













Valve Technology






Vacuum Valves

Overview

| Electro-Pneumatic Valves | | Technical Data | | Description | Page |
|---|---------------------|-------------------|-----------|--|------|
|  | Solenoid Valve PEVM | Nom. width (mm) | | pneumatically controlled vacuum valve to control a suction circuit | 5.3 |
|  | Valve Islands VI | Nom. width (mm) | 6 | simultaneous vacuum control of several suction circuits | 5.5 |
| | | Flow rate (l/min) | 800 | | |
| | | Control | Profi-Bus | | |

| Solenoid Valves | | Technical Data | | Application | Page |
|---|---------------------|--------------------|-----------------|--|------|
|  | Solenoid Valve EMVK | Nom. width (mm) | 2 ... 4 | directly controlled pneumatic valve for control suction circuits or ejectors | 5.11 |
|  | Solenoid Valve EMV | Nom. width (mm) | 10 ... 25 | directly controlled vacuum valve to control suction circuits | 5.13 |
| | | Flow rate (l/min) | 430 ... 1200 | | |
| | | Control | 24 V DC / 230 V | | |
|  | Impulse Valve IMV | Nominal width (mm) | 10 ... 25 | directly controlled, bistable vacuum valve to control individual circuits on systems with several suction circuits | 5.15 |
| | | Flow rate (l/min) | 350 ... 1350 | | |
| | | Control | 24 V DC / 230 V | | |
|  | Reversing Valve UV | Nom. width (mm) | 10 ... 25 | directly controlled vacuum valve to control suction circuits when using vacuum blowers | 5.17 |
| | | Flow rate (l/min) | 24 V DC | | |
| | | Control | | | |

| Manually controlled Valves | | Technical Data | | Application | Page |
|---|-------------------------------|-------------------|--------------|--|------|
|  | Handslide Valve HSV | Nom. width (mm) | 9 ... 23 | manual control suction circuits | 5.19 |
| | | Flow rate (l/min) | 200 ... 880 | | |
|  | 2/2-Ways-Ball valve KV | Nom. width (mm) | 12 ... 30 | manual switching on and off of individual suction pads | 5.21 |
| | | Flow rate (l/min) | 430 ... 1450 | | |
|  | 3/2-Ways Ball valve KV | Nom. width (mm) | 19 ... 30 | manual switching on and off of individual suction pads with simultaneous ventilation (large volumes) | 5.23 |
| | | Flow rate (l/min) | 550 ... 1550 | | |
|  | Foot Interruptor FUB | Nom. width (mm) | 7 | manual control of suction circuits via foot control | 5.25 |
| | | Flow rate (l/min) | 100 | | |
|  | Vacuum Regulation Valve VRV | Nom. width (mm) | 0 ... 24 | adjustment of the operational vacuum | 5.27 |
| | | Flow rate (l/min) | 135 ... 300 | | |
|  | Pressure Regulation Valve DRV | Nom. width (mm) | | | 5.29 |
| | | Flow rate (l/min) | | | |

| Automatic Valves | | Technical Data | | Application | Page |
|---|----------------------|-------------------|--------------|---|------|
|  | Non-return Valve RSV | Nom. width (mm) | 8 ... 22 | safety valve between vacuum generator and safety tank. | 5.31 |
| | | Flow rate (l/min) | 150 ... 1400 | | |
|  | Flow Valve SV | Nom. width (mm) | | valve that closes automatically any unoccupied suction pad | 5.33 |
| | | Flow rate (l/min) | | | |
|  | Flow Valve SVE | Nom. width (mm) | | adjustable valve that closes automatically any unoccupied suction pad | 5.35 |
| | | Flow rate (l/min) | | | |
|  | Flow Resistance SW | Nom. width (mm) | | liwiths the flow rate of unoccupied suction pads | 5.37 |
| | | Flow rate (l/min) | | | |
|  | Touch Valve TV | Nom. width (mm) | | automatic opening of suction pads when being set down on workpieces | 5.39 |
| | | Flow rate (l/min) | | | |

Electro-Pneumatic Valves

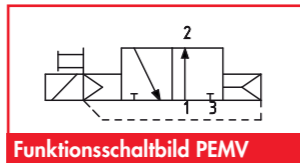
3/2-ways pneumatic valve PEMV

Description

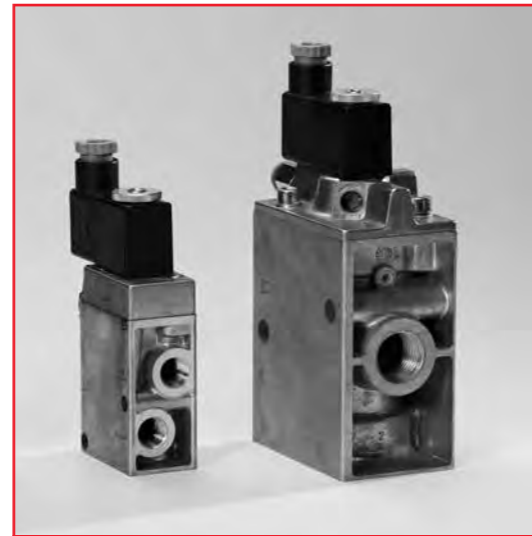
Robust 3/2-ways valve, pneumatically controlled with spring return for vacuum and compressed air applications. The valves are generally supplied in NO design (currentless open); in case of a sudden power failure the valve remains in the condition „suction“. Due to the pneumatic control the valve have a low electrical power consumption with a simultaneous high flow rate.

Application

- for „suction“ and „release“ control
- control of ejectors and pneumatic parts
- any mounting position



Funktionsschaltbild PEMV



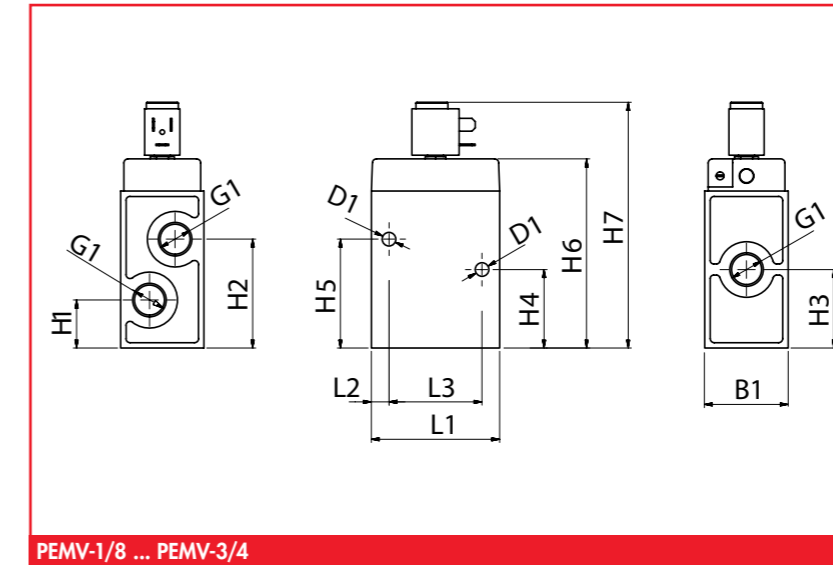
PEMV-1/8 ... PEMV-3/4

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Electro-Pneumatic Valves

3/2-ways pneumatic valve PEMV



PEMV-1/8 ... PEMV-3/4

Dimensions

| Type | L1 | L2 | L3 | B1 | H1 | H2 | H3 | H4 | H5 | H6 | H7 | D1 | G1 |
|------------------|----|----|----|----|------|------|----|------|------|-----|-----|-----|------|
| PEMV-3/2-1/8-24V | 45 | 6 | 40 | 26 | 12,5 | 31,5 | 22 | 12,5 | 12,5 | 65 | 97 | 5,5 | G1/8 |
| PEMV-3/2-1/4-24V | 50 | 6 | 45 | 30 | 17 | 41 | 29 | 12,5 | 22,5 | 80 | 112 | 6,5 | G1/4 |
| PEMV-3/2-1/2-24V | 80 | 11 | 58 | 52 | 30 | 68 | 49 | 49 | 68 | 118 | 165 | 8,5 | G1/2 |
| PEMV-3/2-3/4-24V | 92 | 10 | 72 | 68 | 34 | 78 | 56 | 56 | 78 | 138 | 171 | 8,5 | G3/4 |

Article number

| Type | | Replacement magnet coil | Replacement connection plug | suitable Ventilation filter | | suitable Vacuum filter | |
|------------------|-------------|-------------------------|-----------------------------|-----------------------------|-------------|------------------------|-------------|
| PEMV-3/2-1/8-24V | 1.51.2.0084 | 2.51.2.0072 | 2.51.2.0071 | BFS-1/8 | 1.53.1.0012 | VFK-1/8 | 1.53.2.0020 |
| PEMV-3/2-1/4-24V | 1.51.2.0085 | 2.51.2.0072 | 2.51.2.0071 | BFS-1/4 | 1.53.1.0013 | VFK-1/4 | 1.53.2.0018 |
| PEMV-3/2-1/2-24V | 1.51.2.0086 | 2.51.2.0072 | 2.51.2.0071 | BFS-1/2 | 1.53.1.0014 | VFK-1/2 | 1.53.2.0021 |
| PEMV-3/2-3/4-24V | 1.51.2.0087 | 2.51.2.0072 | 2.51.2.0071 | BFS-3/4 | 1.53.1.0016 | VFK-3/4 | 1.53.2.0022 |

Technical data

| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Switch. cycles (1/min) | Switching time (ms) | Temperature (°C) | Weight (kg) |
|------------------|----------------------|--------------------|-----------|-------|------------------------|---------------------|------------------|-------------|
| | | | (m³/h) | (l/s) | | | | |
| PEMV-3/2-1/8-24V | -0,95 ... 8 | 5 | 9,0 | 2,5 | 1200 | 30 | -5 ... +45 | 0,30 |
| PEMV-3/2-1/4-24V | -0,95 ... 8 | 7 | 13,3 | 3,7 | 1200 | 45 | -5 ... +45 | 0,40 |
| PEMV-3/2-1/2-24V | -0,95 ... 8 | 14 | 53,3 | 14,8 | 800 | 90 | -5 ... +45 | 1,25 |
| PEMV-3/2-3/4-24V | -0,95 ... 8 | 19 | 84,6 | 23,5 | 800 | 40 | -5 ... +45 | 1,45 |

Electrical data

| Type | Voltage (V) | Power (W) | Safety class | Isolation class | On-time | Connection |
|------------------|-------------|-----------|--------------|-----------------|---------|------------|
| PEMV-3/2-1/8-24V | 24 | 4,5 | IP 65 | H | 100 % | MSSD-F, 3S |
| PEMV-3/2-1/4-24V | 24 | 4,5 | IP 65 | H | 100 % | MSSD-F, 3S |
| PEMV-3/2-1/2-24V | 24 | 4,5 | IP 65 | H | 100 % | MSSD-F, 3S |
| PEMV-3/2-3/4-24V | 24 | 4,5 | IP 65 | H | 100 % | MSSD-F, 3S |

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Electro-Pneumatic Valves

Valve island VI

Description

Compact valve island with bistable vacuum valves for control of several independantly working suction circuits. The valve islands require compressed air (4 - 8 bar) and have a central vacuum connection.

The vacuum supply can be achieved by vacuum pumps or ejectors. The valve islands are controlled by a Profi-Bus-DP system and can thus be easily integrated in a higher control.

Via an internal Bus connection two valve islands can be integrated as Bus participants. The bistable valve design also guarantees adequate safety in case of a power failure as the valves keep their switch position and engaged workpieces are kept safely suspended.

Application

- Single control of suction pads
- control of several independantly working suction circuits
- any mounting position

Control

- connection of higher field bus knots or on control blocks
- standard design for Profibus-DP, 12MBd
- connection possibility of up to 32 entrances
- valve island is treated as exit module with up to 8 exits
- connection of two valve islands as „Master-Slave“ possible

Designs

- Basic design with fixing brackets and 8 mm plug connector
- control of 3-6 suction circuits with integrated blow-off impulse
- control of 7-8 suction circuits w/o integrated blow-off impulse. Blow-off impulse can be realised via a separate pneumatic valve

Accessories

To complement and connect the systems there are various accessories available.

- Entrance modules for the connection of sensors
- BUS connection cable for valve islands and entrance modules
- connection cable for entrance modules to the sensors

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Electro-Pneumatic Valves

Valve island VI

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VI-14-4I-1A ... VI-14-8I



Application example

Electro-Pneumatic Valves

Valve island VI

Article number

| Type | w/o blow-off function | with blow-off function -1A |
|----------------------|-----------------------|----------------------------|
| VI-14-3I-(1A)-PROFI | 1.51.3.0054 | 1.51.3.0011 |
| VI-14-4I-(1A)-PROFI | 1.51.3.0042 | 1.51.3.0019 |
| VI-14-5I-(1A)-PROFI | 1.51.3.0055 | 1.51.3.0053 |
| VI-14-6I-(1A)-PROFI | 1.51.3.0043 | 1.51.3.0012 |
| VI-14-7I-PROFI* | 1.51.3.0056 | --- |
| VI-14-8I-PROFI* | 1.51.3.0007 | --- |
| VI-14-3I-(1A)-INTERN | 1.51.3.0049 | 1.51.3.0052 |
| VI-14-4I-(1A)-INTERN | 1.51.3.0048 | 1.51.3.0051 |
| VI-14-5I-(1A)-INTERN | 1.51.3.0047 | 1.51.3.0050 |
| VI-14-6I-(1A)-INTERN | 1.51.3.0046 | 1.51.3.0017 |
| VI-14-7I-INTERN* | 1.51.3.0045 | --- |
| VI-14-8I-INTERN* | 1.51.3.0008 | --- |

* blow-off function possible via separate pneumatic valve!

Technical data

| | | |
|-------------------------------------|--------|------------|
| Pressure range: | (bar) | -1 ... 8 |
| Control pressure: | (bar) | 3 ... 8 |
| Nominal width: | (mm) | 6 |
| Flow rate at vacuum (-1bar): | (m³/h) | 0,6 |
| | (l/s) | 2,2 |
| Flow rate at compressed air (6bar): | (m³/h) | 1,8 |
| | (l/s) | 6,6 |
| Switching time on: | (ms) | 25 |
| Switching time off: | (ms) | 35 |
| Temperature: | (°C) | -5 ... +50 |
| Weight: | (kg) | 0,460 |

Electrical data

| | | |
|-------------------------------|-----|---------------|
| Operating voltage: | (V) | 20,4 ... 26,4 |
| electrical power consumption: | (W) | 0,9 |
| Safety class: | | IP65 |
| Isolation class: | | H |
| On-time: | | 100% |
| Electrical connection: | | M9 |

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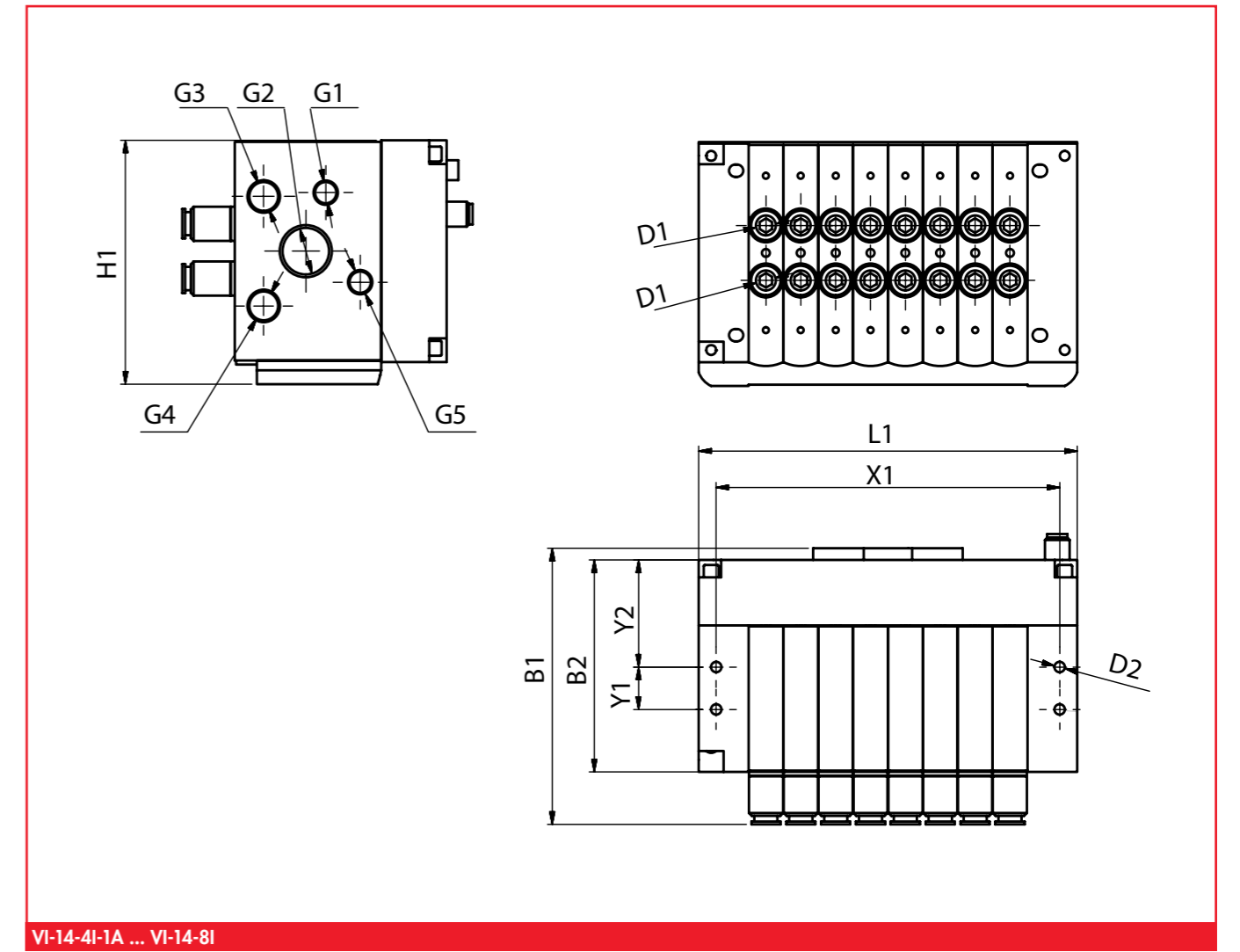
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Electro-Pneumatic Valves

Valve island VI

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Dimensions:

| Type | L1 | B1 | B2 | H1 | D1 | D2 | G1 | G2 | G3 | G4 | G5 | X1 | Y1 | Y2 |
|--------------------|-----|-----|----|----|----|-----|------|------|------|------|------|-----|----|----|
| VI-14-4I-1A-PROFI | 124 | 111 | 85 | 98 | 8 | 4,2 | G1/8 | G1/2 | G1/4 | G1/4 | G1/8 | 138 | 17 | 85 |
| VI-14-6I-1A-PROFI | 152 | 111 | 85 | 98 | 8 | 4,2 | G1/8 | G1/2 | G1/4 | G1/4 | G1/8 | 138 | 17 | 85 |
| VI-14-8I-PROFI | 152 | 111 | 85 | 98 | 8 | 4,2 | G1/8 | G1/2 | G1/4 | G1/4 | G1/8 | 138 | 17 | 85 |
| VI-14-4I-1A-INTERN | 152 | 111 | 85 | 98 | 8 | 4,2 | G1/8 | G1/2 | G1/4 | G1/4 | G1/8 | 138 | 17 | 85 |
| VI-14-6I-1A-INTERN | 152 | 111 | 85 | 98 | 8 | 4,2 | G1/8 | G1/2 | G1/4 | G1/4 | G1/8 | 138 | 17 | 85 |
| VI-14-8I-INTERN | 152 | 111 | 85 | 98 | 8 | 4,2 | G1/8 | G1/2 | G1/4 | G1/4 | G1/8 | 138 | 17 | 85 |

Electro-Pneumatic Valves

Accessories for valve islands

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Voltage plug BSS-

Connection plug to supply the valve islands with voltage. The plugs are available with PG7- and PG9-screw connections.



BSS- ...

Article number

| Type | |
|---------|-------------|
| BSS-PG7 | 2.51.3.0014 |
| BSS-PG9 | 2.51.3.0015 |

Connection cable for DP-Bus VBK-DP

The cables connect the valve islands (Master/Slave) to the entrance modules on BUS systems. Up to 4 units can be connected, which can work as BUS participants.



VBK-DP- ...

Article number

| Type | |
|-------------------------------|-------------|
| VBK-DP-M9B90-5P-M9S90-5P-0,5M | 2.51.3.0017 |
| VBK-DP-M9B90-5P-M9S90-5P-1M | 2.51.3.0016 |
| VBK-DP-M9B90-5P-M9S90-5P-2,5M | 2.51.3.0005 |

Electro-Pneumatic Valves

Accessories for valve islands

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Entrance module EM-

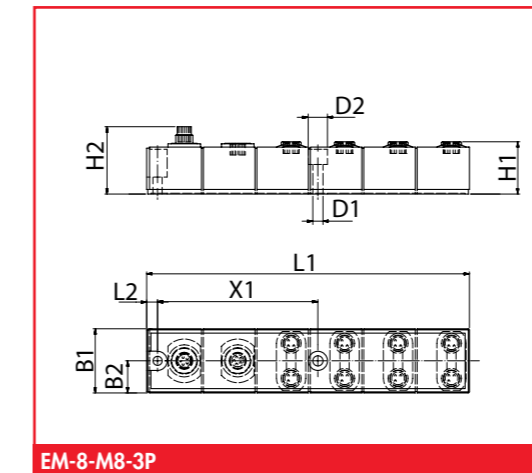
Entrance modules are used for connection of sensoric elements like vacuum switches, initiators, etc. There are two modules with 8 or 16 singly occupied entrances. Each with an M8 connection and 3 pins. The 16-entrance module has additional LED condition displays. The connection cables for the sensor technology can be found in chapter „Connection Elements“

Entrance modules

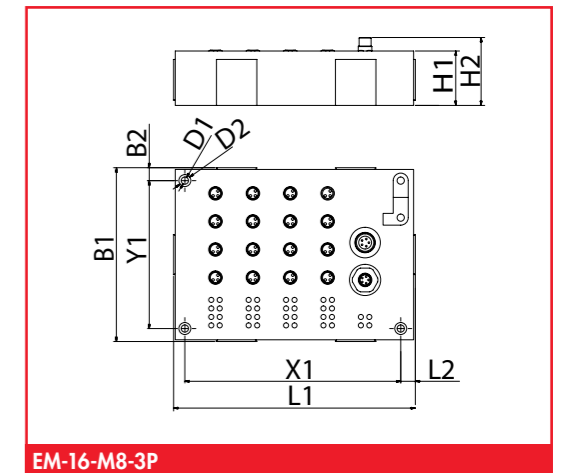
| Type | |
|-----------------|-------------|
| EM-8-M8-3P | 6.35.4.0280 |
| EM-16-M8-3P-LED | 6.35.4.0279 |



EM-8-M8-3P ... EM-16-M8-3P



EM-8-M8-3P



EM-16-M8-3P

Dimensions

| Type | L1 | L2 | B1 | B2 | H1 | H2 | X1 | Y1 | D1 | D2 |
|-------------|-----|-----|-----|-----|------|------|-----|-----|----|-----|
| EM-8-M8-3P | 151 | 5,1 | 30 | 15 | 24,5 | 31,5 | 75 | --- | 7 | 4,3 |
| EM-16-M8-3P | 142 | 8,5 | 102 | 7,5 | 32 | 40 | 127 | 87 | 7 | 4,3 |

Electro-Pneumatic Valve

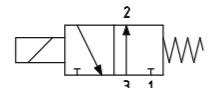
3/2-ways solenoid valve EMVK

Description

Robust 3/2-ways valve, directly controlled with spring return for vacuum and compressed air applications. The valves are generally in NO design (currentless open), which keeps the valve in the „suction“-condition in case of a sudden power failure. The valves are equipped with a thread connection for installation.

Application

- for „suction“ and „release“ control
- control of ejectors and pneumatic parts
- separate blow-off impulse with max. 8 bar
- any mounting position



Function diagram EMVK



EMVK-1/8" ... EMVK-1/4"

Article number

| Type | | suitable ventilation filter | | suitable vacuum filter | |
|------------------|-------------|-----------------------------|-------------|------------------------|-------------|
| EMVK-3/2-1/8-24V | 1.51.2.0093 | BFS-1/8 | 1.53.1.0012 | VFK-1/8 | 1.53.2.0020 |
| EMVK-3/2-1/4-24V | 1.51.2.0067 | BFS-1/4 | 1.53.1.0013 | VFK-1/4 | 1.53.2.0018 |

Technical data

| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Switch.cycles (1/min) | Switching time (ms) | Temperature (°C) | Weight (kg) |
|------------------|----------------------|--------------------|-----------|-------|-----------------------|---------------------|------------------|-------------|
| | | | (m³/h) | (l/s) | | | | |
| EMVK-3/2-1/8-24V | -0,95 ... 8 | 3 | 3,3 | 0,9 | 1200 | 8 | -5 ... +45 | 0,12 |
| EMVK-3/2-1/4-24V | -0,95 ... 8 | 4 | 4,7 | 1,3 | 800 | 10 | -5 ... +45 | 0,27 |

Electrical data

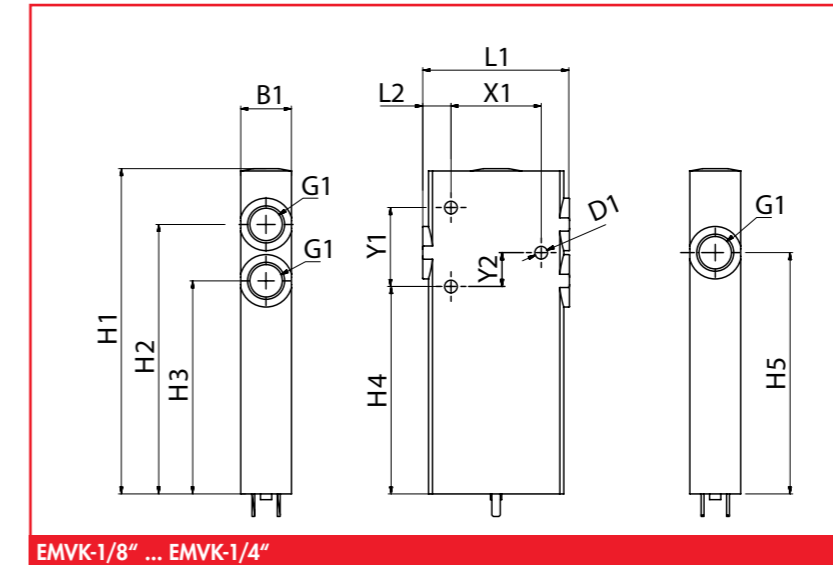
| Type | Voltage (V) | Power (W) | Safety class | Isolation class | On-time | Connection |
|------------------|-------------|-----------|--------------|-----------------|---------|------------|
| EMVK-3/2-1/8-24V | 24 | 3,7 | IP 65 | H | 100 % | Stecker 2S |
| EMVK-3/2-1/4-24V | 24 | 8,5 | IP 65 | H | 100 % | Stecker 2S |

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Electro-Pneumatic Valves

3/2-ways solenoid valve EMVK



EMVK-1/8" ... EMVK-1/4"

Dimensions

| Type | L1 | L2 | B1 | H1 | H2 | H3 | H4 | H5 | D1 | G1 | X1 | Y1 | Y2 |
|------------------|----|----|----|-----|------|------|------|------|-----|------|----|----|----|
| EMVK-3/2-1/8-24V | 45 | 10 | 14 | 95 | 79,5 | 63,5 | 61,5 | 71,5 | 4,5 | G1/8 | 25 | 20 | 10 |
| EMVK-3/2-1/4-24V | 52 | 10 | 18 | 115 | 95,5 | 75,5 | 73,5 | 85,5 | 4,5 | G1/4 | 32 | 28 | 12 |

Connection cable

| Type | Electrical connection | Switching condition display | Material | Length | |
|----------------------|-----------------------|-----------------------------|----------|--------|-------|
| AK-EMVK-2,5M-PUR-LED | 6.35.3.1328 | Stecker - 90° | LED | PUR | 2,5 m |
| AK-EMVK-5M-PUR-LED | 6.35.3.1329 | Stecker - 90° | LED | PUR | 5 m |
| AK-EMVK-10M-PUR-LED | 6.35.3.1330 | Stecker - 90° | LED | PUR | 10 m |

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Solenoid Valves

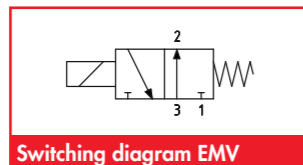
3/2-Ways-Solenoid Valve EMV

Description

Robust 3/2-ways valve, directly controlled with spring return. The valves are generally in NO design (currentless open), which keeps the valve in the „suction“-condition in case of a sudden power failure.

Application

- for „suction“ and „release“ control
- any mounting position
- separate blow-off impulse with max.2 bar



Article number

| Type | Valve | Valve complete * | Replacement plug | suitable ventilation filter | suitable vacuum filter | |
|-------------------|-------------|------------------|------------------|-----------------------------|------------------------|---------|
| EMV-3/2-R1/2-24V | 1.51.2.0016 | 1.51.2.0015 | 2.51.2.0015 | BFS-1/2 | 1.53.1.0014 | VF-1/2 |
| EMV-3/2-R1/2-230V | 1.51.2.0014 | 1.51.2.0013 | 2.51.2.0014 | BFS-1/2 | 1.53.1.0014 | VF-1/2 |
| EMV-3/2-R3/4-24V | 1.51.2.0020 | 1.51.2.0019 | 2.51.2.0020 | BFS-3/4 | 1.53.1.0015 | VF-3/4 |
| EMV-3/2-R3/4-230V | 1.51.2.0018 | 1.51.2.0017 | 2.51.2.0019 | BFS-3/4 | 1.53.1.0015 | VF-3/4 |
| EMV-3/2-R1-24V | 1.51.2.0024 | 1.51.2.0023 | 2.51.2.0020 | BFS-1 | 1.53.1.0016 | VF-11/4 |
| EMV-3/2-R1-230V | 1.51.2.0022 | 1.51.2.0021 | 2.51.2.0019 | BFS-1 | 1.53.1.0016 | VF-11/4 |

* incl. ventilation filter and 2 hose nipples

Technical data

| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Switch.cycles (1/min) | Switching time (ms) | Temperature (°C) | Weight (kg) |
|-------------------|----------------------|--------------------|-----------|-------|-----------------------|---------------------|------------------|-------------|
| | | | (m³/h) | (l/s) | | | | |
| EMV-3/2-R1/2-24V | -1 ... +1 | 12 | 36 | 10,0 | 70 | 30 | -5 ... +45 | 1,0 |
| EMV-3/2-R1/2-230V | -1 ... +1 | 12 | 36 | 10,0 | 70 | 30 | -5 ... +45 | 1,0 |
| EMV-3/2-R3/4-24V | -1 ... +1 | 20 | 70 | 19,4 | 70 | 130 | -5 ... +45 | 5,6 |
| EMV-3/2-R3/4-230V | -1 ... +1 | 20 | 70 | 19,4 | 70 | 130 | -5 ... +45 | 5,6 |
| EMV-3/2-R1-24V | -1 ... +1 | 25 | 73 | 20,3 | 70 | 130 | -5 ... +45 | 5,4 |
| EMV-3/2-R1-230V | -1 ... +1 | 25 | 73 | 20,3 | 70 | 130 | -5 ... +45 | 5,4 |

Electrical data

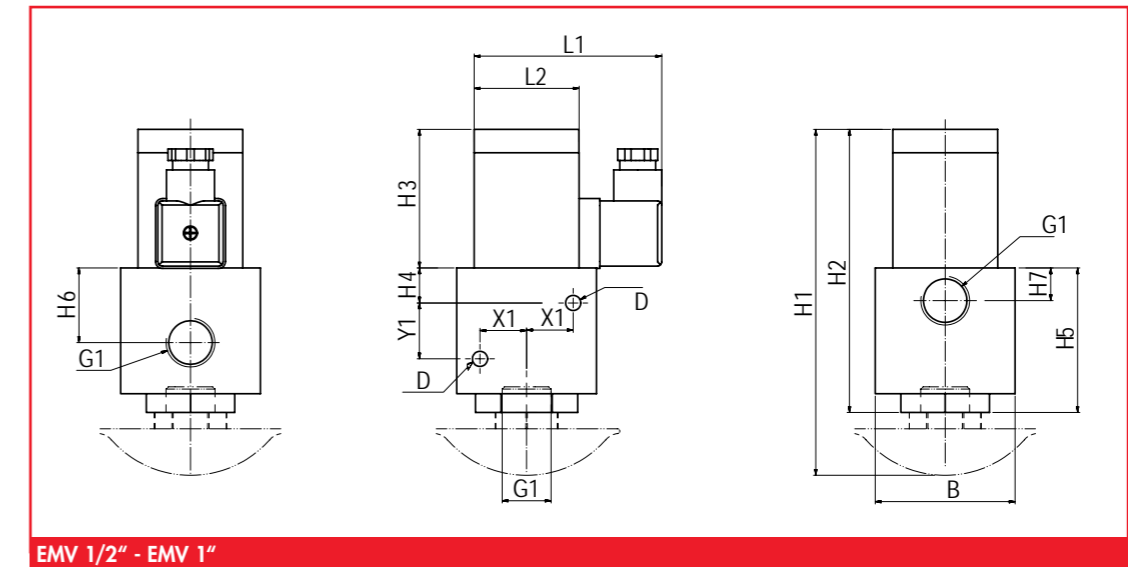
| Type | Voltage (V) | Current consump. (A) | Safety class | Isolation class | On-time | Connection |
|-------------------|-------------|----------------------|--------------|-----------------|---------|-------------------|
| EMV-3/2-R1/2-24V | 24 | 0,76 | IP 65 | F | 100 % | DIN 43650, Form A |
| EMV-3/2-R1/2-230V | 230, 50Hz | 0,16 | IP 65 | F | 100 % | DIN 43650, Form A |
| EMV-3/2-R3/4-24V | 24 | 1,70 | IP 65 | F | 100 % | DIN 43650, Form A |
| EMV-3/2-R3/4-230V | 230, 50Hz | 0,16 | IP 65 | F | 100 % | DIN 43650, Form A |
| EMV-3/2-R1-24V | 24 | 1,70 | IP 65 | F | 100 % | DIN 43650, Form A |
| EMV-3/2-R1/4-230V | 230, 50Hz | 0,16 | IP 65 | F | 100 % | DIN 43650, Form A |

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Solenoid Valves

3/2-ways solenoid valve EMV



Dimensions

| Type | L1 | L2 | B1 | B2 | H1 | H2 | H3 | H4 | H5 | H6 | H7 | D1 | G1 | X1 | Y1 |
|-------------------|-----|----|-----|----|-----|-----|----|----|-----|----|----|-----|------|----|----|
| EMV-3/2-R1/2-24V | 88 | 45 | 60 | 80 | 162 | 121 | 60 | 14 | 62 | 32 | 14 | 6,5 | G1/2 | 20 | 25 |
| EMV-3/2-R1/2-230V | 88 | 45 | 60 | 80 | 162 | 121 | 60 | 14 | 62 | 32 | 14 | 6,5 | G1/2 | 20 | 25 |
| EMV-3/2-R3/4-24V | 130 | 80 | 100 | 80 | 257 | 206 | 80 | 30 | 118 | 75 | 30 | 9 | G3/4 | 40 | 45 |
| EMV-3/2-R3/4-230V | 130 | 80 | 100 | 80 | 257 | 206 | 80 | 30 | 118 | 75 | 30 | 9 | G3/4 | 40 | 45 |
| EMV-3/2-R1-24V | 130 | 80 | 100 | 80 | 257 | 206 | 80 | 30 | 118 | 75 | 30 | 9 | G1 | 40 | 45 |
| EMV-3/2-R1-230V | 130 | 80 | 100 | 80 | 257 | 206 | 80 | 30 | 118 | 75 | 30 | 9 | G1 | 40 | 45 |

Connections and control

| Type | Hose connections | | | Electrical control for „suction“ - „release“ | | | | |
|--------------|------------------|-------------|--------|--|------------|------------|------------|--------------------|
| | 1 | 2 | 3 | Function: | Terminal 1 | Terminal 2 | Terminal 3 | Description |
| EMV-3/2-R1/2 | Ventilation | Suction Pad | Vacuum | Suction: | | - | | |
| | | | | Release: | | - | + | positive switching |
| EMV-3/2-R3/4 | Ventilation | Suction Pad | Vacuum | Suction: | | - | | |
| | | | | Release: | | - | + | positive switching |
| EMV-3/2-R1 | Ventilation | Suction Pad | Vacuum | Suction: | | - | | |
| | | | | Release: | | - | + | positive switching |

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Solenoid Valves

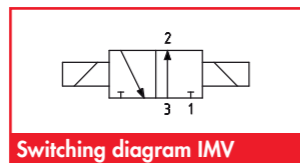
3/2-ways impulse valve IMV

Description

Robust 3/2-ways valve, directly controlled in bistable design (with permanent magnet). The valves are only controlled via a current impulse and keep their position in case of a sudden power failure.

Application

- „suction“ and „release“ control for several, different suction circuits
- any mounting position
- separate blow-off impulse with max.2 bar overpressure

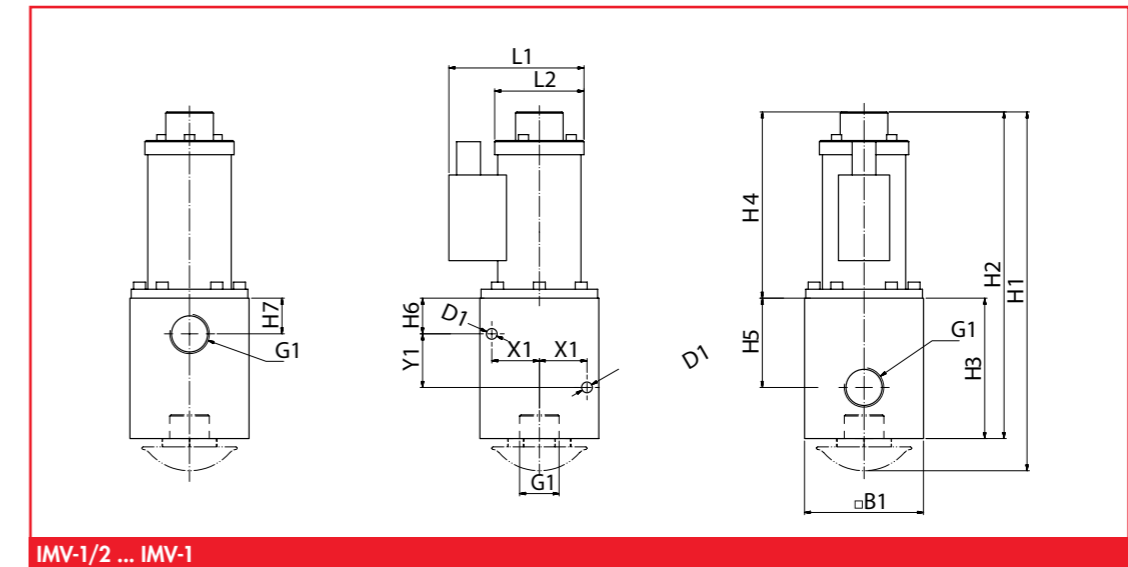


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Solenoid Valves

3/2-ways impulse valve IMV



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Article number

| Type | Valve | Valve complete * | Replacement plug | Suitable ventilation filter | | Suitable vacuum filter | |
|-------------------|-------------|------------------|------------------|-----------------------------|-------------|------------------------|-------------|
| IMV-3/2-R1/2-24V | 1.51.2.0047 | 1.51.2.0048 | 2.51.2.0015 | BFS-1/2 | 1.53.1.0014 | VF-1/2 | 1.53.2.0002 |
| IMV-3/2-R3/4-24V | 1.51.2.0036 | 1.51.2.0035 | --- | BFS-3/4 | 1.53.1.0015 | VF-3/4 | 1.53.2.0006 |
| IMV-3/2-R3/4-230V | 1.51.2.0058 | 1.51.2.0057 | --- | BFS-3/4 | 1.53.1.0015 | VF-3/4 | 1.53.2.0006 |
| IMV-3/2-R1-24V | 1.51.2.0034 | 1.51.2.0033 | --- | BFS-1 | 1.53.1.0016 | VF-11/4 | 1.53.2.0003 |
| IMV-3/2-R1/4-230V | 1.51.2.0060 | 1.51.2.0032 | --- | BFS-1 | 1.53.1.0016 | VF-11/4 | 1.53.2.0003 |

* incl. ventilation filter and 2 hose nipples

Technical data

| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Switch.cycles (1/min) | Switching time (ms) | Temperature (°C) | Weight (kg) |
|-------------------|----------------------|--------------------|-----------|-------|-----------------------|---------------------|------------------|-------------|
| | | | (m³/h) | (l/s) | | | | |
| IMV-3/2-R1/2-24V | -1 ... +1 | 10 | 36 | 10,0 | 30 | 30 | 0 ... +45 | 1,0 |
| IMV-3/2-R3/4-24V | -1 ... +1 | 20 | 70 | 19,4 | 20 | 45 | 0 ... +45 | 5,6 |
| IMV-3/2-R3/4-230V | -1 ... +1 | 20 | 70 | 19,4 | 20 | 45 | 0 ... +45 | 5,6 |
| IMV-3/2-R1-24V | -1 ... +1 | 25 | 73 | 20,3 | 20 | 45 | 0 ... +45 | 5,4 |
| IMV-3/2-R1-230V | -1 ... +1 | 25 | 73 | 20,3 | 20 | 45 | 0 ... +45 | 5,4 |

Electrical data

| Type | Voltage (V) | Current consump. (A) | Safety class | Isolation class | On-time | Connection |
|-------------------|-------------|----------------------|--------------|-----------------|---------|-------------------|
| IMV-3/2-R1/2-24V | 24 | 1,20 | IP43 | E | 40 % | DIN 43650, Form A |
| IMV-3/2-R3/4-24V | 24 | 4,50 | IP43 | E | 40 % | Terminal box |
| IMV-3/2-R3/4-230V | 230, 50Hz | 0,47 | IP43 | E | 40 % | Terminal box |
| IMV-3/2-R1-24V | 24 | 4,50 | IP43 | E | 40 % | Terminal box |
| IMV-3/2-R1-230V | 230, 50Hz | 0,47 | IP43 | E | 40 % | Terminal box |

Dimensions

| Type | L1 | L2 | B1 | H1 | H2 | H3 | H4 | H5 | H6 | H7 | D1 | G1 | X1 | Y1 |
|-------------------|-----|----|-----|-----|-----|-----|-----|------|----|----|-----|------|----|----|
| IMV-3/2-R1/2-24V | 52 | 40 | 60 | 181 | 142 | 65 | 77 | 16,5 | 15 | 20 | 6,5 | G1/2 | 20 | 25 |
| IMV-3/2-R3/4-24V | 106 | 40 | 100 | 315 | 273 | 118 | 155 | 43 | 30 | 41 | 9 | G3/4 | 40 | 45 |
| IMV-3/2-R3/4-230V | 106 | 40 | 100 | 315 | 273 | 118 | 155 | 43 | 30 | 41 | 9 | G3/4 | 40 | 45 |
| IMV-3/2-R1-24V | 113 | 75 | 100 | 315 | 273 | 118 | 155 | 43 | 30 | 41 | 9 | G1 | 40 | 45 |
| IMV-3/2-R1-230V | 113 | 75 | 100 | 315 | 273 | 118 | 155 | 43 | 30 | 41 | 9 | G1 | 40 | 45 |

Connections and control

| Type | Hose connections | | | electrical control for „suction“ - „release“ | | | | |
|--------------|------------------|-------------|--------|--|------------|------------|------------|--------------------|
| | 1 | 2 | 3 | Function: | Terminal 1 | Terminal 2 | Terminal 3 | Description |
| IMV-3/2-R1/2 | Ventilat. | Suction Pad | Vacuum | Suction: | - | + | - | negative switching |
| | | | | Release: | - | + | - | |
| IMV-3/2-R3/4 | Ventilat. | Suction Pad | Vacuum | Suction: | + | - | - | polarity reversal |
| | | | | Release: | - | - | + | |
| IMV-3/2-R1 | Ventilat. | Suction Pad | Vacuum | Suction: | + | - | - | polarity reversal |
| | | | | Release: | - | - | + | |

Solenoid Valves

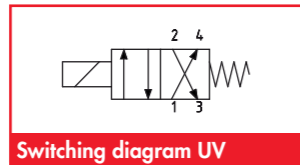
4/2-ways reversing valve UV

Description

Robust 4/2-ways valve, directly controlled with spring return. The reversing valves are designed for vacuum blowers. The valves generally in NO design (currentless open), which keeps the valve in the „suction“ position in case of a sudden power failure. Delivery with electrical connection plug.

Application

- „suction“ and „release“ control on applications with blowers
- applications that require a high flow rate
- any mounting position



Switching diagram UV



UV-11/2 ... UV-2

Article number

| Type | Valve | Replacement connection plug | suitable ventilation filter | | suitable vacuum filter | |
|---------------|-------------|-----------------------------|-----------------------------|-------------|------------------------|-------------|
| UV-R11/2-24V | 1.51.2.0039 | 2.51.2.0015 | BF-11/2 | 1.53.1.0010 | VF-11/4B | 1.53.2.0004 |
| UV-R11/2-230V | 1.51.2.0038 | 2.51.2.0014 | BF-11/2 | 1.53.1.0010 | VF-11/4B | 1.53.2.0004 |
| UV-R2-24V | 1.51.2.0069 | 2.51.2.0015 | BF-11/2 | 1.53.1.0010 | VF-21/2 | 1.53.2.0005 |
| UV-R2-230V | 1.51.2.0070 | 2.51.2.0014 | BF-11/2 | 1.53.1.0010 | VF-21/2 | 1.53.2.0005 |

Technical data

| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Switch.cycles (1/min) | Switching time (ms) | Temperature (°C) | Weight (kg) |
|---------------|----------------------|--------------------|-----------|-------|-----------------------|---------------------|------------------|-------------|
| | | | (m³/h) | (l/s) | | | | |
| UV-R11/2-24V | -0,5 ... +0,5 | 45 | 360 | 100 | 120 | 90 | 0 ... +45 | 4,0 |
| UV-R11/2-230V | -0,5 ... +0,5 | 45 | 360 | 100 | 120 | 90 | 0 ... +45 | 4,0 |
| UV-R2-24V | -0,5 ... +0,5 | 57 | 420 | 116 | 100 | 110 | 0 ... +45 | 6,0 |
| UV-R2-230V | -0,5 ... +0,5 | 57 | 420 | 116 | 100 | 110 | 0 ... +45 | 6,0 |

Electrical data

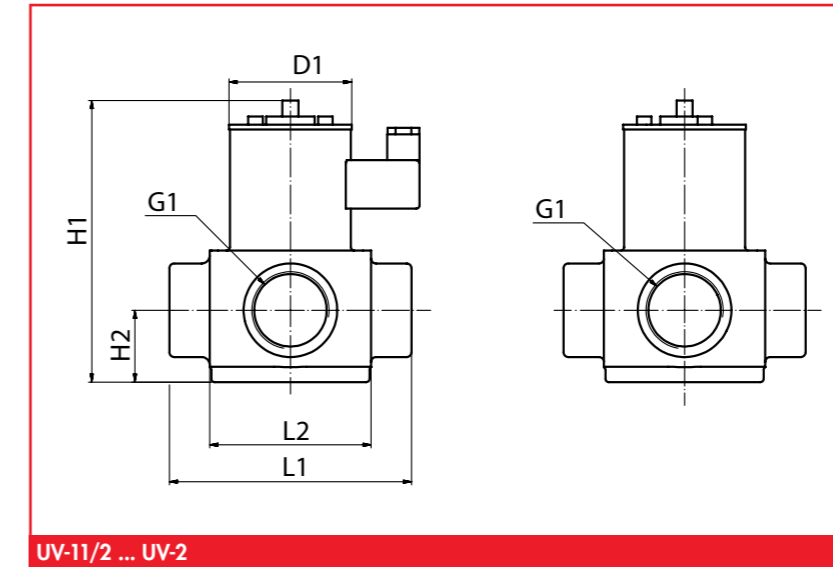
| Type | Voltage (v) | Current consump. (A) | Safety class | Isolation class | On-time | Connection |
|---------------|-------------|----------------------|--------------|-----------------|---------|-------------------|
| UV-R11/2-24V | 24 | 1,55 | IP55 | F | 100% | DIN 43650, Form A |
| UV-R11/2-230V | 230, 50Hz | 0,19 | IP55 | F | 100% | DIN 43650, Form A |
| UV-R2-24V | 24 | 1,70 | IP55 | F | 100% | DIN 43650, Form A |
| UV-R2-230V | 230, 50 Hz | 0,23 | IP55 | F | 100% | DIN 43650, Form A |

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Solenoid Valves

4/2-ways reversing valve UV



UV-11/2 ... UV-2

Dimensions

| Type | L1 | L2 | H1 | H2 | D1 | G1 |
|---------------|-----|-----|-------|------|-----|-------|
| UV-R11/2-24V | 150 | 100 | 174,5 | 44,5 | 76 | G11/2 |
| UV-R11/2-230V | 150 | 100 | 174,5 | 44,5 | 76 | G11/2 |
| UV-R2-24V | 150 | 100 | 240,5 | 62,5 | 102 | G2 |
| UV-R2-230V | 150 | 100 | 240,5 | 62,5 | 102 | G2 |

Connections and control

| Type | Hose connections | | | | electrical control for „suction“ - „release“ | | | | |
|----------|------------------|-------------|-------------|-------------|--|------------|------------|------------|--------------------|
| | 1 | 2 | 3 | 4 | Function: | Terminal 1 | Terminal 2 | Terminal 3 | Description |
| UV-R11/2 | Suct. side | Ventilation | Press. side | Suction Pad | Suction: | + | - | | negative swtiching |
| | Blower | | Blower | | Release: | | - | | |
| UV-R2 | Suct. side | Ventilation | Press. side | Suction Pad | Suction: | + | - | | negative swtiching |
| | Blower | | Blower | | Release: | | - | | |

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Manually controlled Valves

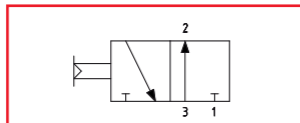
3/2-ways handslide valve HSV

Description

3/2-ways valve for manually-operated valves with two positions for „suction“ and „release“. The design SK is equipped with a safety button which prevents the valves from accidental operation.

Application

- vacuum control on manual lifters
- single control of suction plates
- any mounting position



Switching diagram HSV



HSV 1/4 ... HSV-3/4-SK

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Article number

| Type | Article number |
|-----------------|----------------|
| HSV-3/2-1/4 | 1.51.1.0004 |
| HSV-3/2-3/8 | 1.51.1.0007 |
| HSV-3/2-1/2 | 1.51.1.0002 |
| HSV-3/2-1/2-SK* | 1.51.1.0024 |
| HSV-3/2-3/4 | 1.51.1.0005 |
| HSV-3/2-3/4-SK* | 1.51.1.0025 |

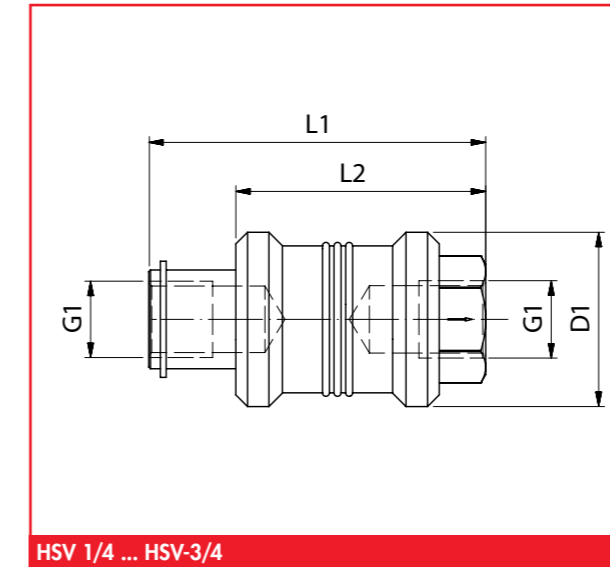
* Design with safety button

Technical data

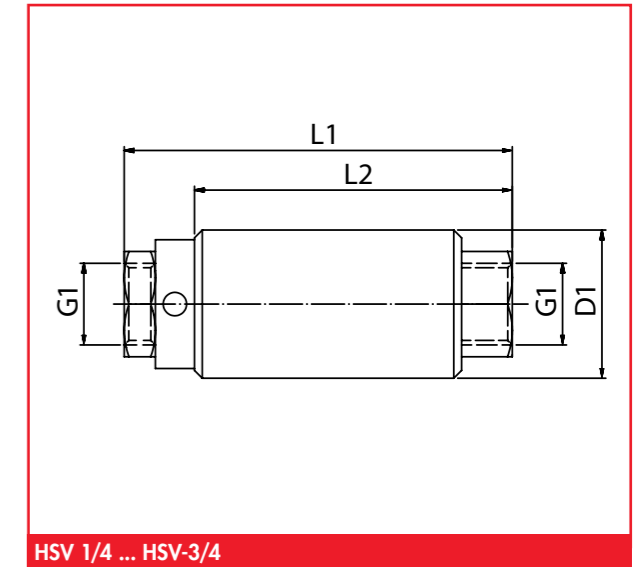
| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Temperature (°C) | Weight (kg) |
|----------------|----------------------|--------------------|-----------|-------|------------------|-------------|
| | | | (m³/h) | (l/s) | | |
| HSV-3/2-1/4 | -1 ... 0 | 9 | 12 | 3,3 | -10 ... +60 | 0,05 |
| HSV-3/2-3/8 | -1 ... 0 | 13 | 21 | 5,8 | -10 ... +60 | 0,07 |
| HSV-3/2-1/2 | -1 ... 0 | 19 | 33 | 9,2 | -10 ... +60 | 0,07 |
| HSV-3/2-1/2-SK | -1 ... 0 | 16 | 29 | 8,1 | -10 ... +60 | 0,07 |
| HSV-3/2-3/4 | -1 ... 0 | 26 | 59 | 16,4 | -10 ... +60 | 0,12 |
| HSV-3/2-3/4-SK | -1 ... 0 | 23 | 53 | 14,7 | -10 ... +60 | 0,12 |

Manually controlled Valves

3/2-ways handslide valve HSV



HSV 1/4 ... HSV-3/4



HSV 1/4 ... HSV-3/4

Dimensions

| Type | L1 | L2 | D1 | G1 |
|----------------|-----|----|----|------|
| HSV-3/2-1/4 | 58 | 43 | 30 | G1/4 |
| HSV-3/2-3/8 | 70 | 52 | 35 | G3/8 |
| HSV-3/2-1/2 | 80 | 59 | 40 | G1/2 |
| HSV-3/2-1/2-SK | 100 | 73 | 38 | G1/2 |
| HSV-3/2-3/4 | 100 | 70 | 50 | G3/4 |
| HSV-3/2-3/4-SK | 125 | 85 | 52 | G3/4 |

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Manually controlled Valves

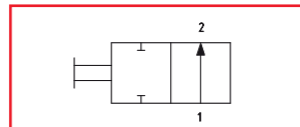
2/2-ways ball valve KV

Description

2/2-ways valve as ball valve in robust grey cast iron design with hand lever

Application

- manual switching on and off of single suction pads
- any mounting position



Switching diagram KV



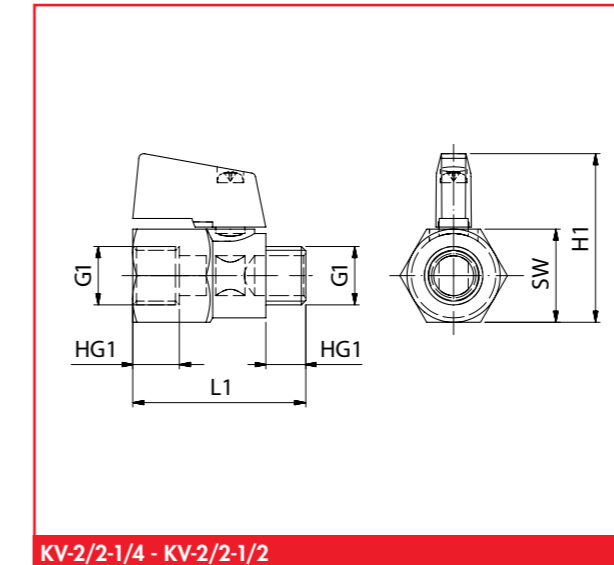
KV-2/2-1/4 - KV-2/2-1

FEZER

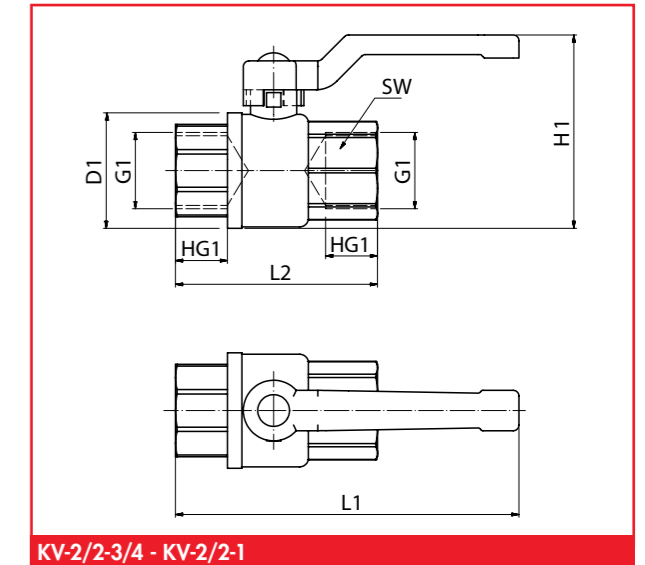
Simply move more.

Manually controlled Valves

2/2-ways ball valve KV



KV-2/2-1/4 - KV-2/2-1/2



KV-2/2-3/4 - KV-2/2-1

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Article number

| Type | Article number | Replacement lever |
|--------------|----------------|-------------------|
| KV-2/2-1/4 | 1.51.1.0011 | 2.51.1.0025 |
| KV-2/2-3/8 | 1.51.1.0008 | 2.51.1.0025 |
| KV-2/2-1/2 | 1.51.1.0009 | 2.51.1.0025 |
| KV-2/2-3/4 | 1.51.1.0014 | 2.51.1.0026 |
| KV-2/2-R1 | 1.51.1.0012 | 2.51.1.0026 |
| KV-2/2-R11/4 | 1.51.1.0013 | 2.51.1.0026 |

Technical data

| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Temperature (°C) | Weight (kg) |
|--------------|----------------------|--------------------|-----------|-------|------------------|-------------|
| | | | (m³/h) | (l/s) | | |
| KV-2/2-1/4 | -1 ... 0 | 12 | 25 | 6,9 | -10 ... +60 | 0,07 |
| KV-2/2-3/8 | -1 ... 0 | 14 | 26 | 7,2 | -10 ... +60 | 0,07 |
| KV-2/2-1/2 | -1 ... 0 | 19 | 60 | 16,6 | -10 ... +60 | 0,10 |
| KV-2/2-3/4 | -1 ... 0 | 24 | 110 | 30,6 | -10 ... +60 | 0,34 |
| KV-2/2-R1 | -1 ... 0 | 30 | 150 | 41,7 | -10 ... +60 | 0,60 |
| KV-2/2-R11/4 | -1 ... 0 | 36 | 180 | 50,0 | -10 ... +60 | 0,80 |

Dimensions

| Type | L1 | L2 | H1 | D1 | G1 | HG1 | SW |
|--------------|-----|-----|----|-----|--------|-----|----|
| KV-2/2-1/4 | 39 | --- | 37 | --- | G1/4 | 8 | 21 |
| KV-2/2-3/8 | 41 | --- | 37 | --- | G3/8 | 8 | 21 |
| KV-2/2-1/2 | 45 | --- | 42 | --- | G1/2 | 10 | 25 |
| KV-2/2-3/4 | 120 | 72 | 67 | 38 | G3/4 | 18 | 32 |
| KV-2/2-R1 | 136 | 85 | 90 | 48 | G1 | 21 | 40 |
| KV-2/2-R11/4 | 158 | 97 | 98 | 59 | G1 1/4 | 23 | 48 |

Manually controlled Valves

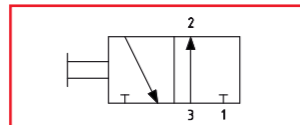
3/2-ways ball valve KV

Description

3/2-ways valve as ball valve in robust grey die-cast design with hand lever. For the ventilation channel appropriate ventilation filters are available.

Application

- manual switching on and off of individual suction pads
- additional ventilation channels
- any mounting position



Switching diagram KV



KV-2/2-1/4 - KV-2/2-1

Article number

| Type | | Replacement lever | suitable ventilation filter | |
|-------------|-------------|-------------------|-----------------------------|-------------|
| KV-3/2-1/2 | 1.51.1.0018 | 2.51.1.0004 | BFS-R1/2 | 1.53.1.0014 |
| KV-3/2-3/4 | 1.51.1.0021 | 2.51.1.0005 | BFS-R3/4 | 1.53.1.0015 |
| KV-3/2-1 | 1.51.1.0016 | 2.51.1.0003 | BFS-R1 | 1.53.1.0016 |
| KV-3/2-11/4 | 1.51.1.0020 | 2.51.1.0020 | BF-R11/4 | 1.53.1.0007 |

Technical data

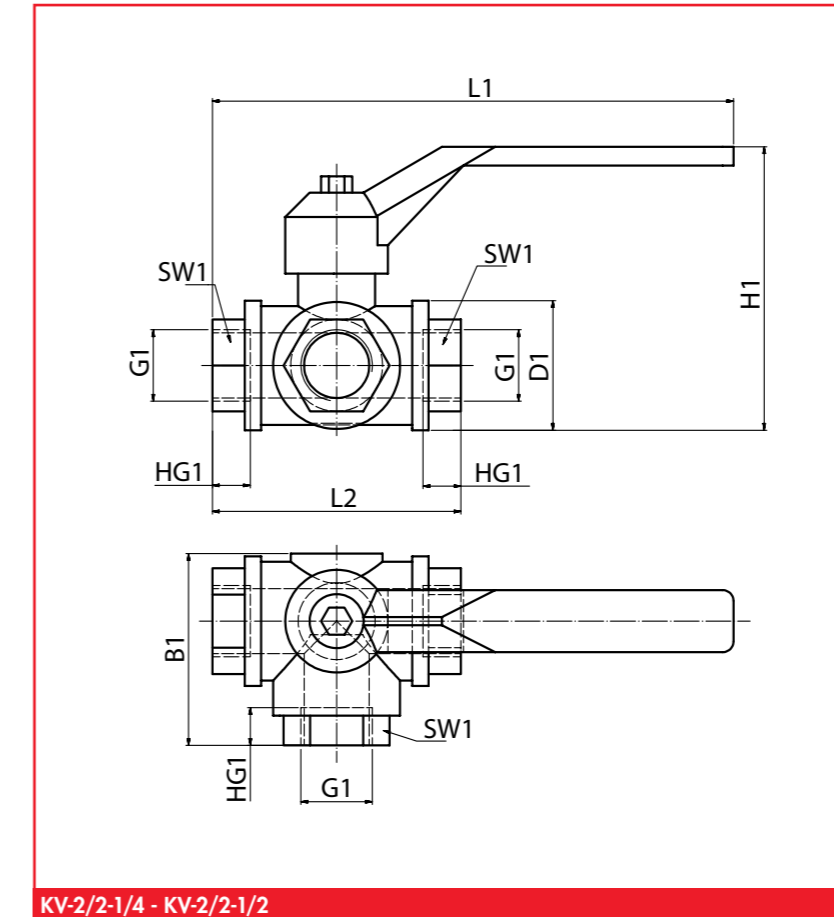
| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Temperature (°C) | Weight (kg) |
|-------------|----------------------|--------------------|-----------|-------|------------------|-------------|
| | | | (m³/h) | (l/s) | | |
| KV-3/2-1/2 | -1 ... 0 | 19 | 60 | 16,6 | 0 ... +60 | 0,75 |
| KV-3/2-3/4 | -1 ... 0 | 24 | 110 | 30,6 | 0 ... +60 | 1,25 |
| KV-3/2-1 | -1 ... 0 | 30 | 150 | 41,7 | 0 ... +60 | 1,90 |
| KV-3/2-11/4 | -1 ... 0 | 36 | 180 | 50,0 | 0 ... +60 | 2,25 |

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Manually controlled Valves

3/2-ways ball valve KV



KV-2/2-1/4 - KV-2/2-1/2

Dimensions

| Type | L1 | L2 | B1 | H1 | D1 | G1 | HG1 | SW1 |
|-------------|-----|-----|----|-----|----|-------|-----|-----|
| KV-3/2-1/2 | 166 | 78 | 60 | 89 | 39 | G1/2 | 19 | 27 |
| KV-3/2-3/4 | 193 | 92 | 70 | 105 | 47 | G3/4 | 23 | 34 |
| KV-3/2-1 | 224 | 105 | 81 | 125 | 55 | G1 | 25 | 41 |
| KV-3/2-11/4 | 228 | 120 | 92 | 137 | 65 | G11/4 | 28 | 50 |

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Manually controlled Valves

3/2-ways foot interruptor FUB

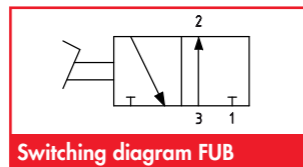
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Description

3/2-ways valve with spring return as foot interruptor. As precaution against accidental operation the foot interruptor is equipped with a safety hood. In the initial position the valve is set on „suction“ and ventilates on actuation.

Application

- vacuum working stands
- stationary vacuum clamping devices



Switching diagram FUB



FUB-R1/4

Article number

| Type | | suitable ventilation filter | |
|---------|-------------|-----------------------------|-------------|
| FUB-1/4 | 1.51.1.0001 | BFS-R1/4 | 1.53.1.0013 |

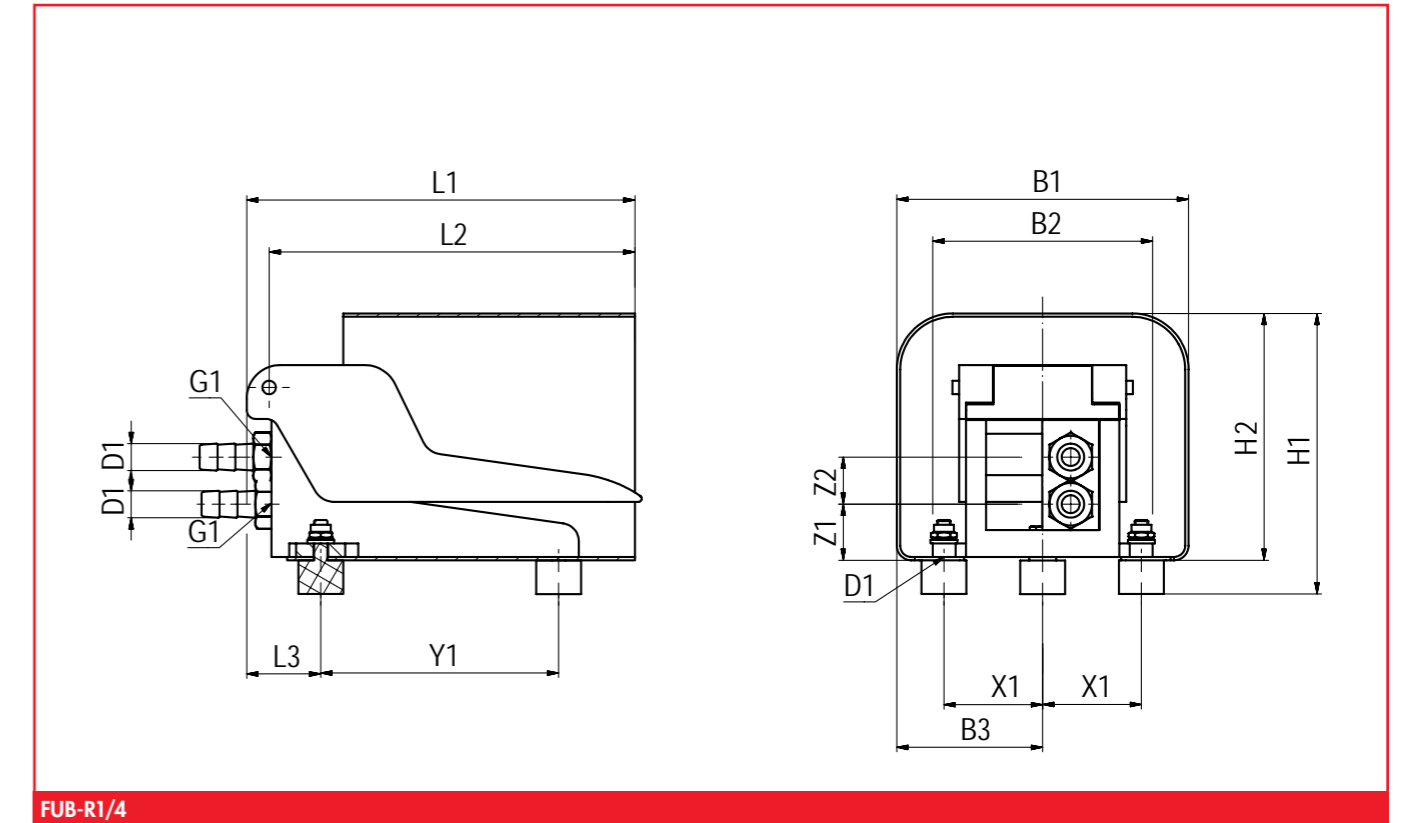
Technical data

| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Temperature (°C) | Weight (kg) |
|---------|----------------------|--------------------|-----------|-------|------------------|-------------|
| | | | (m³/h) | (l/s) | | |
| FUB-1/4 | -1 ... 0 | 7 | 6 | 1,67 | 0 ... +60 | 2,5 |

Manually controlled Valves

3/2-ways foot interruptor FUB

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FUB-R1/4

Dimensions

| Type | L1 | L2 | L3 | B1 | B2 | B3 | H1 | H2 | D1 | G1 | X1 | Y1 | Z1 | Z2 |
|---------|-----|-----|----|-----|----|----|-----|-----|----|------|----|-----|----|----|
| FUB-1/4 | 181 | 171 | 33 | 130 | 98 | 65 | 125 | 114 | 12 | G1/4 | 44 | 106 | 23 | 21 |

Manually controlled Valves

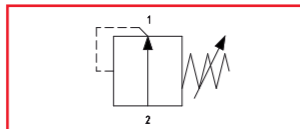
Vacuum regulation valves VRV

Description

Robust regulation valve in brass design with adjustment screw. This valve allows to adjust the vacuum level independent of the used vacuum generator.

Application

- adjustment of pressure variations
- applications with different vacuum levels
- steplessly adjustable
- any mounting position



Switching diagram VRV



VRV-1/2 - VRV-3/4

Article number

| Type | Article number |
|---------|----------------|
| VRV-1/2 | 1.51.7.0001 |
| VRV-3/4 | 1.51.7.0002 |

Technical data

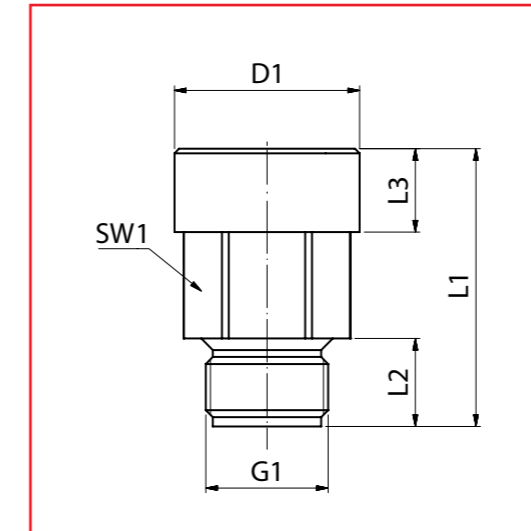
| Type | Range (bar) | Exactness (%) | Nominal width (mm) | Flow rate | | Temperature (°C) | Weight (kg) |
|---------|-------------|---------------|--------------------|-----------|-------|------------------|-------------|
| | | | | (m³/h) | (l/s) | | |
| VRV-1/2 | -0,98 ... 0 | +/- 2,5 | 18 | 8 | 2,2 | 0 ... +60 | 0,12 |
| VRV-3/4 | -0,98 ... 0 | +/- 2,5 | 24 | 18 | 5,0 | 0 ... +60 | 0,21 |

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Manually controlled Valves

Vacuum regulation valves VRV



VRV-1/2 - VRV-3/4

Dimensions

| Type | L1 | L2 | L3 | D1 | G1 | SW1 |
|---------|----|----|----|----|------|-----|
| VRV-1/2 | 51 | 18 | 16 | 30 | G1/2 | 27 |
| VRV-3/4 | 54 | 18 | 16 | 40 | G3/4 | 32 |

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Manually controlled Valves

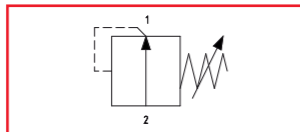
Pressure regulation valve DRV

Description

Pressure regulation valve with stable aluminum die-cast housing with manometer and rotary knob with arrest.

Application

- adjustment of required operating pressures
- supply of valves and ejectors with fixed operating pressures
- any mounting position



Switching diagram DRV



DRV-1/4 ... DRV-3/4

Article number

| Type | Article number |
|---------|----------------|
| DRV-1/8 | 1.51.2.0066 |
| DRV-1/4 | 1.51.2.0055 |
| DRV-3/8 | 1.51.2.0089 |
| DRV-1/2 | 1.51.2.0030 |
| DRV-3/4 | 1.51.2.0091 |

Technical data

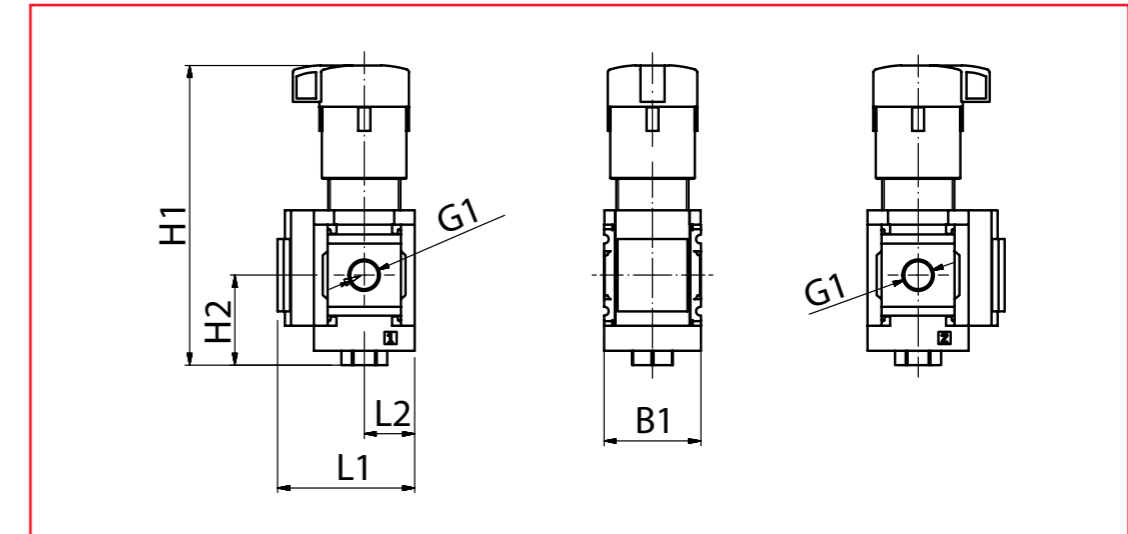
| Type | Pressure range (bar) | Flow rate (m³/h) | Flow rate (l/s) | Temperature (°C) | Weight (kg) |
|---------|----------------------|------------------|-----------------|------------------|-------------|
| DRV-1/8 | -0,5 ... +12 | 56 | 15,5 | +10 ... +60 | 0,73 |
| DRV-1/4 | -0,5 ... +12 | 102 | 28,3 | +10 ... +60 | 0,73 |
| DRV-3/8 | -0,5 ... +12 | 270 | 75 | +10 ... +60 | 0,73 |
| DRV-1/2 | -0,5 ... +12 | 330 | 62 | +10 ... +60 | 0,73 |
| DRV-3/4 | -0,5 ... +12 | 1440 | 400 | +10 ... +60 | 1,40 |

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Manually controlled Valves

Pressure regulation valve DRV



DRV-1/4 ... DRV-3/4

Dimensions

| Type | L1 | L2 | B1 | H1 | H2 | G1 |
|---------|-----|----|----|-----|----|------|
| DRV-1/8 | 77 | 31 | 67 | 188 | 54 | G1/8 |
| DRV-1/4 | 77 | 31 | 67 | 188 | 54 | G1/4 |
| DRV-3/8 | 77 | 31 | 67 | 188 | 54 | G3/8 |
| DRV-1/2 | 77 | 31 | 67 | 188 | 54 | G1/2 |
| DRV-3/4 | 109 | 45 | 90 | 225 | 58 | G3/4 |

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Automatic Valves

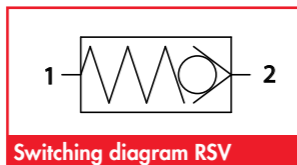
Non-return valves RSV

Description

Spring-loaded non-return valve in robust brass design. Available with inside and outside thread and in compact design.

Application

- Precaution of the vacuum system in case of power outage or failure of the vacuum generator
- used for ECO-modules (energy saving systems)
- any mounting position



Article number

| Type | Article number |
|-----------|----------------|
| RSV-K-1/4 | 1.51.4.0009 |
| RSV-1/4 | 1.51.4.0004 |
| RSV-3/8 | 1.51.4.0008 |
| RSV-K-1/2 | 1.51.4.0001 |
| RSV-1/2 | 1.51.4.0003 |
| RSV-3/4 | 1.51.4.0007 |
| RSV-1 | 1.51.4.0006 |

Technical data

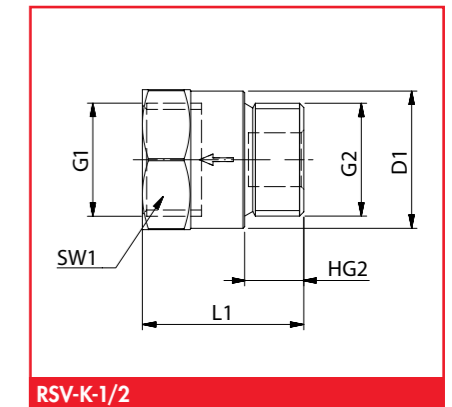
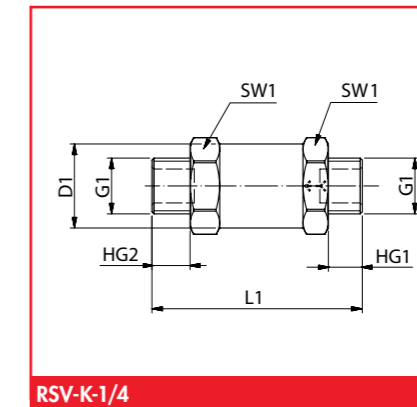
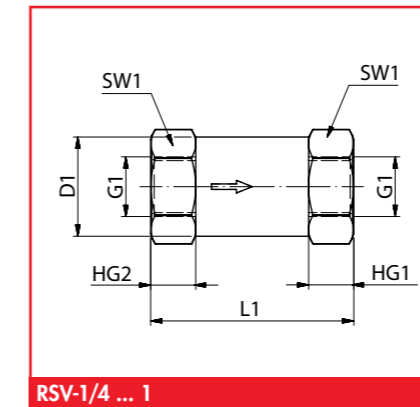
| Type | Pressure range (bar) | Nominal width (mm) | Flow rate | | Temperature (°C) | Weight (kg) |
|-----------|----------------------|--------------------|-----------|-------|------------------|-------------|
| | | | (m³/h) | (l/s) | | |
| RSV-K-1/4 | -1 ... +16 | 8 | 9 | 2,5 | 0 ... +80 | 0,04 |
| RSV-1/4 | -1 ... +16 | 8 | 14 | 3,9 | 0 ... +80 | 0,10 |
| RSV-3/8 | -1 ... +16 | 8 | 24 | 6,7 | 0 ... +80 | 0,18 |
| RSV-K-1/2 | -1 ... +16 | 12 | 32 | 8,9 | 0 ... +80 | 0,06 |
| RSV-1/2 | -1 ... +16 | 12 | 41 | 11,4 | 0 ... +80 | 0,19 |
| RSV-3/4 | -1 ... +16 | 16 | 52 | 14,4 | 0 ... +80 | 0,28 |
| RSV-1 | -1 ... +16 | 22 | 85 | 23,6 | 0 ... +80 | 0,41 |

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Automatic Valves

Non-return valves RSV



Dimensions

| Type | L1 | D1 | G1 | HG1 | HG2 | SW1 |
|-----------|----|------|------|------|------|-----|
| RSV-K-1/4 | 38 | 20 | G1/4 | 7 | 10 | 20 |
| RSV-1/4 | 45 | 22 | G1/4 | 12 | 12 | 22 |
| RSV-3/8 | 54 | 34,5 | G3/8 | 10 | 10 | 23 |
| RSV-K-1/2 | 30 | 25 | G1/2 | 11 | 12 | 26 |
| RSV-1/2 | 57 | 34,5 | G1/2 | 10 | 10 | 27 |
| RSV-3/4 | 64 | 41,5 | G3/4 | 12 | 12 | 33 |
| RSV-1 | 75 | 48 | G1 | 14,5 | 14,5 | 40 |

Automatic Valves

Flow valves SV

Description

Robust flow valve in galvanized steel design. When a pad is not occupied the ball inside the valve closes automatically and prevents a decrease of the vacuum. The valves are available in 3 assembly designs.

- on suspension bolt
- on suction plate retainers with central vacuum feed
- on suction pad with basic body and separate vacuum feed (required adapter ASV-M12 or M16)

Application

- on different grades of occupancy of the suction pads (workpieces with changing dimensions)
- any mounting position



Switching diagram SV



SV-M12x1-1/8 ... SV-M16

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Article number

| Type | | Adapter ASV- ... |
|----------------|-------------|------------------|
| SV-M12x1-1/8 | 1.51.6.0053 | --- |
| SV-M12x1-1/4 | 1.51.6.0061 | --- |
| SV-M12x1-3/8 | 1.51.6.0054 | --- |
| SV-M16x1,5-1/4 | 1.51.6.0062 | --- |
| SV-M16x1,5-3/8 | 1.51.6.0102 | --- |
| SV-M16 | 1.51.6.0059 | 1.31.3.0023 |

Technical data

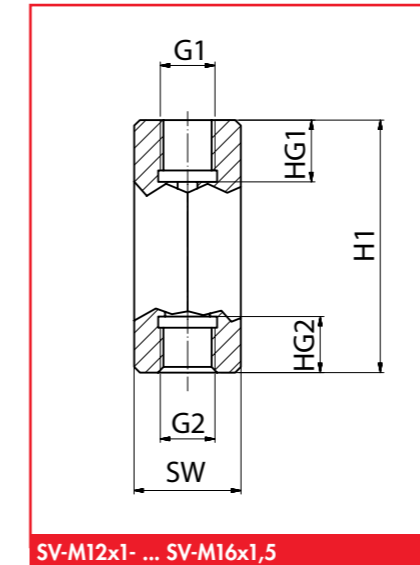
| Type | Pressure range (bar) | Suction power* at pB = -0,6 bar | | Suction power* at pB = -0,3 bar | | Flow rate on ventilation** | | Temperature (°C) | Weight (kg) |
|----------------|----------------------|---------------------------------|-------|---------------------------------|-------|----------------------------|-------|------------------|-------------|
| | | (m³/h) | (l/s) | (m³/h) | (l/s) | (m³/h) | (l/s) | | |
| SV-M12x1-1/8 | -1 ... -0,3 | 1,5 | 0,41 | 2,0 | 0,55 | 15 | 4,16 | 0 ... +60 | 0,09 |
| SV-M12x1-1/4 | -1 ... -0,3 | 2,0 | 0,55 | 2,5 | 0,69 | 15 | 4,16 | 0 ... +60 | 0,09 |
| SV-M12x1-3/8 | -1 ... -0,3 | 2,5 | 0,69 | 3,0 | 0,83 | 20 | 5,55 | 0 ... +60 | 0,08 |
| SV-M16x1,5-1/4 | -1 ... -0,3 | 4,0 | 1,11 | 4,5 | 1,25 | 20 | 5,55 | 0 ... +60 | 0,08 |
| SV-M16x1,5-3/8 | -1 ... -0,3 | 4,0 | 1,11 | 4,5 | 1,25 | 20 | 5,55 | 0 ... +60 | 0,07 |
| SV-M16 | -1 ... -0,3 | 4,5 | 1,25 | 5,5 | 1,52 | 20 | 5,55 | 0 ... +60 | 0,04 |

* required suction power to close the flow valve

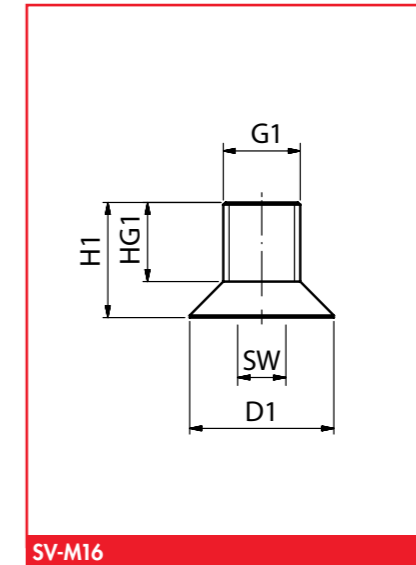
** against atmospheric pressure

Automatic Valves

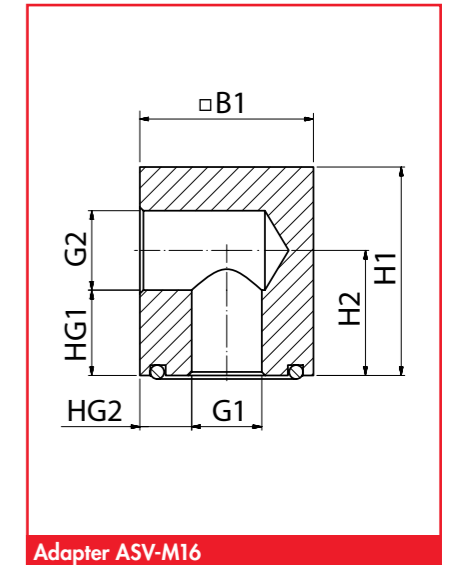
Flow valves SV



SV-M12x1- ... SV-M16x1,5



SV-M16



Adapter ASV-M16

Dimensions

| Type | H1 | H2 | B1 | D1 | G1 | G2 | HG1 | HG2 | SW |
|----------------|----|-----|-----|-----|---------|------|------|-----|-----|
| SV-M12x1-1/8 | 45 | --- | --- | --- | M12x1 | G1/8 | 11 | 10 | 19 |
| SV-M12x1-1/4 | 45 | --- | --- | --- | M12x1 | G1/4 | 11 | 10 | 19 |
| SV-M12x1-3/8 | 45 | --- | --- | --- | M12x1 | G3/8 | 11 | 10 | 19 |
| SV-M16x1,5-1/4 | 45 | --- | --- | --- | M16x1,5 | G1/4 | 11 | 10 | 19 |
| SV-M16x1,5-3/8 | 45 | --- | --- | --- | M16x1,5 | G3/8 | 11 | 10 | 19 |
| SV-M16 | 24 | --- | --- | 33 | M16 | --- | 16,5 | --- | 10 |
| ASV-M16 | 30 | 18 | 25 | --- | M16 | 3/8 | 11 | 5 | --- |

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Automatic Valves

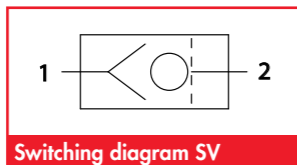
Flow valves SVE

Description

Robust flow valve with internal, adjustable flow body. If the suction pad is not occupied the flow body closes automatically and prevents a decrease of the vacuum. The sensitivity of the flow valve can be adjusted to the used suction pads and the existing flow conditions.

Application

- on different grades of occupancy of the suction pads (workpieces with changing dimensions)
- on suction pads with high own volume
- any mounting position



Article number

| Type | Article number |
|---------|----------------|
| SVE-1/2 | 1.51.6.0106 |
| SVE-3/4 | 1.51.6.0001 |

Technical data

| Type | Pressure range (bar) | Suction power* at pB = -0,6 bar | | Suction power* at pB = -0,3 bar | | Flow rate on ventilation** | | Temperature (°C) | Weight (kg) |
|---------|----------------------|---------------------------------|---------------|---------------------------------|---------------|----------------------------|-------|------------------|-------------|
| | | (m³/h) | (l/s) | (m³/h) | (l/s) | (m³/h) | (l/s) | | |
| SVE-1/2 | -1 ... -0,3 | 4 ... 15 | 1,11 ... 4,16 | 5 ... 20 | 1,38 ... 5,55 | 25 | 6,94 | 0 ... +60 | 0,15 |
| SVE-3/4 | -1 ... -0,3 | 7 ... 20 | 1,94 ... 5,55 | 7 ... 25 | 1,94 ... 6,94 | 35 | 9,72 | 0 ... +60 | 0,20 |

* required suction power to close the flow valve

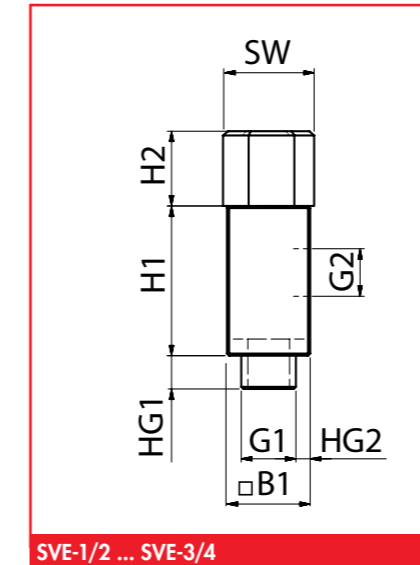
** against atmospheric pressure

FEZER

Simply move more.

Automatic Valves

Flow valves SVE



Dimensions

| Type | H1 | H2 | B1 | G1 | G2 | HG1 | HG2 | SW |
|---------|----|----|----|------|------|-----|-----|----|
| SVE-1/2 | 40 | 18 | 25 | G1/2 | G1/2 | 10 | 10 | 19 |
| SVE-3/4 | 48 | 18 | 30 | G3/4 | G1/2 | 12 | 10 | 19 |

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Automatic Valves

Flow resistances SW



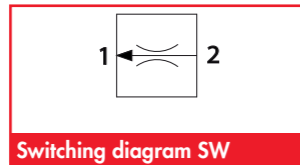
Description

Valve body in robust, galvanized steel design. The reduction of the cross sections is done by nozzle inserts which can be exchanged at any time; thus the valve can be adjusted to different flow conditions. The valves are available in 3 different assembly designs.

- on suspension bolt
- on suction plate retainer with central vacuum feed
- on suction pad with basic body and separate vacuum feed (necessary adapter ASV-M12 or M16)

Application

- on porous workpieces
- different grades of occupancy of the suction pads (workpieces with changing dimensions)
- any mounting position



Switching diagram SW



SW-M8x1- ... SW-M16x1,5-

Article number

| Type | Adapter ASV- ... | | | | | | | | |
|-----------------|------------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|-------------|
| | 0,25 | 0,50 | 0,75 | 1,00 | 1,25 | 1,50 | 1,75 | 2,00 | |
| SW-M8x1-M5 | 1.51.6.0116 | 1.51.6.0117 | 1.51.6.0118 | 1.51.6.0119 | 1.51.6.0120 | 1.51.6.0121 | 1.51.6.0122 | 1.51.6.0123 | --- |
| SW-M8x1-1/8 | 1.51.6.0124 | 1.51.6.0125 | 1.51.6.0126 | 1.51.6.0127 | 1.51.6.0128 | 1.51.6.0129 | 1.51.6.0130 | 1.51.6.0131 | --- |
| SW-M12x1-1/8- | 1.51.6.0063 | 1.51.6.0065 | 1.51.6.0056 | 1.51.6.0067 | 1.51.6.0069 | 1.51.6.0071 | 1.51.6.0073 | 1.51.6.0075 | --- |
| SW-M12x1-1/4- | 1.51.6.0064 | 1.51.6.0066 | 1.51.6.0055 | 1.51.6.0068 | 1.51.6.0070 | 1.51.6.0072 | 1.51.6.0074 | 1.51.6.0076 | --- |
| SW-M12x1-3/8- | 1.51.6.0132 | 1.51.6.0133 | 1.51.6.0057 | 1.51.6.0134 | 1.51.6.0135 | 1.51.6.0136 | 1.51.6.0137 | 1.51.6.0138 | --- |
| SW-M16x1,5-1/4- | 1.51.6.0077 | 1.51.6.0078 | 1.51.6.0079 | 1.51.6.0080 | 1.51.6.0081 | 1.51.6.0082 | 1.51.6.0083 | 1.51.6.0084 | --- |
| SW-M16x1,5-3/8- | 1.51.6.0107 | 1.51.6.0108 | 1.51.6.0109 | 1.51.6.0110 | 1.51.6.0111 | 1.51.6.0112 | 1.51.6.0113 | 1.51.6.0114 | --- |
| SW-M12- | 1.51.6.0085 | 1.51.6.0086 | 1.51.6.0087 | 1.51.6.0088 | 1.51.6.0089 | 1.51.6.0090 | 1.51.6.0091 | 1.51.6.0092 | 1.31.3.0022 |
| SW-M16- | 1.51.6.0093 | 1.51.6.0094 | 1.51.6.0095 | 1.51.6.0096 | 1.51.6.0097 | 1.51.6.0098 | 1.51.6.0099 | 1.51.6.0100 | 1.31.3.0023 |

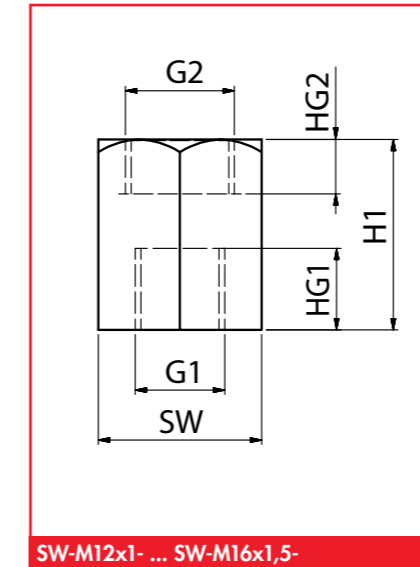
Technical data

| Type | Pressure range (bar) | Suction power* at $p_B = -0,6 \text{ bar}$ | | Suction power* at $p_B = -0,3 \text{ bar}$ | | Flow rate on ventilation** | | Temperature (°C) | Weight (kg) |
|------------|----------------------|--|-------|--|-------|----------------------------|---------|------------------|---------------|
| | | (m³/h) | (l/s) | (m³/h) | (l/s) | (m³/h) | (l/min) | | |
| SW...-0,25 | -1 ... 0 | 0,01 | 0,003 | 0,01 | 0,003 | 0,01 | 0,003 | 0 ... +60 | 0,04 ... 0,10 |
| SW...-0,50 | -1 ... 0 | 0,16 | 0,044 | 0,15 | 0,042 | 0,16 | 0,044 | 0 ... +60 | 0,04 ... 0,10 |
| SW...-0,75 | -1 ... 0 | 0,31 | 0,086 | 0,29 | 0,081 | 0,31 | 0,086 | 0 ... +60 | 0,04 ... 0,10 |
| SW...-1,00 | -1 ... 0 | 0,52 | 0,144 | 0,50 | 0,139 | 0,52 | 0,144 | 0 ... +60 | 0,04 ... 0,10 |
| SW...-1,25 | -1 ... 0 | 0,96 | 0,266 | 0,93 | 0,258 | 0,96 | 0,266 | 0 ... +60 | 0,04 ... 0,10 |
| SW...-1,50 | -1 ... 0 | 1,35 | 0,375 | 1,30 | 0,361 | 1,35 | 0,375 | 0 ... +60 | 0,04 ... 0,10 |
| SW...-1,75 | -1 ... 0 | 1,82 | 0,505 | 1,74 | 0,483 | 1,82 | 0,505 | 0 ... +60 | 0,04 ... 0,10 |
| SW...-2,00 | -1 ... 0 | 2,21 | 0,614 | 2,10 | 0,583 | 2,21 | 0,614 | 0 ... +60 | 0,04 ... 0,10 |

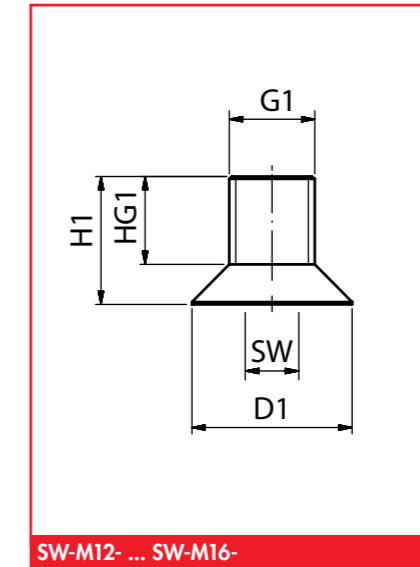
* required suction power to keep up the requested operational vacuum
 on several suction pads the suction power must be multiplied with quantity of the suction pads
 ** against atmospheric pressure

Automatic Valves

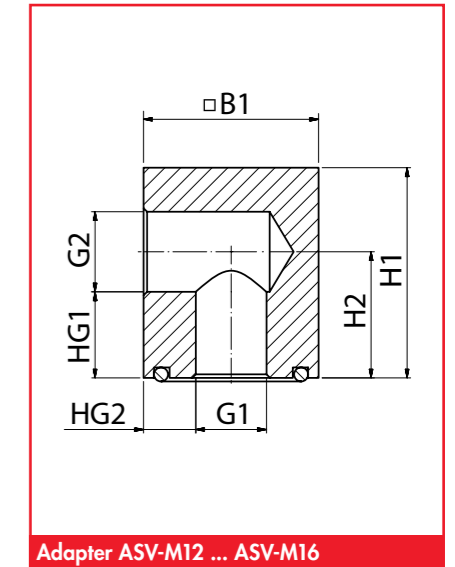
Flow resistances SW



SW-M12x1- ... SW-M16x1,5-



SW-M12- ... SW-M16-



Adapter ASV-M12 ... ASV-M16

Dimensions

| Type | H1 | H2 | B1 | D1 | G1 | G2 | HG1 | HG2 | SW |
|-----------------|----|-----|-----|-----|---------|------|------|-----|----|
| SW-M8x1-M5 | 28 | --- | --- | --- | M8x1 | M5 | 12 | 10 | 13 |
| SW-M8x1-1/8 | 28 | --- | --- | --- | M8x1 | G1/8 | 12 | 10 | 13 |
| SW-M12x1-1/8- | 28 | --- | --- | --- | M12x1 | G1/8 | 12 | 10 | 15 |
| SW-M12x1-1/4- | 28 | --- | --- | --- | M12x1 | G1/4 | 12 | 10 | 24 |
| SW-M12x1-3/8- | 28 | --- | --- | --- | M12x1 | G3/8 | 12 | 10 | 24 |
| SW-M16x1,5-1/4- | 28 | --- | --- | --- | M16x1,5 | G1/4 | 12 | 10 | 24 |
| SW-M16x1,5-3/8- | 28 | --- | --- | --- | M16x1,5 | G3/8 | 12 | 10 | 24 |
| SW-M12- | 22 | --- | --- | 27 | M12 | --- | 12,5 | --- | 8 |
| SW-M16- | 23 | --- | --- | 33 | M16 | --- | 14,2 | --- | 10 |
| ASV-M12 | 30 | 18 | 25 | --- | M12 | 1/4 | 11 | 5 | -- |
| ASV-M16 | 30 | 18 | 25 | --- | M16 | 3/8 | 11 | 5 | -- |

Automatic Valves

Touch valves TV

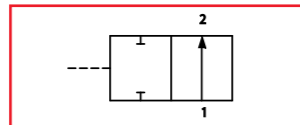
Description

Robust touch valve in galvanized steel design. The suction pad engages only when it is placed on the workpiece. Otherwise it stays closed. The valves are available in 2 assembly designs.

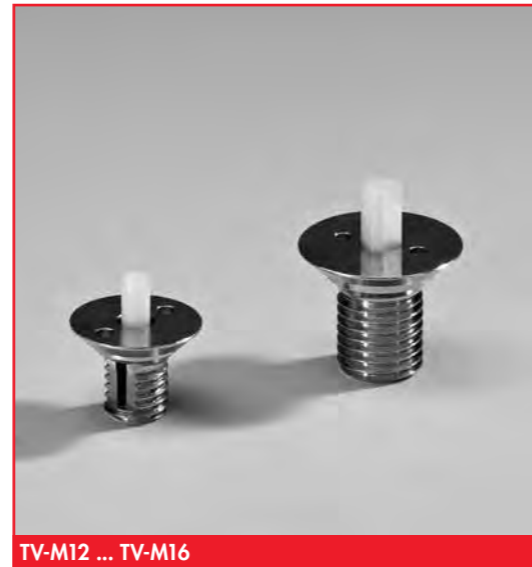
- on suction plate retainers with central vacuum feed (disc ZS-TV-M16 necessary when an articulated suction plate retainer SAK-M16-M16x1,5 is used)
- on suction pads with base bodies and separate vacuum feed (necessary adapter ASV-M12 or M16)

Application

- different grade of occupancy of the suction pads (workpieces with changing dimensions)
- any mounting position



Switching diagram TV



TV-M12 ... TV-M16

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Article number

| Type | | Intermediate disc ZS-TV- ... | | Adapter ASV- ... | |
|--------|-------------|---------------------------------|-------------|---------------------|-------------|
| TV-M12 | 1.51.5.0002 | --- | --- | ASV-M12-1/4 | 1.31.3.0022 |
| TV-M16 | 1.51.5.0009 | ZS-TV-M16 | 2.31.1.0059 | ASV-M16-3/8 | 1.31.3.0023 |

Technical data

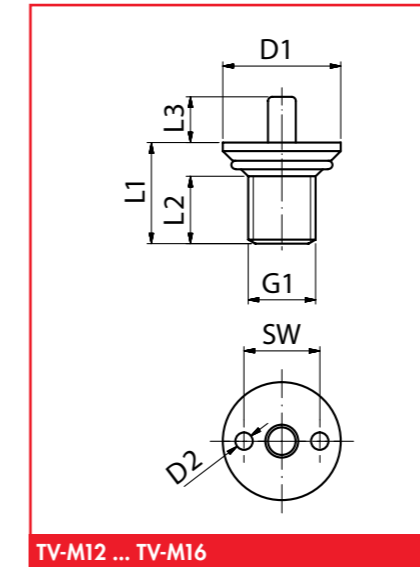
| Type | Pressure range (bar) | Flow rate | | max.own stroke (HW) suction pad (mm) | Temperature (°C) | Weight (kg) |
|--------|-------------------------|-----------|-------|---|---------------------|----------------|
| | | (m³/h) | (l/s) | | | |
| TV-M12 | -1 ... 0 | 2,9 | 0,8 | 8 | 0 ... +60 | 0,017 |
| TV-M16 | -1 ... 0 | 5,5 | 1,5 | 9 | 0 ... +60 | 0,035 |

NB

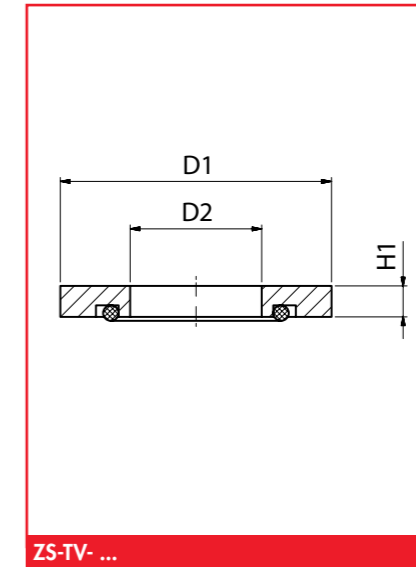
- When pads with touch valves are being used they must always fully sit on the workpiece as they will cause leakage when placed half on/half off.
- The own stroke of the pad (HW) must be smaller than the stroke of the touch valve, otherwise no full ventilation is possible.

Automatic Valves

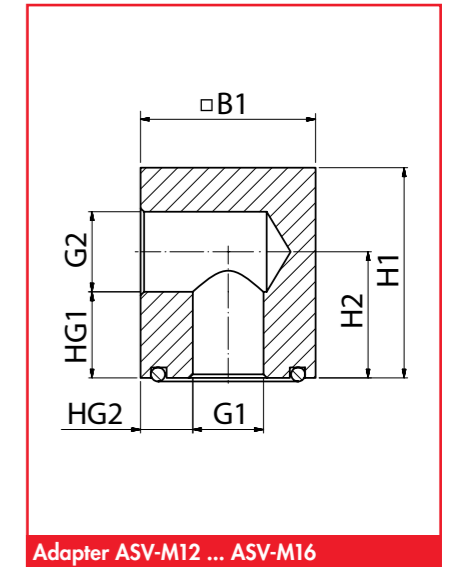
Touch valves TV



TV-M12 ... TV-M16



ZS-TV- ...



Adapter ASV-M12 ... ASV-M16

Dimensions

| Type | L1 | L2 | L3 | B1 | H1 | H2 | D1 | D2 | G1 | G2 | HG1 | HG2 | SW |
|-------------|-----|-----|------|-----|-----|-----|-----|-----|-----|------|-----|-----|-----|
| TV-M12 | 18 | 10 | 10 | --- | --- | --- | 26 | 4,1 | M12 | --- | --- | --- | 15 |
| TV-M16 | 24 | 16 | 10,9 | --- | --- | --- | 30 | 4,1 | M16 | --- | --- | --- | 18 |
| ZS-TV-M16 | --- | --- | --- | --- | 4 | --- | 35 | 17 | --- | --- | --- | --- | --- |
| ASV-M12-1/4 | --- | --- | --- | 25 | 30 | 18 | --- | --- | M12 | G1/4 | 11 | 5 | --- |
| ASV-M16-3/8 | --- | --- | --- | 25 | 30 | 18 | --- | --- | M16 | G3/8 | 11 | 5 | --- |