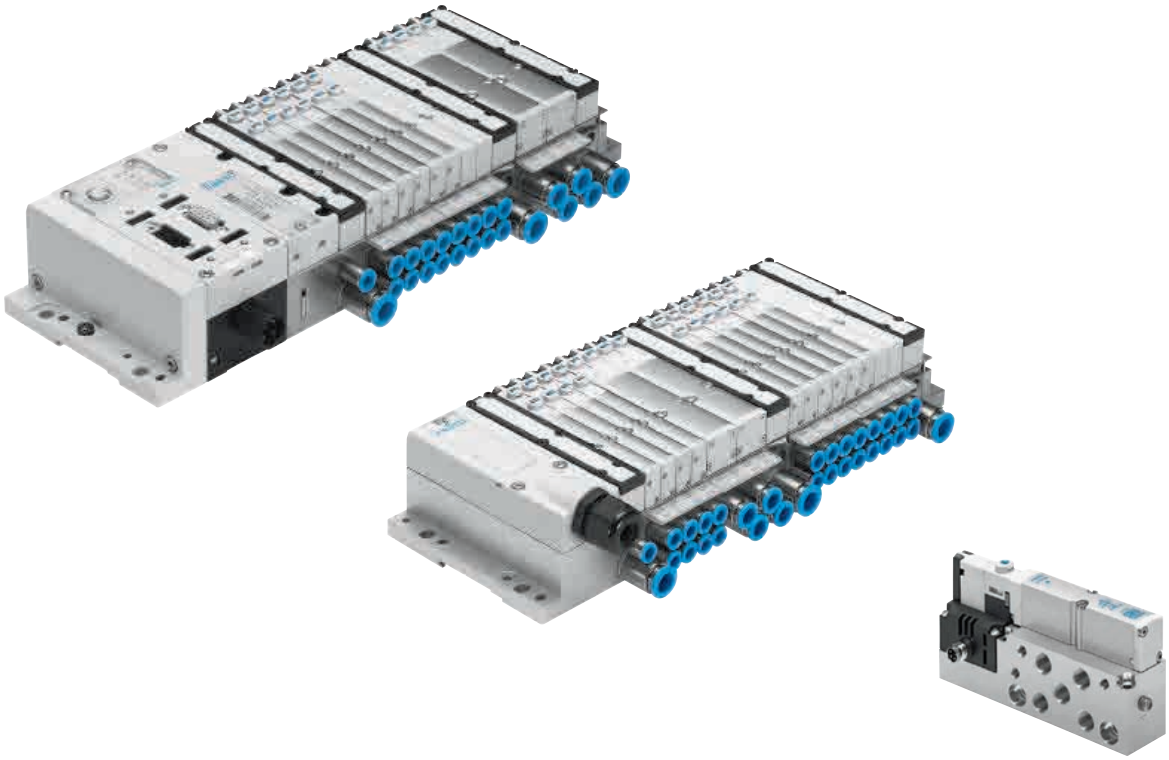
# Valve terminal MPA-S

# Key features



**Innovative**

- Flat, high-performance valves in sturdy metal housing
- MPA1: flow rates up to 360 l/min
- MPA14: flow rates up to 670 l/min
- MPA2: flow rates up to 850 l/min
- Standardised from the individual valve to the valve terminal with multi-pin plug, AS-Interface, CPI and fieldbus connection and control block
- Dream team: fieldbus valve terminal suitable for electrical peripherals CPX. This means:
  - Forward-looking internal communication system for actuating the valves and CPX modules
  - Diagnostics down to the individual valve
  - Valves can be actuated with or without (standard) separate electrical circuits

**Versatile**

- Modular system offering a range of configuration options
- Expandable with up to 128 solenoid coils
- Conversions and extensions possible at a later date
- Further sub-bases can be expanded using just three screws, sturdy separating seals on metal separator plates
- Possible to integrate innovative function modules
- Manual regulators, swivelling pressure gauges
- Proportional pressure regulator
- Air supply can be extended via additional pressure zones with supply plates
- Wide range of pressures
- –0.09 ... 1 MPa
- Wide range of valve functions
- Safety function with switchable pilot air

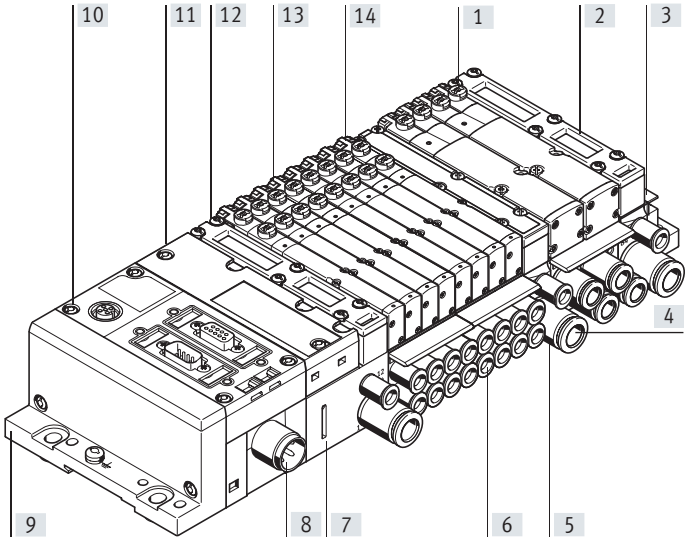
**Reliable**

- Sturdy and durable metal components
  - Valves
  - Sub-bases
  - Seals
- Fast troubleshooting with LEDs on the valves and diagnostics via fieldbus
- Extensive operating voltage range ±25%
- Easy to service thanks to replaceable valves and electronic modules
- Manual override either non-detenting, detenting or secured against unauthorised activation (concealed)
- Durable thanks to tried-and-tested piston spool valves
- Large and durable labelling system, suitable for barcodes

**Easy to install**

- Ready-to-install and tested unit
- Reduced selection, ordering, installation and commissioning costs
- Secure wall mounting or H-rail mounting

# Key features




[1] Safe operation:
Manual override, non-detenting/ detenting or concealed
[2] Space-saving:
Flat valves and flat plate silencer
[3] Variable:
64 valve positions/128 solenoid coils (fieldbus control)
24 valve positions/24 solenoid coils (multi-pin control)
[4] Practical:
Sturdy metal thread or pre-assembled push-in fittings
[5] Modular:
Supply plates for creating pressure zones as well as numerous additional exhaust and supply ports
[6] Wide range of valve functions
[7] Convenient: large inscription labels
[8] Reliable:
Operating voltage range ±25%, outputs and valves can each be switched off separately
[9] Quick to mount:
Directly using screws or on an H-rail, automatic earthing
[10] CPX diagnostic interface for hand-held devices (channel-oriented diagnostics down to the individual valve)
[11] Straightforward electrical connection:
Multi-pin connection, fieldbus interface, control block, AS-Interface, CPI
[12] Pneumatic interface to CPX
[13] Width 10 mm, 14 mm and 20 mm
[14] Reduced downtimes: two-colour LED diagnostics on site

## 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
- 2x2/2-way valve 1x normally closed 1x normally closed, reversible
- 2x 2/2-way valve normally closed
- 1x 3/2-way valve normally closed external compressed air supply
- 1x 3/2-way valve, normally open, external compressed air supply
- Manual pressure regulators
- Pilot air switching valve
- Proportional pressure regulators (for CPI connection, fieldbus)
- Pressure sensor

All valves have the same compact dimensions with an overall length of 107 mm and a width of 10 mm, 14 mm or 20 mm.
A height of 55 mm makes them a perfect match for the electrical peripherals CPX.

### Special features

**Multi-pin terminal**
- Max. 24 valve positions/max. 24 solenoid coils
- Parallel modular valve links via circuit boards
- Electronics module with integrated holding current reduction
- Any compressed air supply
- Creating pressure zones

**Fieldbus terminal/control block**
- Max. 64 valve positions/ max. 128 solenoid coils
- Internal CPX bus system for valve actuation
- Module for electrical valve actuation with or without separate electrical circuits
- Any compressed air supply
- Creating pressure zones

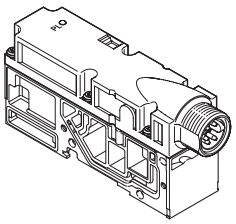
**Individual valve**
- Electrical M8 connection, 4-pin with screw connection
- Detachable electronics module with integrated holding current reduction

**AS-Interface**
- 2 to 8 valves, freely configurable (max. 8 solenoid coils) with input feedback.

**CPI interface**
- Max. 32 valve positions/ max. 32 solenoid coils

**Combinable**
- MPA1: flow rates up to 360 l/min
- MPA14: flow rates up to 670 l/min
- MPA2: flow rates up to 850 l/min
- MPA1, MPA14 and MPA2 can be combined on one valve terminal

### Electrical supply plate



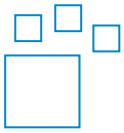
- Increases the maximum number of valve positions possible to 64, with max. 128 solenoid coils
- Creation of separate, individually disconnectable circuits (voltage zones)
- Greater economic efficiency thanks to more valves/solenoid coils per valve terminal
- Increased safety as valve groups can be individually disconnected, e.g. for emergency-off functions

**Note**

The electrical supply plate is optionally available with M18 or 7/8" connection.

# Key features

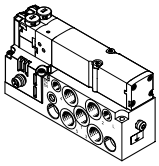
**Ordering data – Product options**



| Configurable product | The configurator can be found at | Part no. | Type |
|---|---|---|---|
| This product and all its product options can be ordered using the configurator. | ➔ **www.festo.com/catalogue/...** | 197330 | CPX |
| | Enter the part number or the type. | 546279 | MPA-ASI-VI |
| | | 546280 | MPA-CPI-VI |
| | | 530411 | MPA-FB-VI |
| | | 569926 | MPAL-VI |
| | | 539105 | MPA-MPM-VI |

# Key features

## Individual connection

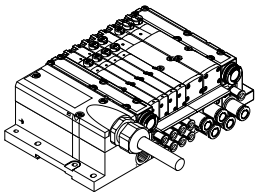


Valves on individual sub-bases can also be used for actuators further away from the valve terminal.

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

More information
→ VMPA1

## Multi-pin plug connection

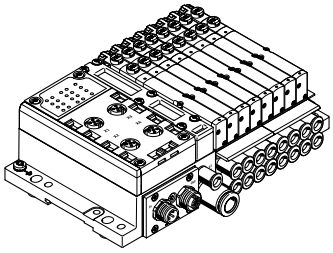


The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-core cable to the multi-pin plug connection. This substantially reduces installation time.

The valve terminal can be equipped with max. 24 solenoid coils. This corresponds to 4 to 24 MPA1 or 4 to 24 MPA14 or 2 to 24 MPA2 valves, or a combination of all of these.

Versions
- Sub-D connection
- Pre-assembled multi-pin cable
- Multi-pin cable for self-assembly

## AS-Interface connection



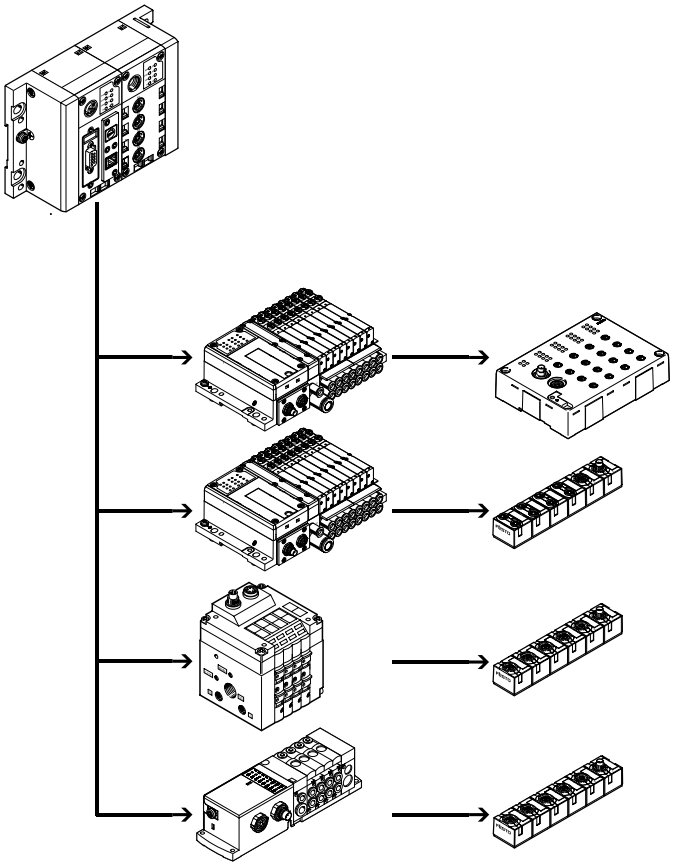
A special feature of the AS-Interface is the simultaneous transmission of data and supply power via a two-core cable. The encoded cable profile prevents connection with incorrect polarity.
The valve terminal with AS-Interface is available in the following versions:

- With two to eight modular valve positions (max. 8 solenoid coils). This corresponds to 2 to 8 MPA1, 2 to 8 MPA14 or 2 to 8 MPA2 valves, or a combination of all of these.
- With all available valve functions.

The connection technology used for the inputs can be selected as with CPX: M8, M12, Sub-D, Cage Clamp (terminals to IP20).

More information
→ Internet: as-interface

## Installation system CPI



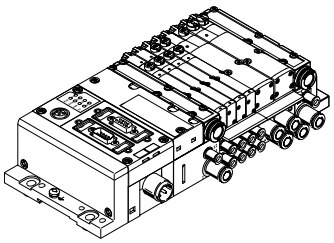
Valve terminal for installation system CPI:
The valve terminal with CP connection is provided for connection to a higher-level bus node or to control blocks. A bus node or control block additionally enables the connection of decentralised input/output units. The following bus protocols are supported:
- PROFIBUS DP
- INTERBUS®
- DeviceNet®
- CANopen
- CC-LINK®
- EtherNet/IP
- PROFINET
- POWERLINK
- EtherCAT®
- Sercos III

Four strings having up to 32 inputs and outputs can be connected to a bus node or control block. The connecting cables transmit the power supply for the input modules and the load voltage for the valves as well as control signals.

More information
→ Internet: cpi

# Key features

## Fieldbus connection via the CPX system



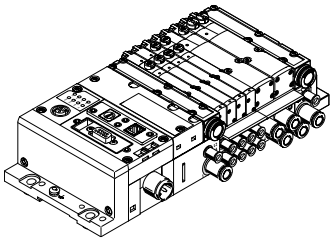
An integrated bus node manages communication with a higher-order PLC. This enables space-saving pneumatic and electronic solutions to be implemented.

Valve terminals with fieldbus interfaces can be configured with up to 16 sub-bases. In combination with the MPA1 or MPA14 and 8 solenoid coils per sub-base, up to 128 solenoid coils can thus be controlled. An MPA2 with 4 solenoid coils per sub-base can actuate 64 solenoid coils.

Variants
- PROFIBUS DP
- INTERBUS®
- DeviceNet®
- CANopen
- CC-LINK®
- EtherNet/IP
- PROFINET
- POWERLINK
- EtherCAT®
- Sercos III
- Front end controller, remote
- Front end controller
- Remote I/O
- Modbus/TCP
- CPX terminal

→ More information: www.festo.com/catalogue/cpx → Support/Downloads.

## Control block connection via the CPX system



With controllers that are integrated in the Festo valve terminals, stand-alone control units to IP65 without control cabinets can be set up.

In the slave operating mode, these valve terminals can be used for intelligent preprocessing and are therefore ideal modules for designing decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.

→ More information: www.festo.com/catalogue/cpx → Support/Downloads.

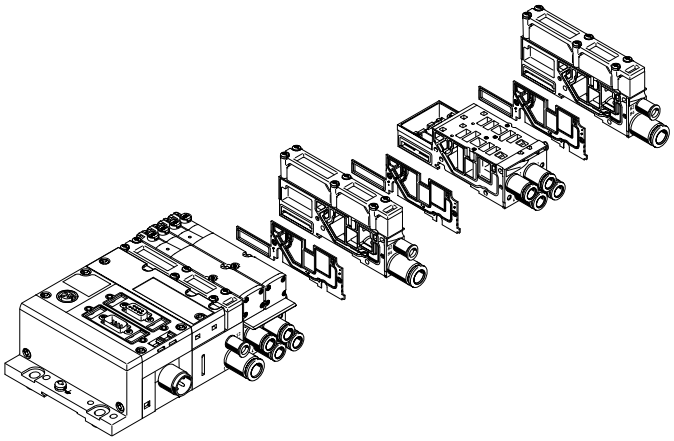
**Note**

Note possible restrictions for the IP protection class

→ ATEX declaration of conformity

# Peripherals overview

## Modular pneumatic components



The modular design of the MPA enables outstanding flexibility right from the planning stage and offers maximum ease of service in operation. The system consists of sub-bases and valves.
The sub-bases are screwed together, thus forming the support system for the valves. They contain the ducts for supplying compressed air to and exhausting from the valve terminal as well as the working ports for the pneumatic drives for each valve. Each sub-base is connected to the next using three screws.
Individual valve terminal sections can be isolated and further blocks can be inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

## Modular electrical peripherals

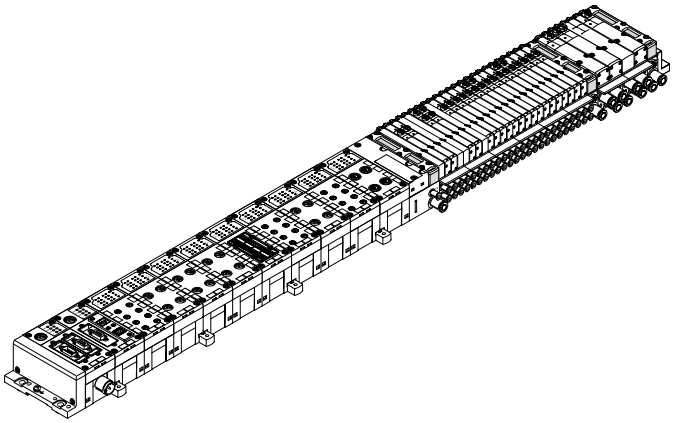
The valves are actuated differently depending on whether a multi-pin terminal or fieldbus terminal is used.
The MPA with CPX interface is based on the internal bus system of the CPX and uses this serial communication system for all solenoid coils and a range of electrical input and output functions.

Serial links enable the following:
- Transmission of switching information
- High valve density
- Compact design
- Diagnostics related to valve position
- Separate power supply for valves
- Flexible conversion without address shifting
- Transmission of status, parameter and diagnostic data

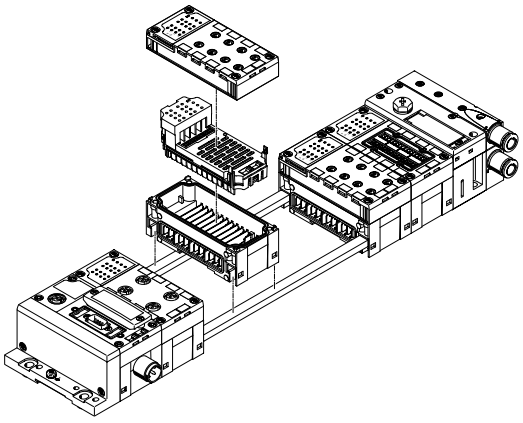
➔ More information: www.festo.com/catalogue/cpx ➔ Support/Downloads.

- Option of CP interface
- CPX-CEC as stand-alone controller with access via Ethernet and web server

MPA with electrical peripherals CPX



Modularity with electrical peripherals CPX



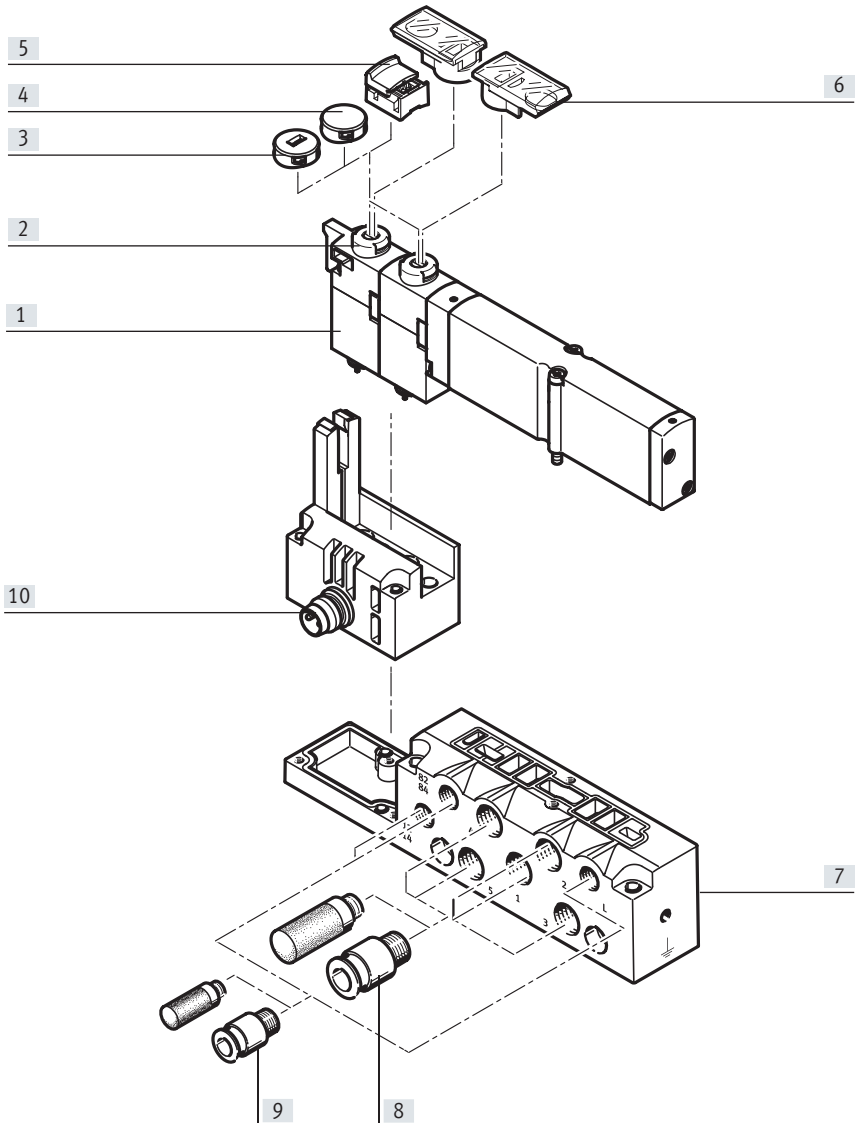
# Peripherals overview

**Individual sub-base**

Ordering:
- Using individual part numbers

Individual sub-bases can be equipped with any valve (VMPA... of the corresponding width).

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




| Designation | | Description | → Page/Internet |
|---|---|---|---|
| [1] | Solenoid valve | Width 10 mm, 14 mm, 20 mm | VMPA1 |
| [2] | Manual override (MO) | Non-detenting/detenting by turning, per solenoid coil | VMPA1 |
| [3] | Cover cap, coded | After fitting the cover cap, manual override operation is non-detenting only | VMPA1 |
| [4] | Cover cap, concealed | After fitting the cover cap, manual override is blocked | VMPA1 |
| [5] | Cover cap, manual override detenting | After fitting the cover cap, manual override is detenting and can be operated without tools | VMPA1 |
| [6] | Inscription label holder | Can be pushed onto the manual override | VMPA1 |
| [7] | Sub-base | For individual valve VMPA... | VMPA1 |
| [8] | Fittings, silencers or blanking plugs | For working ports (2, 4) and working air/exhaust ports (1, 3, 5) | VMPA1 |
| [9] | Fittings and/or silencers | For pilot air supply/pilot exhaust air (12/14, 82/84) and pressure compensation | VMPA1 |
| [10] | Electrical connection M8 | 4-pin | VMPA1 |

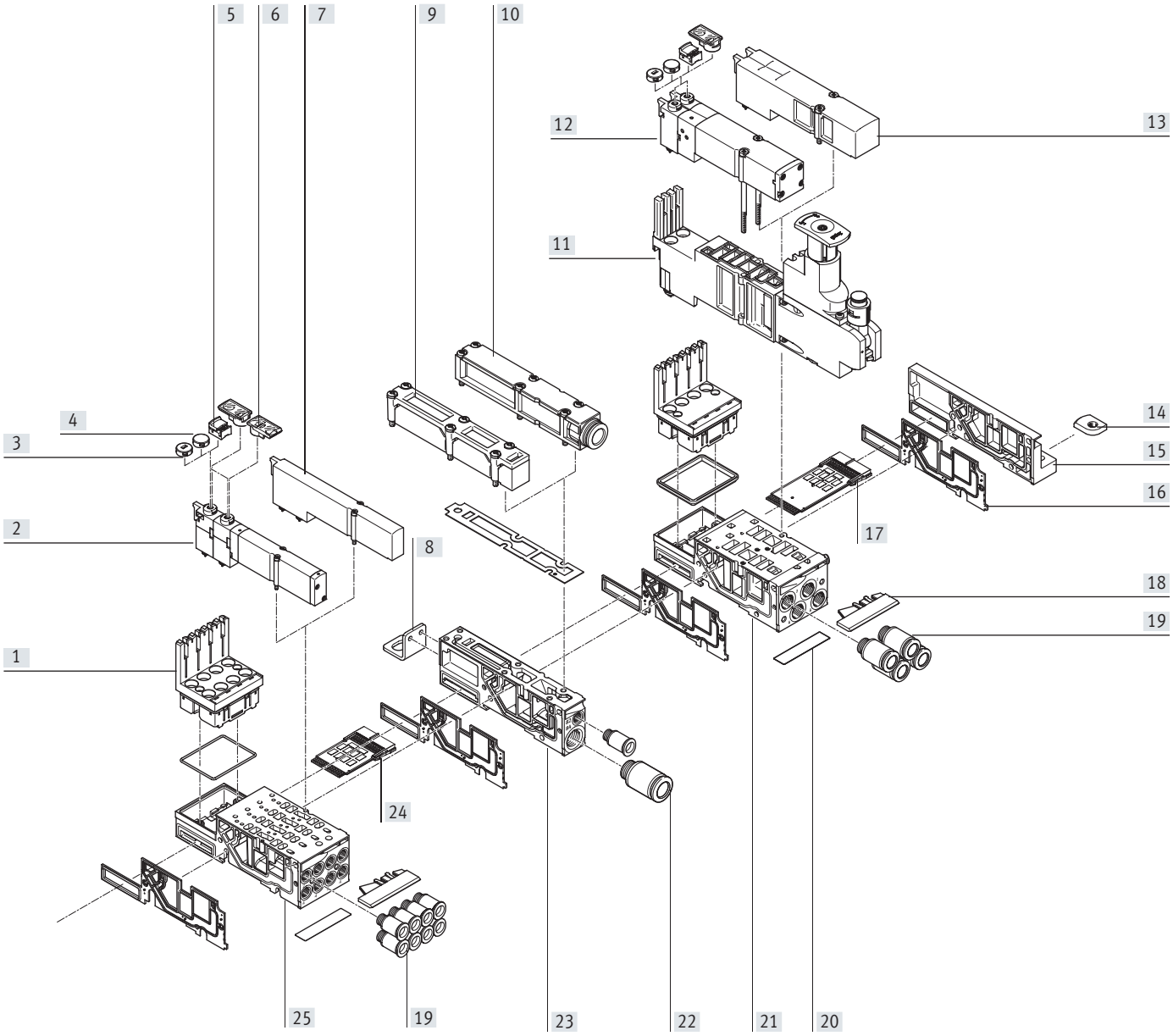
# Peripherals overview

**Pneumatic components of the valve terminal – Multi-pin plug, AS-Interface**

The sub-bases are prepared for either
- 2 or 4 single solenoid valves
- 2 or 4 double solenoid valves

depending on the size.

- Double solenoid valve positions can be equipped with any valve or a cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves.



# Peripherals overview

| **Pneumatic components of the valve terminal – Multi-pin plug, AS-Interface** | | | |
|---|---|---|---|
| Designation | | Description | → Page/Internet |
| [1] | Electronics module | For connecting valves | 84, 89, 93 |
| [2] | Solenoid valve | Width 10 mm, 14 mm | 81, 86 |
| [3] | Cover cap, coded | After fitting the cover cap, manual override operation is non-detenting only | 96 |
| [4] | Cover cap, concealed | After fitting the cover cap, manual override is blocked | 96 |
| [5] | Cover cap, manual override detenting | After fitting the cover cap, manual override is detenting and can be operated without tools | 96 |
| [6] | Inscription label holder | Can be pushed onto the manual override | 99 |
| [7] | Cover plate | For unused valve position (vacant position), width 10 mm, 14 mm | 81, 86 |
| [8] | Mounting | Optional for valve terminal mounting (on supply plate) | 99 |
| [9] | Flat plate silencer | – | – |
| [10] | Exhaust air plate | For ducted exhaust air | 97 |
| [11] | Regulator plate | Vertical stacking (pressure regulator, vertical pressure shut-off plate, vertical pressure supply plate) | 82 |
| [12] | Solenoid valve | Width 20 mm | 90 |
| [13] | Cover plate | For unused valve position (vacant position), width 20 mm | 90 |
| [14] | H-rail mounting | – | 99 |
| [15] | Right end plate | – | 95 |
| [16] | Separating seal | For sub-base | 96 |
| [17] | Electrical interlinking module | For multi-pin plug connection, for AS-Interface, for a sub-base with pneumatic supply plate (on the left next to the sub-base), width 10 mm, 14 mm, 20 mm | 85, 89, 93 |
| [18] | Inscription labels | Inscription label holder for paper foil label | 99 |
| [19] | Threaded connectors | For working ports | 98 |
| [20] | Paper foil label | For inscription label holder | 99 |
| [21] | Sub-base | For two valve positions width 20 mm | 92 |
| [22] | Threaded connectors | For pneumatic supply plate | 98 |
| [23] | Supply plate | – | 97 |
| [24] | Electrical interlinking module | For width 10 mm, 14 mm, 20 mm | 85, 89, 93 |
| [25] | Sub-base | For four valve positions width 10 mm, 14 mm | 84, 88 |

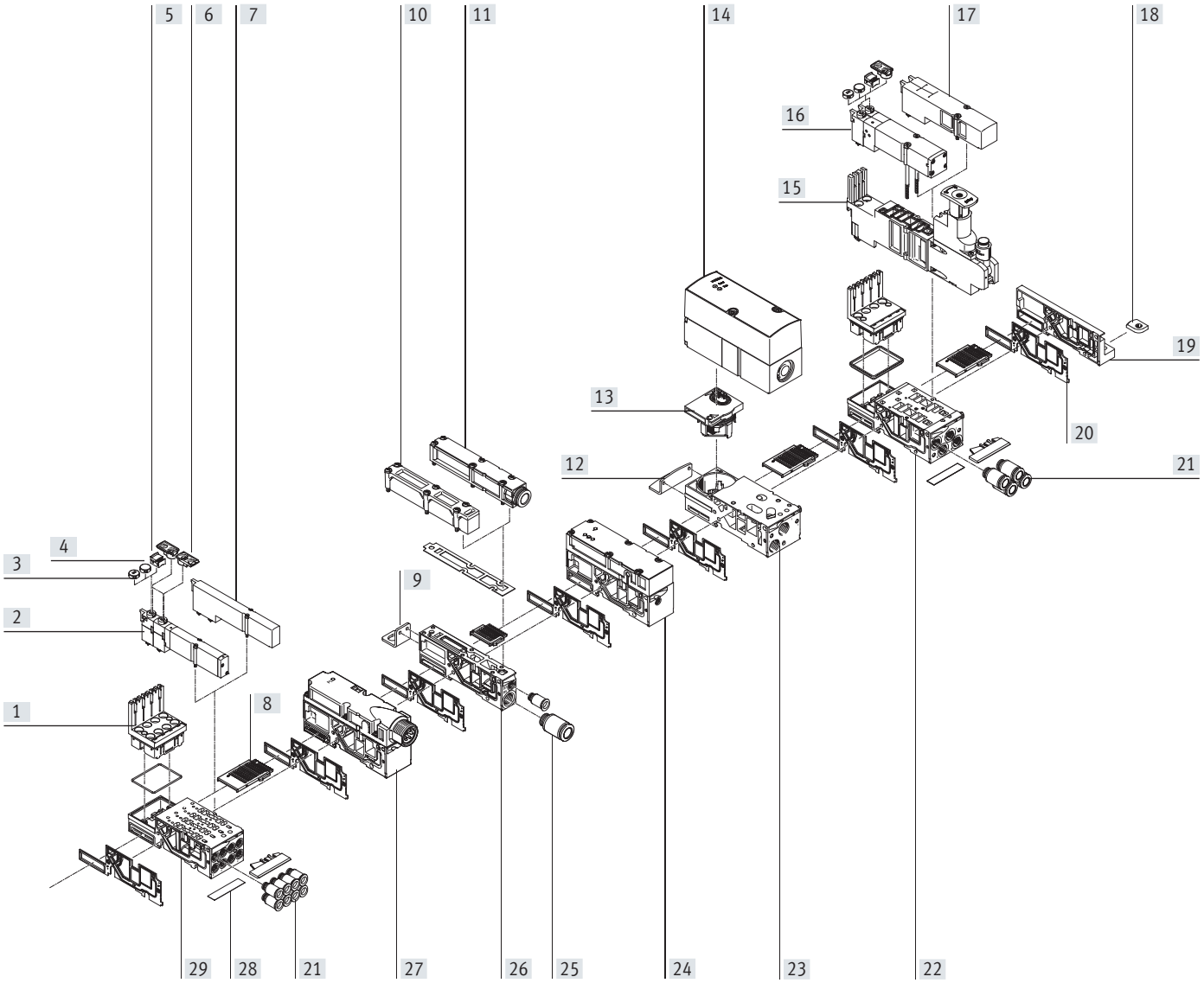
# Peripherals overview

**Pneumatic components of the valve terminal – CPI connection, fieldbus**

The sub-bases are prepared for either
- 2 or 4 single solenoid valves
- 2 or 4 double solenoid valves

depending on the size.

- Double solenoid valve positions can be equipped with any valve or a cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves.



# Peripherals overview

| **Pneumatic components of the valve terminal – CPI connection, fieldbus** | | | |
|---|---|---|---|
| Designation | | Description | → Page/Internet |
| [1] | Electronics module | – | 84, 89, 93 |
| [2] | Solenoid valve | Width 10 mm, 14 mm | 81, 86 |
| [3] | Cover cap, coded | After fitting the cover cap, manual override operation is non-detenting only | 96 |
| [4] | Cover cap, concealed | After fitting the cover cap, manual override is blocked | 96 |
| [5] | Cover cap, manual override detenting | After fitting the cover cap, manual override is detenting and can be operated without tools | 96 |
| [6] | Inscription label holder | Can be pushed onto the manual override | 99 |
| [7] | Cover plate | For unused valve position (vacant position), width 10 mm, 14 mm | 81, 86 |
| [8] | Electrical interlinking module | For fieldbus connection, for proportional pressure regulator, width 10 mm, 14 mm, 20 mm | 85, 89, 93 |
| [9] | Mounting | Optional for valve terminal mounting (on supply plate) | 99 |
| [10] | Flat plate silencer | – | – |
| [11] | Exhaust air plate | For ducted exhaust air | 97 |
| [12] | Mounting | Optional for valve terminal mounting<br>(on the sub-base of the proportional pressure regulator) | 99 |
| [13] | Electronics module | For proportional pressure regulator | 94 |
| [14] | Proportional pressure regulator | – | 94 |
| [15] | Regulator plate | Vertical stacking (pressure regulator, vertical pressure shut-off plate, vertical pressure supply plate) | 91 |
| [16] | Solenoid valve | Width 20 mm | 90 |
| [17] | Cover plate | For unused valve position (vacant position), width 20 mm | 96 |
| [18] | H-rail mounting | – | 99 |
| [19] | Right end plate | – | 95 |
| [20] | Separating seal | For sub-base | 96 |
| [21] | Threaded connectors | For working ports | 98 |
| [22] | Sub-base | For two valve positions width 20 mm | 92 |
| [23] | Sub-base | For proportional pressure regulator | 94 |
| [24] | Pressure sensor | – | 96 |
| [25] | Threaded connectors | For pneumatic supply plate | 98 |
| [26] | Supply plate | – | 97 |
| [27] | Electrical supply plate | For auxiliary voltage supply for large valve terminals | 96 |
| [28] | Paper foil label | For inscription label holder | 99 |
| [29] | Sub-base | For four valve positions width 10 mm, 14 mm | 84, 88 |

# Peripherals overview

**Valve terminal with multi-pin plug connection**

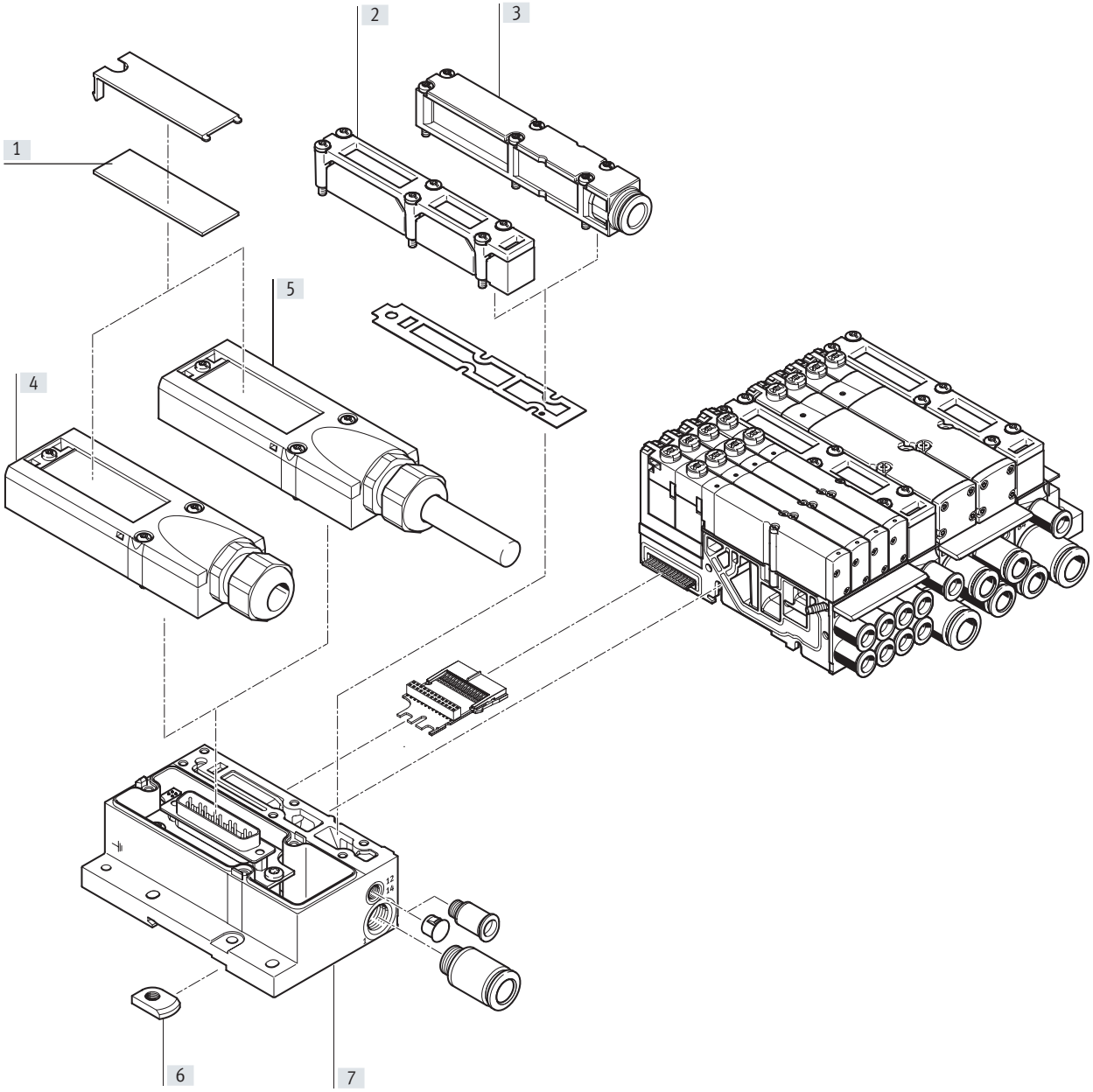
Order code:
- 32P-... for the pneumatic components
- 32E-... for the electric components

MPA valve terminals with multi-pin plug connection can be expanded by up to 24 solenoid coils.

The multi-pin plug connection is designed as a removable 25-pin Sub-D connection to IP65.

The cable can be selected when ordering:
- 2.5 m
- 5 m
- 10 m

In each case for max. 8 or 24 valves



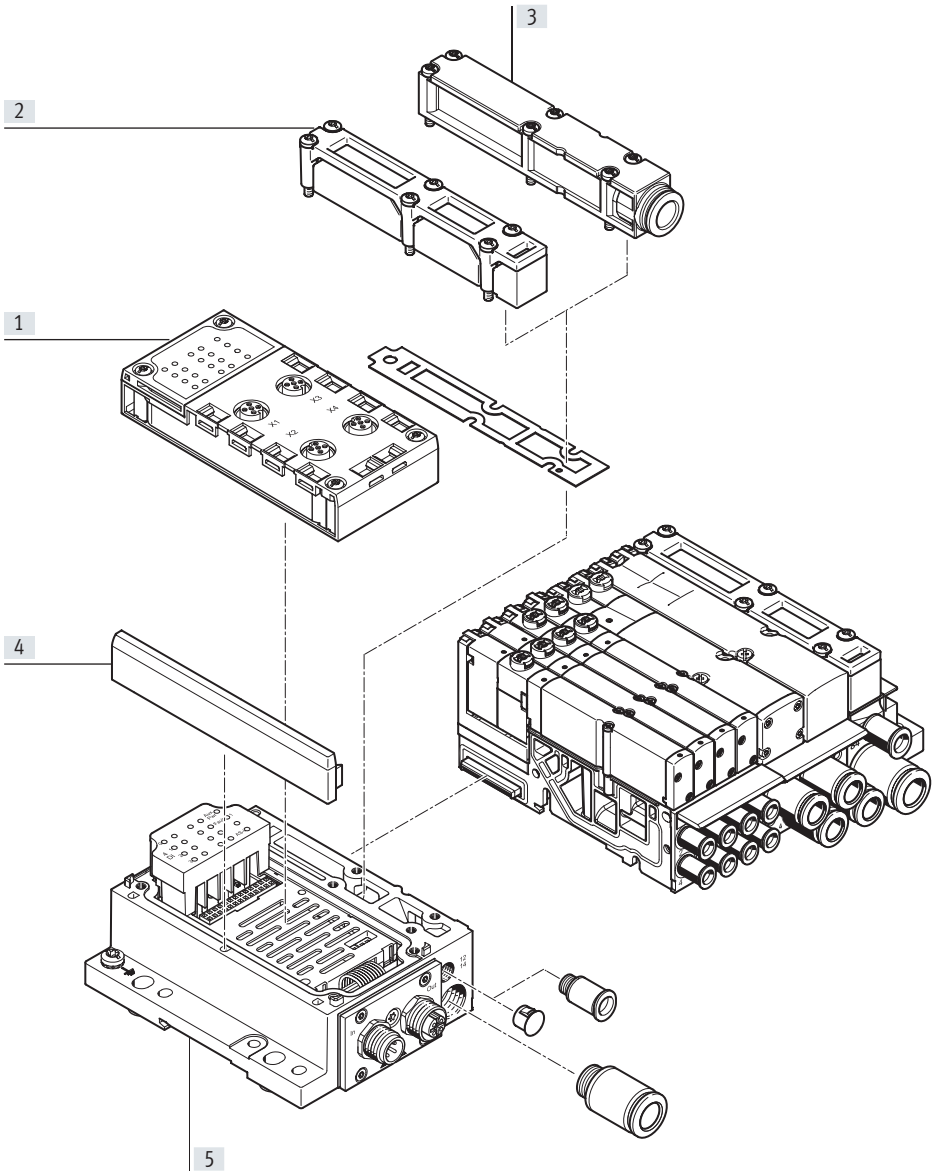

| Designation | | Description | → Page/Internet |
|---|---|---|---|
| [1] | Inscription labels | Large, for multi-pin plug connection | – |
| [2] | Flat plate silencer | For pneumatic interface | – |
| [3] | Exhaust air plate | For ducted exhaust air | 97 |
| [4] | Multi-pin plug connection | For self-assembly | 97 |
| [5] | Multi-pin plug connection | With multi-pin cable | 97 |
| [6] | H-rail mounting | – | 99 |
| [7] | Electrical interface | For multi-pin plug | 95 |

# Peripherals overview

**Valve terminal with AS-Interface connection**

Order code:
- 32P-... for the pneumatic components
- 52E-... for the electric components

MPA valve terminals with AS-Interface can be expanded by up to 8 solenoid coils.



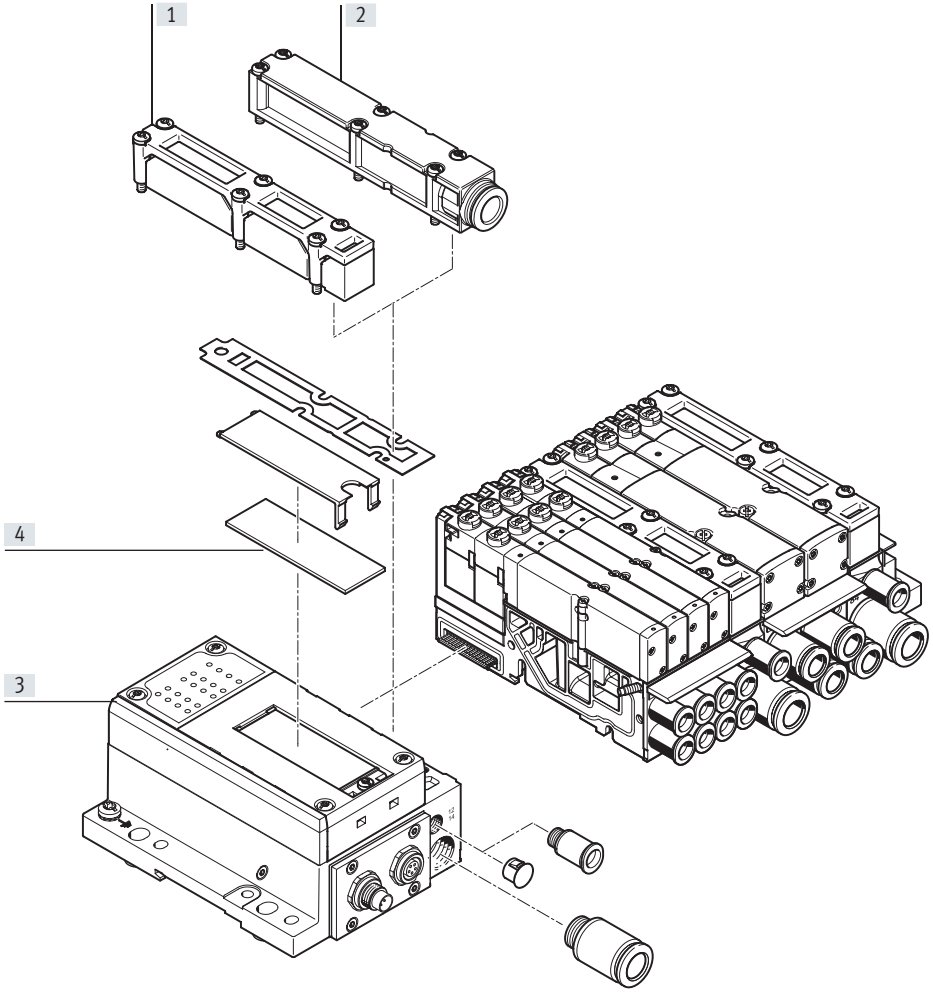

| Designation | | Description | → Page/Internet |
|---|---|---|---|
| [1] | Manifold block | – | 95 |
| [2] | Flat plate silencer | For pneumatic interface | – |
| [3] | Exhaust air plate | For ducted exhaust air | 97 |
| [4] | Cover | – | – |
| [5] | Electrical interface | – | 95 |

# Peripherals overview

**Valve terminal with CPI connection**

Order code:
- 32P-... for the pneumatic components
- 56E-... for the electrical
- peripherals

MPA valve terminals with CPI connection can be expanded by up to 32 solenoid coils.




| Designation | | Description | → Page/Internet |
|---|---|---|---|
| [1] | Flat plate silencer | For pneumatic interface | – |
| [2] | Exhaust air plate | For ducted exhaust air | 97 |
| [3] | Electrical interface | – | 95 |
| [4] | Inscription labels | Large for CPI electrical interface | – |

# Peripherals overview

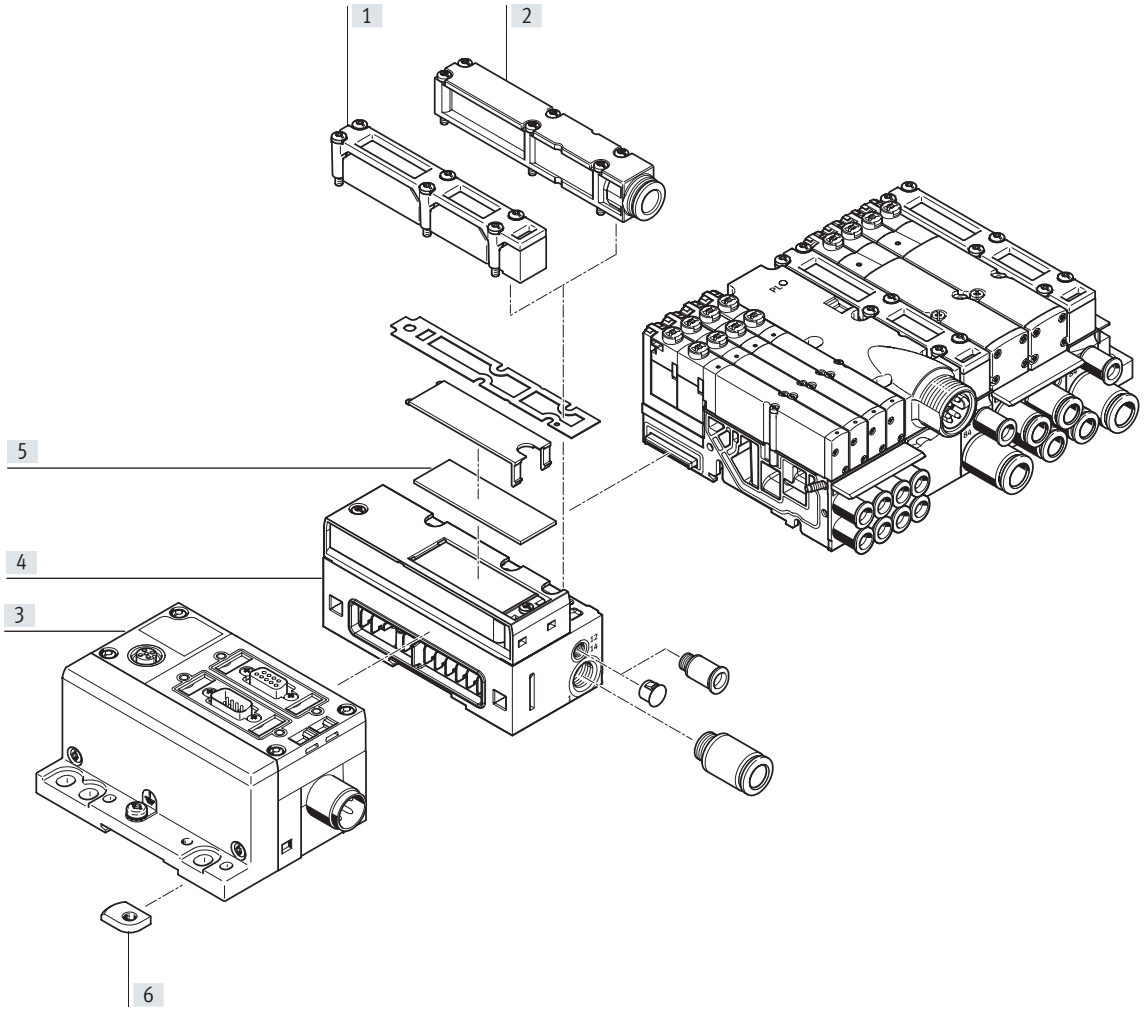
**Valve terminal with fieldbus interface, control block (electrical peripherals CPX)**

Order code:
- 32P-... for the pneumatic components
- 50E-... for the electrical
- peripherals

Valve terminals with fieldbus interfaces can be configured with up to 16 sub-bases. In combination with MPA1 or MPA14 and 8 solenoid coils per sub-base, up to 128 solenoid coils can thus be equipped. An MPA2 with 4 solenoid coils per sub-base can actuate 64 solenoid coils.

Each valve position can be equipped with any valve or a cover plate. The rules for CPX apply to the equipment that can be used with the electrical peripherals CPX.
In general:

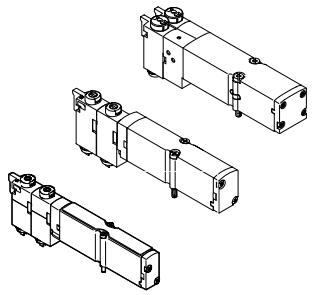
- Digital inputs/outputs
- Analogue inputs/outputs
- Parameterisation of inputs and outputs
- Integrated, convenient diagnostics
- Preventive maintenance concepts




| Designation | | Description | → Page/Internet |
|---|---|---|---|
| [1] | Flat plate silencer | For pneumatic interface | – |
| [2] | Exhaust air plate | For ducted exhaust air | 97 |
| [3] | CPX modules | – | – |
| [4] | Pneumatic interface | For CPX modules | 95 |
| [5] | Inscription labels | Large, for pneumatic interface CPX | – |
| [6] | H-rail mounting | – | 99 |

# Key features – Pneumatic components

## Sub-base valve



MPA offers a comprehensive range of valve functions. All valves have a patented sealing system, which ensures efficient sealing, a broad pressure range and a long service life. They have a pneumatic pilot control for optimising performance. Compressed air is supplied via a pilot air supply port.

Sub-base valves can be replaced quickly since the tubing connections remain on the sub-base.
This design is also particularly flat.

Whatever valve function is required, there are sub-base 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

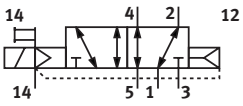
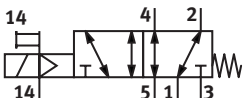
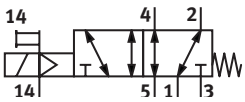
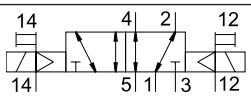
The valves are attached to the metal sub-base using two screws, which means that they can be easily replaced. The mechanical sturdiness of the sub-base guarantees good long-term sealing.

### Extension

Cover plates can be replaced by valves at a later date. The dimensions, mounting points and existing pneumatic installations remain unchanged during this process.

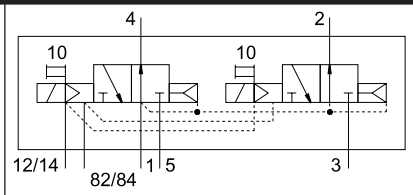
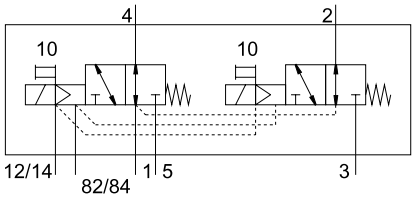
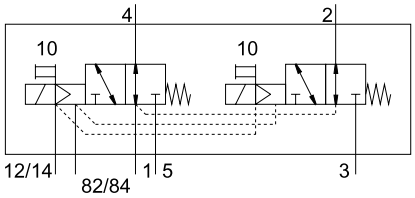
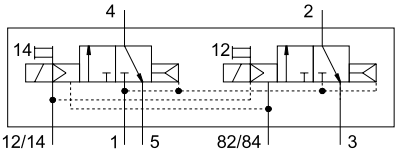
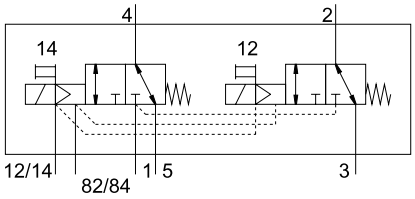
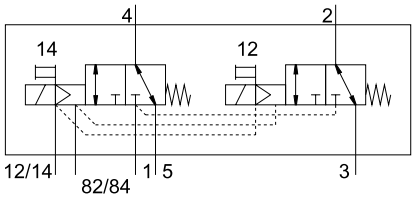
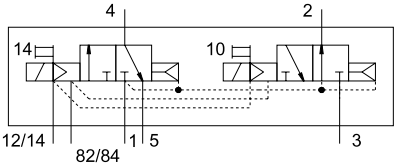
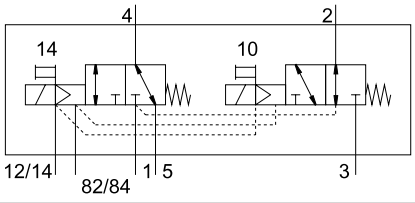
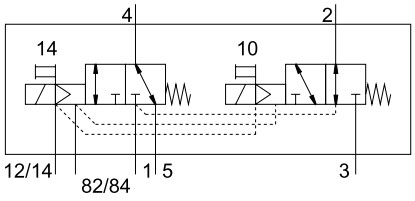
The valve code (M, MS, MU, J, N, NS, NU, K, KS, KU, H, HS, HU, B, G, E, X, W, D, DS, I) is located on the front of the valve beneath the manual override.

**5/2-way valve**

| Code | Circuit symbol | Valve size [mm] | Description |
|---|---|---|---|
| M |  | 10, 14, 20 | • Single solenoid<br>• Pneumatic spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |
| MS |  | 10, 14, 20 | • Single solenoid<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +0.8 MPa |
| MU |  | 10 | • Single solenoid<br>• Polymer poppet valve<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa<br>• 5/2-way function is achieved using two mechanically separate switching elements |
| J |  | 10, 14, 20 | • Double solenoid<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |

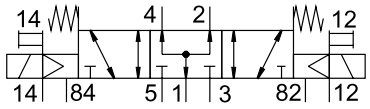
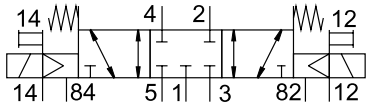
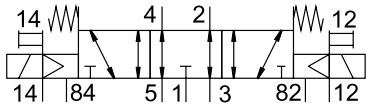
# Key features – Pneumatic components

**2x 3/2-way valve**

| Code | Circuit symbol | Valve size [mm] | Description |
|---|---|---|---|
| N |  | 10, 14, 20 | • Single solenoid<br>• Normally open<br>• Pneumatic spring return<br>• Operating pressure 0.3 ... 1 MPa |
| NS |  | 10, 14, 20 | • Single solenoid<br>• Normally open<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +0.8 MPa |
| NU |  | 10 | • Single solenoid<br>• Polymer poppet valve<br>• Normally open<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |
| K |  | 10, 14, 20 | • Single solenoid<br>• Normally closed<br>• Pneumatic spring return<br>• Operating pressure 0.3 ... 1 MPa |
| KS |  | 10, 14, 20 | • Single solenoid<br>• Normally closed<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +0.8 MPa |
| KU |  | 10 | • Single solenoid<br>• Polymer poppet valve<br>• Normally closed<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |
| H |  | 10, 14, 20 | • Single solenoid<br>• Normal position<br>– 1x normally closed<br>– 1x normally open<br>• Pneumatic spring return<br>• Operating pressure 0.3 ... 1 MPa |
| HS |  | 10, 14, 20 | • Single solenoid<br>• Normal position<br>– 1x normally closed<br>– 1x normally open<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +0.8 MPa |
| HU |  | 10 | • Single solenoid<br>• Polymer poppet valve<br>• Normal position<br>– 1x normally closed<br>– 1x normally open<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |

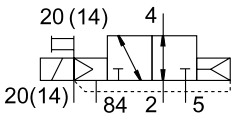
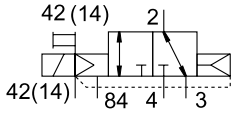
# Key features – Pneumatic components

**5/3-way valve**

| Code | Circuit symbol | Valve size [mm] | Description |
|---|---|---|---|
| B |  | 10,<br>14,<br>20 | • Mid-position pressurised[1)]<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |
| G |  | 10,<br>14,<br>20 | • Mid-position closed[1)]<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |
| E |  | 10,<br>14,<br>20 | • Mid-position exhausted[1)]<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa |

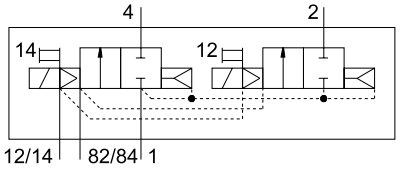
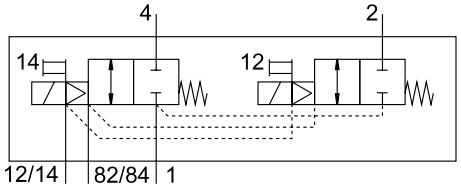
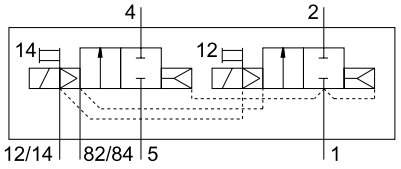
1) If neither solenoid coil is energised, the valve is moved to its mid-position by spring force.
If both coils are energised at the same time, the valve remains in the previously assumed switching position.

**3/2-way valve**

| Code | Circuit symbol | Valve size [mm] | Description |
|---|---|---|---|
| W |  | 10,<br>14,<br>20 | • Single solenoid<br>• Normally open<br>• External pressure supply<br>• Pneumatic spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa<br>Pressure supplied at working port 2 (–0.09 ... +1 MPa) can be switched with both internal and external pilot air supply. |
| X |  | 10,<br>14,<br>20 | • Single solenoid<br>• Normally closed<br>• External pressure supply<br>• Pneumatic spring return<br>• Reversible<br>• Operating pressure –0.09 ... +1 MPa<br>Pressure supplied at working port 4 (–0.09 ... +1 MPa) can be switched with both internal and external pilot air supply. |

# Key features – Pneumatic components

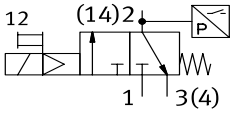
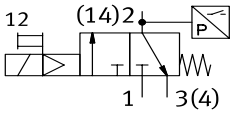
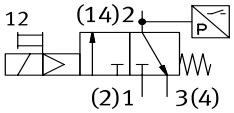
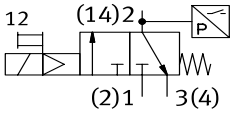
**2x 2/2-way valve**

| Code | Circuit symbol | Valve size [mm] | Description |
|---|---|---|---|
| D |  | 10, 14, 20 | • Single solenoid<br>• Normally closed<br>• Pneumatic spring return<br>• Operating pressure 0.3 ... 1 MPa |
| DS |  | 10, 14, 20 | • Single solenoid<br>• Normally closed<br>• Mechanical spring return<br>• Reversible<br>• Operating pressure –0.09 ... +0.8 MPa |
| I |  | 10, 14, 20 | • Single solenoid<br>• 1x normally closed<br>• 1x normally closed, reversible only<br>• Pneumatic spring return<br>• Operating pressure 0.3 ... 1 MPa<br>• Vacuum at port 3/5 only |

**Note**

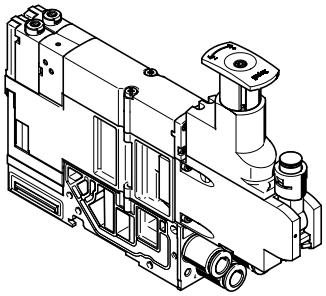
A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup).

**3/2-way valve**

| Code | Circuit symbol | Valve size [mm] | Description |
|---|---|---|---|
| IS |  | 10, 14 | • Single solenoid<br>• Normally closed<br>• Mechanical spring return<br>• Operating pressure 0.3 ... 0.8 MPa<br>• With internal power supply |
| IU |  | 10, 14 | • Single solenoid<br>• Normally closed<br>• Mechanical spring return<br>• Operating pressure 0.3 ... 0.8 MPa<br>• With internal power supply<br>• With external sensor M8 plug connector |
| ES |  | 10, 14 | • Single solenoid<br>• Normally closed<br>• Mechanical spring return<br>• Operating pressure 0.3 ... 0.8 MPa<br>• With external power supply |
| EU |  | 10, 14 | • Single solenoid<br>• Normally closed<br>• Mechanical spring return<br>• Operating pressure 0.3 ... 0.8 MPa<br>• With external power supply<br>• With external sensor M8 plug connector |

# Key features – Pneumatic components

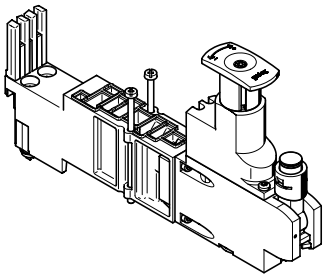
## Vertical stacking



Additional functional units can be added to each valve position between the sub-base and the valve.

These functions are known as vertical stacking modules and enable special functions or control of an individual valve position.

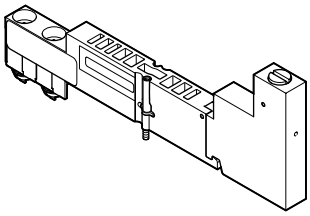
## Pressure regulator plate



An adjustable pressure regulator can be installed between the sub-base and the valve in order to control the force of the triggered actuator.
This pressure regulator maintains a constant output pressure (secondary side) independent of pressure fluctuations (primary side) and air consumption.
Standard version:

- For pressure regulation up to 6 bar or up to 10 bar
- Without pressure gauge (optional, rotatable, M5 connection with MPA1, cartridge connection with MPA2)
- MPA2: Regulator head with 3 positions (locked, reference position, idle running)
- MPA1: Set using screwdriver

## Vertical pressure shut-off plate for MPA1



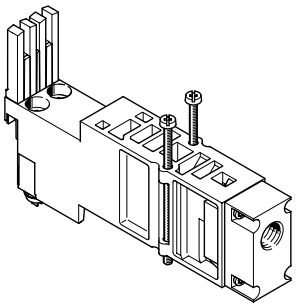
The vertical pressure shut-off plate can be used to hot swap individual valves without switching off the overall air supply.

The working pressure for the individual valve can be switched off manually via the vertical pressure shut-off plate using the actuating element.

# Key features – Pneumatic components

**Vertical stacking**

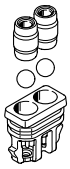
Vertical pressure supply plate for MPA2



This vertical pressure supply plate enables an individual valve to be supplied with individual operating pressure independently of the operating pressure of the valve terminal.

The exhaust and pilot air supply of the valve are still provided via the central ports of the valve terminal.

Check valve



The check valves prevent the air (back pressure) from exhaust ducts 3 and 5 from entering the solenoid valve, preventing the back pressure from having a disruptive effect on other connected actuators.
The check valves are integrated into ducts 3 and 5 of the sub-bases designed specifically for this purpose.

Please see the relevant assembly instructions:
→ www.festo.com/catalogue/mpa → Support/Downloads.

This function makes it possible to effectively protect single-acting process valves from the effects of back pressure.
This ensures reliable and feedback-free switching operations, especially in the case of rapid switching operations.

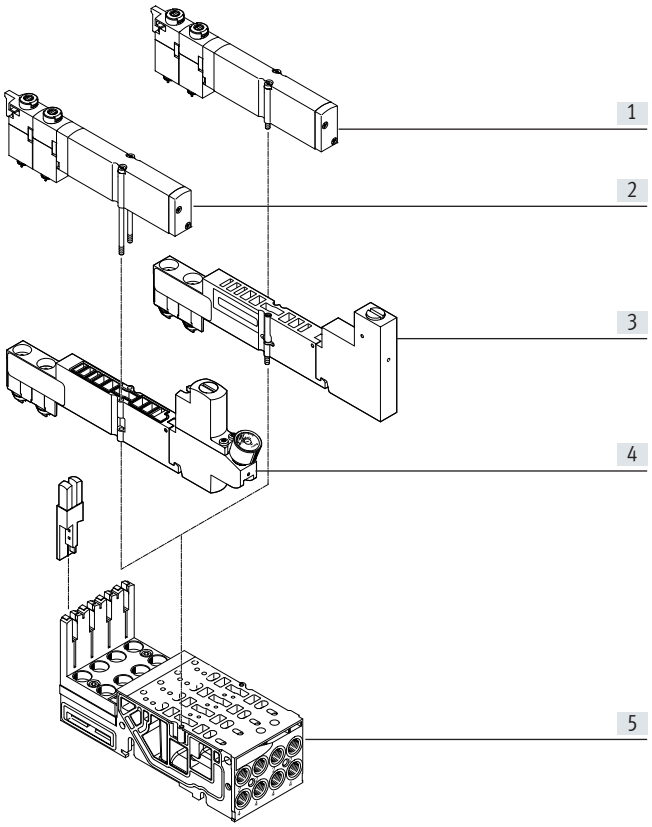
**Note**

- Special sub-bases are available for use with check valves.
- Standard sub-bases cannot be retrofitted with check valves.
- Pre-assembled sub-bases with integrated check valves are available.
- Check valves and fixed flow restrictors cannot be used at the same time (in the same duct).

# Key features – Pneumatic components

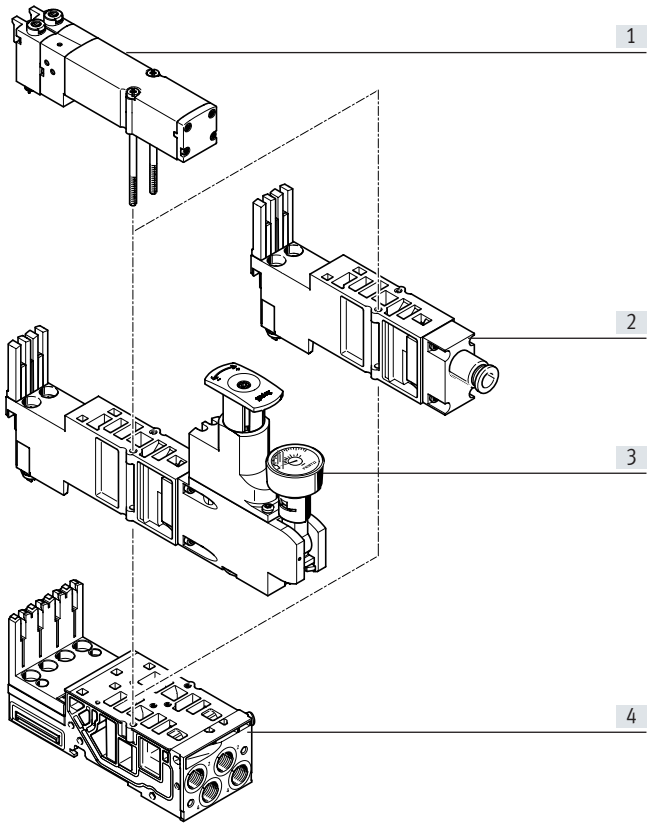
**Vertical stacking**

Vertical stacking components, valve size 10 mm



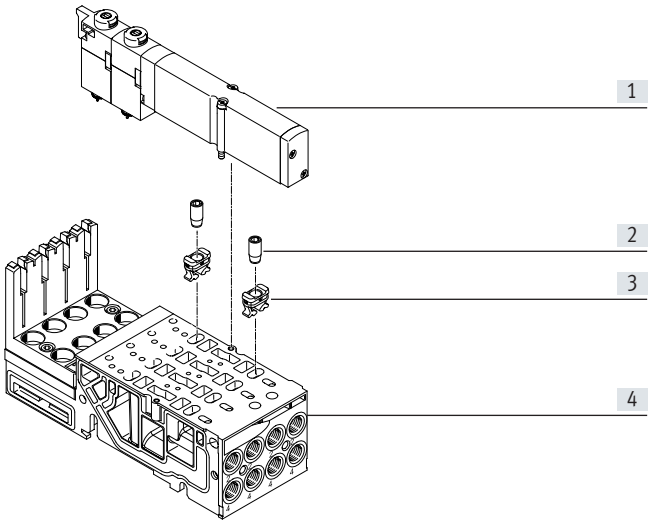

[1] Valve VMPA1
[2] Valve VMPA1, retaining screws replaced by long version (included in the scope of delivery of the regulator plate)
[3] Vertical pressure shut-off plate VMPA1-HS
[4] Regulator plate VMPA1
[5] Sub-base

Vertical stacking components, valve size 20 mm




[1] Valve VMPA2
[2] Vertical pressure supply plate
[3] Regulator plate VMPA2
[4] Sub-base

Fixed flow restrictor for manifold sub-bases MPA1



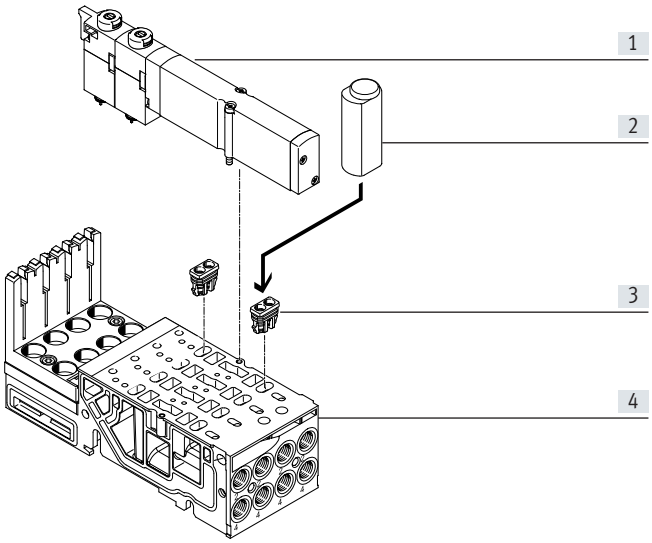

[1] Valve VMPA1
[2] Fixed flow restrictor
[3] Retaining bracket
[4] Sub-base

The fixed flow restrictor can be used to permanently set the exhaust flow rate in ducts 3 and 5. To be able to screw the restrictor into the sub-base, the retaining bracket is first pressed into the exhaust openings on the sub-base as far as the stop.

The fixed flow restrictor can then be screwed in flush with the top side of the retaining bracket. The restrictor screw cuts a thread into the retaining bracket as it is screwed in. As the restrictor is being screwed in, two hooks on the retaining bracket also deform to fix it into the sub-base.

# Key features – Pneumatic components

**Vertical stacking**
Check valve




[1] Valve VMPA14
[2] Assembly tool
[3] Check valve
[4] Sub-base

Festo check valves can only be used in combination with the sub-bases designed specifically for this purpose. The check valves should be installed according to the specifications using the enclosed assembly tool. Once installed, the check valves cannot be removed.

Please see the relevant assembly instructions:
➔ www.festo.com/catalogue/mpa ➔ Support/Downloads.

There are special sub-bases available that facilitate the installation of check valves for widths 14 mm and 20 mm.

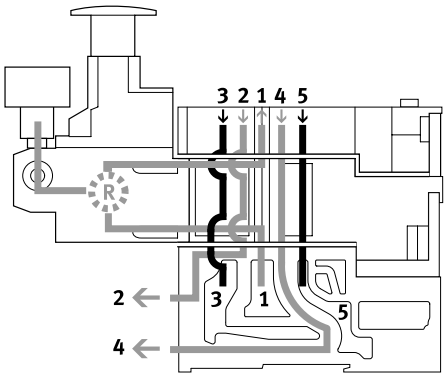
**Note**

- Special sub-bases are available for use with check valves.
- Standard sub-bases cannot be retrofitted with check valves.
- Pre-assembled sub-bases with integrated check valves are available.
- Check valves and fixed flow restrictors cannot be used at the same time (in the same duct).

# Key features – Pneumatic components

**Vertical stacking**

Mode of operation of the pressure regulator plate (P regulator) for port 1; code: PA, PF




This pressure regulator regulates the pressure upstream of the valve in duct 1. Ducts 2 and 4 thus have the same regulated pressure.

During exhausting, the exhaust flow in the valve is from duct 2 to duct 3 and from duct 4 to duct 5.

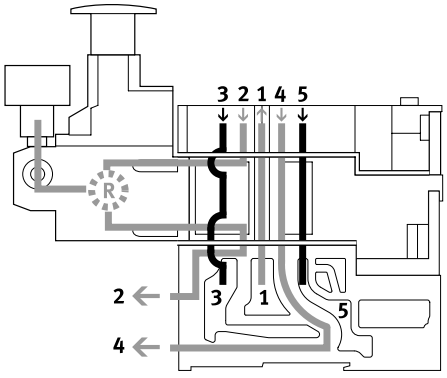
Benefits

- The pressure regulator is not affected by exhausting, since the pressure is regulated upstream of the valve.
- The pressure regulator can always be adjusted, since the pressure from the valve terminal is always present.

Application examples

- An equal working pressure is required at working ports 2 and 4.
- A working pressure (e.g. 3 bar) lower than the operating pressure at the valve terminal (e.g. 8 bar) is required.

Operating mode of the pressure regulator plate (B regulator) for port 2; code: PC, PH




This pressure regulator regulates the pressure in duct 2 after the pressure medium flows through the valve. During exhausting, the air flow in the valve is exhausted from duct 2 to duct 3 via the pressure regulator.

Constraints

The pressure regulator can only be adjusted in the switched state (e.g. the valve has switched to 2 and exhausts from 4 to 5).

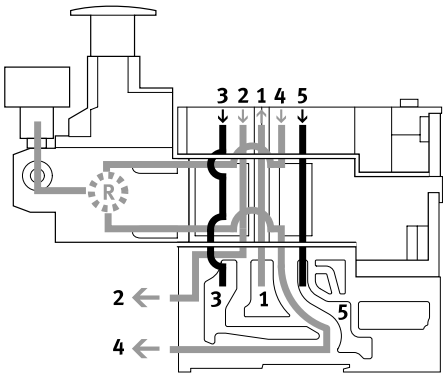
Sample application

The pressure regulator facilitates the reduction of pressure at port 2 of an individual valve rather than the operating pressure of the valve terminal

# Key features – Pneumatic components

**Vertical stacking**

Operating mode of the pressure regulator plate (A regulator) for port 4; code: PB, PK




This pressure regulator regulates the pressure in duct 4 after the pressure medium flows through the valve. During exhausting, the air flow in the valve is exhausted from duct 4 to duct 5 via the pressure regulator.

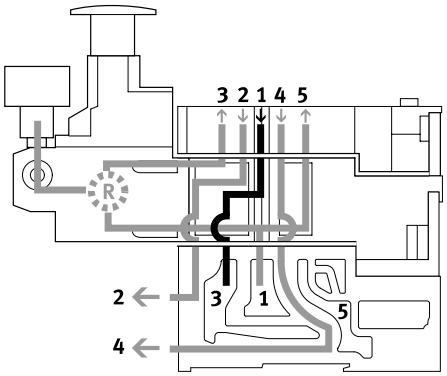
Constraints

The pressure regulator can only be adjusted in the switched state (e.g. the valve has switched to 4 and exhausts from 2 to 3).

Sample application

If different working pressures are required at ports 4 and 2. The pressure from duct 1 is present at port 2.

Operating mode of the pressure regulator plate (B regulator, reversible) for port 2, reversible; code: PL, PN




The reversible B regulator splits the supply air in duct 1 and regulates the pressure upstream of the valve in duct 3 (the unregulated pressure from duct 1 is in duct 5). The regulated air is then routed to duct 2. The valve is thus operated in reverse mode.

During exhausting, the exhaust flow in the valve is from duct 2 to duct 1 and the air is returned to duct 3 via the intermediate plate.

Application examples

- If a different pressure than the operating pressure of the valve terminal is required in duct 2.
- When fast exhausting is required.
- When the pressure regulator must always be adjustable.

**Note**

Reversible pressure regulator plates should only be combined with valves that can be operated in reverse mode.

Benefits

- Fast cycle times
- 50% higher exhaust flow rate, as air is not exhausted via the pressure regulator. The load on the pressure regulator is also reduced.
- No quick exhaust valves are required.
- Operating pressure is always present at the pressure regulator, as the pressure is regulated upstream of the valve, i.e. the regulator can always be adjusted.

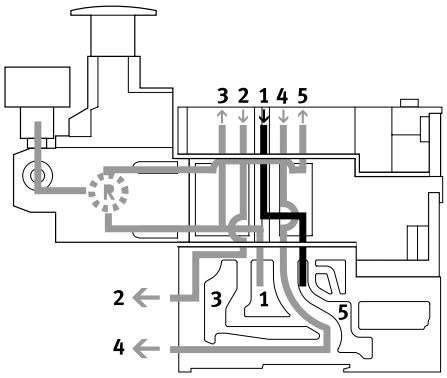
Constraints

- 2x 3/2-way valves (code N, K, H) cannot be used, as pressure is present at ports 3 and 5.

# Key features – Pneumatic components

**Vertical stacking**

Operating mode of the pressure regulator plate (A regulator, reversible) for port 4, reversible; code: PK, PM




The reversible A regulator splits the working air in duct 1 and supplies the pressure upstream of the valve into duct 5 (the unregulated pressure from duct 1 is in duct 3). The regulated air is then routed to duct 4. The valve is thus operated in reversible mode.

During exhausting, the exhaust flow in the valve is from duct 4 to duct 1 and the air is returned to duct 5 via the intermediate plate.

## Application examples

- If a different pressure than the operating pressure of the valve terminal is required in duct 4.
- When fast exhausting is required.
- When the pressure regulator must always be adjustable.

**Note**

Reversible pressure regulator plates should only be combined with valves that can be operated in reverse mode.

## Benefits

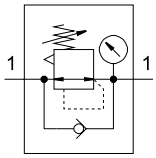
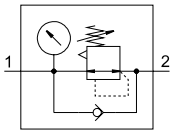
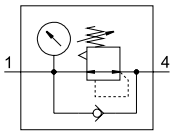
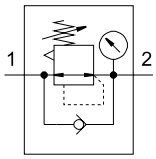
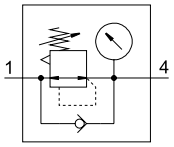
- Fast cycle times
- 50% higher exhaust flow rate, as air is not exhausted via the pressure regulator. The load on the pressure regulator is also reduced.
- No quick exhaust valves are required.
- Operating pressure is always present at the pressure regulator, as the pressure is regulated upstream of the valve, i.e. the regulator can always be adjusted.

## Constraints

- 2x 3/2-way valves (code N, K, H) cannot be used, as pressure is present at ports 3 and 5.

# Key features – Pneumatic components

**Vertical stacking – Pressure regulator plate**

| Code | | Width [mm] | Control range | Description |
|---|---|---|---|---|
| **Pressure regulator plate for port 1 (P regulator)** | | | | |
| PA |  | 10<br>14<br>20 | Up to max. 10 bar | Regulates the operating pressure in duct 1 upstream of the directional control valve |
| PF | | 10<br>14<br>20 | Up to max. 6 bar | |
| **Pressure regulator plate for port 2 (B regulator)** | | | | |
| PC |  | 10<br>14<br>20 | Up to max. 10 bar | Regulates the operating pressure in duct 2 downstream of the directional control valve |
| PH | | 10<br>14<br>20 | Up to max. 6 bar | |
| **Pressure regulator plate for port 4 (A regulator)** | | | | |
| PB |  | 10<br>14<br>20 | Up to max. 10 bar | Regulates the operating pressure in duct 4 downstream of the directional control valve |
| PG | | 10<br>14<br>20 | Up to max. 6 bar | |
| **Pressure regulator plate for port 2, reversible (B regulator)** | | | | |
| PL |  | 20 | Up to max. 10 bar | Reversible pressure regulator for port 2 |
| PN | | 20 | Up to max. 6 bar | |
| **Pressure regulator plate for port 4, reversible (A regulator)** | | | | |
| PK |  | 20 | Up to max. 10 bar | Reversible pressure regulator for port 4 |
| PM | | 20 | Up to max. 6 bar | |

# Key features – Pneumatic components

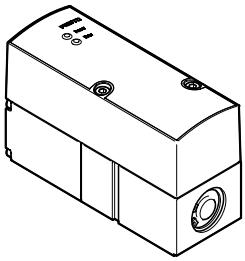
## Description of proportional pressure regulator

The proportional pressure regulator VPPM-... is used to regulate pressure proportional to a specified setpoint value.
A built-in pressure sensor records the pressure at the working port and compares this value with the setpoint value. In the event of deviations between the setpoint value and actual value, the valve regulates until the output pressure has reached the setpoint value. For a constant pressure supply, which is required for high control quality, the proportional pressure regulator has an additional supply port.
The proportional pressure regulator can be configured via the PLC or on-site via the interface for CPX-FMT. The proportional pressure regulator can be used for CPI connection and fieldbus.

**Note**

Output pressure will be unregulated if there is a break in the power supply cable.

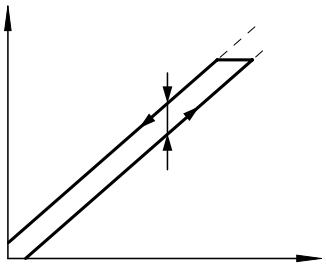
**Proportional pressure regulator**

| Illustration | Code | Type | Linearity error full-scale [%] | Input pressure 1 [MPa] | Pressure regulation range [MPa] |
|---|---|---|---|---|---|
|  | QA | VPPM-6TA-L-1-F-0L2H | 2 | 0 ... 0.4 | 0.002 ... 0.2 |
| | QB | VPPM-6TA-L-1-F-0L6H | 2 | 0 ... 0.8 | 0.006 ... 0.6 |
| | QC | VPPM-6TA-L-1-F-0L10H | 2 | 0 ... 1.1 | 0.01 ... 1 |
| | QD | VPPM-6TA-L-1-F-0L2H-S1 | 1 | 0 ... 0.4 | 0.002 ... 0.2 |
| | QE | VPPM-6TA-L-1-F-0L6H-S1 | 1 | 0 ... 0.8 | 0.006 ... 0.6 |
| | QF | VPPM-6TA-L-1-F-0L10H-S1 | 1 | 0 ... 1.1 | 0.01 ... 1 |
| | QG | VPPM-8TA-L-1-F-0L2H-C1 | 2 | 0 ... 0.4 | 0.002 ... 0.2 |
| | QH | VPPM-8TA-L-1-F-0L6H-C1 | 2 | 0 ... 0.8 | 0.006 ... 0.6 |
| | QK | VPPM-8TA-L-1-F-0L10H-C1 | 2 | 0 ... 1.1 | 0.01 ... 1 |
| | QL | VPPM-8TA-L-1-F-0L2H-S1C1 | 1 | 0 ... 0.4 | 0.002 ... 0.2 |
| | QM | VPPM-8TA-L-1-F-0L6H-S1C1 | 1 | 0 ... 0.8 | 0.006 ... 0.6 |
| | QN | VPPM-8TA-L-1-F-0L10H-S1C1 | 1 | 0 ... 1.1 | 0.01 ... 1 |

# Key features – Pneumatic components

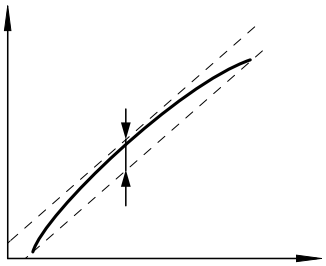
**Terms related to the proportional-pressure regulator**

## Hysteresis



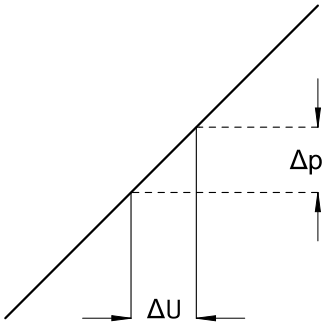
There is always a linear relationship within a certain tolerance between the setpoint value entered and the pressure output. Nevertheless, it makes a difference whether the setpoint value is entered as rising or falling. The difference between the maximum deviations is referred to as hysteresis.

## Linearity error



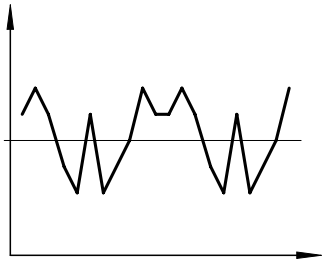
A perfectly linear progression of the control characteristic of the output pressure is theoretical. The maximum percentage deviation from this theoretical control characteristic is referred to as the linearity error. The percentage value refers to the maximum output pressure (full scale).

## Response sensitivity



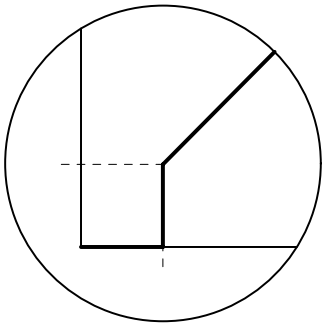

The response sensitivity of the device determines how sensitively one can change, i.e. adjust, a pressure.
The smallest setpoint value difference that results in a change in the output pressure is referred to as the response sensitivity.
In this case, 0.01 bar.

## Repetition accuracy (reproducibility)



The repetition accuracy is the margin within which the fluidic output variable is scattered when the same electrical input signal coming from the same direction is repeatedly adjusted. The repetition accuracy is expressed as a percentage of the maximum fluidic output signal.

## Zero point suppression



In practice, there can be a residual voltage or residual current at the setpoint input of the VPPM via the setpoint generator.
Zero point suppression is used so the valve is reliably exhausted at a setpoint value of zero.

# Key features – Pneumatic components

## Cover plate

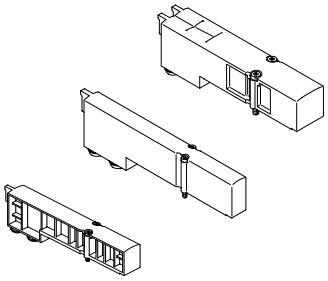


Plate without valve function for reserving valve positions on a valve terminal.

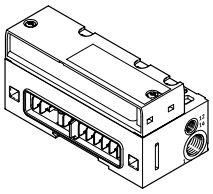
Valve and cover plates are attached to the sub-base using two screws.

**Valve function**

| Code | Circuit symbol | Width [mm] | Description |
|---|---|---|---|
| L | – | 10, 14, 20 | For valve terminal only: cover plate for valve position |

## Compressed air supply and exhaust

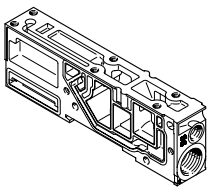
Pneumatic interface



The valve terminal MPA can be supplied with air at one or more points. This ensures that the valve terminal will always have an adequate air supply and exhaust, even with large-scale expansions.
The main supply to the valve terminal is located on the pneumatic interface, which links the electrical and pneumatic parts. Additional provision is made for several supply plates.

Exhausting is either via integrated flat plate silencers or common lines for ducted exhaust air.
These exhausts are located on the pneumatic interface as well as on the supply plates and on the right end plate (VMPA-ERP-G).

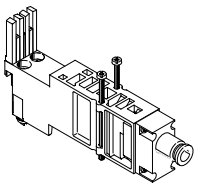
Supply plate



When there is a need to increase the air supply, additional supply plates can be provided.

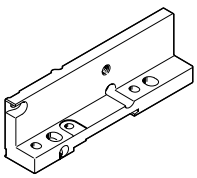
Exhausting is either via integrated flat plate silencers or common lines for ducted exhaust air.
For ducted exhaust air, at least one additional supply plate is required, which is used to exhaust the air from the pilot air supply (port 82/84) (when using a right end plate without port 82/84).

Vertical pressure supply plate



The individual compressed air supply of a single valve with a width of 20 mm can be realised using the vertical pressure supply plate VMPA2-VSP- ....

Right end plate (VMPA-ERP-G)



The air to be exhausted can be ducted using the right end plate with port 82/84 (VMPA-ERP-G).

# Key features – Pneumatic components

## Pilot air supply

The port for the main pneumatic supply is located on the pneumatic interface.
The ports differ for the following types of pilot air supply:
- Internal
- External

**Internal pilot air supply**
If the required working pressures are between 0.3 and 0.8 MPa, internal pilot air supply can be selected.
The pilot air supply is then branched from the working air 1 in the pneumatic interface using an internal connection. Port 12/14 is sealed with a blanking plug.

**External pilot air supply**
If the supply pressure is less than 0.3 MPa or greater than 0.8 MPa, you must operate your MPA valve terminal with external pilot air supply.
In this case, the pilot air is additionally supplied via port 12/14 on the pneumatic interface.

**Note**
If a gradual pressure build-up in the system using a soft-start valve is chosen, an external pilot air supply should be connected so that the pilot pressure applied during switch-on is already very high.

## Pilot air switching valve

The pilot air switching valve supplies the downstream valves in a pressure zone with pilot air (12/14). The pilot air switching valve can be used to implement the safety function "Protection against unexpected start-up".

The compressed air to the pilot air switching valve can be supplied either internally via duct 1 of the valve terminal (or pressure zone) or externally via port 2 of the sub-base on which the pilot air switching valve is located.

In the case of internal pressure supply from duct 1, vacuum operation (in duct 1) is not possible.

When configuring the compressed air supply, please ensure that the pilot air switching valve has a working pressure of 0.3...0.8 MPa.
Like all valves MPA, the pilot air switching valve has a manual override.

## Pilot air switching valve

**Internal pilot air supply**
Normal position:
- Pressure is supplied via duct 1.
- Duct 2 on the sub-base is sealed with a blanking plug.
- Operating pressure of 0.3...0.8 MPa required in duct 1.
- In the normal position of the valve, duct 14 is exhausted to atmosphere via port 4 of the sub-base (silencer).

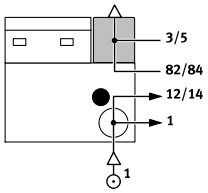
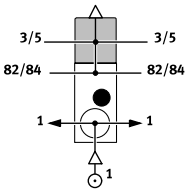
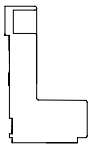
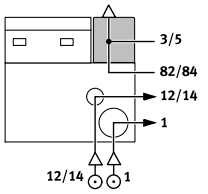
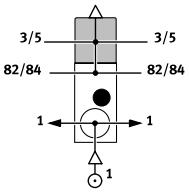
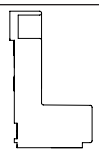
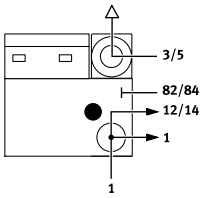
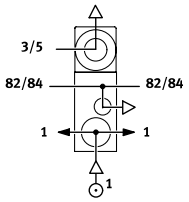
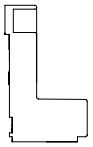
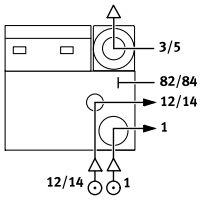
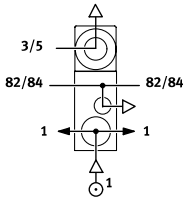
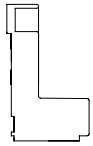
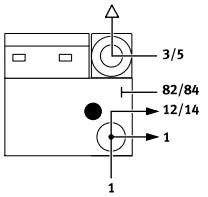
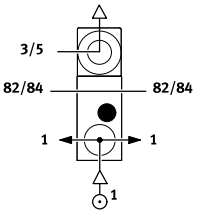
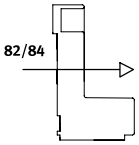
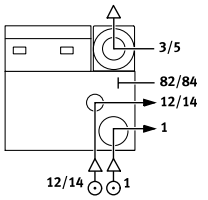
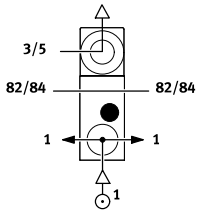
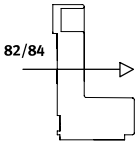
Switching status:
- In the switched position, duct 12/14 of the valve terminal is supplied with pressure from duct 1 via the pilot air switching valve.
- The integrated pressure sensor reports the presence of pressure in duct 12/14.

**External pilot air supply**
Normal position:
- Pressure is supplied via duct 2.
- The connection between duct 1 and the valve is closed.
- No restriction on the operating pressure in duct 1.
- In the normal position of the valve, duct 14 is exhausted to atmosphere via port 4 of the sub-base (silencer).

Switching status:
- In the switched position, duct 12/14 of the valve terminal is supplied with pressure from duct 2 via the pilot air switching valve.
- The integrated pressure sensor reports the presence of pressure in duct 12/14.

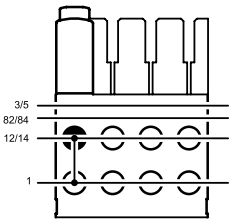
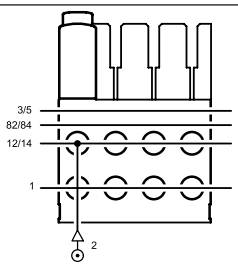
# Key features – Pneumatic components

**Fluid power supply and pilot air supply**

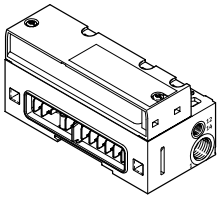
| Code | Illustration<br>Type of compressed air supply and pilot air supply | | | Information |
|---|---|---|---|---|
| | Pneumatic interface | Supply plate | End plate, right | |
| S |  |  |  | Internal pilot air supply, flat plate silencer<br>• Pilot air supply is branched internally from port 1 in the pneumatic interface<br>• Exhaust port 3/5 and pilot exhaust port 82/84 via flat plate silencer<br>• For operating pressure in the range 0.3 ... 0.8 MPa |
| T |  |  |  | External pilot air supply, flat plate silencer<br>• Pilot air supply between 0.3 and 0.8 MPa is connected at port 12/14<br>• Exhaust port 3/5 and pilot exhaust port 82/84 via flat plate silencer<br>• For operating pressure in the range –0.09 ... +1 MPa (suitable for vacuum) |
| V |  |  |  | Internal pilot air supply, ducted exhaust air<br>• Pilot air supply is branched internally from port 1 in the pneumatic interface<br>• Exhaust port 3/5: connection to pneumatic interface and supply plate<br>• Pilot exhaust port 82/84: connection to supply plate only<br>• For operating pressure in the range 0.3 ... 0.8 MPa |
| X |  |  |  | External pilot air supply, ducted exhaust air<br>• Pilot air supply (0.3 ... 0.8 MPa) is connected at port 12/14.<br>• Exhaust port 3/5: connection to pneumatic interface and supply plate<br>• Pilot exhaust port 82/84: connection to supply plate only<br>• For operating pressure in the range –0.09 ... +1 MPa (suitable for vacuum) |
| Y |  |  |  | Internal pilot air supply, ducted exhaust air via right-hand end plate<br>• Pilot air supply is branched internally from port 1 in the pneumatic interface<br>• Exhaust port 3/5: connection to pneumatic interface and supply plate<br>• Pilot exhaust air 82/84 ducted via right-hand end plate (VMPA-EPR-G)<br>• For operating pressure in the range 0.3 ... 0.8 MPa |
| Z |  |  |  | External pilot air supply, ducted exhaust air via right-hand end plate<br>• Pilot air supply (0.3 ... 0.8 MPa) is connected at port 12/14.<br>• Exhaust port 3/5: connection to pneumatic interface and supply plate<br>• Pilot exhaust air 82/84 ducted via right-hand end plate (VMPA-EPR-G)<br>• For operating pressure in the range –0.09 ... +1 MPa (suitable for vacuum) |

# Key features – Pneumatic components

**Fluid power supply and pilot air supply**

| Code | Illustration<br>Type of compressed air supply and pilot air supply<br>Pilot air switching valve | Information |
|---|---|---|
| IS, IU |  | Internal pilot air supply, pilot air switching valve<br>• Pilot air supply is branched internally from port 1 in the pilot air switching valve<br>• Pilot air supply for the pressure zone to the right of the pilot air switching valve<br>• In the unswitched state, duct 12/14 is exhausted via a silencer at port 4 of the pilot air switching valve<br>• For operating pressure in the range 0.3 ... 0.8 MPa<br>• Separating seal to pneumatic interface required |
| ES, EU |  | External pilot air supply, pilot air switching valve<br>• Pilot air supply is connected externally via port 2 on the pilot air switching valve<br>• Pilot air supply for the pressure zone to the right of the pilot air switching valve<br>• In the unswitched state, duct 12/14 is exhausted via a silencer at port 4 of the pilot air switching valve<br>• For operating pressure in the range -0.09 ... +1.0 MPa<br>• Separating seal to pneumatic interface required |

**Pneumatic interface**

| Code | Pneumatic interface design variants | | Information |
|---|---|---|---|
| | Illustration | Type | |
| M |  | VMPA-...-EPL-... | • Used together with compressed air supply S, T, V, X<br>• In combination with V or X, the pilot exhaust air must be exhausted at at least one supply plate. With several supply plates, port 82/84 on the final one is open ex works. |

# Key features – Pneumatic components

## Supply plate

Additional supply plates can be used for larger terminals or to create pressure zones.

If several valves are to be operated simultaneously at full flow rate, it is recommended that a supply plate be positioned after every 8 valves (MPA1 or MPA14), or every 4 valves (MPA2).

Supply plates can be configured at any point upstream or downstream of sub-bases.

This applies to the following interfaces:
- MPA with CPX
- MPA with multi-pin plug connection
- MPA with AS-Interface connection
- MPA with CPI connection

**MPA with ducted exhaust air**
When using a right-hand end plate without port 82/84, it is essential that a supply plate for ducted exhaust air is used. Alternatively, an end plate with port 82/84 (VMPA-EPR-G) can be used for ducted exhaust air. In this case, no supply plate is required.

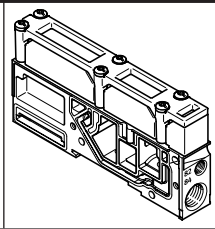
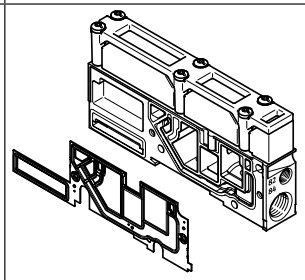
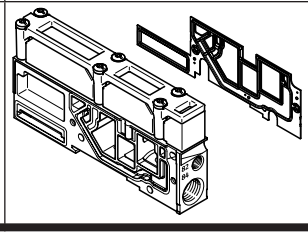
Supply plates contain the ports:
- Compressed air supply (1)
- Exhaust for the pilot air supply (82/84) and pressure compensation
- Exhaust air (3/5)

Depending on your order, the exhaust ducts are either ducted or exhausted via the flat plate silencer.

The supply plate is configured using the code letter U if no directly adjoining separating seal is required.

If a separating seal (S, T or R) is selected directly to the right or left of the supply plate, then the code letter V or W identifies the position of the left or right separating seal. The code for the separating seal (S, T or R) is placed in front of the code for the supply plate (V or W).

**Supply plate (without exhaust plate)**

| Code[1)] | Illustration | Type | Information |
|---|---|---|---|
| U |  | VMPA1-...-SP... | Supply plate without separating seal (no R, S or T selected) |
| V |  | VMPA1-...-SP... | Supply plate with separating seal on left, if R, S or T selected |
| W |  | VMPA1-...-SP... | Supply plate with separating seal on right, if R, S or T selected |

1) Depending on the air supply code S, T, V, X, the supply plate is equipped with a silencer or an exhaust plate.

# Key features – Electrical components

## Electrical supply plate

Additional electrical supply plates can be used for larger terminals.
This enables up to 64 valve positions/128 solenoid coils to be supplied.

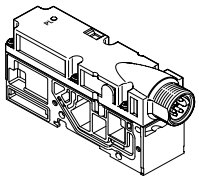
**MPA with CPX**
Electrical supply plates can be configured at any point upstream or downstream of sub-bases.
An electrical supply plate is required after 8 valve sub-bases.

**MPA with CPI connection**
Electrical supply plates can be configured at any point upstream or downstream of sub-bases.
An electrical supply plate is required after 8 valve sub-bases.

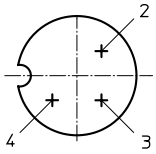
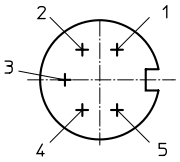
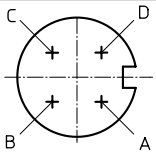
**Note**
For MPA with CPI connection, a maximum of 24 of the 32 MPA1 or MPA14 coils or 12 of the 16 MPA2 coils can be switched on simultaneously.

**Note**
Please note that only the electronics modules with a separate circuit are permitted to the right of the electrical supply plate.
The electrical supply plate must not be installed directly to the left of a pneumatic supply plate (type VMPA1-FB-SP...).

**Electrical supply plate**

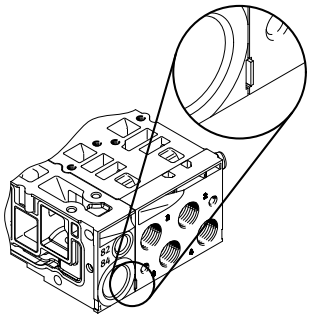
| Code | Illustration | Type | Information |
|---|---|---|---|
| L |  | VMPA-FB-SP-V | Electrical supply plate with M18 plug connection, 3-pin |
| | | VMPA-FB-SP-7/8-V-5POL | Electrical supply plate with 7/8" plug connection, 5-pin |
| | | VMPA-FB-SP-7/8-V-4POL | Electrical supply plate with 7/8" plug connection, 4-pin |

**Pin allocation for power supply**

| | Pin | Allocation |
|---|---|---|
| **Pin allocation for M18** | | |
|  | 2 | 24 V DC valves |
| | 3 | 0 VDC |
| | 4 | FE |
| **Pin allocation for 7/8", 5-pin** | | |
|  | 1 | 0 V DC valves |
| | 2 | n.c. |
| | 3 | FE (leading) |
| | 4 | n.c. |
| | 5 | 24 V DC valves |
| **Pin allocation for 7/8", 4-pin** | | |
|  | A | n.c. |
| | B | 24 V DC valves |
| | C | FE |
| | D | 0 V DC valves (leading) |

# Key features – Pneumatic components

## Creating pressure zones and separating exhaust air



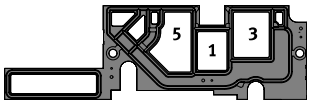
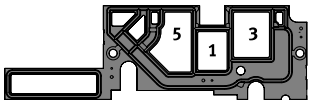
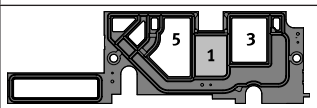
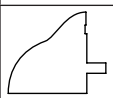
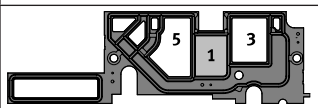
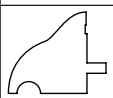
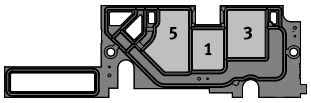
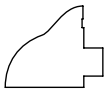
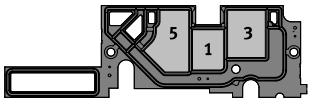
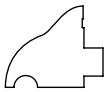
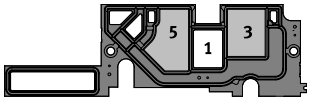
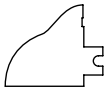
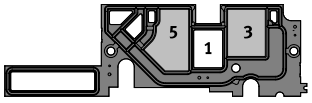
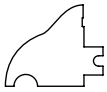
MPA offers a number of options for creating pressure zones if different working pressures are required. Depending on the electrical interface, up to 16 pressure zones are possible.
A pressure zone is created by isolating the internal supply ducts between the sub-bases using an appropriate separating seal or using a separator that is permanently integrated in the sub-base (code I or code III).

Compressed air is supplied and exhausted via a supply plate.
The position of the supply plates and separating seals can be freely selected with the valve terminal MPA.
Separating seals are integrated ex-works as per your order.
Separating seals can be recognised by their coding, even when the valve terminal is assembled.

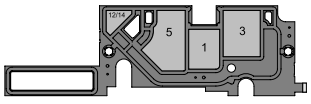
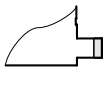
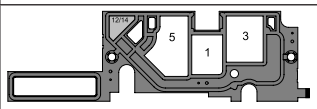
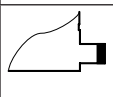
**Note**

The following must be taken into account for expansion or conversions at a later date:
Different separating seals are required for operating with ducted exhaust air and operation with flat plate silencers.

**Creating pressure zones – using a separating seal**

| Code | For operation with flat plate silencer | | For operation with ducted exhaust air | | Information |
|---|---|---|---|---|---|
| | Illustrated examples | Coding | Illustrated examples | Coding | |
| – |  VMPA...-DPU |  |  VMPA...-DP |  | No duct separation |
| T |  VMPA...-DPU-P |  |  VMPA...-DP-P |  | Duct 1 separated |
| S |  VMPA...-DPU-PRS |  |  VMPA...-DP-PRS |  | Duct 1 and 3/5 separated |
| R |  VMPA...-DPU-RS |  |  VMPA...-DP-RS |  | Duct 3/5 separated |

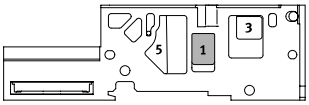
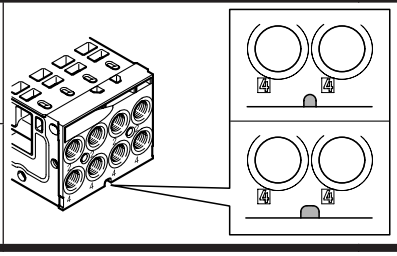
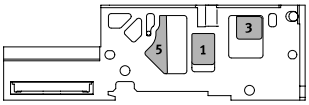
**Creating pressure zones – using a separating seal**

| Code | For operation with pilot air switching valve | | Information |
|---|---|---|---|
| | Illustrated examples | Coding | |
| N[1), 2)] |  |  | • Ducts 12/14 and 1, 3, 5 separated<br>• Coding with yellow marking |
| K[1)] |  |  | • Duct 12/14 separated<br>• Coding with black marking |

1) Only in combination with pilot air switching valve
2) Only in combination with additional feed/supply plate

# Key features – Pneumatic components

**Creating pressure zones – via sub-base**

| Code | For operation with flat plate silencer or with ducted exhaust air | | Information |
|---|---|---|---|
| | Illustrated examples | Coding | |
| I |  |  | Duct 1 separated (short marking) |
| III |  | | Duct 1 and 3/5 separated (long marking) |

**Note**

Duct separation cannot be removed at a later date and takes place in the centre of the sub-base:

- Between valve 2 and 3 for width 10 mm
- Between valve 2 and 3 for width 14 mm
- Between valve 1 and 2 for width 20 mm

# Key features – Pneumatic components

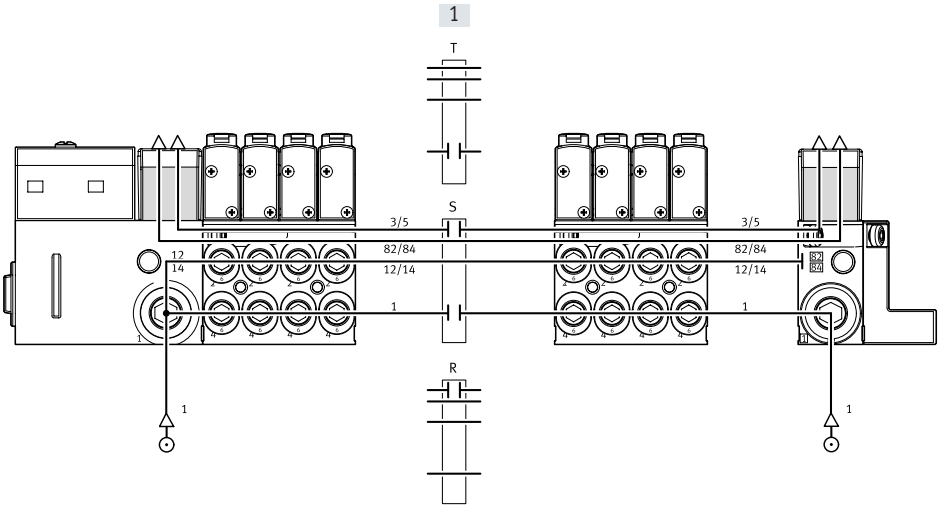
**Examples: compressed air supply and pilot air supply**

Internal pilot air supply, flat plate silencer

Pneumatic supply to the valve terminal: code S

The illustration on the right shows an example of the configuration and connection of the air supply with internal pilot air supply. Port 12/14 on the pneumatic interface or on the electrical interface (multi-pin) is tightly sealed. Ports 3/5 and 82/84 are exhausted via the flat plate silencers. Port 82/84 is tightly sealed. Separating seals can optionally be used to create pressure zones.

[1] Optional separating seal

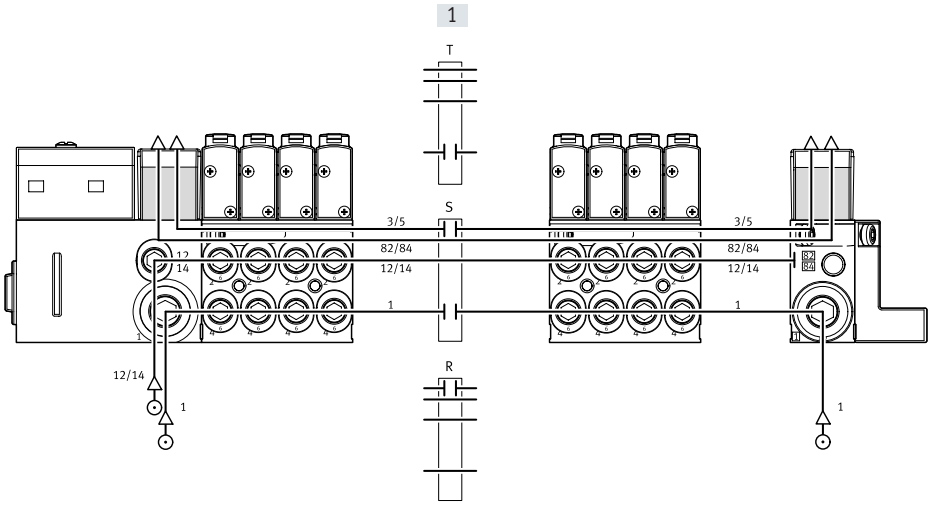



External pilot air supply, flat plate silencer

Pneumatic supply to the valve terminal: code T

The illustration on the right shows an example of how the compressed air supply is configured and connected when using external pilot air supply. Port 12/14 on the pneumatic interface or the electrical interface (multi-pin) is equipped with a fitting for this purpose. Ports 3/5 and 82/84 are exhausted via the flat plate silencers. Port 82/84 is tightly sealed. Separating seals can optionally be used to create pressure zones.

[1] Optional separating seal



# Key features – Pneumatic components

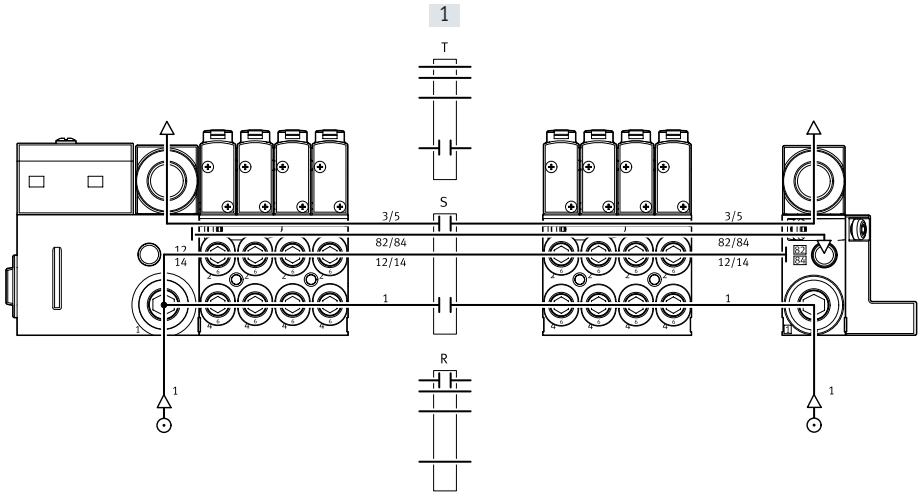
**Examples: compressed air supply and pilot air supply**

Internal pilot air supply, ducted exhaust air

Pneumatic supply to the valve terminal: code V

The illustration on the right shows an example of the configuration and connection of the compressed air supply with internal pilot air supply. Port 12/14 on the pneumatic interface or on the electrical interface (multi-pin) is tightly sealed. Exhaust ports 3/5 and 82/84 are exhausted via the appropriate connections. Separating seals can optionally be used to create pressure zones.

[1] Optional separating seal

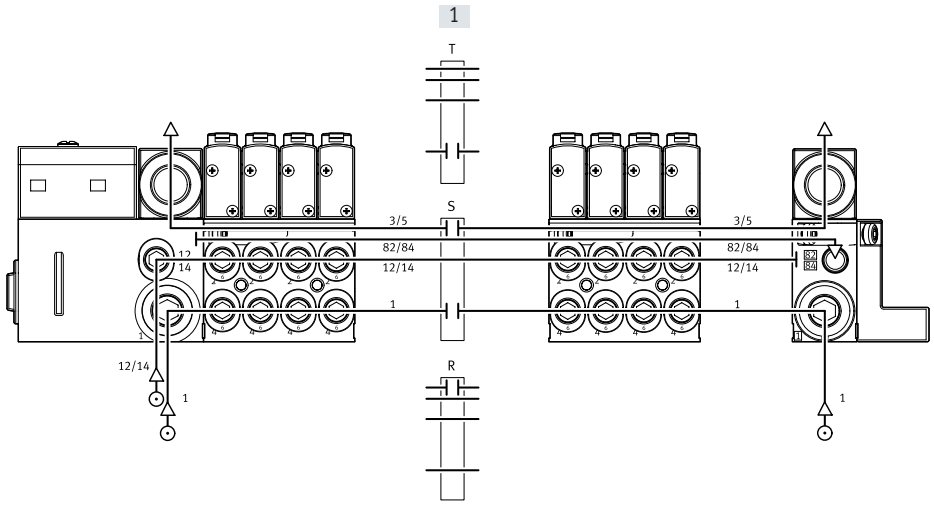



External pilot air supply, ducted exhaust air

Pneumatic supply to the valve terminal: code X

The illustration on the right shows an example of the configuration and connection of the compressed air supply in the case of external pilot air supply. Port 12/14 on the pneumatic interface or the electrical interface (multi-pin) is equipped with a fitting for this purpose. Exhaust ports 3/5 and 82/84 are exhausted via the appropriate connections. Separating seals can optionally be used to create pressure zones.

[1] Optional separating seal



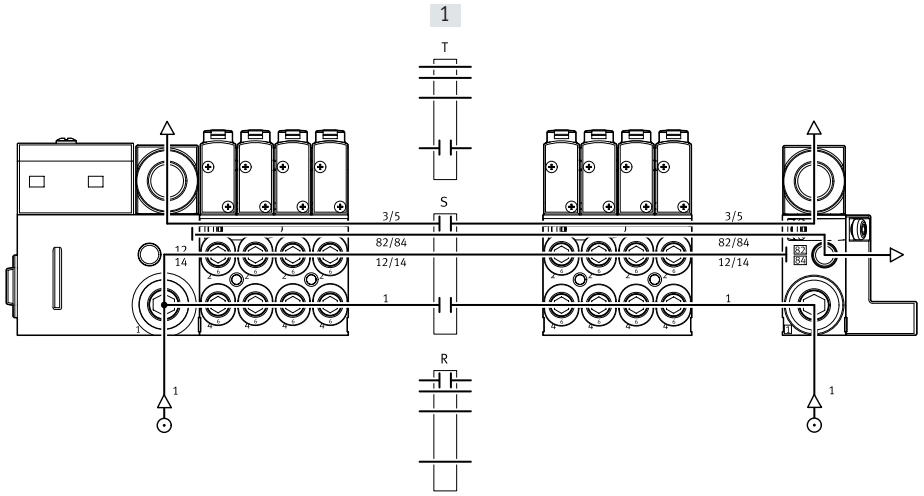
# Key features – Pneumatic components

**Examples: compressed air supply and pilot air supply**

Internal pilot air supply, ducted exhaust air 82/84 via right-hand end plate

Pneumatic supply to the valve terminal: code Y

The illustration on the right shows an example of the configuration and connection of the compressed air supply with internal pilot air supply. Port 12/14 on the pneumatic interface or on the electrical interface (multi-pin) is tightly sealed. The exhaust port 3/5 is exhausted via the corresponding ports. The exhaust air from port 82/84 is ducted via the right end plate (VMPA-EPR-G). In this case, there is no need for a power supply module for exhausting the ducted exhaust air 82/84. Separating seals can optionally be used to create pressure zones.

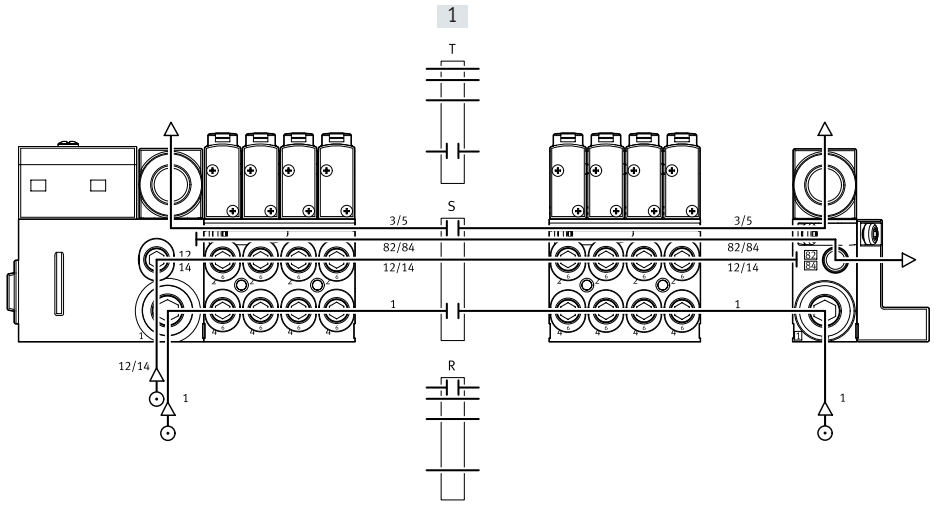



[1] Optional separating seal

External pilot air supply, ducted exhaust air 82/84 via right-hand end plate

Pneumatic supply to the valve terminal: code Z

The illustration on the right shows an example of the configuration and connection of the compressed air supply in the case of external pilot air supply. Port 12/14 on the pneumatic interface or the electrical interface (multi-pin) is equipped with a fitting for this purpose. The exhaust port 3/5 is exhausted via the corresponding ports. The exhaust air from port 82/84 is ducted via the right end plate (VMPA-EPR-G). In this case, there is no need for a power supply module for exhausting the ducted exhaust air 82/84. Separating seals can optionally be used to create pressure zones.




[1] Optional separating seal

# Key features – Pneumatic components

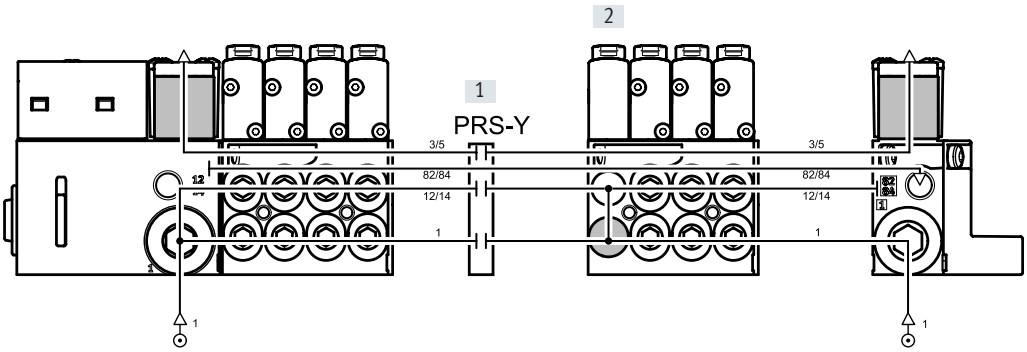
**Examples: compressed air supply and pilot air supply**
Pilot air switching valve for internal pilot air supply

Pneumatic supply to the valve terminal with internal pilot air.

Second pressure zone with pilot air switching valve with internal pilot air supply: code IU, IS

The illustration on the right shows an example of the configuration and connection of the compressed air supply with internal pilot air supply. Port 12/14 on the pneumatic interface or on the electrical interface (multi-pin) and on the pilot air switching valve is tightly sealed. Exhaust ports 3/5 and 82/84 are exhausted via the appropriate connections. The separating seal is essential when using the pilot air switching valve. Pilot air supply for the pressure zone to the right of the pilot air switching valve can be individually switched off by the pilot air switching valve of duct 1 of this pressure zone.

[1] Separating seal, specifically for pilot air switching valve with separation of duct 12/14
[2] Pilot air switching valve for internal pilot air supply



# Key features – Pneumatic components

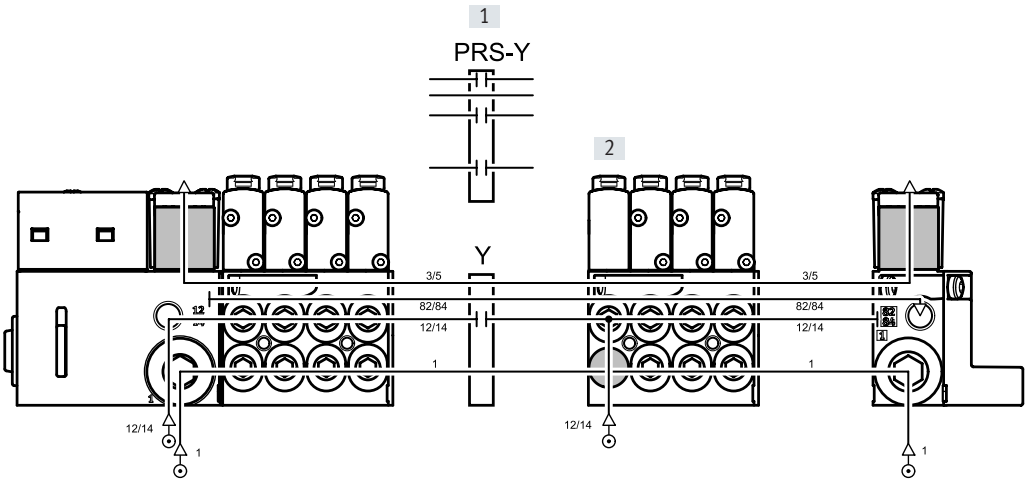
**Examples: compressed air supply and pilot air supply**
Pilot air switching valve for external pilot air supply

Pneumatic supply to the valve terminal with external pilot air.

Second pressure zone with pilot air switching valve with external pilot air supply: code EU, ES

The illustration on the right shows an example of the configuration and connection of the compressed air supply in the case of external pilot air supply. Port 12/14 on the pneumatic interface or the electrical interface (multi-pin) is equipped with a fitting for this purpose. Exhaust ports 3/5 and 82/84 are exhausted via the appropriate connections. A separating seal with separation of duct 12/14 is essential when using the pilot air switching valve. Pilot air supply for the pressure zone to the right of the pilot air switching valve can be individually switched off by the pilot air switching valve. The pilot air switching valve obtains the compressed air supply for the pilot air from port 2 of the sub-base.

[1] Separating seal, specifically for pilot air switching valve with separation of duct 12/14
[2] Pilot air switching valve for external pilot air supply



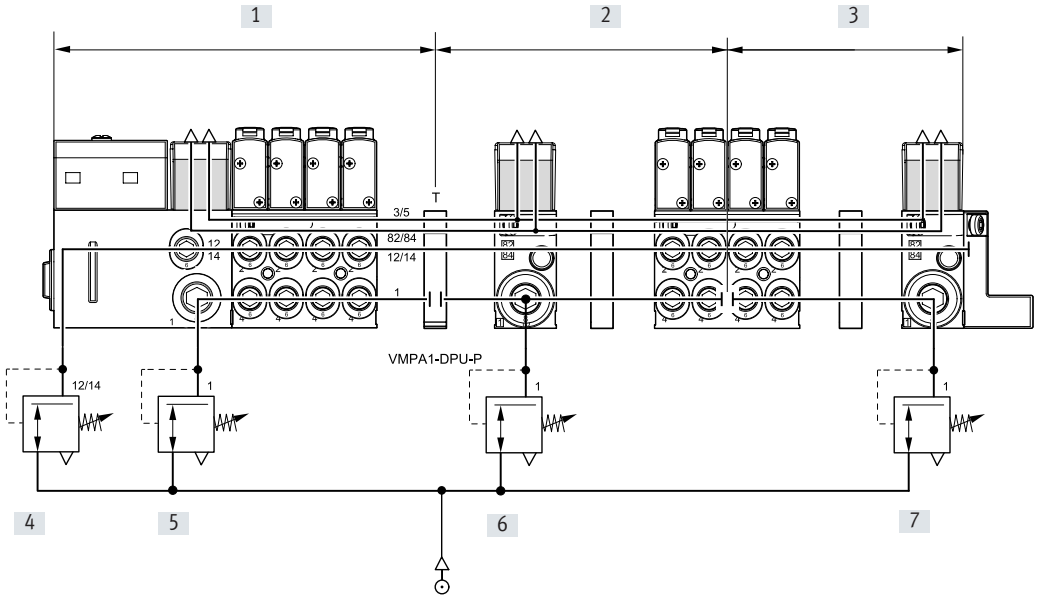
# Key features – Pneumatic components

**Examples: Creating pressure zones**

MPA with CPX terminal connection

The illustration shows an example of the configuration and connection of three pressure zones using separating seals – with external pilot air supply.

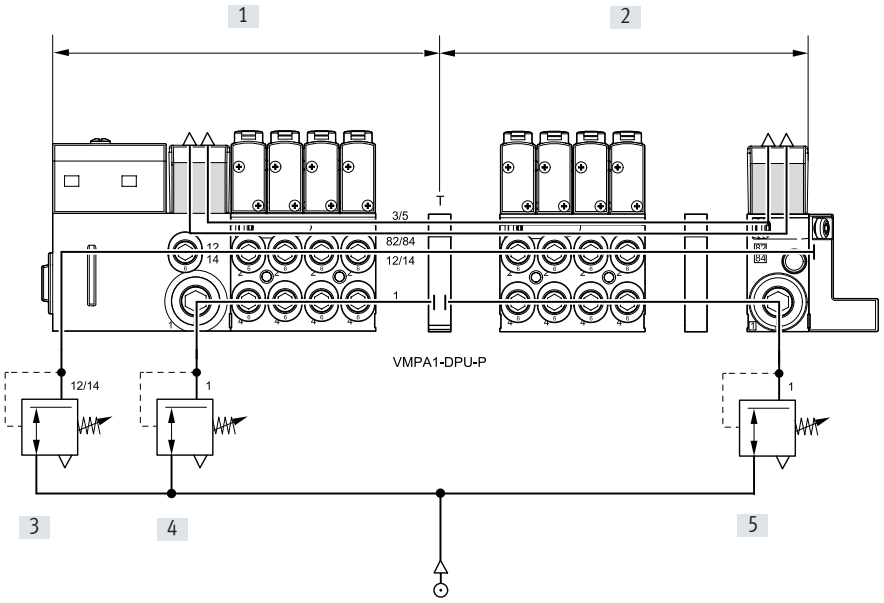
[1] Zone 1
[2] Zone 2
[3] Zone 3
[4] Pilot air supply
[5] P1
[6] P2
[7] P3




MPA with multi-pin plug connection

The illustration shows an example of the configuration and connection of the pressure zones – with external pilot air supply.

[1] Zone 1
[2] Zone 2
[3] Pilot air supply
[4] P1
[5] P2



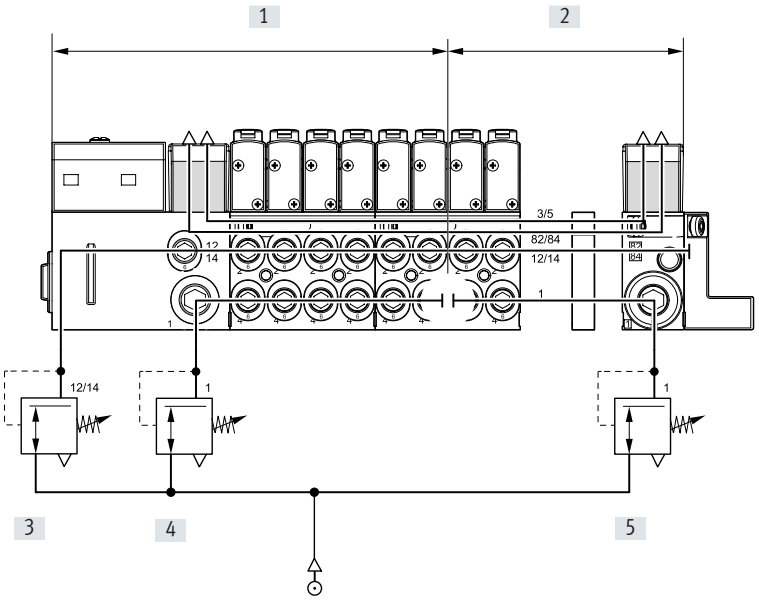
# Key features – Pneumatic components

**Examples: Creating pressure zones**

Sub-base with pressure zone separation in duct 1

Another option for pressure zone separation can be achieved by using sub-bases with pressure zone separation.
The illustration on the right shows the variant with pressure zone separation in duct 1.

Pilot air supply
[1] Zone 1
[2] Zone 2
[3] Pilot air supply
[4] P1
[5] P2

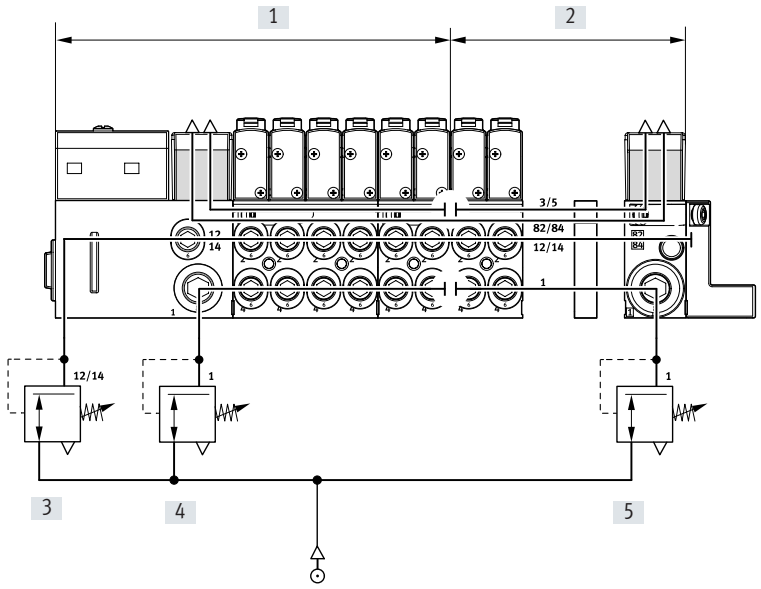



Sub-base with pressure zone separation in duct 1 and duct 3/5

The illustration on the right shows the variant with pressure zone separation in duct 1 and duct 3/5.

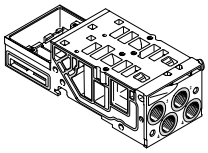
Pilot air supply

[1] Zone 1
[2] Zone 2
[3] Pilot air supply
[4] P1
[5] P2



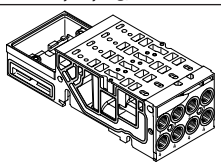
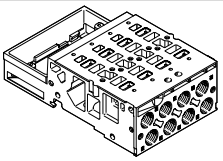
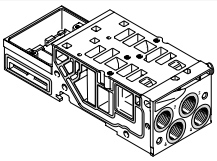
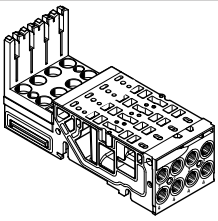
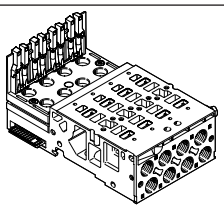
# Key features – Pneumatic components

## Sub-base



MPA is based on a modular system consisting of sub-bases and valves. The sub-bases are screwed together, thus forming the support system for the valves.
They contain the ducts for supplying compressed air to and exhausting the valve terminal as well as the working ports for the pneumatic drives for each valve.
Each sub-base is connected to the next using three screws. Individual valve terminal sections can be isolated and further blocks can be inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

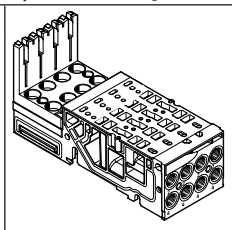
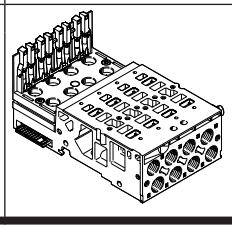
**Sub-base variants**

| Code | Illustration | Type | Width [mm] | Number of valve positions (solenoid coils) | Information |
|---|---|---|---|---|---|
| **Sub-base for multi-pin plug/fieldbus connection** | | | | | |
| A, C[1)] |  | VMPA1-FB-AP-4-1 | 10 | 4 (8/4[1)]) | Working ports (2, 4) on sub-base<br>• Connection sizes: MPA1: M7, QS4, QS6<br>• Code I: duit 1 separated in the sub-base<br>• Code III: duct 1 and duct 3/5 separated in the sub-base |
| AI, CI[1)] | | VMPA1-FB-AP-4-1-T1 | | | |
| AIII, CIII[1)] | | VMPA1-FB-AP-4-1-S1 | | | |
| E, F[1)] |  | VMPA14-FB-AP-4-1 | 14 | 4 (8/4[1)]) | Working ports (2, 4) on sub-base<br>• Connection sizes MPA14: G1/8, QS6, QS8<br>• Code I: duct 1 separated in the sub-base<br>• Code III: duct 1 and duct 3/5 separated in the sub-base |
| EI, FI[1)] | | VMPA14-FB-AP-4-1-T1 | | | |
| EIII, FIII[1)] | | VMPA14-FB-AP-4-1-S1 | | | |
| B, D[1)] |  | VMPA2-FB-AP-2-1 | 20 | 2 (4/2[1)]) | Working ports (2, 4) on sub-base<br>• Connection sizes MPA2: G1/8, QS6, QS8<br>• Code I: duct 1 separated in the sub-base<br>• Code III: duct 1 and duct 3/5 separated in the sub-base |
| BI, DI[1)] | | VMPA2-FB-AP-2-1-TO | | | |
| BIII, DIII[1)] | | VMPA2-FB-AP-2-1-SO | | | |
| | | | | | |
| **Sub-base for pilot air switching valve, for fieldbus connection** | | | | | |
| QA |  | VMPA1-AP-4-EMG-8-S<br>VMPA1-AP-4-EMG-D2-8-S | 10 | 1+3 (2+6/3)<br>Pilot air switching valve + valves | Working ports (2, 4) on sub-base<br>• Connection sizes: MPA1: M7, QS4, QS6<br>• Including electronics module |
| QE |  | VMPA-14-AP-4-EMG-8-S<br>VMPA14-AP-4-EMG-D2-8-S | 14 | 1+3 (2+6/3)<br>Pilot air switching valve + valves | Working ports (2, 4) on sub-base<br>• Connection sizes MPA14: G1/8, QS6, QS8<br>• Including electronics module |

1) Only possible with multi-pin plug connection

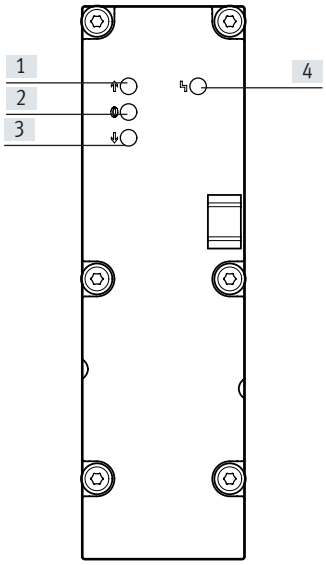
# Key features – Pneumatic components

**Sub-base variants**

| Code | Illustration | Type | Width [mm] | Number of valve positions (solenoid coils) | Information |
|---|---|---|---|---|---|
| **Sub-base for pilot air switching valve, for multi-pin plug connection** | | | | | |
| QA |  | VMPA-1-AP-4-EMM-8-SK<br>VMPA1-AP-4-EMM-8-SL | 10 | 1+3 (2+6/3)<br>Pilot air switching valve + valves | Working ports (2, 4) on sub-base<br>• Connection sizes: MPA1: M7, QS4, QS6<br>• Including electronics module |
| QE |  | VMPA14-AP-4-EMM-8-SK<br>VMPA14-AP-4-EMM-8-SL | 14 | 1+3 (2+6/3)<br>Pilot air switching valve + valves | Working ports (2, 4) on sub-base<br>• Connection sizes MPA14: G1/8, QS6, QS8<br>• Including electronics module |

# Key features – Pneumatic components

## Pressure sensor

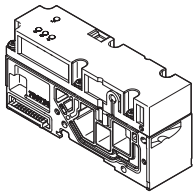



[1] Red LED: pressure exceeded
[2] Green LED: pressure maintained
[3] Red LED: pressure not reached
[4] Red LED: common error display

Using three LEDs, the pressure sensor indicates whether the applied pressure exceeds, conforms to or hasn't reached the setpoint value. An additional LED indicates common errors (limit exceeded or not reached).
The limits for pressure monitoring are set through parameterisation. The pressure sensor plate can be parameterised via the PLC or the interface for CPX-FMT.

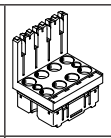
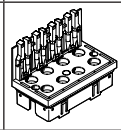
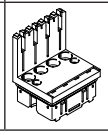
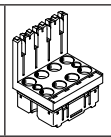
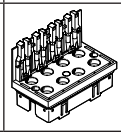
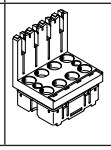
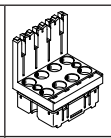
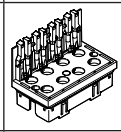
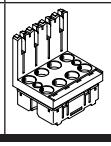
Alternatively the pressure in the exhaust duct (3/5) and the process pressure (external) can be measured. Pressure measurement in the exhaust duct is used for monitoring the operating pressure during reverse operation (supply to (3/5).

**Pressure sensor versions**

| Code | Illustration | Type | Use |
|---|---|---|---|
| PE |  | VMPA-FB-PS-1 | Monitoring the operating pressure in duct 1 |
| PF | | VMPA-FB-PS-3/5 | Monitoring the pressure in exhaust ducts 3 and 5<br>(Monitoring the exhaust performance or pressure monitoring with reversibly operated valve terminal) |
| PG | | VMPA-FB-PS-P1 | Monitoring an external process pressure |

# Key features – Pneumatic components

**Electrical interface versions**

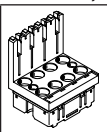
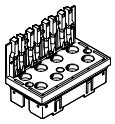
| Code | Illustration | Type | Width [mm] | Number of valve positions (solenoid coils) | Information |
|---|---|---|---|---|---|
| **Electronics module for multi-pin plug (MPM)** | | | | | |
| A, C |  | VMPA1-MPM-EMM-8<br>VMPA1-MPM-EMM-4 | 10 | 4 (8)<br>4 (4) | Each solenoid coil is assigned to a specific pin of the multi-pin plug for the valves to be actuated. Regardless of whether valve positions are fitted with cover plates or valves, they are used to control:<br>• One address for a single coil<br>• Two addresses for a double coil |
| E, F |  | VMPA14-MPM-EMM-8<br>VMPA14-MPM-EMM-4 | 14 | 4 (8)<br>4 (4) | |
| B, D |  | VMPA2-MPM-EMM-4<br>VMPA2-MPM-EMM-2 | 20 | 2 (4)<br>2 (2) | |
| **Electronics module for fieldbus with standard diagnostics** | | | | | |
| A, H |  | VMPA1-FB-EMS-8<br>VMPA1-FB-EMG-8 | 10 | 4 (8) | The electronics module includes serial communication and facilitates:<br>• Transmission of switching information<br>• Actuation of up to 8 solenoid coils<br>• Position-based diagnostics<br>• Separate voltage supply for valves<br>• Transmission of status, parameter and diagnostic data<br>There are different versions:<br>• Without separate circuit (VMPA...-FB-EMS-...)<br>• With separate circuit (VMPA...-FB-EMG-...)<br>Diagnostic function:<br>• Fault: valve load voltage |
| E, H |  | VMPA14-FB-EMS-8<br>VMPA14-FB-EMG-8 | 14 | 4 (8) | |
| B, QB, H |  | VMPA2-FB-EMS-4<br>VMPA2-FB-EMG-4 | 20 | 2 (4) | |
| **Electronics module for fieldbus with enhanced diagnostic function** | | | | | |
| A, H |  | VMPA1-FB-EMS-D2-8<br>VMPA1-FB-EMG-D2-8 | 10 | 4 (8) | The electronics module with enhanced diagnostic function includes the same functions as the electronics module with standard diagnostics. The diagnostic function is further enhanced:<br>• Fault: valve load voltage<br>• Fault: wire break (open load)<br>• Fault: short-circuit valve load voltage<br>• Message: condition monitoring |
| E, H |  | VMPA14-FB-EMS-D2-8<br>VMPA14-FB-EMG-D2-8 | 14 | 4 (8) | |
| B, QB, H |  | VMPA2-FB-EMS-D2-4<br>VMPA2-FB-EMG-D2-4 | 20 | 2 (4) | |

**Note**

- Multi-pin with modular links
- Sub-bases VMPA1, VMPA14 and VMPA2 can be combined as required
- Positive- or negative-switching control is possible (mixed operation is not permitted)
- Double solenoid valves cannot be mounted on single solenoid electronics modules
- Single solenoid valves can be mounted on double solenoid electronics modules

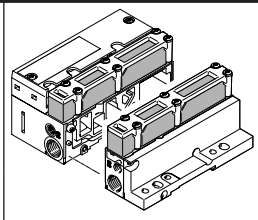
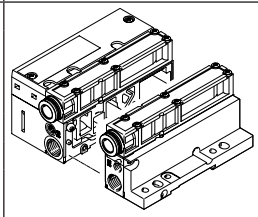
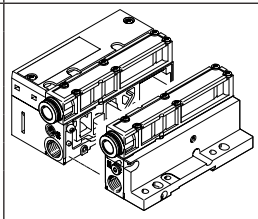
# Key features – Pneumatic components

**Electrical interface versions**

| Code | Illustration | Type | Width [mm] | Number of valve positions (solenoid coils) | Information |
|---|---|---|---|---|---|
| **Electronics module for pilot air switching valve, for fieldbus** | | | | | |
| A, H, QA |  | VMPA1-FB-EMG-8-S | 10 | 1+3 (2+6/3)<br>Pilot air switching valve + valves | The electronics module includes serial communication and facilitates:<br>• Transmission of switching information<br>• Control of 1 pilot air switching valve plus up to 3 further valves (with max. 6 solenoid coils)<br>• Position-based diagnostics<br>• Separate voltage supply for valves<br>• Transmission of status, parameter and diagnostic data<br>• With separate circuit |
| A, H, QE | | VMPA1-FB-EMG-D2-8-S | | | The electronics module with enhanced diagnostics function includes the same functions as the electronics module with standard diagnostics. The diagnostics function is further enhanced:<br>• Fault: valve load voltage<br>• Fault: wire break (open load)<br>• Fault: short-circuit valve load voltage<br>• Message: condition monitoring<br>• Control of 1 pilot air switching valve plus 3 further valves (with max. 6 solenoid coils) |
| E, H, QA |  | VMPA14-FB-EMG-8-S | 14 | 1+3 (2+6/3)<br>Pilot air switching valve + valves | The electronics module includes serial communication and facilitates:<br>• Transmission of switching information<br>• Control of 1 pilot air switching valve plus up to 3 further valves (with max. 6 solenoid coils)<br>• Position-based diagnostics<br>• Separate voltage supply for valves<br>• Transmission of status, parameter and diagnostic data<br>• With separate circuit |
| E, H, QE | | VMPA14-FB-EMG-D2-8-S | | | The electronics module with enhanced diagnostics function includes the same functions as the electronics module with standard diagnostics. The diagnostics function is further enhanced:<br>• Fault: valve load voltage<br>• Fault: wire break (open load)<br>• Fault: short-circuit valve load voltage<br>• Message: condition monitoring<br>• Control of 1 pilot air switching valve plus 3 further valves (with max. 6 solenoid coils) |

# Key features – Pneumatic components

**Ports for supply and exhaust**

| Code | | Connection | | Designation | Code L<br>Push-in connector<br>Large | Code K<br>Push-in connector<br>Small | Code D<br>Thread for supply |
|---|---|---|---|---|---|---|---|
| S |  | **Internal pilot air supply, silencer** | | | | | |
| | | 1 | Working air/vacuum supply | Push-in fitting | QS-G1/4-10-I | QS-G1/4-8-I | G1/4 |
| | | 3/5 | Exhaust air | Flat plate silencer | – | – | – |
| | | 12/14 | Pilot air supply | – | – | – | – |
| | | 82/84 | Pilot exhaust air | Flat plate silencer | – | – | – |
| | | | Pressure compensation port | Exhausts via silencer to atmosphere | | | |
| T | | **External pilot air supply, silencer** | | | | | |
| | | 1 | Working air/vacuum supply | Push-in fitting | QS-G1/4-10-I | QS-G1/4-8-I | G1/4 |
| | | 3/5 | Exhaust air | Flat plate silencer | – | – | – |
| | | 12/14 | Pilot air supply | Push-in fitting | QSM-M7-6-I | QSM-M7-6-I | M7 |
| | | 82/84 | Pilot exhaust air | Flat plate silencer | – | – | – |
| | | | Pressure compensation port | Exhausts via silencer to atmosphere | | | |
| V |  | **Internal pilot air supply, ducted exhaust air** | | | | | |
| | | 1 | Working air/vacuum supply | Push-in fitting | QS-G1/4-10-I | QS-G1/4-8-I | G1/4 |
| | | 3/5 | Exhaust air | Push-in fitting | QS-10 | QS-10 | QS-10 |
| | | 12/14 | Pilot air supply | – | – | – | – |
| | | 82/84 | Pilot exhaust air | Push-in fitting | QSM-M7-6-I | QSM-M7-6-I | M7 |
| | | | Pressure compensation port | Exhausts into duct 82/84 | | | |
| X | | **External pilot air supply, ducted exhaust air** | | | | | |
| | | 1 | Working air/vacuum supply | Push-in fitting | QS-G1/4-10-I | QS-G1/4-8-I | G1/4 |
| | | 3/5 | Exhaust air | Push-in fitting | QS-10 | QS-10 | QS-10 |
| | | 12/14 | Pilot air supply | Push-in fitting | QSM-M7-6-I | QSM-M7-6-I | M7 |
| | | 82/84 | Pilot exhaust air | Push-in fitting | QSM-M7-6-I | QSM-M7-6-I | M7 |
| | | | Pressure compensation port | Exhausts into duct 82/84 | | | |
| Y |  | **Internal pilot air supply, ducted exhaust air via right-hand end plate (VMPA-EPR-G)** | | | | | |
| | | 1 | Working air/vacuum supply | Push-in fitting | QS-G1/4-10-I | QS-G1/4-8-I | G1/4 |
| | | 3/5 | Exhaust air | Push-in fitting | QS-10 | QS-10 | QS-10 |
| | | 12/14 | Pilot air supply | – | – | – | – |
| | | 82/84 | Pilot exhaust air | Push-in fitting | QSM-M5-3-I | QSM-M5-3-I | M5 |
| | | | Pressure compensation port | Exhausts into duct 82/84 | | | |
| Z | | **External pilot air supply, ducted exhaust air via right-hand end plate (VMPA-EPR-G)** | | | | | |
| | | 1 | Working air/vacuum supply | Push-in fitting | QS-G1/4-10-I | QS-G1/4-8-I | G1/4 |
| | | 3/5 | Exhaust air | Push-in fitting | QS-10 | QS-10 | QS-10 |
| | | 12/14 | Pilot air supply | Push-in fitting | QSM-M7-6-I | QSM-M7-6-I | M7 |
| | | 82/84 | Pilot exhaust air | Push-in fitting | QSM-M5-3-I | QSM-M5-3-I | M5 |
| | | | Pressure compensation port | Exhausts into duct 82/84 | | | |

# Key features – Mounting

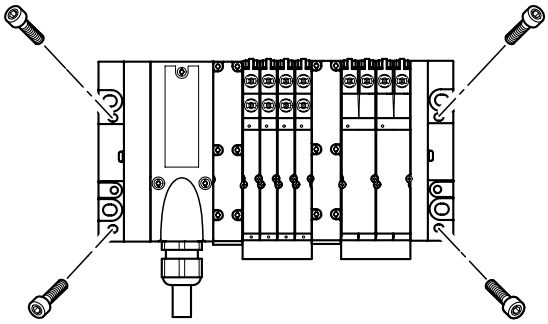
**Valve terminal mounting**

Sturdy terminal mounting via:
- Four through-holes for wall mounting
- Additional mounting brackets
- H-rail mounting

**Note**

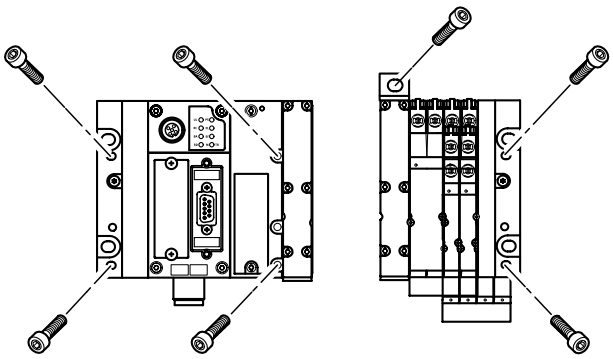
When wall mounting valve terminals MPA with more than 4 sub-bases, use additional mounting brackets type VMPA-BG-RW to prevent damage to the valve terminal. The mounting brackets can be mounted on the pneumatic supply plates.

Wall mounting – Multi-pin plug connection, AS-Interface and CPI connection



The MPA valve terminal is screwed onto the mounting surface using four M4 or M6 screws. The mounting holes are on the pneumatic interface and on the right end plate.
Optional mounting brackets are also available.

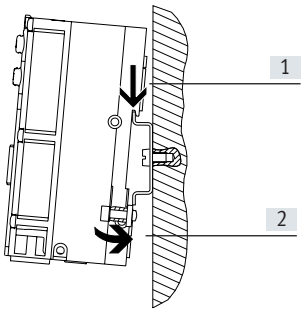
Wall mounting – Fieldbus connection



The MPA valve terminal is screwed onto the mounting surface using six M4 or M6 screws. The mounting holes are on the left end plate (CPX) and on the right end plate MPA.

The pneumatic interface also provides further mounting holes as well as optional mounting brackets.

H-rail mounting




The valve terminal MPA is hooked onto the H-rail ➔ arrow [1].
The valve terminal MPA is then swivelled onto the H-rail and secured in place with the clamping piece ➔ arrow [2].

The following MPA mounting kit is required for H-rail mounting of the valve terminal:
- CPX-CPA-BG-NRH

This enables the valve terminal to be mounted on an H-rail to EN 60715.

**Note**

More information about mounting solenoid valves on individual sub-bases can be found at
➔ VMPA1

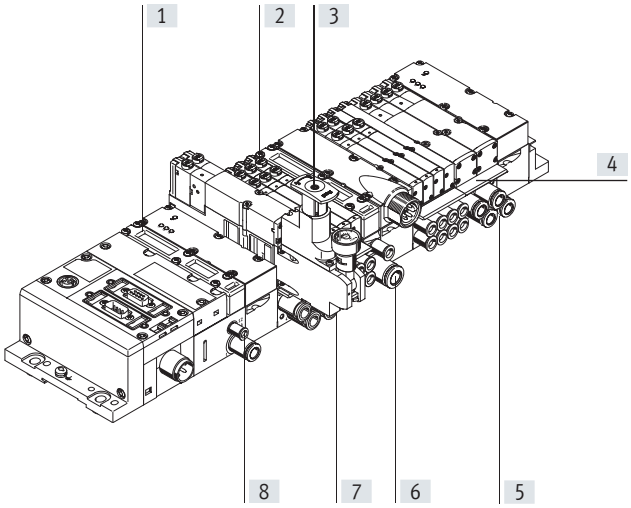
# Key features – Display and operation

## Display and operation

Every solenoid coil is allocated an LED that indicates its signal status.
- Indicator 12 shows the signal status of the coil for output 2
- Indicator 14 shows the signal status of the coil for output 4

**Manual override**
The manual override (MO) enables the valve to be switched when not electrically activated or energised.
The valve is switched by pushing the manual override. The set switching status can also be locked by turning the manual override (code R).
Alternatives:
- The cover cap (code N or as an accessory) prevents the manual override from being locked. The manual override can then only be activated by pushing it.
- The cover cap (code V or as an accessory) can prevent the manual override from being accidentally activated.
- The cover cap (code Y or as an accessory) can be used to operate the manual override in detenting mode without additional tools.

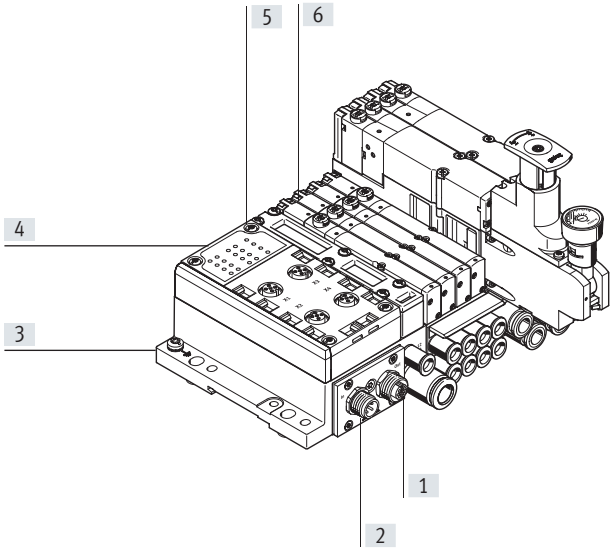
### Pneumatic connection and control elements




[1] Flat plate silencer for exhaust port 3/5
[2] Manual override (for each pilot solenoid coil, non-detenting or non-detenting/detenting)
[3] Adjusting knob for optional pressure regulator plate
[4] Inscription label holder for subbase
[5] Working ports 2 and 4, per valve position
[6] Supply port 1
[7] Pressure gauge (optional)
[8] Ports 12 and 14 for supplying the external pilot air

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

### Electrical connection and display components on the AS-Interface

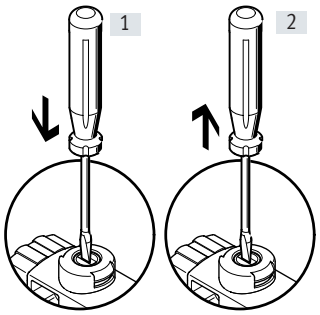



[1] M12 socket for AS-Interface bus and additional supply (AS-i Out)
[2] M12 plug for AS-Interface bus and auxiliary power supply (AS-i In)
[3] Earth connection
[4] Status LEDs for inputs
[5] Status LEDs for AS-Interface
[6] Diagnostic LEDs for valves

# Key features – Display and operation

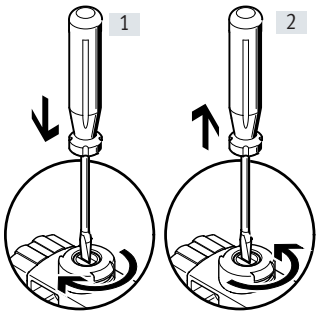
**Manual override (MO)**

MO with automatic return (non-detenting),



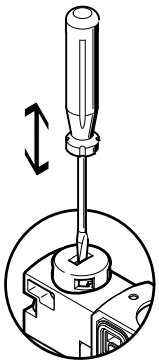

[1] Press in the plunger of the MO with a pointed object or screwdriver.
The pilot valve switches and actuates the main valve.
[2] Remove the pointed object or screwdriver.
The spring force pushes the plunger of the manual override back.
The pilot valve returns to its normal position as does the single solenoid main valve (not the case with double solenoid valve code J).

MO with locking (detenting)




[1] Press in the plunger of the MO with a pointed object or screwdriver until the valve switches and then turn the plunger clockwise by 90° until the stop is reached.
The valve remains actuated
[2] Turn the plunger anti-clockwise by 90° until the stop is reached and then remove the pointed object or screwdriver. The spring force pushes the plunger of the manual override back.
The valve returns to its normal position (not with double solenoid valve code J).

MO with automatic return (non-detenting),

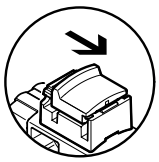


MO is actuated by pushing it with a pointed object or screwdriver and reset by spring force (detenting position prevented by coded cover cap).
Valves can be ordered with a fitted cover cap in the valve terminal configurator using the selection menu "Manual override" (code N).

MO with lock – Assembly

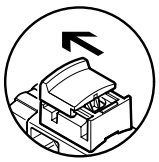
Turn MO to clip it onto the pilot valve.
The MO cap can then be operated (detenting) without tools.
Valves can be ordered with a fitted cover cap in the valve terminal configurator using the selection menu "Manual override" (code N).

MO with lock – Actuation



Sliding the cap for the MO with latch in the direction of the arrow results in:
- Cap locks into the end position
- The pilot valve switches and actuates the main valve.

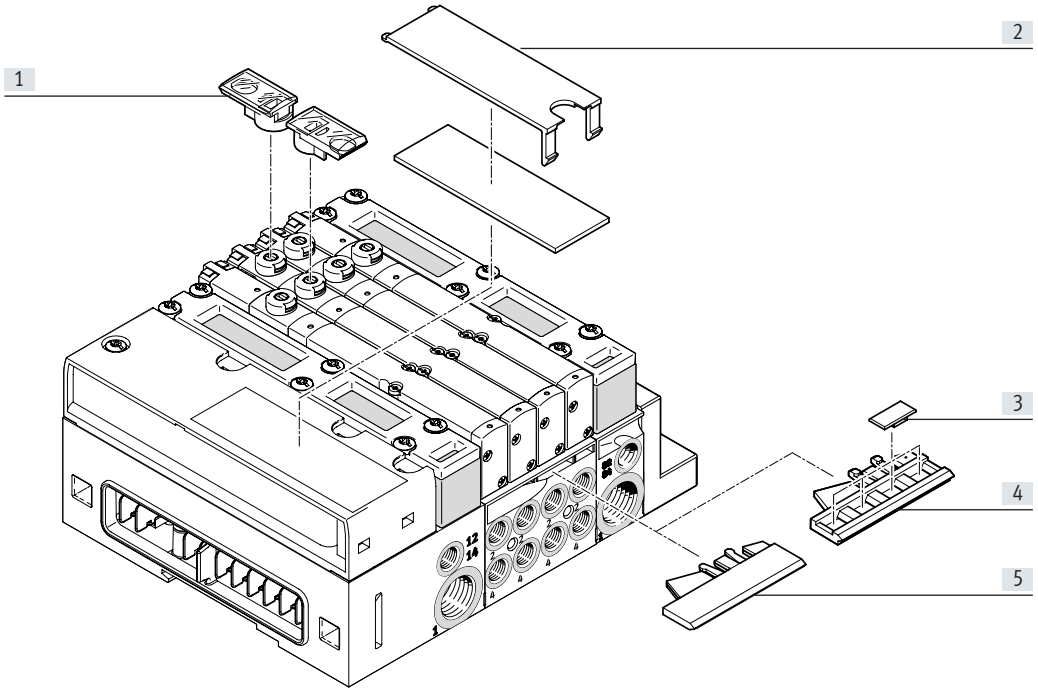
MO with lock – Actuation



Sliding the cap for the MO with latch in the direction of the arrow results in:
- Cap locks into the end position
- The spring force pushes the plunger of the manual override back.
- The pilot valve returns to its normal position as does the main single solenoid valve (not the case with double solenoid valve code J).

# Key features – Display and operation

## Inscription system




[1] Inscription label holder ASLR-D-L1
[2] Inscription label on the flat plate silencer of the pneumatic interface
[3] Inscription labels IBS□6x10
[4] Inscription label holder for sub-base VMPA...-ST-2-4, 4-fold, for IBS-6x10 inscription labels
[5] Inscription label holder for sub-base VMPA...-ST-1-4, transparent, for paper foil labels

To label the valve, an inscription label holder VMPA1-ST-1-4 (for paper foil labels) or VMPA1-ST-2-4 (for inscription labels IBS-6x10) can be mounted on every sub-base size 10 or 20.

The sub-base for width 14 is wider. Separate inscription label holders VMPA14-ST-1-4 (for paper labels) or VMPA14-ST-2-4 (for inscription labels IBS-6x10) are therefore available for width 14.

The inscription label holder ASLR-D-L1 can be pushed onto the manual override.
Inscription label holders/inscription labels that can be ordered individually ➔ page 99.

As an alternative or in addition, large inscription labels can be applied to the flat plate silencer on the pneumatic interface.
Labelling templates can be downloaded from the online portal:
Additional information: www.festo.com/catalogue/mpa ➔ Support/ Downloads.

# Key features – Electrical components

## Electrical power as a result of current reduction

Each MPA solenoid coil is protected with a spark arresting protective circuit as well as against polarity reversal.
In addition, all valve types have integrated current reduction.

MPA valves are supplied with operating voltage in the range 18 ... 30 V (24 V +/–25%). This high tolerance is made possible by the integrated control electronics and offers additional safety, e.g. in the case of a drop in operating voltage.

## Individual valve

Valves on individual sub-bases can also be used for actuators that are further away from the valve terminal.

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

**Note**

More information about the individual valve interface can be found at
→ VMPA1

## Electrical multi-pin plug connection

The following multi-pin plug connection is offered for the valve terminal MPA:
- Sub-D multi-pin plug connection (25-pin)

Pin 1 ... 24 are used for addresses 1 ... 24 in order.
If fewer than 24 addresses are used for the valve terminal, the remaining pins to 24 are left free. Pin 25 is reserved for the neutral conductor.
The valves are switched by positive or negative logic (PNP or NPN). Mixed operation is not permitted.
Each pin on the multi-pin plug can actuate exactly one solenoid coil. If the maximum configurable number of valve positions is 24, this means that 24 valves can be addressed, each with a single solenoid coil.

With 12 or fewer valve positions, 2 solenoid coils per valve can be addressed. With 12 or more valve positions, the number of available valve positions for valves with two solenoid coils decreases.

**Note**

If a single solenoid valve is mounted on a double solenoid valve position, the second address is also occupied and cannot be used.

### Guidelines on addressing for valves/solenoid coils

- The maximum possible number of addresses for multi-pin plug connection is 24.
- Each sub-base/electronics module occupies a specific number of addresses/pins:
  - Sub-base MPA1 for 4 single solenoid valves: 4
  - Sub-base MPA1 for 4 double solenoid valves: 8
  - Sub-base MPA14 for 4 single solenoid valves: 4
  - Sub-base MPA14 for 4 double solenoid valves: 8
  - Sub-base MPA2 for 2 single solenoid valves: 2
  - Sub-base MPA2 for 2 double solenoid valves: 4
- The addresses are numbered from left to right in ascending order. The following applies at the individual valve positions: address x for coil 14 and address x+1 for coil 12.
- If single solenoid valves are mounted on sub-bases for double solenoid valves, the address of coil 12 and the assigned pin will remain unused.

# Key features – Electrical components

## AS-Interface® fieldbus connection

The AS-Interface allows individual components or small component groups to be widely distributed in terms of space.

The AS-Interface connection of valve terminal MPA-S can be used to control up to 8 solenoid coils.
The electrical interface of the valve terminal contains the LEDs that indicate the signal status and the protective circuit for the valves.

**Note**
More information can be found at
→ Internet: as-interface

## CPI fieldbus connection

All CP valve terminals and CP modules are connected using a ready-to-install CP cable, and are attached to the CP interface. 4 modules, for example one CPV valve terminal and one to three CP input modules, make up an installation string that ends at the CP interface. The installation system supports a maximum of 4 installation strings that can be connected to a CP bus node.

**Note**
More information can be found at
→ Internet: cpi

## Fieldbus connection CPX

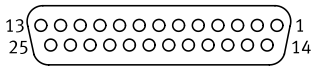
All functions and features of the electrical peripherals CPX are permitted in connection with the CPX interface. This means that:

- The valves and electrical outputs are supplied via the operating voltage connection CPX
- The valves are supplied and switched off independently via a separate valve connection on the CPX (code V)

**Note**
More information can be found at
→ Internet: cpx

# Key features – Electrical components

**Pin allocation – Sub-D socket, cable**




| Pin | Address/coil | Wire colour[2] | Pin | Address/coil | Wire colour[2] |
|---|---|---|---|---|---|
| 1 | 0 | WH | 17 | 16 | WH PK |
| 2 | 1 | GN | 18 | 17 | PK BN |
| 3 | 2 | YE | 19 | 18 | WH BU |
| 4 | 3 | GY | 20 | 19 | BN BU |
| 5 | 4 | PK | 21 | 20 | WH RD |
| 6 | 5 | BU | 22 | 21 | BN RD |
| 7 | 6 | RD | 23 | 22 | WH BK |
| 8 | 7 | VT | 24 | 23 | BN |
| 9 | 8 | GY PK | 25 | 0 V[1] | BK |
| 10 | 9 | RD BU | | | |
| 11 | 10 | WH GN | | | |
| 12 | 11 | BN GN | | | |
| 13 | 12 | WH YE | | | |
| 14 | 13 | YE BN | | | |
| 15 | 14 | WH GY | | | |
| 16 | 15 | GY BN | | | |

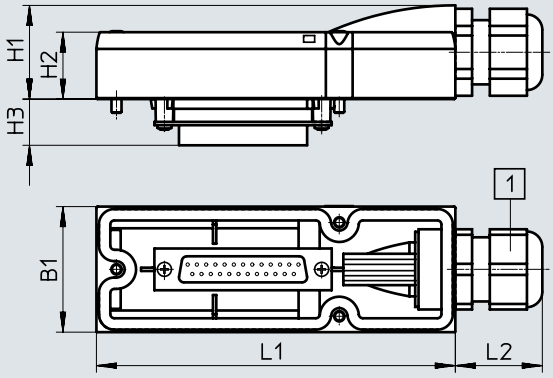
**Note**

The drawing shows a view of the Sub-D socket on the multi-pin plug cable VMPA-KMS1-....

1) 0 V with positive-switching control signals; in the case of negative-switching control signals, connect 24 V; mixed operation is not permitted!
2) To IEC 757

**Dimensions** Download CAD data ➔ www.festo.com

Connecting cables




[1] Cable connector with clamping range 6 ... 12 mm

The wire colours refer to the following pre-assembled multi-pin cables from Festo:

- VMPA-KMS1-8-... Valve terminal for up to 4 valve positions (8 coils)
- VMPA-KMS1-24-... Valve terminal with 8 ... 24 valve positions

| Type | L1 | L2 | B1 | H1 | H2 | H3 |
|---|---|---|---|---|---|---|
| VMPA-KMS-H | 107.3 | 26 | 37.6 | 28 | 20 | 13.8 |

| Type | Casing | Length [m] | Wire x mm² | D [mm] | Weight [g] | Part no. |
|---|---|---|---|---|---|---|
| VMPA-KMS1-8-2.5 | PVC | 2.5 | 10 x 0.34 | 6.9 | 287 | **533195** |
| VMPA-KMS2-8-2.5-PUR | PUR | 2.5 | 10 x 0.25 | 8.3 | 237 | **533504** |
| VMPA-KMS1-8-5 | PVC | 5 | 10 x 0.34 | 6.9 | 510 | **533196** |
| VMPA-KMS2-8-5-PUR | PUR | 5 | 10 x 0.25 | 8.3 | 460 | **533505** |
| VMPA-KMS1-8-10 | PVC | 10 | 10 x 0.34 | 6.9 | 956 | **533197** |
| VMPA-KMS2-8-10-PUR | PUR | 10 | 10 x 0.25 | 8.3 | 906 | **533506** |
| VMPA-KMS1-24-2.5 | PVC | 2.5 | 25 x 0.34 | 11.4 | 563 | **533192** |
| VMPA-KMS2-24-2.5-PUR | PUR | 2.5 | 25 x 0.25 | 11.2 | 411 | **533501** |
| VMPA-KMS1-24-5 | PVC | 5 | 25 x 0.34 | 11.4 | 1062 | **533193** |
| VMPA-KMS2-24-5-PUR | PUR | 5 | 25 x 0.25 | 11.2 | 910 | **533502** |
| VMPA-KMS1-24-10 | PVC | 10 | 25 x 0.34 | 11.4 | 2055 | **533194** |
| VMPA-KMS2-24-10-PUR | PUR | 10 | 25 x 0.25 | 11.2 | 1908 | **533503** |
| VMPA-KMS-H | Hood for self-assembly | | | | 71 | **533198** |

# Key features – Electrical components

**Instructions for use**

## Operating materials

Operate your system with unlubricated compressed air, if possible. Festo valves and cylinders are designed so that, if used as intended, 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 the entire system with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator requiring them.

Incorrect 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 esters, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m$^3$ must not be exceeded (see ISO 8573-1 Class 2).

## Mineral oils

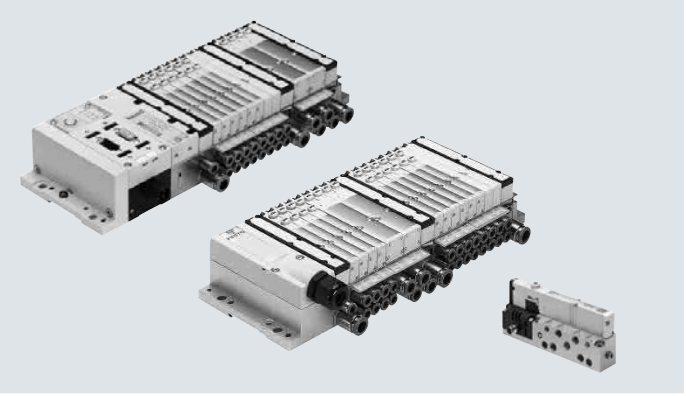
When using mineral oils (e.g. HLP oils to DIN 51524, parts 1 to 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m$^3$ must not be exceeded (see ISO 8573-1 Class 4).
A higher residual oil content is not permitted, regardless of the compressor oil, because the permanent lubrication would otherwise be flushed out over a period of time.

# Datasheet – Valve terminal

- Flow rate
  - MPA1: up to 360 l/min
  - MPA14: up to 670 l/min
  - MPA2: up to 850 l/min

- Valve width
  - MPA1: 10 mm
  - MPA14: 14 mm
  - MPA2: 20 mm

- Voltage
  - 24 V DC



| General technical data | | | | | |
|---|---|---|---|---|---|
| Valve terminal design | | Modular, valve sizes can be mixed | | | |
| Electrical control | | Fieldbus | Multi-pin plug | AS-i interface | CPI interface |
| Actuation type | | Electrical | | | |
| Nominal voltage | [V DC] | 24 | | | |
| Operating voltage range | [V DC] | 18 ... 30 | | | |
| Residual ripple | [Vss] | 4 | | | |
| Max. no. of valve positions | | 64 (FB), 24 (MP) | | | |
| Valve size | [mm] | 10, 14, 20 | | | |
| Pilot air supply | | Internal or external | | | |
| Lubrication | | Life-time lubrication, PWIS-free (free of paint-wetting impairment substances) | | | |
| Type of mounting | | Wall mounting | | | |
| | | On H-rail to EN 60715 | | | |
| Mounting position | | Any (wall mounting) | | | |
| | | Horizontal only (H-rail) | | | |
| Manual override | | Non-detenting, detenting | | | |
| Protection rating to EN 60529 | | IP67 (for all types of signal transmission in assembled state) | | | |
| | | | | | |
| **Pneumatic connections** | | | | | |
| Pneumatic connection | | Via sub-base or individual connection | | | |
| Supply port | 1 | G1/4 (M7 with individual sub-base) | | | |
| Exhaust port | 3/5 | QS-10, QS-3/8" (M7 with individual sub-base) | | | |
| Working ports | 2/4 | Dependent on the connection type selected<br>MPA1: M7, QS4, QS6, 3/16", 1/4"<br>MPA14: G1/8, QS6, QS8, 1/4", 5/16"<br>MPA2: G1/8, QS6, QS8, 1/4", 5/16" | | | |
| Pilot air connection | 12/14 | M7 (M5 with individual sub-base) | | | |
| Pilot exhaust air port | 82/84 | M7 (M5 with individual sub-base and with end plate VMPA-EPR-G) | | | |
| Pressure compensation port | | With ducted exhaust air: via port 82/84 (M5 with individual sub-base and with end plate VMPA-EPR-G)<br>With flat plate silencer: exhausting to atmosphere | | | |

**Note**

Note possible restrictions for the IP protection class

→ ATEX declaration of conformity

# Datasheet

| Operating and environmental conditions | | |
|---|---|---|
| Operating medium | | Compressed air to ISO 8573-1:2010 [7:4:4] |
| Note on operating/ pilot medium | | Lubricated operation possible (in which case lubrication will always be required) |
| Operating pressure | [MPa] | –0.09 ... 1 |
| | [bar] | –0.9 ... 10 |
| Pilot pressure | [MPa] | 0.3 ... 0.8 |
| | [bar] | 3 ... 8 |
| Ambient temperature | [°C] | –5 ... +50 |
| Temperature of medium | [°C] | –5 ... +50 |
| Storage temperature[1] | [°C] | –20 ... +40 |
| Relative humidity | | Max. 90% at 40°C |

1) Long-term storage

| Certifications[1] | | | | | |
|---|---|---|---|---|---|
| Type | | MPA-MPM-VI (multi-pin plug interface) | MPA-FB-VI (fieldbus interface) | MPA-ASI-VI (AS-i interface) | MPA-CPI-VI (CPI interface) |
| Part number | | 539105 | 530411 | 546279 | 546280 |
| ATEX category for gas | | II 3 G | | | |
| Type of (ignition) protection for gas | | Ex ec IIC T4 Gc X | | | |
| ATEX ambient temperature | [°C] | –5 ≤ Ta ≤ +50 | | | |
| Explosion protection certification outside the EU | | – | EPL Gc (BR) | – | – |
| Certificate-issuing authority | | – | DNV 15.0193 X | – | – |
| CE marking (see declaration of conformity) | | To EU EMC Directive[2] | | | |
| | | To EU Explosion Protection Directive (ATEX) | | | |
| KC marking | | KC EMC | | | |
| Certification | | c UL us - Recognized (OL) | | | |
| | | RCM | | | |
| Corrosion resistance class CRC[3] | | 1 | 1 | 0 | 0 |

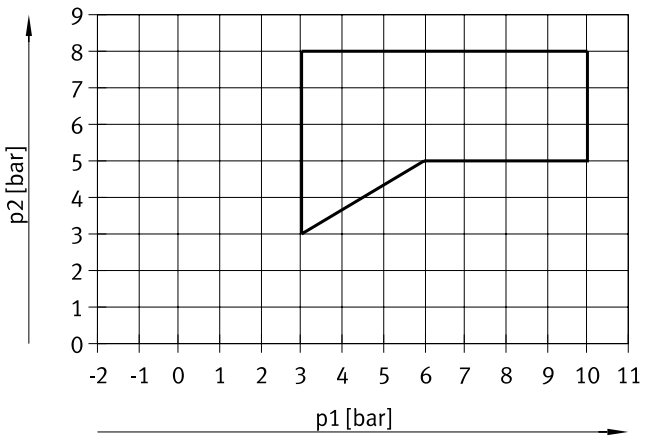
1) Interface versions that are not listed do not have any of the listed certifications
2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
3) More information: www.festo.com/x/topic/crc

# Datasheet

**Pilot pressure p2 as a function of working pressure p1 with external pilot air supply**

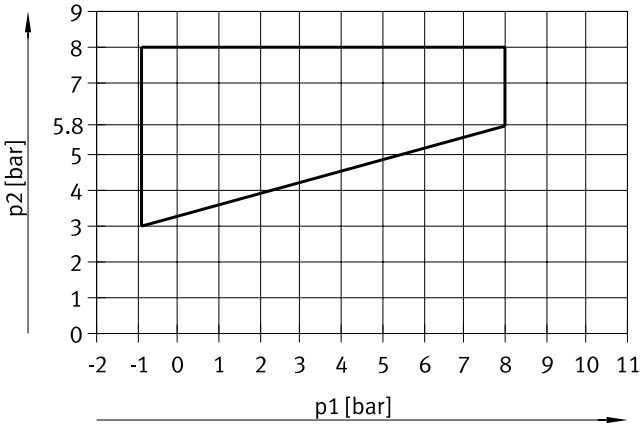
For valves with code: M, J, B, G, E, W, X


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

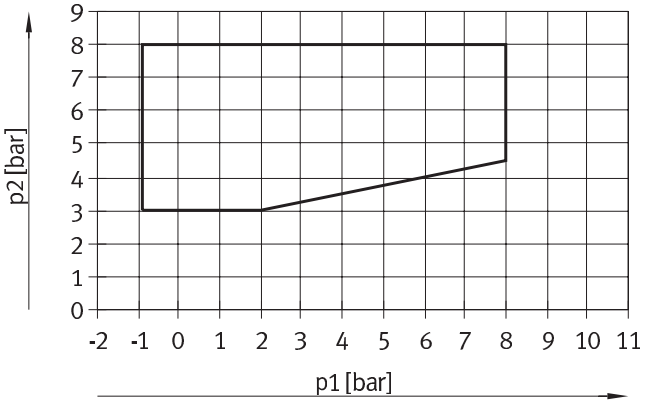



**Pilot pressure p2 as a function of working pressure p1 for valves with mechanical spring return**

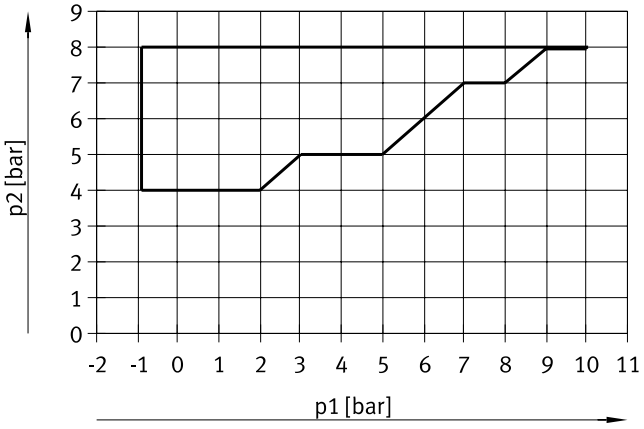
For valves in width 10 mm with code: MS, NS, KS, HS, DS




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



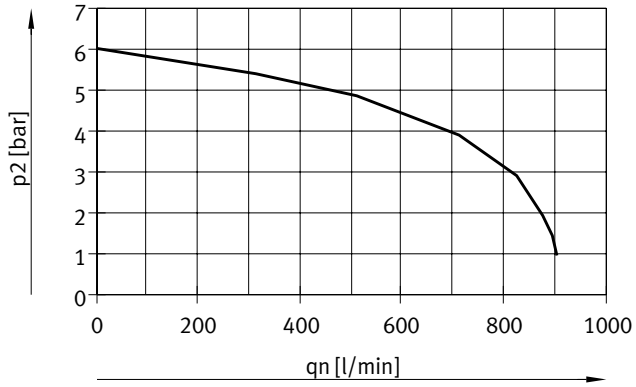

For valves in width 10 mm with code: MU, NU, KU, HU



# Datasheet

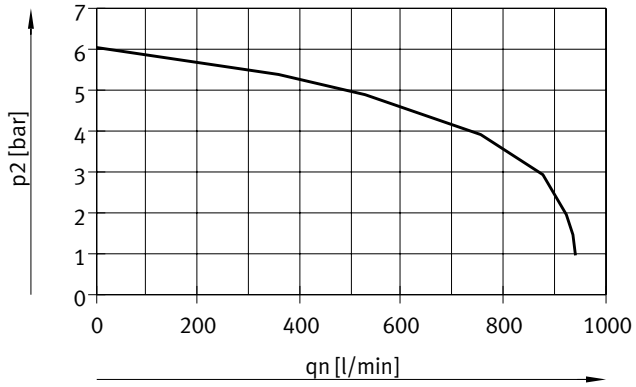
**Flow rate qn as a function of output pressure p2 with pressure regulator plates (width 20 mm)**

(P regulator plate) for port 1




Supply pressure 10 bar,
regulated pressure set at 6 bar

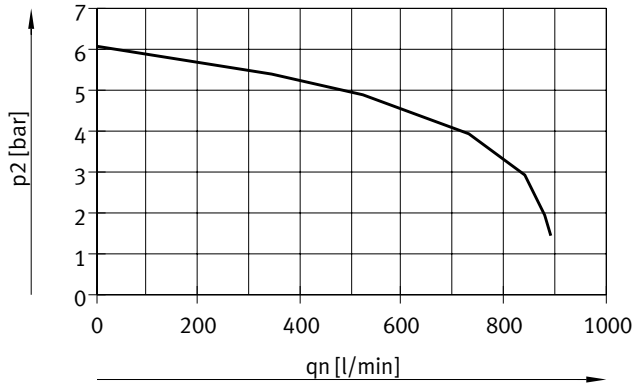
(B regulator plates) for port 2




Supply pressure 10 bar,
regulated pressure set at 6 bar

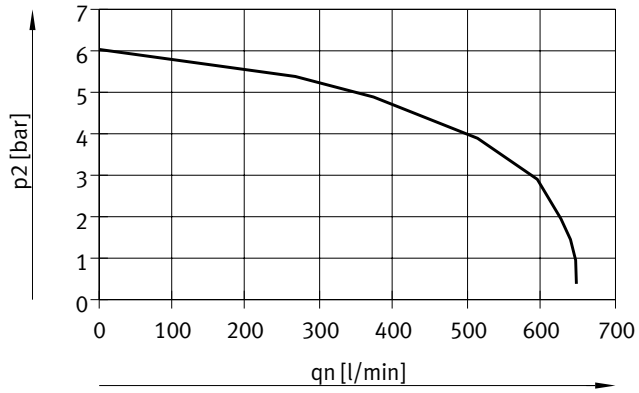
**Flow rate qn as a function of output pressure p2 with pressure regulator plates (width 20 mm)**

(A regulator plates) for ports 4




Supply pressure 10 bar,
regulated pressure set at 6 bar

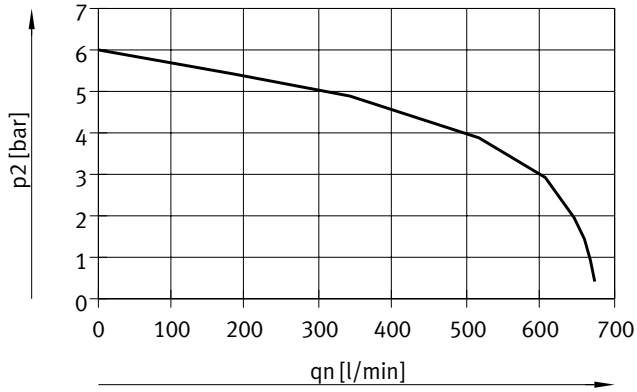
(B regulator plates, rev.) for ports 3, reversible




Supply pressure 10 bar,
regulated pressure set at 6 bar

**Flow rate qn as a function of output pressure p2 with pressure regulator plates (width 20 mm)**

(A regulator plates, rev.) for ports 5, reversible




Supply pressure 10 bar,
regulated pressure set at 6 bar

# Datasheet

**Technical data – Valve width 10 mm**

| Code | | | M | J | N | K | H | B | G | E | X | W | D | I |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Design | | | Piston spool valve | | | | | | | | | | | |
| Sealing principle | | | Soft | | | | | | | | | | | |
| Overlap | | | Positive overlap | | | | | | | | | | | |
| Reset method | | | Pneumatic spring | – | Pneumatic spring | | | Mechanical spring | | | Pneumatic spring | | | |
| Switching times | On | [ms] | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 10 | 8 |
| | Off | [ms] | 20 | – | 20 | 20 | 20 | 35 | 35 | 35 | 20 | 20 | 20 | 20 |
| | Change-over | [ms] | – | 15 | – | – | – | 15 | 15 | 15 | – | – | – | – |
| Standard nominal flow rate | | [l/min] | 360 | 360 | 300 | 230 | 300 | 300 | 320 | 240 | 255 | 255 | 230 | 260 |
| Operating pressure | | [MPa] | –0.09 ... +1 | | 0.3 ... 1 | | | –0.09 ... +1 | | | –0.09 ... +1 | | 0.3 ... 1 | |
| | | [bar] | –0.9 ... +10 | | 3 ... 10 | | | –0.9 ... +10 | | | –0.9 ... +10 | | 3 ... 10 | |
| Pilot pressure | | [MPa] | 0.3 ... 0.8 | | | | | | | | | | | |
| | | [bar] | 3 ... 8 | | | | | | | | | | | |
| Max. tightening torque for valve mounting | | [Nm] | 0.25 | | | | | | | | | | | |
| Materials | | | Die-cast aluminium | | | | | | | | | | | |
| Product weight | | [g] | 49 | 56 | 56 | 56 | 56 | 56 | 56 | 56 | 49 | 49 | 56 | 56 |

**Technical data – Valve width 10 mm**

| Code | | | MS | NS | KS | HS | DS | MU | NU | KU | HU |
|---|---|---|---|---|---|---|---|---|---|---|---|
| Design | | | Piston spool valve | | | | | Poppet valve with spring return | | | |
| Sealing principle | | | Soft | | | | | Soft | | | |
| Overlap | | | Positive overlap | | | | | Negative overlap | | | |
| Reset method | | | Mechanical spring | | | | | Mechanical spring | | | |
| Switching times | On | [ms] | 10 | 14 | 14 | 14 | 14 | 10 | 10 | 8 | 10 |
| | Off | [ms] | 27 | 16 | 16 | 16 | 16 | 14 | 8 | 10 | 10 |
| | Change-over | [ms] | – | – | – | – | – | – | – | – | – |
| Max. switching frequency | | [Hz] | 2 | – | – | – | – | – | – | – | – |
| Standard nominal flow rate | | [l/min] | 360 | 300 | 230 | 300 | 230 | 140 ... 190 | 190 | 160 | 140 ... 190 |
| Note on standard nominal flow rate | | | – | | | | | 1 → 2: 190 l/min<br>1 → 4: 140 l/min | – | – | 1 → 2: 190 l/min<br>1 → 4: 140 l/min |
| Operating pressure | | [MPa] | –0.09 ... +0.8 | | | | | –0.09 ... +1 | | | |
| | | [bar] | –0.9 ... +8 | | | | | –0.9 ... +10 | | | |
| Pilot pressure | | [MPa] | 0.3 ... 0.8 | | | | | 0.4 ... 0.8 | | | |
| | | [bar] | 3 ... 8 | | | | | 4 ... 8 | | | |
| Max. tightening torque for valve mounting | | [Nm] | 0.25 | | | | | 0.25 | | | |
| Materials | | | Die-cast aluminium | | | | | Reinforced PPA | | | |
| Product weight | | [g] | 56 | | | | | 35 | 42 | 42 | 42 |

**Technical data – Valve width 10 mm**

| Code | | ES | EU | IS | IU |
|---|---|---|---|---|---|
| Design | | Poppet valve with spring return | | | |
| Sealing principle | | Soft | | | |
| Overlap | | Negative overlap | | | |
| Reset method | | Mechanical spring | | | |
| Operating pressure | [MPa] | 0.3 ...0.8 | | | |
| | [bar] | 3 ... 8 | | | |
| Pilot pressure | [MPa] | 0.3 ...0.8 | | | |
| | [bar] | 3 ... 8 | | | |
| Max. tightening torque for valve mounting | [Nm] | 0.65 | 0.65 | 0.25 | 0.65 |
| Materials | | Die-cast aluminium | | | |
| Product weight | [g] | 32 | | | |

# Datasheet

| Technical data – Valve width 14 mm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Code | | | M | J | N | K | H | B |
| Design | | | Piston spool valve | | | | | |
| Sealing principle | | | Soft | | | | | |
| Overlap | | | Positive overlap | | | | | |
| Reset method | | | Pneumatic spring | | | | | Mechanical spring |
| Switching times | On | [ms] | 13 | 9 | 9 | 10 | 10 | 12 |
| | Off | [ms] | 20 | – | 28 | 28 | 26 | 40 |
| | Change-over | [ms] | – | 24 | – | – | – | 18 |
| Standard nominal flow rate | | [l/min] | 550 ... 670 | 550 ... 670 | 550 ... 650 | 550 ... 600 | 550 ... 650 | 550 ... 630 |
| Note on standard nominal flow rate | | | MPA-S: 550 l/min<br>MPA-L: 670 l/min | MPA-S: 550 l/min<br>MPA-L: 670 l/min | MPA-S: 550 l/min<br>MPA-L: 650 l/min | MPA-S: 550 l/min<br>MPA-L: 600 l/min | MPA-S: 550 l/min<br>MPA-L: 650 l/min | MPA-S: 550 l/min<br>MPA-L: 630 l/min |
| Operating pressure | | [MPa] | –0.09 ... +1 | | 0.3 ... 1 | | | –0.09 ... +1 |
| | | [bar] | –0.9 ... +10 | | 3 ... 10 | | | –0.9 ... +10 |
| Pilot pressure | | [MPa] | 0.3 ... 0.8 | | | | | |
| | | [bar] | 3 ... 8 | | | | | |
| Max. tightening torque for valve mounting | | [Nm] | 0.65 | | | | | |
| Materials | | | Die-cast aluminium | | | | | |
| Product weight | | [g] | 77 | | | | | |

| Technical data – Valve width 14 mm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Code | | | G | E | X | W | D | I |
| Design | | | Piston spool valve | | | | | |
| Sealing principle | | | Soft | | | | | |
| Overlap | | | Positive overlap | | | | | |
| Reset method | | | Mechanical spring | | Pneumatic spring | | | |
| Switching times | On | [ms] | 10 | 12 | 12 | 12 | 9 | 10 |
| | Off | [ms] | 40 | 40 | 20 | 20 | 26 | 28 |
| | Change-over | [ms] | 20 | 18 | – | – | – | – |
| Standard nominal flow rate | | [l/min] | 500 ... 610 | 420 ... 480 | 360 ... 400 | 300 ... 340 | 550 ... 650 | 550 ... 670 |
| Note on standard nominal flow rate | | | MPA-S: 500 l/min<br>MPA-L: 610 l/min | MPA-S: 420 l/min<br>MPA-L: 480 l/min | MPA-S: 360 l/min<br>MPA-L: 400 l/min | MPA-S: 340 l/min<br>MPA-L: 300 l/min | MPA-S: 550 l/min<br>MPA-L: 650 l/min | MPA-S: 550 l/min<br>MPA-L: 670 l/min |
| Operating pressure | | [MPa] | –0.09 ... +1 | | | | 0.3 ... 1 | |
| | | [bar] | –0.9 ... +10 | | | | 3 ... 10 | |
| Pilot pressure | | [MPa] | 0.3 ... 0.8 | | | | | |
| | | [bar] | 3 ... 8 | | | | | |
| Max. tightening torque for valve mounting | | [Nm] | 0.65 | | | | | |
| Materials | | | Die-cast aluminium | | | | | |
| Product weight | | [g] | 77 | | | | | |

# Datasheet

**Technical data – Valve width 14 mm**

| Code | | | MS | NS | KS | HS | DS |
|---|---|---|---|---|---|---|---|
| Design | | | Piston spool valve | | | | |
| Sealing principle | | | Soft | | | | |
| Overlap | | | Positive overlap | | | | |
| Reset method | | | Mechanical spring | | | | |
| Switching times | On | [ms] | 10 | 12 | 12 | 12 | 10 |
| | Off | [ms] | 30 | 20 | 20 | 20 | 20 |
| | Change-over | [ms] | – | – | – | – | – |
| Max. switching frequency | | [Hz] | 2 | – | – | – | – |
| Standard nominal flow rate | | [l/min] | 550 ... 670 | 470 ... 520 | 470 ... 560 | 470 ... 520 | 500 ... 570 |
| Note on standard nominal flow rate | | | MPA-S: 550 l/min<br>MPA-L: 670 l/min | MPA-S: 470 l/min<br>MPA-L: 520 l/min | MPA-S: 470 l/min<br>MPA-L: 560 l/min | MPA-S: 470 l/min<br>MPA-L: 520 l/min | MPA-S: 500 l/min<br>MPA-L: 570 l/min |
| Operating pressure | | [MPa] | –0.09 ...+0.8 | | | | |
| | | [bar] | –0.9 ... +8 | | | | |
| Pilot pressure | | [MPa] | 0.3 ... 0.8 | | | | |
| | | [bar] | 3 ... 8 | | | | |
| Max. tightening torque for valve mounting | | [Nm] | 0.65 | 0.25 | | | |
| Materials | | | Die-cast aluminium | | | | |
| Product weight | | [g] | 77 | | | | |

**Technical data – Valve width 14 mm**

| Code | | ES | EU | IS | IU |
|---|---|---|---|---|---|
| Design | | Poppet valve with spring return | | | |
| Sealing principle | | Soft | | | |
| Overlap | | Negative overlap | | | |
| Reset method | | Mechanical spring | | | |
| Operating pressure | [MPa] | 0.3 ...0.8 | | | |
| | [bar] | 3 ... 8 | | | |
| Pilot pressure | [MPa] | 0.3 ...0.8 | | | |
| | [bar] | 3 ... 8 | | | |
| Max. tightening torque for valve mounting | [Nm] | 0.25 | | | |
| Materials | | Die-cast aluminium | | | |
| Product weight | [g] | 36 | | | |

**Technical data – Valve width 20 mm**

| Code | | M | J | N | K | H | B |
|---|---|---|---|---|---|---|---|
| Design | | Piston spool valve | | | | | |
| Sealing principle | | Soft | | | | | |
| Overlap | | Positive overlap | | | | | |
| Reset method | | Pneumatic spring | | | | | Mechanical spring |
| Switching times | On [ms] | 15 | 9 | 8 | 8 | 8 | 11 |
| | Off [ms] | 28 | – | 28 | 28 | 28 | 46 |
| | Change-over [ms] | – | 22 | – | – | – | 23 |
| Standard nominal flow rate | [l/min] | 670 | 670 | 550 ... 610 | 500 ... 550 | 550 | 510 |
| Note on standard nominal flow rate | | – | – | MPA-S: 550 l/min<br>MPA-L: 610 l/min | MPA-S: 500 l/min<br>MPA-L: 550 l/min | – | – |
| Operating pressure | [MPa] | –0.09 ... +1 | | 0.3 ... 1 | | | –0.09 ... +1 |
| | [bar] | –0.9 ... +10 | | 3 ... 10 | | | –0.9 ... +10 |
| Pilot pressure | [MPa] | 0.3 ... 0.8 | | | | | |
| | [bar] | 3 ... 8 | | | | | |
| Max. tightening torque for valve mounting | [Nm] | 0.65 | | | | | |
| Materials | | Die-cast aluminium | | | | | |
| Product weight | [g] | 100 | | | | | |

# Datasheet

| Technical data – Valve width 20 mm | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Code | | | G | E | X | W | D | I |
| Design | | | Piston spool valve | | | | | |
| Sealing principle | | | Soft | | | | | |
| Overlap | | | Positive overlap | | | | | |
| Reset method | | | Mechanical spring | | Pneumatic spring | | | |
| Switching times | On | [ms] | 10 | 11 | 13 | 13 | 7 | 7 |
| | Off | [ms] | 40 | 47 | 22 | 22 | 25 | 25 |
| | Change-over | [ms] | 21 | 23 | – | – | – | – |
| Standard nominal flow rate | | [l/min] | 610 | 590 | 470 | 470 | 650 ... 840 | 650 ... 850 |
| Note on standard nominal flow rate | | | – | – | – | – | MPA-S: 650 l/min<br>MPA-L: 840 l/min | MPA-S: 650 l/min<br>MPA-L: 850 l/min |
| Operating pressure | | [MPa] | –0.09 ... +1 | | | | 0.3 ... 1 | |
| | | [bar] | –0.9 ... +10 | | | | 3 ... 10 | |
| Pilot pressure | | [MPa] | 0.3 ... 0.8 | | | | | |
| | | [bar] | 3 ... 8 | | | | | |
| Max. tightening torque for valve mounting | | [Nm] | 0.65 | | | | | |
| Materials | | | Die-cast aluminium | | | | | |
| Product weight | | [g] | 100 | | | | | |

| Technical data – Valve width 20 mm | | | | | | | |
|---|---|---|---|---|---|---|---|
| Code | | | MS | NS | KS | HS | DS |
| Design | | | Piston spool valve | | | | |
| Sealing principle | | | Soft | | | | |
| Overlap | | | Positive overlap | | | | |
| Reset method | | | Mechanical spring | | | | |
| Switching times | On | [ms] | 8 | 12 | 12 | 12 | 12 |
| | Off | [ms] | 36 | 25 | 25 | 25 | 25 |
| | Change-over | [ms] | – | – | – | – | – |
| Max. switching frequency | | [Hz] | 2 | – | – | – | – |
| Standard nominal flow rate | | [l/min] | 670 ... 840 | 550 ... 620 | 500 | 550 | 650 ... 820 |
| Note on standard nominal flow rate | | | MPA-S: 670 l/min<br>MPA-L: 840 l/min | MPA-S: 550 l/min<br>MPA-L: 620 l/min | – | – | MPA-S: 650 l/min<br>MPA-L: 820 l/min |
| Operating pressure | | [MPa] | –0.09 ...+0.8 | | | | |
| | | [bar] | –0.9 ... +8 | | | | |
| Pilot pressure | | [MPa] | 0.3 ... 0.8 | | | | |
| | | [bar] | 3 ... 8 | | | | |
| Max. tightening torque for valve mounting | | [Nm] | 0.65 | | | | |
| Materials | | | Die-cast aluminium | | | | |
| Product weight | | [g] | 100 | | | | |

| Safety characteristics | | | | |
|---|---|---|---|---|
| | | Valve width 10 mm | Valve width 14 mm | Valve width 20 mm |
| Max. positive test pulse with 0 signal | [µs] | 400 | 400 | 400 |
| Max. negative test pulse with 1 signal | [µs] | 200 | 200 | 900 |
| Shock resistance | | Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27 | | |
| Vibration resistant | | Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6 | | |

# Datasheet

| Electrical data – MPA with electronics module VMPA...-FB... (CPX terminal, CPI interface) | | | | |
|---|---|---|---|---|
| | | MPA1 | MPA14 | MPA2 |
| **Intrinsic current consumption per electronics module** | | | | |
| At 24 V $U_{EL/SEN}$ [1] (internal electronics, all outputs 0-signal) | [mA] | Typically 8 | | |
| At 24 V Uval [2] (internal electronics, without valves) | | | | |
| VMPA...-EMG..., separate circuits | [mA] | Typically 23 | | |
| VMPA...-EMS..., without separate circuits | [mA] | Typically 3 | | |
| **Maximum current consumption per solenoid coil at nominal voltage** | | | | |
| Nominal pick-up current | [mA] | 58 | 58 | 99 |
| Nominal current following current reduction | [mA] | 9 | 9 | 18 |
| Time until current reduction | [ms] | 24 | 24 | 24 |
| **Diagnostic message** | | | | |
| Undervoltage $U_{AUS}$ [3] | [V] | 17.5 ... 16 | | |

| Electrical data – MPA with electronics module VMPA...-MPM... (AS-Interface, multi-pin) | | | | |
|---|---|---|---|---|
| | | MPA1 | MPA14 | MPA2 |
| **Current consumption at Sub-D multi-pin plug connection per solenoid coil at nominal voltage** | | | | |
| Nominal pick-up current | [mA] | 80 | 80 | 100 |
| Nominal current with current reduction | [mA] | 25 | 25 | 20 |
| Time until current reduction | [ms] | 25 | 25 | 50 |

| Calculation example for current consumption (CPX terminal, CPI interface) | | |
|---|---|---|
| Current consumption with two solenoid coils MPA2 switched in parallel and one electronics module VMPA...-EMS... without separate circuits | [mA] | $I_{EI/SEN}$ = 8 |
| Nominal pick-up current (duration 24 ms) | [mA] | $I_{VAL=}$ 3 (intrinsic current consumption of electronics module) + 2 x 99 (MPA2) = 202 |
| Nominal current with current reduction (after 24 ms) | [mA] | $I_{VAL=}$ 3 (intrinsic current consumption of electronics module) + 2 x 18 (MPA2) = 39 |

1) Power supply for electronics and sensors
2) Load voltage supply for valves
3) Load voltage outside of function range

# Datasheet

| **Materials** | |
|---|---|
| Sub-base | Die-cast aluminium |
| Seals | NBR, elastomer |
| Supply plate | Die-cast aluminium |
| End plate, right | Die-cast aluminium |
| Pneumatic interface, left | Die-cast aluminium, PA |
| Exhaust air plate | PA |
| Flat plate silencer | PE |
| Electrical supply plate | Housing: Die-cast aluminium<br>Cover: Reinforced PA |
| Electronics module | PA |
| Electrical link | Bronze/PBT |
| Regulator plate | Control section, housing: PA; seals: NBR |
| Note on materials | RoHS-compliant |

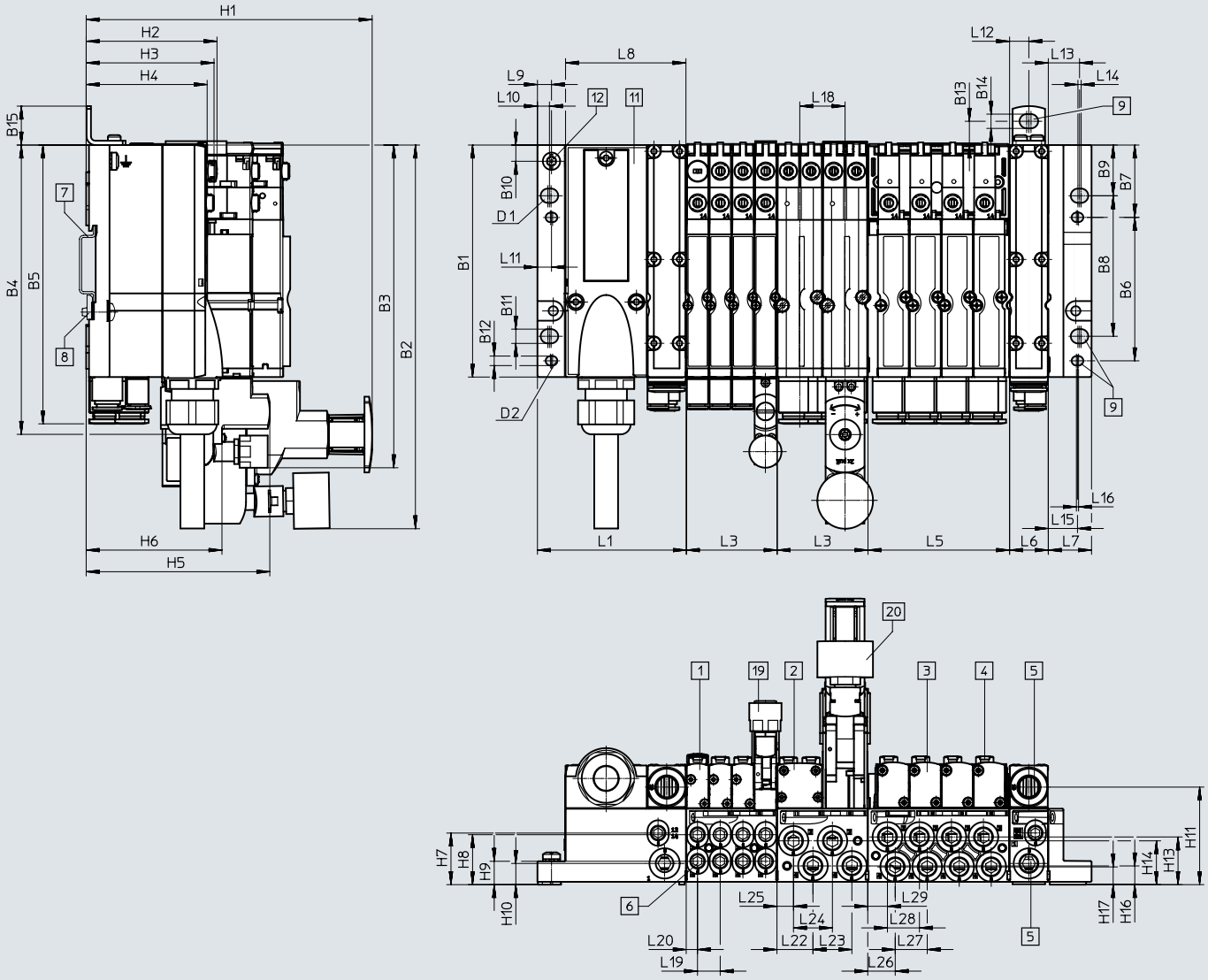
| **Product weight**<br>Approx. weight [g] | MPA1 | MPA14 | MPA2 |
|---|---|---|---|
| Basic weight of sub-base[1)] | 210 (4 valve positions) | 252 (4 valve positions) | 210 (2 valve positions) |
| Individual sub-base (VMPA ... I C...) | 92 | 184 | 233 |
| Per vacant position L | 20 | 40 | 45 |
| Right end plate with port 82/84 for ducted exhaust air (connecting thread M5) | 55 | | |
| Right end plate, without port 82/84 | 58 | | |
| Pneumatic interface, left[1)]<br>• With flat plate silencer<br>• With ducted exhaust air | <br>315<br>324 | | |
| Supply plate[1)]<br>• With flat plate silencer<br>• With ducted exhaust air | <br>111<br>120 | | |
| Electrical supply plate | 200 | | |
| Regulator plate (MPA1)<br>Regulator plate (MPA2) | 73.8<br>180 | | |
| QSM-M5-3-I | 3 | | |
| QSM-M5-5/32-I-U-M | 3 | | |
| QSM-M5-4-I | 4 | | |
| QSM-M5-3/16-I-U-M | 4 | | |
| QSM-M5-6-I | 5 | | |
| QSM-M5-1/4-I-U-M | 5 | | |
| QSM-M7-4-I | 4 | | |
| QSM-M7-3/16-I-U-M | 4 | | |
| QSM-M7-6-I | 5 | | |
| QSM-M7-1/4-I-U-M | 5 | | |
| QS-G1/8-6-I | 11 | | |
| QS-1/8-1/4-I-U-M | 11 | | |
| QS-G1/8-8-I | 13 | | |
| QS-1/8-5/16-I-U-M | 13 | | |
| QS-G1/4-8-I | 22 | | |
| QS-1/4-5/16-I-U-M | 22 | | |
| QS-G1/4-10-I | 22 | | |
| QS-1/4-3/8-I-U-M | 22 | | |

1) With sheet metal seal, inscription label holder, screws

# Datasheet

**Dimensions** Download CAD data ➔ www.festo.com

Valve terminal with multi-pin plug connection:




[1] Solenoid valve MPA1
[2] Solenoid valve MPA2
[3] Solenoid valve MPA14
[4] Manual override
[5] Supply/exhaust ports
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[11] Multi-pin plug connection
[12] Earthing screw
[19] Vertical stacking MPA1
[20] Vertical stacking MPA2

| Type | B1 | B2 | B3 | B4 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (MP) | 107.3 | 178 | 149.2 | 133.8 | 128.9 | 66.3 | 33.5 | 65 | 23.5 | 7.5 | 6.6 | 4.4 | 11 | 6.6 | 18 |

| Type | D1 | D2 | H1 | H2 | H3 | H4 | H5 | H6 | H7 | H8 | H9 | H10 | H11 | H13 | H14 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (MP) | M6 | M4 | 132.3 | 60.5 | 59 | 56 | 84.9 | 63.1 | 23.9 | 23.1 | 10.8 | 9.8 | 45.1 | 22.1 | 20.3 |

| Type | H16 | H17 | L1 | L3[1)] | L5[1)] | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (MP) | 8.7 | 8.2 | 68.9 | n x 42 | n x 65.5 | 17.9 | 20 | 55.8 | 6.5 | 5.6 | 6.5 | 9 | 14.5 |

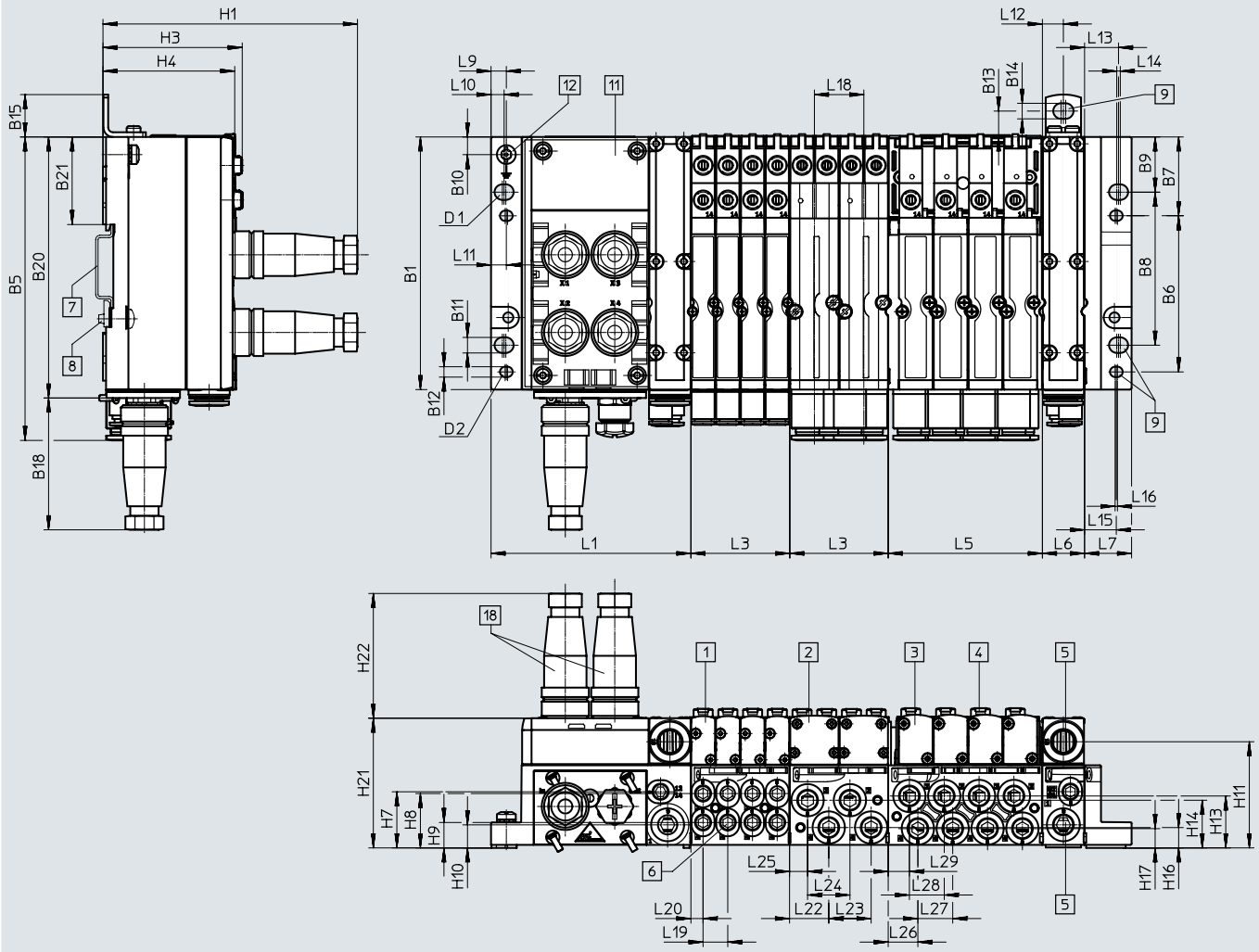
| Type | L14 | L15 | L16 | L18 | L19 | L20 | L22 | L23 | L24 | L25 | L26 | L27 | L28 | L29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (MP) | 1.5 | 13.5 | 1 | 21 | 10.5 | 5.3 | 16.7 | 18 | 18 | 7.7 | 12.7 | 14.8 | 14.8 | 9.1 |

1) n = number of sub-bases (with MPA1, width 10 mm and MPA14, width 14 mm, max. 4 valve positions on sub-base; with MPA2, width 20 mm, max. 2 valve positions on sub-base)

# Datasheet

**Dimensions** Download CAD data ➔ www.festo.com

Valve terminal with AS-Interface connection




[1] Solenoid valve MPA1
[2] Solenoid valve MPA2
[3] Solenoid valve MPA14
[4] Manual override
[5] Supply/exhaust ports
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[11] Manifold block
[12] Earthing screw
[18] Plug M12

| Type | B1 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 | B18 | B20 | B21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (AS-i) | 107.3 | 128.9 | 66.3 | 33.5 | 65 | 23.5 | 7.5 | 6.6 | 4.4 | 11 | 6.6 | 18 | 56 | 110.9 | 37.2 |

| Type | D1 | D2 | H1 | H3 | H4 | H7 | H8 | H9 | H11 | H13 | H14 | H16 | H17 | H21 | H22 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (AS-i) | M6 | M4 | 108.1 | 59 | 56 | 23.9 | 23.1 | 10.8 | 45.1 | 22.1 | 20.3 | 8.7 | 8.2 | 55.1 | 53 |

| Type | L1 | L3[1)] | L5[1)] | L6 | L7 | L9 | L10 | L11 | L12 | L13 | L14 | L15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (AS-i) | 85 | n x 42 | n x 65.5 | 17.9 | 20 | 6.5 | 5.6 | 6.5 | 9 | 14.5 | 1.5 | 13.5 |

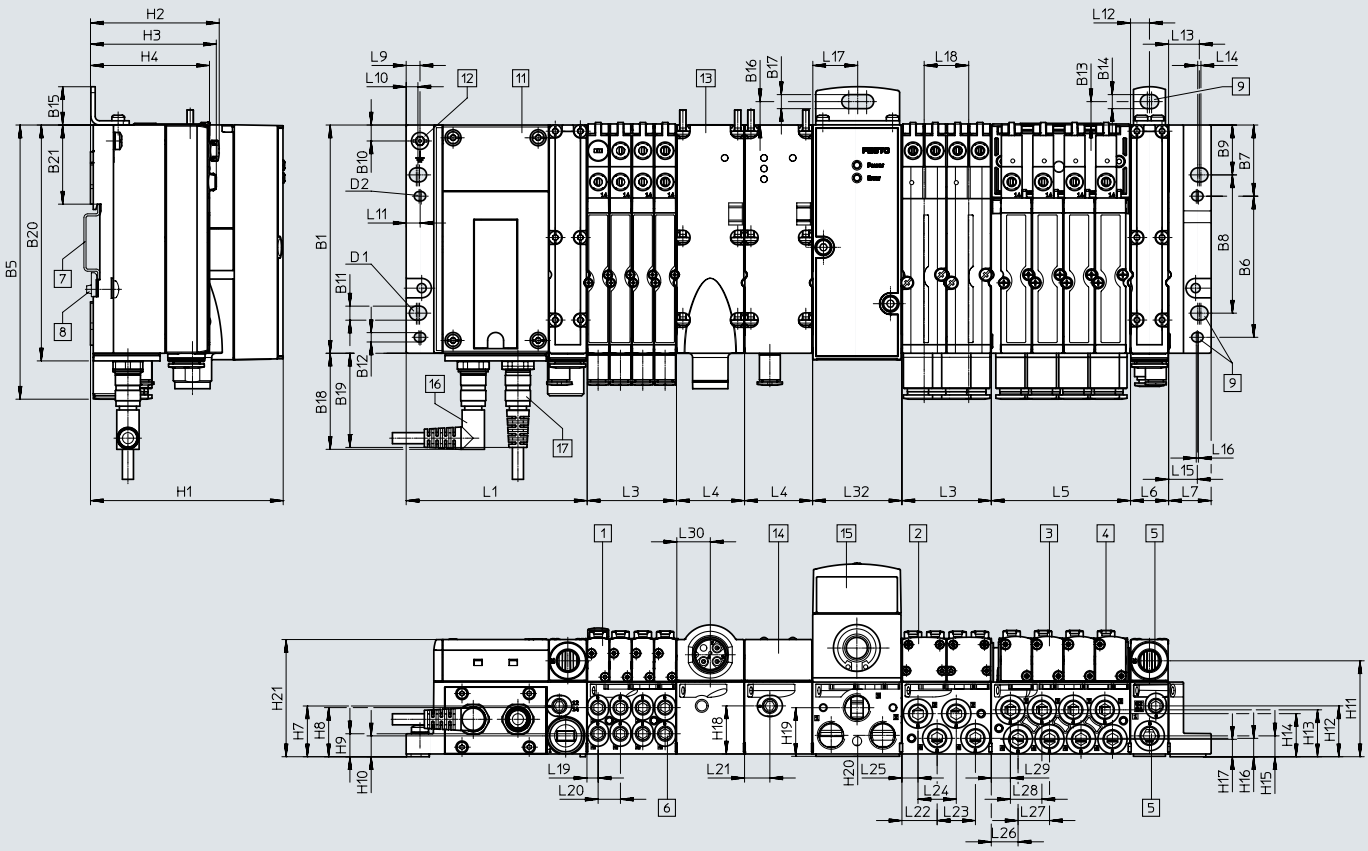
| Type | L16 | L18 | L19 | L20 | L22 | L23 | L24 | L25 | L26 | L27 | L28 | L29 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (AS-i) | 1 | 21 | 10.5 | 5.2 | 16.7 | 18 | 18 | 7.7 | 12.6 | 14.8 | 14.8 | 9 |

1) n = number of sub-bases (with MPA1, width 10 mm and MPA14, width 14 mm, max. 4 valve positions on sub-base; with MPA2, width 20 mm, max. 2 valve positions on sub-base)

# Datasheet

**Dimensions** Download CAD data ➔ www.festo.com

Valve terminal with CPI connection




[1] Solenoid valve MPA1
[2] Solenoid valve MPA2
[3] Solenoid valve MPA14
[4] Manual override
[5] Supply/exhaust ports
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[11] Manifold block
[12] Earthing screw
[13] Electrical supply plate
[14] Pressure sensor
[15] Proportional pressure regulator
[16] Connecting cable with angled plug
[17] Connecting cable with straight plug

| Type | B1 | B5 | B6 | B7 | B8 | B9 | B10 | B11 | B12 | B13 | B14 | B15 | B16 | B17 | B18 | B19 | B20 | B21 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (CPI) | 107.3 | 128.9 | 66.3 | 33.5 | 65 | 23.5 | 7.5 | 6.6 | 4.4 | 11 | 6.6 | 18 | 11 | 6.6 | 45.2 | 44.3 | 110.9 | 37.2 |

| Type | D1 | D2 | H1 | H2 | H3 | H4 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 | H15 | H16 | H17 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (CPI) | M6 | M4 | 90.6 | 60.5 | 59.1 | 56 | 23.9 | 23.1 | 10.8 | 9.8 | 45.1 | 23.9 | 22.1 | 20.3 | 9.8 | 8.7 | 8.2 |

| Type | H18 | H19 | H20 | H21 | L1 | L3[1)] | L4 | L5[1)] | L6 | L7 | L9 | L10 | L11 | L12 | L13 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (CPI) | 22.6 | 22.9 | 9.9 | 55.1 | 85 | n x 42 | 32 | n x 65.5 | 17.9 | 20 | 6.5 | 5.5 | 6.5 | 9 | 14.5 |

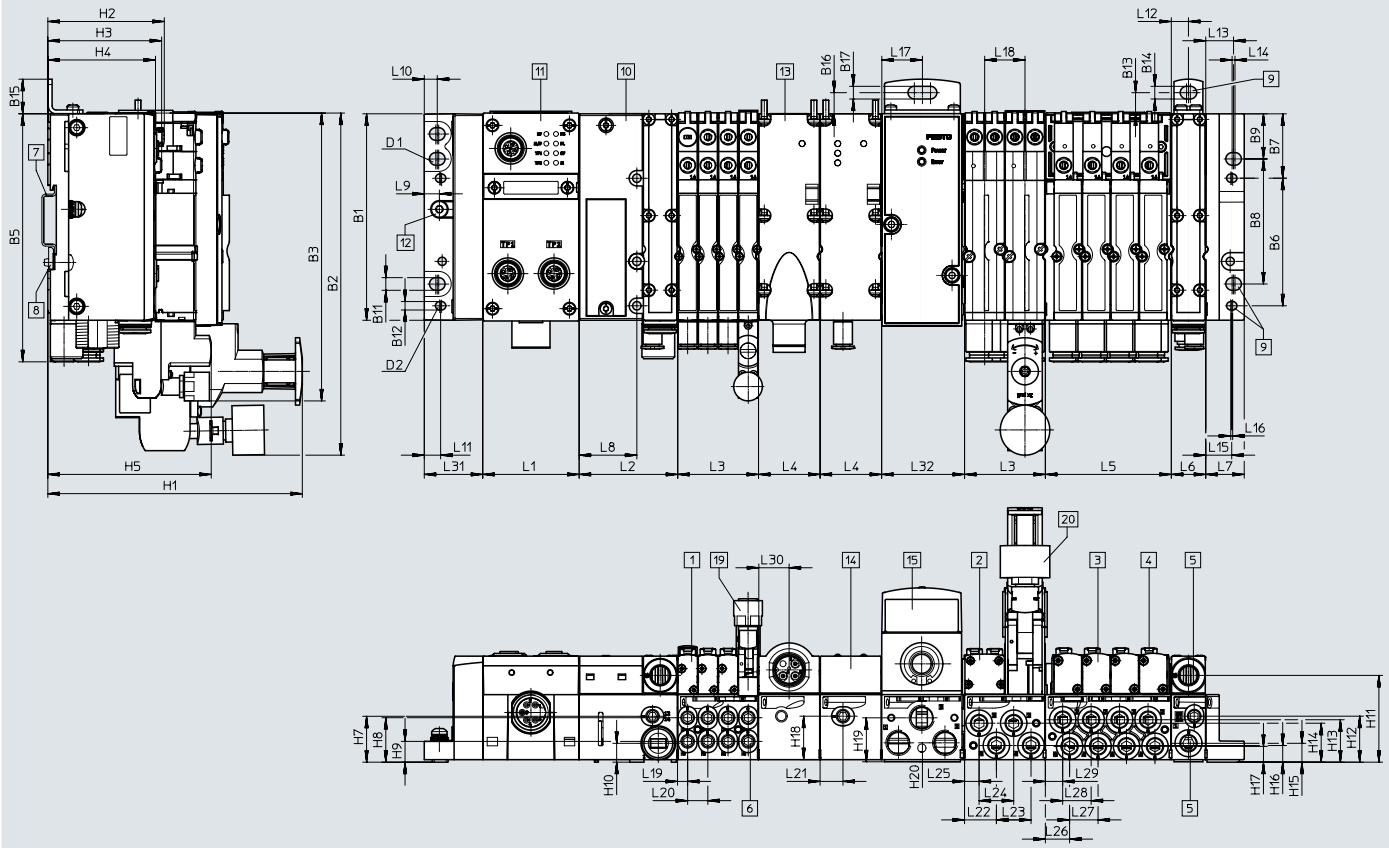
| Type | L14 | L15 | L16 | L17 | L18 | L19 | L20 | L21 | L22 | L23 | L24 | L25 | L26 | L27 | L28 | L29 | L30 | L32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (CPI) | 1.5 | 13.5 | 1 | 21 | 21 | 5.3 | 10.5 | 11.9 | 16.6 | 18 | 18 | 7.6 | 12.6 | 14.8 | 14.8 | 9 | 15.8 | 42 |

1) n = number of sub-bases (with MPA1, width 10 mm and MPA14, width 14 mm, max. 4 valve positions on sub-base; with MPA2, width 20 mm, max. 2 valve positions on sub-base)

# Datasheet

**Dimensions** Download CAD data ➔ www.festo.com

Valve terminal with fieldbus interface




[1] Solenoid valve MPA1
[2] Solenoid valve MPA2
[3] Solenoid valve MPA14
[4] Manual override
[5] Supply/exhaust ports
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[10] Pneumatic interface MPA
[11] CPX module
[12] Earthing screw
[13] Electrical supply plate
[14] Pressure sensor
[15] Proportional pressure regulator
[19] Vertical stacking MPA1
[20] Vertical stacking MPA2

| Type | B1 | B2 | B3 | B5 | B6 | B7 | B8 | B9 | B11 | B12 | B13 | B14 | B15 | B16 | B17 | D1 | D2 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (FB) | 107.3 | 178 | 149.2 | 129 | 66.4 | 33.5 | 65 | 23.5 | 6.6 | 4.4 | 11 | 6.6 | 18 | 11 | 6.6 | M6 | M4 |

| Type | H1 | H2 | H3 | H4 | H5 | H7 | H8 | H9 | H10 | H11 | H12 | H13 | H14 | H15 | H16 | H17 | H18 | H19 | H20 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (FB) | 132.3 | 60.5 | 59.1 | 56 | 84.9 | 23.9 | 23.1 | 10.8 | 9.8 | 45.1 | 23.9 | 22.1 | 20.3 | 9.8 | 8.7 | 8.2 | 22.6 | 22.9 | 9.9 |

| Type | L1[1] | L2 | L3[2] | L4 | L5[2] | L6 | L7 | L8 | L9 | L10 | L11 | L12 | L13 | L14 | L15 | L16 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (FB) | m x 50.1 | 51.3 | n x 42 | 32 | n x 65.5 | 17.9 | 20 | 30 | 7.9 | 6.8 | 8.5 | 9 | 14.5 | 1.5 | 13.5 | 1 |

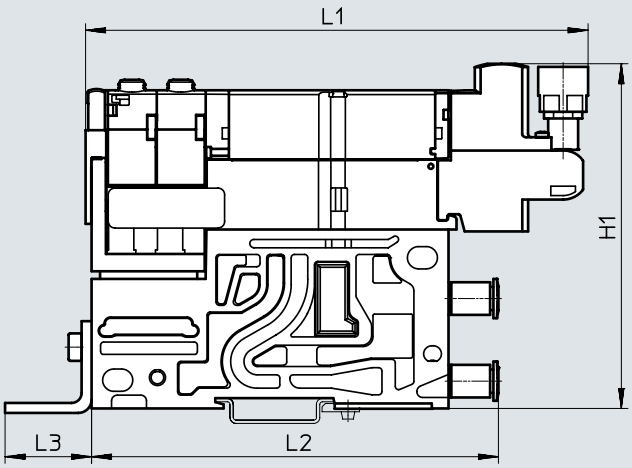
| Type | L17 | L18 | L19 | L20 | L21 | L22 | L23 | L24 | L25 | L26 | L27 | L28 | L29 | L30 | L31 | L32 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| MPA-S (FB) | 21 | 21 | 5.3 | 10.5 | 11.9 | 16.6 | 18 | 18 | 7.6 | 12.6 | 14.8 | 14.8 | 9 | 15.8 | 30.4 | 42 |

1) m = number of CPX modules
2) n = number of sub-bases (with MPA1, width 10 mm and MPA14, width 14 mm, max. 4 valve positions on sub-base; with MPA2, width 20 mm, max. 2 valve positions on sub-base)

# Datasheet

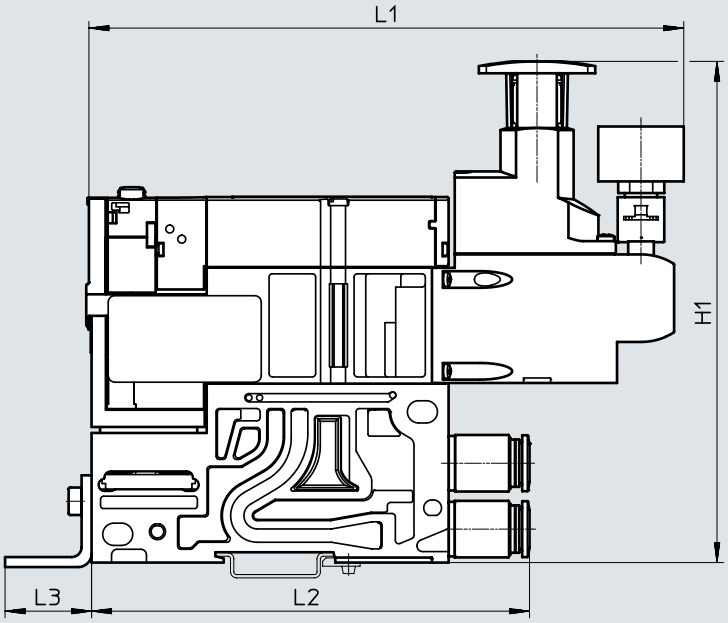
**Dimensions** Download CAD data ➔ www.festo.com

Vertical stacking components, regulator plate VMPA1




| Type | H1 | L1 | L2 | L3 |
|---|---|---|---|---|
| VMPA1-... | 105 | 151.1 | 122.3 | 26.9 |

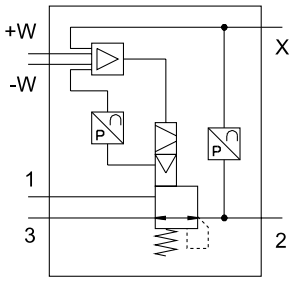
Vertical stacking components, regulator plate VMPA2




| Type | H1 | L1 | L2 | L3 |
|---|---|---|---|---|
| VMPA2-... | 152 | 179.6 | 131.6 | 26.9 |

# Datasheet – Proportional pressure regulator VPPM

Function:




- Flow rate
  380 ... 1650 l/min
- Pressure regulation ranges
  0.02 ... 10 bar
- Voltage
  21.6 ... 26.4 V DC

**General technical data**

| | | | VPPM-6TA | VPPM-8TA |
|---|---|---|---|---|
| Valve function | | | 3-way proportional pressure regulator | |
| Design | | | Piloted diaphragm regulator | |
| Range of applications | | | For CPI connection, for fieldbus | |
| Type of mounting | | | Via through-hole or accessories | |
| Sealing principle | | | Soft | |
| Actuation type | | | Electrical | |
| Type of control | | | Piloted | |
| Mounting position | | | Any | |
| Reset method | | | Mechanical spring | |
| Display type | | | LED | Back-lit LCD |
| Pneumatic connection | 1, 2, 3 | | Sub-base | |
| Nominal width | Pressurisation | [mm] | 6 | 8 |
| | Exhausting | [mm] | 4.5 | 7 |
| Standard nominal flow rate | 2 bar type | [l/min] | 380 | 450 |
| | 6 bar type | [l/min] | 900 | 1050 |
| | 10 bar type | [l/min] | 1400 | 1650 |
| Product weight | | [g] | 400 | 500 |
| Material | Housing | | Anodised wrought aluminium alloy | |

**Electrical data**

| | | |
|---|---|---|
| Electrical connection | | Via E-box |
| Operating voltage range | [V DC] | 21.6 ... 26.4 |
| Residual ripple | [%] | 10 |
| Max. electrical power consumption | [W] | 7 |
| Duty cycle | [%] | 100 |
| Short circuit current rating | | For all electrical connections |
| Reverse polarity protection | | For all electrical connections |
| Protection rating to EN 60529 | | IP65 |

**Note**

Output pressure will be unregulated if there is a break in the power supply cable.

**Note**

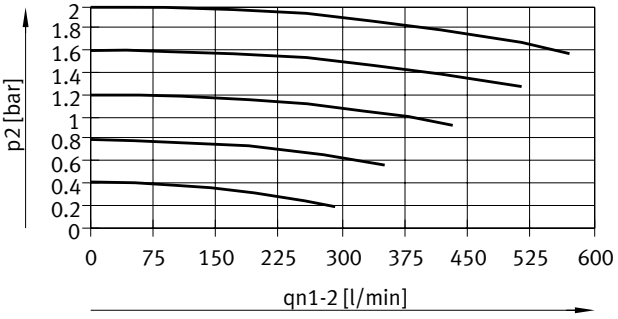
Note possible restrictions for the IP protection class

➔ ATEX declaration of conformity

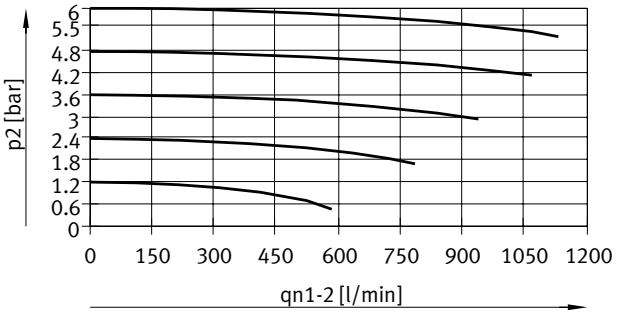
# Datasheet – Proportional pressure regulator VPPM

**Flow rate qn from 1 → 2 as a function of output pressure p2**

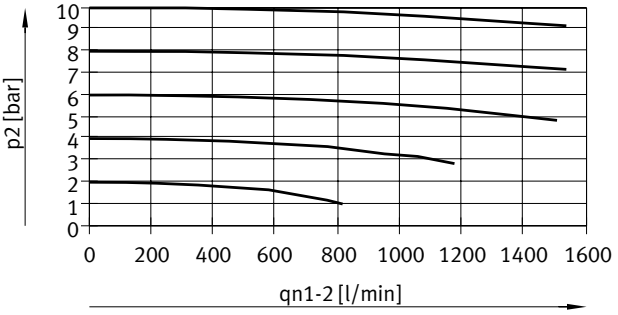
VPPM-6TA-...-0L2H-... (2 bar)




VPPM-6TA-...-0L6H-... (6 bar)

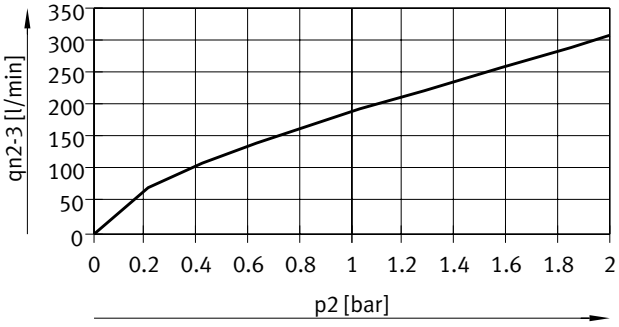



VPPM-6TA-...-0L10H-... (10 bar)

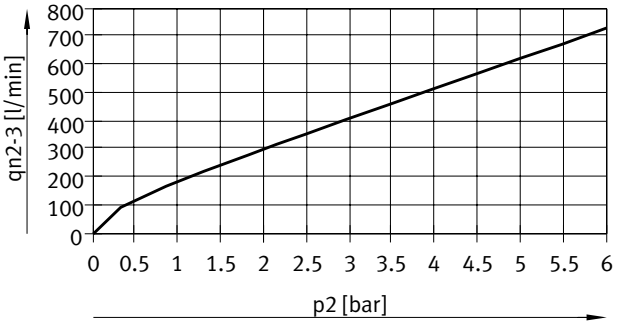



**Flow rate qn from 2} → 3 as a function of output pressure p2**

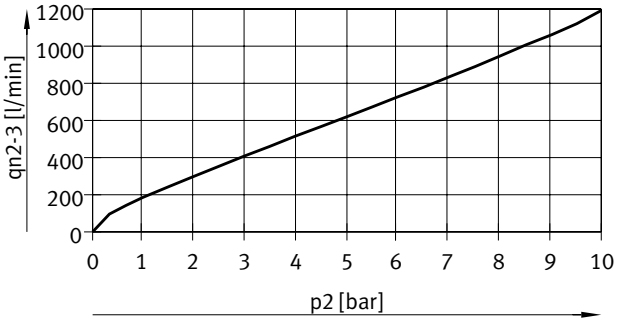
VPPM-6TA-...-0L2H-... (2 bar)




VPPM-6TA-...-0L6H-... (6 bar)



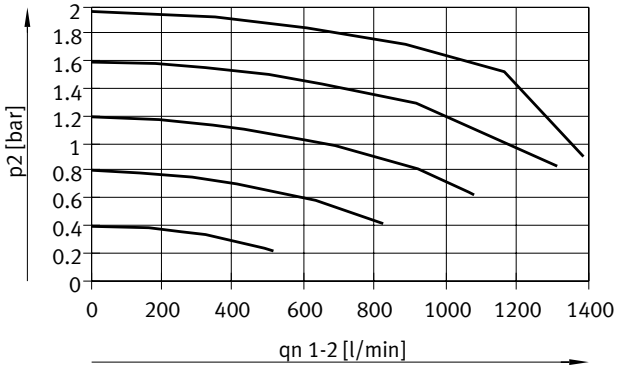

VPPM-6TA-...-0L10H-... (10 bar)



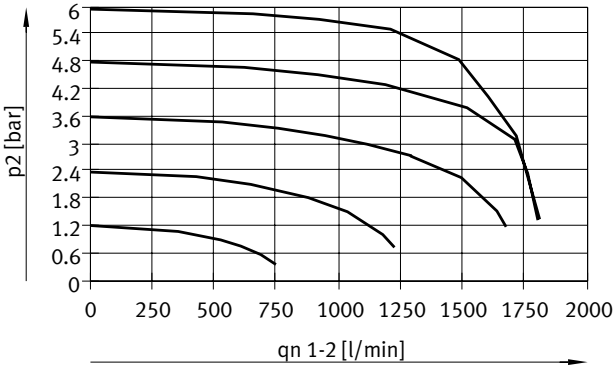
# Datasheet – Proportional pressure regulator VPPM

**Flow rate qn from 1 → 2 as a function of output pressure p2**

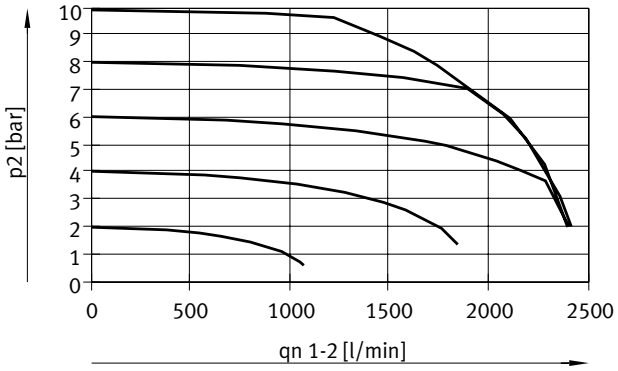
VPPM-8TA-...-0L2H-... (2 bar)




VPPM-8TA-...-0L6H-... (6 bar)

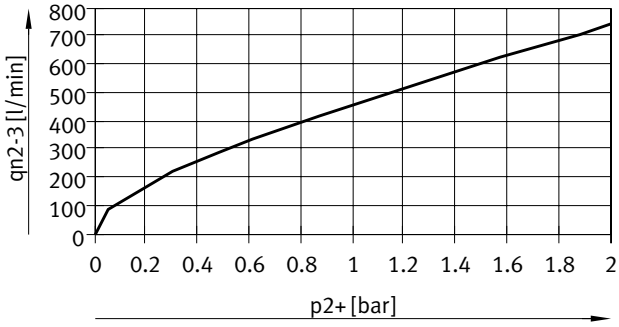



VPPM-8TA-...-0L10H-... (10 bar)

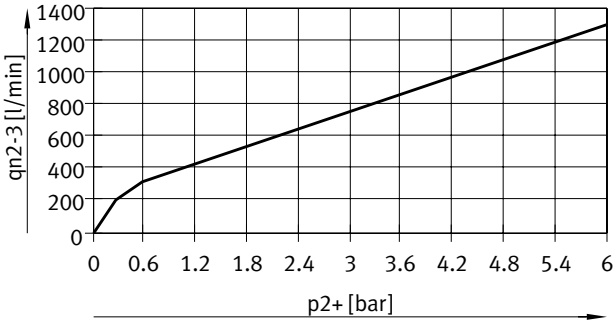



**Flow rate qn from 2 → 3 as a function of output pressure p2**

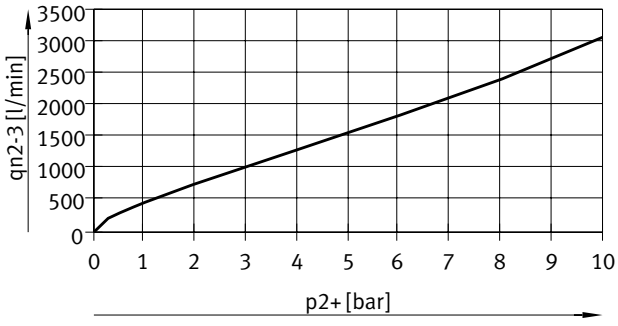
VPPM-8TA-...-0L2H-... (2 bar)




VPPM-8TA-...-0L6H-... (6 bar)




VPPM-8TA-...-0L10H-... (10 bar)

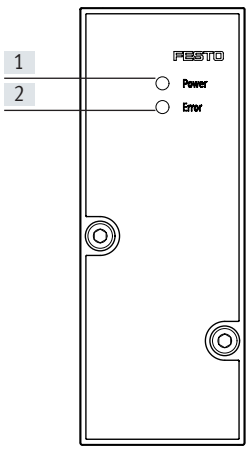


# Datasheet – Proportional pressure regulator VPPM

| Operating and environmental conditions | | | | |
|---|---|---|---|---|
| | | | VPPM-6TA | VPPM-8TA |
| Operating medium | | | Compressed air to ISO 8573-1:2010 [7:4:4] | |
| | | | Inert gases | |
| Note on the operating/pilot medium | | | Lubricated operation not possible | |
| Pressure regulation range | VPPM-...-0L2H-... | [MPa] | 0.002 ...0.2 | |
| | | [bar] | 0.02 ... 2 | |
| | VPPM-...-0L6H-... | [MPa] | 0.006 ... 0.6 | |
| | | [bar] | 0.06 ... 6 | |
| | VPPM-...-0L10H-... | [MPa] | 0.01 ... 1 | |
| | | [bar] | 0.1 ... 10 | |
| Input pressure 1[1] | VPPM-...-0L2H-... | [MPa] | 0 ... 0.4 | |
| | | [bar] | 0 ... 4 | |
| | VPPM-...-0L6H-... | [MPa] | 0 ... 0.8 | |
| | | [bar] | 0 ... 8 | |
| | VPPM-...-0L10H-... | [MPa] | 0 ... 1.1 | |
| | | [bar] | 0 ... 11 | |
| Max. pressure hysteresis | VPPM-...-0L2H-... | [bar] | 0.01 | |
| | VPPM-...-0L6H-... | [bar] | 0.03 | |
| | VPPM-...-0L10H-... | [bar] | 0.05 | |
| Linearity error FS (full scale) | Standard | [%] | 2 | |
| | Type S1 | [%] | 1 | |
| Repetition accuracy FS (full scale) | | [%] | 0.5 | |
| Temperature coefficient | | [%/K] | 0.04 | |
| Ambient temperature | | [°C] | 0 ... 60 | 0 ... 50 |
| Temperature of medium | | [°C] | 10 ... 50 | |
| Corrosion resistance class CRC[2] | | | 2 | |
| KC marking | | | KC EMC | |
| CE marking (see declaration of conformity)[4] | | | To EU EMC Directive[3] | |
| | | | To EU RoHS Directive | |
| UKCA marking (see declaration of conformity)[4] | | | To UK EMC regulations[3] | |
| | | | To UK RoHS regulations | |
| Certification | | | RCM | |
| | | | c UL us - Listed (OL) | |
| Certificate-issuing authority | | | UL E322346 | |
| LABS (PWIS) conformity | | | VDMA24364-B1/B2-L | |

1) Input pressure 1 should always be 1 bar greater than the maximum regulated output pressure.
2) More information: www.festo.com/x/topic/crc
3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
4) More information: www.festo.com/catalogue/... → Support/Downloads.

## LEDs on the proportional pressure regulator VPPM-6TA

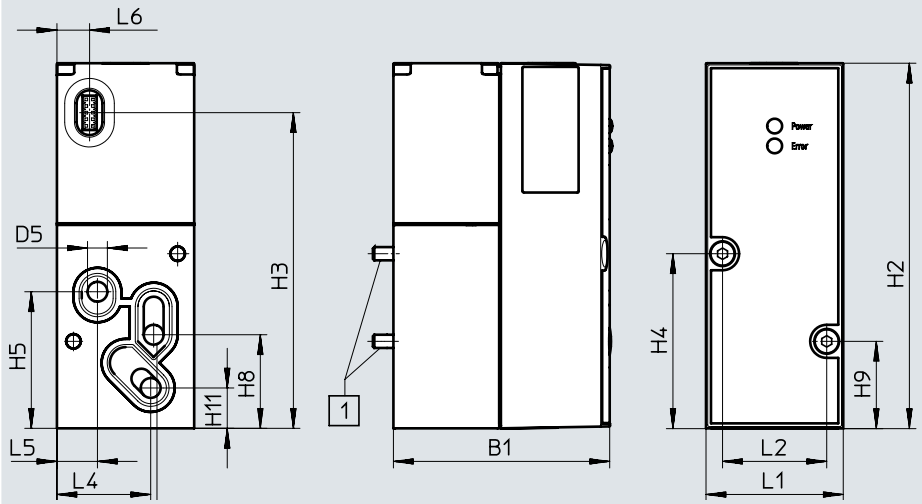



[1] Green power LED
[2] Red error LED

# Datasheet – Proportional pressure regulator VPPM

**Dimensions** Download CAD data ➔ www.festo.com

VPPM-6TA

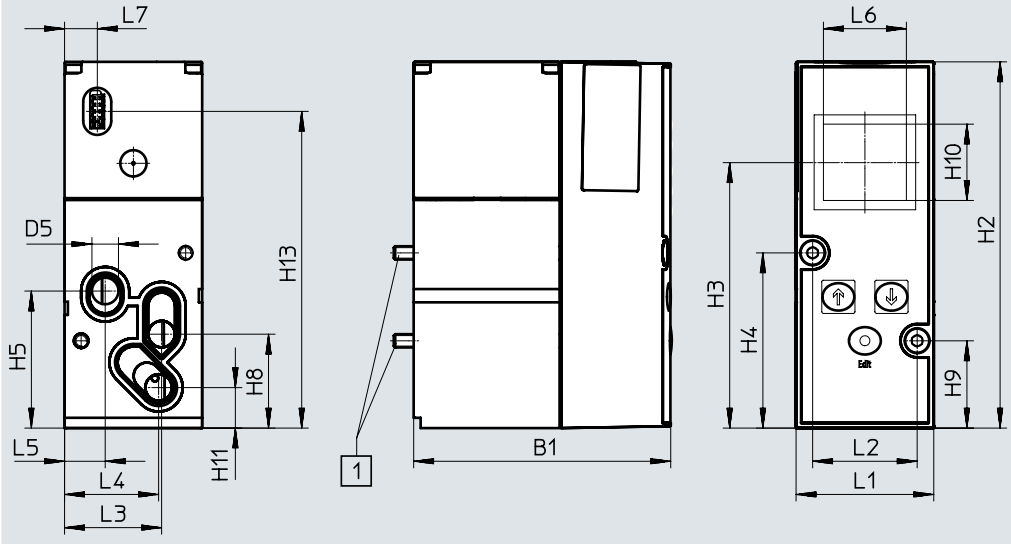



[1] Socket head screw M4x55

| Type | B1 | D5 ø | H2 | H3 | H4 | H5 | H8 | H9 | H11 |
|---|---|---|---|---|---|---|---|---|---|
| VPPM-6TA | 55.5 | 6 | 110.4 | 95.5 | 52.8 | 41.3 | 28.3 | 26.3 | 12.2 |

| Type | L1 | L2 | L3 | L4 | L5 | L6 |
|---|---|---|---|---|---|---|
| VPPM-6TA | 41.5 | 31.5 | 30.3 | 28.4 | 12.3 | 9.9 |

VPPM-8TA with LCD




[1] Socket head screw M4x77

| Type | B1 | D5 ø | H2 | H3 | H4 | H5 | H8 | H9 | H10 | H11 | H13 |
|---|---|---|---|---|---|---|---|---|---|---|---|
| VPPM-8TA | 77.4 | 8 | 110.4 | 80 | 52.8 | 41.3 | 28.3 | 26.3 | 23 | 12.2 | 95.5 |

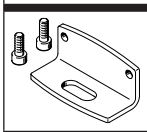
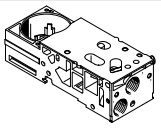
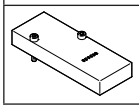
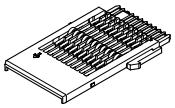
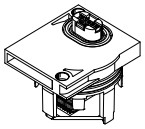
| Type | L1 | L2 | L3 | L4 | L5 | L6 | L7 |
|---|---|---|---|---|---|---|---|
| VPPM-8TA | 41.5 | 31.5 | 29.3 | 28.4 | 12.3 | 25 | 9.9 |

# Datasheet – Proportional pressure regulator VPPM

**Ordering data**

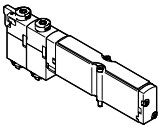
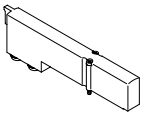
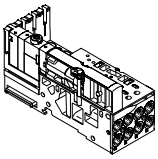
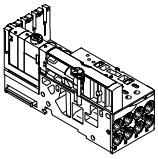
| Code | Overall accuracy [%] | Input pressure 1 [MPa] | Pressure regulation range [MPa] | Part no. | Type |
|---|---|---|---|---|---|
| QA | 2 | 0 ... 0.4 | 0.002 ... 0.2 | **542220** | **VPPM-6TA-L-1-F-0L2H** |
| QD | 1 | 0 ... 0.4 | 0.002 ... 0.2 | **542217** | **VPPM-6TA-L-1-F-0L2H-S1** |
| QB | 2 | 0 ... 0.8 | 0.006 ... 0.6 | **542221** | **VPPM-6TA-L-1-F-0L6H** |
| QE | 1 | 0 ... 0.8 | 0.006 ... 0.6 | **542218** | **VPPM-6TA-L-1-F-0L6H-S1** |
| QC | 2 | 0 ... 1.1 | 0.01 ... 1 | **542222** | **VPPM-6TA-L-1-F-0L10H** |
| QF | 1 | 0 ... 1.1 | 0.01 ... 1 | **542219** | **VPPM-6TA-L-1-F-0L10H-S1** |
| QL | 1 | 0 ... 0.4 | 0.002 ... 0.2 | **572407** | **VPPM-8TA-L-1-F-0L2H-S1C1** |
| QG | 2 | 0 ... 0.4 | 0.002 ... 0.2 | **572410** | **VPPM-8TA-L-1-F-0L2H-C1** |
| QM | 1 | 0 ... 0.8 | 0.006 ... 0.6 | **572408** | **VPPM-8TA-L-1-F-0L6H-S1C1** |
| QH | 2 | 0 ... 0.8 | 0.006 ... 0.6 | **572411** | **VPPM-8TA-L-1-F-0L6H-C1** |
| QN | 1 | 0 ... 1.1 | 0.01 ... 1 | **572409** | **VPPM-8TA-L-1-F-0L10H-S1C1** |
| QK | 2 | 0 ... 1.1 | 0.01 ... 1 | **572412** | **VPPM-8TA-L-1-F-0L10H-C1** |

**Ordering data – Accessories**

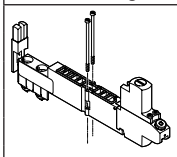
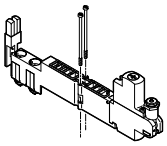
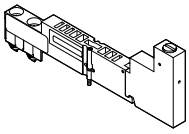
| Designation | | Part no. | Type |
|---|---|---|---|
|  | Mounting | **558844** | **VMPA-BG** |
|  | Sub-base without electrical interlinking module and without electronics module | **542223** | **VMPA-FB-AP-P1** |
|  | Cover plate | **559638** | **VMPA-P-RP** |
|  | Electrical interlinking module for sub-base of the proportional pressure regulator | **537998** | **VMPA1-FB-EV-AB** |
|  | Electronics module | **542224** | **VMPA-FB-EMG-P1** |

# Accessories

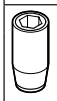
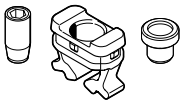
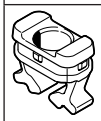
**Ordering data**

| | Code | Valve function | Part no. | Type |
|---|---|---|---|---|
| **Individual solenoid valve – width 10 mm** | | | | |
|  | **5/2-way valve** | | | |
| | Position function 1-32: M | Single solenoid | **533342** | **VMPA1-M1H-M-PI** |
| | Position function 1-32: MS | Single solenoid, mechanical spring return | **571334** | **VMPA1-M1H-MS-PI** |
| | Position function 1-32: MU | Polymer poppet valve, single solenoid, mechanical spring return | **553113** | **VMPA1-M1H-MU-PI** |
| | Position function 1-32: J | Double solenoid | **533343** | **VMPA1-M1H-J-PI** |
| | **2x 3/2-way valve** | | | |
| | Position function 1-32: N | Normally open | **533348** | **VMPA1-M1H-N-PI** |
| | Position function 1-32: NS | Normally open, mechanical spring return | **556839** | **VMPA1-M1H-NS-PI** |
| | Position function 1-32: NU | Polymer poppet valve, normally open, mechanical spring return | **553111** | **VMPA1-M1H-NU-PI** |
| | Position function 1-32: K | Normally closed | **533347** | **VMPA1-M1H-K-PI** |
| | Position function 1-32: KS | normally closed, mechanical spring return | **556838** | **VMPA1-M1H-KS-PI** |
| | Position function 1-32: KU | Polymer poppet valve, normally closed, mechanical spring return | **553110** | **VMPA1-M1H-KU-PI** |
| | Position function 1-32: H | 1x normally open, 1x normally closed | **533349** | **VMPA1-M1H-H-PI** |
| | Position function 1-32: HS | 1x normally open, 1x normally closed, mechanical spring return | **556840** | **VMPA1-M1H-HS-PI** |
| | Position function 1-32: HU | Polymer poppet valve, 1x normally open, 1x normally closed, mechanical spring return | **553112** | **VMPA1-M1H-HU-PI** |
| | **5/3-way valve** | | | |
| | Position function 1-32: B | Mid-position pressurised | **533344** | **VMPA1-M1H-B-PI** |
| | Position function 1-32: G | Mid-position closed | **533345** | **VMPA1-M1H-G-PI** |
| | Position function 1-32: E | Mid-position exhausted | **533346** | **VMPA1-M1H-E-PI** |
| | **1x 3/2-way valve** | | | |
| | Position function 1-32: W | Normally open, external compressed air supply | **540050** | **VMPA1-M1H-W-PI** |
| | Position function 1-32: X | Normally closed, external compressed air supply | **534415** | **VMPA1-M1H-X-PI** |
| | **2x 2/2-way valve** | | | |
| | Position function 1-32: D | Normally closed | **533350** | **VMPA1-M1H-D-PI** |
| | Position function 1-32: DS | normally closed, mechanical spring return | **556841** | **VMPA1-M1H-DS-PI** |
| | Position function 1-32: I | 1x normally closed, 1x normally closed, reversible only | **543605** | **VMPA1-M1H-I-PI** |
| **Vacant position – width 10 mm** | | | | |
|  | Position function 1-32: L | Cover plate for a valve position in width 10 mm<br>A self-adhesive label is supplied. | **533351** | **VMPA1-RP** |
| **Pilot air switching valve – Width 10 mm** | | | | |
|  | Valve positions 0-64 | 3/2-way pilot air switching valve, internal pilot air supply via duct 1 of the pressure zone | **8126790** | **VMPA1-M1H-IS-PI** |
| | | 3/2-way pilot air switching valve, internal pilot air supply via duct 1 of the pressure zone, with pilot air detection via sensor, external, M8 plug connection | **8126792** | **VMPA1-M1H-IU-PI** |
|  | Valve positions 0-64 | 3/2-way pilot air switching valve, external pilot air supply via duct 2 of manifold block | **8126791** | **VMPA1-M1H-ES-PI** |
| | | 3/2-way pilot air switching valve, external pilot air supply via duct 2 of the manifold block, with pilot air detection via sensor, external, M8 plug connection | **8126793** | **VMPA1-M1H-EU-PI** |

# Accessories

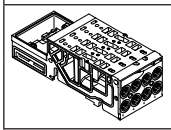
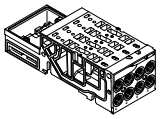
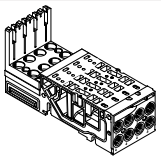
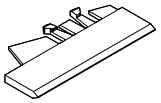
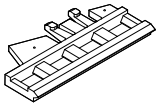
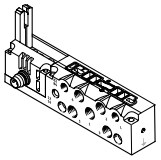
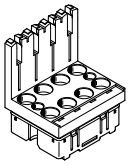
| Ordering data | Code | Description | | | Part no. | Type |
|---|---|---|---|---|---|---|
| **Vertical stacking modules – width 10 mm** | | | | | | |
|  | Pressure regulator 1-32: PF | Pressure regulator plate with fixed threaded connection M5 | For port 1 | 0.5 ... 6 bar | **564911** | **VMPA1-B8-R1-M5-06** |
| | Pressure regulator 1-32: PA | | | 0.5 ... 8.5 bar | **564908** | **VMPA1-B8-R1-M5-10** |
| | Pressure regulator 1-32: PH | | For port 2 | 2 ... 6 bar | **564912** | **VMPA1-B8-R2-M5-06** |
| | Pressure regulator 1-32: PC | | | 2 ... 8.5 bar | **564909** | **VMPA1-B8-R2-M5-10** |
| | Pressure regulator 1-32: PG | | For port 4 | 2 ... 6 bar | **564913** | **VMPA1-B8-R3-M5-06** |
| | Pressure regulator 1-32: PB | | | 2 ... 8.5 bar | **564910** | **VMPA1-B8-R3-M5-10** |
|  | Pressure regulator 1-32: PF | Pressure regulator plate with swivelling threaded connection M5 | For port 1 | 0.5 ... 6 bar | **549052** | **VMPA1-B8-R1C2-C-06** |
| | Pressure regulator 1-32: PA | | | 0.5 ... 8.5 bar | **543339** | **VMPA1-B8-R1C2-C-10** |
| | Pressure regulator 1-32: PH | | For port 2 | 2 ... 6 bar | **549053** | **VMPA1-B8-R2C2-C-06** |
| | Pressure regulator 1-32: PC | | | 2 ... 8.5 bar | **543340** | **VMPA1-B8-R2C2-C-10** |
| | Pressure regulator 1-32: PG | | For port 4 | 2 ... 6 bar | **549054** | **VMPA1-B8-R3C2-C-06** |
| | Pressure regulator 1-32: PB | | | 2 ... 8.5 bar | **543341** | **VMPA1-B8-R3C2-C-10** |
|  | Pressure regulator 1-32: PS | Vertical pressure shut-off plate<br>For manually disconnecting an individual valve from the compressed air supply of the valve terminal (duct 1 and 12/14 pilot air supply), operating pressure 3 ... 8 bar | | | **567805** | **VMPA1-HS** |
|  | Pressure gauge 1-32: VE | Screw-in pressure gauge with M5 thread for pressure regulator plate with swivelling threaded connection | | Unit of measure: bar | **132340** | **MA-15-10-M5** |
| | Pressure gauge 1-32: VD | | | Unit of measure: psi | **132341** | **MA-15-145-M5-PSI** |
|  | Pressure gauge 1-32: VC | Locking push-in fitting with thread M5 for pressure regulator plate | | | **153291** | **QSK-M5-4** |

# Accessories

| Ordering data | | | | | | |
|---|---|---|---|---|---|---|
| | Code | Description | | Part no. | Type | PU[1] |
| **Fixed flow restrictor – Width 10 mm** | | | | | | |
|  | Pneumatic port 3, 1-40: V03 | Hollow bolt, for flow control of the exhaust air | 3.5 ... 5.5 l/min | **572544** | **VMPA1-FT-NW0.3-10** | **10** |
| | Pneumatic port 5, 1-40: Q03 | | | | | |
| | Pneumatic port 3, 1-40: V05 | | 9 ... 12 l/min | **572545** | **VMPA1-FT-NW0.5-10** | **10** |
| | Pneumatic port 5, 1-40: Q05 | | | | | |
| | Pneumatic port 3, 1-40: V07 | | 18 ... 22 l/min | **572546** | **VMPA1-FT-NW0.7-10** | **10** |
| | Pneumatic port 5, 1-40: Q07 | | | | | |
| | Pneumatic port 3, 1-40: V10 | | 36 ... 41 l/min | **572547** | **VMPA1-FT-NW1.0-10** | **10** |
| | Pneumatic port 5, 1-40: Q10 | | | | | |
| | Pneumatic port 3, 1-40: V12 | | 52 ... 58 l/min | **572548** | **VMPA1-FT-NW1.2-10** | **10** |
| | Pneumatic port 5, 1-40: Q12 | | | | | |
| | Pneumatic port 3, 1-40: V15 | | 81 ... 89 l/min | **572549** | **VMPA1-FT-NW1.5-10** | **10** |
| | Pneumatic port 5, 1-40: Q15 | | | | | |
| | Pneumatic port 3, 1-40: V17 | | 105 ... 115 l/min | **572550** | **VMPA1-FT-NW1.7-10** | **10** |
| | Pneumatic port 5, 1-40: Q17 | | | | | |
| **Restrictor set – width 10 mm** | | | | | | |
|  | – | Fixed flow restrictor, two of each size, two retainers and one assembly tool | | **572543** | **VMPA1-FT-NW0.3-1.7** | **14** |
| **Retainer for fixed flow restrictor – Width 10 mm** | | | | | | |
|  | – | Retainer for exhaust outlet in the port plate | | **572542** | **VMPA1-FTI-10** | **10** |

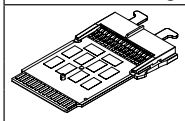
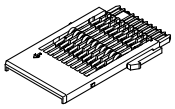
1) Packaging unit.

# Accessories

| Ordering data | Code | Description | | Part no. | Type |
|---|---|---|---|---|---|
| **Sub-base – width 10 mm** | | | | | |
|  | – | For multi-pin plug/fieldbus, four valve positions, no electrical interlinking module | No duct separation | **533352** | **VMPA1-FB-AP-4-1** |
| | | | Duct 1 blocked | **538657** | **VMPA1-FB-AP-4-1-T1** |
| | | | Duct 1 blocked and duct 3/5 blocked | **555901** | **VMPA1-FB-AP-4-1-S1** |
| **Sub-bases with check valve in duct 3 and 5 – width 10 mm** | | | | | |
|  | – | For multi-pin plug/fieldbus, four valve positions, no electrical interlinking module | No duct separation | **8034547** | **VMPA1-FB-AP-4-1-RV** |
| | | | Duct 1 blocked | **8034549** | **VMPA1-FB-AP-4-1-T1-RV** |
| | | | Duct 1 blocked and duct 3/5 blocked | **8034551** | **VMPA1-FB-AP-4-1-S1-RV** |
| **Sub-base – including electrical interlinking and electronics modules – width 10 mm** | | | | | |
|  | – | For fieldbus | Four valve positions | **546802** | **VMPA1-AP-4-1-EMS-8** |
| | | For multi-pin plug | Four solenoid coils | **546806** | **VMPA1-AP-4-1-EMM-4** |
| | | | Eight solenoid coils | **546804** | **VMPA1-AP-4-1-EMM-8** |
| | | | | **8157743** | **VMPA1-AP-4-EMM-8-SK** |
| | | | | **8157744** | **VMPA1-AP-4-EMM-8-SL** |
| | | For fieldbus | Eight solenoid coils | **8157739** | **VMPA1-AP-4-EMG-8-S** |
| | | | | **8157740** | **VMPA1-AP-4-EMG-D2-8-S** |
| **Inscription label holder for sub-base – width 10 mm** | | | | | |
|  | – | For foil<br>Inscription label holder for sub-base, transparent, for paper foil label | | **533362** | **VMPA1-ST-1-4** |
|  | – | For IBS<br>Inscription label holder for sub-base, 4-fold, for IBS-6x10 | | **544384** | **VMPA1-ST-2-4** |
|  | – | Inscription labels, 6 x 10 in frames, pack of 64 | | **18576** | **IBS-6x10** |
| **Sub-base – width 10 mm** | | | | | |
|  | – | For individual connection, without ATEX specification | Internal pilot air | **533394** | **VMPA1-IC-AP-1** |
| | | | External pilot air | **533395** | **VMPA1-IC-AP-S-1** |
| | | For individual connection, with ATEX specification:<br>II 3G Ex nA IIC T4 XGc | Internal pilot air | **8005149** | **VMPA1-IC-AP-1-EX1E** |
| | | | External pilot air | **8005150** | **VMPA1-IC-AP-S-1-EX1E** |
| **Electronics module – width 10 mm** | | | | | |
|  | – | For fieldbus connection, without separate circuit | 8 coils | **533360** | **VMPA1-FB-EMS-8** |
| | | For fieldbus connection, with separate circuit | 8 coils | **533361** | **VMPA1-FB-EMG-8** |
| | | | | **8108543** | **VMPA1-FB-EM-8-S** |
| | | For fieldbus connection, with enhanced diagnostic function, without separate circuit | 8 coils | **543331** | **VMPA1-FB-EMS-D2-8** |
| | | For fieldbus connection, with enhanced diagnostic function, with separate circuit | 8 coils | **543333** | **VMPA1-FB-EMG-D2-8** |
| | | | | **8108545** | **VMPA1-FB-EMG-D2-8-S** |
| | | For multi-pin plug connection | 4 coils | **537987** | **VMPA1-MPM-EMM-4** |
| | | | 8 coils | **537988** | **VMPA1-MPM-EMM-8** |

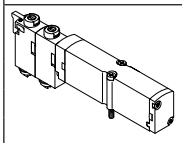
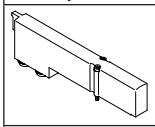
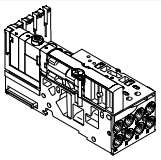
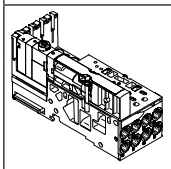
# Accessories

**Ordering data**

| | Code | Description | | Part no. | Type |
|---|---|---|---|---|---|
| **Electrical interlinking module – width 10 mm** | | | | | |
|  | – | For a multi-pin connection and AS-Interface for a sub-base | 4 coils | **537993** | **VMPA1-MPM-EV-AB-4** |
| | | | 8 coils | **537994** | **VMPA1-MPM-EV-AB-8** |
| | | For multi-pin plug connection and AS-Interface for a sub-base with pneumatic supply plate (on the left next to the sub-base) | 4 coils | **537995** | **VMPA1-MPM-EV-ABV-4** |
| | | | 8 coils | **537996** | **VMPA1-MPM-EV-ABV-8** |
|  | – | For fieldbus connection and CPI, for sub-bases MPA size 1 and 2 and proportional pressure regulator | | **537998** | **VMPA1-FB-EV-AB** |
| | | For fieldbus connection and CPI for a pneumatic supply plate | | **537999** | **VMPA1-FB-EV-V** |

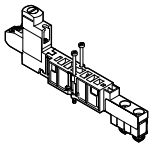
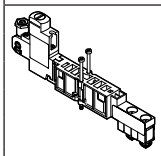
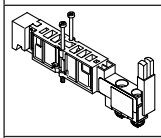
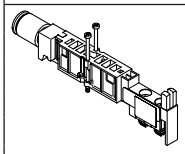
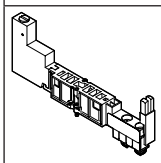
# Accessories

**Ordering data**

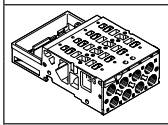
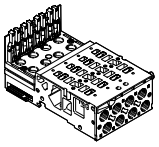
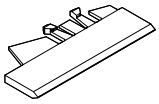
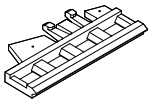
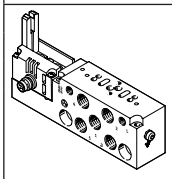
| | Code | Valve function | Part no. | Type |
|---|---|---|---|---|
| **Individual solenoid valve – width 14 mm** | | | | |
|  | **5/2-way valve** | | | |
| | Position function 1-32: M | Single solenoid | **573718** | **VMPA14-M1H-M-PI** |
| | Position function 1-32: MS | Single solenoid, mechanical spring return | **573974** | **VMPA14-M1H-MS-PI** |
| | Position function 1-32: J | Double solenoid | **573717** | **VMPA14-M1H-J-PI** |
| | **2x 3/2-way valve** | | | |
| | Position function 1-32: N | Normally open | **573725** | **VMPA14-M1H-N-PI** |
| | Position function 1-32: NS | Normally open,<br>mechanical spring return | **575977** | **VMPA14-M1H-NS-PI** |
| | Position function 1-32: K | Normally closed | **573724** | **VMPA14-M1H-K-PI** |
| | Position function 1-32: KS | normally closed,<br>mechanical spring return | **575976** | **VMPA14-M1H-KS-PI** |
| | Position function 1-32: H | 1x normally open, 1x normally closed | **573726** | **VMPA14-M1H-H-PI** |
| | Position function 1-32: HS | 1x normally open, 1x normally closed,<br>mechanical spring return | **575979** | **VMPA14-M1H-HS-PI** |
| | **5/3-way valve** | | | |
| | Position function 1-32: B | Mid-position pressurised | **573719** | **VMPA14-M1H-B-PI** |
| | Position function 1-32: G | Mid-position closed | **573721** | **VMPA14-M1H-G-PI** |
| | Position function 1-32: E | Mid-position exhausted | **573720** | **VMPA14-M1H-E-PI** |
| | **3/2-way valve** | | | |
| | Position function 1-32: W | Normally open, external compressed air supply | **573723** | **VMPA14-M1H-W-PI** |
| | Position function 1-32: X | Normally closed, external compressed air supply | **573722** | **VMPA14-M1H-X-PI** |
| | **2x 2/2-way valve** | | | |
| | Position function 1-32: D | Normally closed | **573727** | **VMPA14-M1H-D-PI** |
| | Position function 1-32: DS | normally closed,<br>mechanical spring return | **575978** | **VMPA14-M1H-DS-PI** |
| | Position function 1-32: I | 1x normally closed,<br>1x normally closed,<br>reversible only | **573728** | **VMPA14-M1H-I-PI** |
| **Vacant position – width 14 mm** | | | | |
|  | Position function 1-32: L | Cover plate for a valve position in width 14 mm<br>A self-adhesive label is supplied. | **573729** | **VMPA14-RP** |
| **Pilot air switching valve – Width 14 mm** | | | | |
|  | Valve positions 0-64 | 3/2-way pilot air switching valve, internal pilot air supply via duct 1 of the pressure zone | **8126785** | **VMPA14-M1H-IS-PI** |
| | | 3/2-way pilot air switching valve, internal pilot air supply via duct 1 of the pressure zone, with pilot air detection via sensor, external, M8 plug connection | **8126787** | **VMPA14-M1H-IU-PI** |
|  | Valve positions 0-64 | 3/2-way pilot air switching valve, external pilot air supply via duct 2 of manifold block | **8126786** | **VMPA14-M1H-ES-PI** |
| | | 3/2-way pilot air switching valve, external pilot air supply via duct 2 of the manifold block, with pilot air detection via sensor, external, M8 plug connection | **8126788** | **VMPA14-M1H-EU-PI** |

# Accessories

**Ordering data**

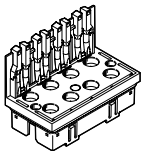
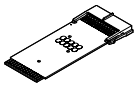
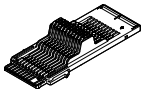
| | Code | Description | | | Part no. | Type |
|---|---|---|---|---|---|---|
| **Vertical stacking modules – width 14 mm** | | | | | | |
|  | Pressure regulator 1-32: PF | Optional pressure gauge possible | Pressure regulator for 1 | 0.5 ... 6 bar | **8043342** | **VMPA14-B8-R1C2-C-06** |
| | Pressure regulator 1-32: PA | | | 0.5 ... 8.5 bar | **8043339** | **VMPA14-B8-R1C2-C-10** |
| | Pressure regulator 1-32: PH | | Pressure regulator for 2 | 2 ... 6 bar | **8043343** | **VMPA14-B8-R2C2-C-06** |
| | Pressure regulator 1-32: PC | | | 2 ... 6 bar | **8043340** | **VMPA14-B8-R2C2-C-10** |
| | Pressure regulator 1-32: PG | | Pressure regulator for 4 | 2 ... 6 bar | **8043344** | **VMPA14-B8-R3C2-C-06** |
| | Pressure regulator 1-32: PB | | | 2 ... 6 bar | **8043341** | **VMPA14-B8-R3C2-C-10** |
|  | Pressure regulator 1-32: PF | – | Pressure regulator for 1 | 0.5 ... 6 bar | **8043518** | **VMPA14-B8-R1-M5-06** |
| | Pressure regulator 1-32: PA | | | 0.5 ... 8.5 bar | **8043515** | **VMPA14-B8-R1-M5-10** |
| | Pressure regulator 1-32: PH | | Pressure regulator for 2 | 2 ... 6 bar | **8043519** | **VMPA14-B8-R2-M5-06** |
| | Pressure regulator 1-32: PC | | | 2 ... 6 bar | **8043516** | **VMPA14-B8-R2-M5-10** |
| | Pressure regulator 1-32: PG | | Pressure regulator for 4 | 2 ... 6 bar | **8043520** | **VMPA14-B8-R3-M5-06** |
| | Pressure regulator 1-32: PB | | | 2 ... 6 bar | **8043517** | **VMPA14-B8-R3-M5-10** |
|  | Pressure regulator 1-32: PV | Vertical pressure supply plate | Connecting thread | G1/8 | **8110621** | **VMPA14-VSP-0** |
|  | | | With fitting for tubing O.D. | 6 mm | **8110627** | **VMPA14-VSP-QS6** |
| | | | | 8 mm | **8110622** | **VMPA14-VSP-QS8** |
| | | | | 10 mm | **8110625** | **VMPA14-VSP-QS10** |
| | | | | 1/4" | **8110626** | **VMPA14-VSP-QS1/4** |
| | | | | 5/16" | **8110624** | **VMPA14-VSP-QS5/16** |
| | | | | 3/8" | **8110623** | **VMPA14-VSP-QS3/8** |
|  | Pressure regulator 1-32: PS | Vertical pressure shut-off plate<br>For manually disconnecting an individual valve from the compressed air supply of the valve terminal (duct 1 and 12/14 pilot air supply), operating pressure 3 ... 8, internal pilot air supply | | | **8110429** | **VMPA14-HS** |
|  | Pressure gauge 1-32: VE | Screw-in pressure gauge with M5 thread for pressure regulator plate with swivelling threaded connection | | Unit of measure: bar | **132340** | **MA-15-10-M5** |
| | Pressure gauge 1-32: VD | | | Unit of measure: psi | **132341** | **MA-15-145-M5-PSI** |
|  | Pressure gauge 1-32: VC | Push-in fitting, self-sealing, with M5 thread for pressure regulator plate | | | **153291** | **QSK-M5-4** |
| **Check valve – width 14 mm** | | | | | | |
|  | – | Check valve for installation in duct 3 or 5<br>(scope of delivery: 10 check valves, one assembly tool) | | | **8039820** | **VMPA14-RV** |

# Accessories

| Ordering data | Code | Description | | Part no. | Type |
|---|---|---|---|---|---|
| **Sub-base – width 14 mm** | | | | | |
|  | – | For multi-pin plug/fieldbus, four valve positions, no electrical interlinking module | No duct separation | **8074666** | **VMPA14-FB-AP-4-1** |
| | | | Duct 1 blocked | **8043928** | **VMPA14-FB-AP-4-1-T1** |
| | | | Duct 1 blocked and duct 3/5 blocked | **8043929** | **VMPA14-FB-AP-4-1-S1** |
| **Sub-base – including electrical interlinking and electronics modules – width 14 mm** | | | | | |
|  | – | For fieldbus | Four valve positions | **8066778** | **VMPA14-AP-4-1-EMS-8** |
| | | For multi-pin plug | Four solenoid coils | **8066779** | **VMPA14-AP-4-1-EMM-4** |
| | | | Eight solenoid coils | **8066780** | **VMPA14-AP-4-1-EMM-8** |
| | | | | **8157745** | **VMPA14-AP-4-EMM-8-SK** |
| | | | | **8157746** | **VMPA14-AP-4-EMM-8-SL** |
| | | For fieldbus | Eight solenoid coils | **8157741** | **VMPA14-AP-4-EMG-8-S** |
| | | | | **8157742** | **VMPA14-AP-4-EMG-D2-8-S** |
| **Inscription label holder for sub-base – width 14 mm** | | | | | |
|  | – | For foil<br>Inscription label holder for sub-base, transparent, for paper foil label | | **8085996** | **VMPA14-ST-1-4** |
|  | – | For IBS<br>Inscription label holder for sub-base, 4-fold, for IBS-6x10 | | **8085997** | **VMPA14-ST-2-4** |
|  | – | Inscription labels, 6 x 10 in frames, pack of 64 | | **18576** | **IBS-6x10** |
| **Sub-base – width 14 mm** | | | | | |
|  | – | For individual connection, without ATEX specification | Internal pilot air | **8023666** | **VMPA14-IC-AP-1** |
| | | | External pilot air | **8023667** | **VMPA14-IC-AP-S-1** |
| | | For individual connection, with ATEX specification:<br>II 3G Ex nA IIC T4 XGc | Internal pilot air | **8023668** | **VMPA14-IC-AP-1-EX1E** |
| | | | External pilot air | **8023669** | **VMPA14-IC-AP-S1-EX1E** |

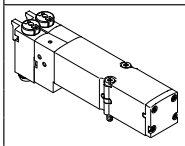
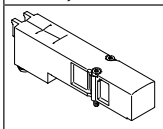
# Accessories

**Ordering data**

| | Code | Description | | Part no. | Type |
|---|---|---|---|---|---|
| **Electronics module – width 14 mm** | | | | | |
|  | – | For fieldbus connection, without separate circuit | 8 coils | **8066764** | **VMPA14-FB-EMS-8** |
| | | For fieldbus connection, with separate circuit | 8 coils | **8066765** | **VMPA14-FB-EMG-8** |
| | | | | **8108547** | **VMPA14-FB-EMG-8-S** |
| | | For fieldbus connection, with enhanced diagnostic function, without separate circuit | 8 coils | **8066766** | **VMPA14-FB-EMS-D2-8** |
| | | For fieldbus connection, with enhanced diagnostic function, with separate circuit | 8 coils | **8066767** | **VMPA14-FB-EMG-D2-8** |
| | | | | **8108549** | **VMPA14-FB-EMG-D2-8-S** |
| | | For multi-pin plug connection | 4 coils | **8066768** | **VMPA14-MPM-EMM-4** |
| | | | 8 coils | **8066769** | **VMPA14-MPM-EMM-8** |
| **Electrical interlinking module – width 14 mm** | | | | | |
|  | – | For a multi-pin connection and AS-Interface for a sub-base | 4 coils | **8066770** | **VMPA14-MPM-EV-AB-4** |
| | | | 8 coils | **8066771** | **VMPA14-MPM-EV-AB-8** |
| | | For multi-pin plug connection and AS-Interface for a sub-base with pneumatic supply plate (on the left next to the sub-base) | 4 coils | **8066772** | **VMPA14-MPM-EV-ABV-4** |
| | | | 8 coils | **8066773** | **VMPA14-MPM-EV-ABV-8** |
|  | – | For fieldbus connection and CPI, for sub-bases MPA size 14 | | **8066774** | **VMPA14-FB-EV-AB** |

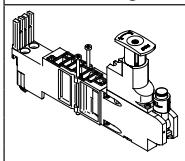
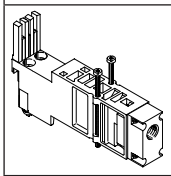
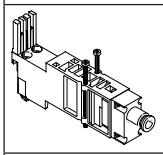
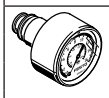
# Accessories

**Ordering data**

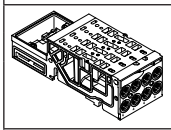
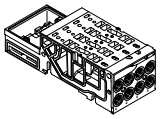
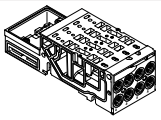
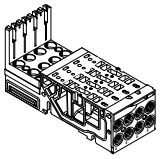
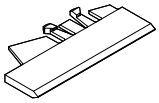
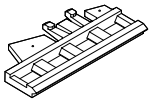
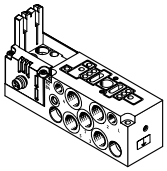
| | Code | Valve function | Part no. | Type |
|---|---|---|---|---|
| **Individual solenoid valve – width 20 mm** | | | | |
|  | **5/2-way valve** | | | |
| | Position function 1-32: M | Single solenoid | **537952** | **VMPA2-M1H-M-PI** |
| | Position function 1-32: MS | Single solenoid, mechanical spring return | **571333** | **VMPA2-M1H-MS-PI** |
| | Position function 1-32: J | Double solenoid | **537953** | **VMPA2-M1H-J-PI** |
| | **2x 3/2-way valve** | | | |
| | Position function 1-32: N | Normally open | **537958** | **VMPA2-M1H-N-PI** |
| | Position function 1-32: NS | Normally open,<br>mechanical spring return | **568655** | **VMPA2-M1H-NS-PI** |
| | Position function 1-32: K | Normally closed | **537957** | **VMPA2-M1H-K-PI** |
| | Position function 1-32: KS | normally closed,<br>mechanical spring return | **568656** | **VMPA2-M1H-KS-PI** |
| | Position function 1-32: H | 1x normally open, 1x normally closed | **537959** | **VMPA2-M1H-H-PI** |
| | Position function 1-32: HS | 1x normally open, 1x normally closed,<br>mechanical spring return | **568658** | **VMPA2-M1H-HS-PI** |
| | **5/3-way valve** | | | |
| | Position function 1-32: B | Mid-position pressurised | **537954** | **VMPA2-M1H-B-PI** |
| | Position function 1-32: G | Mid-position closed | **537955** | **VMPA2-M1H-G-PI** |
| | Position function 1-32: E | Mid-position exhausted | **537956** | **VMPA2-M1H-E-PI** |
| | **1x 3/2-way valve** | | | |
| | Position function 1-32: W | Normally open, external compressed air supply | **540051** | **VMPA2-M1H-W-PI** |
| | Position function 1-32: X | Normally closed, external compressed air supply | **537961** | **VMPA2-M1H-X-PI** |
| | **2x 2/2-way valve** | | | |
| | Position function 1-32: D | Normally closed | **537960** | **VMPA2-M1H-D-PI** |
| | Position function 1-32: DS | normally closed,<br>mechanical spring return | **568657** | **VMPA2-M1H-DS-PI** |
| | Position function 1-32: I | 1x normally closed,<br>1x normally closed, reversible only | **543703** | **VMPA2-M1H-I-PI** |
| **Vacant position – width 20 mm** | | | | |
|  | Position function 1-32: L | Cover plate for a valve position in width 20 mm<br>A self-adhesive label is supplied. | **537962** | **VMPA2-RP** |

# Accessories

**Ordering data**

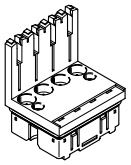
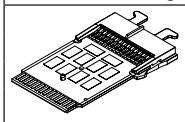
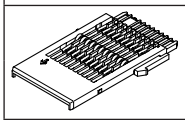
| | Code | Valve function | | | Part no. | Type |
|---|---|---|---|---|---|---|
| **Vertical stacking modules – width 20 mm** | | | | | | |
|  | Pressure regulator 1-32: PA | Pressure regulator plate (with 10 mm cartridge connection for pressure gauge) | For port 1 | 0.5 ... 8.5 bar | **543342** | **VMPA2-B8-R1C2-C-10** |
| | Pressure regulator 1-32: PF | | | 0.5 ... 8.5 bar | **549055** | **VMPA2-B8-R1C2-C-06** |
| | Pressure regulator 1-32: PC | | For port 2 | 2 ... 8.5 bar | **543343** | **VMPA2-B8-R2C2-C-10** |
| | Pressure regulator 1-32: PH | | | 2 ... 8.5 bar | **549056** | **VMPA2-B8-R2C2-C-06** |
| | Pressure regulator 1-32: PB | | For port 4 | 2 ... 8.5 bar | **543344** | **VMPA2-B8-R3C2-C-10** |
| | Pressure regulator 1-32: PG | | | 2 ... 8.5 bar | **549057** | **VMPA2-B8-R3C2-C-06** |
| | Pressure regulator 1-32: PL | | For port 2, reversible | 0.5 ... 8.5 bar | **543347** | **VMPA2-B8-R6C2-C-10** |
| | Pressure regulator 1-32: PN | | | 0.5 ... 6 bar | **549113** | **VMPA2-B8-R6C2-C-06** |
| | Pressure regulator 1-32: PK | | For port 4, reversible | 0.5 ... 8.5 bar | **543348** | **VMPA2-B8-R7C2-C-10** |
| | Pressure regulator 1-32: PM | | | 0.5 ... 6 bar | **549114** | **VMPA2-B8-R7C2-C-06** |
|  | Pressure regulator 1-32: PV | Vertical pressure supply plate | Connecting thread | G1/8 | **8029486** | **VMPA2-VSP-0** |
|  | | | With fitting for tubing O.D. | 6 mm | **8035441** | **VMPA2-VSP-QS6** |
| | | | | 8 mm | **8029488** | **VMPA2-VSP-QS8** |
| | | | | 10 mm | **8029489** | **VMPA2-VSP-QS10** |
| | | | | 1/4" | **8035442** | **VMPA2-VSP-QS1/4** |
| | | | | 5/16" | **8029491** | **VMPA2-VSP-QS5/16** |
|  | Pressure gauge 1-32: T | Pressure gauge, 10 mm cartridge connection, for pressure regulator plate | Display unit bar/psi | 0 ... 16 bar | **543487** | **PAGN-26-16-P10** |
| | | | | 0 ... 10 bar | **543488** | **PAGN-26-10-P10** |
| | – | | Display unit MPa | 0 ... 1.0 MPa | **563736** | **PAGN-26-1M-P10** |
| | | | | 0 ... 1.6 MPa | **563735** | **PAGN-26-1.6M-P10** |
|  | Pressure gauge 1-32: VF | Threaded adapter for cartridge connection 10 mm to thread G1/8 | | | **565811** | **QSP10-G1/8** |
| **Check valve – width 20 mm** | | | | | | |
|  | – | Check valve for installation in duct 3 or 5 (scope of delivery: 10 check valves, one assembly tool) | | | **8039821** | **VMPA2-RV** |

# Accessories

| Ordering data | Code | Description | | Part no. | Type |
|---|---|---|---|---|---|
| **Sub-base – width 20 mm** | | | | | |
|  | – | For multi-pin plug/fieldbus, two valve positions, no electrical interlinking module | No duct separation | **538000** | **VMPA2-FB-AP-2-1** |
| | | | Duct 1 blocked | **538677** | **VMPA2-FB-AP-2-1-T0** |
| | | | Duct 1 blocked and duct 3/5 blocked | **555902** | **VMPA2-FB-AP-2-1-S0** |
| **Sub-bases for check valves – width 20 mm** | | | | | |
|  | – | For multi-pin plug/fieldbus, two valve positions, no electrical interlinking module | No duct separation | **578863** | **VMPA2-FB-APF-2-1** |
| | | | Duct 1 blocked | **578864** | **VMPA2-FB-APF-2-1-T0** |
| | | | Duct 1 blocked and duct 3/5 blocked | **578865** | **VMPA2-FB-APF-2-1-S0** |
| **Sub-bases with check valve in duct 3 and 5 – width 20 mm** | | | | | |
|  | – | For multi-pin plug/fieldbus, two valve positions, no electrical interlinking module | No duct separation | **8034548** | **VMPA2-FB-AP-2-1-RV** |
| | | | Duct 1 blocked | **8034550** | **VMPA2-FB-AP-2-1-T0-RV** |
| | | | Duct 1 blocked and duct 3/5 blocked | **8034552** | **VMPA2-FB-AP-2-1-S0-RV** |
| **Sub-base – including electrical interlinking and electronics modules – width 20 mm** | | | | | |
|  | – | For fieldbus | Two valve positions | **546803** | **VMPA2-AP-2-1-EMS-4** |
| | | For multi-pin plug | Two solenoid coils | **546807** | **VMPA2-AP-2-1-EMM-2** |
| | | | Four solenoid coils | **546805** | **VMPA2-AP-2-1-EMM-4** |
| **Inscription label holder for sub-base – width 20 mm** | | | | | |
|  | – | For foil<br>Inscription label holder for sub-base, transparent, for paper foil label | | **533362** | **VMPA1-ST-1-4** |
|  | – | For IBS<br>Inscription label holder for sub-base, 4-fold, for IBS-6x10 | | **544384** | **VMPA1-ST-2-4** |
|  | – | Inscription labels, 6 x 10 in frames, pack of 64 | | **18576** | **IBS-6x10** |
| **Sub-base – width 20 mm** | | | | | |
|  | – | For individual connection, without ATEX specification | Internal pilot air | **537981** | **VMPA2-IC-AP-1** |
| | | | External pilot air | **537982** | **VMPA2-IC-AP-S-1** |
| | | For individual connection, with ATEX specification:<br>II 3G Ex nA IIC T4 XGc | Internal pilot air | **8005151** | **VMPA2-IC-AP-1-EX1E** |
| | | | External pilot air | **8005152** | **VMPA2-IC-AP-S-1-EX1E** |

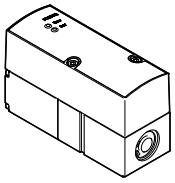
# Accessories

**Ordering data**

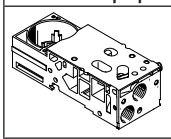
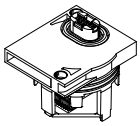
| | Code | Description | | Part no. | Type |
|---|---|---|---|---|---|
| **Electronics module – width 20 mm** | | | | | |
|  | – | For fieldbus connection, without separate circuit | 4 coils | **537983** | **VMPA2-FB-EMS-4** |
| | | For fieldbus connection, with separate circuit | 4 coils | **537984** | **VMPA2-FB-EMG-4** |
| | | For fieldbus connection, with enhanced diagnostic function, without separate circuit | 4 coils | **543332** | **VMPA2-FB-EMS-D2-4** |
| | | For fieldbus connection, with enhanced diagnostic function, with separate circuit | 4 coils | **543334** | **VMPA2-FB-EMG-D2-4** |
| | | For multi-pin plug connection | 2 coils | **537985** | **VMPA2-MPM-EMM-2** |
| | | | 8 coils | **537986** | **VMPA2-MPM-EMM-4** |
| **Electrical interlinking module – width 20 mm** | | | | | |
|  | – | For a multi-pin connection and AS-Interface for a sub-base | 2 coils | **537989** | **VMPA2-MPM-EV-AB-2** |
| | | | 4 coils | **537993** | **VMPA1-MPM-EV-AB-4** |
| | | For multi-pin plug connection and AS-Interface for a sub-base with pneumatic supply plate (on the left next to the sub-base) | 2 coils | **537991** | **VMPA2-MPM-EV-ABV-2** |
| | | | 4 coils | **537995** | **VMPA1-MPM-EV-ABV-4** |
|  | – | For fieldbus connection and CPI, for sub-bases MPA size 1 and 2 and proportional pressure regulator | | **537998** | **VMPA1-FB-EV-AB** |
| | | For fieldbus connection and CPI for a pneumatic supply plate | | **537999** | **VMPA1-FB-EV-V** |

# Accessories

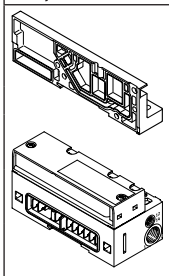
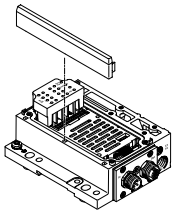
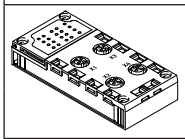
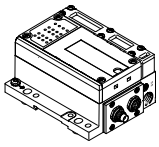
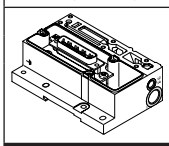
**Ordering data**

| | Code | Pressure regulation range | Input pressure 1 | Full-scale linearity error | Part no. | Type |
|---|---|---|---|---|---|---|
| **Proportional-pressure regulator** | | | | | | |
|  | QA | 0.002 ... 0.2 MPa | 0 ... 0.4 MPa | 2% | **542220** | **VPPM-6TA-L-1-F-0L2H** |
| | QD | 0.002 ... 0.2 MPa | 0 ... 0.4 MPa | 1% | **542217** | **VPPM-6TA-L-1-F-0L2H-S1** |
| | QL | 0.002 ... 0.2 MPa | 0 ... 0.4 MPa | 1% | **572407** | **VPPM-8TA-L-1-F-0L2H-S1C1** |
| | QG | 0.002 ... 0.2 MPa | 0 ... 0.4 MPa | 2% | **572410** | **VPPM-8TA-L-1-F-0L2H-C1** |
| | QB | 0.006 ... 0.6 MPa | 0 ... 0.8 MPa | 2% | **542221** | **VPPM-6TA-L-1-F-0L6H** |
| | QE | 0.006 ... 0.6 MPa | 0 ... 0.8 MPa | 1% | **542218** | **VPPM-6TA-L-1-F-0L6H-S1** |
| | QM | 0.006 ... 0.6 MPa | 0 ... 0.8 MPa | 1% | **572408** | **VPPM-8TA-L-1-F-0L6H-S1C1** |
| | QH | 0.006 ... 0.6 MPa | 0 ... 0.8 MPa | 2% | **572411** | **VPPM-8TA-L-1-F-0L6H-C1** |
| | QC | 0.01 ... 1 MPa | 0 ... 1.1 MPa | 2% | **542222** | **VPPM-6TA-L-1-F-0L10H** |
| | QF | 0.01 ... 1 MPa | 0 ... 1.1 MPa | 1% | **542219** | **VPPM-6TA-L-1-F-0L10H-S1** |
| | QN | 0.01 ... 1 MPa | 0 ... 1.1 MPa | 1% | **572409** | **VPPM-8TA-L-1-F-0L10H-S1C1** |
| | QK | 0.01 ... 1 MPa | 0 ... 1.1 MPa | 2% | **572412** | **VPPM-8TA-L-1-F-0L10H-C1** |

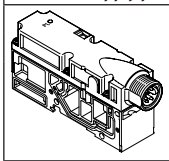
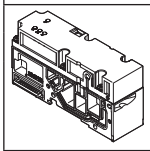
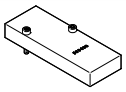
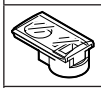
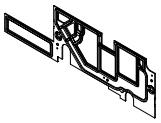
**Ordering data**

| Designation | Part no. | Type |
|---|---|---|
| **Sub-base for proportional pressure regulator** | | |
|  without electrical interlinking module and without electronics module | **542223** | **VMPA-FB-AP-P1** |
| **Electronics module for proportional pressure regulator** | | |
|  – | **542224** | **VMPA-FB-EMG-P1** |

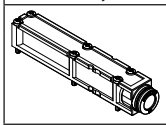
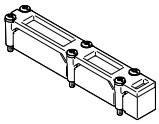
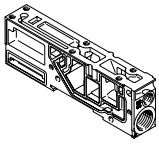
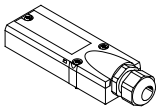
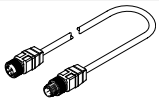
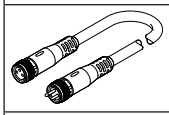
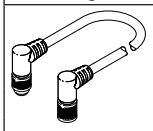
# Accessories

| Ordering data<br>Designation | | | | Part no. | Type |
|---|---|---|---|---|---|
| **End plate and fieldbus pneumatic interface** | | | | | |
|  | End plate, right | with port 82/84 for ducted exhaust air (M5 connecting thread) | – | **8029133** | **VMPA-EPR-G** |
| | | Without port 82/84 | – | **533373** | **VMPA-EPR** |
| | Pneumatic interface | Ducted exhaust air, internal pilot air | For CPX plastic interlinking block | **533370** | **VMPA-FB-EPL-G** |
| | | | For CPX metal interlinking block | **552286** | **VMPA-FB-EPLM-G** |
| | | Ducted exhaust air, external pilot air | For CPX plastic interlinking block | **533369** | **VMPA-FB-EPL-E** |
| | | | For CPX metal interlinking block | **552285** | **VMPA-FB-EPLM-E** |
| | | Flat plate silencer, internal pilot air | For CPX plastic interlinking block | **533372** | **VMPA-FB-EPL-GU** |
| | | | For CPX metal interlinking block | **552288** | **VMPA-FB-EPLM-GU** |
| | | Flat plate silencer, external pilot air | For CPX plastic interlinking block | **533371** | **VMPA-FB-EPL-EU** |
| | | | For CPX metal interlinking block | **552287** | **VMPA-FB-EPLM-EU** |
| **Electrical interface for AS-Interface** | | | | | |
|  | 4 inputs/4 outputs, to spec. 2.1 | Internal pilot air | Ducted exhaust air | **546989** | **VMPA-ASI-EPL-G-4E4A-Z** |
| | | | Silencer | **546991** | **VMPA-ASI-EPL-GU-4E4A-Z** |
| | | External pilot air | Ducted exhaust air | **546988** | **VMPA-ASI-EPL-E-4E4A-Z** |
| | | | Silencer | **546990** | **VMPA-ASI-EPL-EU-4E4A-Z** |
| | 8 inputs/8 outputs, to spec. 2.1 | Internal pilot air | Ducted exhaust air | **546993** | **VMPA-ASI-EPL-G-8E8A-Z** |
| | | | Silencer | **546995** | **VMPA-ASI-EPL-GU-8E8A-Z** |
| | | External pilot air | Ducted exhaust air | **546992** | **VMPA-ASI-EPL-E-8E8A-Z** |
| | | | Silencer | **546994** | **VMPA-ASI-EPL-EU-8E8A-Z** |
| | 8 inputs/8 outputs, to spec. 3.0, expanded addressing range | Internal pilot air | Ducted exhaust air | **573184** | **VMPA-ASI-EPL-G-8E8A-CE** |
| | | | Silencer | **573186** | **VMPA-ASI-EPL-GU-8E8A-CE** |
| | | External pilot air | Ducted exhaust air | **573183** | **VMPA-ASI-EPL-E-8E8A-CE** |
| | | | Silencer | **573185** | **VMPA-ASI-EPL-EU-8E8A-CE** |
| **Manifold block for AS-Interface** | | | | | |
|  | Socket M12, 5-pin | | | **195704** | **CPX-AB-4-M12X2-5POL** |
| | M8 socket, 3-pin | | | **195706** | **CPX-AB-8-M8-3POL** |
| | Spring-loaded terminals, 32-pin | | | **195708** | **CPX-AB-8-KL-4POL** |
| | Socket, Sub-D, 25-pin | | | **525676** | **CPX-AB-1-SUB-BU-25POL** |
| **Electrical interface for CPI** | | | | | |
|  | External pilot air | Ducted exhaust air | | **546983** | **VMPA-CPI-EPL-E** |
| | | Silencer | | **546985** | **VMPA-CPI-EPL-EU** |
| | Internal pilot air | Ducted exhaust air | | **546984** | **VMPA-CPI-EPL-G** |
| | | Silencer | | **546986** | **VMPA-CPI-EPL-GU** |
| **Electrical interface for multi-pin plug connection** | | | | | |
|  | External pilot air | Ducted exhaust air | | **540893** | **VMPA1-MPM-EPL-E** |
| | | Silencer | | **540895** | **VMPA1-MPM-EPL-EU** |
| | Internal pilot air | Ducted exhaust air | | **540894** | **VMPA1-MPM-EPL-G** |
| | | Silencer | | **540896** | **VMPA1-MPM-EPL-GU** |

# Accessories

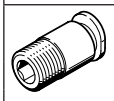
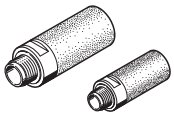
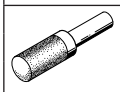
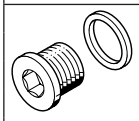
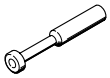
| Ordering data<br>Designation | | | Part no. | Type |
|---|---|---|---|---|
| **Electrical supply plate** | | | | |
|  | Plug connection M18, 3-pin | | **541082** | **VMPA-FB-SP-V** |
| | Plug connection 7/8", 5-pin | | **541083** | **VMPA-FB-SP-7/8-V-5POL** |
| | Plug connection 7/8", 4-pin | | **541084** | **VMPA-FB-SP-7/8-V-4POL** |
| **Pressure sensor** | | | | |
|  | For monitoring the operating pressure in duct 1 | | **541085** | **VMPA-FB-PS-1** |
| | For monitoring the pressure in exhaust ducts 3 and 5 | | **541086** | **VMPA-FB-PS-3/5** |
| | For monitoring an external process pressure | | **541087** | **VMPA-FB-PS-P1** |
| **Covering** | | | | |
|  | Cover plate | | **559638** | **VMPA-P-RP** |
|  | Cover cap for manual override with coded cover cap, manual override non-detenting (10 pieces) | | **540897** | **VMPA-HBT-B** |
|  | Cover cap for manual override, concealed, manual override blocked (pack of 10) | | **540898** | **VMPA-HBV-B** |
|  | Cover cap for manual override, manual override detenting, can be operated manually without accessories (pack of 10) | | **8002234** | **VAMC-L1-CD** |
|  | Inscription label holder for inscription label and cover for signal status indication and manual override (blocked) (pack of 10) | | **570818** | **ASLR-D-L1** |
| **Seal for sub-base** | | | | |
|  | MPA with ducted exhaust air | No duct separation | **533359** | **VMPA1-DP** |
| | | Duct 12/14 separated | **8161482** | **VMPA-1-DP-Y** |
| | | Duct 1 separated | **533363** | **VMPA1-DP-P** |
| | | Duct 3/5 separated | **533364** | **VMPA1-DP-RS** |
| | | Duct 1 and 3/5 separated | **533365** | **VMPA1-DP-PRS** |
| | | Ducts 1, 3/5 and 12/14 separate | **8161481** | **VMPA1-DP-PRS-Y** |
| | MPA with flat plate silencer | No duct separation | **533355** | **VMPA1-DPU** |
| | | Duct 1 separated | **533356** | **VMPA1-DPU-P** |
| | | Duct 3/5 separated | **533357** | **VMPA1-DPU-RS** |
| | | Duct 1 and 3/5 separated | **533358** | **VMPA1-DPU-PRS** |

# Accessories

| Ordering data<br>Designation | | | Part no. | Type |
|---|---|---|---|---|
| **Exhaust air plate** | | | | |
|  | Ducted exhaust air, with 10 mm push-in connector | | **533375** | **VMPA-AP** |
| | Ducted exhaust air, with connector QS-3/8 | | **541629** | **VMPA-AP-3/8** |
|  | Flat plate silencer | | **533374** | **VMPA-APU** |
| **Supply plate (without exhaust plate)** | | | | |
|  | For ducted exhaust air | | **533354** | **VMPA1-FB-SP** |
| | For flat plate silencer | | **533353** | **VMPA1-FB-SPU** |
| **Multi-pin plug connection, electrical** | | | | |
|  | Cover without connecting cable, for self-assembly | | **533198** | **VMPA-KMS-H** |
| | PVC connecting cable for 8 solenoid coils | 2.5 m | **533195** | **VMPA-KMS1-8-2.5** |
| | | 5 m | **533196** | **VMPA-KMS1-8-5** |
| | | 10 m | **533197** | **VMPA-KMS1-8-10** |
| | PVC connecting cable for 24 solenoid coils | 2.5 m | **533192** | **VMPA-KMS1-24-2.5** |
| | | 5 m | **533193** | **VMPA-KMS1-24-5** |
| | | 10 m | **533194** | **VMPA-KMS1-24-10** |
| | PUR connecting cable for 8 solenoid coils, suitable for energy chains | 2.5 m | **533504** | **VMPA-KMS2-8-2.5-PUR** |
| | | 5 m | **533505** | **VMPA-KMS2-8-5-PUR** |
| | | 10 m | **533506** | **VMPA-KMS2-8-10-PUR** |
| | PUR connecting cable for 24 solenoid coils, suitable for energy chains | 2.5 m | **533501** | **VMPA-KMS2-24-2.5-PUR** |
| | | 5 m | **533502** | **VMPA-KMS2-24-5-PUR** |
| | | 10 m | **533503** | **VMPA-KMS2-24-10-PUR** |
| **Connecting cable, AS-Interface connection** | | | | |
|  | • Straight socket, M12 x 1, 5-pin, A-coded<br>• Straight plug, M12 x 1, 4-pin, A-coded | 0.5 m | **8000208** | **NEBU-M12G5-K-0.5-M12G4** |
|  | Modular system for a choice of connecting cables | | – | → **Internet: nebu** |
| **Connecting cable, CPI connection** | | | | |
|  | • Angled plug, 5-pin<br>• Angled socket, 5-pin | 0.25 m | **540327** | **KVI-CP-3-WS-WD-0.25** |
| | | 0.5 m | **540328** | **KVI-CP-3-WS-WD-0.5** |
| | | 2 m | **540329** | **KVI-CP-3-WS-WD-2** |
| | | 5 m | **540330** | **KVI-CP-3-WS-WD-5** |
| | | 8 m | **540331** | **KVI-CP-3-WS-WD-8** |
|  | • Straight plug, 5-pin<br>• Straight socket, 5-pin | 2 m | **540332** | **KVI-CP-3-GS-GD-2** |
| | | 5 m | **540333** | **KVI-CP-3-GS-GD-5** |
| | | 8 m | **540334** | **KVI-CP-3-GS-GD-8** |

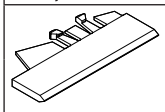
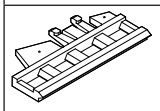
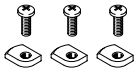
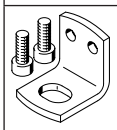
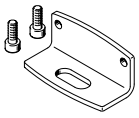
# Accessories

**Ordering data**

| Designation | | | Size | Part no. | Type | PU[1] |
|---|---|---|---|---|---|---|
| **Push-in connector for sub-base, pneumatic interface, supply plate** | | | | | | |
|  | M5 connecting thread for tubing O.D. | 3 mm | Mini | **153313** | **QSM-M5-3-I** | **10** |
| | | 4 mm | Standard | **153315** | **QSM-M5-4-I** | **10** |
| | | | Mini | **578370** | **NPQH-DK-M5-Q4-P10** | **10** |
| | | 6 mm | Standard | **153317** | **QSM-M5-6-I** | **10** |
| | | | Mini | **578371** | **NPQH-DK-M5-Q6-P10** | **10** |
| | | 5/32" | Standard | **130593** | **QSM-M5-5/32-I-U-M** | **1** |
| | | 3/16" | | **183750** | **QSM-M5-3/16-I-U-M** | **1** |
| | | 1/4" | | **130591** | **QSM-M5-1/4-I-U-M** | **50** |
| | M7 connecting thread for tubing O.D. | 4 mm | | **153319** | **QSM-M7-4-I** | **10** |
| | | | Mini | **578372** | **NPQH-DK-M7-Q4-P10** | **10** |
| | | 6 mm | Standard | **153321** | **QSM-M7-6-I** | **10** |
| | | | | **132919** | **QSM-M7-6-I-R-100** | **100** |
| | | | Mini | **578373** | **NPQH-DK-M7-Q6-P10** | **10** |
| | | 3/16" | Standard | **183739** | **QSM-M7-3/16-I-U-M** | **1** |
| | | 1/4" | | **183740** | **QSM-M7-1/4-I-U-M** | **50** |
| | G1/8 connecting thread for tubing O.D. | 6 mm | | **186107** | **QS-G1/8-6-I** | **10** |
| | | | Mini | **578375** | **NPQH-DK-G18-Q6-P10** | **10** |
| | | 8 mm | Standard | **186109** | **QS-G1/8-8-I** | **10** |
| | | | Mini | **578376** | **NPQH-DK-G18-Q8-P10** | **10** |
| | | 1/4" | Standard | **183741** | **QS-1/8-1/4-I-U-M** | **1** |
| | | 5/16" | | **183742** | **QS-1/8-5/16-I-U-M** | **1** |
| | G1/4 connecting thread for tubing O.D. | 8 mm | | **186110** | **QS-G1/4-8-I** | **10** |
| | | | Mini | **578377** | **NPQH-DK-G14-Q8-P10** | **10** |
| | | 10 mm | Standard | **186112** | **QS-G1/4-10-I** | **10** |
| | | | Mini | **578378** | **NPQH-DK-G14-Q10-P10** | **10** |
| | | 5/16" | Standard | **183743** | **QS-1/4-5/16-I-U-M** | **1** |
| | | 3/8" | | **183744** | **QS-1/4-3/8-I-U-M** | **1** |
| **Silencer** | | | | | | |
|  | Connecting thread | M5 | | **165003** | **UC-M5** | **1** |
| | | M7 | | **161418** | **UC-M7** | **1** |
| | | G1/4 | | **165004** | **UC-1/4** | **1** |
| | | G1/8 | | **161419** | **UC-1/8** | **1** |
|  | Push-in sleeve connection | 3 mm | | **165005** | **UC-QS-3H** | **1** |
| | | 4 mm | | **165006** | **UC-QS-4H** | **1** |
| | | 6 mm | | **165007** | **UC-QS-6H** | **1** |
| | | 8 mm | | **175611** | **UC-QS-8H** | **1** |
| | | 10 mm | | **526475** | **UC-QS-10H** | **1** |
| **Blanking plug** | | | | | | |
|  | M5 thread | | | **3843** | **B-M5** | **10** |
| | | | | **578404** | **NPQH-BK-M5-P10** | **10** |
|  | M7 thread | | | **174309** | **B-M7** | **10** |
| | | | | **578405** | **NPQH-BK-M7-P10** | **10** |
| | G1/8 thread | | | **3568** | **B-1/8** | **10** |
| | | | | **578406** | **NPQH-BK-G18-P10** | **10** |
| | G1/4 thread | | | **3569** | **B-1/4** | **10** |
| | | | | **578407** | **NPQH-BK-G14-P10** | **10** |
| **Plug** | | | | | | |
|  | Blanking plug for tubing O.D. | 4 mm | | **153267** | **QSC-4H** | **10** |
| | | 6 mm | | **153268** | **QSC-6H** | **10** |
| | | 8 mm | | **153269** | **QSC-8H** | **10** |
| | | 10 mm | | **153270** | **QSC-10H** | **10** |
| | | 3/16" | | **564785** | **QBC-3/16H-U** | **10** |
| | | 1/4" | | **564786** | **QBC-1/4H-U** | **10** |
| | | 5/16" | | **564787** | **QBC-5/16H-U** | **10** |
| | | 3/8" | | **564788** | **QBC-3/8H-U** | **10** |

1) Packaging unit.

# Accessories

| Ordering data<br>Designation | | | Part no. | Type |
|---|---|---|---|---|
| **Inscription labels** | | | | |
|  | For foil<br>Inscription label holder for sub-base, transparent, for paper foil label | Can be used for VMPA1, VMPA2 | **533362** | **VMPA1-ST-1-4** |
| | | Can be used for VMPA14 | **8085996** | **VMPA14-ST-1-4** |
|  | For IBS<br>Inscription label holder for sub-base, 4-fold, for IBS-6x10 | Can be used for VMPA1, VMPA2 | **544384** | **VMPA1-ST-2-4** |
| | | Can be used for VMPA14 | **8085997** | **VMPA14-ST-2-4** |
|  | Inscription labels, 6 x 10 in frames, pack of 64 | | **18576** | **IBS-6x10** |
|  | Inscription label holder for an inscription label and a cover for the manual override, pack of 10 | | **570818** | **ASLR-D-L1** |
| **Mounting** | | | | |
|  | For H-rail | | **526032** | **CPX-CPA-BG-NRH** |
|  | Mounting (for supply plate) | | **534416** | **VMPA-BG-RW** |
|  | Mounting (for proportional pressure regulator valve sub-base) | | **558844** | **VMPA-BG** |
| **User documentation** | | | | |
|  | MPA pneumatic components | German | **534240** | **P.BE-MPA-DE** |
| | | English | **534241** | **P.BE-MPA-EN** |
| | | French | **534243** | **P.BE-MPA-FR** |
| | | Spanish | **534242** | **P.BE-MPA-ES** |
| | | Italian | **534244** | **P.BE-MPA-IT** |
| | Manual – MPA electronic components<br>(pneumatic modules, pressure sensors, proportional pressure regulators, etc.) | German | **562112** | **P.BE-MPA-Elektronik-DE** |
| | | English | **562113** | **P.BE-MPA-Elektronik-EN** |
| | | French | **562115** | **P.BE-MPA-Elektronik-FR** |
| | | Spanish | **562114** | **P.BE-MPA-Elektronik-ES** |
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