

## Feed separator HPVS

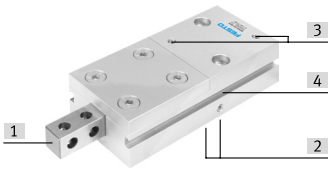
**FESTO**



## Characteristics

### At a glance

Link [hpvs](#)



- [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

### Position sensing

[A] For proximity sensor

By using proximity switches, any position can be detected.

Type code

| 001  | Series                   |  |
|------|--------------------------|--|
| HPVS | 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                              | Piston rod<br>Non-rotating                                                                            |                                                                                                 |       |  |                                                                                                 |
| Protection against torque/<br>guide | Square guide                                                                                          |                                                                                                 |       |  |                                                                                                 |
| Max. replacement accuracy           | 0.3 mm                                                                                                |                                                                                                 |       |  |                                                                                                 |
| Repetition accuracy                 | 0.05 mm                                                                                               | 0.15 mm                                                                                         |       |  | 0.25 mm                                                                                         |
| Cushioning                          | No cushioning                                                                                         |                                                                                                 |       |  |                                                                                                 |
| Position detection                  | Via proximity switch                                                                                  |                                                                                                 |       |  |                                                                                                 |
| Type of mounting <sup>1)</sup>      | With through-hole for M3<br>screw and centring sleeve<br>With female thread M4 and<br>centring sleeve | With through-hole for M4 screw and centring sleeve<br>With female thread M5 and centring sleeve |       |  | With through-hole for M6 screw and centring sleeve<br>With female thread M8 and centring sleeve |
| Max. tightening torque              | 1.2 Nm for M3<br>2.9 Nm for M4                                                                        | 2.9 Nm for M4<br>5.9 Nm for M5                                                                  |       |  | 24 Nm for M8<br>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<br>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<br>CRC <sup>1)</sup> | 2 - Moderate corrosion stress                                                              |       |       |

1) More information [www.festo.com/catalogue/ukb](http://www.festo.com/catalogue/ukb)

| Forces                                                          |       |       |       |
|-----------------------------------------------------------------|-------|-------|-------|
| Size [mm]                                                       | 10 mm | 14 mm | 22 mm |
| Theoretical force at 0.6 MPa<br>(6 bar, 87 psi), advance stroke | 45 N  | 90 N  | 225 N |
| Theoretical force at 0.6 MPa<br>(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 | 90 g  | 183 g | 290 g | 630 g | 1,000 g |

### 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. Maintenance-free up to 10 million cycles.

|                        |                                         |
|------------------------|-----------------------------------------|
| 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                          |

## Datasheet

### Max. permissible weight of the adapter jaws for unthrottled operation

| Size [mm]                                           | 10 mm | 14 mm | 22 mm |
|-----------------------------------------------------|-------|-------|-------|
| Max. mass per external gripper finger <sup>1)</sup> | 56 g  | 150 g | 395 g |

1) If the max. permissible weight of the external adapter jaw is exceeded, the retraction and advancing times must be adjusted using one-way flow control valves. Otherwise, parts of the feed separator may be destroyed.

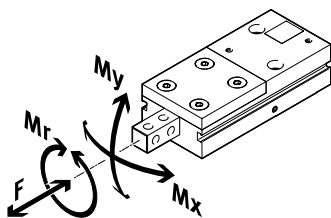
### Retracting and advancing times

| Size [mm]                        | 10 mm        | 14 mm        | 22 mm         |                |                |
|----------------------------------|--------------|--------------|---------------|----------------|----------------|
| Stroke                           | 10 mm        | 20 mm        | 40 mm         | 30 mm          | 60 mm          |
| Return-stroke time <sup>1)</sup> | 30 ... 60 ms | 30 ... 70 ms | 50 ... 130 ms | 240 ... 480 ms | 480 ... 960 ms |
| Advance time <sup>2)</sup>       | 30 ... 60 ms | 30 ... 70 ms | 50 ... 130 ms | 240 ... 480 ms | 480 ... 960 ms |

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

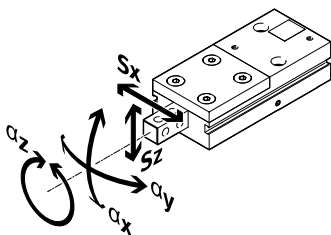
2) Depending on the mass of the external adapter jaws used.

### Characteristic load values on the plungers



| Size [mm]                           | 10 mm | 14 mm | 22 mm |
|-------------------------------------|-------|-------|-------|
| Max. force on finger $F_z$ static   | 75 N  | 100 N | 180 N |
| Max. torque at finger $M_x$ static  | 3 Nm  | 5 Nm  | 9 Nm  |
| Max. torque at finger $M_y$ static  | 3 Nm  | 5 Nm  | 9 Nm  |
| Max. torque $M_r$ at finger, static | 3 Nm  | 5 Nm  | 9 Nm  |

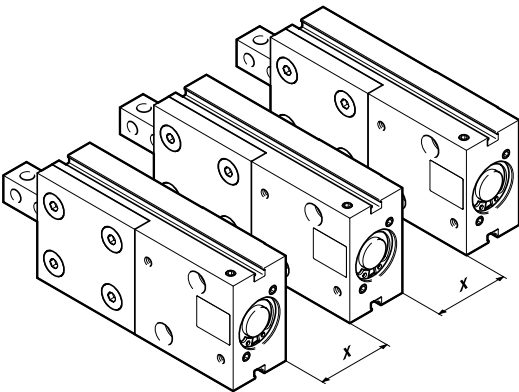
### Plunger backlash



|                                      |           |           |          |          |          |
|--------------------------------------|-----------|-----------|----------|----------|----------|
| Size [mm]                            | 10 mm     | 14 mm     |          | 22 mm    |          |
| Stroke                               | 10 mm     | 20 mm     | 40 mm    | 30 mm    | 60 mm    |
| Max. stem backlash Sx                | 0.05 mm   |           |          |          |          |
| Max. stem backlash Sz                | 0.03 mm   |           |          |          |          |
| Max. angular gripper jaw backlash ax | 0.12 deg  |           | 0.07 deg | 0.06 deg | 0.04 deg |
| Max. angular gripper jaw backlash ay | 0.2 deg   |           | 0.12 deg | 0.11 deg | 0.07 deg |
| Max. angular gripper jaw backlash az | 0.262 deg | 0.175 deg |          | 0.12 deg |          |

Datasheet

Minimum clearances

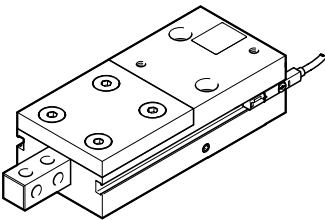


To prevent the proximity switches from malfunctioning, the feed separators must comply with the minimum clearances specified.

| Size [mm]                                                        | 10 mm        | 14 mm        | 22 mm         |
|------------------------------------------------------------------|--------------|--------------|---------------|
| Minimum product distance due to proximity switches <sup>1)</sup> | 30 ... 50 mm | 50 ... 90 mm | 70 ... 120 mm |

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

Proximity switch protrusion

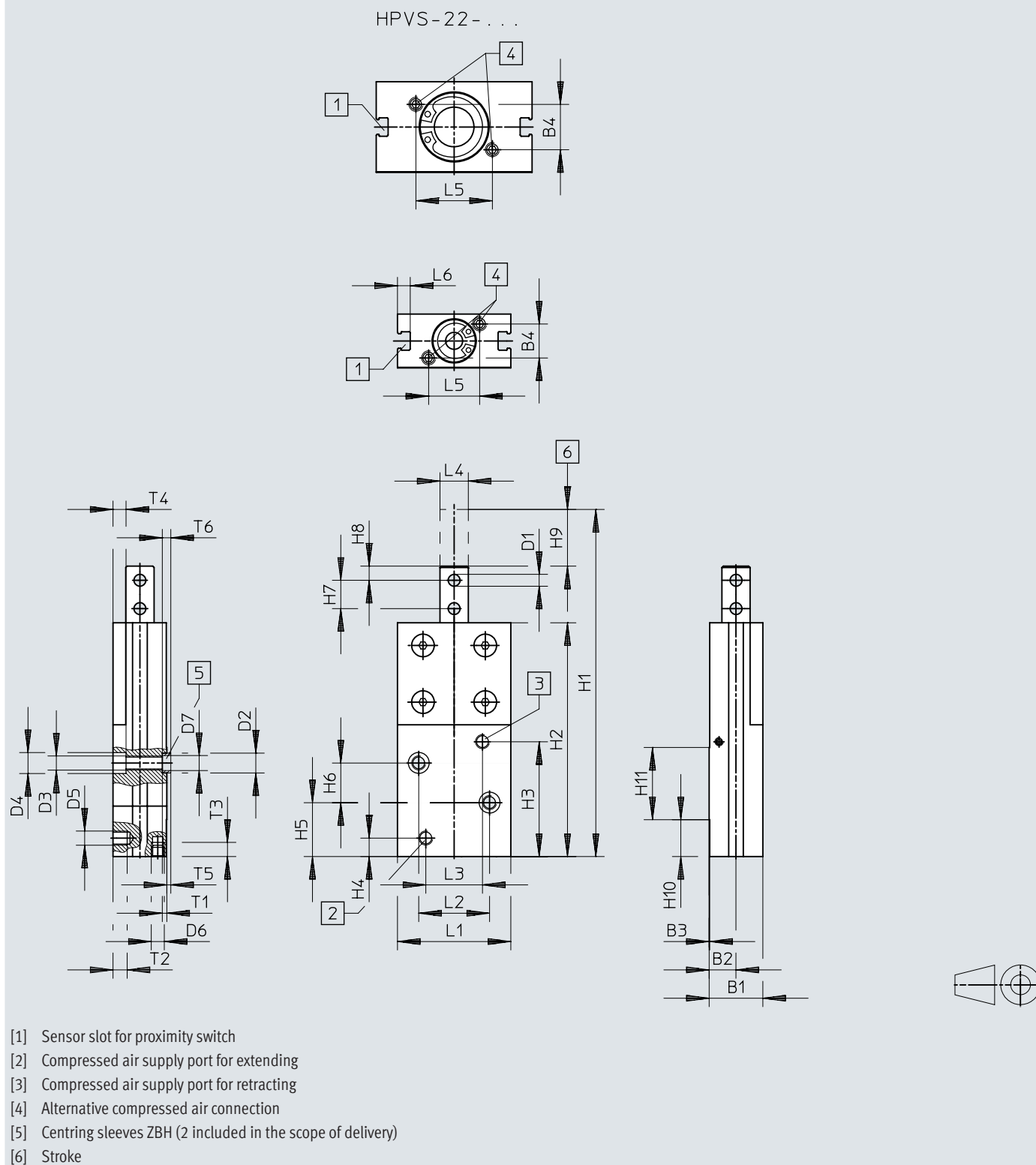


| Size [mm]                                 | 10 mm        | 14 mm | 22 mm |
|-------------------------------------------|--------------|-------|-------|
| Proximity switch protrusion <sup>1)</sup> | 14 ... 22 mm |       |       |

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

## Dimensions

## Dimensions – Feed separator HPVS

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

## Dimensions

|              | B1<br>±0,02 | B2  | B3<br>+0,05 | B4 | D1<br>∅<br>H13 | D2<br>∅<br>H8/h7 | D3 | D4<br>∅<br>H13 | D5 | D6 | D7<br>∅ | H1<br>±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      |

|              | H2    | H3   | H4  | H5 | H6 <sup>1)</sup><br>±0,02 | H7<br>±0,2 | H8<br>±0,1 | H9<br>±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 |

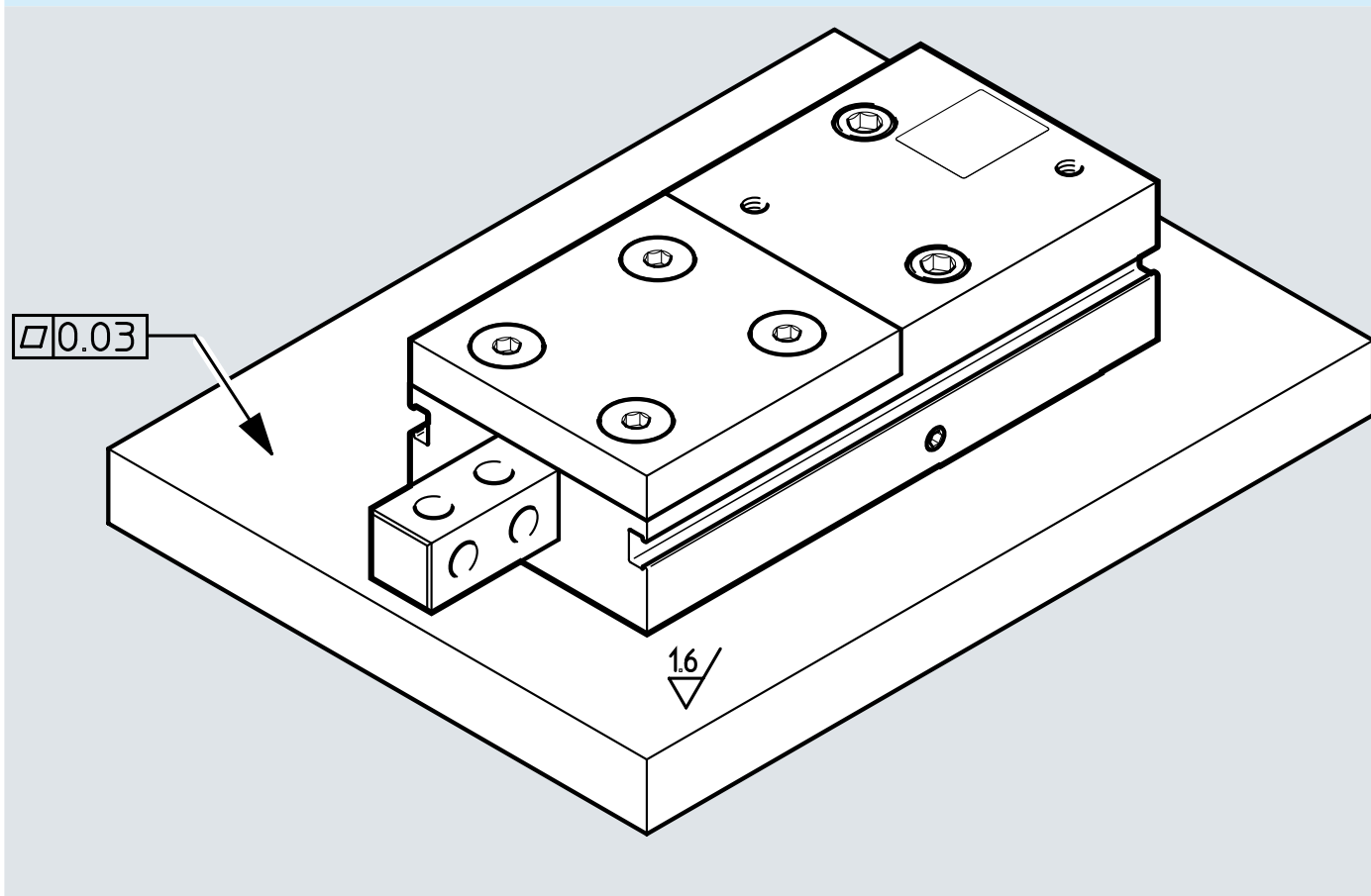
|              | L2 <sup>1)</sup><br>±0,02 | L3 | L4<br>±0,02 | L5 | L6  | T1<br>+0,1 | T2<br>min. | T3<br>min. | T4  | T5<br>-0,3 | T6<br>-0,2 |
|--------------|---------------------------|----|-------------|----|-----|------------|------------|------------|-----|------------|------------|
| HPVS-10-10-A | 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

## Dimensions

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

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

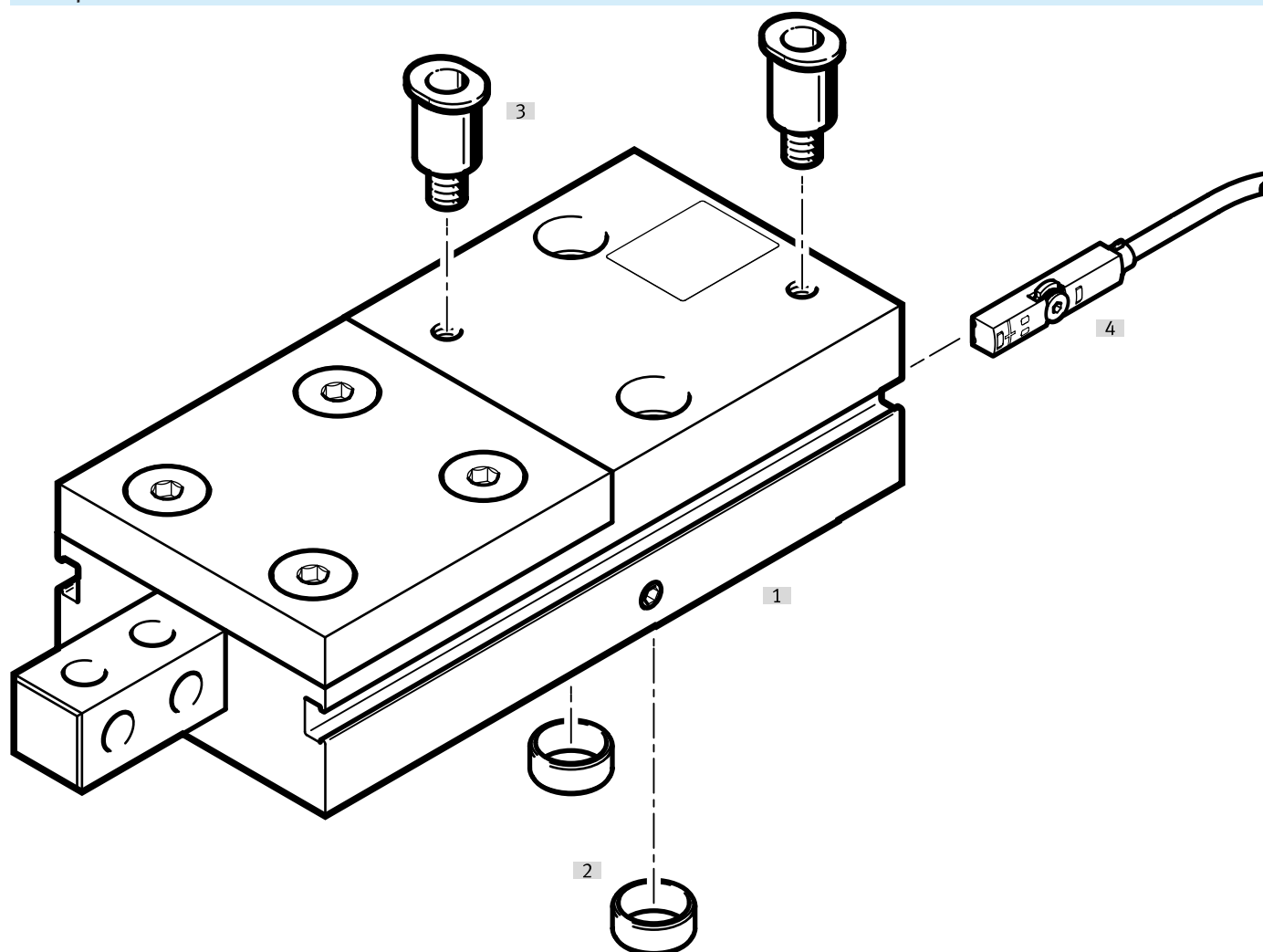


Ordering data

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

## Peripherals

### Feed separator HPVS



| Accessories                  |                                                                                                                          |  | → Link               |
|------------------------------|--------------------------------------------------------------------------------------------------------------------------|--|----------------------|
| Type/order code              | Description                                                                                                              |  |                      |
| [1] Feed separator HPVS      | Double-acting                                                                                                            |  | <a href="#">hpvs</a> |
| [2] Centring sleeve ZBH      | For centring when mounting                                                                                               |  | <a href="#">12</a>   |
| [3] Push-in fitting QS       | For connecting compressed air tubing with standard O.D.                                                                  |  | <a href="#">qs</a>   |
| [4] Proximity switch SMT/SME | <ul style="list-style-type: none"> <li>• For position sensing</li> <li>• Can be integrated in the sensor slot</li> </ul> |  | <a href="#">12</a>   |

## Accessories

## Centring sleeve ZBH-7

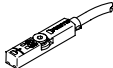
|                                                                                  | Description              | Material sleeve | Size of pack | Product weight | Part no. | Type    |
|----------------------------------------------------------------------------------|--------------------------|-----------------|--------------|----------------|----------|---------|
|  | 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 |

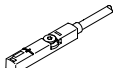
## Proximity switch SMT-8 for T-slot, magneto-resistive

Link [smt](#)

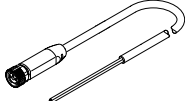
|                                                                                  | Type of mounting                                 | Switching output       | Electrical connection | Cable length | Part no. | Type                      |
|----------------------------------------------------------------------------------|--------------------------------------------------|------------------------|-----------------------|--------------|----------|---------------------------|
|  | 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 |
|                                                                                  |                                                  |                        | Plug M12, A-coded     |              | 574337   | SMT-8M-A-PS-24V-E-0,3-M12 |

## Proximity switch SME-8 for T-slot, magnetic reed

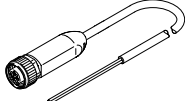
Link [sme](#)

|                                                                                    | Type of mounting                                 | Switching output   | Electrical connection | Cable length | Part no. | Type                    |
|------------------------------------------------------------------------------------|--------------------------------------------------|--------------------|-----------------------|--------------|----------|-------------------------|
|  | Screw-clamped, Insertable in the slot from above | 3-wire N/O contact | Open end              | 2.5 m        | 543862   | SME-8M-DS-24V-K-2,5-OE  |
|                                                                                    |                                                  |                    |                       | 5 m          | 543863   | SME-8M-DS-24V-K-5,0-OE  |
|                                                                                    |                                                  |                    | Plug M8, A-coded      | 0.3 m        | 543861   | SME-8M-DS-24V-K-0,3-M8D |

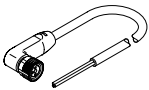
## Connecting cables NEBA, straight, M8 connection

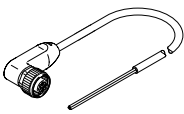
|                                                                                    | Electrical connection 1, connector system | Electrical connection 2, connector system | Electrical connection 2, number of connections/cores | Cable length | Part no. | Type                  |
|------------------------------------------------------------------------------------|-------------------------------------------|-------------------------------------------|------------------------------------------------------|--------------|----------|-----------------------|
|  | 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   |

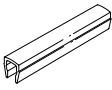
## Connecting cables NEBU, straight, M12 connection

|                                                                                    | 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   |

## 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                                                    | 2.5 m        | 8078230  | NEBA-M8W3-U-2.5-N-LE3 |
|                                                                                   |                                           |                                           |                                                      | 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 |