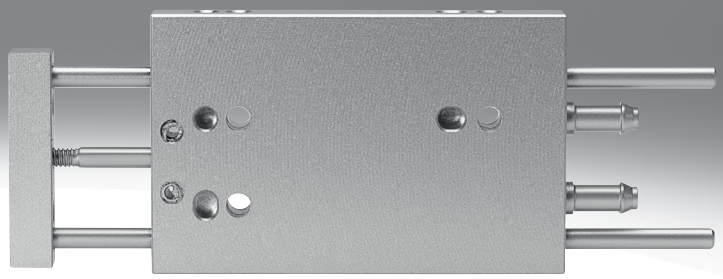
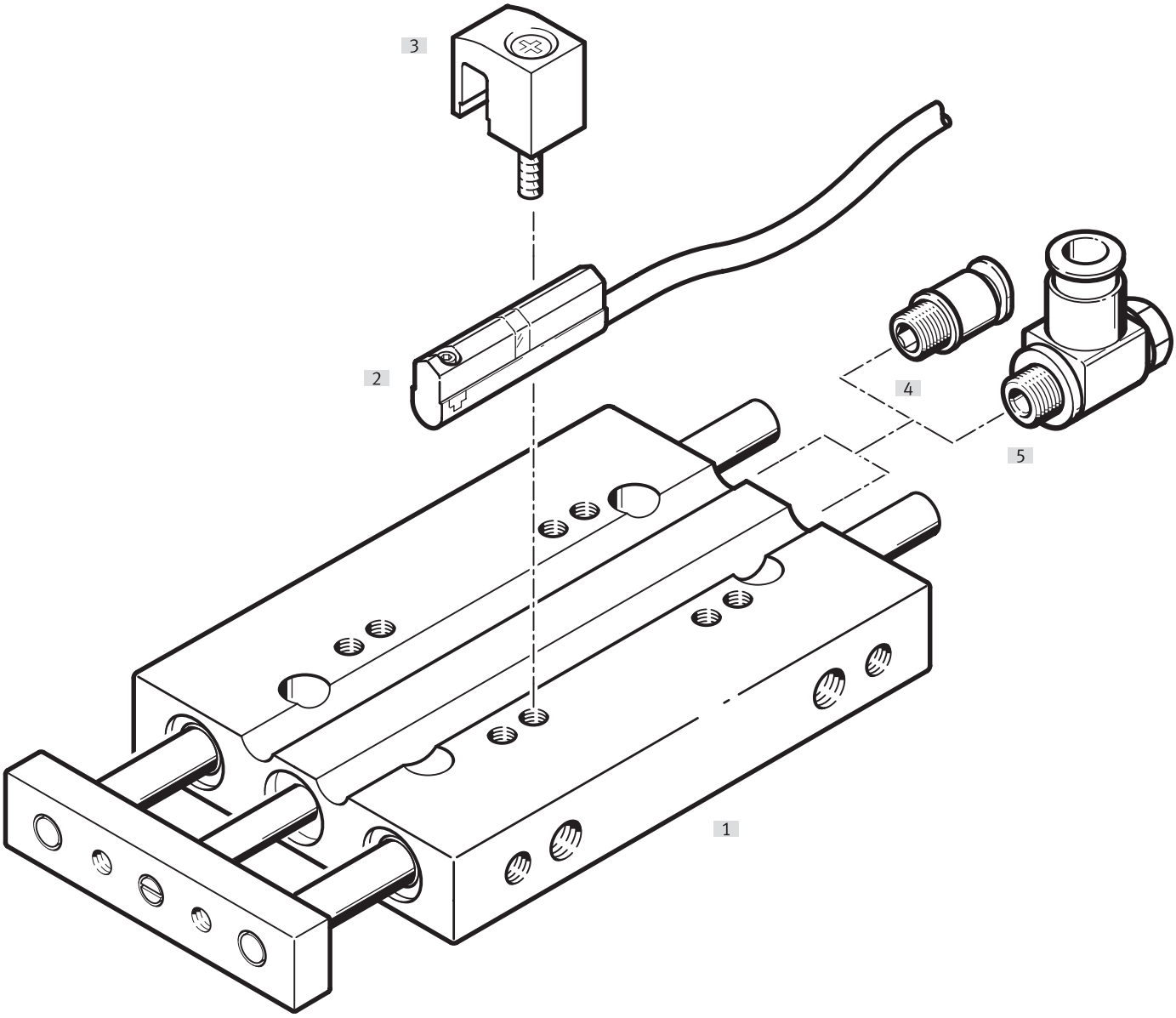
Mini guided drives DFC

FESTO



Peripherals overview



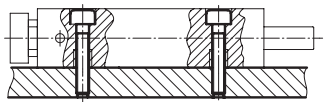
Peripherals overview

Accessories					
		Description	Piston ø 6 mm	Piston ø 10 mm	→ Page/Internet
[1]	Mini guided drive DFC				
[2]	Proximity switch SME/SMT-10	–	■	■	12
[3]	Sensor bracket	Included in the scope of delivery of the mini guide unit	■	■	–
[4]	Push-in fitting QSM	For connecting tubing with standard O.D.	■	■	qs
[5]	One-way flow control valve GRLZ	For regulating speed	–	■	12

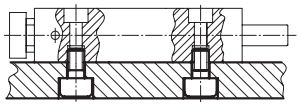
Key features

Mounting options

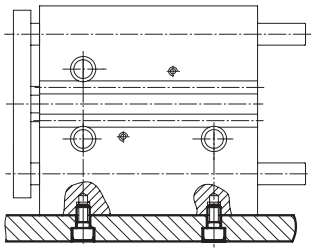
Horizontal mounting from above



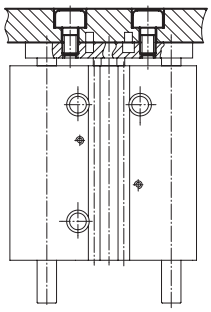
Horizontal mounting from below



Side mounting from below



Yoke mounting



Type codes

001	Series	
DFC	Mini guided drive, double-acting	

002	Piston diameter [mm]	
6	6	
10	10	

003	Stroke [mm]	
...	5 ... 30	

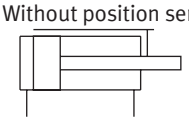
004	Cushioning	
P	Elastic cushioning rings/plates on both sides	

005	Position sensing	
A	For proximity sensor	

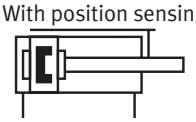
006	Guide	
GF	Plain bearing	
KF	Recirculating ball bearing guide	

Datasheet

Without position sensing



With position sensing



Diameter
6, 10 mm

Stroke length
5 ... 30 mm

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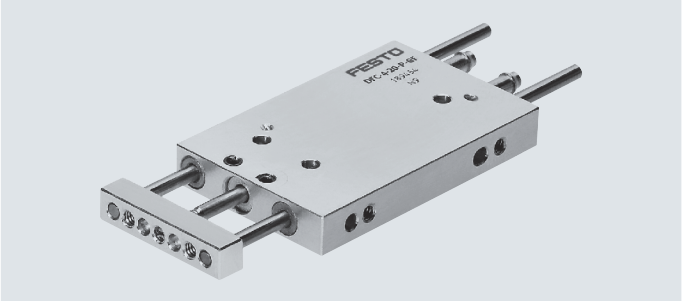


General technical data			
Piston ø		6	10
Pneumatic connection		M3	M5
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Note on the operating/ pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)	
Operating pressure	[MPa]	0.15 ... 1	0.1 ... 1
	[bar]	1.5 ... 10.0	1.0 ... 10.0
Design		Piston	
		Piston rod	
		Guide rods with yoke	
Cushioning		Elastic cushioning rings/plates at both ends	
Position sensing		Via proximity switch	
Type of mounting		With through-hole	
		With female thread	
Mounting position		Any	
Protection against rotation/guide		Guide rod with yoke	
		With plain-bearing or recirculating ball bearing guide	

Environmental conditions			
Variants		Plain-bearing guide GF	Recirculating ball bearing guide KF
Ambient temperature1)	[°C]	–5 ... +60	
Corrosion resistance class CRC[2)]		2	–

1) Note operating range of proximity switches
2) More information www.festo.com/x/topic/crc

Speeds [m/s] with maximum stroke length		
Piston ø	6	10
Maximum speed	1.0	1.0
Minimum speed	0.1	0.1

Forces [N]		
Piston ø	6	10
Theoretical force at 0.6 MPa (6 bar), advancing	17	47
Theoretical force at 0.6 MPa (6 bar), retracting	12.5	35

Impact energy [J]		
Piston ø	6	10
Max. impact energy in the end positions	0.008	0.05

Permissible impact velocity:

$$v = \sqrt{\frac{2 \cdot E}{m_1 + m_2}}$$

Maximum permissible mass:

$$m_2 = \frac{2 \cdot E}{v^2} - m_1$$

v	Permissible impact speed
E	Max. impact energy
m_1	Moving mass (drive)
m_2	Moving payload

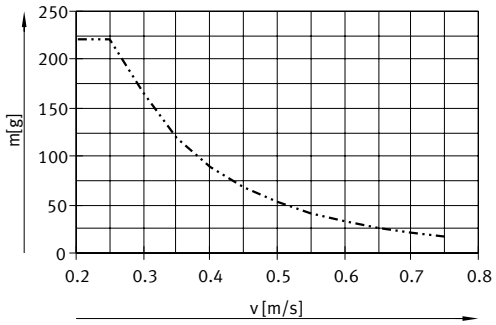
Note

These specifications represent the maximum values that can be achieved. The maximum permissible impact energy must be observed.

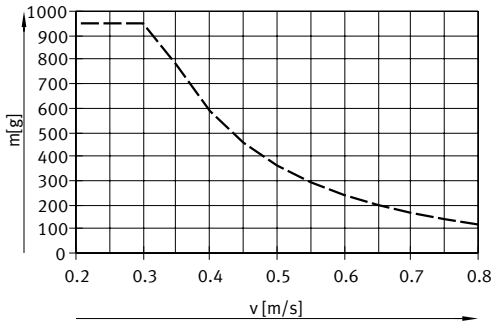
Datasheet

Maximum permissible mass m as a function of impact velocity v

Piston ø 6 mm



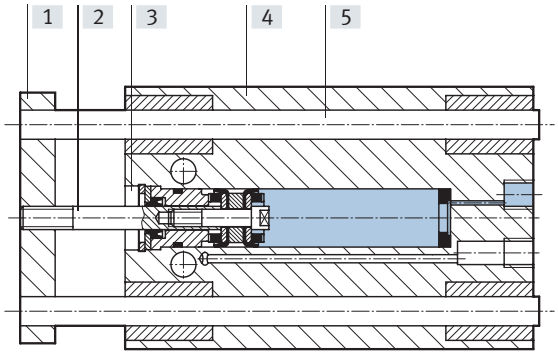
Piston ø 10 mm



Weight [g]			
Piston ø		6	10
Product weight	with 5 mm stroke	28	91
	with 10 mm stroke	34	100
	with 15 mm stroke	39	108
	with 20 mm stroke	44	117
	with 25 mm stroke	49	125
	with 30 mm stroke	55	134
Moving mass with 0 mm stroke		8.8	27.2
Additional mass per 10 mm stroke		2.8	7.2

Materials

Sectional view

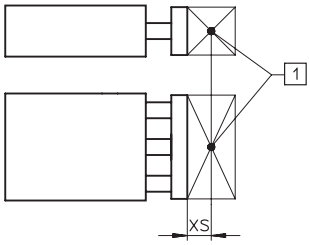


Mini guided drive		
[1]	Yoke plate	Wrought aluminium alloy
[2]	Piston rod	High-alloy stainless steel
[3]	Cover	Wrought aluminium alloy
[4]	Housing	Wrought aluminium alloy
[5]	Guide rods	High-alloy steel
–	Seals	Polyurethane, nitrile rubber
	LABS (PWIS) conformity	VDMA24364-B2-L

Datasheet

Maximum payload F [N]

Plain-bearing guide GF and recirculating ball bearing guide KF

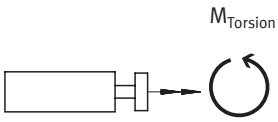


[1] Centre of gravity of payload

Piston ø [mm]		XS [mm]	Stroke [mm]					
			5	10	15	20	25	30
6	GF	10	4.8	4.8	4.8	4.8	4.8	4.8
	KF		4.6	4.6	4.6	4.6	4.6	4.6
10	GF	15	12.2	12.2	12.2	12.2	12.2	12.2
	KF		9.8	9.8	9.8	9.8	9.8	9.8

Permissible torque load M [Nm]

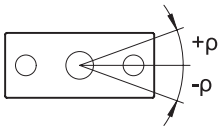
Plain-bearing guide GF and recirculating ball bearing guide KF



Piston ø [mm]		Stroke [mm]					
		5	10	15	20	25	30
6	GF	0.1	0.1	0.1	0.1	0.1	0.1
	KF	0.1	0.1	0.1	0.1	0.1	0.1
10	GF	0.4	0.4	0.4	0.4	0.4	0.4
	KF	0.3	0.3	0.3	0.3	0.3	0.3

Torsional backlash p

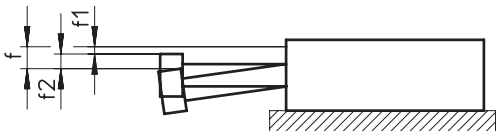
Plain-bearing guide GF and recirculating ball bearing guide KF



Piston ø		6	10
In retracted state			
Torsional backlash [°]	GF	±0.05	±0.04
	KF	±0.05	±0.03
In advanced position with maximum stroke			
Torsional backlash [°]	GF	±0.07	±0.06
	KF	±0.08	±0.05

Datasheet

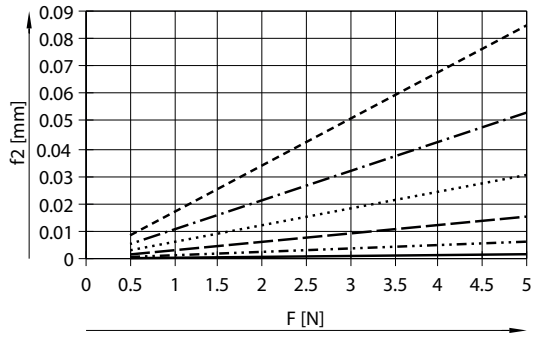
Deflection of the piston rod



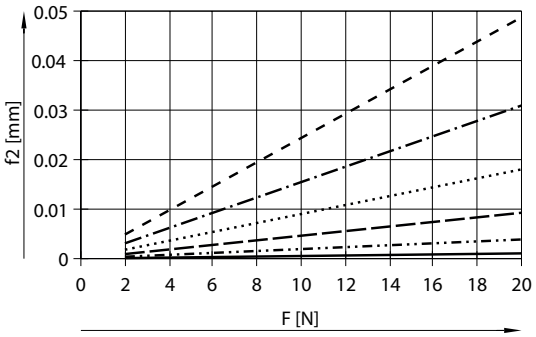
f = f1 + f2
f = total deflection of the piston rod
f1 = deflection due to bearing backlash = max. 0.02 mm
f2 = deflection due to lateral force

Deflection f2 due to lateral force F as a function of the stroke

Piston ø 6 mm



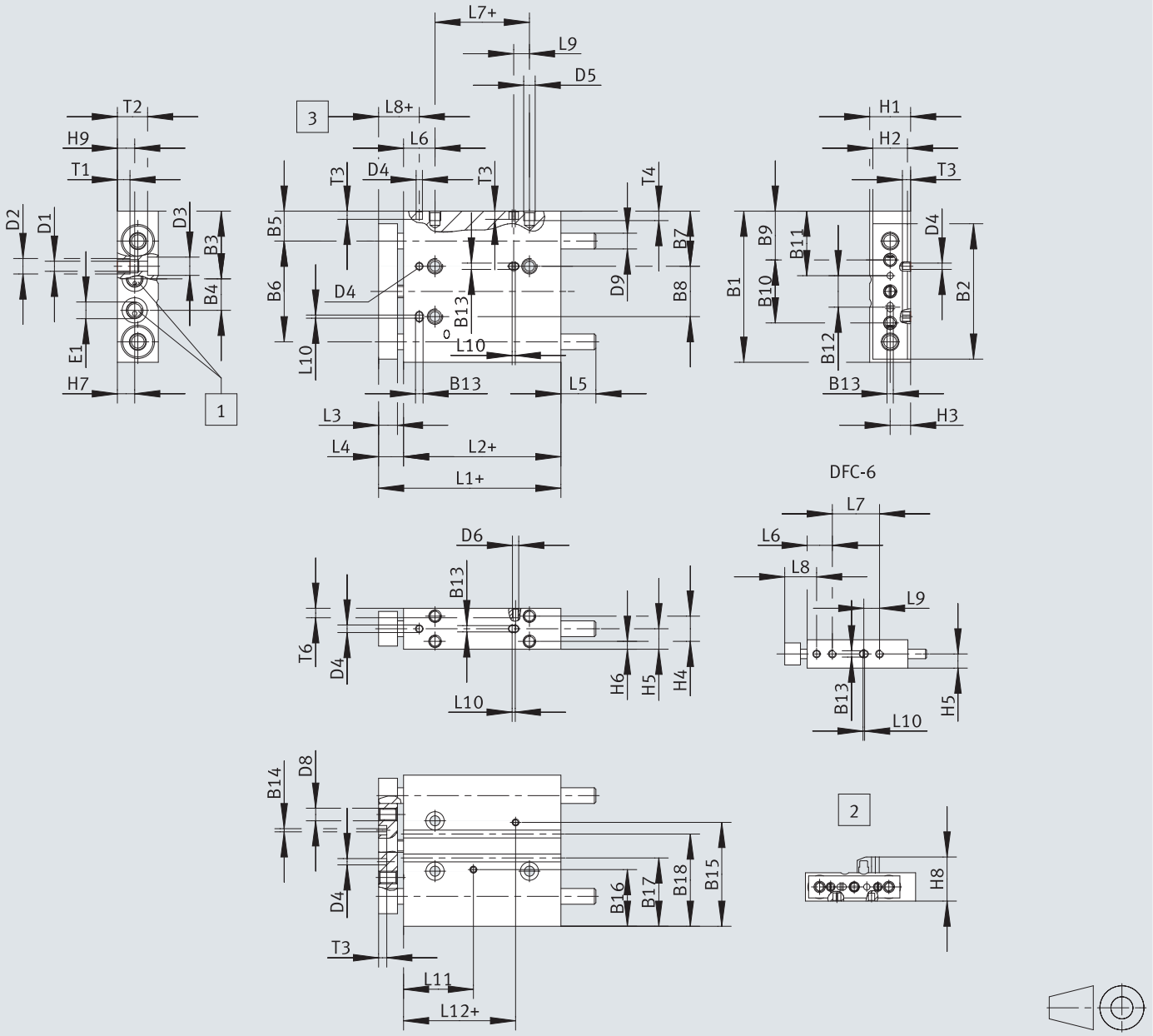
Piston ø 10 mm



5 mm stroke
10 mm stroke
15 mm stroke
20 mm stroke
25 mm stroke
30 mm stroke

Datasheet

Dimensions Download CAD data → www.festo.com



[1] Supply ports
[2] Sensor bracket
(included in the scope of delivery of the mini guide unit)
[3] Dimension L8 set in advanced state

\+ = plus stroke length

Datasheet

ø [mm]	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13 H8	B14	B15	B16	B17	B18
6	35	29	17	6.5	8.5	22	14	11	12	15	15.8	8	2	1	26.2	12.8	16.5	22.5
10	48	43	21.5	10	9.5	32	17.5	16	15.5	20	20.5	10	2	1	33	18	21.7	29.3

ø [mm]	D1 ø	D2	D3 ø	D4 ø H8	D5	D6	D8	D9 ø	E1	H1	H2	H3	H4	H5	H6	H7	H8	H9
6	2	M2.5	4	2	M2.5	M2	M2.5	3	M3	9	7	4.5	–	4.5	4.5	3.5	15	4.5
10	3.2	M4	5.8	2	M3	M2	M4	5	M5	13	11	6.5	8	6.5	2.5	5.5	19	5.5

ø [mm]	L1	L2	L3	L4 +0.3 –0.9	L5	L6	L7	L8 +0.2	L9	L10	L11	L12	T1	T2	T3	T4	T6
6	34	27	5	7	1	8	10	10	5	0.5	16	19.4	3	6.1	2.6	5	2.5
10	48	40	6	8	1	10	20	13	5	1	22.2	25.6	4	9.6	2.6	3	3

Ordering data

Mini guided drives DFC[1)]

Piston ø [mm]	Stroke [mm]	Plain-bearing guide GF Part no.	Type	Recirculating ball bearing guide KF Part no.	Type
6	5	**189455**	**DFC-6-5-P-A-GF**	**189461**	**DFC-6-5-P-A-KF**
	10	**189456**	**DFC-6-10-P-A-GF**	**189462**	**DFC-6-10-P-A-KF**
	15	**189457**	**DFC-6-15-P-A-GF**	**189463**	**DFC-6-15-P-A-KF**
	20	**189458**	**DFC-6-20-P-A-GF**	**189464**	**DFC-6-20-P-A-KF**
	25	**189459**	**DFC-6-25-P-A-GF**	**189465**	**DFC-6-25-P-A-KF**
	30	**189460**	**DFC-6-30-P-A-GF**	**189466**	**DFC-6-30-P-A-KF**
10	5	**189467**	**DFC-10-5-P-A-GF**	**189473**	**DFC-10-5-P-A-KF**
	10	**189468**	**DFC-10-10-P-A-GF**	**189474**	**DFC-10-10-P-A-KF**
	15	**189469**	**DFC-10-15-P-A-GF**	**189475**	**DFC-10-15-P-A-KF**
	20	**189470**	**DFC-10-20-P-A-GF**	**189476**	**DFC-10-20-P-A-KF**
	25	**189471**	**DFC-10-25-P-A-GF**	**189477**	**DFC-10-25-P-A-KF**
	30	**189472**	**DFC-10-30-P-A-GF**	**189478**	**DFC-10-30-P-A-KF**

1) Mounting kits for proximity switches included in the scope of delivery

Accessories

Ordering data – Proximity switch for C-slot, magneto-resistive

Datasheets → Internet: smt

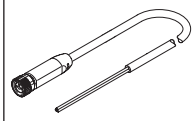
	Type of mounting	Switching output	Electrical connection, outlet direction of connection	Cable length [m]	Part no.	Type
N/O						
	Inserted in the slot from above	PNP	Plug M8x1, 3-pin, in-line	0.3	**551375**	**SMT-10M-PS-24V-E-0.3-L-M8D**
			Cable, 3-core, lengthwise	2.5	**551373**	**SMT-10M-PS-24V-E-2.5-L-OE**

Ordering data – Proximity switch for C-slot, magnetic reed

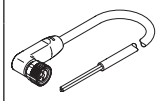
Datasheets → Internet: sme

	Type of mounting	Switching output	Electrical connection, outlet direction of connection	Cable length [m]	Part no.	Type
N/O						
	Inserted into the slot lengthwise	Contacting	Plug M8x1, 3-pin, lengthways	0.3	**173212**	**SME-10-SL-LED-24**
			Cable, 3-core, lengthwise	2.5	**173210**	**SME-10-KL-LED-24**

Connecting cables NEBA, straight

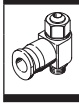
	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/ cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	**8078223**	**NEBA-M8G3-U-2.5-N-LE3**
				5 m	**8078224**	**NEBA-M8G3-U-5-N-LE3**

Connecting cables NEBA, angled

	Electrical connection 1, connection technology	Electrical connection 2, connection technology	Electrical connection 2, number of pins/ cores	Cable length	Part no.	Type
	M8x1 A-coded to EN 61076-2-104	Open end	3	2.5 m	**8078230**	**NEBA-M8W3-U-2.5-N-LE3**
				5 m	**8078231**	**NEBA-M8W3-U-5-N-LE3**

Ordering data – One-way flow control valves

Datasheets a Internet: grlz

	Connection Thread	For tubing O.D. Ø	Material	Part no.	Type
	M5	3	Metal design	**193153**	**GRLZ-M5-QS-3-D**
		4		**193154**	**GRLZ-M5-QS-4-D**
		6		**193155**	**GRLZ-M5-QS-6-D**