

Parallel gripper HEPC

FESTO



Characteristics

At a glance

The electric parallel gripper HEPC is the cost-effective solution for getting started with electric automation. Ideal for simple, linear gripping tasks involving opening and closing, where compressed air is not required. Simple, fast and fully electric. Perfect for applications in the electronics industry (ELA), LifeTech, for pick and place operations and on robot end-of-arm tools.

- Plug and work: An integrated controller with an I/O interface reduces costs and minimises the effort required for connection
- Low noise pollution
- Adaptation of the gripping force to sensitive workpieces
- Easy to adjust
- No external controller required
- With NSF-H1 lubricant for the food zone
- Suitable for the production of Li-ion batteries

These grippers are not designed for the following or similar application examples:

- Welding spatter
- Machining
- Aggressive media
- Grinding dust

Diagrams

Link [hepc](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

Type code

001	Series	
HEPC	Parallel gripper	

002	Size [mm]	
16	16	

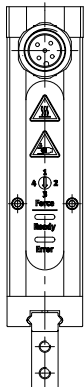
003	Complete stroke [mm]	
12	12	

004	Position sensing	
A	For proximity sensor	

005	Bus protocol/activation	
EA	Input/output	

Datasheet

Adjusting the gripping force



The speed at which the gripper applies force can be adjusted using the rotary switch. The switch has four settings, meaning there are four force levels, with no intermediate levels. The speed affects the gripping force and cannot be adjusted linearly.

- Setting 1: approx. 40% of the max. force
- Setting 2: approx. 60% of the max. force
- Setting 3: approx. 80% of the max. force
- Setting 4: 100%

General technical data

Size	16
Conforms to standard	IEC 61010-1
Design	Electric gripper With lead screw
Guide	Ball guide
Type of motor	Brushless DC motor
Ready status indication	LED
Operator controls	Latching switch
Gripper function	Parallel
Number of gripper jaws	2
Stroke per gripper jaws	6 mm
Max. mass per external gripper finger	40 g
Max. cycle frequency	1.3 Hz
Repetition accuracy, gripper	0.02 mm
Position detection	Via proximity switch
Type of mounting	Via female thread and centring sleeve
Mounting position	Any
Product weight	246 g

Electrical data

Size	16
Nominal operating voltage DC	24 V
Permissible voltage fluctuations	+/-10%
Max. current consumption	0.6 A

Operating and environmental conditions

Ambient temperature	5 ... 60°C
Degree of protection	IP40
Corrosion resistance class CRC ¹⁾	0 - No corrosion stress
Sound pressure level	60 dB(A)
CE mark (see declaration of conformity) ²⁾	To EU EMC Directive In accordance with EU RoHS Directive
UKCA marking (see declaration of conformity) ³⁾	To UK instructions for EMC To UK RoHS instructions
KC mark	KC-EMV
Approval	RCM

1) More information www.festo.com/x/topic/crc

2) More information www.festo.com/catalogue/hepp → Support/Downloads.

3) More information www.festo.com/catalogue/hepp → Support/Downloads.

Datasheet

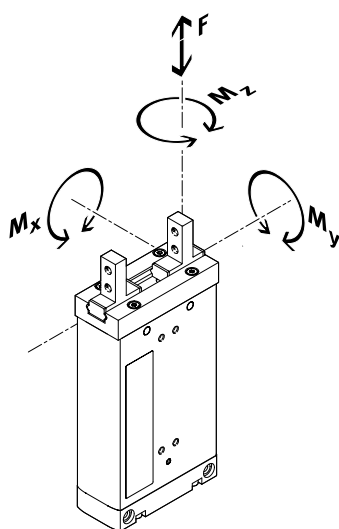
Materials

Material housing	Anodised aluminium
Material gripper jaws	High-alloy stainless steel
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 zone III
Suitability for the production of Li-ion batteries	Suitable for battery production with reduced Cu/Zn/Ni values (F1a)

Gripping force F

Size	16
Gripping force per gripper jaw	23 N
Total gripping force	46 N

Characteristic static load values on the gripper jaws



The specified permissible forces and torques refer to one gripper jaw. They include the lever arm, additional applied loads created by the workpiece or external gripper fingers and acceleration forces occurring during movement. The zero co-ordinate line (gripper jaw guide slot) must be taken into consideration when calculating torques.

Size	16
Max. force F_z	84 N
Max. moment M_x	0.94 Nm
Max. moment M_y	0.71 Nm
Max. moment M_z	0.71 Nm

Mass moment of inertia

Mass moment of inertia of the parallel grippers in relation to the central axis, without external gripper fingers, with no load.

Size	16
Mass moment of inertia	2.08 kgcm ²

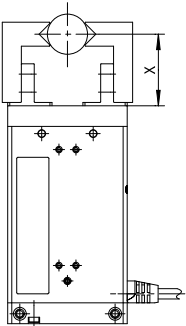
Gripper jaw backlash

The plain-bearing guide used in the grippers means that there is backlash between the gripper jaws and the housing. The values listed in the table apply in new condition.

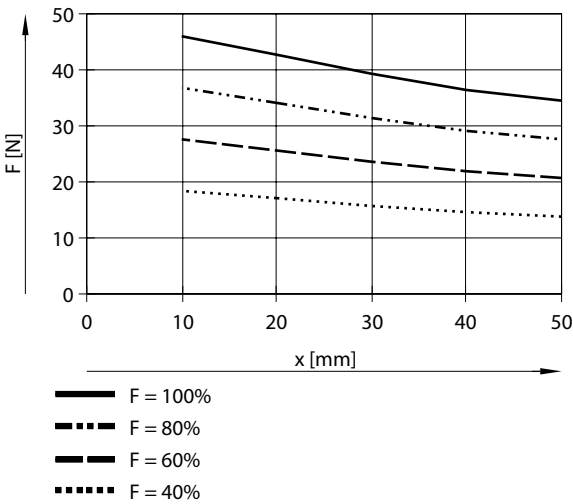
Size	16
Max. gripper jaw backlash S_z	0 mm
Max. angular gripper jaw backlash α_x, α_y	0 deg

Datasheet

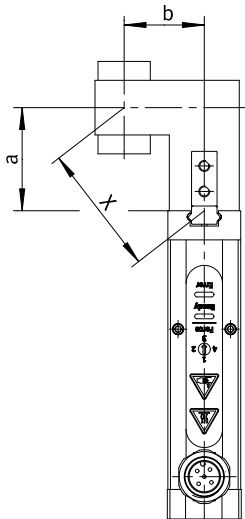
Gripping force F as a function of lever arm x



Gripping force F as a function of lever arm x

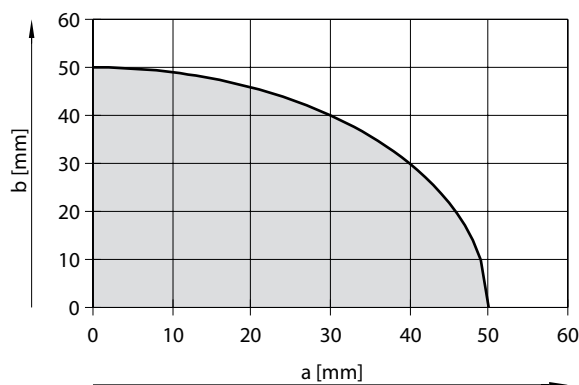


Gripping force F as a function of lever arm x and eccentricity a and b



Datasheet

Gripping force F as a function of lever arm x and eccentricity a and b



Calculation example:

Where:

Distance $a = 30$ mm

Distance $b = 30$ mm

To be determined:

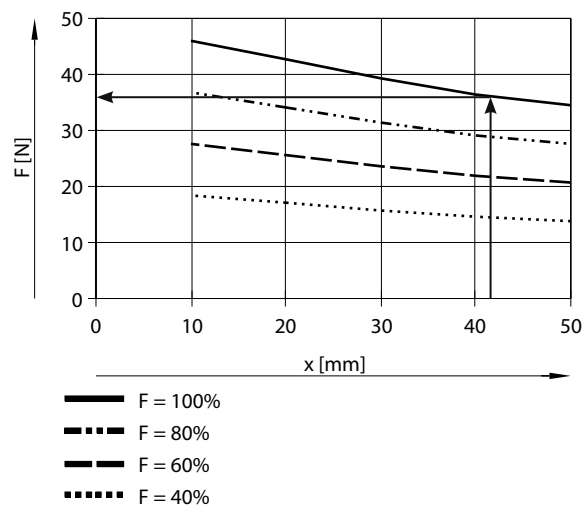
The gripping force in setting 4, for a HEPC-16, used as an external gripper.

Solution

$$x = \sqrt{a^2 + b^2} = \sqrt{30^2 + 30^2} = 42,4 \text{ mm}$$

The adjacent formula must be used to calculate the lever arm x with eccentric gripping.

Gripping force F as a function of lever arm x



The graph gives a value for the gripping force of $F = \text{approx. } 36 \text{ N}$.

The maximum lever length is 50 mm.

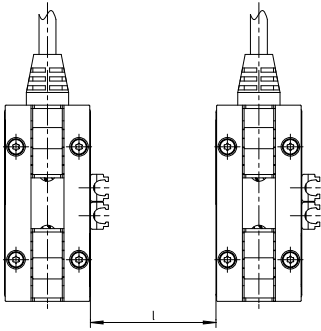
Electrical connection

Size	16
Electrical connection 1, function	Multi-pin
Electrical connection 1, number of connections/cores	5
Electrical connection 1, connection type	Cable with plug
Electrical connection 1, design	Round
Electrical connection 1, connector system	M12x1, A-coded to EN 61076-2-101

Datasheet

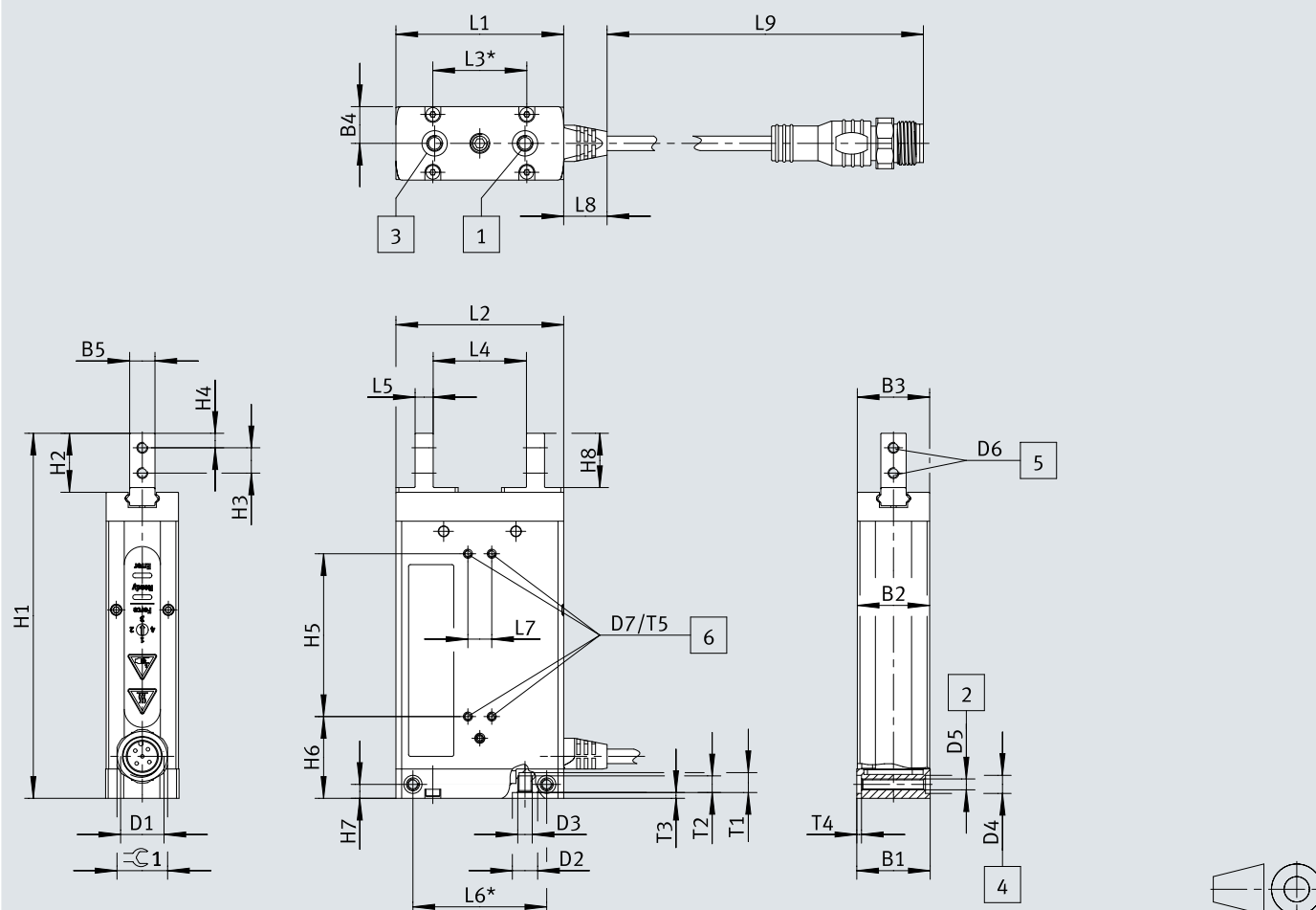
Minimum distance between two grippers

Distance $l = 20 \text{ mm}$



Dimensions

Dimensions – Parallel gripper HEPC

Download CAD data www.festo.com

- [1] Mounting thread underneath
 [2] Mounting thread on the side
 [3] Centring hole underneath
 [4] Centring hole on the side
 [5] Mounting thread for gripper fingers
 [6] Mounting thread for sensor rail
 [7] * = ±0.02 mm applies to the centring; ±0.1 mm applies to the thread

	B1	B2	B3	B4	B5	D1	D2 Ø H8	D3	D4 Ø H8	D5	D6	D7
HEPC-16	20,3	20	20	10,2	7	M12x1	7	M4	5	M3	M3	M2

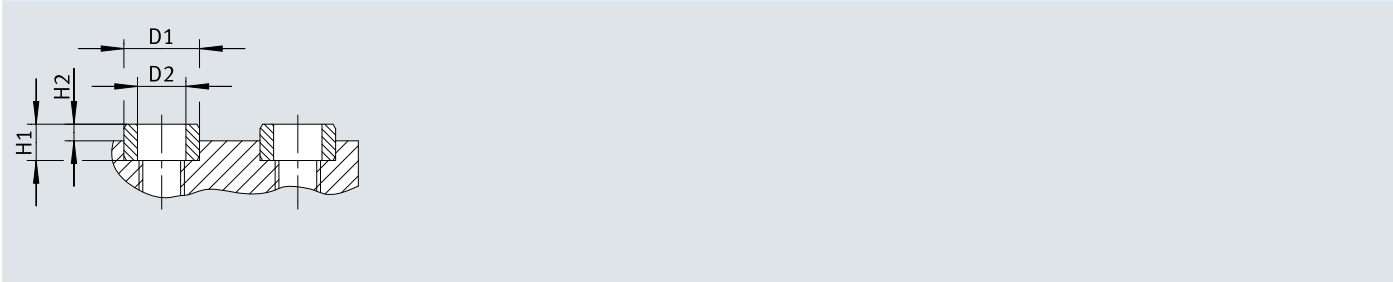
	H1	H2	H3	H4	H5	H6	H7	H8	L1	L2	L3
HEPC-16	100,9	16,3	7	4	45	22,6	3,9	15	46,4	46,4	±0,02

	L4		L5	L6	L7	L8	L9	T1	T2	T3	T4	T5	≈G1
	1)	2)	-0,1	±0,02			±10			+0,1	+0,1		
HEPC-16	13,8	25,8	5	37	6,6	12	310	5,5	4,6	1,6	1,3	2,2	14

- 1) Gripper closed
 2) Gripper open

Dimensions

Dimensions – Parallel gripper HEPC with centring sleeve ZBH [Download CAD data](http://www.festo.com) www.festo.com



	D1 ø h7	D2 ø	H1	H2
			-0,2	-0,3
ZBH-5	5	3,2	2,4	1,1
ZBH-7	7	5,3	3	1,4

Dimensions

Dimensions – Sensor rail DASP

Download CAD data www.festo.com

[1] M2x3 screws

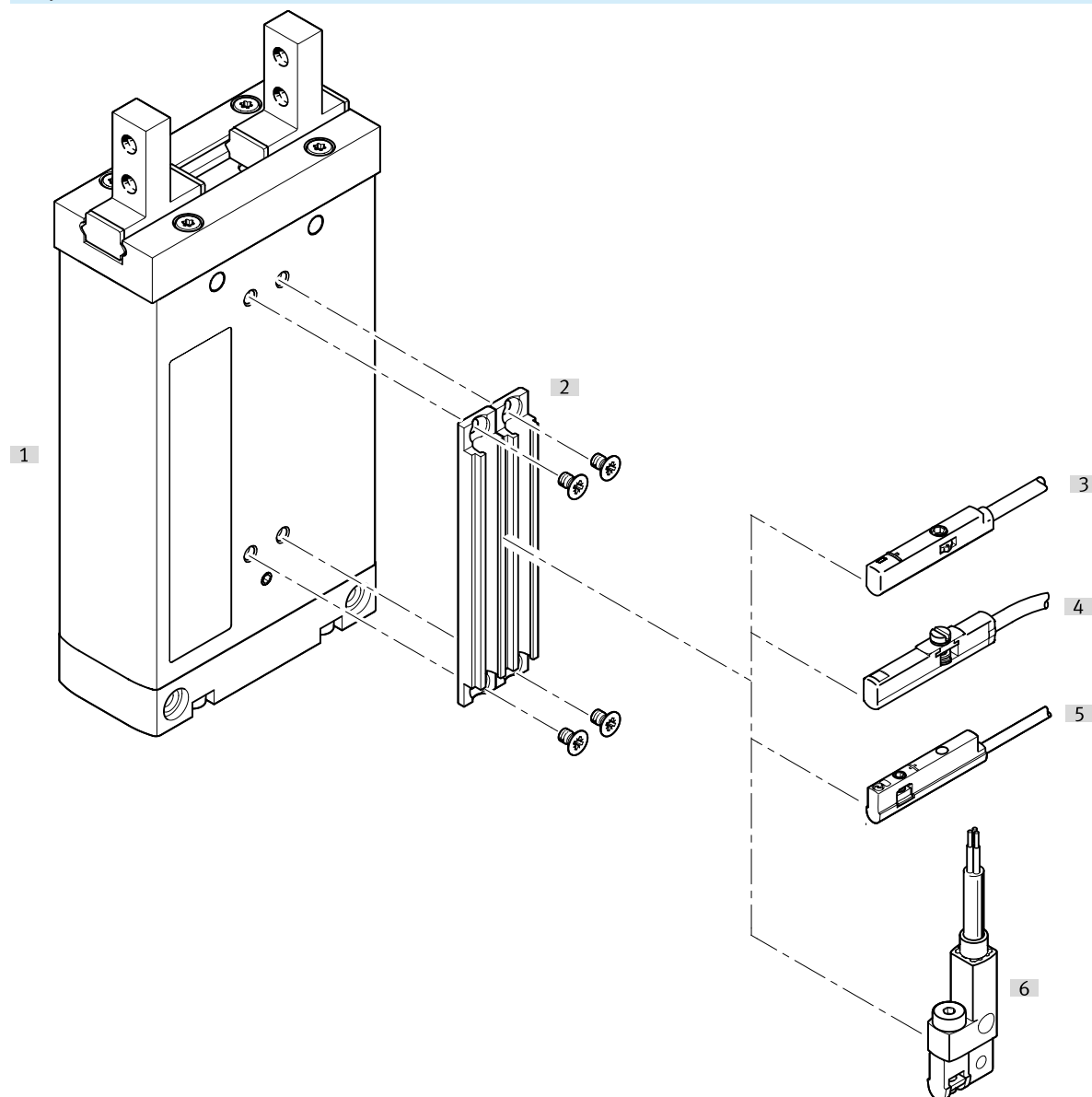
	B1	B2	D1 Ø	H1	H2 +0,3	H3	L1	L2
DASP-B34-16-...	4,25	1,5	2,2	45	49	4	6,4	3,2

Ordering data

Parallel gripper HEPC			
	Size	Part no.	Type
	16	8183816	HEPC-16-12-A-EA

Peripherals

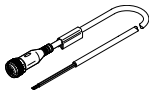
Peripherals overview



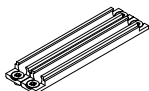
Accessories			→ Link
Type/order code	Description		
[1] Parallel gripper HEPC	Electric drive		hepc
[2] Sensor rail DASP	For mounting proximity switches and position transmitters		14
[3] Position transmitter SDAC-MHS	For sensing the piston position at any point		14
[4] Proximity switch SDBC-MSB	For sensing the piston position		14
[5] Proximity switch SMT-10M	For sensing the piston position		15
[6] Proximity switch SMT-10G	For sensing the piston position		15

Accessories

Connecting cable NEBU, straight

	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M12x1, A-coded to EN 61076-2-101	M12x1, A-coded to EN 61076-2-101	5	5 m	574321	NEBU-M12G5-E-5-Q8N-M12G5
				7.5 m	574322	NEBU-M12G5-E-7.5-Q8N-M12G5
		Open end	4	2.5 m	8078239	NEBA-M12G5-U-2.5-N-LE4
				5 m	8078240	NEBA-M12G5-U-5-N-LE4

Sensor rail DASP

	Size	Material profile	Product weight	Part no.	Type
	16	Anodised wrought aluminium alloy	3.8 g	8234685	DASP-B34-16-C-SR

Centring sleeve ZBH-5

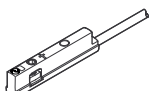
	Material sleeve	Size of pack	Product weight	Part no.	Type
	High-alloy stainless steel	10	0.2 g	8210493	ZBH-5

Centring sleeve ZBH-7

	Material sleeve	Size of pack	Product weight	Part no.	Type
	High-alloy stainless steel	10	0.4 g	8210495	ZBH-7

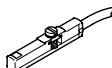
Position transmitter SDAC-MHS for round slot, magneto-resistive

Link [sdac](#)

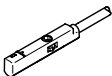
	Switching output	Switching element function	Electrical connection 1, function	Electrical connection	Cable length	Part no.	Type
			Analogue output, Power supply	Open end	2.5 m	8128403	SDAC-MHS-M20-1L-V-E-2.5-LE
	2x PNP or 2x NPN, adjustable	NC or NO, switchable	IO-Link®, Switching output, Power supply			8128405	SDAC-MHS-M30-1L-PNLK-PN-E-2.5-LE

Proximity switch SDBC-MSB for round slot, magneto-resistive

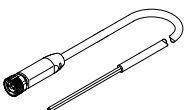
Link [sdbc](#)

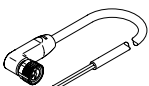
Proximity switch SDBC-MSB for round slot, magnetic resistance						
	Switching output	Switching element function	Electrical connection	Cable length	Part no.	Type
	NPN	N/O contact	Open end	2 m	8139724	SDBC-MSB-1L-NU-K-2-LE
			Plug M8, A-coded	0.3 m	8139727	SDBC-MSB-1L-NU-K-0.3-M8
	PNP		Open end	2 m	8139723	SDBC-MSB-1L-PU-K-2-LE
			Plug M8, A-coded	0.3 m	8139726	SDBC-MSB-1L-PU-K-0.3-M8
	Contactless, 2-wire		Open end	2 m	8139725	SDBC-MSB-1L-ZU-K-2-LE

Accessories

Proximity switch SMT-10M for round slot, magneto-resistive							Link smt
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type	
	Screw-clamped, Insertable in the slot from above	3-wire PNP N/O contact	Open end	2.5 m	551374	SMT-10M-PS-24V-E-2,5-Q-OE	
					551373	SMT-10M-PS-24V-E-2,5-L-OE	
			Plug M8, A-coded	0.3 m	551375	SMT-10M-PS-24V-E-0,3-L-M8D	
					551376	SMT-10M-PS-24V-E-0,3-Q-M8D	

Proximity switch SMT-10G for round slot, magneto-resistive							Link smt
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type	
	Clamped in C-slot, Inserted into the slot lengthwise	3-wire PNP N/O contact	Open end	2.5 m	547862	SMT-10G-PS-24V-E-2,5Q-OE	
			Plug M8, A-coded	0.3 m	547863	SMT-10G-PS-24V-E-0,3Q-M8D	

Connecting cables NEBA, straight, connection M8						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/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, connection M8						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/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