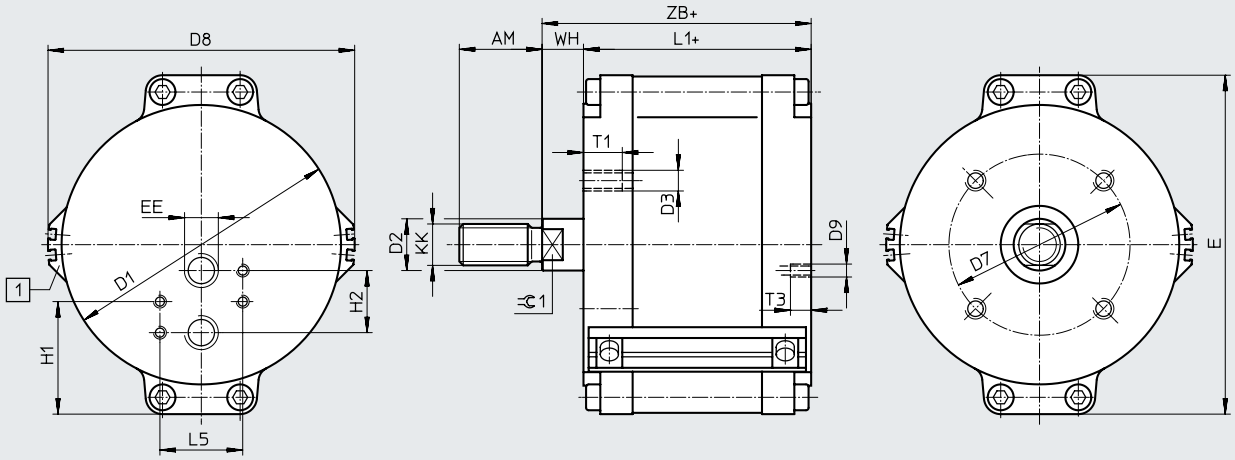


Linear actuators			
[1]	Piston rod	⌀ 80 ... 320	High-alloy stainless steel
[2]	Cover	⌀ 80 ... 160, 250, 320	Wrought aluminium alloy
		⌀ 200	Cast aluminium
[3]	Housing	⌀ 80 ... 160, 250, 320	Smooth-anodised wrought aluminium alloy
		⌀ 200	High-alloy steel
–	Seals	⌀ 80... 320	NBR
		⌀ 80, 100, 320	NBR, TPE-U (PU)

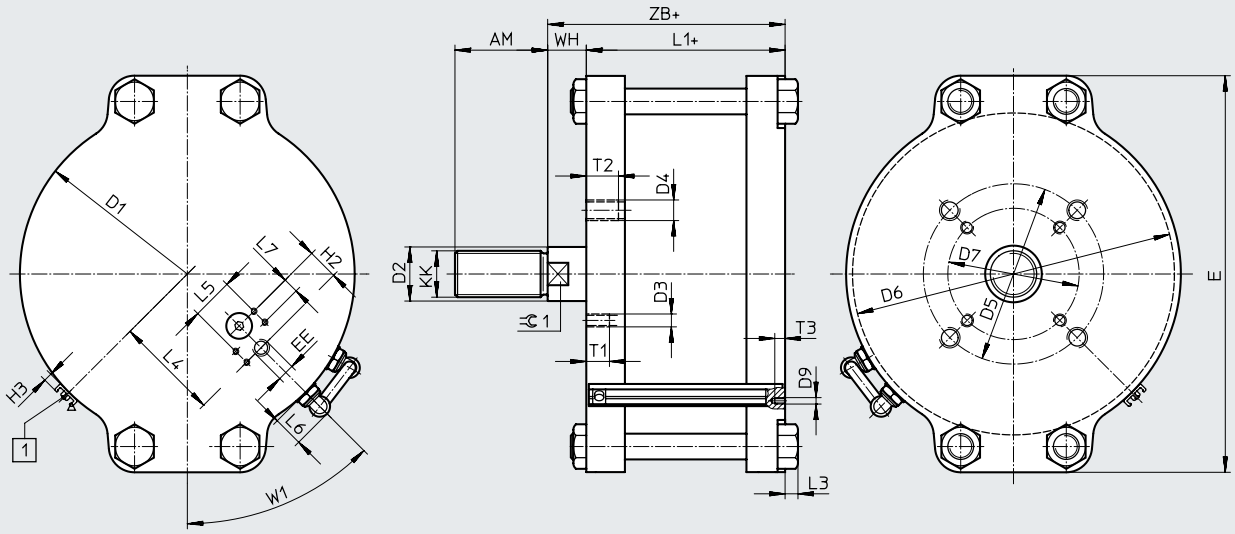
Data sheet

Dimensions Download CAD data ➔ www.festo.com

Ø 80 ... 160



Ø 200 ... 320



[1] Mounting rail for proximity switches SME/SMT-8

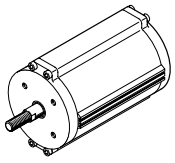
\+ = plus stroke length

Data sheet

ø [mm]	AM –2	D1 ø	D2 ø	D3 ø	D4 ø	D5 ø	D6 ø	D7 ø	D8 ø	D9 ø	E	EE	H1	H2	H3
DLP-80-...-A	32	87	20	M8	–	–	–	70	99	M5	108	G1/4	43.5	24	–
DLP-100-...-A	32	108	20	M8	–	–	–	70	119	M5	131	G1/4	43.5	24	–
DLP-125-...-A	54	135	32	M10	–	–	–	102	147	M5	163	G1/4	43.5	24	–
DLP-160-...-A	54	170	32	M10	–	–	–	102	182	M5	199	G1/4	43.5	24	–
DLP-200-...-A	72	216	40	M10	M16	140	210	102	–	M5	271	G1/4	43.5	24	4.5
DLP-250-...-A	72	260	40	M10	M16	140	244	102	–	M5	308	G1/4	43.5	24	4.5
DLP-320-...-A	72	332	40	M10	M16	140	324	102	–	M5	378	G1/4	43.5	24	4.5

ø [mm]	KK	L1	L3	L4	L5	L6	L7	T1	T2	T3	W1	WH	ZB	⫧1
DLP-80-...-A	M16x1.5	100 +1.4/–0.4	–	–	32	–	–	15	–	8	45°	16 +0.6/–1.8	116 +0.6/–0.8	16
DLP-100-...-A	M16x1.5	104 +1.4/–0.4	–	–	32	–	–	15	–	8	45°	16 +0.6/–1.8	120 +0.6/–0.8	16
DLP-125-...-A	M27x2	114 +1.6/–0.6	–	–	32	–	–	18	–	8	45°	24 +0.8/–1.8	138 +0.8/–1.0	27
DLP-160-...-A	M27x2	114 +1.6/–0.6	–	–	32	–	–	18	–	8	45°	24 +1.2/–1.8	138 +1.2/–0.8	27
DLP-200-...-A	M36x2	150 +0.8/–1.0	10	81	32	24.5	12	20	24	8	45°	30 ±1.4	180 ±1	36
DLP-250-...-A	M36x2	152 +0.8/–1.4	25	94	32	24.5	12	20	25	8	45°	30 +1.8/–1.4	182 ±1	36
DLP-320-...-A	M36x2	159 +0.8/–1.4	–	130	32	24.5	12	20	25	8	45°	30 +1.8/–1.6	189 +0.8/–1.2	36

Data sheet

Ordering data Type	Piston diameter [mm]	Stroke [mm]	Part no.	Type
With position sensing				
	80	40 ... 500	**187479**	**DLP-80-...-A**
	100	50 ... 500	**187480**	**DLP-100-...-A**
	125	50 ... 500	**187481**	**DLP-125-...-A**
	160	100 ... 500	**187482**	**DLP-160-...-A**
	200	100 ... 600	**542711**	**DLP-200-...-A**
	250	100 ... 600	**187483**	**DLP-250-...-A**
	320	150 ... 600	**187484**	**DLP-320-...-A**

Note

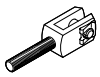
Generally, the stroke length of the linear actuator Copac corresponds to the nominal diameter of the process valve. The system tolerances can lead to a greater stroke range than the specified nominal stroke range of the linear actuator. The zero point is set with an adjustable rod clevis. This ensures that the end position of the valve slide is reached and the zero position of the system is fixed.

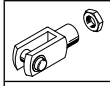
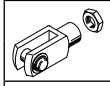
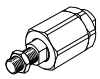
Additional stroke lengths on request.

Accessories

Ordering data – Piston rod attachments

Data sheets → Internet: piston rod attachment

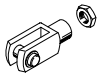
Designation	For diameter	Part no.	Type
Rod eye SGS			
	80, 100	**9263**	**SGS-M16x1.5**
	125, 160	**10774**	**SGS-M27x2**
	200, 250, 320	**10775**	**SGS-M36x2**
Rod clevis SGA			
	80, 100	**10768**	**SGA-M16x1.5**
	125, 160	**10770**	**SGA-M27x2**
	200, 250, 320	**10771**	**SGA-M36x2**

Designation	For diameter	Part no.	Type
Rod clevis SG			
	80, 100	**6146**	**SG-M16x1.5**
	125, 160	**14987**	**SG-M27x2-B**
	200, 250, 320	**9581**	**SG-M36x2**
Self-aligning rod coupler FK			
	80, 100	**6142**	**FK-M16x1.5**
	125, 160	**10485**	**FK-M27x2**
	200, 250, 320	**10746**	**FK-M36x2**

Ordering data – Piston rod attachments, corrosion-resistant

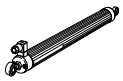
Data sheets → Internet: piston rod attachment

Designation	For diameter	Part no.	Type
Rod eye CRSG			
	80, 100	**13571**	**CRSG-M16x1.5**
	125, 160	**185361**	**CRSG-M27x2**
Self-aligning rod coupler CRFK			
	80	**2490673**	**CRFK-M16x1.5**
	100		

Designation	For diameter	Part no.	Type
Rod clevis CRSGS			
	80, 100	**195584**	**CRSGS-M16x1.5**
	125, 160	**195586**	**CRSGS-M27x2**

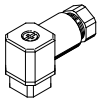
Ordering data – Displacement encoder

Data sheets → Internet: mlo

	Stroke [mm]	Part no.	Type
	100	**192213**	**MLO-POT-100-LWG**
	150	**192214**	**MLO-POT-150-LWG**
	225	**152645**	**MLO-POT-225-LWG**
	300	**152646**	**MLO-POT-300-LWG**
	360	**152647**	**MLO-POT-360-LWG**
	450	**152648**	**MLO-POT-450-LWG**
	600	**152650**	**MLO-POT-600-LWG**
	750	**152651**	**MLO-POT-750-LWG**

Ordering data – Plug socket for displacement encoder

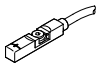
Data sheets → Internet: sd-4

	PIN	Pin allocation	Part no.	Type
	1	Power supply	**194332**	**SD-4-WD-7**
	2	Signal		
	3	0 V		
	4	PE (yellow), shielded		

Accessories

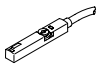
Ordering data – Proximity switch for T-slot, corrosion-resistant

Data sheets → Internet: crsmt

	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O contact					
	PNP	Cable, 3-wire	5	**574380**	**CRSMT-8M-PS-24V-K-5.0-OE**

Ordering data – Proximity switch for T-slot, NAMUR

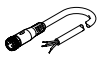
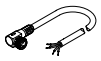
Data sheets → Internet: sdbt

	Switching output	Electrical connection	Cable length [m]	Part no.	Type
N/O contact					
	NAMUR	Cable, 2-wire	5	**579071**	**SDBT-MS-20NL-ZN-E-5-LE-EX6**
			10	**579072**	**SDBT-MS-20NL-ZN-E-10-LE-EX6**

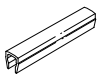
Accessories

Ordering data – Connecting cable M8x1

Data sheets → Internet: nebu

	Electrical connection, left	Electrical connection, right	Switching output	Cable length [m]	Part no.	Type
Basic type						
	Straight socket, M8x1, 3-pin	Cable, open end, 3-wire	–	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
				5	**541334**	**NEBU-M8G3-K-5-LE3**
				10	**541332**	**NEBU-M8G3-K-10-LE3**
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	–	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
				5	**541341**	**NEBU-M8W3-K-5-LE3**
				10	**541335**	**NEBU-M8W3-K-10-LE3**
With switching status indication						
	Angled socket, M8x1, 3-pin	Cable, open end, 3-wire	PNP	2.5	**541337**	**NEBU-M8W5P-K-2.5-LE3**
				5	**541340**	**NEBU-M8W5P-K-5-LE3**
			NPN	2.5	**541336**	**NEBU-M8W5N-K-2.5-LE3**
				5	**541339**	**NEBU-M8W5N-K-5-LE3**

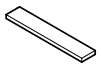
Ordering data – Slot cover for T-slot

	Mounting	Length [m]	Part no.	Type
	Insertable	2x 0.5	**151680**	**ABP-5-S**

Ordering data – Cable clip SMBK-8

		Part no.	Type
	For fixing the cable in the sensor slot	**534254**	**SMBK-8**

Ordering data – Inscription labels

	Material	Use	Dimensions [mm]	Part no.	Type	PU[1]
	Polycarbonate	For insertion in the inscription label holder	23x4	**541598**	**ASLR-L-423**	**34**

1) Packaging unit per frame