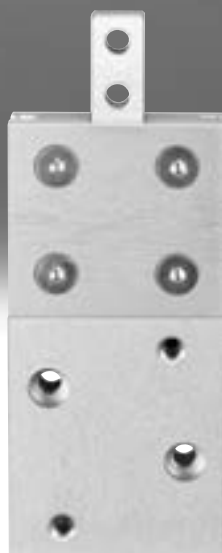


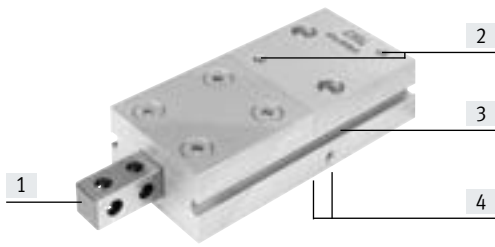
## Feed separators HPVS

**FESTO**



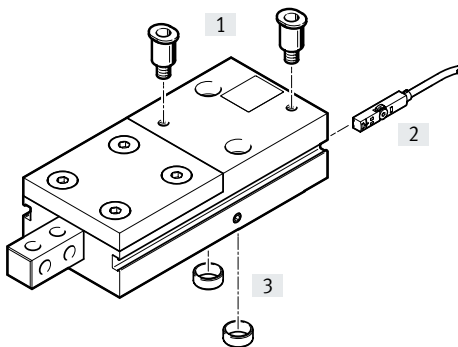
## Key features and peripherals overview

### At a glance



- [1] Corrosion-resistant thanks to stainless steel plungers
- [2] Optimum and precise adaptation options using centring sleeves
- [3] Supply ports optionally at top or rear
- [4] Proximity sensors suitable for integration in the housing can be used (type SME/SMT-8)

### Peripherals overview



Accessories		Description	→ Page/Internet
[1]	Push-in fitting QS	For connecting tubing with standard O.D.	qs
[2]	Proximity sensor SMT-/SME-8	For position sensing, integrated in sensor slot	10
[3]	Centring sleeve ZBH	For centring when mounting	10

## Type codes

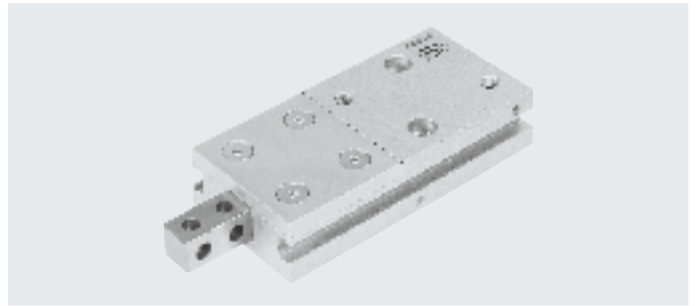
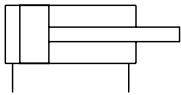
001	Series
HPVS	Separator, double-acting

002	Size
10	10
14	14
22	22

003	Stroke
10	10
20	20
30	30
40	40
60	60

004	Position sensing
A	For proximity sensor

Data sheet



- Size  
10 ... 22
- Stroke length  
10 ... 60 mm

General technical data					
Size	10		14		22
Pneumatic connection	M5/M3		M5/M5		
Mode of operation	Double-acting				
Design	Piston rod				
	Non-rotating				
Protection against rotation/guide	Square				
Max. interchangeability [mm]	0.3				
Repetition accuracy [mm]	0.05		0.15		0.25
Cushioning	None				
Position sensing	Via proximity sensor				
Type of mounting	With through-hole				
	Via female thread				
Mounting position	Any				

Operating and environmental conditions	
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 [bar]	3 ... 8
Ambient temperature [°C]	+5 ... +60
Degree of protection	IP40
Corrosion resistance class CRC <sup>1)</sup>	2

1) Corrosion resistance class CRC 2 to Festo standard FN 940070  
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

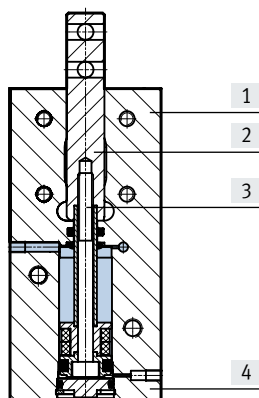
Forces [N]					
Size	10		14		22
Theoretical force at 6 bar Advancing	45		90		225
Theoretical force at 6 bar Retracting	35		75		180

Weight [g]					
Size	10		14		22
Stroke [mm]	10	20	40	30	60
Product weight	90	183	290	630	1000

## Data sheet

**Materials**

## Sectional view



Feed separator		
[1]	Housing	Wrought aluminium alloy (coated with CompCoat)
[2]	Plunger	High-alloy steel
[3]	Piston rod	High-alloy steel
[4]	End cap	High-alloy steel
-	Seals	Nitrile rubber
Note on materials		Copper/PTFE-free
		RoHS-compliant

**Note**

The plunger slideways in the housing are determined by choosing the appropriate fit, and cannot be adjusted. The necessary basic lubrication is applied during assembly. We recommend that the feed separator be re-lubricated after 2 million cycles.

**Max. permissible weight [g] of the add-on plunger separator for unrestricted operation**

Size	10	14	22	30	60
Stroke	10	20	40	30	60
Add-on plunger separator <sup>1)</sup>	56	150	150	395	395

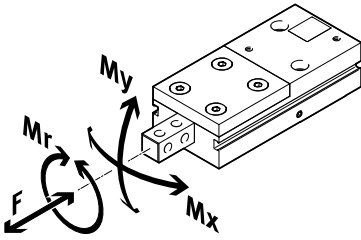
1) If the max. permissible weight of the external add-on plunger separator is exceeded, the retracting and advancing times must be adapted in accordance with the table below using one-way flow control valves. Failure to do so may result in components of the feed separator being damaged.

**Retracting and advancing times [s] with add-on plunger separators as a function of the mass [g] of the plunger separators**

Size	10	14	22	30	60	
Stroke	10	20	40	30	60	
Weight force	100 g	0.03	-	-	-	
	200 g	0.04	0.03	0.05	-	
	300 g	0.05	0.04	0.08	-	
	400 g	0.06	0.05	0.11	0.24	0.48
	500 g	-	0.07	0.13	0.30	0.60
	600 g	-	-	-	0.36	0.72
	700 g	-	-	-	0.42	0.84
	800 g	-	-	-	0.48	0.96

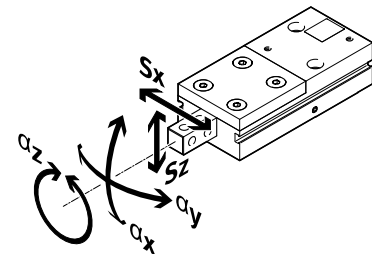
## Data sheet

### Permissible characteristic static load values at the plungers



Size		10	14	22
Force F	[N]	75	100	180
Moment $M_x$	[Nm]	3	5	9
Moment $M_y$	[Nm]	3	5	9
Moment $M_r$	[Nm]	3	5	9

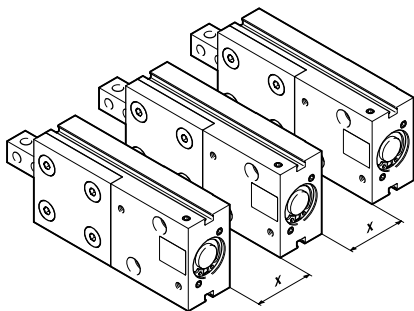
### Plunger backlash



Size		10	14	22		
Stroke	[mm]	10	20	30	40	60
$S_x$	[mm]	0.03	0.03	0.03	0.03	0.03
$S_z$	[mm]	0.05	0.05	0.05	0.05	0.05
$\alpha_x$	[°]	0.12	0.12	0.07	0.06	0.04
$\alpha_y$	[°]	0.20	0.20	0.12	0.11	0.07
$\alpha_z$	[°]	0.262	0.175	0.175	0.12	0.12

### Minimum clearances

To prevent malfunctioning of the proximity sensors, the feed separators must comply with the minimum clearances specified in the table.



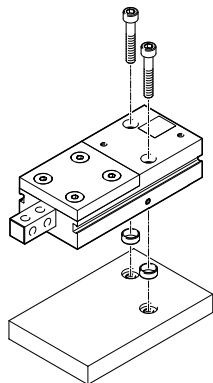
Size		10	14	22
For SME-8-...	[mm]	50	90	120
For SMT-8-...-B	[mm]	30	50	70

## Data sheet

### Mounting options

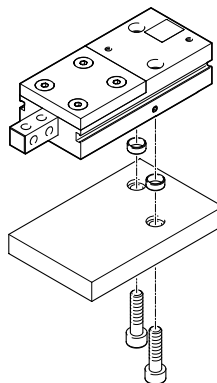
Only the underside (opposite the supply ports) may be used as a mounting surface.

#### From above via through-hole



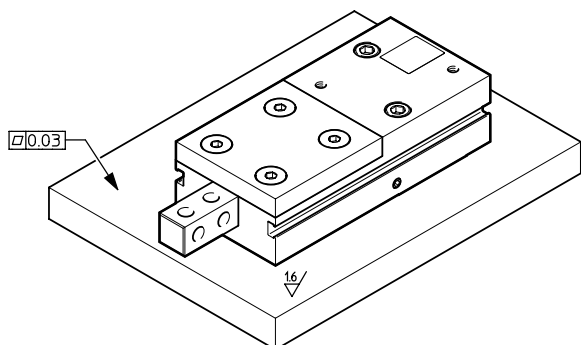
Size	10	14	22
Screw	M3	M4	M6
Permitted tightening torque [Nm]	1.2	2.9	9.9
Centring sleeve	ZBH-7	ZBH-7	ZBH-12

#### From below via female thread



Size	10	14	22
Screw	M4	M5	M8
Permitted tightening torque [Nm]	2.9	5.9	24
Centring sleeve	ZBH-7	ZBH-7	ZBH-12

### Surface finish and positional accuracy of bearing surface

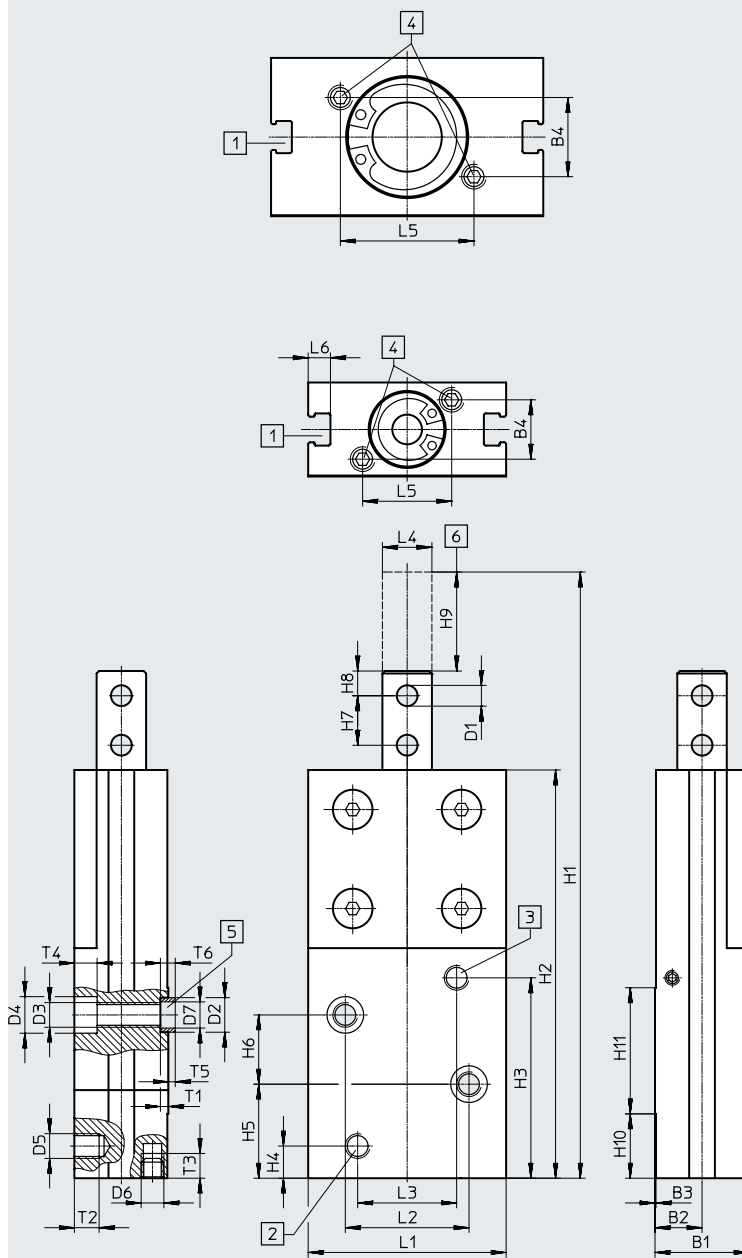


Data sheet

Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

HPVS-22-...



- [1] Sensor slot for proximity sensor
- [2] Supply port, advancing
- [3] Supply port, retracting
- [4] Alternative supply port
- [5] Centring sleeves (2 included in scope of delivery)
- [6] Stroke



## Data sheet

Type	B1 ±0.02	B2	B3 +0.05	B4	D1 ∅ H13	D2 ∅ H8/h7	D3	D4 ∅ H13	D5	D6	D7 ∅	H1 ±0.5
HPVS-10-10-A	18	8	0.2	11	3.2	7	M4	6	M5	M3	5.3	82
HPVS-14-20-A	19	9.5	0.2	12	4.2	7	M5	7.4	M5	M5	5.3	122.5
HPVS-14-40-A	19	9.5	0.2	12	4.2	7	M5	7.4	M5	M5	5.3	192.5
HPVS-22-30-A	32	16	0.2	16	6.2	12	M8	10.4	M5	M5	10.3	178.5
HPVS-22-60-A	32	16	0.2	16	6.2	12	M8	10.4	M5	M5	10.3	283.5


Type	H2	H3	H4	H5	H6 <sup>1)</sup> ±0.02	H7 ±0.2	H8 ±0.1	H9 ±0.5	H10	H11	L1
HPVS-10-10-A	57	27.5	5.5	10	12	7	4	10	4	24	33
HPVS-14-20-A	82.5	40.5	6.5	19	14	10	5	20	13	25.5	40
HPVS-14-40-A	132.5	60.5	6.5	19	34	10	5	40	13	45.5	40
HPVS-22-30-A	118.5	51.5	7.5	22	20	14	8	30	13	37.5	55
HPVS-22-60-A	193.5	81.5	7.5	22	50	14	8	60	13	67.5	55

Type	L2 <sup>1)</sup> ±0.02	L3	L4 ±0.02	L5	L6	T1 +0.1	T2 min.	T3 min.	T4	T5 -0.3	T6 -0.2
HPVS-10-10-A	20	16	7	12	4.2	1.6	4	4	3.1	1.4	3
HPVS-14-20-A	25	20	10	18	4.5	1.6	5	5	4.6	1.4	3
HPVS-14-40-A	25	20	10	18	4.5	1.6	5	5	4.6	1.4	3
HPVS-22-30-A	37	29	14	27	4.2	2.6	5	5	6.1	2.4	5
HPVS-22-60-A	37	29	14	27	4.2	2.6	5	5	6.1	2.4	5


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


Ordering data			
Size	Stroke [mm]	Part no.	Type
10	10	2095359	HPVS-10-10-A
14	20	2095360	HPVS-14-20-A
	40	2095361	HPVS-14-40-A
22	30	2095362	HPVS-22-30-A
	60	2095363	HPVS-22-60-A



Accessories

Ordering data		Part no.	Type	Data sheets → Internet: zbh
	For size			PU <sup>1)</sup>
	10, 14	8146544	ZBH-7-B	10
	22	189653	ZBH-12	10


1) Packaging unit

Ordering data – Proximity sensor for T-slot, magneto-resistive					Data sheets → Internet: smt	
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O contact</b>						
	Insertable in the slot from above, flush with the cylinder profile, short design	PNP	Cable, 3-wire	2.5	574335	SMT-8M-A-PS-24V-E-2.5-OE
			Plug M8x1, 3-pin	0.3	574334	SMT-8M-A-PS-24V-E-0.3-M8D
		PNP	Plug M12x1, 3-pin	0.3	574337	SMT-8M-A-PS-24V-E-0.3-M12

Ordering data – Proximity sensor for T-slot, magnetic reed					Data sheets → Internet: sme	
	Type of mounting	Switching output	Electrical connection	Cable length [m]	Part no.	Type
<b>N/O contact</b>						
	Insertable in the slot from above, flush with the cylinder profile	Contacting	Cable, 3-wire	2.5	543862	SME-8M-DS-24V-K-2.5-OE
				5.0	543863	SME-8M-DS-24V-K-5.0-OE
			Plug M8x1, 3-pin	0.3	543861	SME-8M-DS-24V-K-0.3-M8D

Ordering data – Connecting cables					Data sheets → Internet: nebu	
	Electrical connection, left	Electrical connection, right	Cable length [m]	Part no.	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	
	Straight socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541363	NEBU-M12G5-K-2.5-LE3	
			5	541364	NEBU-M12G5-K-5-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	
	Angled socket, M12x1, 5-pin	Cable, open end, 3-wire	2.5	541367	NEBU-M12W5-K-2.5-LE3	
			5	541370	NEBU-M12W5-K-5-LE3	

Ordering data – Slot cover				
	Mounting	Length [m]	Part no.	Type
	Inserted from above	2 x 0.5	151680	ABP-5-S

Ordering data – One-way flow control valves				Data sheets → Internet: grla-m5-qs	
	Connection Thread	For tubing O.D.	Material	Part no.	Type
	M5	3	Metal design	193137	GRLA-M5-QS-3-D
		4		193138	GRLA-M5-QS-4-D
		6		193139	GRLA-M5-QS-6-D