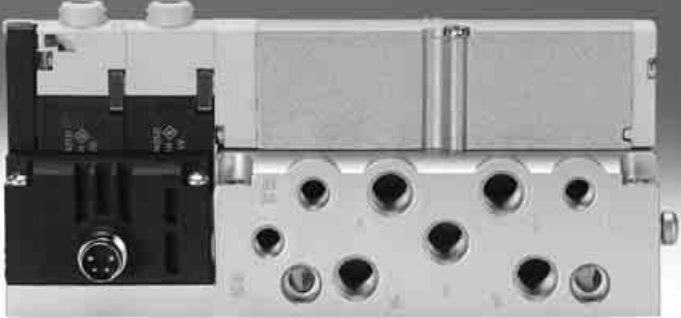


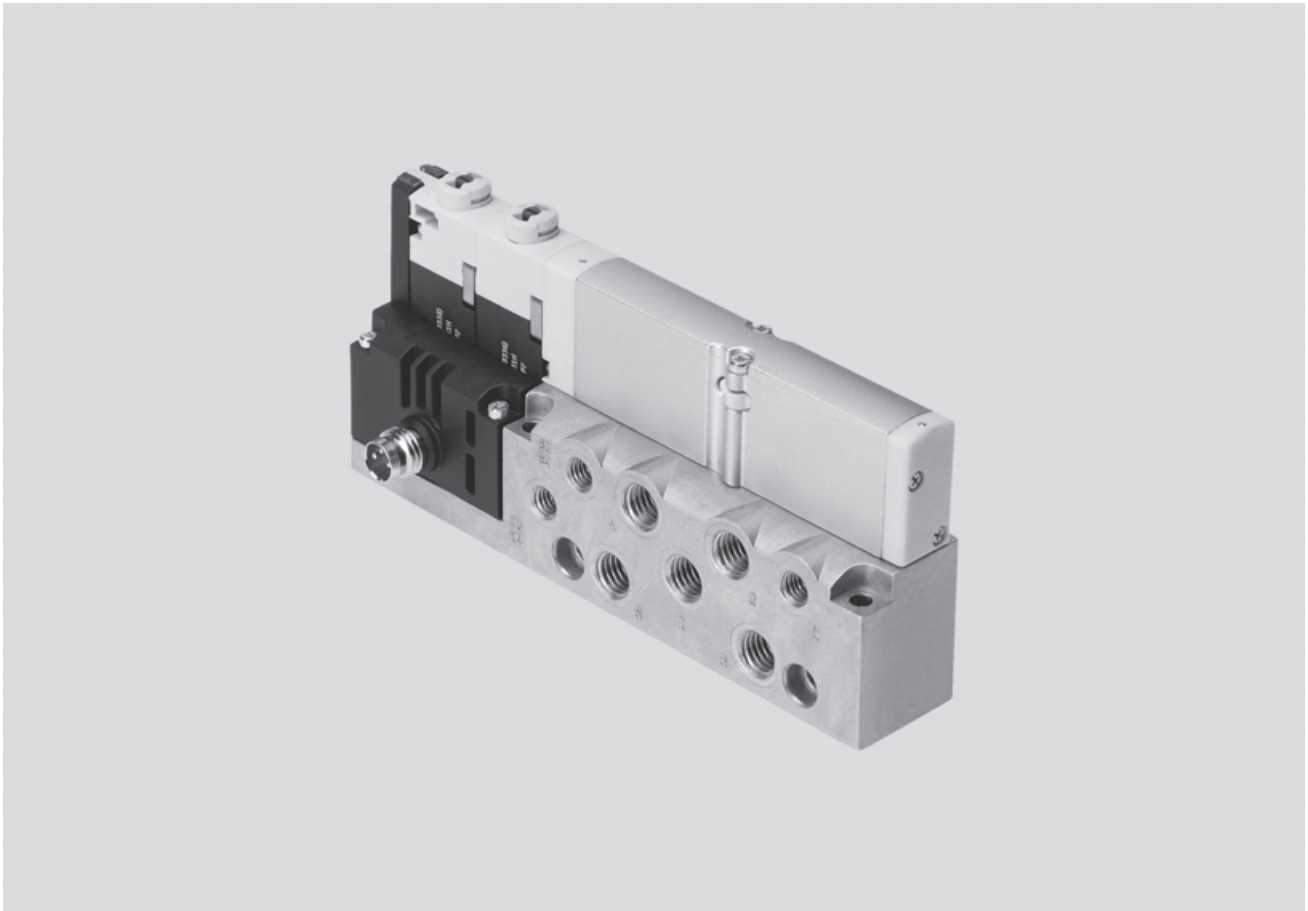
Solenoid valves VMPA



Solenoid valves VMPA

Key features

FESTO



Innovative

- Slim high-performance valves in a sturdy metal housing
- MPA1 (width 10 mm):
flow rate up to 360 l/min
- MPA14 (width 14 mm):
flow rate up to 670 l/min
- MPA2 (width 20 mm):
flow rate up to 870 l/min

The valves are identical with the valves from the valve terminals MPA-S and MPA-L.

This simplifies planning, ordering and warehousing.

Versatile

- High pressure range
–0.9 ... 10 bar
- Wide range of valve functions

Reliable

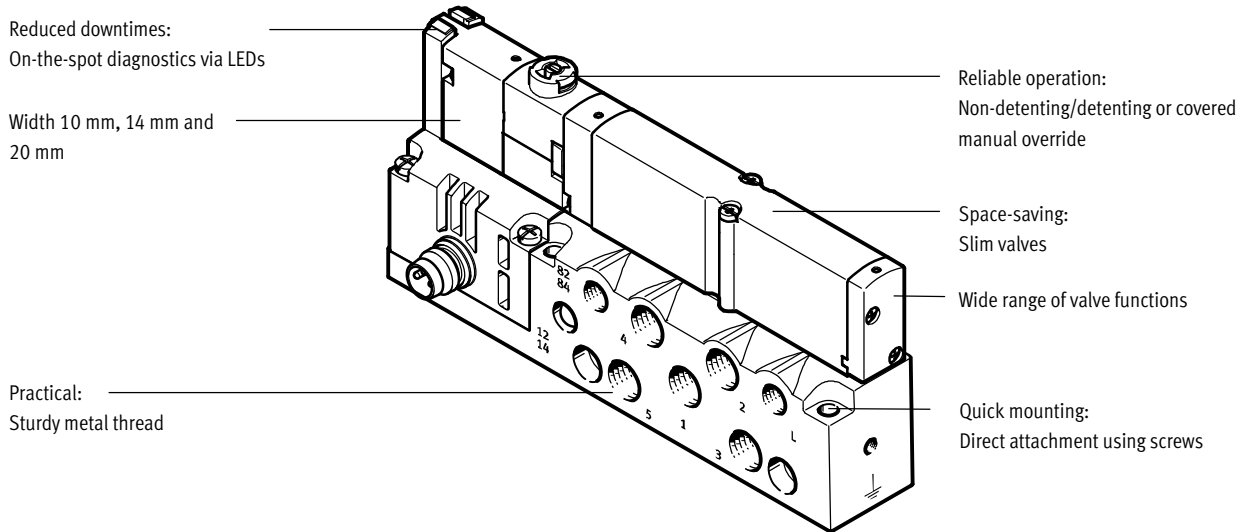
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Extensive operating voltage range $\pm 25\%$
- Easy to service thanks to replaceable valves and electronic modules
- Manual override either non-detenting, detenting or secured against unauthorised activation (covered)

Easy to mount

- Secure wall mounting

Solenoid valves VMPA

Key features



Equipment options

Valve functions

- 5/2-way valve, single solenoid
- 5/2-way valve, double solenoid
- 2x 3/2-way valve, normally open
- 2x 3/2-way valve, normally closed
- 2x 3/2-way valve, 1x normally open, 1x normally closed
- 5/3-way valve, mid-position pressurised
- 5/3-way valve, mid-position closed
- 5/3-way valve, mid-position exhausted
- 2x 2/2-way valve, normally closed

Special features

- Electrical M8 connection, 4-pin with screw connection
- Detachable electronics module with integrated holding current reduction

Solenoid valves VMPA

Peripherals overview

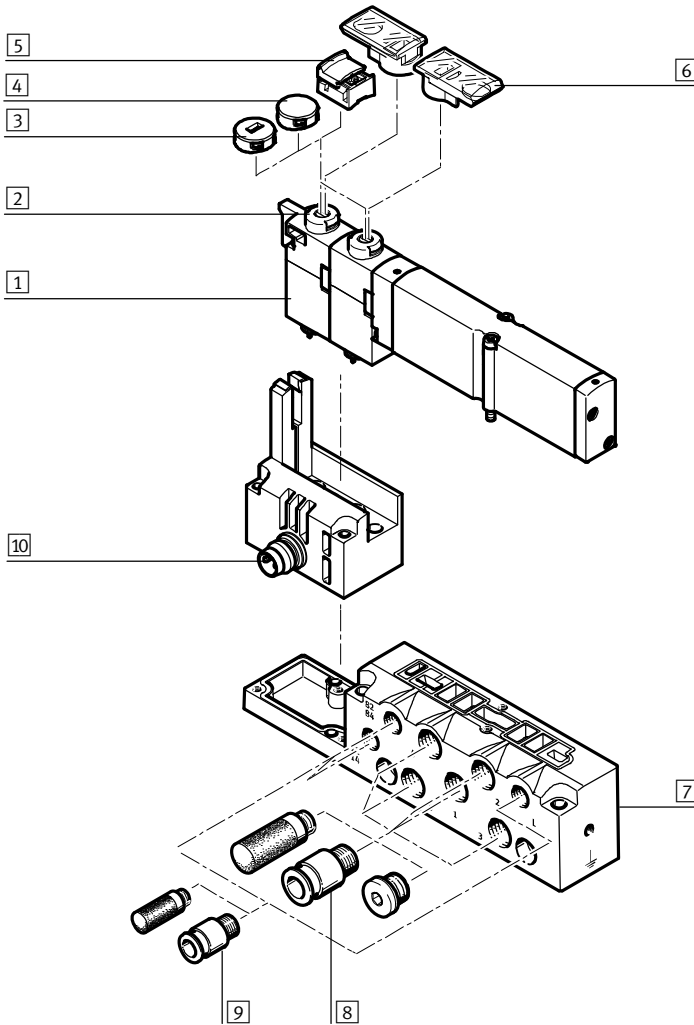
Individual sub-base for solenoid valve width 10 mm

Ordering:

- Using individual part numbers

Individual sub-bases of the type VMPA1-IC-... can be equipped with any 10 mm solenoid valve VMPA1.

The electrical connection is established using a standardised 4-pin M8 plug (EN 60947-5-2).



| Description | Brief description | → Page/Internet |
|---|---|-----------------|
| 1 Solenoid valve | VMPA1... | 24 |
| 2 Manual override (MO) | Non-detenting/turning with detent, per solenoid coil | - |
| 3 Cover cap, coded | After fitting the cover cap, manual override operation is non-detenting only | 26 |
| 4 Cover cap, covered | After fitting the cover cap, manual override is blocked | 26 |
| 5 Cover cap, manual override detenting | After fitting the cover cap, manual override is detenting and can be operated without tools | 26 |
| 6 Inscription label holder | Can be pushed onto manual override | 26 |
| 7 Sub-base | For solenoid valve VMPA1... | 26 |
| 8 Fittings, silencers or blanking plugs | M7 for working ports (2, 4) and air/exhaust ports (1, 3, 5) | 26 |
| 9 Fittings and/or silencers | M5 for pilot air supply/pilot exhaust air (12/14, 82/84) and pressure compensation | 26 |
| 10 Electrical port M8 | 4-pin | - |

Solenoid valves VMPA

Peripherals overview

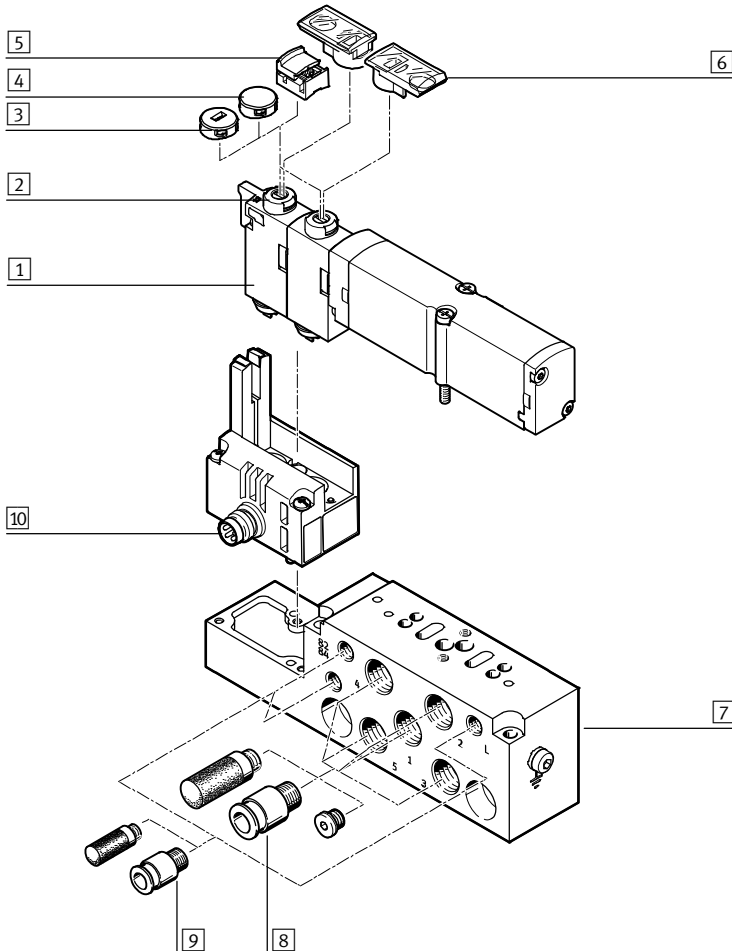
Individual sub-base for solenoid valve width 14 mm

Ordering:

- Using individual part numbers

Individual sub-bases of the type VMPA14-IC-... can be equipped with any 14 mm solenoid valve VMPA14.

The electrical connection is established using a standardised 4-pin M8 plug (EN 60947-5-2).



| Designation | Brief description | → Page/Internet |
|---|---|-----------------|
| 1 Solenoid valve | VMPA14... | 24 |
| 2 Manual override (MO) | Non-detenting/turning with detent, per solenoid coil | – |
| 3 Cover cap, coded | After fitting the cover cap, manual override operation is non-detenting only | 26 |
| 4 Cover cap, covered | After fitting the cover cap, manual override is blocked | 26 |
| 5 Cover cap, manual override detenting | After fitting the cover cap, manual override is detenting and can be operated without tools | 26 |
| 6 Inscription label holder | Can be pushed onto manual override | 26 |
| 7 Sub-base | For solenoid valve VMPA14... | 26 |
| 8 Fittings, silencers or blanking plugs | G1/8 for working ports (2, 4) and air/exhaust ports (1, 3, 5) | 26 |
| 9 Fittings and/or silencers | M5 for pilot air supply/pilot exhaust air (12/14, 82/84) and pressure compensation | 26 |
| 10 Electrical port M8 | 4-pin | – |

Solenoid valves VMPA

Peripherals overview

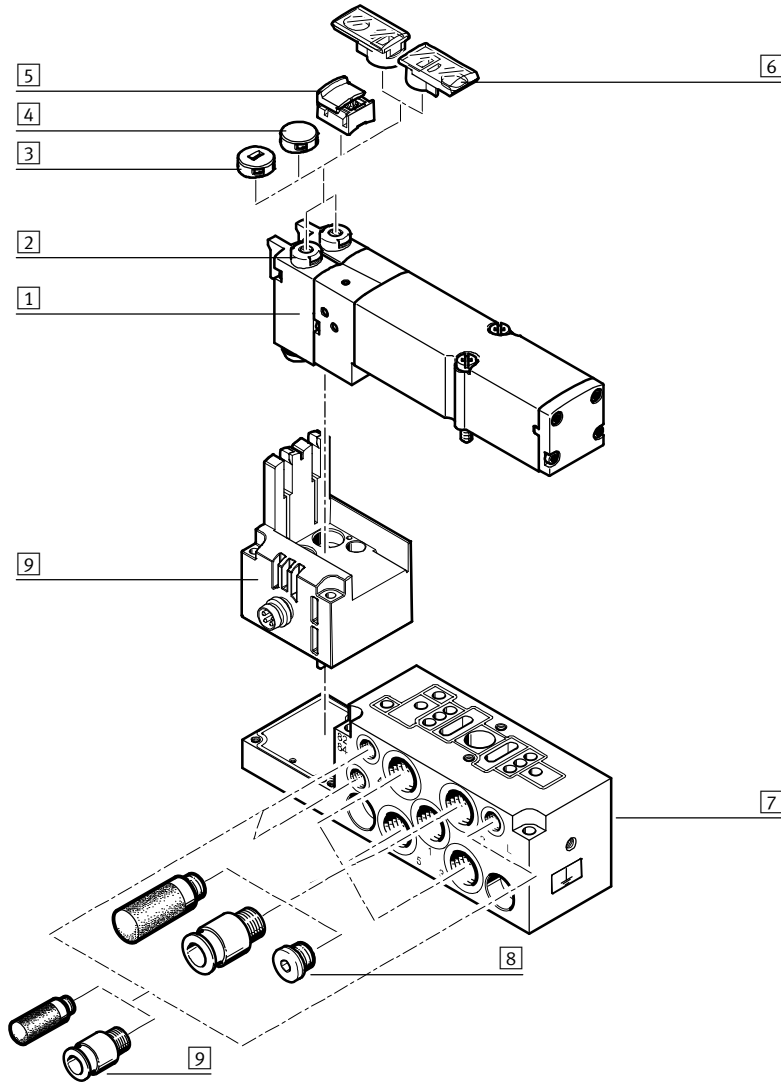
Individual sub-base for solenoid valve width 20 mm

Ordering:

- Using individual part numbers

Individual sub-bases of the type VMPA2-IC... can be equipped with any 20 mm solenoid valve VMPA2.

The electrical connection is established using a standardised 4-pin M8 plug (EN 60947-5-2).

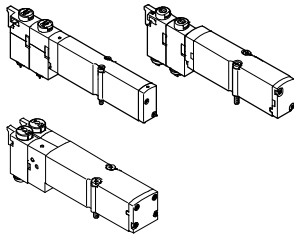


| Designation | Brief description | → Page/Internet |
|---|---|-----------------|
| 1 Solenoid valve | VMPA2... | 24 |
| 2 Manual override (MO) | Non-detenting/turning with detent, per solenoid coil | - |
| 3 Cover cap, coded | After fitting the cover cap, manual override operation is non-detenting only | 26 |
| 4 Cover cap, covered | After fitting the cover cap, manual override is blocked | 26 |
| 5 Cover cap, manual override detenting | After fitting the cover cap, manual override is detenting and can be operated without tools | 26 |
| 6 Inscription label holder | Can be pushed onto manual override | 26 |
| 7 Sub-base | For solenoid valve VMPA2... | 26 |
| 8 Fittings, silencers or blanking plugs | G1/8 for working ports (2, 4) and air/exhaust ports (1, 3, 5) | 26 |
| 9 Fittings and/or silencers | M5 for pilot air supply/pilot exhaust air (12/14, 82/84) and pressure compensation | 26 |
| 10 Electrical port M8 | 4-pin | - |

Solenoid valves VMPA

Key features – Pneumatic components

Sub-base valve



The VMPA offers a comprehensive range of valve functions. All valves are equipped with a patented sealing system that facilitates efficient sealing, a broad pressure range and long service life. They have a pneumatic pilot control for optimising performance. Air is supplied by means of pilot air supply.

Solenoid valves can be quickly replaced since the tubing connectors remain on the sub-base. This design is also particularly slim.

Irrespective of the valve function there are solenoid valves with one solenoid coil (single solenoid) or with two solenoid coils (double solenoid or two single solenoid valves in one housing).

Design

Valve replacement

The valves are attached to the metal manifold block using two screws, which means that they can be easily

replaced. The mechanical sturdiness of the sub-base guarantees good long-term sealing.

Valve code

The valve code (M, MS, MU, J, N, NS, NU, K, KS, KU, H, HS, HU, B, G, E, X, W,

D, DS, I) is located on the front of the valve beneath the manual override.

| 5/2-way valve | | | |
|---------------|----------------|------------------|---|
| Type | Circuit symbol | Width [mm] | Description |
| M | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Pneumatic spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |
| MS | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +8 bar |
| MU | | 10 | <ul style="list-style-type: none"> • Single solenoid • Polymer poppet valve • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |
| J | | 10, 14, 20 | <ul style="list-style-type: none"> • Double solenoid • Reverse operation • Operating pressure -0.9 ... +10 bar |

Solenoid valves VMPA

Key features – Pneumatic components

| 2x 3/2-way valve | | | |
|------------------|----------------|------------------|--|
| Type | Circuit symbol | Width [mm] | Description |
| N | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally open • Pneumatic spring return • Operating pressure 3 ... 10 bar |
| NS | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally open • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +8 bar |
| NU | | 10 | <ul style="list-style-type: none"> • Single solenoid • Polymer poppet valve • Normally open • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |
| K | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally closed • Pneumatic spring return • Operating pressure 3 ... 10 bar |
| KS | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally closed • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +8 bar |
| KU | | 10 | <ul style="list-style-type: none"> • Single solenoid • Polymer poppet valve • Normally closed • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |
| H | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normal position <ul style="list-style-type: none"> - 1x closed - 1x open • Pneumatic spring return • Operating pressure 3 ... 10 bar |
| HS | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normal position <ul style="list-style-type: none"> - 1x closed - 1x open • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +8 bar |
| HU | | 10 | <ul style="list-style-type: none"> • Single solenoid • Polymer poppet valve • Normal position <ul style="list-style-type: none"> - 1x closed - 1x open • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |

Solenoid valves VMPA

Key features – Pneumatic components

| 5/3-way valve | | | |
|---------------|----------------|------------------|---|
| Type | Circuit symbol | Width [mm] | Description |
| B | | 10, 14, 20 | <ul style="list-style-type: none"> • Mid-position pressurised¹⁾ • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |
| G | | 10, 14, 20 | <ul style="list-style-type: none"> • Mid-position closed¹⁾ • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |
| E | | 10, 14, 20 | <ul style="list-style-type: none"> • Mid-position exhausted¹⁾ • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +10 bar |

1) If neither solenoid coil is energised, the valve moves to its mid-position by means of spring force.
If both coils are energised at the same time, the valve remains in the previously assumed switching position.

| 3/2-way valve | | | |
|---------------|----------------|------------------|---|
| Type | Circuit symbol | Width [mm] | Description |
| W | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally open • External compressed air supply • Pneumatic spring return • Reverse operation • Operating pressure -0.9 ... +10 bar <p>Compressed air (-0.9 ... +10 bar) supplied at working port 2 can be switched with both internal and external pilot air supply.</p> |
| X | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally closed • External compressed air supply • Pneumatic spring return • Reverse operation • Operating pressure -0.9 ... +10 bar <p>Compressed air (-0.9 ... +10 bar) supplied at working port 4 can be switched with both internal and external pilot air supply.</p> |

Solenoid valves VMPA

Key features – Pneumatic components

| 2x 2/2-way valve | | | |
|------------------|----------------|------------------|--|
| Type | Circuit symbol | Width [mm] | Description |
| D | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally closed • Pneumatic spring return • Operating pressure 3 ... 10 bar |
| DS | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • Normally closed • Mechanical spring return • Reverse operation • Operating pressure -0.9 ... +8 bar |
| I | | 10, 14, 20 | <ul style="list-style-type: none"> • Single solenoid • 1x normally closed • 1x normally closed, reverse operation only • Pneumatic spring return • Operating pressure 3 ... 10 bar • Vacuum at port 3/5 only |

- 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).

Pilot air supply

The pneumatic connection is located on the individual sub-base.

The ports differ for the following types of pilot air supply:

- internal pilot air and
- external pilot air.

Internal pilot air supply

Internal pilot air supply can be selected if the required working pressure is between 3 and 8 bar. The pilot air in the sub-base is branched from the compressed air supply 1 using an internal connection. Port 12/14 is sealed with a blanking plug at the factory.

External pilot air supply

If the supply pressure is less than 3 bar or greater than 8 bar, you must operate your valve VMPA using external pilot air.

The pilot air is supplied via port 12/14 of the sub-base in this case.

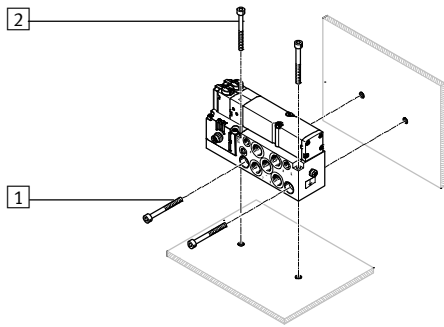
- Note

If a slow pressure rise by means of a soft-start valve is required in the system, external pilot air should be selected whereby the pilot pressure applied during switch-on is already very high.

Solenoid valves VMPA

Key features – Assembly and operation

Assembling the solenoid valve on an individual sub-base



- 1 Horizontal mounting holes
- 2 Vertical mounting holes

The individual sub-base for wall mounting is designed for integration into a system or machine. It can be mounted horizontally or vertically.

Display and operation

Each valve solenoid coil is allocated an LED which indicates its operating status.

- Indicator 12 shows the switching status of the coil for output 2
- Indicator 14 shows the switching status of the coil for output 4

Manual override

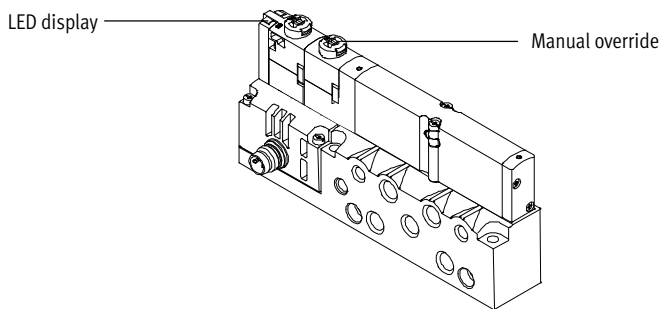
The manual override (MO) enables the valve to be actuated when not electrically activated or energised. The pilot valve is switched by pushing the manual override. The set switching status can also be locked by turning

the manual override.

Alternatives:

- A cover (VMPA-HBT-B) can be fitted over the manual override to prevent it from being locked. The manual override can then only be activated by pushing it.

- A cover (VMPA-HBV-B) can be fitted over the manual override to prevent it from being accidentally actuated.
- The cover cap (VAMC-L1-CD) can be used to operate the manual override in detenting mode without additional tools.



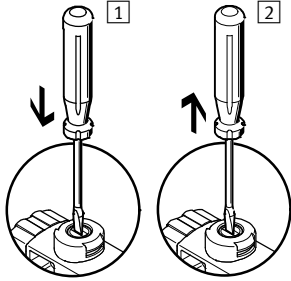
Note
A manually actuated valve (manual override) cannot be reset electrically. Conversely, an electrically actuated valve cannot be reset using the mechanical manual override.

Solenoid valves VMPA

Key features – Assembly and operation

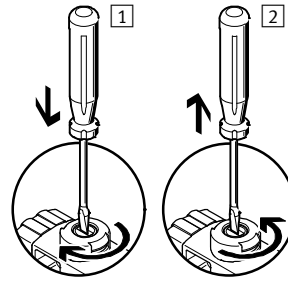
Manual override (MO)

MO with automatic return (non-detenting)



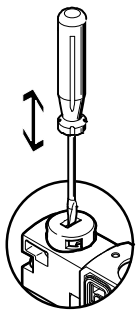
- 1 Press in the stem of the MO with a pin or screwdriver. Pilot valve switches and actuates the main valve.
- 2 Remove the pin or screwdriver. Spring force pushes the stem of the MO back. Pilot valve returns to its initial position and so too the single solenoid main valve (not with double solenoid valve code J).

MO with locking (detenting)



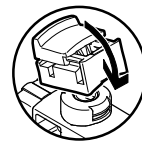
- 1 Press in the stem of the MO with a pin or screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached. Valve remains switched.
- 2 Turn the stem anti-clockwise by 90° until the stop is reached and then remove the pin or screwdriver. Spring force pushes the stem of the MO back. The valve returns to its initial position (not with double solenoid valve code J).

MO with automatic return (non-detenting)



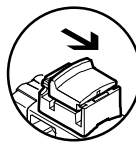
MO is operated by pressing it with a pointed object or screwdriver and reset by spring force (detenting position prevented due to coded cover cap).

MO with locking turning – assembly



Turn MO to clip it onto the pilot valve. The MO cap can then be operated (detenting) without tools.

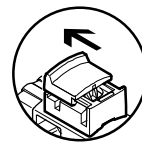
MO with locking turning – actuation



Sliding the cap for the MO in the direction of the arrow causes the following to happen:

- Cap locks into the stop position.
- Pilot valve switches and actuates the main valve.

MO with locking turning – actuation



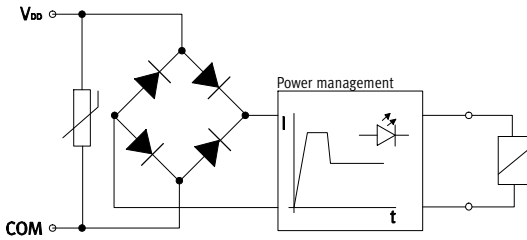
Sliding the cap for the MO in the direction of the arrow causes the following to happen:

- Cap locks into the stop position.
- Spring force pushes the stem of the MO back.
- Pilot valve returns to its initial position and so too the single solenoid main valve (not with double solenoid valve code J).

Solenoid valves VMPA

Key features – Electrical components

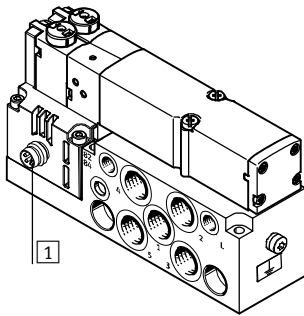
Electrical power as a result of current reduction



Each solenoid coil MPA is protected with a spark arresting protective circuit as well as against polarity reversal. All valve types are additionally equipped with integrated current reduction.

Valves MPA are supplied with operating voltage in the range 18 ... 30 V (24 V +/-25%). This high tolerance is made possible through integrated control electronics and offers additional security, e.g. if the operating voltage drops.

Electrical connection



1 Electrical connection, plug 4-pin, M8, to EN 60947-5-2

Tightening torque for M8 plug: 0.25 ... 0.5 Nm (manual torque)

Pin allocation to ISO 20401

| | Pin | With positive logic | With positive logic |
|--|-----|------------------------|--------------------------|
| | 1 | Unused | Unused |
| | 2 | U_B for coil 12 | 0 V for coil 12 |
| | 3 | 0 V for coil 12 and 14 | U_B for coil 12 and 14 |
| | 4 | U_B for coil 14 | 0 V for coil 14 |

Instructions for use

Equipment

Operate system equipment with unlubricated compressed air if possible. Festo valves and cylinders are designed so that, if used as designated, they will not require additional lubrication and will still achieve a long service life. The quality of compressed air downstream of the compressor must correspond to that of unlubricated compressed air. If possible, do not operate all of your system equipment with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator used.

Unsuitable additional oil and too high an oil content in the compressed air reduce the service life of the valve terminal. Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalogue (as specified in DIN 51524 HLP32; basic oil viscosity 32 CST at 40 °C).

Bio-oils


When using bio-oils (oils which are based on synthetic or native ester, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m³ must not be exceeded (see ISO 8573-1 Class 2).


Mineral oils


When using mineral oils (e.g. HLP oils to DIN 51524, parts 1 to 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m³ must not be exceeded (see ISO 8573-1 Class 4). A higher residual oil content irrespective of the compressor oil cannot be permitted, as the basic lubricant would be flushed out over time.

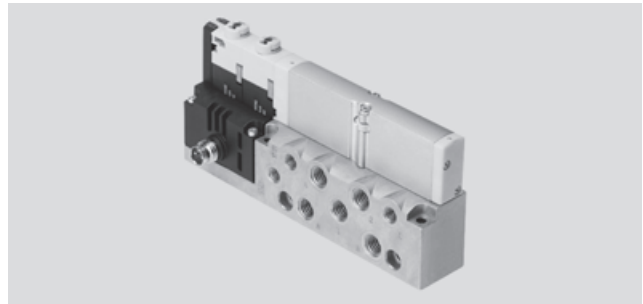
Solenoid valves VMPA

Technical data – solenoid valve mounting on sub-base

-  - Flow rate
 VMPA1: Up to 360 l/min
 VMPA14: Up to 670 l/min
 VMPA2: Up to 870 l/min

-  - Voltage
 24 V DC

-  - Valve width
 VMPA1: 10 mm
 VMPA14: 14 mm
 VMPA2: 20 mm



| General technical data | | | |
|------------------------|--|-------|-------|
| Width | 10 mm | 14 mm | 20 mm |
| Lubrication | Life-time lubrication, PWIS-free (free of paint-wetting impairment substances) | | |
| Type of mounting | Via through-hole | | |
| Mounting position | Any | | |
| Manual override | Non-detenting, detenting | | |
| Valve weight [g] | ➔ Page 15 | | |
| Sub-base weight [g] | 92 | 184 | 233 |
| Pneumatic connections | | | |
| Pneumatic connection | Via sub-base | | |

Solenoid valves VMPA

Technical data – solenoid valve

| Technical data – Valve width 10 mm | | | | | | | | | | | | | |
|--|------------|--------------------|-----|-----|----------|-----|-----|--------------|-----|-----|----------|-----|-----|
| Code | | M | J | N | K | H | B | G | E | X | W | D | I |
| Switching times | On | [ms] | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 8 |
| | Off | [ms] | 20 | – | 20 | 20 | 20 | 35 | 35 | 35 | 20 | 20 | 20 |
| | Changeover | [ms] | – | 15 | – | – | – | 15 | 15 | 15 | – | – | – |
| Operating pressure | [bar] | –0.9 ... +10 | | | 3 ... 10 | | | –0.9 ... +10 | | | 3 ... 10 | | |
| Pilot pressure | [bar] | 3 ... 8 | | | | | | | | | | | |
| Standard nominal flow rate | [l/min] | 360 | 360 | 300 | 230 | 300 | 300 | 320 | 240 | 255 | 255 | 230 | 260 |
| Design | | Piston spool valve | | | | | | | | | | | |
| Max. tightening torque of valve mounting | [Nm] | 0.25 | | | | | | | | | | | |
| Materials | | Die-cast aluminium | | | | | | | | | | | |
| Product weight | [g] | 49 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 49 | 49 | 56 | – |

| Technical data – Valve width 10 mm | | | | | | | | | | | |
|--|------------|--------------------|-----|-----|-----|-----|---------------------------------|-----|-----|-----|----|
| Code | | MS | NS | KS | HS | DS | MU | NU | KU | HU | |
| Switching times | On | [ms] | 10 | 14 | 14 | 14 | 14 | 10 | 8 | 8 | 8 |
| | Off | [ms] | 27 | 16 | 16 | 16 | 16 | 12 | 8 | 10 | 10 |
| | Changeover | [ms] | – | – | – | – | – | – | – | – | – |
| Operating pressure | [bar] | –0.9 ... +8 | | | | | –0.9 ... +10 | | | | |
| Pilot pressure | [bar] | 3 ... 8 | | | | | | | | | |
| Standard nominal flow rate | [l/min] | 360 | 300 | 230 | 300 | 230 | 190 | 190 | 160 | 190 | |
| Design | | Piston spool valve | | | | | Poppet valve with spring return | | | | |
| Max. tightening torque of valve mounting | [Nm] | 0.25 | | | | | | | | | |
| Materials | | Die-cast aluminium | | | | | PPA reinforced | | | | |
| Product weight | [g] | 56 | 56 | 56 | 56 | 56 | 35 | 42 | 42 | 42 | |

| Technical data – Valve width 14 mm | | | | | | | | | | | | | | | | | | |
|--|------------|--------------------|-----|-----|-----|-----|-----|-----|-----|-----|-----|-------------|-----|-----|-----|-----|-----|-----|
| Code | | M | J | N | K | H | B | G | E | X | W | D | I | MS | NS | KS | HS | DS |
| Switching times | On | [ms] | 13 | 9 | 12 | 12 | 12 | 16 | 13 | 13 | 12 | 12 | 9 | 13 | 12 | 12 | 12 | 10 |
| | Off | [ms] | 30 | – | 38 | 38 | 38 | 50 | 52 | 50 | 20 | 20 | 30 | 25 | 30 | 23 | 23 | 23 |
| | Changeover | [ms] | – | 24 | – | – | – | 26 | 26 | 26 | – | – | – | – | – | – | – | – |
| Operating pressure | [bar] | –0.9 ... +10 | | | | | | | | | | –0.9 ... +8 | | | | | | |
| Pilot pressure | [bar] | 3 ... 8 | | | | | | | | | | | | | | | | |
| Standard nominal flow rate | [l/min] | 670 | 670 | 650 | 600 | 650 | 630 | 610 | 480 | 400 | 400 | 650 | 570 | 670 | 520 | 560 | 520 | 570 |
| Design | | Piston spool valve | | | | | | | | | | | | | | | | |
| Max. tightening torque of valve mounting | [Nm] | 0.65 | | | | | | | | | | | | | | | | |
| Materials | | Die-cast aluminium | | | | | | | | | | | | | | | | |
| Product weight | [g] | 77 | | | | | | | | | | | | | | | | |

| Technical data – Valve width 20 mm | | | | | | | | | | | | | | | | | | |
|--|------------|--------------------|-----|-----|----------|-----|-----|--------------|-----|-----|----------|-----|-----|-------------|-----|-----|-----|-----|
| Code | | M | J | N | K | H | B | G | E | X | W | D | I | MS | NS | KS | HS | DS |
| Switching times | On | [ms] | 15 | 9 | 8 | 8 | 8 | 11 | 10 | 11 | 13 | 13 | 7 | 7 | 8 | 12 | 12 | 12 |
| | Off | [ms] | 28 | – | 28 | 28 | 28 | 46 | 40 | 47 | 22 | 22 | 25 | 23 | 36 | 25 | 25 | 25 |
| | Changeover | [ms] | – | 22 | – | – | – | 23 | 21 | 23 | – | – | – | – | – | – | – | – |
| Operating pressure | [bar] | –0.9 ... +10 | | | 3 ... 10 | | | –0.9 ... +10 | | | 3 ... 10 | | | –0.9 ... +8 | | | | |
| Pilot pressure | [bar] | 3 ... 8 | | | | | | | | | | | | | | | | |
| Standard nominal flow rate | [l/min] | 700 | 700 | 560 | 500 | 560 | 520 | 630 | 610 | 590 | 500 | 680 | 680 | 700 | 560 | 500 | 560 | 680 |
| Design | | Piston spool valve | | | | | | | | | | | | | | | | |
| Max. tightening torque of valve mounting | [Nm] | 0.65 | | | | | | | | | | | | | | | | |
| Materials | | Die-cast aluminium | | | | | | | | | | | | | | | | |
| Product weight | [g] | 100 | | | | | | | | | | | – | | | | | 100 |

Solenoid valves VMPA

Technical data – solenoid valve

FESTO

| Current consumption per solenoid coil at nominal voltage | | | | |
|--|------|-------|-------|-------|
| Width | | 10 mm | 14 mm | 20 mm |
| Nominal pick-up current | [mA] | 50 | 50 | 110 |
| Nominal current with current reduction | [mA] | 10 | 10 | 23 |
| Time until current reduction | [ms] | 20 | 20 | 20 |

| Electrical data | |
|------------------------------|--|
| Nominal voltage | [V DC] 24 |
| Operating voltage range | [V DC] 18 ... 30 |
| Residual ripple | [Vss] 4 |
| Protection class to EN 60529 | IP65 (for all types of signal transmission in assembled state) |

| Operating and environmental conditions | |
|---|--|
| Operating medium | Compressed air to ISO 8573-1:2010 [7:4:4] |
| Note on operating/pilot medium | Lubricated operation possible (required during subsequent operation) |
| Ambient temperature | [°C] -5 ... +50 |
| Temperature of medium | [°C] -5 ... +50 |
| Storage temperature | [°C] -20 ... +40 |
| Relative air humidity | Max. 90% at 40 °C |
| Corrosion resistance class CRC ¹⁾ | 1 |
| CE marking (see declaration of conformity) | To EU EMC Directive ²⁾ |
| Certification | cULus recognized (OL) |

- 1) Corrosion resistance class 1 according to Festo standard 940 070
Components subject to low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.
- 2) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

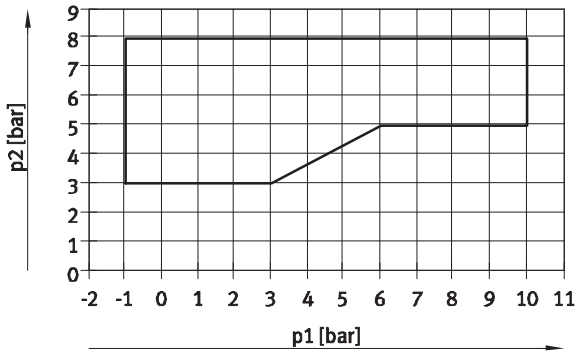
| Materials | |
|-------------------|--------------------|
| Sub-base | Die-cast aluminium |
| Seals | Nitrile rubber |
| Note on materials | RoHS-compliant |

Solenoid valves VMPA

Technical data – solenoid valve

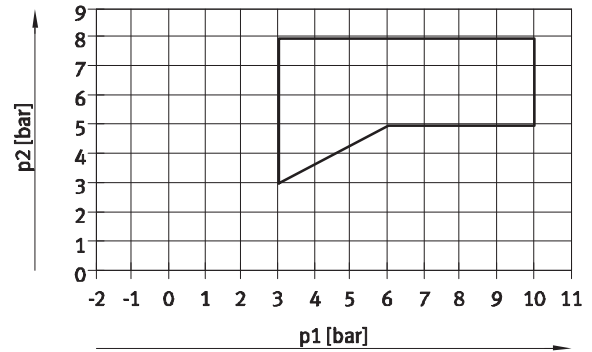
Pilot pressure p_2 as a function of working pressure p_1 with external pilot air supply

For valves with code: M, J, B, G, E, W, X



1 Operating range for valves with external pilot air supply

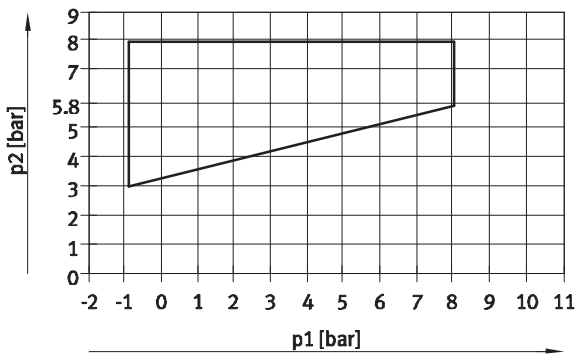
For valves with code: N, K, H, D, I



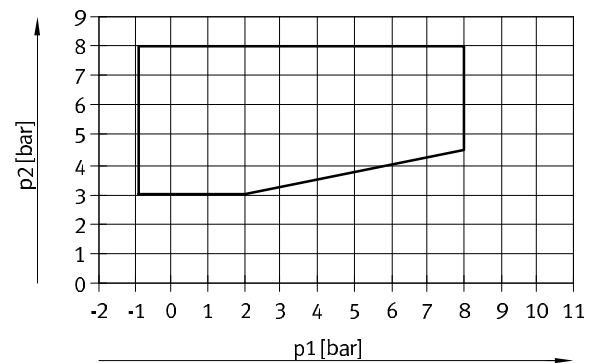
1 Operating range for valves with external pilot air supply

Pilot pressure p_2 as a function of working pressure p_1 for valves with mechanical spring return

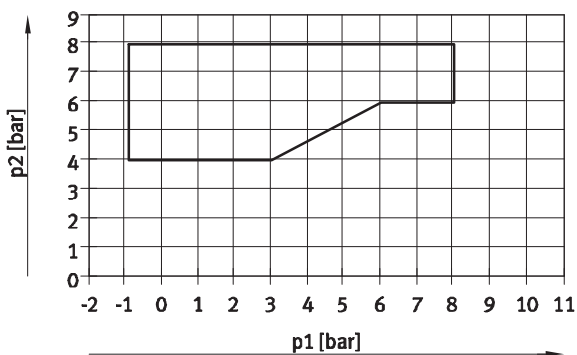
For valves in width 10 mm with code: MS, NS, KS, HS, DS



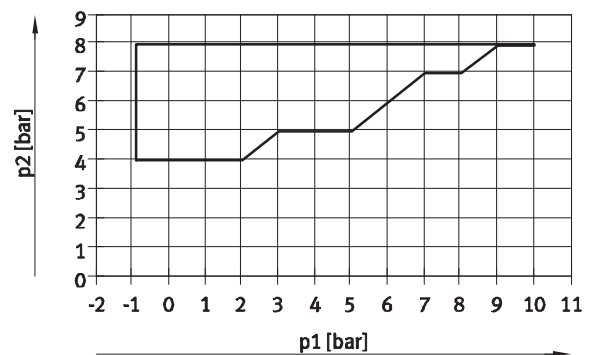
For valves in width 20 mm with code: MS, NS, KS, HS, DS



For valves in width 14 mm with code: NS, KS, HS, DS




For polymer poppet valve in width 10 mm with code: MU, NU, KU, HU




Solenoid valves VMPA

Technical data – sub-base

FESTO

-  - Flow rate
 VMPA1: Up to 360 l/min
 VMPA14: Up to 670 l/min
 VMPA2: Up to 870 l/min

-  - Voltage
 24 V DC

-  - Valve width
 VMPA1: 10 mm
 VMPA14: 14 mm
 VMPA2: 20 mm




| General technical data | | | | |
|------------------------|------------------------------------|-------|-------|------|
| Width | 10 mm | 14 mm | 20 mm | |
| Electrical connection | Plug, M8x1, 4-pin, to EN 60947-5-2 | | | |
| Type of mounting | Via through-hole | | | |
| Mounting position | Any | | | |
| Pneumatic connections | | | | |
| Supply port | 1 | M7 | G1/8 | G1/8 |
| Exhaust port | 3 | M7 | G1/8 | G1/8 |
| | 5 | M7 | G1/8 | G1/8 |
| Working ports | 2 | M7 | G1/8 | G1/8 |
| | 4 | M7 | G1/8 | G1/8 |
| Pilot air port | 12/14 | M5 | M5 | M5 |
| Pilot exhaust air port | 82/84 | M5 | M5 | M5 |

| Operating and environmental conditions | | | | |
|--|--|-------|--|--|
| Type | VMPA...-1 | | VMPA...-EX1E | |
| Operating medium | Compressed air to ISO 8573-1:2010 [7:4:4] | | | |
| Note on operating/pilot medium | Lubricated operation possible (in which case lubricated operation will always be required) | | | |
| Operating pressure | Internal pilot air supply | [bar] | 3 ... 8 | |
| | External pilot air supply | [bar] | -0.9 ... 10 | |
| Pilot pressure | | [bar] | 3 ... 8 | |
| Ambient temperature | | [°C] | -5 ... +50 | |
| CE marking (see declaration of conformity) | | | To EU EMC Directive ¹⁾ | |
| | | | To EU EMC Directive ¹⁾ To EU Explosion Protection Directive (ATEX) | |

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp → User documentation.
 If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

| ATEX ¹⁾ | | |
|--|---|---------------|
| Type | VMPA...-EX1E | |
| ATEX category gas | II 3G | |
| Explosion ignition protection type for gas | Ex nA IIC T4 X Gc | |
| Explosion-proof temperature | [°C] | -5 ≤ Ta ≤ +50 |
| CE marking (see declaration of conformity) | To EU Explosion Protection Directive (ATEX) | |

-  - Note
 Also applies to the sub-base for individual connection type VMPA...-EX1E with retrofitted valve (see declaration of conformity).

1) For special ATEX applications please speak to your technical consultant

| Materials | |
|-------------------|--------------------|
| Sub-base | Die-cast aluminium |
| Note on materials | RoHS-compliant |

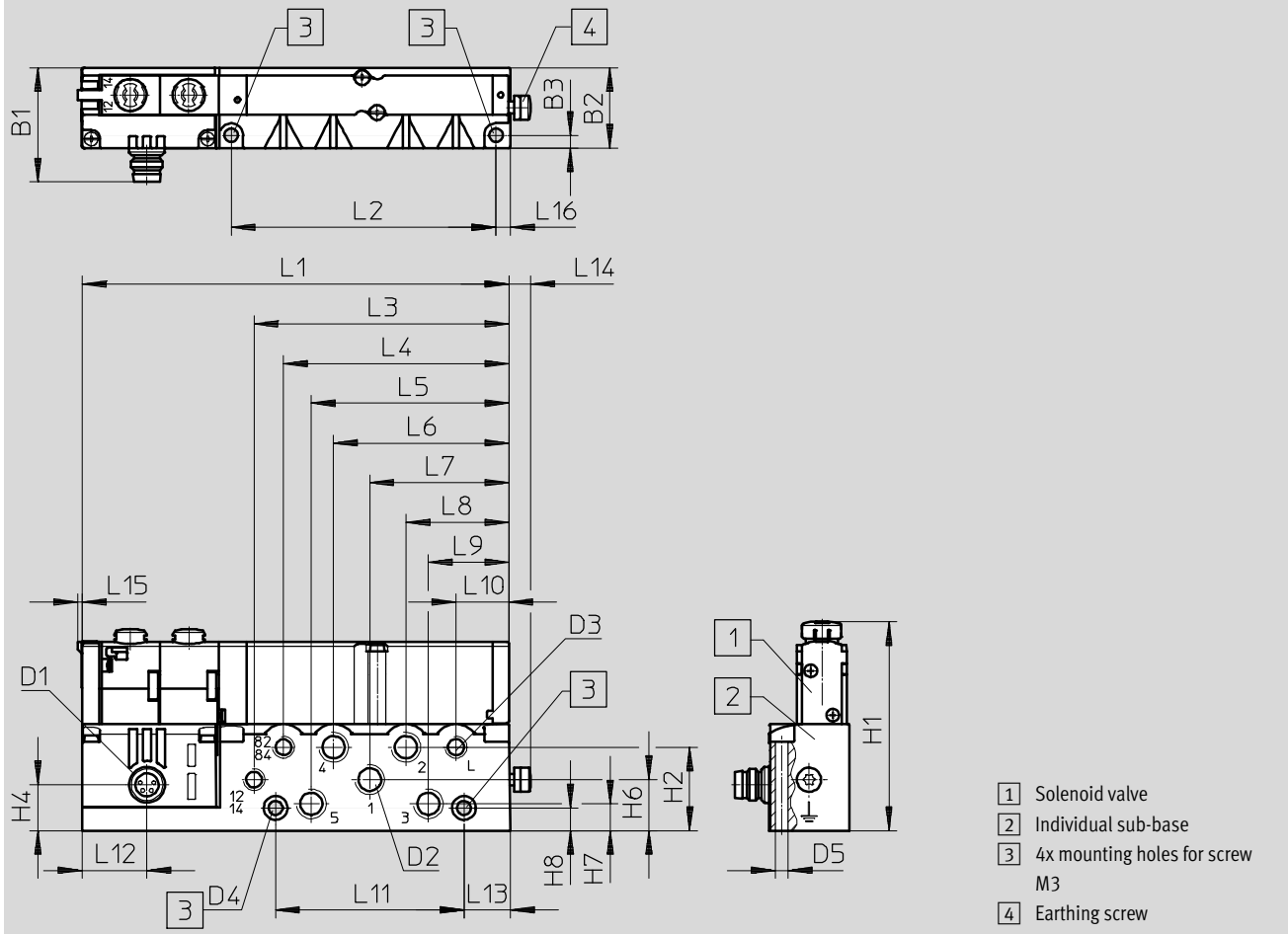
Solenoid valves VMPA

Technical data

Dimensions

Download CAD data → www.festo.com

Solenoid valve width 10 mm on individual sub-base



| Type | B1 | B2 | B3 | D1 | D2 | D3 | D4 Ø | D5 Ø | H1 | H2 | H3 | H6 | H7 | H8 |
|-----------|------|------|-----|------|----|----|------|------|------|----|------|------|-----|-----|
| VMPA1-... | 28.8 | 20.2 | 3.2 | M8x1 | M7 | M5 | 3.4 | 3.4 | 52.2 | 21 | 12.9 | 11.6 | 6.8 | 5.7 |

| Type | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 |
|-----------|-------|------|------|------|------|------|----|------|------|------|------|------|------|-----|-----|-----|
| VMPA1-... | 107.3 | 66.6 | 64.2 | 56.7 | 49.8 | 44.1 | 35 | 25.9 | 20.3 | 13.3 | 47.4 | 16.4 | 11.3 | 5.6 | 1.2 | 3.2 |

Solenoid valves VMPA

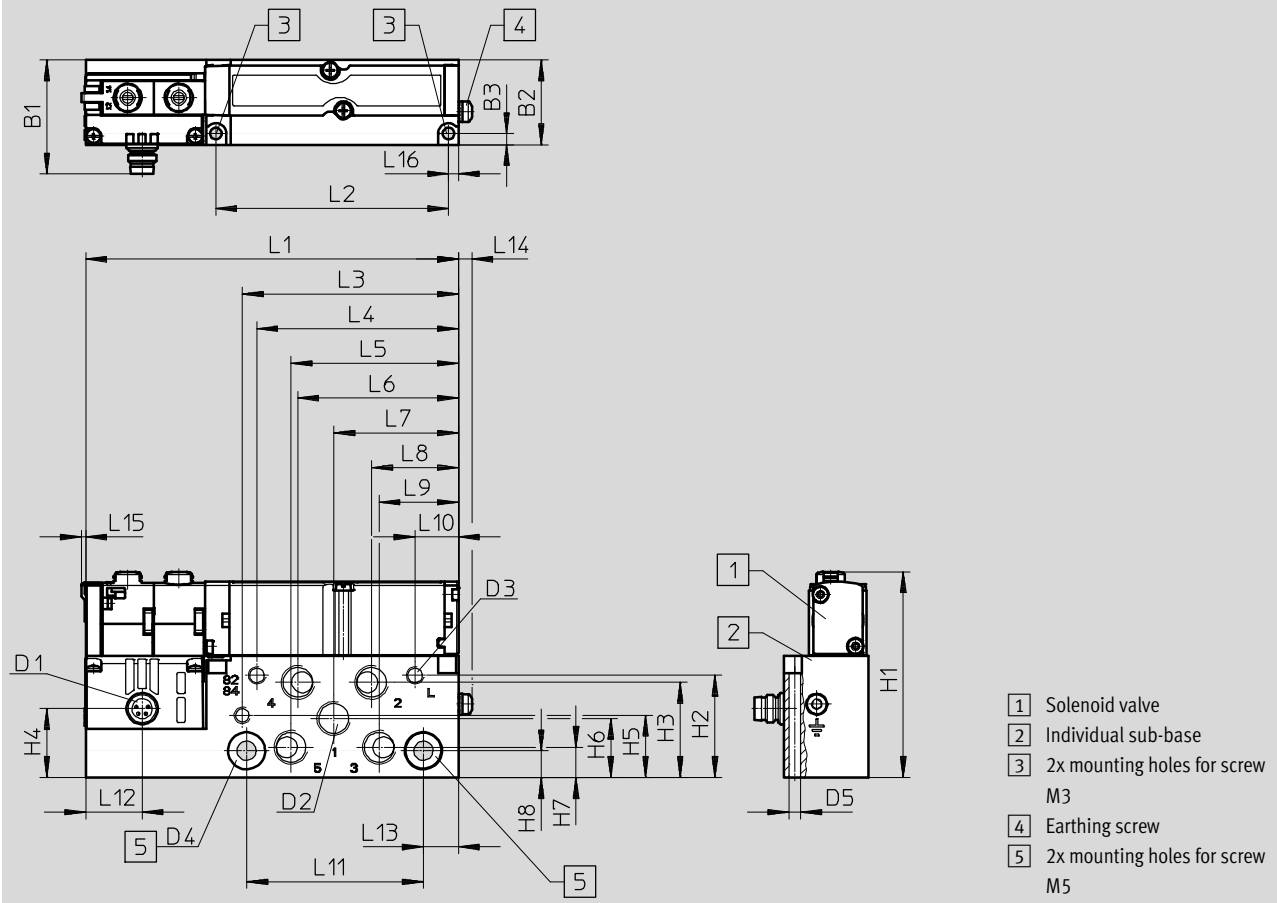
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

Solenoid valve width 14 mm on individual sub-base



| Type | B1 | B2 | B3 | D1 | D2 | D3 | D4 Ø | D5 Ø | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 |
|------------|------|------|-----|------|------|----|------|------|----|------|------|------|------|----|-----|-----|
| VMPA14-... | 35.1 | 24.4 | 3.2 | M8x1 | G1/8 | M5 | 5.5 | 3.4 | 59 | 29.4 | 27.4 | 19.8 | 17.9 | 17 | 8.7 | 7.7 |

| Type | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 |
|------------|-------|----|------|----|------|------|------|----|------|------|------|------|------|-----|-----|-----|
| VMPA14-... | 107.3 | 67 | 62.2 | 58 | 48.2 | 46.2 | 35.9 | 25 | 22.8 | 12.5 | 50.9 | 16.3 | 10.1 | 3.9 | 1.2 | 2.9 |

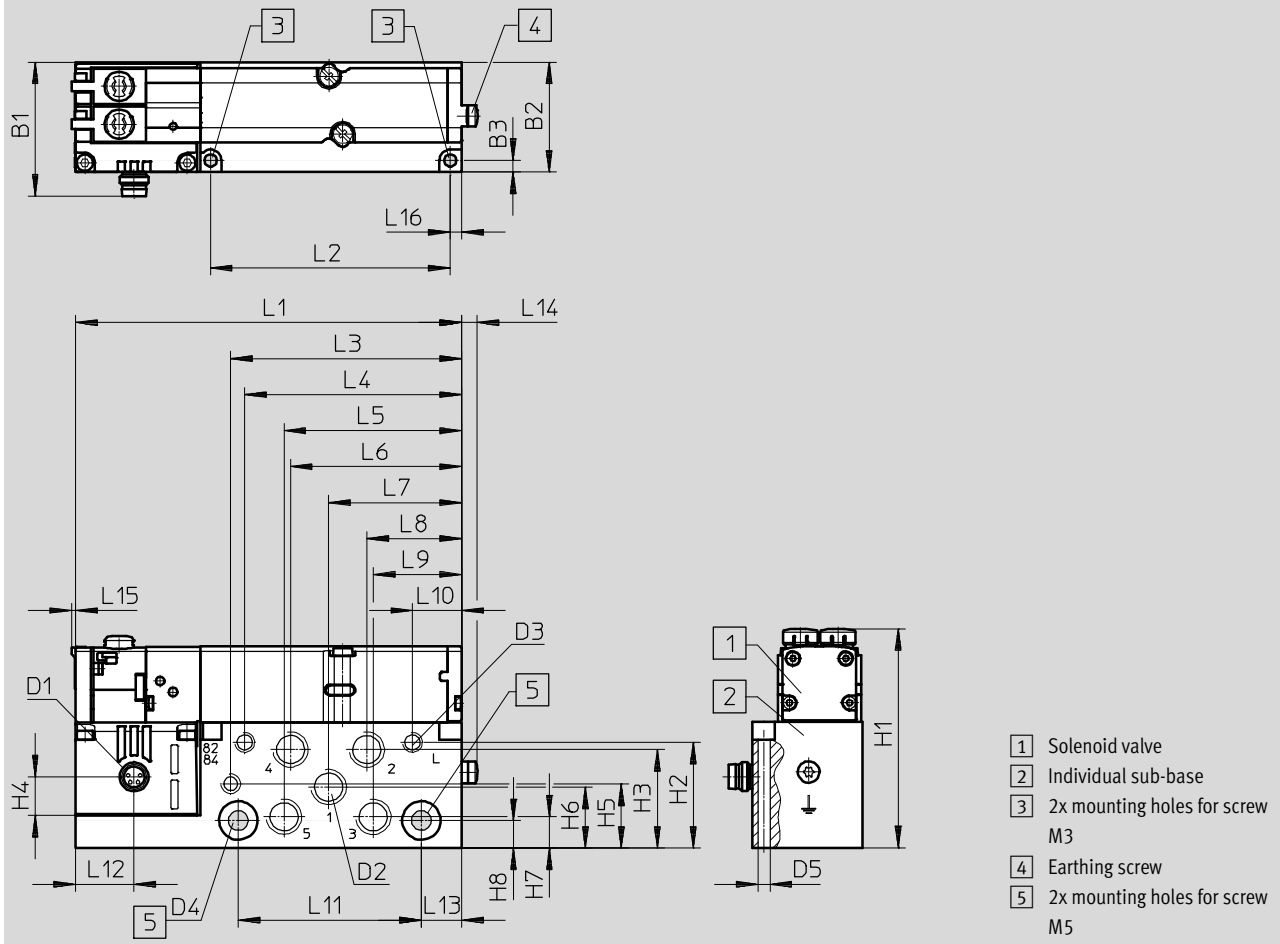
Solenoid valves VMPA

Technical data

Dimensions

Download CAD data → www.festo.com

Solenoid valve width 20 mm on individual sub-base

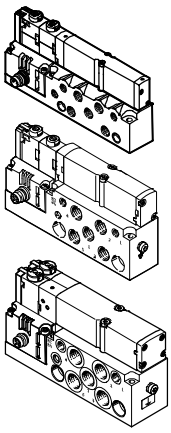


| Type | B1 | B2 | B3 | D1 | D2 | D3 | D4 Ø | D5 Ø | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 |
|-----------|------|------|-----|------|------|----|------|------|------|------|------|------|------|----|-----|-----|
| VMPA2-... | 37.2 | 30.5 | 3.2 | M8x1 | G1/8 | M5 | 5.5 | 3.4 | 60.5 | 29.4 | 27.4 | 10.7 | 17.9 | 17 | 8.7 | 7.7 |

| Type | L1 | L2 | L3 | L4 | L5 | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 |
|-----------|-------|------|------|------|------|------|----|------|------|------|------|------|------|-----|-----|-----|
| VMPA2-... | 107.3 | 66.6 | 64.2 | 60.3 | 49.4 | 47.6 | 37 | 26.4 | 24.6 | 13.7 | 50.9 | 16.3 | 11.2 | 4.4 | 1.2 | 3.2 |

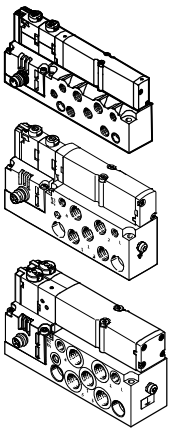
Solenoid valves VMPA

Ordering data

| Ordering data | | | | |
|---|--|------------|-----------------------|-----------------------|
| | Valve function | Width [mm] | Part No. | Type |
| Internal pilot air supply – Solenoid valve on individual sub-base | | | | |
|  | 5/2-way valve | | | |
| | Single solenoid | 10 | 533376 | VMPA1-M1H-M-M7-PI |
| | | 14 | 8023543 | VMPA14-M1H-M-PI |
| | | 20 | 537963 | VMPA2-M1H-M-G1/8-PI |
| | Single solenoid, mechanical spring return | 14 | 8023554 | VMPA14-M1H-MS-G1/8-PI |
| | Double solenoid | 10 | 533377 | VMPA1-M1H-J-M7-PI |
| | | 14 | 8023542 | VMPA14-M1H-J-G1/8-PI |
| | | 20 | 537964 | VMPA2-M1H-J-G1/8-PI |
| | 2x 3/2-way valve | | | |
| | Normally open | 10 | 533382 | VMPA1-M1H-N-M7-PI |
| | | 14 | 8023550 | VMPA14-M1H-N-G1/8-PI |
| | | 20 | 537969 | VMPA2-M1H-N-G1/8-PI |
| | Normally open, mechanical spring return | 14 | 8023556 | VMPA14-M1H-NS-G1/8-PI |
| | Normally closed | 10 | 533381 | VMPA1-M1H-K-M7-PI |
| | | 14 | 8023549 | VMPA14-M1H-K-G1/8-PI |
| | | 20 | 537968 | VMPA2-M1H-K-G1/8-PI |
| | Normally closed, mechanical spring return | 14 | 8023555 | VMPA14-M1H-KS-G1/8-PI |
| | 1x normally open, 1x normally closed | 10 | 533383 | VMPA1-M1H-H-M7-PI |
| | | 14 | 8023551 | VMPA14-M1H-H-G1/8-PI |
| | | 20 | 537970 | VMPA2-M1H-H-G1/8-PI |
| | 1x normally open, 1x normally closed, mechanical spring return | 14 | 8023558 | VMPA14-M1H-HS-G1/8-PI |
| | 5/3-way valve | | | |
| | Mid-position pressurised | 10 | 533378 | VMPA1-M1H-B-M7-PI |
| | | 14 | 8023544 | VMPA14-M1H-B-G1/8-PI |
| | 20 | 537965 | VMPA2-M1H-B-G1/8-PI | |
| Mid-position closed | 10 | 533379 | VMPA1-M1H-G-M7-PI | |
| | 14 | 8023546 | VMPA14-M1H-G-G1/8-PI | |
| | 20 | 537966 | VMPA2-M1H-G-G1/8-PI | |
| Mid-position exhausted | 10 | 533380 | VMPA1-M1H-E-M7-PI | |
| | 14 | 8023545 | VMPA14-M1H-E-G1/8-PI | |
| | 20 | 537967 | VMPA2-M1H-E-G1/8-PI | |
| 2x 2/2-way valve | | | | |
| Normally closed | 10 | 533384 | VMPA1-M1H-D-M7-PI | |
| | 14 | 8023552 | VMPA14-M1H-D-G1/8-PI | |
| | 20 | 537971 | VMPA2-M1H-D-G1/8-PI | |
| Normally closed, mechanical spring return | 14 | 8023557 | VMPA14-M1H-DS-G1/8-PI | |
| 1x normally closed | 10 | 545230 | VMPA1-M1H-I-M7-PI | |
| 1x normally closed, reverse operation | 14 | 8023553 | VMPA14-M1H-I-G1/8-PI | |
| | 20 | 545232 | VMPA2-M1H-I-G1/8-PI | |

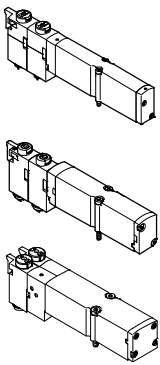
Solenoid valves VMPA

Ordering data

| Ordering data | | | | |
|---|--|------------|-------------------------|-------------------------|
| | Valve function | Width [mm] | Part No. | Type |
| External pilot air supply – Solenoid valve on individual sub-base | | | | |
|  | 5/2-way valve | | | |
| | Single solenoid | 10 | 533385 | VMPA1-M1H-M-S-M7-PI |
| | | 14 | 8023560 | VMPA14-M1H-M-S-G1/8-PI |
| | | 20 | 537972 | VMPA2-M1H-M-S-G1/8-PI |
| | Single solenoid, mechanical spring return | 14 | 8023571 | VMPA14-M1H-MS-S-G1/8-PI |
| | Double solenoid | 10 | 533386 | VMPA1-M1H-J-S-M7-PI |
| | | 14 | 8023559 | VMPA14-M1H-J-S-G1/8-PI |
| | | 20 | 537973 | VMPA2-M1H-J-S-G1/8-PI |
| | 2x 3/2-way valve | | | |
| | Normally open | 10 | 533391 | VMPA1-M1H-N-S-M7-PI |
| | | 14 | 8023567 | VMPA14-M1H-N-S-G1/8-PI |
| | | 20 | 537978 | VMPA2-M1H-N-S-G1/8-PI |
| | Normally open, mechanical spring return | 14 | 8023573 | VMPA14-M1H-NS-S-G1/8-PI |
| | Normally closed | 10 | 533390 | VMPA1-M1H-K-S-M7-PI |
| | | 14 | 8023566 | VMPA14-M1H-K-S-G1/8-PI |
| | | 20 | 537977 | VMPA2-M1H-K-S-G1/8-PI |
| | Normally closed, mechanical spring return | 14 | 8023572 | VMPA14-M1H-KS-S-G1/8-PI |
| | 1x normally open, 1x normally closed | 10 | 533392 | VMPA1-M1H-H-S-M7-PI |
| | | 14 | 8023568 | VMPA14-M1H-H-S-G1/8-PI |
| | | 20 | 537979 | VMPA2-M1H-H-S-G1/8-PI |
| | 1x normally open, 1x normally closed, mechanical spring return | 14 | 8023575 | VMPA14-M1H-HS-S-G1/8-PI |
| | 5/3-way valve | | | |
| | Mid-position pressurised | 10 | 533387 | VMPA1-M1H-B-S-M7-PI |
| | | 14 | 8023561 | VMPA14-M1H-B-S-G1/8-PI |
| | | 20 | 537974 | VMPA2-M1H-B-S-G1/8-PI |
| | Mid-position closed | 10 | 533388 | VMPA1-M1H-G-S-M7-PI |
| | | 14 | 8023563 | VMPA14-M1H-G-S-G1/8-PI |
| | | 20 | 537975 | VMPA2-M1H-G-S-G1/8-PI |
| Mid-position exhausted | 10 | 533389 | VMPA1-M1H-E-S-M7-PI | |
| | 14 | 8023562 | VMPA14-M1H-E-S-G1/8-PI | |
| | 20 | 537976 | VMPA2-M1H-E-S-G1/8-PI | |
| 2x 2/2-way valve | | | | |
| Normally closed | 10 | 533393 | VMPA1-M1H-D-S-M7-PI | |
| | 14 | 8023569 | VMPA14-M1H-D-S-G1/8-PI | |
| | 20 | 537980 | VMPA2-M1H-D-S-G1/8-PI | |
| Normally closed, mechanical spring return | 14 | 8023574 | VMPA14-M1H-DS-S-G1/8-PI | |
| 1x normally closed | 10 | 545231 | VMPA1-M1H-I-S-M7-PI | |
| 1x normally closed, reverse operation | 14 | 8023570 | VMPA14-M1H-I-S-G1/8-PI | |
| | 20 | 545233 | VMPA2-M1H-I-S-G1/8-PI | |

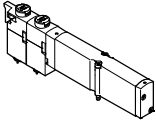
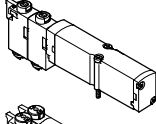
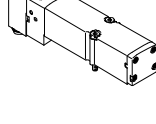
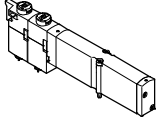
Solenoid valves VMPA

Ordering data

| Ordering data | | | | |
|---|---|------------|------------------|------------------|
| | Valve function | Width [mm] | Part No. | Type |
| Individual solenoid valve, piston spool valve | | | | |
|  | 5/2-way valve | | | |
| | Single solenoid | 10 | 533342 | VMPA1-M1H-M-PI |
| | | 14 | 573718 | VMPA14-M1H-M-PI |
| | | 20 | 537952 | VMPA2-M1H-M-PI |
| | Single solenoid, mechanical spring return | 10 | 571334 | VMPA1-M1H-MS-PI |
| | | 14 | 573974 | VMPA14-M1H-MS-PI |
| | | 20 | 571333 | VMPA2-M1H-MS-PI |
| | Double solenoid | 10 | 533343 | VMPA1-M1H-J-PI |
| | | 14 | 573717 | VMPA14-M1H-J-PI |
| | | 20 | 537953 | VMPA2-M1H-J-PI |
| | 2x 3/2-way valve | | | |
| | Normally open | 10 | 533348 | VMPA1-M1H-N-PI |
| | | 14 | 573725 | VMPA14-M1H-N-PI |
| | | 20 | 537958 | VMPA2-M1H-N-PI |
| | Normally open, mechanical spring return | 10 | 556839 | VMPA1-M1H-NS-PI |
| | | 14 | 575977 | VMPA14-M1H-NS-PI |
| | | 20 | 568655 | VMPA2-M1H-NS-PI |
| | Normally closed | 10 | 533347 | VMPA1-M1H-K-PI |
| | | 14 | 573724 | VMPA14-M1H-K-PI |
| | | 20 | 537957 | VMPA2-M1H-K-PI |
| | Normally closed, mechanical spring return | 10 | 556838 | VMPA1-M1H-KS-PI |
| 14 | | 575976 | VMPA14-M1H-KS-PI | |
| 20 | | 568656 | VMPA2-M1H-KS-PI | |
| 1x normally open, 1x normally closed | 10 | 533349 | VMPA1-M1H-H-PI | |
| | 14 | 573726 | VMPA14-M1H-H-PI | |
| | 20 | 537959 | VMPA2-M1H-H-PI | |
| 1x normally open, 1x normally closed, mechanical spring return | 10 | 556840 | VMPA1-M1H-HS-PI | |
| | 14 | 575979 | VMPA14-M1H-HS-PI | |
| | 20 | 568658 | VMPA2-M1H-HS-PI | |
| 5/3-way valve | | | | |
| Mid-position pressurised | 10 | 533344 | VMPA1-M1H-B-PI | |
| | 14 | 573719 | VMPA14-M1H-B-PI | |
| | 20 | 537954 | VMPA2-M1H-B-PI | |
| Mid-position closed | 10 | 533345 | VMPA1-M1H-G-PI | |
| | 14 | 573721 | VMPA14-M1H-G-PI | |
| | 20 | 537955 | VMPA2-M1H-G-PI | |
| Mid-position exhausted | 10 | 533346 | VMPA1-M1H-E-PI | |
| | 14 | 573720 | VMPA14-M1H-E-PI | |
| | 20 | 537956 | VMPA2-M1H-E-PI | |

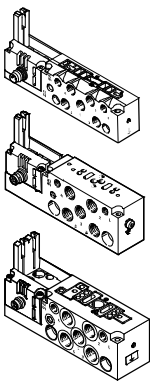
Solenoid valves VMPA





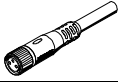
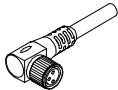

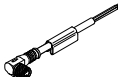
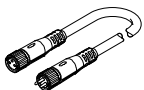

Ordering data

| Ordering data | | | | |
|---|---|------------|-----------------|------------------|
| | Valve function | Width [mm] | Part No. | Type |
| Individual solenoid valve, piston spool valve | | | | |
|  | 3/2-way valve | | | |
| | Normally open, external compressed air supply | 10 | 540050 | VMPA1-M1H-W-PI |
| | | 14 | 573723 | VMPA14-M1H-W-PI |
| 20 | | 540051 | VMPA2-M1H-W-PI | |
|  | 3/2-way valve | | | |
| | Normally closed, external compressed air supply | 10 | 534415 | VMPA1-M1H-X-PI |
| | | 14 | 573722 | VMPA14-M1H-X-PI |
| 20 | | 537961 | VMPA2-M1H-X-PI | |
|  | 2x 2/2-way valve | | | |
| | Normally closed | 10 | 533350 | VMPA1-M1H-D-PI |
| | | 14 | 573727 | VMPA14-M1H-D-PI |
| | | 20 | 537960 | VMPA2-M1H-D-PI |
| | Normally closed, mechanical spring return | 10 | 556841 | VMPA1-M1H-DS-PI |
| | | 14 | 575978 | VMPA14-M1H-DS-PI |
| 20 | | 568657 | VMPA2-M1H-DS-PI | |
| 1x normally closed, 1x normally closed, reverse operation only | 10 | 543605 | VMPA1-M1H-I-PI | |
| | 14 | 573728 | VMPA14-M1H-I-PI | |
| | 20 | 543703 | VMPA2-M1H-I-PI | |
| Individual solenoid valve, polymer poppet valve | | | | |
|  | 5/2-way valve | | | |
| | Single solenoid, mechanical spring return | 10 | 553113 | VMPA1-M1H-MU-PI |
| | 2x 3/2-way valve | | | |
| | normally open, mechanical spring return | 10 | 553111 | VMPA1-M1H-NU-PI |
| | Normally closed, mechanical spring return | 10 | 553110 | VMPA1-M1H-KU-PI |
| 1x normally open, 1x normally closed, mechanical spring return | 10 | 553112 | VMPA1-M1H-HU-PI | |

Solenoid valves VMPA

Ordering data

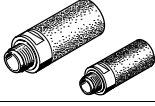

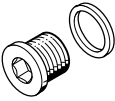

| Ordering data | | | | | |
|---|------------------------------|--------------------|------------|----------|-----------------------|
| Designation | | | Width [mm] | Part No. | Type |
| Sub-base for individual valve | | | | | |
|  | Without ATEX specification | Internal pilot air | 10 | 533394 | VMPA1-IC-AP-1 |
| | | | 14 | 8023666 | VMPA14-IC-AP-1 |
| | | | 20 | 537981 | VMPA2-IC-AP-1 |
| | | External pilot air | 10 | 533395 | VMPA1-IC-AP-S-1 |
| | | | 14 | 8023667 | VMPA14-IC-AP-S-1 |
| | | | 20 | 537982 | VMPA2-IC-AP-S-1 |
| | With ATEX specification → 18 | Internal pilot air | 10 | 8005149 | VMPA1-IC-AP-1-EX1E |
| | | | 14 | 8023668 | VMPA14-IC-AP-1-EX1E |
| | | | 20 | 8005151 | VMPA2-IC-AP-1-EX1E |
| | | External pilot air | 10 | 8005150 | VMPA1-IC-AP-S-1-EX1E |
| | | | 14 | 8023669 | VMPA14-IC-AP-S-1-EX1E |
| | | | 20 | 8005152 | VMPA2-IC-AP-S-1-EX1E |

| Ordering data | | | | | |
|---|---|--------|-------------|---------------------|--|
| Designation | | | Part No. | Type | |
| Cover | | | | | |
|  | Cover cap for manual override with coded cover cap, manual override non-detenting (x10) | | 540897 | VMPA-HBT-B | |
|  | Cover cap for manual override, covered, manual override blocked (x10) | | 540898 | VMPA-HBV-B | |
|  | Cover cap for manual override, manual override detenting, can be operated manually without accessories (x10) | | 8002234 | VAMC-L1-CD | |
|  | Inscription label holder for an inscription label and cover for the switching status indication and the manual override (blocked) (x10) | | 570818 | ASLR-D-L1 | |
| Connecting cable, individual connection | | | | | |
|  | <ul style="list-style-type: none"> • Straight socket, M8x1, 4-pin • Open end, 4-wire | 2.5 m | 158960 | SIM-M8-4GD-2,5-PU | |
| | | 5 m | 158961 | SIM-M8-4GD-5-PU | |
|  | <ul style="list-style-type: none"> • Angled socket, M8x1, 4-pin • Open end, 4-wire | 2.5 m | 158962 | SIM-M8-4WD-2,5-PU | |
| | | 5 m | 158963 | SIM-M8-4WD-5-PU | |
|  | <ul style="list-style-type: none"> • Straight socket, M8x1, 4-pin • Open end, 4-wire | 2.5 m | 541342 | NEBU-M8G4-K-2.5-LE4 | |
| | | 5 m | 541343 | NEBU-M8G4-K-5-LE4 | |
|  | <ul style="list-style-type: none"> • Angled socket, M8x1, 4-pin • Open end, 4-wire | 2.5 m | 541344 | NEBU-M8W4-K-2.5-LE4 | |
| | | 5 m | 541345 | NEBU-M8W4-K-5-LE4 | |
|  | Modular system for connecting cables | | - | → Internet: nebu | |
| Push-in fitting | | | | | |
|  | Connecting thread M5 for tubing O.D. (10 pieces) | 3 mm | 153313 | QSM-M5-3-I | |
| | | 4 mm | 153315 | QSM-M5-4-I | |
| | | 6 mm | 153317 | QSM-M5-6-I | |
| | Connecting thread M7 for tubing O.D. (10 pieces) | 4 mm | 153319 | QSM-M7-4-I | |
| | | 6 mm | 153321 | QSM-M7-6-I | |
| | Connecting thread G1/8 for tubing O.D. (10 pieces) | 6 mm | 186107 | QS-G1/8-6-I | |
| | 8 mm | 186109 | QS-G1/8-8-I | | |

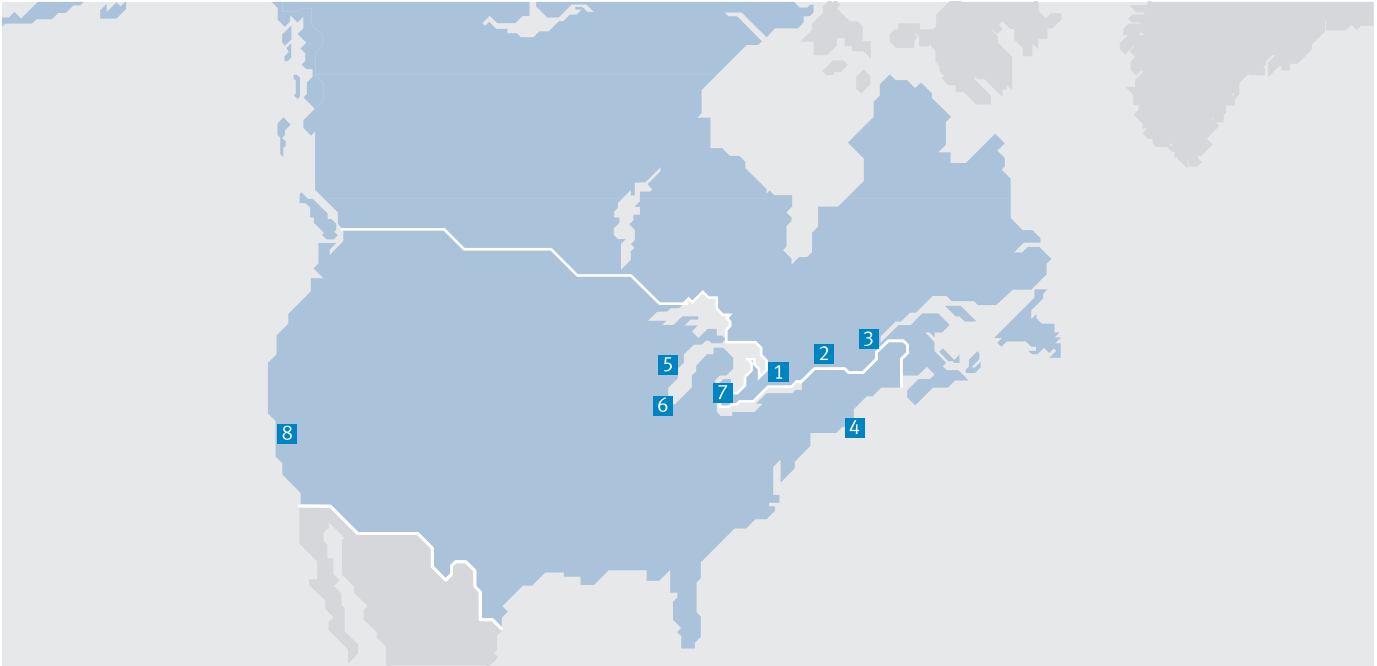
Solenoid valves VMPA

Accessories

FESTO

| Ordering data | | | | |
|---|--|------|---------------|-----------------|
| Designation | | | Part No. | Type |
| Silencer | | | | |
|  | Connecting thread | M5 | 165003 | UC-M5 |
| | | M7 | 161418 | UC-M7 |
| | | G1/8 | 161419 | UC-1/8 |
|  | Push-in sleeve connection | 3 mm | 165005 | UC-QS-3H |
| | | 4 mm | 165006 | UC-QS-4H |
| | | 6 mm | 165007 | UC-QS-6H |
| | | 8 mm | 175611 | UC-QS-8H |
| Blanking plug | | | | |
|  | Thread M7 (10 pieces) | | 174309 | B-M7 |
| | Thread G1/8 (10 pieces) | | 3568 | B-1/8 |
| Plug | | | | |
|  | Blanking plug for tubing O.D. (10 pieces) | 4 mm | 153267 | QSC-4H |
| | | 6 mm | 153268 | QSC-6H |
| | | 8 mm | 153269 | QSC-8H |

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