

Feed separator HPV

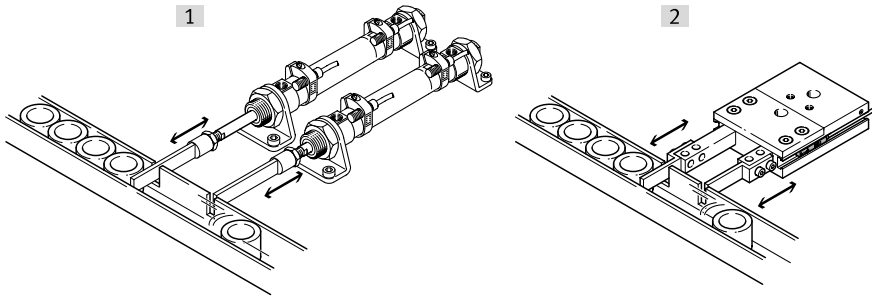
FESTO



Characteristics

At a glance

Link [hpv](#)



Separating workpieces in the feeding process:

[1] Previously:

- At least 2 drives, 2 valves and 4 proximity switches
- Extensive programming

[2] Nowadays:

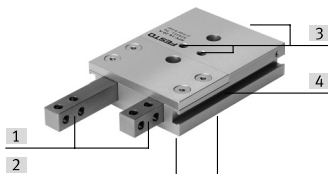
- One unit (1 drive, 1 valve and 2 proximity switches)
- More cost-efficient
- Process-reliable
- No programming required

Position sensing

[A] For proximity sensor

By using proximity switches, any position can be detected.

Overview

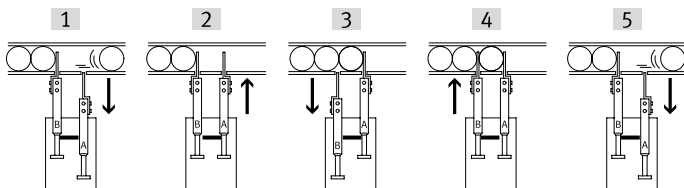


High functionality:

- [1] Corrosion-resistant thanks to stainless steel fingers
- [2] Optimum and precise adaptation options using centring sleeves
- [3] Compressed air connections optionally at the top or rear
- [4] Proximity switches can be integrated in the housing

Note: An integrated mechanical interlock between the two plungers ensures that one piston cannot retract until the other has advanced. Both plungers are briefly advanced during switching and the part to be separated is enclosed.

Application example



Functional principle:

- [1] Plunger A is retracted. The locking mechanism locks plunger B.
- [2] Plunger A advances.
- [3] The locking mechanism prevents plunger B from retracting until plunger A is fully advanced.
- [4] Plunger B advances.
- [5] The locking mechanism prevents plunger A from retracting until plunger B is fully advanced.

Type code

001	Series	
HPV	Separator, double-acting	
002	Size [mm]	
10	10	
14	14	
22	22	

003	Stroke [mm]	
10	10	
20	20	
30	30	
40	40	
60	60	
004	Position sensing	
A	For proximity sensor	

Datasheet

General technical data					
Size [mm]	10 mm	14 mm		22 mm	
Stroke	10 mm	20 mm	40 mm	30 mm	60 mm
Pneumatic connection	M5				
alternative connections	M3	M5			
Mode of operation	Double-acting				
Design	Twin piston Piston rod Locking mechanism Non-rotating				
Protection against torque/ guide	Square guide				
Max. replacement accuracy	0.3 mm				
Cushioning	No cushioning				
Position detection	Via proximity switch				
Type of mounting ¹⁾	With through-hole for M3 screw and centring sleeve With female thread M4 and centring sleeve	With through-hole for M4 screw and centring sleeve With female thread M5 and centring sleeve		With through-hole for M6 screw and centring sleeve With female thread M8 and centring sleeve	
Max. tightening torque	1.2 Nm for M3 2.9 Nm for M4	2.9 Nm for M4 5.9 Nm for M5		24 Nm for M8 9.9 Nm for M6	
Mounting of external fingers	Through-hole				
Mounting position	optional				

1) Only the underside (opposite the compressed air connections) may be used as the mounting surface.

Operating and environmental conditions			
Size [mm]	10 mm	14 mm	22 mm
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]		
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)		
Operating pressure	3 ... 8 bar		
Ambient temperature	5 ... 60°C		
Degree of protection	IP40		
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress		

1) More information www.festo.com/catalogue/ebk

Forces			
Size [mm]	10 mm	14 mm	22 mm
Theoretical force at 0.6 MPa (6 bar, 87 psi), advance stroke	45 N	90 N	225 N
Theoretical force at 0.6 MPa (6 bar, 87 psi), return stroke	35 N	75 N	180 N

Weight					
Size [mm]	10 mm	14 mm		22 mm	
Stroke	10 mm	20 mm	40 mm	30 mm	60 mm
Product weight	135 g	290 g	460 g	950 g	1,500 g

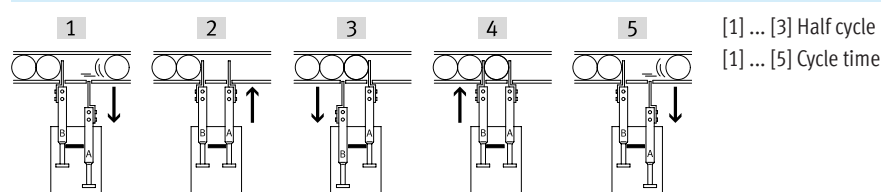
Datasheet

Materials

Note: The plain-bearing guide of the plungers in the housing is determined by choosing a suitable fit and cannot be adjusted. The necessary basic lubrication is carried out during the mounting process. Relubrication after 2 million cycles is recommended.

Material housing	Smooth-anodised wrought aluminium alloy
Material cover	High-alloy steel
Material piston rod	High-alloy steel
Plunger material	High-alloy steel
Material gate valve	Case-hardened steel
Material seals	NBR
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364-B2-L

Cycle times without adapter jaws at 0.6 MPa (6 bar, 87 psi), unthrottled



Size [mm]	10 mm	14 mm		22 mm	
Stroke	10 mm	20 mm	40 mm	30 mm	60 mm
Half pulse	26.5 ms	111.5 ms	234.2 ms	152.4 ms	398.1 ms
Cycle time	52.5 ms	223 ms	468.4 ms	304.8 ms	796.1 ms

Max. permissible weight of the adapter jaws for unthrottled operation

Size [mm]	10 mm	14 mm	22 mm
Max. mass per external gripper finger ¹⁾	56 g	150 g	395 g

1) If the max. permissible weights of the add-on plunger separators are exceeded, the retracting and advancing times must be adapted in accordance with the table below using one-way flow control valves. Otherwise, parts of the feed separator may be destroyed.

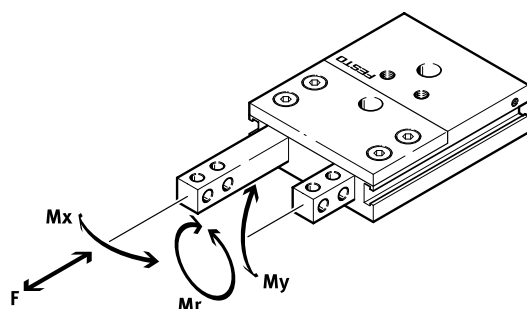
Retracting and advancing times

Size [mm]	10 mm	14 mm		22 mm	
Stroke	10 mm	20 mm	40 mm	30 mm	60 mm
Return-stroke time ¹⁾	0.03 ... 0.06 ms	0.03 ... 0.07 ms	0.05 ... 0.13 ms	0.24 ... 0.48 ms	0.48 ... 0.96 ms
Advance time ²⁾	0.03 ... 0.06 ms	0.03 ... 0.07 ms	0.05 ... 0.13 ms	0.24 ... 0.48 ms	0.48 ... 0.96 ms

1) Depending on the mass of the external adapter jaws used.

2) Depending on the mass of the external adapter jaws used.

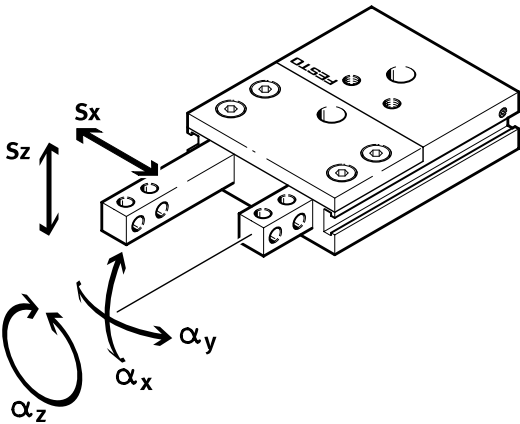
Characteristic load values on the plungers



Size [mm]	10 mm	14 mm	22 mm
Max. force on finger Fz static	75 N	100 N	180 N
Max. torque at finger Mx static	3 Nm	5 Nm	9 Nm
Max. torque at finger My static	3 Nm	5 Nm	9 Nm
Max. torque Mr at finger, static	3 Nm	5 Nm	9 Nm

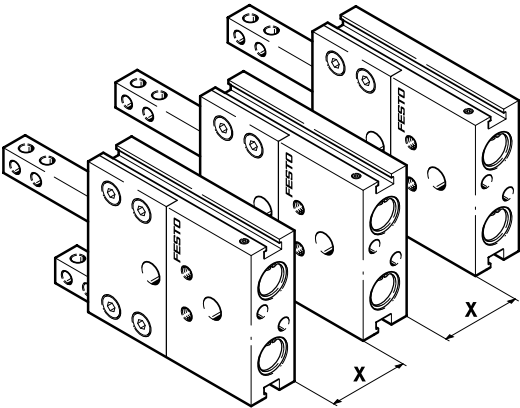
Datasheet

Plunger clearance



Size [mm]	10 mm	14 mm	22 mm
Stroke	10 mm	20 mm	40 mm
Max. stem backlash S_x	0.05 mm		
Max. stem backlash S_z	0.03 mm		
Max. angular gripper jaw backlash α_x	0.12 deg	0.07 deg	0.06 deg
Max. angular gripper jaw backlash α_y	0.2 deg	0.12 deg	0.11 deg
Max. angular gripper jaw backlash α_z	0.262 deg	0.175 deg	0.12 deg

Minimum clearances



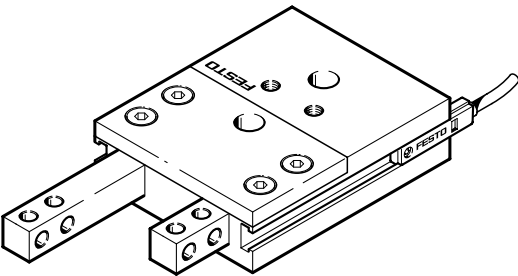
To prevent the proximity switches from malfunctioning, the feed separators must comply with the minimum clearances specified.

Size [mm]	10 mm	14 mm	22 mm
Minimum product distance due to proximity switches ¹⁾	60 mm	54 ... 59 mm	69 ... 73 mm

1) Min. values apply with proximity switches SMT-8 / max. values apply with proximity switches SME-8

Datasheet

Proximity switch protrusion

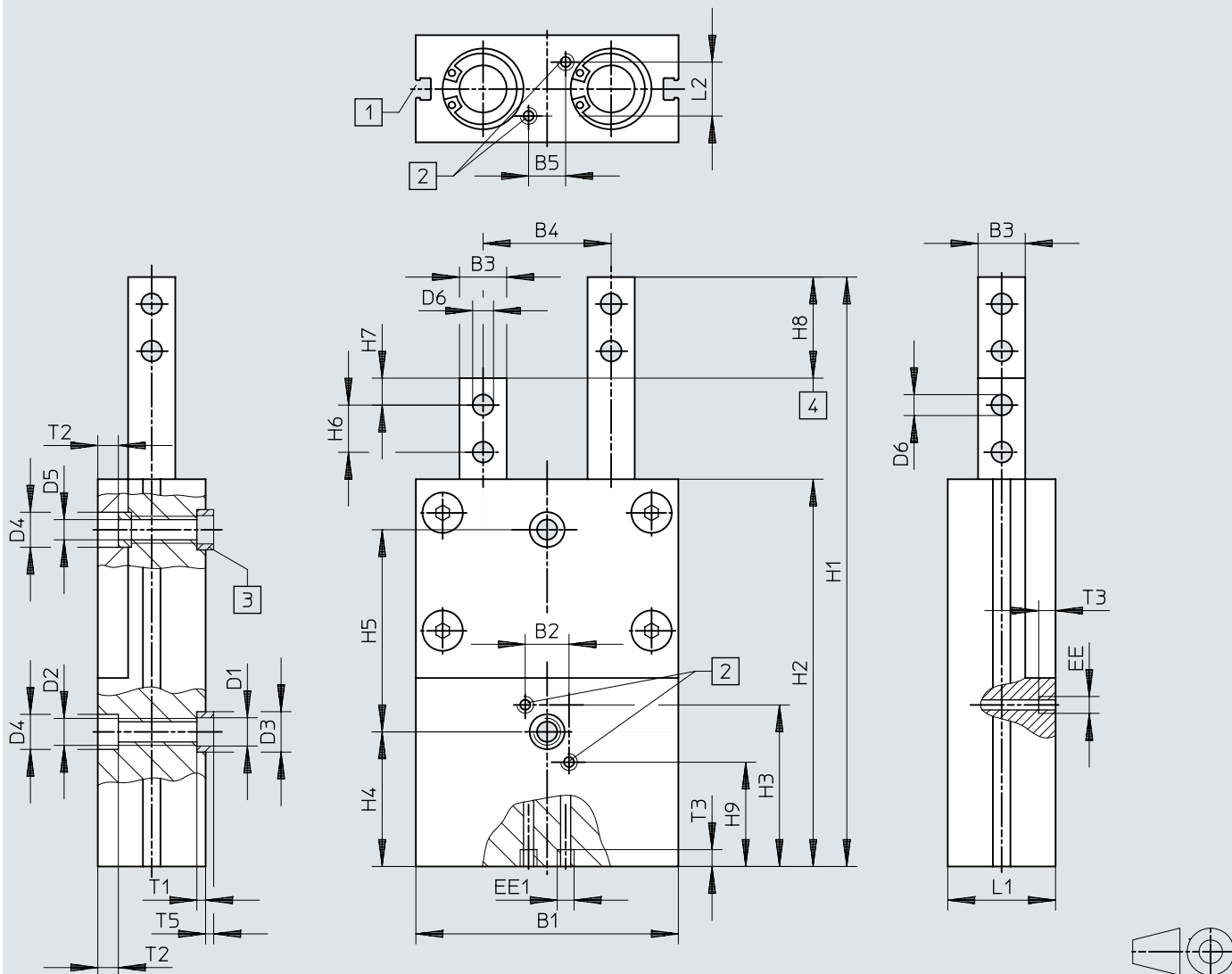


Size [mm]	10 mm	14 mm	22 mm
Proximity switch protrusion ¹⁾	14 ... 22 mm		

1) Min. values apply with proximity switches SMT-8 / max. values apply with proximity switches SME-8

Dimensions

Dimensions – Feed separator HPV

Download CAD data www.festo.com

- [1] Sensor slot for proximity switch
- [2] Choice of compressed air connection
- [3] Centring sleeves ZBH (2 included in the scope of delivery)
- [4] Stroke

Dimensions

	B1	B2	B3 ±0,02	B4 ±0,05	B5	D1 ∅	D2	D3 H8/h7 ∅	D4 H13 ∅	D5 H13 ∅	D6 H13 ∅	EE	EE1	H1
HPV-10-10-A	47	6	7	20	7	5,3	M4	7	6	–	3,2	M5	M3	78
HPV-14-20-A	60	12	10	30	10	5,3	M5	7	7,4	–	4,2	M5	M5	119
HPV-14-40-A	60	12	10	30	10	5,3	M5	7	7,4	–	4,2	M5	M5	189
HPV-22-30-A	78	13	14	38	11	8,4	M8	12	10,4	6,2	6,2	M5	M5	175
HPV-22-60-A	78	13	14	38	11	8,4	M8	12	10,4	6,2	6,2	M5	M5	280

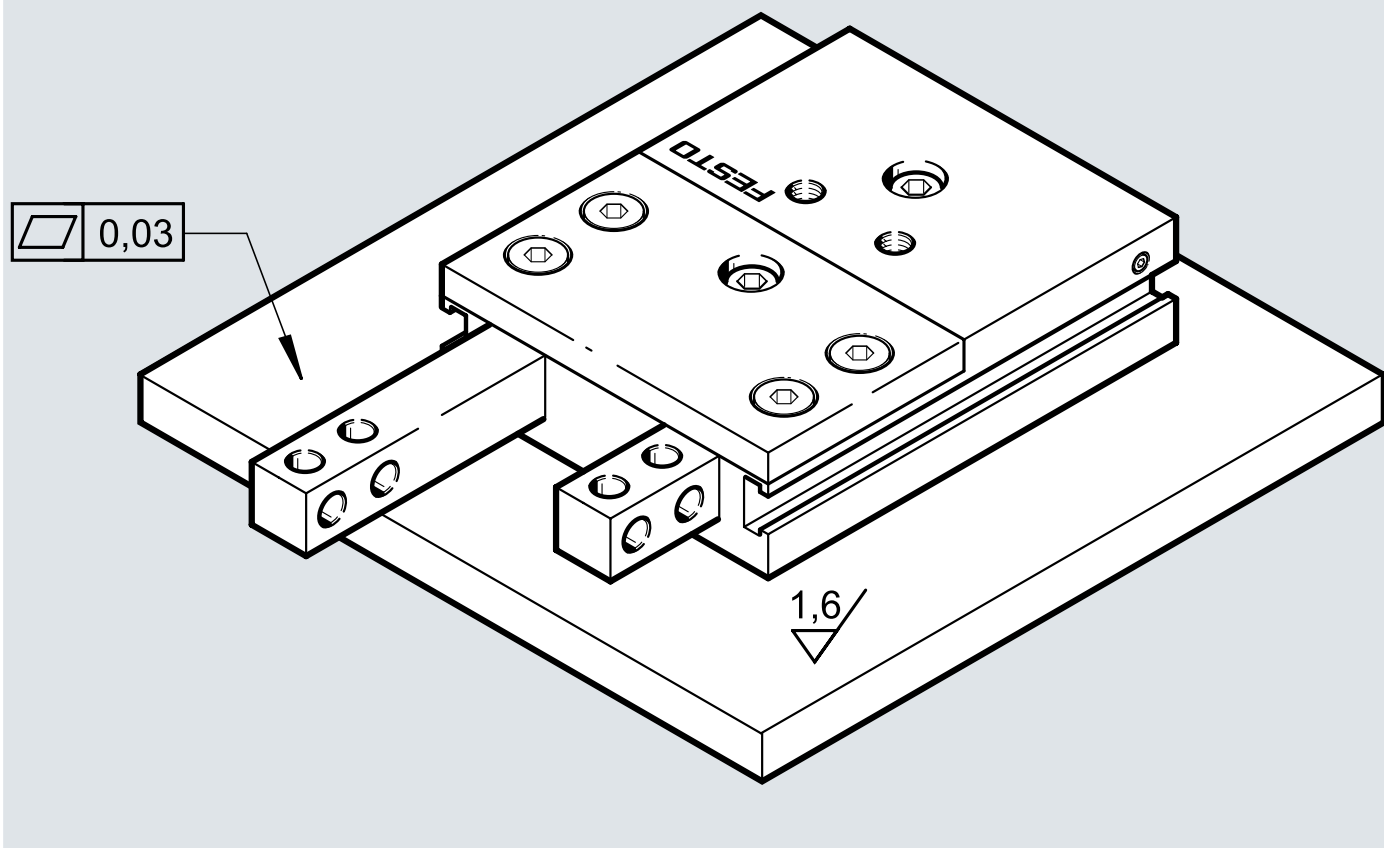
	H2	H3	H4 ±0,1	H5 ¹⁾	H6 ±0,2	H7 ±0,1	H8 ±0,5	H9	L1	L2	T1 +0,1	T2	T3 min	T5 –0,3
HPV-10-10-A	53	24,5	16	30	7	4	10	7,5	18	9	1,6	3,1	4	1,4
HPV-14-20-A	79	36	20	30	10	5	20	36	19	7	1,6	4,6	5	1,4
HPV-14-40-A	129	56	20	60	10	5	40	56	19	7	1,6	4,6	5	1,4
HPV-22-30-A	115	48	40	60	14	8	30	48	32	16	2,6	6,1	5	2,4
HPV-22-60-A	190	78	40	120	14	8	60	78	32	16	2,6	6,1	5	2,4

1) Tolerance for centring hole ±0.02; tolerance for thread and through-hole ±0.1

Dimensions

Dimensions – Feed separator HPV – shape and position accuracy of the contact surface

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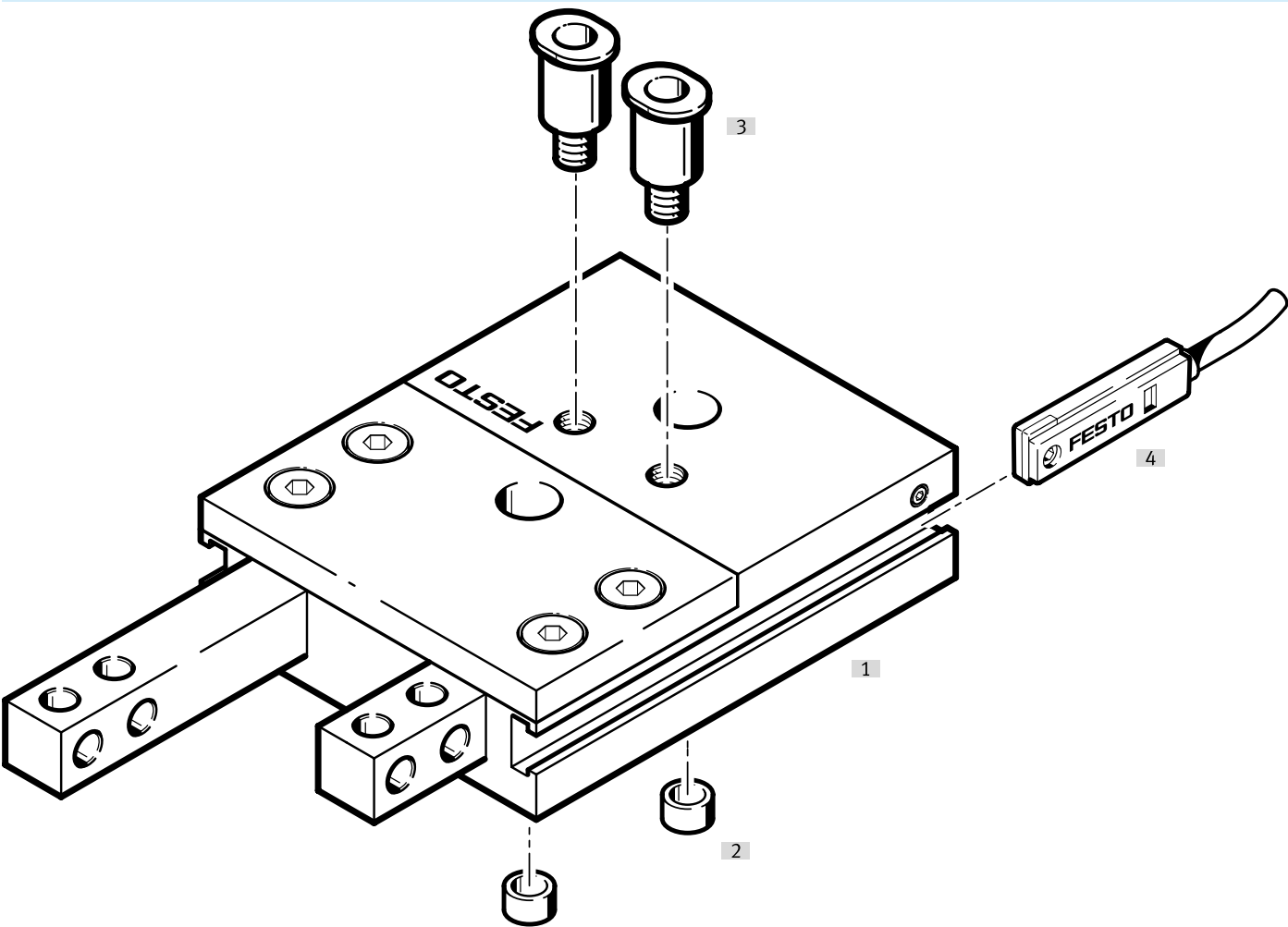


Ordering data

Feed separator HPV				
	Size [mm]	Stroke	Part no.	Type
	10 mm	10 mm	550908	HPV-10-10-A
	14 mm	20 mm	529351	HPV-14-20-A
		40 mm	529352	HPV-14-40-A
	22 mm	30 mm	529353	HPV-22-30-A
		60 mm	529354	HPV-22-60-A

Peripherals

Feed separator HPV

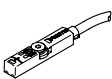


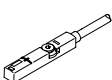
Accessories			→ Link
Type/order code	Description		
[1]	Feed separator HPV	Double-acting	hpv
[2]	Centring sleeve ZBH	For centring when mounting	13
[3]	Push-in fitting QS	For connecting compressed air tubing with standard O.D.	qs
[4]	Proximity switch SMT/SME	• For position sensing • Can be integrated in the sensor slot	13

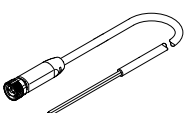
Accessories

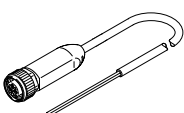
Centring sleeve ZBH-7						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	for size 14, For size 10	Steel	10	1 g	★ 8146544	ZBH-7-B

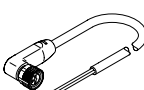
Centring sleeve ZBH-12						
	Description	Material sleeve	Size of pack	Product weight	Part no.	Type
	For size 22	Steel	10	1 g	★ 8137185	ZBH-12-B

Proximity switch SMT-8 for T-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	★ 574335	SMT-8M-A-PS-24V-E-2,5-OE	
			Plug M8, A-coded	0.3 m	★ 574334	SMT-8M-A-PS-24V-E-0,3-M8D	

Proximity switch SME-8 for T-slot, magnetic reed							Link sme
	Type of mounting	Switching output	Electrical connection	Cable length	Part no.	Type	
	Clamped in T-slot, Insertable in the slot lengthwise	None	Open end	2.5 m	150855	SME-8-K-LED-24	
			Plug M8, A-coded	0.3 m	150857	SME-8-S-LED-24	

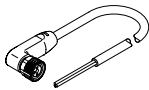
Connecting cables NEBA, straight, M8 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	★ 8078223	NEBA-M8G3-U-2.5-N-LE3
				5 m	★ 8078224	NEBA-M8G3-U-5-N-LE3

Connecting cables NEBU, straight, M12 connection						
	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	Open end	3	2.5 m	8078236	NEBA-M12G5-U-2.5-N-LE3
				5 m	8078237	NEBA-M12G5-U-5-N-LE3

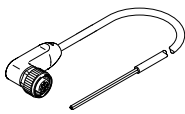
Connecting cables NEBA, angled, M8 connection						
	Electrical connection 1, connector system	Electrical connection 2, connector system	Electrical connection 2, number of connections/cores	Cable length	Part no.	Type
	M8x1, A-coded, to EN 61076-2-104	Open end	3	2.5 m	★ 8078230	NEBA-M8W3-U-2.5-N-LE3

Accessories

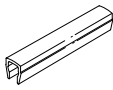
Connecting cables NEBA, angled, M8 connection

	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	5 m	★ 8078231	NEBA-M8W3-U-5-N-LE3

Connecting cables NEBA, angled, M12 connection

	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	Open end	3	2.5 m	8078245	NEBA-M12W5-U-2.5-N-LE3
				5 m	8078246	NEBA-M12W5-U-5-N-LE3

Slot cover ABP for T-slot

	Material housing	Packaging quantity [pieces]	Part no.	Type
	ABS	2	151680	ABP-5-S

One-way flow control valves GRLA – for exhaust air

	Pneumatic connection 1	Pneumatic connection, port 2	Part no.	Type
	Push-in connector 3 mm	M5	193137	GRLA-M5-QS-3-D
	Push-in connector 4 mm		★ 193138	GRLA-M5-QS-4-D
	Push-in connector 6 mm		★ 193139	GRLA-M5-QS-6-D