

Hand lever valves VHER, NPT


FESTO



Key features



Powerful

-  - Flow rate
600 ... 3800 l/min

Versatile

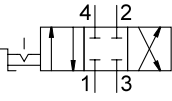
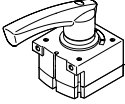
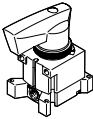
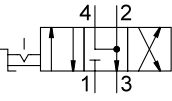
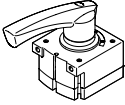
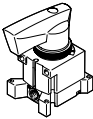
- 4/3-way valve
mid-position closed
mid-position exhausted
- Connection:
1/8 NPT, 1/4 NPT, 1/2 NPT
- 3/3-way valve
The hand lever valve VHER can be used as a 3/3-way valve by sealing port 2

Practical

With these valves it is possible to stop single-acting cylinders (3/3-way valve) or double-acting cylinders (4/3-way valve) within the stroke range.

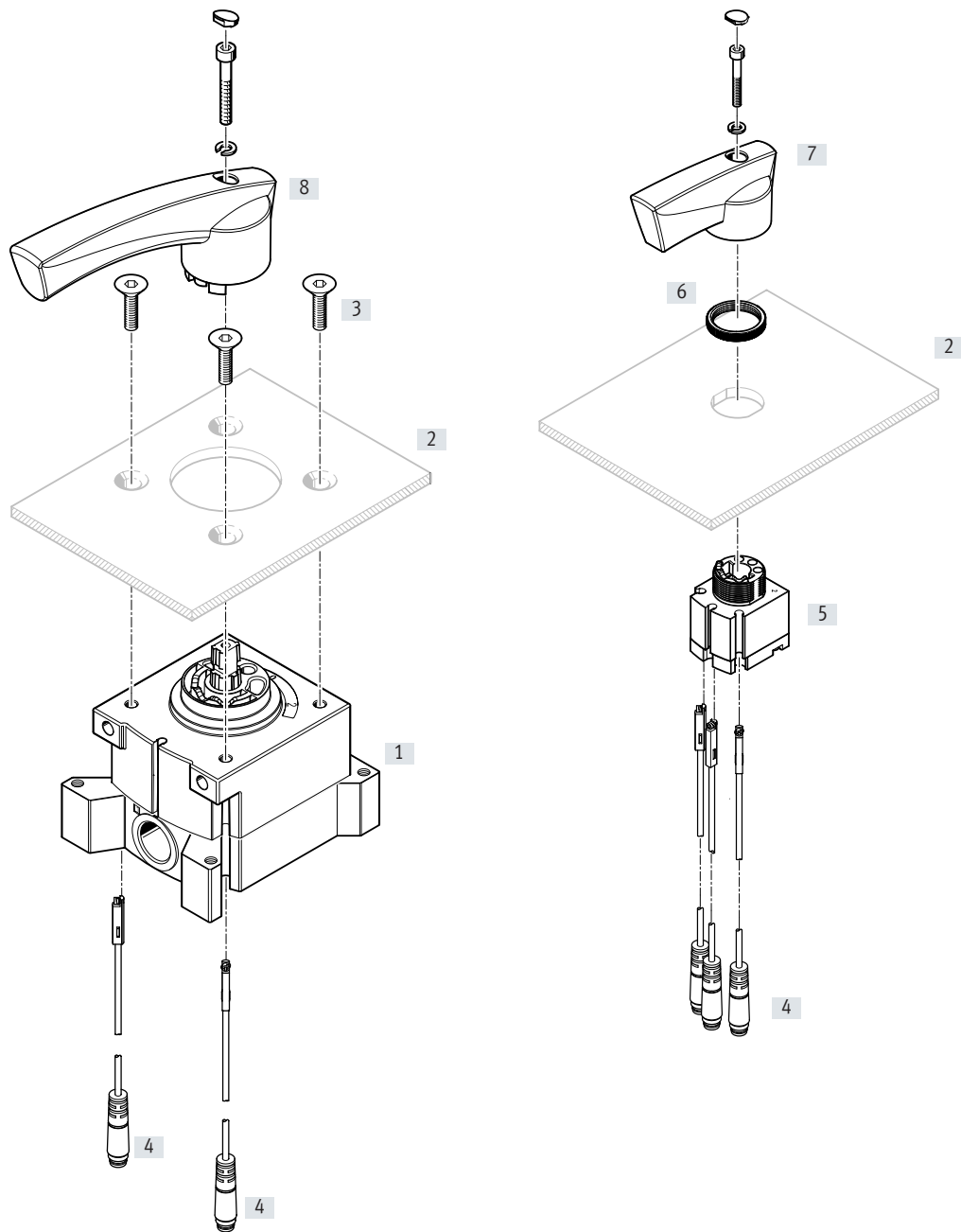
With mid-position closed, the drive piston moves until the forces are in equilibrium.
With mid-position exhausted the piston can be moved manually; only the frictional forces have to be overcome.

Product range overview

| Function | Design | Type | Nominal flow rate [l/min] | Hand lever | → Page/ Internet |
|---|---|-------------------|------------------------------|------------|---------------------|
|  | Connection underneath, mid-position closed | | | | |
| |  | VHER-H-B43C-B-N18 | 800 | Metal | 7 |
| | | VHER-H-B43C-B-N14 | 1500 | Metal | 7 |
| | | VHER-H-B43C-B-N12 | 3800 | Metal | 7 |
| | Connection at the side, mid-position closed | | | | |
| |  | VHER-H-B43C-N18 | 600 | Metal | 7 |
| VHER-H-B43C-N14 | | 1150 | Metal | 7 | |
| VHER-H-B43C-N12 | | 3200 | Metal | 7 | |
|  | Connection underneath, mid-position exhausted | | | | |
| |  | VHER-H-B43E-B-N12 | 3800 | Metal | 7 |
| | Connection at the side, mid-position exhausted | | | | |
| |  | VHER-H-B43E-N12 | 3200 | Metal | 7 |

Peripherals overview

Control panel installation

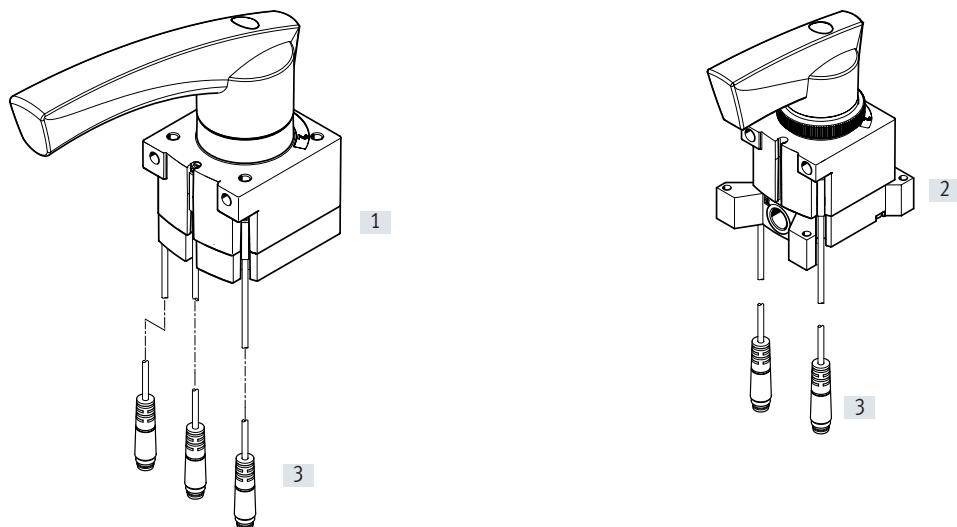


| Component parts and accessories | Brief description | → Page/Internet |
|--|---|-----------------|
| [1] Hand lever valve VHER | Connection size 1/8 NPT, 1/4 NPT, 1/2 NPT (pneumatic connections at the side) | 7 |
| [2] Control panel | Not included in the scope of delivery | - |
| [3] Mounting screws ¹⁾ | Not included in the scope of delivery | - |
| [4] Proximity switch SM...-10-... -L-... | Not included in the scope of delivery (electrical connection, in-line outlet) | 17 |
| [5] Hand lever valve VHER | Connection size 1/8 NPT, 1/4 NPT, 1/2 NPT (pneumatic connections underneath) | 7 |
| [6] Knurled nut | Control panel mounting | - |
| [7] Actuating lever | Small, metal | - |
| [8] Actuating lever | Large, metal | - |


1) For design reasons, it is not possible for every hand lever valve VHER to be screwed to a control panel on the lever side using mounting screws.

Peripherals overview

Mounted valves with accessories



| Component parts and accessories | Brief description | → Page/Internet |
|--|--|-----------------|
| [1] Hand lever valve VHER | Connection size 1/8 NPT, 1/4 NPT, 1/2 NPT with metal lever (pneumatic connections underneath) | 7 |
| [2] Hand lever valve VHER | Connection size 1/8 NPT, 1/4 NPT, 1/2 NPT with metal lever (pneumatic connections at the side) | 7 |
| [3] Proximity switch SM...-10-... -L-... | Not included in the scope of delivery (electrical connection, in-line outlet) | 17 |

 **Note**

For design reasons, it is not possible for every hand lever valve VHER to be screwed to a control panel on the lever side using mounting screws.

Type codes

| | | |
|------|------------------------------|--|
| 001 | Series | |
| VHER | Hand lever valve with detent | |

| | | |
|-----|-----------------|--|
| 002 | Product version | |
| | Standard | |

| | | |
|-----|-----------------|--|
| 003 | Actuation type | |
| H | Hand lever, top | |




| | | |
|------|---|--|
| 004 | Valve function | |
| B43C | 4/3-way valve, detenting, mid-position closed | |
| B43E | 4/3-way valve, detenting, mid-position open | |

| | | |
|-----|----------------|--|
| 005 | Flow direction | |
| | Standard | |

| | | |
|-----|----------------------|--|
| 006 | Connection direction | |
| | On the side | |
| B | Underneath | |

| | | |
|-----|----------------------|--|
| 007 | Pneumatic connection | |
| N18 | 1/8 NPT | |
| N14 | 1/4 NPT | |
| N12 | 1/2 NPT | |

Data sheet

-  Flow rate
600 ... 3800 l/min
-  Pressure
-0.95 ... +10 bar
-  Temperature range
-20 ... +80°C



| General technical data | | | 1/8 NPT | 1/4 NPT | 1/2 NPT |
|----------------------------------|------------------------|---------|--|---------|---------|
| Connection size | | | 1/8 NPT | 1/4 NPT | 1/2 NPT |
| Valve function | | | 4/3-way, detenting, mid-position closed or exhausted | | |
| Design | | | Rotary slide valve | | |
| Sealing principle | | | Hard | | |
| Type of mounting | | | Option of front panel mounting or through-holes | | |
| Type of control | | | Direct | | |
| Actuation type | | | Manual | | |
| Actuating lever (can be removed) | | | Metal | | |
| Actuator lock | | | None | | |
| Switching position indication | | | Via accessories | | |
| Mounting position | | | Any | | |
| Flow direction | | | Non-reversible | | |
| Non-overlapping | | | Yes | | |
| Exhaust air function | | | Can be throttled | | |
| Standard nominal flow rate | Connection at the side | [l/min] | 600 | 1150 | 3200 |
| | Connection underneath | [l/min] | 800 | 1500 | 3800 |
| Nominal width | | [mm] | 6 | 8 | 12 |
| Pneumatic connection 1, 2, 3, 4 | | | 1/8 NPT | 1/4 NPT | 1/2 NPT |
| Actuating torque at 6 bar | | [Nm] | 0.9 | 2 | 5 |

| Operating and environmental conditions | | | 1/8 NPT | 1/4 NPT | 1/2 NPT |
|--|--|-------|--|---------|---------|
| Connection size | | | 1/8 NPT | 1/4 NPT | 1/2 NPT |
| 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] | 0 ... 10 (vacuum only permitted at port 3) | | |
| Ambient temperature | | [°C] | -20 ... +80 | | |
| Temperature of medium | | [°C] | -20 ... +80 | | |
| Corrosion resistance class CRC ¹⁾ | | | 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.

| Proximity switches for switching position indication | | | |
|--|----------------------|-------------------|---|
| Connection size | Connection direction | Type | |
| | | SME-10-... -L-... | |
| 1/8 NPT | Underneath | | ■ |
| | At the side | | - |
| 1/4 NPT | Underneath | | ■ |
| | At the side | | - |
| 1/2 NPT | Underneath | | ■ |
| | At the side | | - |

Data sheet

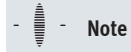
Operation with different pressures

Vacuum operation

The direction of flow of the valves VHER-B43 is clearly defined and cannot be reversed.

Vacuum must only be connected to port 3 in order to maintain the direction of flow.

Vacuum operation at port 3:
-0.95 ... 0 bar



Note

A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup with connector).

During vacuum operation, the valve function changes from exhausted (VHER...-B43E...) to pressurised (VHER...-B43U...) and vice versa.



Note

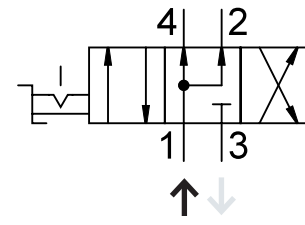
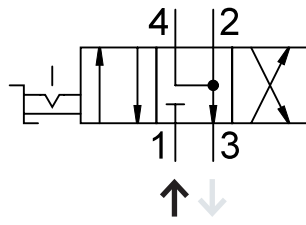
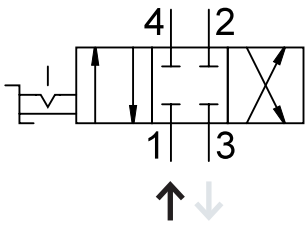
Vacuum must not be connected to port 1.

With vacuum operation:
Mid-position closed
(VHER...-B43C...)

With vacuum operation:
Mid-position pressurised
(VHER...-B43U...)

With vacuum operation:
Mid-position exhausted
(VHER...-B43E...)

Connections with vacuum:



- Vacuum is generated by connecting vacuum generator to port 3
- Exhaust (or pressurisation) takes place via port 1
- Vacuum operation (e.g. suction cup) takes place at port 2 (or 4)

(During normal operation: mid-position closed VHER...-B43C...)

(During normal operation: mid-position exhausted VHER...-B43E...)

(During normal operation: mid-position pressurised VHER...-B43U...)

Dual-pressure operation

Valves VHER-B43 are suitable for dual-pressure operation.

Please note that for design reasons compressed air may only be applied to port 1 and 3.



Note

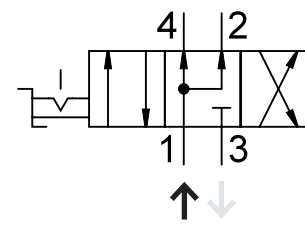
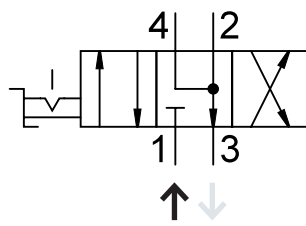
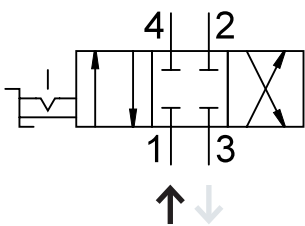
In the case of dual-pressure operation, the higher pressure must always be applied to port 1.

Mid-position closed
VHER...-B43C...

Mid-position exhausted
VHER...-B43E...

Mid-position pressurised
VHER...-B43U...

Connections with dual-pressure operation:



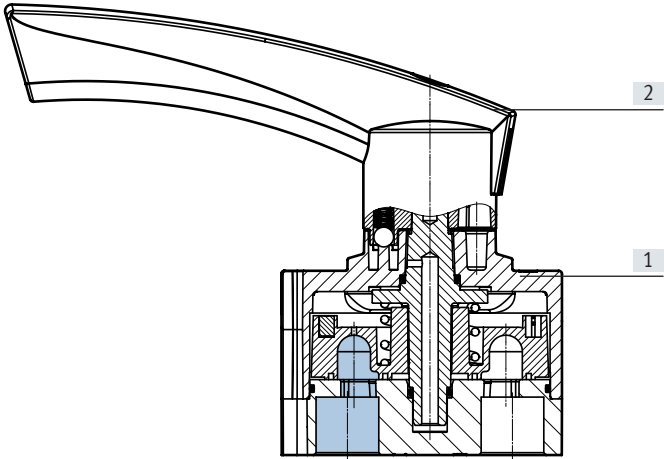
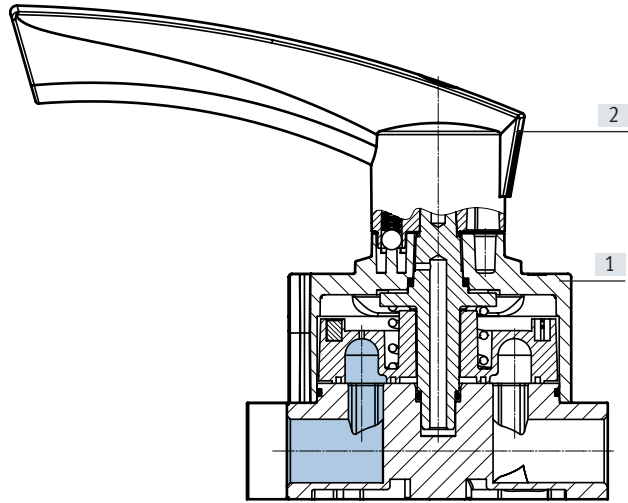
- Supply port: port 1 (high pressure)
- Supply port: port 3 (lower pressure)

Data sheet

Sectional view

Hand lever valve VHER-H-B43-...

Hand lever valve VHER-H-B43...-B-...



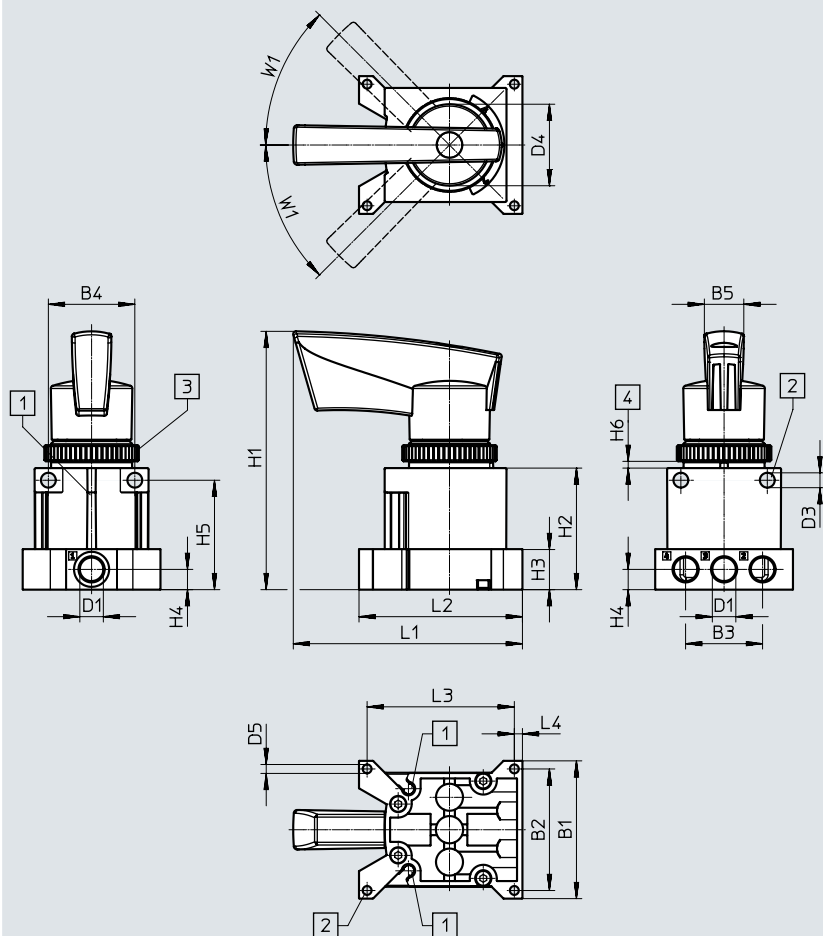
| Materials | | |
|-----------|-------------------|----------------------------|
| [1] | Housing | Die-cast aluminium |
| [2] | Actuating lever | Metal (die-cast aluminium) |
| - | Seals | NBR |
| - | Note on materials | RoHS-compliant |
| - | Note on materials | Free of copper and PTFE |

Data sheet

Dimensions

Download CAD data → www.festo.com

Pneumatic connection 1/8 NPT, at the side



[1] Slot for proximity switch SM...-10...

[2] Mounting hole

[3] Knurled nut M30

[4] Control panel

| Type | B1 | B2 | B3 | B4 | B5 | D1 | D3 ∅ | D4 ∅ | D5 ∅ |
|-------------------|----|----|------|----|------|---------|---------|---------|---------|
| VHER-H-B43...-N18 | 51 | 45 | 28.5 | 32 | 14.6 | 1/8 NPT | 5.5 | 30.2 | 3.3 |

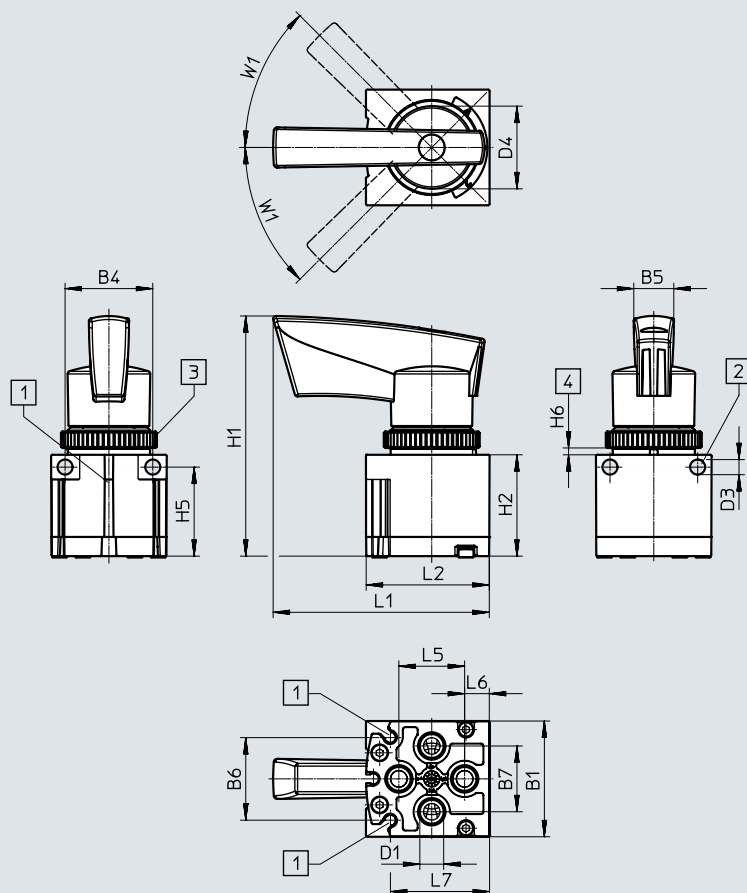
| Type | H1 | H2 | H3 | H4 | H5 | H6 | | L1 | L2 | L3 | L4 | W1 |
|-------------------|------|----|----|-----|------|------|------|------|------|------|----|-----|
| | | | | | | min. | max. | | | | | |
| VHER-H-B43...-N18 | 95.6 | 45 | 15 | 7.5 | 40.5 | 2 | 4 | 84.9 | 60.5 | 54.5 | 3 | 45° |

Data sheet

Dimensions

Download CAD data → www.festo.com

Pneumatic connection 1/8 NPT, underneath

[1] Slot for proximity switch
SM...-10...

[2] Mounting hole

[3] Knurled nut M30

[4] Control panel

| Type | B1 | B4 | B5 | B6 | B7 | D1 | D3 ∅ | D4 ∅ |
|---------------------|------|----|------|------|----|---------|---------|---------|
| VHER-H-B43...-B-N18 | 42.2 | 32 | 14.6 | 30.4 | 24 | 1/8 NPT | 5.5 | 30.2 |

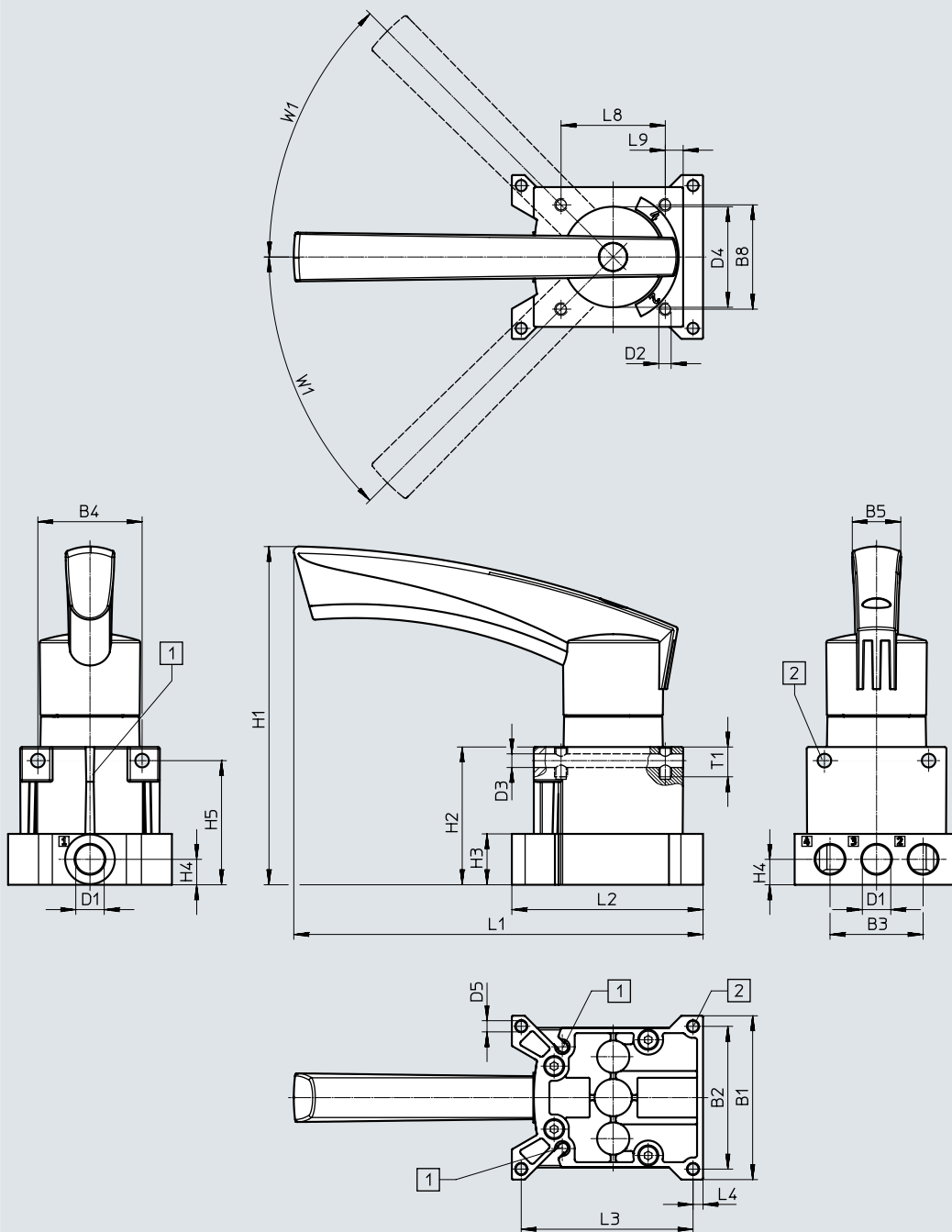
| Type | H1 | H2 | H5 | H6 | | L1 | L2 | L5 | L6 | L7 | W1 |
|---------------------|------|----|------|------|------|------|------|----|----|------|-----|
| | | | | min. | max. | | | | | | |
| VHER-H-B43...-B-N18 | 87.6 | 37 | 32.5 | 2 | 4 | 78.6 | 44.9 | 24 | 9 | 36.2 | 45° |

Data sheet

Dimensions

Download CAD data → www.festo.com

Pneumatic connection 1/4 NPT, at the side



[1] Slot for proximity switch
SM...-10...

[2] Mounting hole

| Type | B1 | B2 | B3 | B4 | B5 | B8 | D1 | D2 | D3 ∅ | D4 ∅ | D5 ∅ |
|-------------------|----|------|------|----|------|----|---------|----|---------|---------|---------|
| VHER-H-B43...-N14 | 66 | 57.5 | 37.5 | 42 | 19.5 | 42 | 1/4 NPT | M5 | 5.5 | 40.5 | 4.5 |

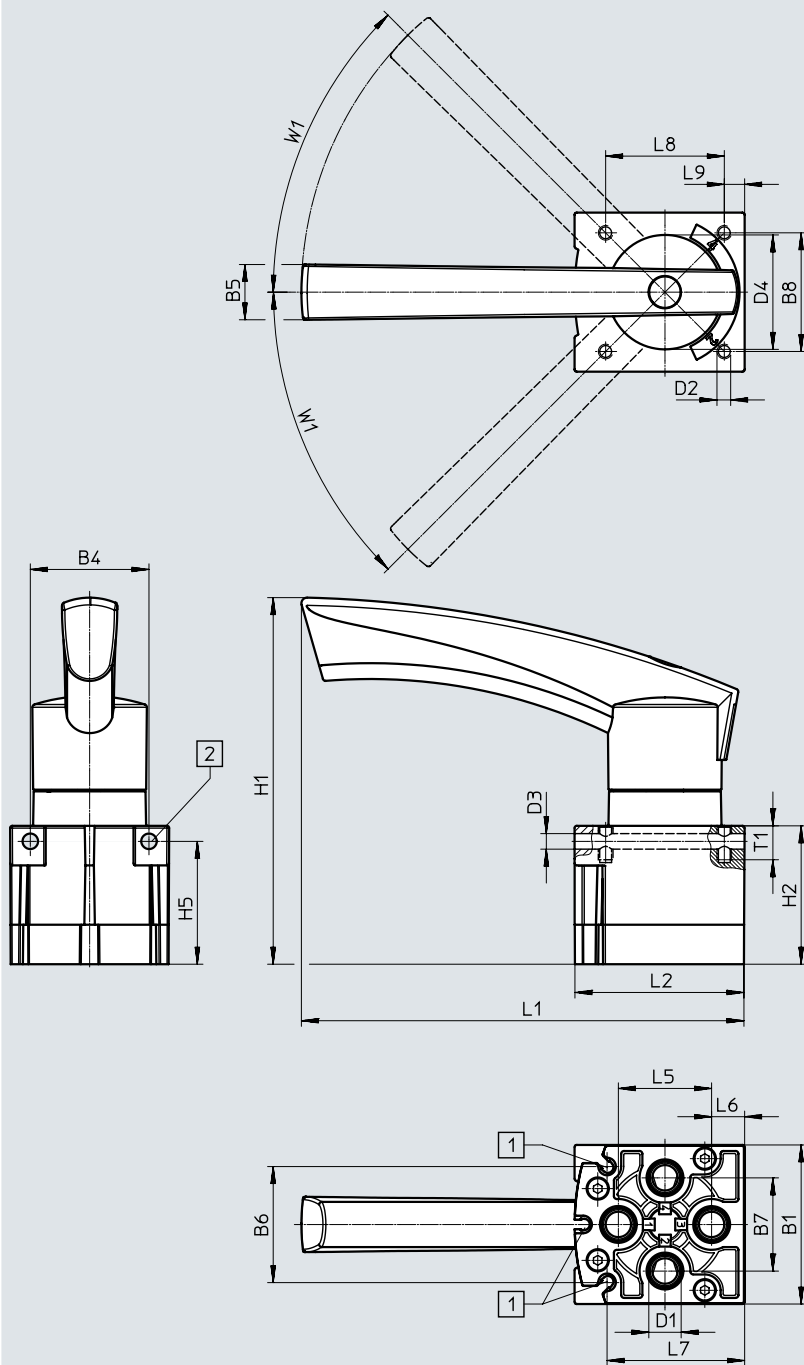
| Type | H1 | H2 | H3 | H4 | H5 | L1 | L2 | L3 | L4 | L8 | L9 | T1 | W1 |
|-------------------|-------|------|------|------|----|-------|----|------|----|----|-----|----|-----|
| VHER-H-B43...-N14 | 136.3 | 55.5 | 20.5 | 10.3 | 50 | 164.8 | 77 | 69.2 | 4 | 42 | 7.2 | 12 | 45° |

Data sheet

Dimensions

Download CAD data → www.festo.com

Pneumatic connection 1/4 NPT, underneath



[1] Slot for proximity switch
SM...-10...

[2] Mounting hole

| Type | B1 | B4 | B5 | B6 | B7 | B8 | D1 | D2 | D3 ∅ | D4 ∅ |
|---------------------|------|----|------|------|----|----|---------|----|---------|---------|
| VHER-H-B43...-B-N14 | 56.3 | 42 | 19.5 | 40.4 | 33 | 42 | 1/4 NPT | M5 | 5.5 | 40.5 |

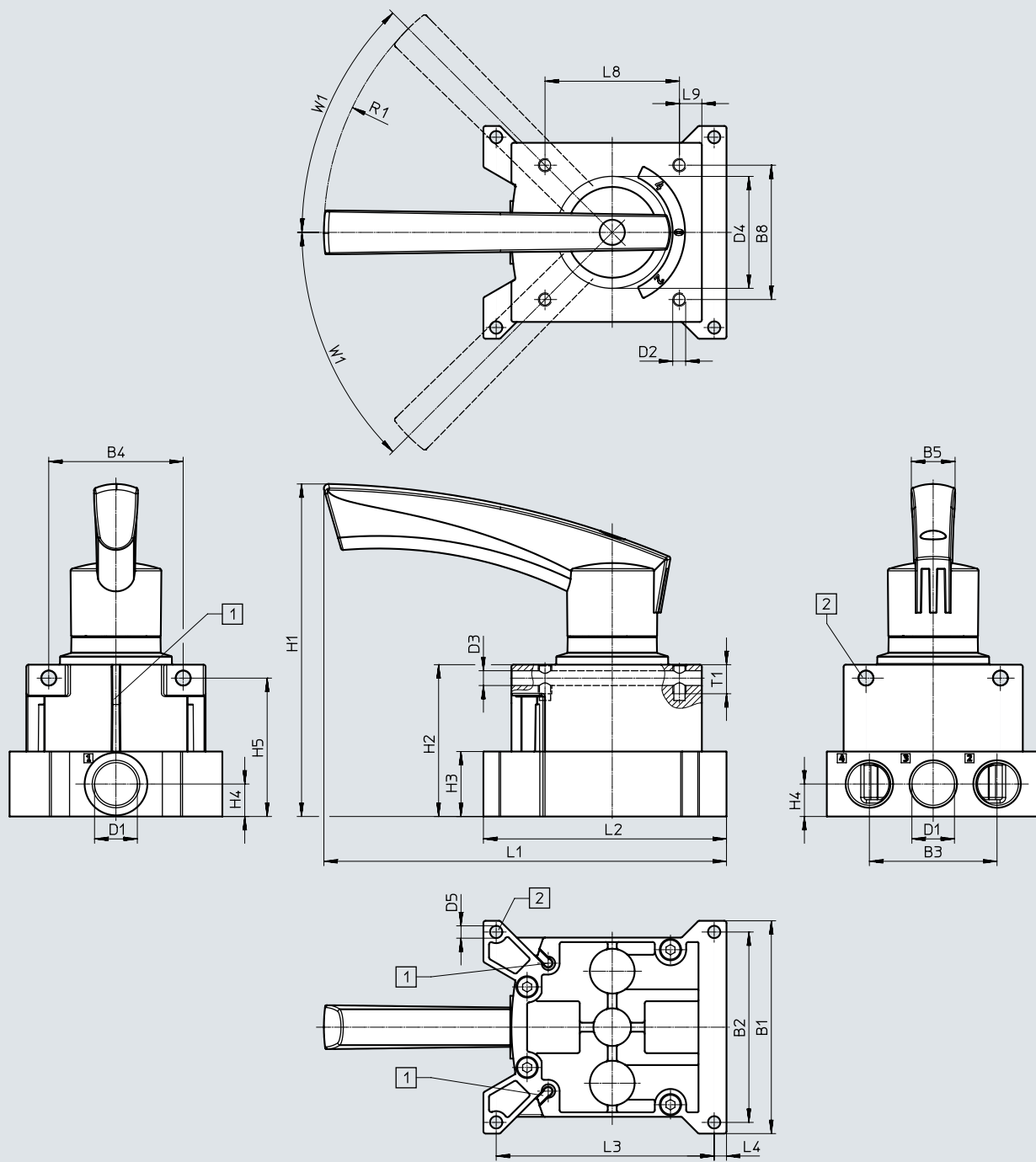
| Type | H1 | H2 | H5 | L1 | L2 | L5 | L6 | L7 | L8 | T1 | W1 |
|---------------------|-------|----|------|-------|------|----|----|------|----|----|-----|
| VHER-H-B43...-B-N14 | 129.8 | 49 | 43.5 | 156.6 | 59.8 | 33 | 11 | 48.2 | 42 | 12 | 45° |

Data sheet

Dimensions

Download CAD data → www.festo.com

Pneumatic connection 1/2 NPT, at the side



[1] Slot for proximity switch
SM...-10...

[2] Mounting hole

| Type | B1 | B2 | B3 | B4 | B5 | B8 | D1 | D2 | D3 ∅ | D4 ∅ | D5 ∅ |
|--------------------|----|----|----|----|------|----|---------|----|---------|---------|---------|
| VHER-H-B43-...-N12 | 95 | 85 | 57 | 60 | 19.5 | 60 | 1/2 NPT | M5 | 6.6 | 51 | 5.5 |

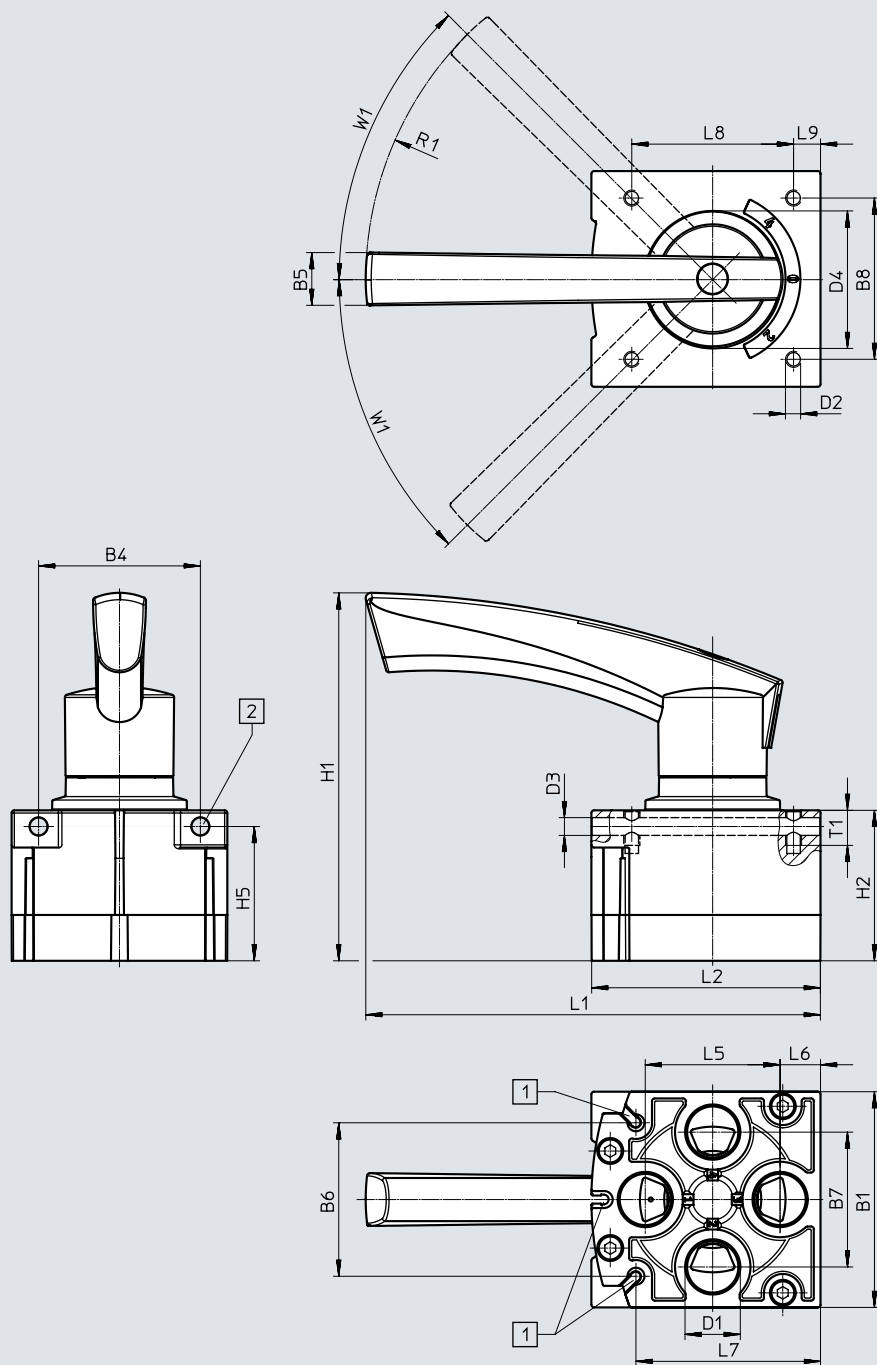
| Type | H1 | H2 | H3 | H4 | H5 | L1 | L2 | L3 | L4 | L8 | L9 | R1 | T1 | W1 |
|--------------------|-----|----|----|------|------|-----|-------|------|-----|----|----|-----|----|-----|
| VHER-H-B43-...-N12 | 149 | 68 | 29 | 14.5 | 61.8 | 180 | 108.8 | 97.3 | 5.5 | 60 | 10 | 128 | 13 | 45° |

Data sheet

Dimensions

Download CAD data → www.festo.com

Pneumatic connection 1/2 NPT, underneath



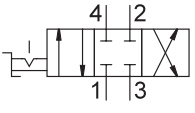
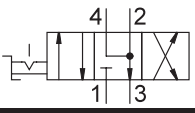
[1] Slot for proximity switch
SM...-10...

[2] Mounting hole












| Type | B1 | B4 | B5 | B6 | B7 | B8 | D1 | D2 | D3 ∅ | D4 ∅ |
|----------------------|----|----|------|------|----|----|---------|----|---------|---------|
| VHER-H-B43-...-B-N12 | 80 | 60 | 19.5 | 56.9 | 50 | 60 | 1/2 NPT | M5 | 6.6 | 51 |

| Type | H1 | H2 | H5 | L1 | L2 | L5 | L6 | L7 | L8 | L9 | R1 | T1 | W1 |
|----------------------|-------|------|------|-------|------|----|----|------|----|----|-----|----|-----|
| VHER-H-B43-...-B-N12 | 136.5 | 55.8 | 49.8 | 168.8 | 84.8 | 50 | 15 | 68.5 | 60 | 10 | 128 | 13 | 45° |

Ordering data


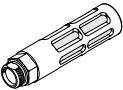

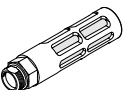
| Ordering data – Hand lever valves | | | | | | |
|--|------------------------|----------------------|------------|-----------------|----------|-------------------|
| Circuit symbol | Description | Pneumatic connection | Width [mm] | Weight [g] | Part no. | Type |
| 4/3-way valve¹⁾ | | | | | | |
|  | Mid-position closed | Underneath | 42 | 220 | 3488213 | VHER-H-B43C-B-N18 |
| | | | 56 | 510 | 3520389 | VHER-H-B43C-B-N14 |
| | | | 80 | 860 | 3192086 | VHER-H-B43C-B-N12 |
| | | At the side | 51 | 260 | 3488212 | VHER-H-B43C-N18 |
| | | | 66 | 560 | 3520365 | VHER-H-B43C-N14 |
| 95 | 1010 | | 3192085 | VHER-H-B43C-N12 | | |
|  | Mid-position exhausted | Underneath | 80 | 860 | 3192088 | VHER-H-B43E-B-N12 |
| | | At the side | 95 | 1010 | 3192087 | VHER-H-B43E-N12 |

1) The hand lever valve can be used as a 3/3-way valve by sealing port 2.

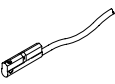
| Ordering data – Push-in fittings | | | | | | |
|--|------------|--|--------------------|----------|-----------------|------------------|
| Description | Connection | | | Part no. | Type | PU ¹⁾ |
| Pneumatic connection: underneath, external hexagon | | | | | | |
|  | 1/8 NPT | NPT thread with sealing ring for (short version) | Tubing O.D. 1/8 " | 533270 | QBM-1/8-1/8-U | 10 |
| | | | Tubing O.D. 5/32 " | 572305 | QBM-1/8-5/32-U | 10 |
|  | 1/8 NPT | NPT thread with sealing ring for | Tubing O.D. 5/32 " | 533271 | QB-1/8-5/32-U | 10 |
|  | 1/4 NPT | NPT thread with sealing ring for | Tubing O.D. 1/4 " | 533276 | QB-1/4-1/4-U | 10 |
| | | | Tubing O.D. 5/32 " | 567772 | QB-1/4-5/32-U | 10 |
| | | | Tubing O.D. 3/16 " | 533275 | QB-1/4-3/16-U | 10 |
| | | | Tubing O.D. 5/16 " | 533277 | QB-1/4-5/16-U | 10 |
|  | 1/2 NPT | Male thread with external hexagon for | Tubing O.D. 3/8 " | 533283 | QB-1/2-3/8-U | 5 |
| | | | Tubing O.D. 1/2 " | 533284 | QB-1/2-1/2-U | 5 |
| Pneumatic connection: underneath, internal hexagon | | | | | | |
|  | 1/8 NPT | NPT thread with sealing ring for | Tubing O.D. 5/16 " | 572319 | QB-1/8-5/16-I-U | 10 |
| | | | Tubing O.D. 1/4 " | 572318 | QB-1/8-1/4-I-U | 10 |
| | | | Tubing O.D. 5/32 " | 572317 | QB-1/8-5/32-I-U | 10 |
| | | | Tubing O.D. 3/16 " | 572315 | QB-1/8-3/16-I-U | 10 |
|  | 1/4 NPT | NPT thread with sealing ring for (short version) | Tubing O.D. 1/8 " | 572306 | QBM-1/4-1/8-U | 10 |
|  | 1/4 NPT | NPT thread with sealing ring for | Tubing O.D. 1/4 " | 572320 | QB-1/4-1/4-I-U | 10 |
| | | | Tubing O.D. 5/16 " | 572321 | QB-1/4-5/16-I-U | 10 |
| | | | Tubing O.D. 3/8 " | 572322 | QB-1/4-3/8-I-U | 10 |
|  | 1/2 NPT | NPT thread with sealing ring for | Tubing O.D. 1/2 " | 572326 | QB-1/2-1/2-I-U | 5 |
| Pneumatic connection: at the side, internal hexagon | | | | | | |
|  | 1/8 NPT | NPT thread with sealing ring for | Tubing O.D. 1/4 " | 572318 | QB-1/8-1/4-I-U | 10 |
| | | | Tubing O.D. 5/32 " | 572317 | QB-1/8-5/32-I-U | 10 |
|  | 1/4 NPT | NPT thread with sealing ring for | Tubing O.D. 1/4 " | 572320 | QB-1/4-1/4-I-U | 10 |
| | | | Tubing O.D. 5/16 " | 572321 | QB-1/4-5/16-I-U | 10 |
| | | | Tubing O.D. 3/8 " | 572322 | QB-1/4-3/8-I-U | 10 |
|  | 1/2 NPT | NPT thread with sealing ring for | Tubing O.D. 1/2 " | 572326 | QB-1/2-1/2-I-U | 5 |

1) Packaging unit

Accessories

| Ordering data – Silencers | | | | | | | |
|---|------------|-------------------------|-------------------|--------------------|--------------|--------------------|------------------|
| Description | Connection | Material | | | Part no. | Type | PU ¹⁾ |
| | | Screwed trunnion | Cushioning insert | Housing | | | |
| Pneumatic connection: underneath | | | | | | | |
|  | 1/8 NPT | Wrought aluminium alloy | PE | Die-cast aluminium | 12638 | U-1/8-B-NPT | 1 |
| | 1/4 NPT | Wrought aluminium alloy | PE | Die-cast aluminium | 12639 | U-1/4-B-NPT | 1 |
|  | 1/2 NPT | Wrought aluminium alloy | PE | Die-cast aluminium | 12741 | U-1/2-B-NPT | 1 |
| Pneumatic connection: at the side | | | | | | | |
|  | 1/8 NPT | Wrought aluminium alloy | PE | Die-cast aluminium | 12638 | U-1/8-B-NPT | 1 |
| | 1/4 NPT | Wrought aluminium alloy | PE | Die-cast aluminium | 12639 | U-1/4-B-NPT | 1 |
|  | 1/2 NPT | Wrought aluminium alloy | PE | Die-cast aluminium | 12741 | U-1/2-B-NPT | 1 |

1) Packaging unit

| Ordering data – Proximity switches | | | | | | | | |
|---|--------------------------------|---------------------|---------------------|-----------------------|-----|---------------|-------------------------|------------------|
| | Outlet direction of connection | Measuring principle | Switching output | Electrical connection | | Part no. | Type | PU ¹⁾ |
| | | | | Cable length [m] | | | | |
|  | In-line | Magnetic reed | Contacting, bipolar | Cable, 3-wire | 2.5 | 173210 | SME-10-KL-LED-24 | 1 |
| | | | | Plug M8x1, 3-pin | 0.3 | 173212 | SME-10-SL-LED-24 | 1 |

1) Packaging unit

| Ordering data – Blanking plugs | | | | | |
|--------------------------------|-------------|---------------|------------------|------|------------------|
| | Description | Connection | Part no. | Type | PU ¹⁾ |
| | | | | | |
| | 1/4 NPT | 174165 | B-1/4-NPT | 1 | |
| | 1/2 NPT | 31785 | B-1/2-NPT | 1 | |

1) Packaging unit

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