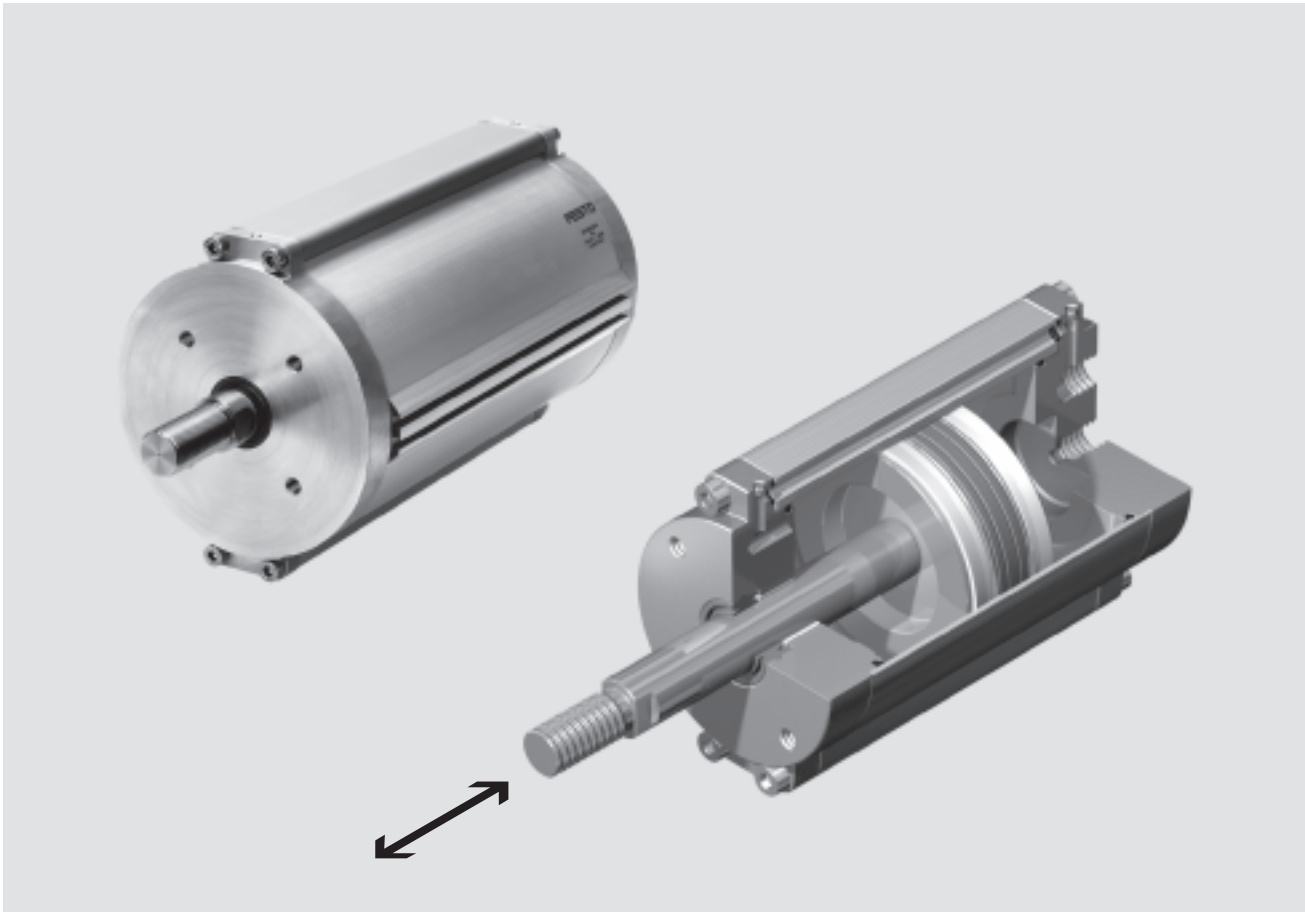
Linear actuators DLP, Copac

Key features



Diameter
80 ... 320 mm

Stroke length
40 ... 2,000 mm

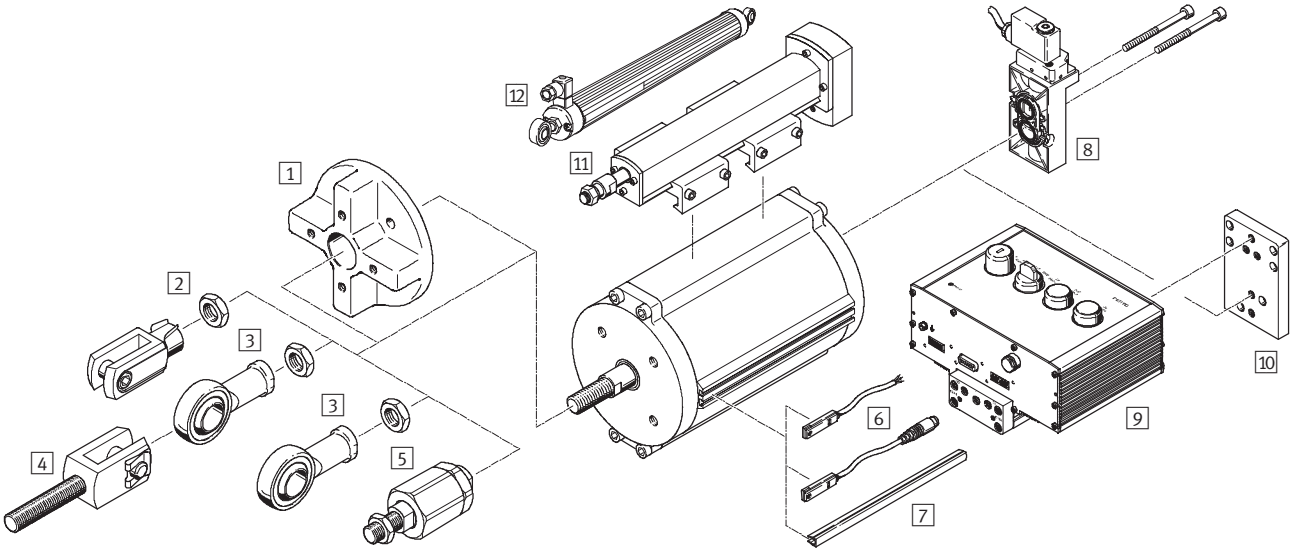
Force
2,800 ... 47,500 N

Festo Copac linear valve actuators are ideally suited for use in water, sewage, industrial process water and sileage technology, as well as the paper and bulk goods industry.
A clean solution for shut-off, safety and control slide valves. The Copac linear actuator acts directly upon the slide plate and facilitates accurate advancing to various positions.

- Fast or slow valve actuation
- Position sensing
- Internal air channels eliminate protruding tubing and attachments, and thus also harmful 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
- Highly corrosion resistant
- Mounting port pattern to DIN 3358/ISO 5210 for direct mounting
- Port pattern to Namur VDI/ VDE 3845 for attaching solenoid valves

Linear actuators DLP, Copac

Peripherals overview



Mounting attachments and accessories						
		Brief description	DLP-80/100	DLP-125/160	DLP-250/320	→ Page
1	Adapter DAPZ-FA	For mounting on slide valve armature with ISO 5211 interface	■	■	■	7 / 1.1-8
2	Rod clevis SG	Enables simple connection between the piston rod and the slide plate	■	■	■	7 / 1.1-9
	Rod clevis, stainless steel CRSG		■	■	–	7 / 1.1-10
3	Rod eye SGS	With spherical bearing	■	■	■	7 / 1.1-12
	Rod eye, stainless steel CRSGS		■	■	–	7 / 1.1-12
4	Rod clevis SGA	With male thread	■	■	■	7 / 1.1-11
5	Self-aligning rod coupler FK	For compensating radial and angular deviations	■	■	■	7 / 1.1-13
6	Proximity sensor SMT-8F-I	Magneto-inductive, Namur, EU-compliant to directive 94/9/EC (ATEX)	■	■	■	7 / 1.1-16
	Proximity sensor SMT-8	Magneto-resistive, can be integrated in the cylinder profile barrel	■	■	■	7 / 1.1-20
	Proximity sensor SME-8	Magnetic reed, can be integrated in the cylinder profile barrel	■	■	■	7 / 1.1-25
7	Slot cover ABP-5-S	To keep dirt away from the sensor cable and slots	■	■	■	7 / 1.1-28
8	Solenoid valve	Namur port pattern, not with 9 or 11	■	■	■	7 / 2.1-2
9	Local controller DLP-VSE	Manual control device, not with 8 or 11	■	■	■	7 / 3.1-2
10	Sub-base DLP-VSE-OBEN-NAMUR	Mounting of local controller on the Namur interface	■	■	■	7 / 3.1-5
11	Measuring unit ASDLP	Conversion of linear movement to rotary movement, not with 8 or 9	■	■	–	7 / 1.0-29
12	Displacement encoder MLO-POT	Conversion of linear movement to voltage signal. The maximum stroke is 700 mm.	■	■	■	7 / 1.1-14

Linear actuators DLP, Copac

Type codes

DLP – 100 – 125 – A

Type	
DLP	Double-acting linear actuator

Piston ∅ [mm]

Stroke [mm]

Position sensing	
A	Via proximity sensor

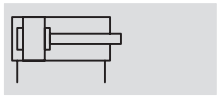
Application example

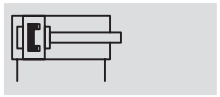
Linear actuators DLP, Copac

Technical data

FESTO

Function





Diameter
80 ... 320 mm

Stroke length
40 ... 2,000 mm

Force
2,800 ... 47,500 N

General technical data	
Pneumatic connection	G¼
Design	Piston cylinder, double-acting
Cushioning	None
Assembly position	Any
Position sensing	Via proximity sensor

Operating and environmental conditions		
Operating pressure[1]	[bar]	2 ... 10
Operating medium		Filtered compressed air, lubricated or unlubricated
		Other media upon request
Ambient temperature[2][3]	[°C]	−20 ... +80
ATEX symbol		II 2 GD c T4 T120°C
ATEX ambient temperature[3]		−20°C ≤ Ta ≤ +60°C
Corrosion resistance class CRC[4]		2

1) Depending upon the counter force of the valve slide, a higher minimum pressure may be required to actuate the overall system
2) Further temperature ranges upon request
3) Note operating range of proximity sensors
4) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

Forces [N] and air consumption [Nl]						
Piston ∅	80	100	125	160	250	320
Theoretical force at 6 bar, advancing	3,016	4,712	7,363	12,064	29,452	48,255
Theoretical force at 6 bar, retracting	2,827	4,524	6,881	11,581	28,698	47,501
Theoretical air consumption at 6 bar and 10 mm stroke, pushing	0.35	0.55	0.86	1.41	3.44	5.63
Theoretical air consumption at 6 bar and 10 mm stroke, pulling	0.33	0.53	0.80	1.35	3.35	5.54

Weights [g]						
Piston ∅	80	100	125	160	250	320
Basic weight with 0 mm stroke	2,100	3,100	5,700	8,000	24,100	39,900
Additional weight per 10 mm stroke	65	920	167	183	248	322

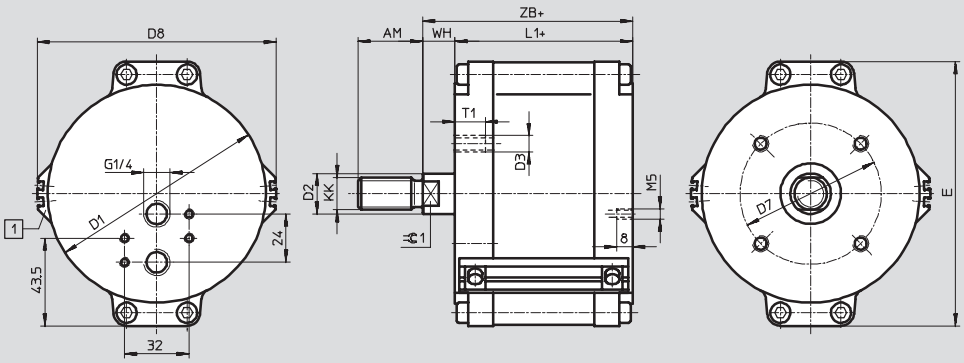
Linear actuators DLP, Copac

Technical data

Materials						
Piston ∅	80	100	125	160	250	320
Cylinder barrel	Smooth anodised aluminium				Stainless steel	
Bearing cap	Extruded aluminium					
Piston rod	High-alloy rolled steel					
External screws	Steel					
Rod bearing	Smooth composite material					
Seals	Polyurethane, nitrile rubber					

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

∅ 80 ... 160



1 Mounting slots for proximity sensor SME/SMT-8

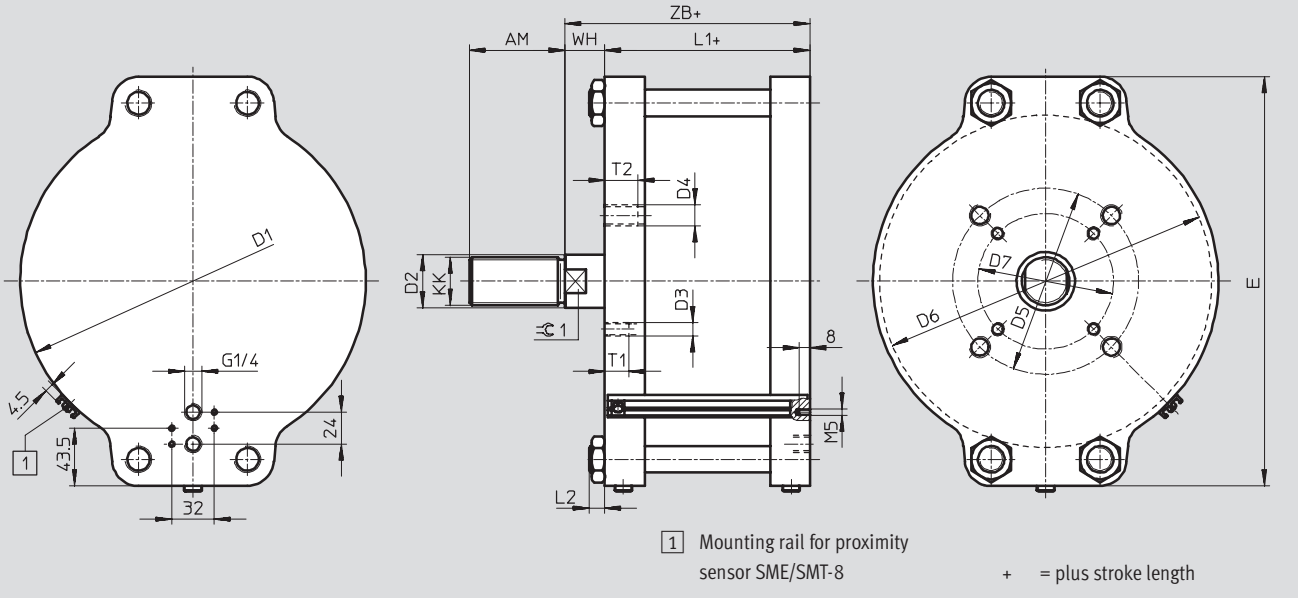
\+ = plus stroke length

∅ [mm]	AM −2	D1 ∅	D2 ∅	D3	D7 ∅	D8 ∅	E	KK	L1	T1	WH	ZB	⌀G1
DLP-80-...	32	87	20	M8	70	99	108	M16x1.5	73	15	16	89	16
DLP-80-...-A									100			116	
DLP-100-...	32	108	20	M8	70	119	131	M16x1.5	76	15	16	92	16
DLP-100-...-A									104			120	
DLP-125-...	54	135	32	M10	102	147	163	M27x2	114	18	24	138	27
DLP-125-...-A													
DLP-160-...	54	170	32	M10	102	182	199	M27x2	114	18	24	138	27
DLP-160-...-A													

Linear actuators DLP, Copac

Technical data

∅ 250 ... 320



1 Mounting rail for proximity sensor SME/SMT-8

\+ = plus stroke length

∅ [mm]	AM −2	D1 ∅	D2 ∅	D3	D4	D5	D6 ∅	D7 ∅	E	KK	L1	L2	T1	T2	WH	ZB	⌀1
DLP-250-...	72	260	40	M10	M16	140	244	102	308	M36x2	152	12	18	25	30	184	36
DLP-250-...-A																	
DLP-320-...	72	332	40	M10	M16	140	324	102	378	M36x2	159	12	18	25	30	191	36
DLP-320-...-A																	

Ordering data

Version	Piston ∅ [mm]	Stroke [mm]	Part No.	Type
Without position sensing				
	80	40 ... 2 000	**187 473**	**DLP-80-...**
	100	50 ... 2 000	**187 474**	**DLP-100-...**
	125	50 ... 2 000	**187 475**	**DLP-125-...**
	160	100 ... 2 000	**187 476**	**DLP-160-...**
	250	100 ... 2 000	**187 477**	**DLP-250-...**
	320	150 ... 2 000	**187 478**	**DLP-320-...**
With position sensing				
	80	40 ... 2 000	**187 479**	**DLP-80-...-A**
	100	50 ... 2 000	**187 480**	**DLP-100-...-A**
	125	50 ... 2 000	**187 481**	**DLP-125-...-A**
	160	100 ... 2 000	**187 482**	**DLP-160-...-A**
	250	100 ... 2 000	**187 483**	**DLP-250-...-A**
	320	150 ... 2 000	**187 484**	**DLP-320-...-A**

Stroke length of the actuator

Generally, the stroke length of the Copac linear actuator corresponds to the nominal diameter of the process valve. The system tolerances may 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.

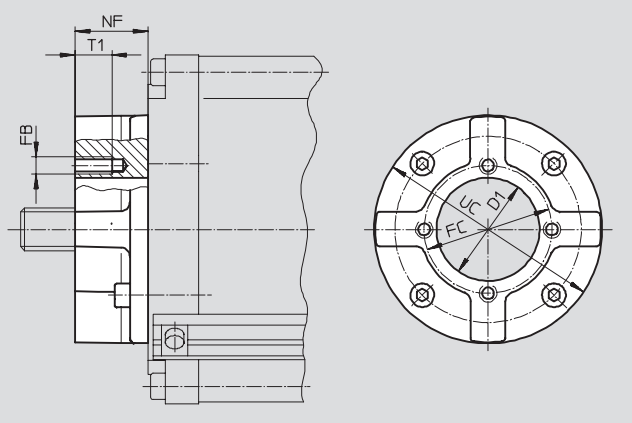
Linear actuators DLP, Copac

Accessories

Adapter DAPZ-FA
Based on ISO 5211 standard

Scope of delivery:
1 flange adapter,
4 socket head screws DIN 912

Material:
Wrought aluminium alloy
Galvanised steel
Free of copper, PTFE and silicone



Dimensions and ordering data

For ∅ [mm]	Size	D1 ∅ +1	FB	FC ∅	NF	T1	UC ∅ +1	CRC[1]	Weight [g]	Part No.	Type
80, 100	F07/F07	30	M8	70	40	20	125	3	679	**536 587**	**DAPZ-FA-F07/F07**
	F07/F10	30	M10	102	40	22	125	3	670	**536 588**	**DAPZ-FA-F07/F10**
125, 160,	F10/F07	55	M8	70	40	20	125	3	667	**536 589**	**DAPZ-FA-F10/F07**
250, 320	F10/F10	55	M10	102	45	22	125	3	707	**536 590**	**DAPZ-FA-F10/F10**
	F10/F14	55	M16	140	65	25	175	3	1,884	**536 591**	**DAPZ-FA-F10/F14**
250, 320	F14/F14	70	M16	140	65	25	175	3	2,130	**536 592**	**DAPZ-FA-F14/F14**

1) Corrosion resistance class 3 according to Festo standard 940 070
Components requiring higher corrosion resistance. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

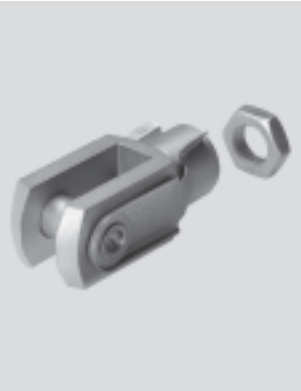
Linear actuators DLP, Copac

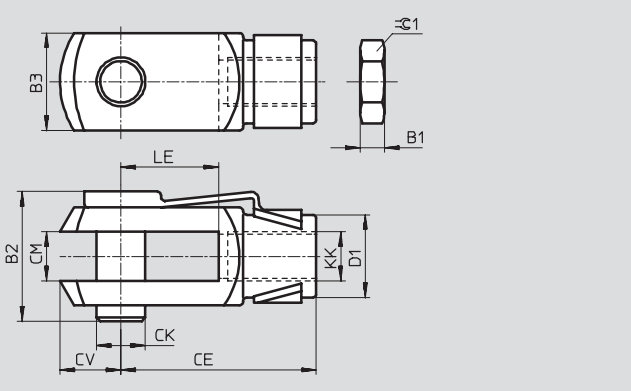
Accessories

Rod clevis SG

Scope of delivery:
1 rod clevis, 1 hinged spring pin,
1 hex nut to DIN 439

Material:
Galvanised steel
M16x1.5/M27x2: Free of copper, PTFE and silicone





Dimensions and ordering data

KK	B1	B2	B3	CE	CK ∅ H9	CM	CV	D1 ∅
M16x1.5	8	39	32	64±0.4	16	16+0.7/+0.15	19	26
M27x2	13.5	74	55	110±0.4	30	30+0.7/+0.15	38	48
M36x2	18	92	70	144±0.4	35	35+0.7/+0.15	44	60

KK	LE ±0.5	⌀1	DIN ISO 8140	DIN 71 752	CRC[1]	Weight [g]	Part No.	Type
M16x1.5	32	24	■	■	2	356	**6 146**	**SG-M16x1,5**
M27x2	54	41	■	–	2	1 475	**14 987**	**SG-M27x2-B**
M36x2	72	55	■	–	2	4 080	**9 581**	**SG-M36x2**

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Core Range

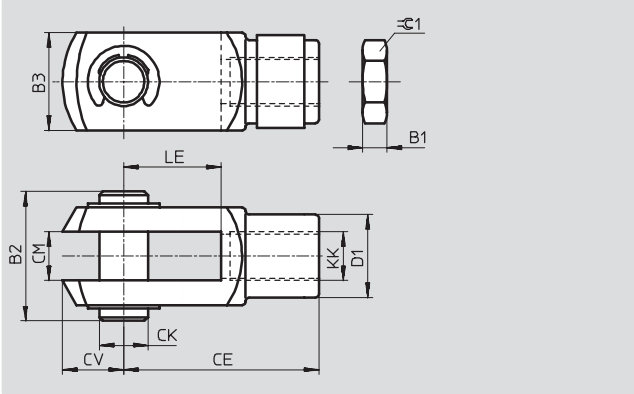
Linear actuators DLP, Copac

Accessories

Rod clevis CRSG, stainless steel

Scope of delivery:
1 rod clevis, 1 pivot pin, 1 hex nut to DIN 439

Material:
High-alloy steel
Free of copper, PTFE and silicone



Dimensions and ordering data

KK	B1	B2	B3	CE	CK ∅ H9	CM	CV	D1 ∅
M16x1.5	8	43	32	64±0.4	16	16+0.7/+0.15	19	26
M27x2	13.5	70	55	110±0.4	30	30+0.7/+0.15	38	48

KK	LE ±0.5	⌀1	DIN ISO 8140	DIN 71 752	CRC[1]	Weight [g]	Part No.	Type
M16x1.5	32	24	■	■	4	395	**13 571**	**CRSG-M16x1,5**
M27x2	54	41	■	–	4	1,900	**185 361**	**CRSG-M27x2**

1) Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

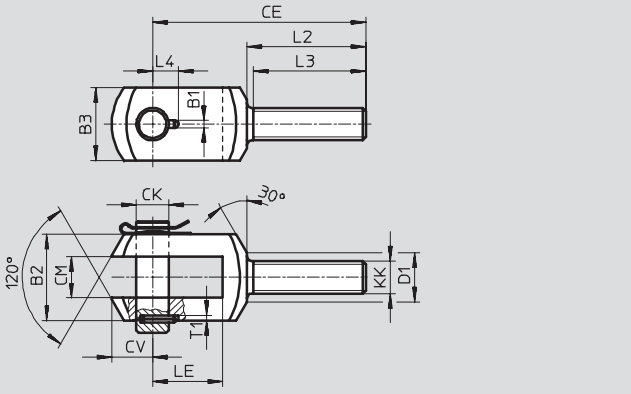
Linear actuators DLP, Copac

Accessories

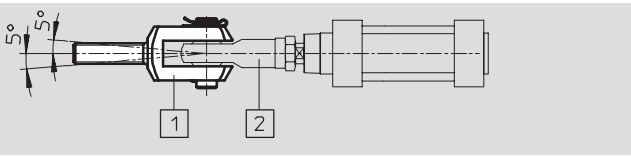
Rod clevis SGA

Scope of delivery:
1 rod clevis, 1 pivot pin
and 1 retaining clip

Material:
Galvanised steel
Free of copper, PTFE and silicone



The rod clevis SGA [1] is used in combination with the rod eye SGS [2] (➔ 7 / 1.1-12) for spherical mounting of cylinders.



Dimensions and ordering data

KK	B1	B2 d12	B3	CE	CK ∅ F7/h9	CM B12	CV	D1 ∅
M16x1.5	4.3	40	35	108	16	21	21	24
M27x2	6.3	67	60	168	30	37	32	38
M36x2	6.3	78	70	211	35	43	39	48

KK	L2	L3	L4	LE	T1	CRC[1)]	Weight [g]	Part No.	Type
M16x1.5	65	62	14	31	3	2	500	**10 768**	**SGA-M16x1,5**
M27x2	98	92	24	54	5	2	2,120	**10 770**	**SGA-M27x2**
M36x2	121	115	26.5	72	5	2	3,825	**10 771**	**SGA-M36x2**

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Linear actuators DLP, Copac

Accessories

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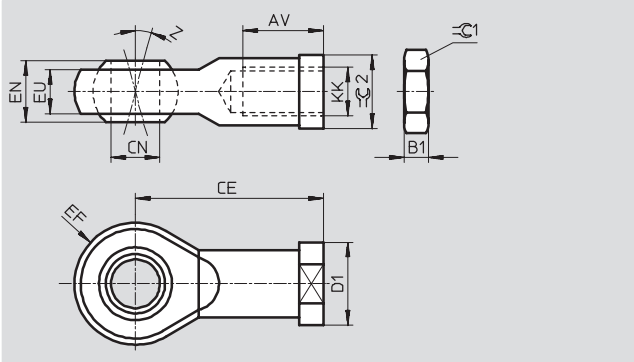
Rod eye SGS

Scope of delivery:
1 rod eye, 1 hex nut to DIN 439

Material:
Galvanised steel



Dimensions and ordering data

KK	AV	B1	CE	CN ∅	D1 ∅	EF ±0.5	EN	EU
M16x1.5	28 –2	8	64	16_{H7}	27	21	21	15
M27x2	51 –2	13.5	110	30_{H7}	50	35	37	25
M36x2	56 +2	18	125	35_{H7}	58	40	43	28

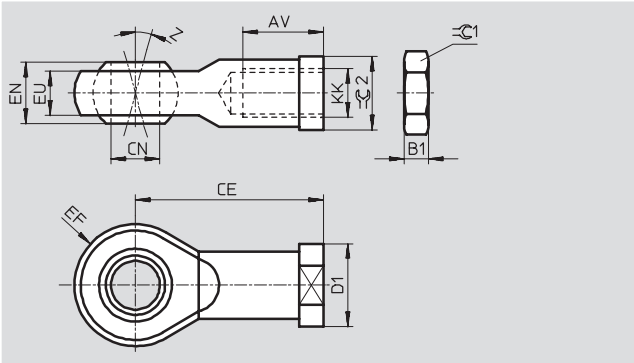
KK	Z [°]	⌀C1	⌀C2	DIN ISO 12 240-4 dimensional series K	CRC[1]	Weight [g]	Part No.	Type
M16x1.5	15	24	22	–	2	210	**9 263**	**SGS-M16x1,5**
M27x2	15	41	41	–	2	1,300	**10 774**	**SGS-M27x2**
M36x2	15	55	50	■	2	1,825	**10 775**	**SGS-M36x2**

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Rod eye CRSGS, stainless steel

Scope of delivery:
1 rod eye, 1 hex nut to DIN 439

Material:
High-alloy steel



Dimensions and ordering data

KK	AV	B1	CE	CN ∅	D1 ∅	EF ±0.5	EN	EU
M16x1.5	28	8	64	16_{H7}	27	21	21	15
M27x2	51	13.5	110	30_{H7}	50	35	37	25

KK	Z	⌀C1	⌀C2	DIN ISO 12 240-4 dimensional series K	CRC[1]	Weight [g]	Part No.	Type
M16x1.5	15	24	22	–	4	210	**195 584**	**CRSGS-M16x1,5**
M27x2	15	41	41	–	4	1,300	**195 586**	**CRSGS-M27x2**

1) Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

Core Range

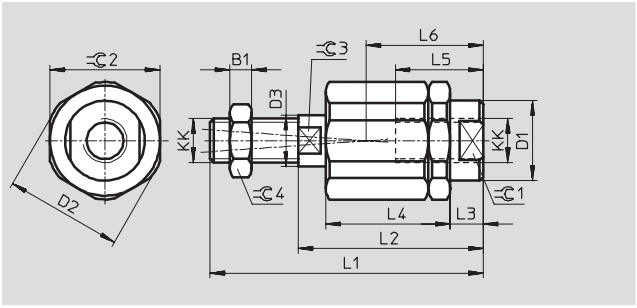
Linear actuators DLP, Copac

Accessories

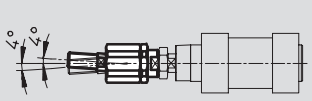
Self-aligning rod coupler FK

Scope of delivery:
1 self-aligning rod coupler, 1 hex nut to DIN 439

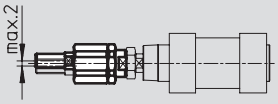
Material:
Galvanised steel
Free of copper, PTFE and silicone



Angle compensator



Radial compensation of central axis



Dimensions and ordering data

KK	B1	D1 ∅	D2 ∅	D3 ∅	L1	L2	L3	L4	L5	L6
M16x1.5	8	33.8	45	22	103	71	10	53	32	44.5
M27x2	13.5	62	62	28	157	103	12.2	79	42	62.5
M36x2	18	80	80	38	251	179	22	136	78	110

KK	⌀C1	⌀C2	⌀C3	⌀C4	Radial deviation [mm]	CRC[1)]	Weight [g]	Part No.	Type
M16x1.5	30	41	19	24	±1	2	650	**6 142**	**FK-M16x1,5**
M27x2	55	55	24	41	±1	2	2,100	**10 485**	**FK-M27x2**
M36x2	75	75	32	55	±1	2	5,800	**10 746**	**FK-M36x2**

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Core Range

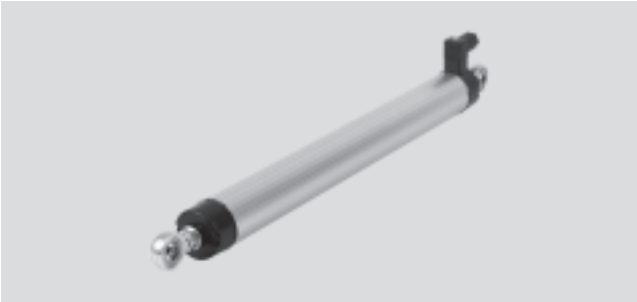
Linear actuators DLP, Copac

Accessories – Displacement encoder

FESTO

MLO-POT-...-LWG

- l - Stroke length
  100 ... 750 mm



General technical data										
Stroke			100	150	225	300	360	450	500	600	750
Constructional design			Round profile with connecting rod								
Measuring principle			Analogue displacement encoder, with contact and absolute measurement								
Resolution		[mm]	0.01								
Max. speed of travel		[m/s]	5								
Max. acceleration		[m/s^2]	200								
Mounting position			Any								
Driver,	Angle offset	[°]	±12.5								
ball coupling	Parallel offset	[mm]	–								
Service life	Strokes	[10^6]	Typical 50								
Connection			4-pin square plug								
Product weight		[g]									

General electrical data										
Stroke			100	150	225	300	360	450	500	600	750
Power supply		[V DC]	10[1]								
Max. current consumption		[mA]	4								
Wiper current	recommended	[µA]	< 1								
	maximum	[mA]	10[2]								
Connection resistance		[kΩ]	3	5	5	5	5	5	5	5	10
Connection resistance tolerance		[%]	±20								
Independent linearity		[%]	0.1	0.08	0.07	0.06	0.05	0.05	0.05	0.05	0.04
Temperature coefficient		[ppm/°K]	5								
Interface			Analogue								

1) Stabilised power supply is recommended, max. 42 V DC permissible.
2) Only permissible in the short-term in the event of a fault.

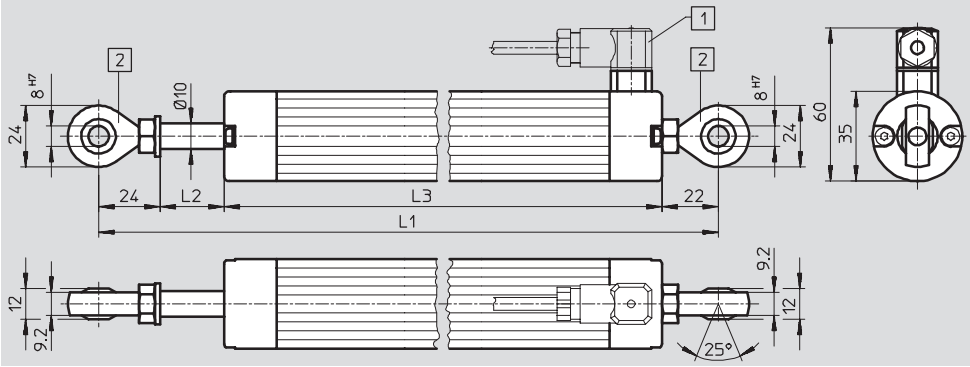
Operating and environmental conditions										
Stroke			100	150	225	300	360	450	500	600	750
Ambient temperature		[°C]	–30 ... +100[1]								
Protection class			IP65								
Vibration resistance			To DIN/IEC 68 Parts 2 – 6, severity level 2								
Continuous shock resistance			To DIN/IEC 68 Parts 2 – 27, severity level 2								
CE marking symbol (see conformity declaration)			As per EU EMC directive								

1) Please note temperature ranges of individual components used in a complete system solution.

MLO-POT-...-LWG		
Housing		Anodised aluminium
Bearing cap		Reinforced polyester
Bearing seal		Nitrile rubber
Connecting rod		Corrosion resistant steel
Rod seal		Polytetraflouroethylene
Lubricant		ISOFLEX Topas MB52
Resistor element		Conductive plastic
Wiper	Contact	Stainless steel
	Silencer	Elastomer

Dimensions

Download CAD data ➔ **www.festo.com/en/engineering**



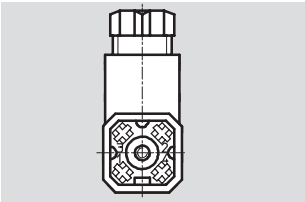
1 Plug socket, 4-pin
Type: SD-4-WD-7
Insert 90° rotatable
(not included in scope of delivery)

2 Rod eye, backlash-free

Dimensions and ordering data

Stroke [mm]	L1	L2 (effective mechanical/electrical displacement)	L3	Part No.	Type
100	273	105/102	227	**192 213**	**MLO-POT-100-LWG**
150	323	155/152	277	**192 214**	**MLO-POT-150-LWG**
225	400	231/228	354	**152 645**	**MLO-POT-225-LWG**
300	476	307/304	430	**152 646**	**MLO-POT-300-LWG**
360	551	368/366	505	**152 647**	**MLO-POT-360-LWG**
450	665	460/457	619	**152 648**	**MLO-POT-450-LWG**
500	730	510/508	684	**152 649**	**MLO-POT-500-LWG**
600	856	612/610	810	**152 650**	**MLO-POT-600-LWG**
750	1040	764/762	994	**152 651**	**MLO-POT-750-LWG**

Ordering data – Accessories



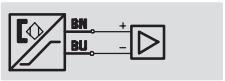
PIN	Pin allocation	Designation	Part No.	Type
1	Power supply	Plug socket	**194 332**	**SD-4-WD-7**
2	Signal			
3	0 V			
4	PE (yellow), screen			

Linear actuators DLP, Copac

Accessories – Proximity sensors

FESTO

Function
Namur, with cable



- EU conformity in accordance with EU explosion protection directive (ATEX)
- Magneto-inductive measuring principle
- Insertable in the slot from above
- Cable clip included in the scope of delivery

Design		
Constructional design		For T-slot
Type of mounting		Clamped, insertable in the slot from above
Connection direction		In-line
Reproducibility of switching point[1)]	[mm]	±0.1

1) Only applicable to drives secured against rotation

Technical data		
Switching element function		Namur
Switch output		Namur
Conforms to		DIN EN 60 947-5-6
Electrical connection		Cable, 2-wire
Operating voltage	[V DC]	8.2
Max. output current in Namur operation	[mA]	< 4.5
Max. switching capacity	[W]	–
Voltage drop	[V]	–
Residual current	[mA]	< 0.7
Switch-on time	[ms]	≤ 0.5
Switch-off time	[ms]	≤ 0.5
Protection against short circuit		Yes
Protection against polarity reversal		For all electrical connections
Protection class		IP65/IP67
CE symbol (declaration of conformity)		In accordance with EU EMC directive In accordance with EU explosion protection directive (ATEX)
ATEX symbol		II 1 GD EEx ia IIC T4...T6[1)] T115°C KEMA 04ATEX1114 X[1)]
Switching status display		Yellow LED
Cable length	[m]	5.0
Product weight	[g]	70

1) Further details ➔ Operating instructions

Note

When used in areas subject to explosion hazard, the proximity sensor SMT-8F-I must be operated using an isolation amplifier according to EN 60 947-5-6.

Note

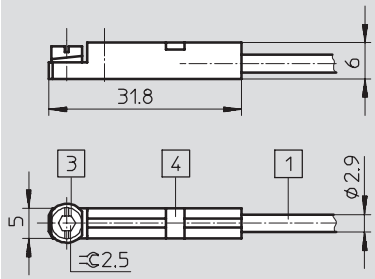
Operating instructions, conformity declarations and statements of conformity ➔ www.festo.com

Materials	
Housing	Polyamide
Cable sheath	Polyvinyl chloride
Note on materials	Free of copper, PTFE and silicone

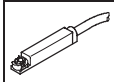
Operating and environmental conditions			
Cable installation		Fixed	Flexible
Ambient temperature	[°C]	–10 ... +70	–5 ... +70
ATEX ambient temperature	[°C]	–10 °C ≤ Ta ≤ +70 °C	–5 °C ≤ Ta ≤ +70 °C
Corrosion resistance class CRC[1)]		1	1

1) Corrosion resistance class 1 according to Festo standard 940 070
Components requiring low corrosion resistance. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



1 Connecting cable
3 Cable clip
4 Yellow LED

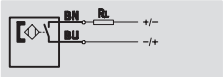
Ordering data					
	Switch output	Electrical connection	Cable length	Part No.	Type
	Namur	Cable, 2-wire	5.0	**536 956**	**SMT-8F-I-8,2V-K5,0-OE-EX**

Linear actuators DLP, Copac

Accessories – Proximity sensors

FESTO

Function
N/O contact, two-wire, with cable



- Magneto-resistive measuring principle
- EU conformity in accordance with EU explosion protection directive (ATEX)
- Insertable in the slot from above
- Cable clip and inscription label included in the scope of delivery

Design		
Constructional design		For T-slot
Type of mounting		Clamped, insertable in the slot from above
Connection direction		In-line
Reproducibility of switching point[1)]	[mm]	±0.1

1) Only applicable to drives secured against rotation

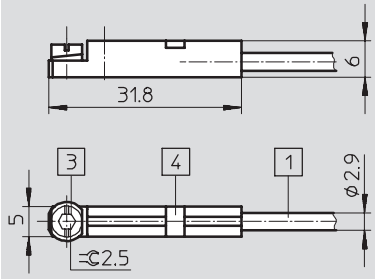
Technical data – N/O contact, 2-wire		
Electrical connection		Cable, 2-wire
Cable length	[m]	2.5
Operating voltage range	[V DC]	10 ... 30
Max. output current	[mA]	100
Max. switching capacity	[W]	3
Voltage drop	[V]	5.6
Residual current	[mA]	0.8
Switch-on time	[ms]	≤1.6
Switch-off time	[ms]	1.6
Protection against short circuit		Yes
Protection against polarity reversal		For all electrical connections
Protection class		IP65/IP67
CE symbol (declaration of conformity)		In accordance with EU EMC directive In accordance with EU explosion protection directive (ATEX)
ATEX symbol		II 3 GD EEx nA II T4 T110°C X
Switching status display		Yellow LED
Product weight	[g]	22

Materials	
Switch output	Two-wire
Housing	Reinforced polyamide
Cable sheath	Polyurethane
Note on materials	Free of copper, PTFE and silicone

Operating and environmental conditions			
Electrical connection		Cable, 2-wire	
Cable installation		Fixed	Flexible
Ambient temperature	[°C]	–25 ... +55	–5 ... +55
ATEX ambient temperature	[°C]	–25 ≤ Ta ≤ +55 IP65	
Corrosion resistance class CRC[1)]		4	

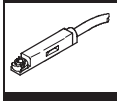
1) Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



1 Connecting cable
3 Cable clip
4 Yellow LED

Ordering data

	Switch output	Electrical connection				Cable length	Part No.	Type
		Cable	Cable with plug					
			M5x0.5	M8x1	M12x1	[m]		
	N/O contact							
	Two-wire	2-wire	–	–	–	2.5	**525 908**	**SMT-8F-ZS-24V-K2,5-OE-EX**

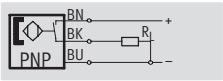
Linear actuators DLP, Copac

Accessories – Proximity sensors

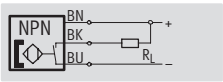
FESTO

Function

e.g. PNP, N/O contact, with cable



e.g. NPN, N/O contact, with cable



- Magneto-resistive measuring principle
- Insertable in the slot lengthwise

Design		
Constructional design		For T-slot
Type of mounting		Clamped, insertable in the slot lengthwise, flush with the cylinder profile
Connection direction		In-line
Reproducibility of switching point[1)]	[mm]	±0.2
Switching status display		Yellow LED

1) Only applicable to drives secured against rotation

Technical data – PNP, N/O contact				
Electrical connection		Cable, 3-wire		Cable with plug M8x1, 3-pin
Cable length	[m]	2.5	5.0	0.3
Operating voltage range	[V DC]	10 ... 30		
Max. output current	[mA]	100		
Max. switching capacity	[W]	3		
Voltage drop	[V]	1.8		
Residual current	[mA]	≤0.01		
Switch-on time	[ms]	≤0.2		
Switch-off time	[ms]	≤0.5		
Protection against short circuit		Yes		
Protection against polarity reversal		For all electrical connections		
Protection class		IP65/IP67		
CE symbol (declaration of conformity)		In accordance with EU EMC directive		
Product weight	[g]	30	60	10

Technical data – NPN, N/O contact			
Electrical connection		Cable, 3-wire	Cable with plug M8x1, 3-pin
Cable length	[m]	2.5	0.3
Operating voltage range	[V DC]	10 ... 30	
Max. output current	[mA]	100	
Max. switching capacity	[W]	3	
Voltage drop	[V]	1.5	
Residual current	[mA]	0.002	
Switch-on time	[ms]	≤0.1	
Switch-off time	[ms]	0.8	
Protection against short circuit		Yes	
Protection against polarity reversal		For all electrical connections	
Protection class		IP65/IP67	
CE symbol (declaration of conformity)		In accordance with EU EMC directive	
Product weight	[g]	30	10

Materials	
Housing	Polyurethane
Cable sheath	Polyurethane
Note on materials	Free of copper and PTFE

Operating and environmental conditions					
Electrical connection		Cable, 3-wire		Cable with plug	
Cable installation		Fixed	Flexible	Fixed	Flexible
Ambient temperature	[°C]	–20 ... +60	–5 ... +60	–20 ... +60	–5 ... +60
Corrosion resistance class CRC[1)]		4		2	

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

Dimensions

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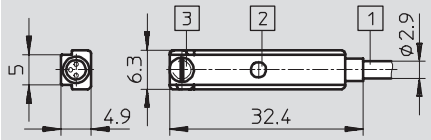
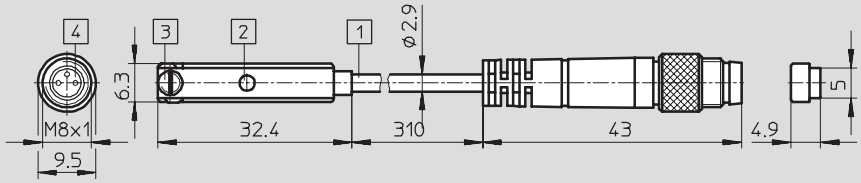
Cable type



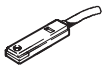
1 Connecting cable
2 Yellow LED
3 Clamping component

Plug type M8x1



1 Connecting cable
2 Yellow LED
3 Clamping component
4 Plug suitable for plug socket with cable SIM-M8-...

Ordering data

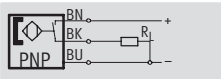
	Switch output	Electrical connection		Cable length	Part No.	Type
		Cable	Plug M8x1	[m]		
	N/O contact					
	PNP	3-wire	–	2.5	**175 436**	**SMT-8-PS-K-LED-24-B**
				5.0	**175 434**	**SMT-8-PS-K5-LED-24-B**
		–	3-pin	0.3	**175 484**	**SMT-8-PS-S-LED-24-B**
	NPN	3-wire	–	2.5	**171 180**	**SMT-8-NS-K-LED-24-B**
		–	3-pin	0.3	**171 181**	**SMT-8-NS-S-LED-24-B**

Linear actuators DLP, Copac

Accessories – Proximity sensors

Function

PNP, N/O contact, with cable



- Corrosion resistant
- Magneto-resistive measuring principle
- Insertable in the slot lengthwise

Design		
Constructional design		For T-slot
Type of mounting		Clamped, insertable in the slot lengthwise, flush with the cylinder profile
Connection direction		In-line
Reproducibility of switching point[1]	[mm]	±0.2
Switching status display		Yellow LED

1) Only applicable to drives secured against rotation

Technical data – PNP, N/O contact			
Electrical connection		Cable, 3-wire	
Cable length	[m]	2.5	5.0
Operating voltage range	[V DC]	10 ... 30	
Max. output current	[mA]	100	
Max. switching capacity	[W]	3	
Voltage drop	[V]	1.8	
Residual current	[mA]	≤0.1	
Switch-on time	[ms]	≤0.2	
Switch-off time	[ms]	≤0.5	
Protection against short circuit		Yes	
Protection against polarity reversal		For all electrical connections	
Protection class		IP65/IP67	
CE symbol (declaration of conformity)		In accordance with EU EMC directive	
Product weight	[g]	30	60

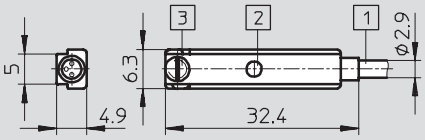
Materials	
Housing	Polypropylene
Cable sheath	Thermoplastic rubber
Note on materials	Free of copper and PTFE

Operating and environmental conditions			
Cable installation		Fixed	Flexible
Ambient temperature	[°C]	–20 ... +60	–5 ... +60
Corrosion resistance class CRC[1]		4	

1) Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

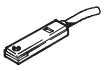
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Cable type



1 Connecting cable
2 Yellow LED
3 Clamping component

Ordering data

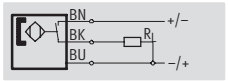
	Switch output	Electrical connection	Cable length	Part No.	Type
	N/O contact				
	PNP	Cable, 3-wire	2.5	**525 563**	**CRSMT-8-PS-K2,5-LED-24**
			5.0	**525 564**	**CRSMT-8-PS-K5-LED-24**

Linear actuators DLP, Copac

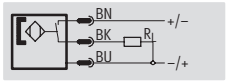
Accessories – Proximity sensors

Function

e.g. N/O contact, 3-wire, with cable



e.g. N/O contact, 3-wire, with plug



- Magnetic reed measuring principle
- Heat resistant variant
- Variant for 3 ... 250 V DC/AC
- Insertable in the slot lengthwise

Design	
Constructional design	For T-slot
Type of mounting	Clamped, insertable in the slot lengthwise, flush with the cylinder profile
Connection direction	In-line
Reproducibility of switching point[1] [mm]	±0.1

1) Only applicable to drives secured against rotation

Technical data – N/O contact, 3-wire						
Switch output			Conventional contact, bipolar			
Electrical connection			Cable, 3-wire			Cable with plug M8x1, 3-pin
Cable length		[m]	2.5	5.0	7.5	0.3
Operating voltage range	DC	[V DC]	12 ... 30			
Max. output current	DC	[mA]	500			
Max. switching capacity	DC	[W]	10			
Switch-on time		[ms]	≤0.5			
Switch-off time		[ms]	0.03			
Protection against short circuit			No			
Protection against polarity reversal			No			
Protection class			IP65/IP67			
CE symbol (declaration of conformity)			In accordance with EU EMC directive			
Switching status display			Yellow LED			
Product weight		[g]	30	60	85	8

Technical data – N/O contact, 2-wire				
Switch output			Conventional contact, bipolar[1]	
Electrical connection			Cable, 2-wire	
Cable length		[m]	2.5	
Operating voltage range	DC	[V DC]	12 ... 27	3 ... 250
	AC	[V AC]	–	3 ... 250
Max. output current	DC	[mA]	80	120
	AC	[mA]	–	120
Max. switching capacity	DC	[W]	2	10
	AC	[VA]	–	10
Voltage drop		[V]	3.5	3.9
Switch-on time		[ms]	≤0.5	≤2
Switch-off time		[ms]	0.03	
Protection against short circuit			No	
Protection against polarity reversal			No	
Protection class			IP67	
CE symbol (declaration of conformity)			In accordance with EU EMC directive	In accordance with EU EMC directive In accordance with EU low voltage directive
Switching status display			Yellow LED	
Product weight		[g]	24	40

1) Without LED function

Technical data – N/O contact, heat resistant			
Switch output			Conventional contact, bipolar
Electrical connection			Cable, 2-wire
Cable length		[m]	2.5
Operating voltage range	DC	[V DC]	0 ... 30
Max. output current	DC	[mA]	500
Max. switching capacity	DC	[W]	10
Voltage drop		[V]	–
Switch-on time		[ms]	≤0.5
Switch-off time		[ms]	≤0.5
Protection against short circuit			No
Protection against polarity reversal			No
Protection class			IP67
CE symbol (declaration of conformity)			Omitted
Switching status display			–
Product weight		[g]	50

Technical data – N/C contact, 3-wire			
Switch output			Conventional contact, bipolar
Electrical connection			Cable, 3-wire
Cable length		[m]	7.5
Operating voltage range	DC	[V DC]	12 ... 30
Max. output current	DC	[mA]	50
Max. switching capacity	DC	[W]	1.5
Voltage drop		[V]	1.8
Switch-on time		[ms]	≤2
Switch-off time		[ms]	≤0.2
Protection against short circuit			No
Protection against polarity reversal			No
Protection class			IP67
CE symbol (declaration of conformity)			In accordance with EU EMC directive
Switching status display			Yellow LED
Product weight		[g]	85

Materials	
Housing	Polyester
Cable sheath	Polyurethane, polyvinyl chloride[1)]
Note on materials	Free of copper and PTFE

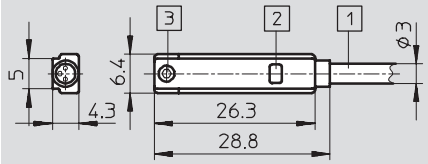
1) N/O contact, 2-wire, operating voltage range 3 ... 250 V AC/DC

Operating and environmental conditions							
Electrical connection		Cable		Cable with plug		Cable, heat resistant	
Cable installation		Fixed	Flexible	Fixed	Flexible	Fixed	Flexible
Ambient temperature	[°C]	–20 ... +60	–5 ... +60	–20 ... +60	–5 ... +60	–40 ... +120	–5 ... +120
Corrosion resistance class CRC[1)]		4		2		4	

1) Corrosion resistance class 2 according to Festo standard 940 070
Components requiring moderate corrosion resistance. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
Corrosion resistance class 4 according to Festo standard 940 070
Components requiring higher corrosion resistance. Parts used with aggressive media, e.g. food or chemical industry. These applications should be supported with special tests with the media if required.

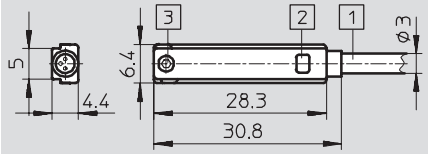
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

N/O contact cable type



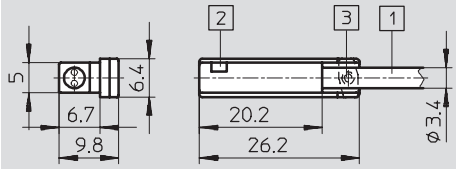
1 Connecting cable
2 Yellow LED
3 Clamping component

N/C contact cable type



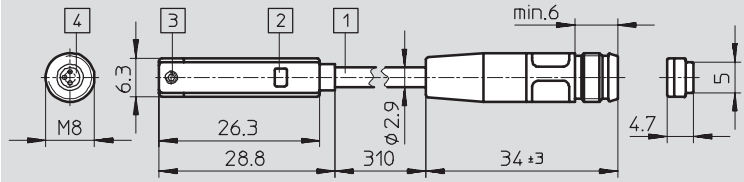
1 Connecting cable
2 Yellow LED
3 Clamping component

Operating voltage range 3 ... 250 V DC/AC



1 Connecting cable
2 Yellow LED
3 Clamping component

Plug type M8x1



1 Connecting cable
2 Plug suitable for plug socket with cable SIM-M8-...
3 Clamping component
4 Yellow LED

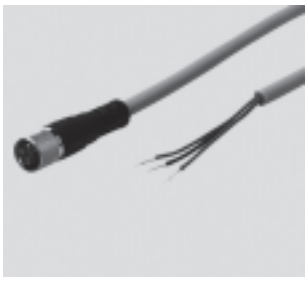
Ordering data

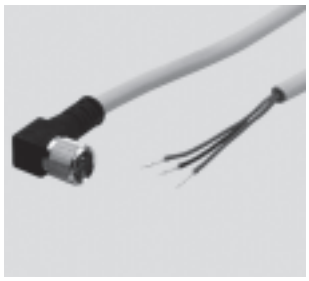
	Electrical connection		Cable length	Part No.	Type
	Cable	Plug M8x1	[m]		
	N/O contact				
	Operating voltage range 0 ... 30 V AC/DC				
	3-wire	–	2.5	**150 855**	**SME-8-K-LED-24**
			5.0	**175 404**	**SME-8-K5-LED-24**
			7.5	**530 491**	**SME-8-K-7,5-LED-24**
	–	3-pin	0.3	**150 857**	**SME-8-S-LED-24**
	2-wire	–	2.5	**171 169**	**SME-8-ZS-KL-LED-24**
	Heat resistant up to 120°C				
	2-wire	–	2.5	**161 756**	**SME-8-K-24-S6**
	Operating voltage range 3 ... 250 V AC/DC				
	2-wire	–	2.5	**152 820**	**SME-8-K-LED-230**
	N/C contact				
	3-wire	–	7.5	**160 251**	**SME-8-O-K-LED-24**

Core Range

Plug socket with cable M8x1
SIM-M8-3GD-...
SIM-M8-3WD-...

Material:
Housing: Polyurethane
Cable sheath: Polyurethane





Ordering data

Switch output		Switching status display via LED	Cable length	Weight	Part No.	Type
PNP	NPN		[m]	[g]		
Straight socket						
■	■	–	2.5	79	**159 420**	**SIM-M8-3GD-2,5-PU**
■	■	–	5	150	**159 421**	**SIM-M8-3GD-5-PU**
■	■	–	10	284	**192 964**	**SIM-M8-3GD-10-PU**
Angled socket						
■	■	–	2.5	81	**159 422**	**SIM-M8-3WD-2,5-PU**
■	■	–	5	146	**159 423**	**SIM-M8-3WD-5-PU**
■	■	–	10	283	**192 965**	**SIM-M8-3WD-10-PU**
–	■	■	2.5	80	**159 426**	**SIM-M8-3WD-2,5-NSL-PU**
–	■	■	5	150	**159 427**	**SIM-M8-3WD-5-NSL-PU**
■	–	■	2.5	83	**159 424**	**SIM-M8-3WD-2,5-PSL-PU**
■	–	■	5	143	**159 425**	**SIM-M8-3WD-5-PSL-PU**

Ordering data – Slot cover for T-slot

	Assembly	Length [m]	Part No.	Type
	Insertable from above	2x 0.5	**151 680**	**ABP-5-S**

Ordering data – Cable clip SMBK-8

		Part No.	Type
	For fixing the cable in the sensor slot	**534 254**	**SMBK-8**

Core Range