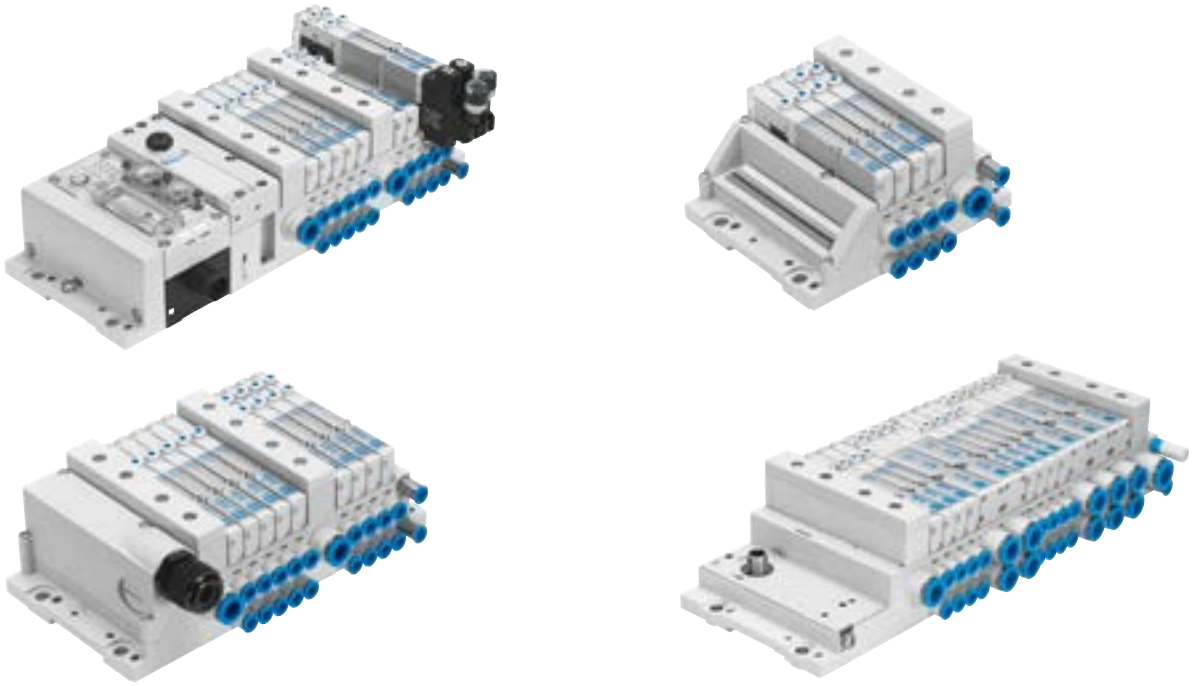
Valve terminals MPA-L

FESTO

Characteristics



Innovative

- Compact high-performance valves in sturdy metal housing
- Flow rates up to 870 l/min
- Wide range of electrical connection options for multi-pin plug: Sub-D, ribbon cable or terminal strip
- Connection to the electrical peripherals CPX with a wide range of communication options
- Connection to the automation system CPX-AP-I
- I-Port/IO-Link interface
- Freely configurable push-in connectors

Versatile

- Modular system offering a range of configuration options
- Freely extendable system with individual sub-bases and modular tie rods
- Up to 32 solenoid coils
- Conversions and extensions possible at a later date
- Air supply can be extended via additional pressure zones with supply modules
- Wide range of pressures
- –0.09 ... +1 MPa
- Wide range of valve functions

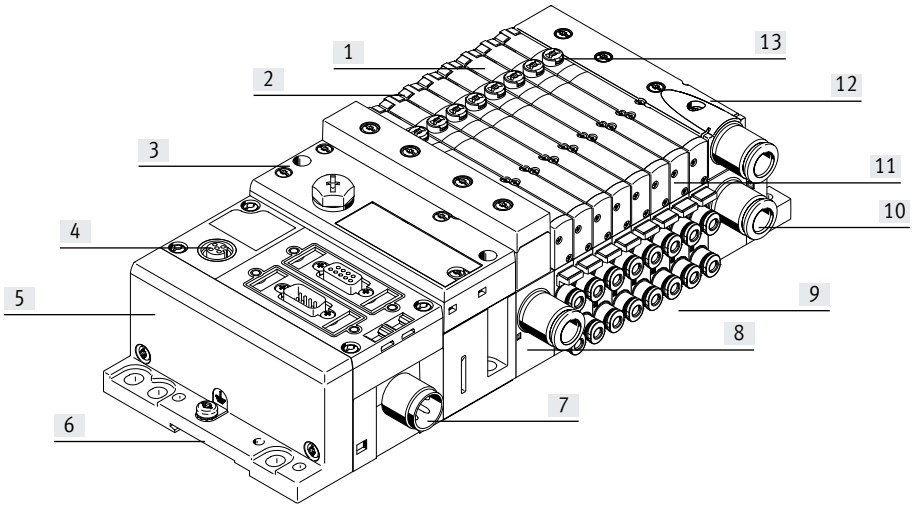
Reliable

- High output reserves thanks to large pneumatic cross sections and exhausting with high flow rates
- Resilient thanks to high mechanical rigidity
- Lightweight and low-cost polymer components
- Fast troubleshooting thanks to LEDs on the valves
- Easy to service thanks to replaceable valves and electronic modules
- Manual override either non-detenting, detenting or secured against unauthorised activation (covered)
- Durable thanks to tried-and-tested piston spool valves

Easy to install

- Fast and reliable in-house assembly using individual components or delivered as a ready-to-install and tested unit
- Reduced outlay on selection, ordering, assembly and commissioning
- Secure mounting on wall or H-rail

Characteristics



[1] Width 10 mm, 14 mm and 20 mm
[2] Reduced downtimes: LED signal status indicator
[3] Pneumatic interface to CPX
[4] CPX diagnostic interface
[5] Straightforward electrical connection
– Multi-pin plug connection, fieldbus interface
– Control block, CPX
– CPX-AP-I
– I-Port interface/IO-Link
[6] Quick to mount:
Directly using screws or on an H-rail
[7] Reliable:
Operating voltage connection, outputs and valves can be disconnected separately
[8] Safe operation:
Manual override, non-detenting/detenting or concealed
[9] Adaptable:
Selector in the end plate for defining the pilot air supply (internal or external)
[10] Practical:
Pre-assembled cartridges
[11] Space-saving:
Flat valves and flat plate silencer
[12] Variable:
32 valve positions/32 solenoid coils
[13] Modular:
Pressure zone creation, additional exhaust and supply ports possible using supply module

Equipment options

Valve functions

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

All valves have the same compact dimensions with an overall length of 107 mm and a height of 55 mm.

Special characteristics

- Max. 32 valve positions/ max. 32 solenoid coils
- Parallel, modular valve linkage
- Electrical manifold module with integrated holding current reduction
- Any compressed air supply (max. 8 supply modules)
- Creation of pressure zones
- Modular, individually extendable tie rods
- Single valves or combinations of four valves
- Tubing size at each port freely selectable

Characteristics

Valve terminal selection
Valve terminal configurator

The appropriate MPA-L valve terminal can be chosen quickly and easily using the online catalogue. This includes a convenient valve terminal configurator, making it much easier to order the right product.

The valve terminals are fully assembled according to your order specification and are individually checked. This reduces assembly and installation time to a minimum.

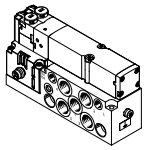
You can order an MPA-L valve terminal using the order code.

MPA-L ordering system
➔ Internet: mpal
CPX ordering system
➔ Internet: cpx
CPX-AP-I ordering system
➔ Internet: cpx-ap-i
CTEU ordering system
➔ Internet: cteu

Online at: ➔ www.festo.com
2D/3D CAD data

You can request the CAD data for a valve terminal you have configured. To do so, start the product search as described above. Go to the shopping basket and click on the CAD/EPLAN symbol. On the next page, you can generate a 3D preview or request a data format of your choice via e-mail.

Individual connection

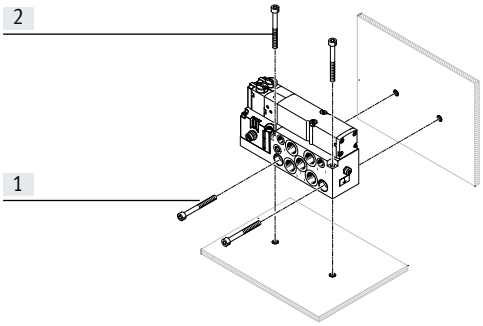


Valves on individual sub-bases can also be used for actuators further away from the valve terminal. The valves are screwed to an individual sub-base made from die-cast aluminium.

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

Additional information
➔ Internet: vmpa1

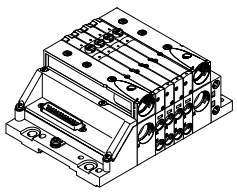
Individual sub-base assembly



[1] Horizontal mounting holes
[2] Vertical mounting holes

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

Multi-pin plug connection



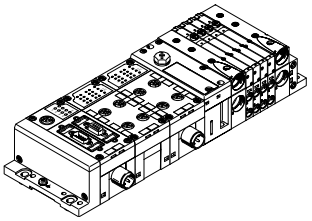
The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection, which substantially reduces installation time.

The valve terminal can be equipped with max. 32 solenoid coils. This corresponds to 2 to 32 valves.

Variants
- Sub-D connection
  - Pre-assembled multi-pin cable
  - Multi-pin cable for self-assembly
- Ribbon cable connection
- Terminal strip connection

Characteristics

Fieldbus interface via the CPX system

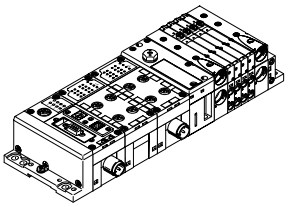


An integrated bus node manages communication with a higher-order PLC. This enables space-saving pneumatic and electronic solutions to be implemented.
Valve terminals with fieldbus interfaces can be configured with up to 32 sub-bases.

The CPX terminal also enables the integration of digital and analogue electrical inputs and outputs, pressure sensors and controllers for pneumatic or electric positioning axes.
A detailed description of the extensive functionality can be found in the documentation for the CPX terminal
→ Internet: cpx

Fieldbus protocols/CPX variants:
- PROFIBUS DP
- PROFINET
- DeviceNet
- CANopen
- CC-Link
- EtherNet/IP
- Front End Controller
- Remote I/O
- Modbus/TCP
- EtherCAT
- POWERLINK
- Sercos III

Control block connection via the CPX system

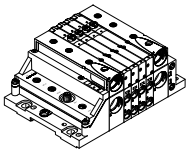


Controllers integrated in the Festo valve terminals enable the construction of stand-alone control units to IP65, without control cabinets.

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.

Fieldbus interface via the automation system CPX-AP-I

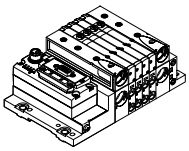


CPX-AP-I is a flexible, decentralised, compact and lightweight automation system with high degree of protection IP65/IP67. An automation system CPX-AP-I consists of a bus interface and at least one other module. System communication between the modules takes place via connecting cables.

The process data is exchanged cyclically. The following module types are available:
- Bus interface
- Input modules
- Input/output modules
- Interface for valve terminal

Fieldbus protocols:
- PROFINET
- PROFIBUS
- EtherNet/IP
- EtherCAT

Fieldbus interface via the CTEU system

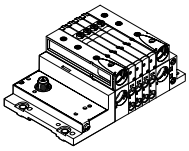


A bus node directly mounted on the I-Port interface manages communication with a higher-order PLC.
Valve terminals with I-Port interface can be configured with up to 32 sub-bases.

A detailed description of the extensive functionality can be found in the documentation for the CTEU fieldbus modules/CTEL installation system
→ Internet: cteu

Fieldbus protocols:
- PROFIBUS DP
- DeviceNet
- CANopen
- CC-Link
- EtherCAT

I-Port interface/IO-Link



I-Port/IO-Link consists of a central master and the I-Port interface/IO-Link devices connected via special connecting cables. This permits a decentralised layout of the devices.
The connection type corresponds to a star topology.

In other words, only one module or valve terminal can be connected to each I-Port.
The I-Port interface from Festo is based on IO-Link and is compatible with IO-Link in certain areas.

As well as communication, the I-Port interfaces also handle the power supply for the connected devices.
The maximum length of a string is 20 m.

Peripherals overview

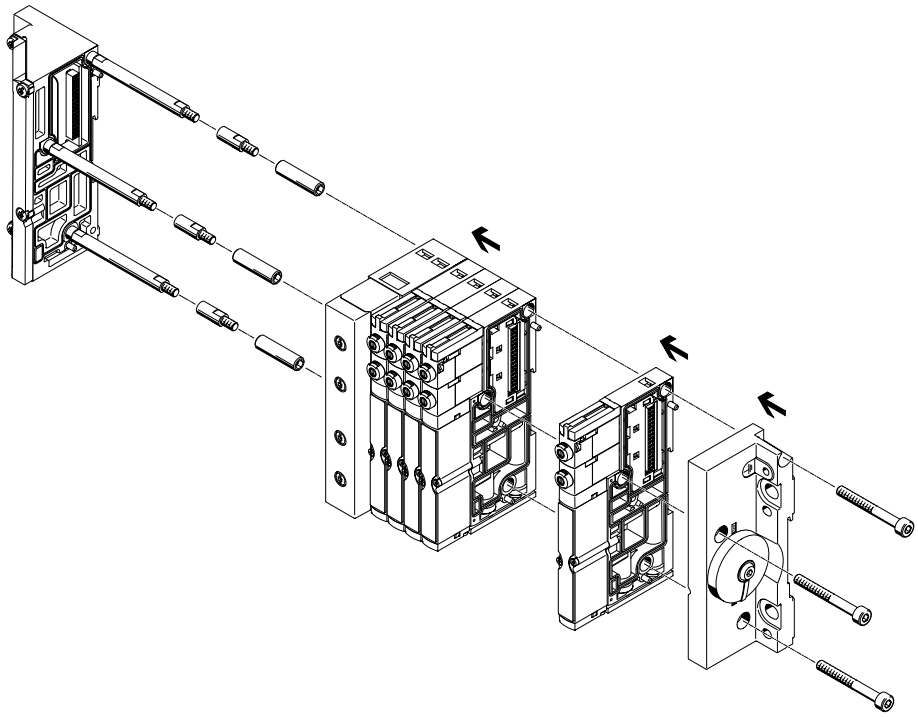
Modular pneumatic components

The modular design of the MPA-L facilitates maximum flexibility right from the planning stage and offers maximum ease of servicing during operation.
The system consists of sub-bases and valves.

The sub-bases form 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.

The sub-bases are joined together via a tie rod system. This consists of a threaded rod, threaded sleeve and screw. The threaded rod/sleeve combination is selected as appropriate for the chosen number of individual sub-bases.

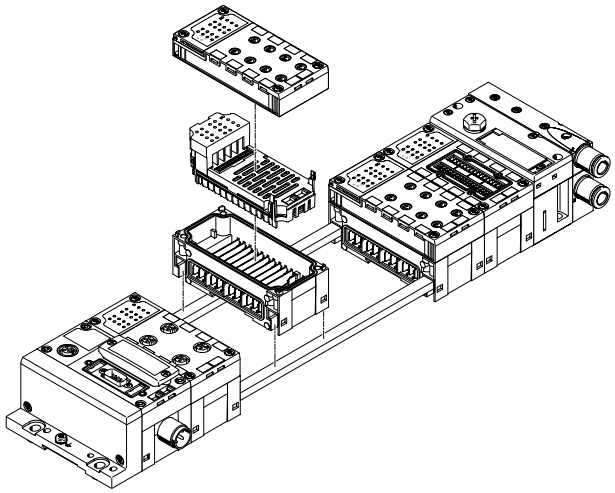
A valve terminal can be easily extended by adding individual sub-bases or supply modules. This is done by inserting suitable tie rod extenders between the threaded rod and the sleeve.
This ensures that the valve terminal can be rapidly and reliably extended.



Note

The tie rod system for the valve terminal MPA-L consists of at least four sub-bases or two sub-bases and one supply module.
Shorter valve terminals with at least 2 valve positions can be configured without a sleeve.

Modular electrical peripherals



The mechanical connection between the CPX modules is established using tie rods. Two screws in the end plates are all that are needed to assemble the entire unit.
The tie rod ensures that the unit has a high mechanical load bearing capacity and is therefore the mechanical backbone of the CPX terminal.

The open design allows interlinking blocks to be replaced in assembled state.

The tie rod extension kit allows an extra module to be added to the CPX terminal.

The input/output modules, manifold blocks, bus node or control block of the CPX system are fastened to the interlinking blocks using 4 screws and can be exchanged or modified in nearly any way.

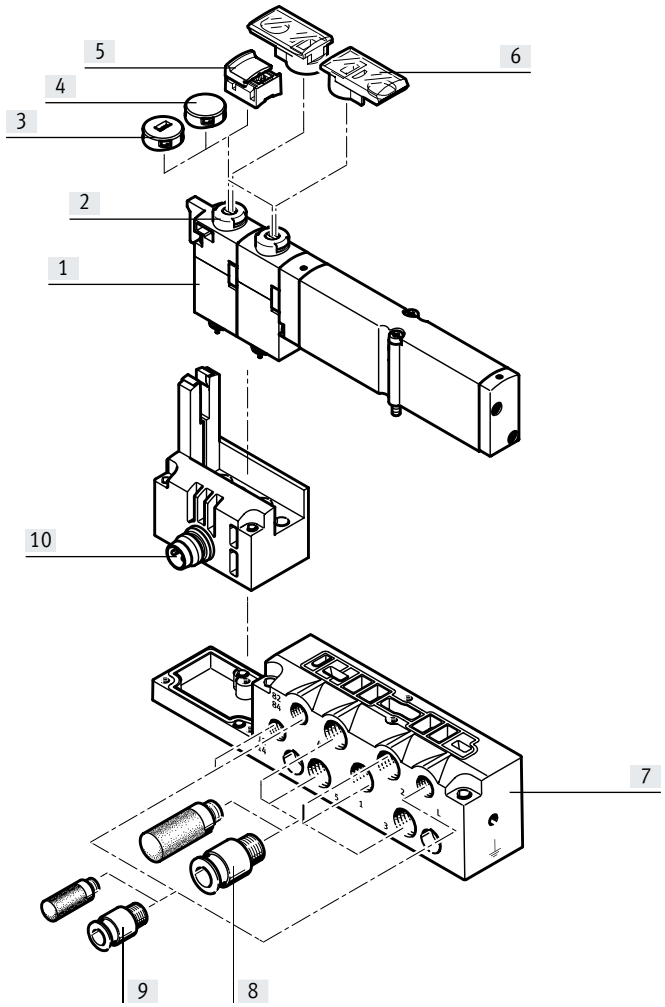
Peripherals overview

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		Brief 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	MO non-detenting only once cover cap fitted	VMPA1
[4]	Cover cap	MO blocked once cover cap fitted	VMPA1
[5]	Cover cap	MO detenting and can be operated without accessories once cover cap fitted	VMPA1
[6]	Identification holder	Can be pushed onto manual override	VMPA1
[7]	Sub-base	For individual valve VMPA...	VMPA1
[8]	Fittings, silencers or blanking plugs	For working ports (2, 4) and air supply/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

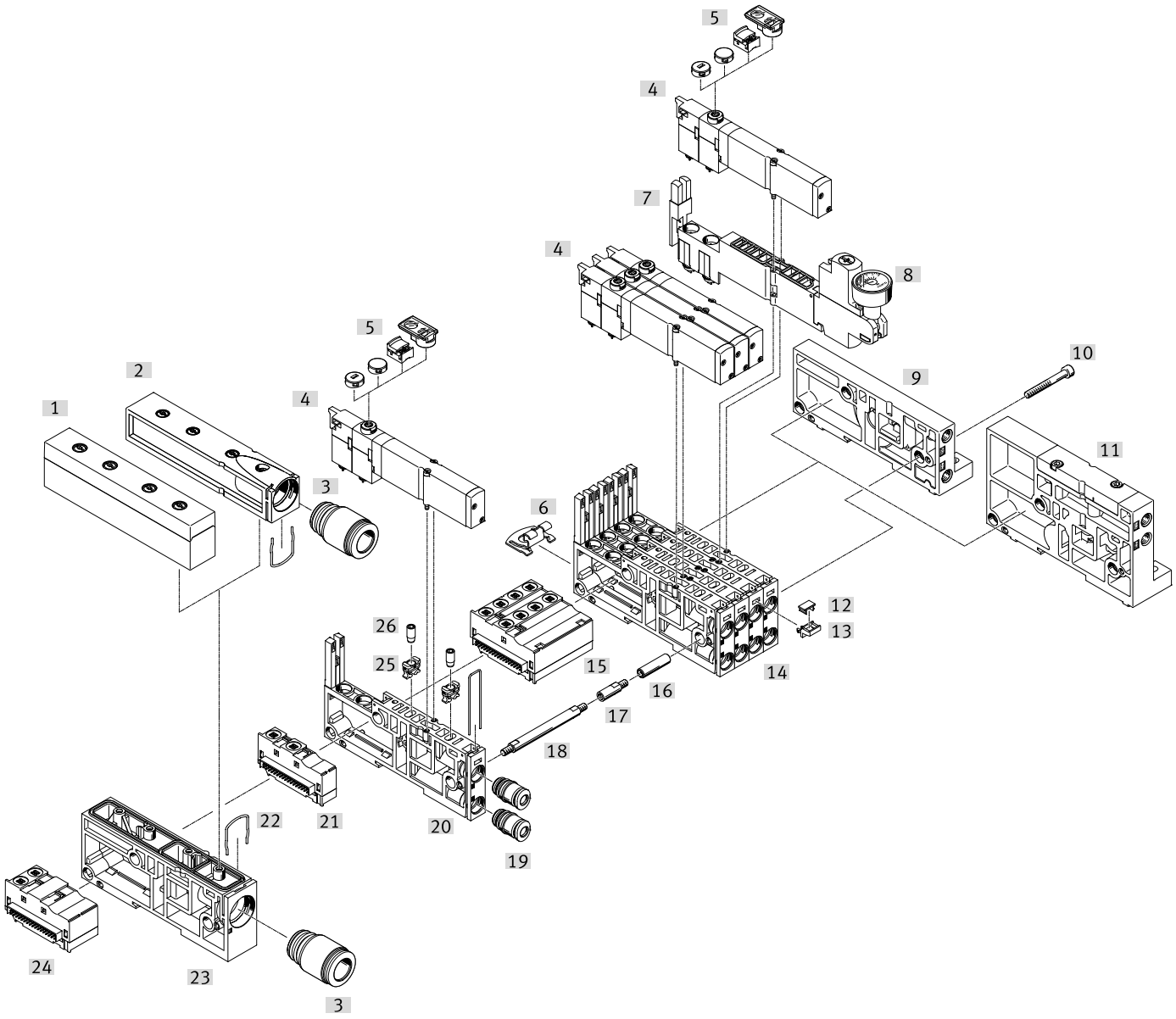
Peripherals overview

Valve terminal pneumatics

The sub-bases are available individually with one valve position or with four valve positions.

The electrical manifold modules are available for:
- 1 or 4 single solenoid valves
- 1 or 4 double solenoid valves

- 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 or a cover plate.



Peripherals overview

Valve terminal pneumatics			
Designation		Brief description	→ Page/Internet
[1]	Plate	Exhaust plate as flat plate silencer	65
[2]	Plate	Exhaust plate for ducted exhaust air	65
[3]	Cartridge	For air supply and exhaust ports	68
[4]	Solenoid valve	Single solenoid	53
[5]	Cover cap for manual override	Conversion from detenting/non-detenting to non-detenting or detenting or concealed or identification holder	64
[6]	Mounting	Mounting bracket for wall mounting	64
[7]	Regulator plate	Vertical stacking (pressure regulator, vertical pressure shut-off plate, vertical pressure supply plate)	54, 61
[8]	Pressure gauge	Can be optionally mounted on a pressure regulator plate	54
[9]	Right-hand end plate, low	End plate with pilot air selector, with ports 12/14, 82/84	66
[10]	Screw	Tie rod system, connects the sub-bases	63
[11]	Right-hand end plate, high	End plate with pilot air selector, with ports 1, 3, 5, 12/14, 82/84	66
[12]	Inscription label	6 x 10 mm	64
[13]	Retainer for inscription label	–	64
[14]	Sub-base	Four individual sub-bases screwed together to form one unit	56
[15]	Electrical manifold module, 4-way	Electrical manifold module for combination of four sub-bases, single solenoid/double solenoid	56
[16]	Sleeve	Tie rod system, connects the sub-bases	63
[17]	Tie rod extender	For subsequent modular extension of the valve terminal	63
[18]	Tie rod	Threaded rod, clamps the sub-bases between the end plates	63
[19]	Cartridge	For working ports	68
[20]	Sub-base, individual	Sub-base with one valve position	56
[21]	Electrical manifold module	Electrical manifold module for one sub-base, single solenoid/double solenoid	56
[22]	Clamp strap for cartridge	–	–
[23]	Supply module	For compressed air supply/exhaust air	65
[24]	Electrical manifold module	Electrical manifold module for supply module, signals are passed through	56
[25]	Retainer for restrictor	Required to install the fixed flow restrictor	55
[26]	Flow restrictor	Fixed flow restrictor for installation in duct 3 or 5 of the sub-base	55

Peripherals overview

Valve terminal with multi-pin plug connection

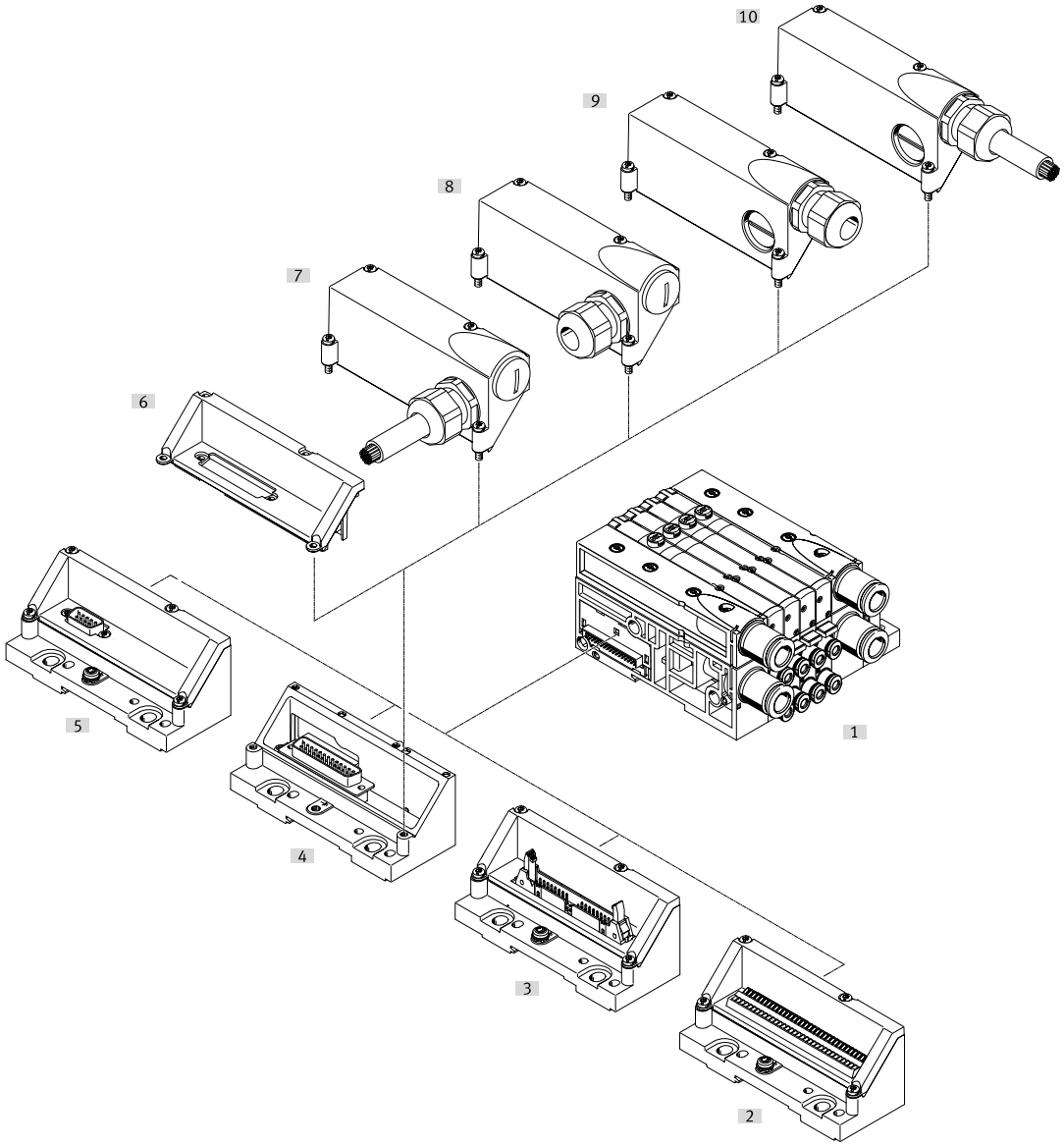
Order code:
- 34P-...

MPA-L valve terminals with multi-pin plug connection can be expanded by up to 32 solenoid coils/valve positions.

The multi-pin plug connection is removable and designed as a 9, 25 or 44-pin Sub-D connection. The multi-pin plug connection can alternatively be ordered as a terminal strip (33-pin) or ribbon cable connection (40-pin).

The Sub-D multi-pin plug connection, 25 and 44-pin, is available with degree of protection IP40 and IP67 or with
multi-pin cover cap, without connecting cable, with a choice of cable outlet to the side or front.

Sub-D multi-pin plug connection, 25 and 44-pin, with multi-pin cover cap with pre-assembled cable:
- 2.5 m
- 5 m
- 10 m
- Variable, up to 30 m



Designation		Brief description	→ Page/Internet
[1]	Valve terminal	Pneumatic part of the valve terminal	8
[2]	Multi-pin plug connection	Terminal strip, 33-pin, IP40	66
[3]	Multi-pin plug connection	For ribbon cable, 40-pin, IP40	66
[4]	Multi-pin plug connection	Sub-D, 25-pin	66
[5]	Multi-pin plug connection	Sub-D, 9-pin, IP40	66
[6]	Multi-pin plug connection	Covering (with intermediate without hood)	–
[7]	Connecting cable	With hood, pre-assembled, connection on side, IP67	67
[8]	Hood	For self-assembly, connection on side, IP67	67
[9]	Hood	For self-assembly, connection on front, IP67	67
[10]	Connecting cable	With hood, pre-assembled, connection on front, IP67	67

Peripherals overview

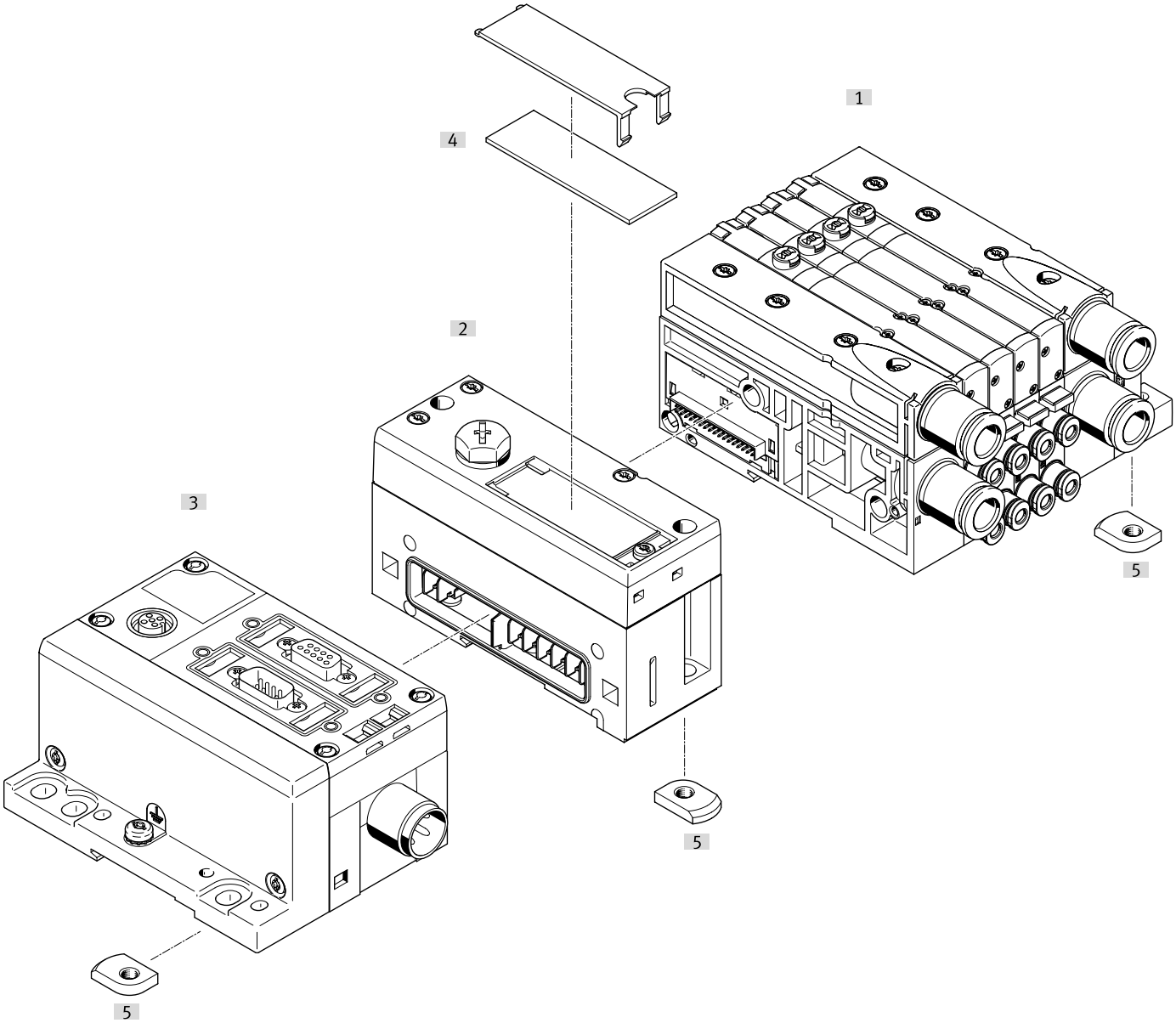
Valve terminal with fieldbus interface, control block (electrical peripherals CPX)

Order code:
- 34P-... for the pneumatic components
- 50E-... for the electrical
- peripherals

Valve terminals with CPX interface can be expanded by up to 32 solenoid coils/valve positions.

Up to 32 valve positions can be equipped in combination with single solenoid valves; the maximum number of valve positions is reduced to 16 if only double solenoid valves are used. The maximum number of addresses is set in the range 4 ... 32 solenoid coils via a selector switch.

This enables extensions to be pre-assigned in a control program and called up by manual settings.
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		Brief description	→ Page/Internet
[1]	Valve terminal	Pneumatic part of the valve terminal	8
[2]	Left-hand end plate	Pneumatic interface for CPX terminal	66
[3]	CPX modules	Bus node, control block, input and output modules	cpx
[4]	Inscription label	Large, for left-hand end plate/pneumatic interface for CPX terminal	–
[5]	H-rail mounting	–	64

Peripherals overview

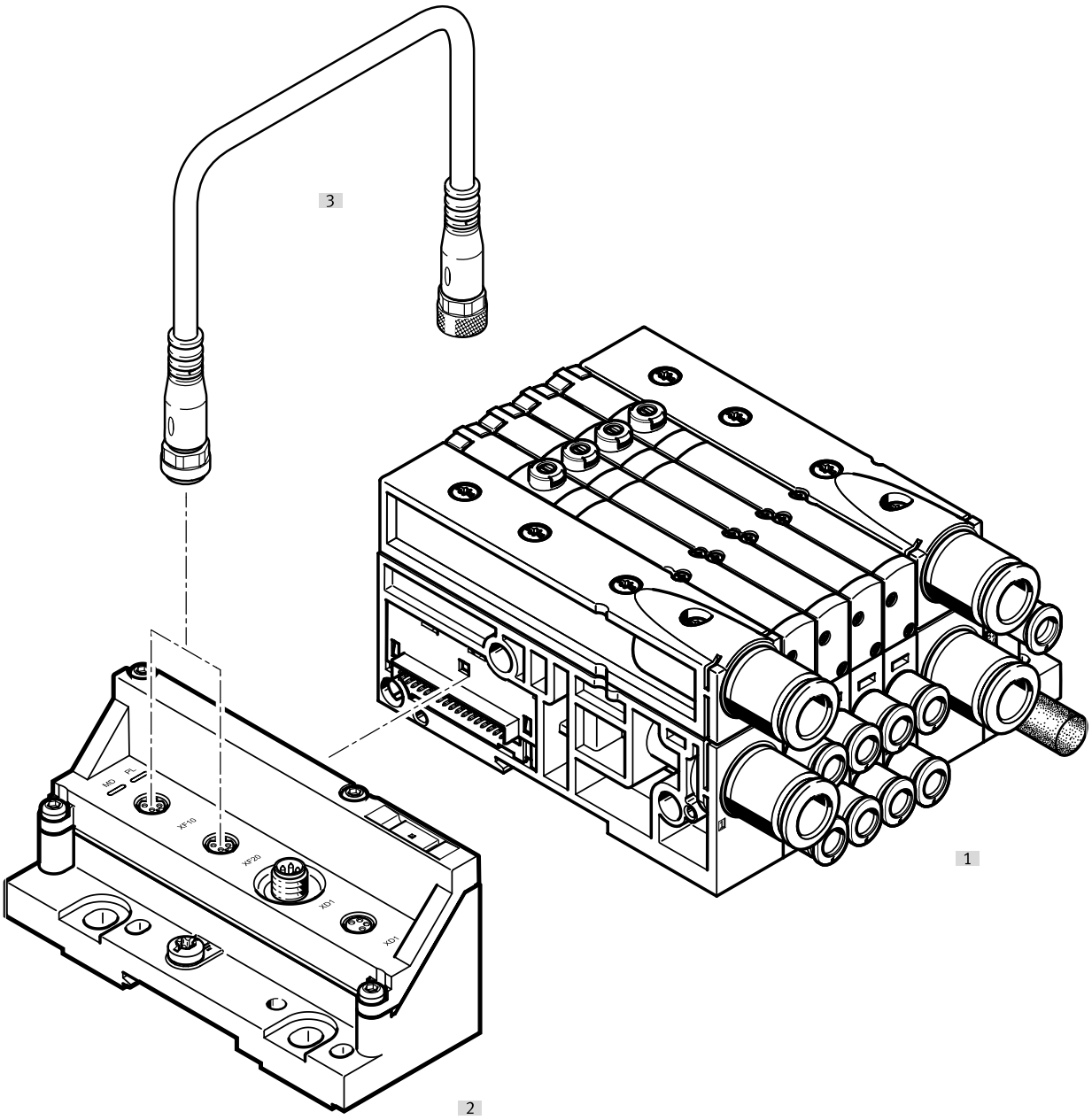
Valve terminal with interface to automation system CPX-AP-I

Order code:
- 34P-... for the pneumatic components
- CPX-AP-I components are to be ordered individually

Valve terminals with CPX-AP-I interface can be expanded by up to 32 solenoid coils/valve positions.
Up to 32 valve positions can be equipped in combination with single solenoid valves.

The maximum number of valve positions is reduced to 16 if only double solenoid valves are used.

Each valve position can be equipped with any valve or a cover plate.



Designation		Brief description	→ Page/Internet
[1]	Valve terminal	Pneumatic part of the valve terminal	8
[2]	Left-hand end plate	End plate with interface to automation system CPX-API and with interface for power supply	66
[3]	Connecting cable	Between two CPX-AP-I modules	cpx-ap-i

Peripherals overview

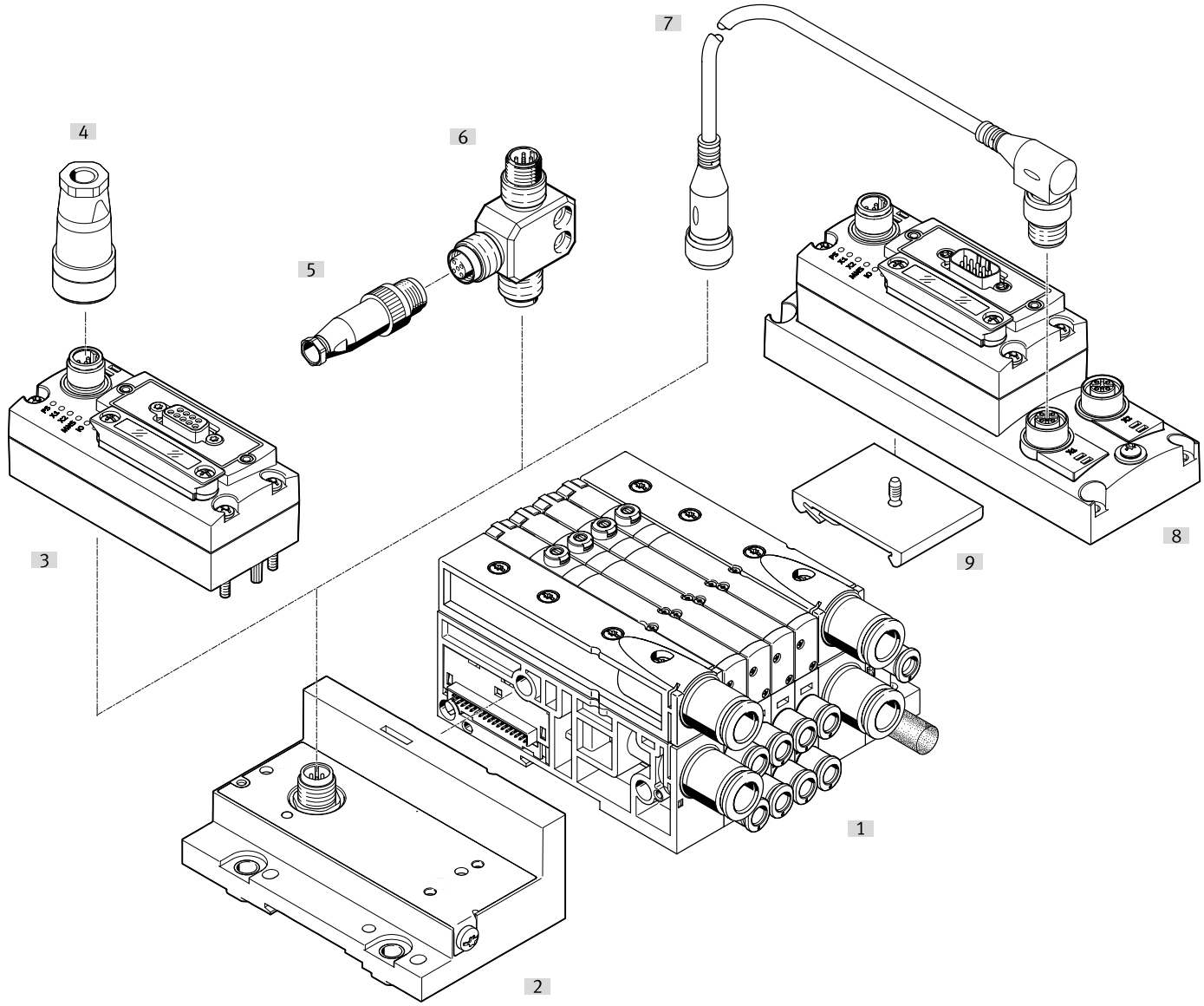
Valve terminal with I-Port interface/IO-Link (and bus node)

Order code:
- 34P-... for the pneumatic components
- CTEU-... for the bus node

Valve terminals with I-Port interface/IO-Link can be expanded by up to 32 solenoid coils/valve positions. Up to 32 valve positions can be equipped in combination with single solenoid valves.

The maximum number of valve positions is reduced to 16 if only double solenoid valves are used.

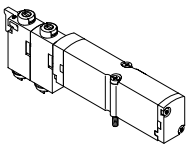
Each valve position can be equipped with any valve or a cover plate.



Designation		Brief description	→ Page/Internet
[1]	Valve terminal	Pneumatic part of the valve terminal	8
[2]	Left-hand end plate	End plate with I-Port interface/IO-Link	66
[3]	Bus node CTEU	Bus node	cteu
[4]	Socket	For power supply	ntsd
[5]	Plug	For I-Port interface/IO-Link	sea
[6]	T adapter	For I-Port interface/IO-Link	fb-ta
[7]	Connecting cable	Between two I-Port interfaces	nebv
[8]	Electrical connection block	With bus node for connecting two devices with I-Port interfaces	cteu
[9]	H-rail mounting	For electrical connection block	cteu

Characteristics – Pneumatic components

Sub-base valve



MPA-L offers a comprehensive range of valve functions. The valves are equipped with a piston spool and patented sealing system to facilitate efficient sealing, a broad pressure range and a long service life. Polymer poppet valves are available as an alternative for size 10 mm. All valves have 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 very 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 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

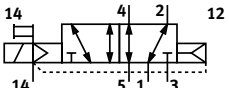
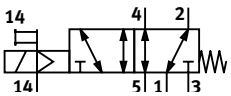
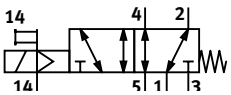
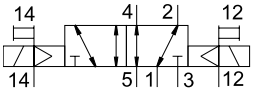
Cover plates can be replaced by valves at a later date. The dimensions, mounting points and existing pneumatic installations remain unchanged during this process.

The valve code (e.g. M, J, N, NS, NU) is located on the front of the valve beneath the manual override.

Note

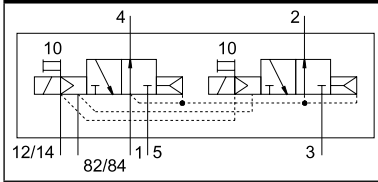
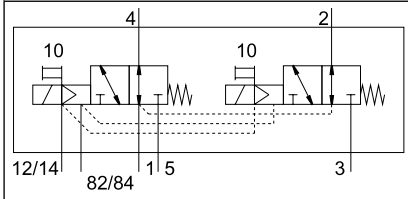
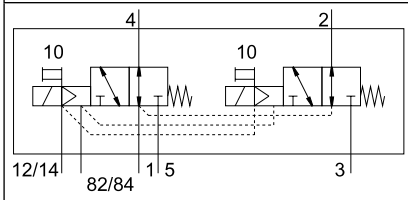
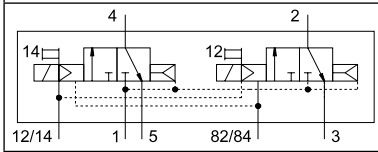
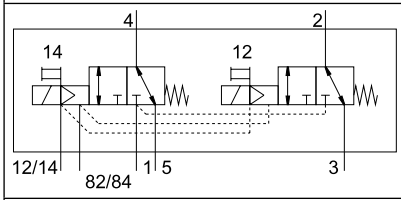
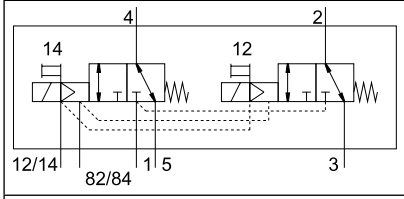
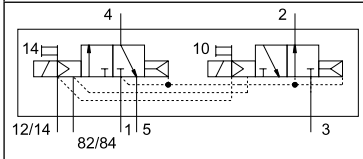
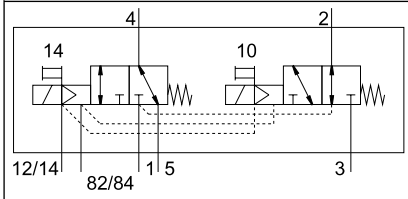
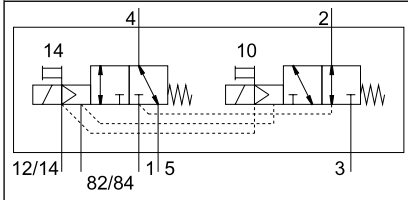
A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup with connector).

5/2-way valve

Circuit symbol	Code	Description
	Position function 1-32: M	• Single solenoid • Pneumatic spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: MS	• Single solenoid • Mechanical spring return • Reversible • Operating pressure –0.09 ... +0.8 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: MU	• Single solenoid • Polymer poppet valve • Mechanical spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm • 5/2-way function is achieved using two mechanically separate switching elements
	Position function 1-32: J	• Double solenoid • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm, 14 mm and 20 mm

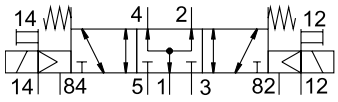
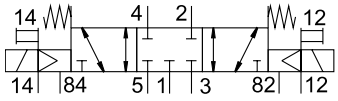
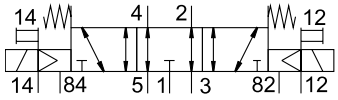
Characteristics – Pneumatic components

2x 3/2-way valve

Circuit symbol	Code	Description
	Position function 1-32: N	• Single solenoid • Normally open • Pneumatic spring return • Operating pressure 0.3 ... 1 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: NS	• Single solenoid • Normally open • Mechanical spring return • Reversible • Operating pressure –0.09 ... +0.8 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: NU	• Single solenoid • Polymer poppet valve • Normally open • Mechanical spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm
	Position function 1-32: K	• Single solenoid • Normally closed • Pneumatic spring return • Operating pressure 0.3 ... 1 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: KS	• Single solenoid • Normally closed • Mechanical spring return • Reversible • Operating pressure –0.09 ... +0.8 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: KU	• Single solenoid • Polymer poppet valve • Normally closed • Mechanical spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm
	Position function 1-32: H	• Single solenoid • Normal position – 1x closed – 1x open • Pneumatic spring return • Operating pressure 0.3 ... 1 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: HS	• Single solenoid • Normal position – 1x closed – 1x open • Mechanical spring return • Reversible • Operating pressure –0.09 ... +0.8 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: HU	• Single solenoid • Polymer poppet valve • Normal position – 1x closed – 1x open • Mechanical spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm

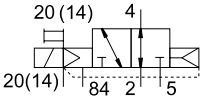
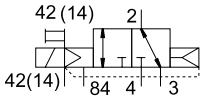
Characteristics – Pneumatic components

5/3-way valve

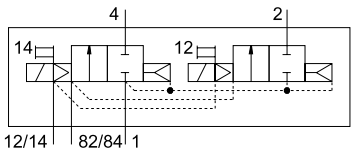
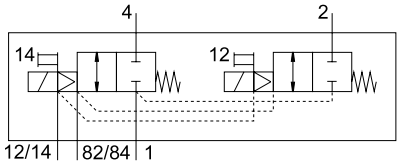
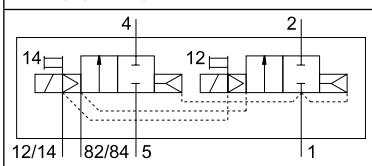
Circuit symbol	Code	Description
	Position function 1-32: B	• Mid-position pressurised[1)] • Mechanical spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: G	• Mid-position closed[1)] • Mechanical spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: E	• Mid-position exhausted[1)] • Mechanical spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm, 14 mm and 20 mm

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

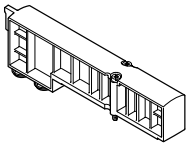
Circuit symbol	Code	Description
	Position function 1-32: W	• Single solenoid • Normally open • External compressed air supply • Pneumatic spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm, 14 mm and 20 mm Compressed air (–0.9 ... +10 bar) supplied at working port 2 can be switched with both internal and external pilot air supply.
	Position function 1-32: X	• Single solenoid • Normally closed • External compressed air supply • Pneumatic spring return • Reversible • Operating pressure –0.09 ... +1 MPa • Available in width of 10 mm, 14 mm and 20 mm Compressed air (–0.9 ... +10 bar) supplied at working port 4 can be switched with both internal and external pilot air supply.

2x 2/2-way valve

Circuit symbol	Code	Description
	Position function 1-32: D	• Single solenoid • Normally closed • Pneumatic spring return • Operating pressure 0.3 ... 1 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: DS	• Single solenoid • Normally closed • Mechanical spring return • Reversible • Operating pressure –0.09 ... +0.8 MPa • Available in width of 10 mm, 14 mm and 20 mm
	Position function 1-32: I	• Single solenoid • 1x normally closed • 1x normally closed, reversible only • Pneumatic spring return • Operating pressure 0.3 ... 1 MPa • Vacuum at port 3/5 only • Available in width of 10 mm, 14 mm and 20 mm

Characteristics – Pneumatic components

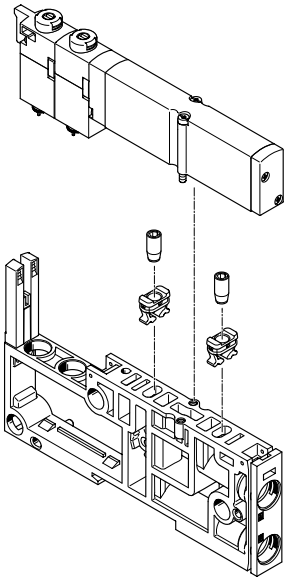
Cover plate



Cover plate (code L) without valve function, for reserving valve positions on a valve terminal.

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

Exhaust functions



Fixed flow restrictor

The fixed flow restrictor can be used to permanently set the exhaust flow rate in ducts 3 and 5.

Assembly:
- Press the retainer as far as it will go into the exhaust openings on the sub-base
- Screw the fixed flow restrictor into the retainer
- Mount the valve on the sub-base

The restrictor cuts a thread into the retainer as it is screwed in. For that reason, the retainer should also be changed when a restrictor is repeatedly replaced.

The restrictor is available in 7 different nominal widths (0.3 .... 1.7 mm). The individual sizes are colour-coded for ease of identification.

Fixed flow restrictors enable, for example, the cylinder speed to be set to a predefined limit in response to known flow rate conditions.
They cannot be accessed during operation and are therefore protected against manipulation.

This is beneficial in the production of series machines since the required speed can be determined once and the installation simply duplicated for further machines, saving time and costs for repeated commissioning.

Note

The fixed flow restrictors are available only for valves or manifold sub-bases with a width of 10 mm.

Check valve

The check valves prevent the air from being pushed back (back pressure) from ducts 3 and 5 into the solenoid valve.
This prevents 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.

The check valves should be installed according to the specifications using the enclosed assembly tool. Following assembly, the check valves cannot be removed.

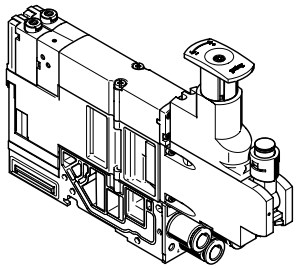
Please see the relevant assembly instructions:
→ www.festo.com/catalogue/...
→ Support/Downloads

Note

- Pre-assembled sub-bases with integrated check valves are available.
- It is not possible to use a check valve and a fixed flow restrictor (in the same duct) at the same time.

Characteristics – Pneumatic components

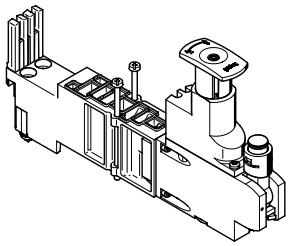
Vertical stacking



Additional functional units can be added to each valve position between the base plate 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

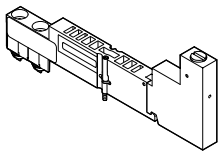


An adjustable pressure regulator can be installed between the base plate and the valve to control the force of the actuator.

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, can be swivelled)
- Set using screwdriver or regulator head

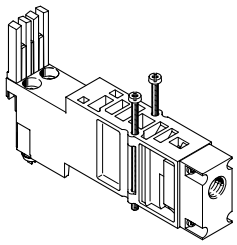
Vertical pressure shut-off plate for width of 10 mm and 14 mm



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.

Vertical pressure supply plate for width of 14 mm and 20 mm

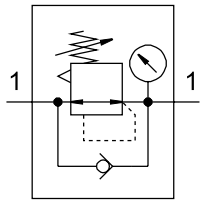
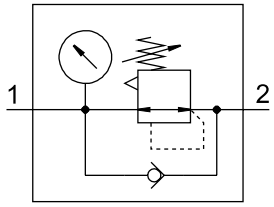
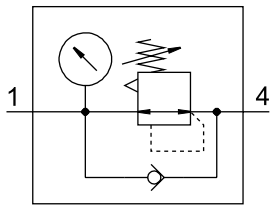
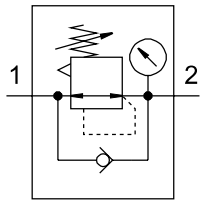
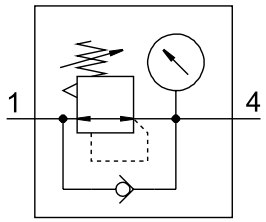


This vertical pressure supply plate enables an individual valve to be supplied with individual operating pressure independently of the operating pressure of the valve terminal.

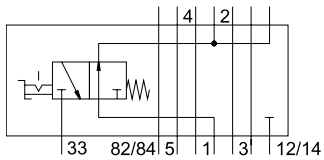
The exhaust and pilot air supply of the valve are still provided via the central ports of the valve terminal.

Characteristics – Pneumatic components

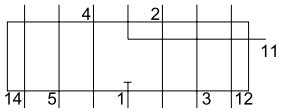
Pressure regulator

Circuit symbol	Code	Description
	Pressure regulator 1-32: PA Pressure regulator 1-32: PF	• Regulates the pressure upstream of the valve in duct 1 • Same regulated pressure at duct 2 and duct 4 • Exhausting in the valve from duct 2 to duct 3 and from duct 4 to duct 5 • Regulator not affected by exhausting • Regulator can always be adjusted • Available in width of 10 mm, 14 mm and 20 mm
	Pressure regulator 1-32: PC Pressure regulator 1-32: PH	• Regulates the pressure for duct 2 downstream of the valve • Exhausting via the regulator from duct 2 to duct 3 • Exhaust flow is restricted by the regulator • Regulator can only be adjusted in switched state • Available in width of 10 mm, 14 mm and 20 mm
	Pressure regulator 1-32: PB Pressure regulator 1-32: PG	• Regulates the pressure for duct 4 downstream of the valve • Exhausting via the regulator from duct 4 to duct 5 • Exhaust flow is restricted by the regulator • Regulator can only be adjusted in switched state • Available in width of 10 mm, 14 mm and 20 mm
	Pressure regulator 1-32: PN Pressure regulator 1-32: PL	• Splits the supply air in duct 1 and regulates the pressure upstream of the valve in duct 3 • Valve is operated in reverse mode • Exhausting in the valve from duct 2 to duct 1 • Regulator not affected by exhausting • Regulator can always be adjusted • Available in width of 20 mm
	Pressure regulator 1-32: PK Pressure regulator 1-32: PM	• Splits the supply air in duct 1 and regulates the pressure upstream of the valve in duct 5 • Valve is operated in reverse mode • Exhausting in the valve from duct 4 to duct 1 • Regulator not affected by exhausting • Regulator can always be adjusted • Available in width of 20 mm

Vertical pressure shut-off plate

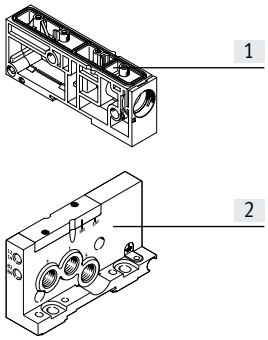
Circuit symbol	Code	Description
	Pressure regulator 1-32: PS	• Makes it possible to shut down pressure in duct 1 and duct 12/14 upstream of the valve • Exhausting in the valve from duct 2 to duct 3 and from duct 4 to duct 5 • Vertical pressure shut-off plate not affected by exhausting • Operating pressure 3 ... 8 bar • Available in width of 10 mm and 14 mm

Vertical pressure supply plate

Circuit symbol	Code	Description
	Pressure regulator 1-32: PV	• Enables separate supply of the pressure in duct 1 and upstream of the valve • Operating pressure –0.9 ... +10 bar • Available in width of 14 mm and 20 mm

Characteristics – Pneumatic components

Compressed air supply and exhausting



[1] Supply module
[2] Right-hand end plate

The valve terminal MPA-L can be supplied with compressed air at one or more points via supply modules and/or the right-hand end plate. The generously sized pneumatic system enables good performance from all components, even with large-scale expansions.

Exhausting (ducts 3 and 5) either takes place via silencers or ports for ducted exhaust air via the supply modules or the right-hand end plate.
There are two types of supply module with exhausting:
- Exhaust air 3/5 via flat plate silencer
- Exhaust air 3/5 ducted

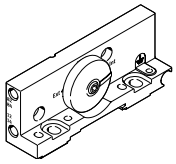
Exhausting (ducts 3 and 5) can alternatively or additionally take place via the right-hand end plate.
Ducts 3 and 5 are separate in the terminal and are only joined together in the supply module. The pilot exhaust air (duct 82/84) is completely separate from ducts 3 and 5.

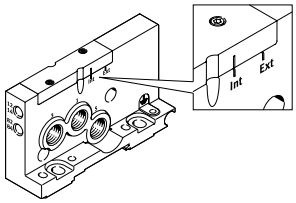
Pilot air supply

The valve terminal MPA-L is supplied with pilot air exclusively via the right-hand end plate. The pilot air supply can be selected at the pilot air selector on the end plate:

- Internal (from duct 1) or
- External (from duct 12/14)

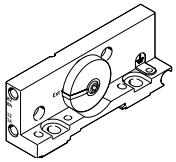
Switching position for internal, marked "Int"

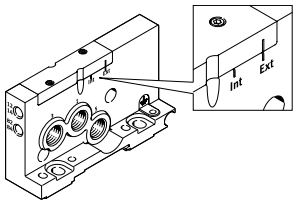




Internal pilot air supply can be selected if the supply pressure for the terminal is between 0.3 and 0.8 MPa. In this case, the pilot air supply is branched by an internal connection from duct 1 in the right-hand end plate.
Port 12/14 on the right-hand end plate can be sealed using a blanking plug.

Switching position for external, marked "Ext"





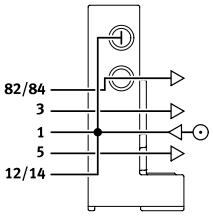
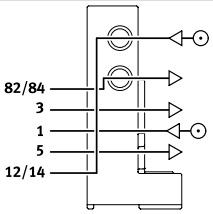
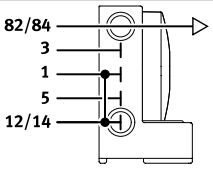
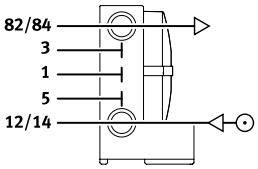
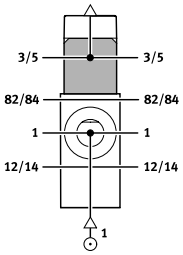
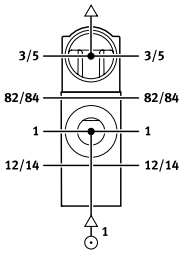
If the supply pressure (at the right-hand end plate) is less than 0.3 MPa or greater than 0.8 MPa, then the valve terminal MPA-L must be operated with an external pilot air supply. The pilot air is then supplied via port 12/14 on the right-hand end plate. When using several pressure zones, the supply pressure in the pressure zone with the right-hand end plate is decisive.

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.

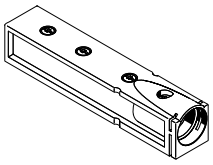
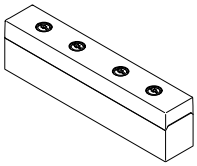
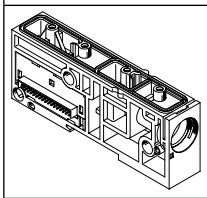
Characteristics – Pneumatic components

Compressed air supply and pilot air supply

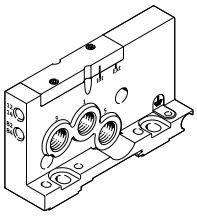
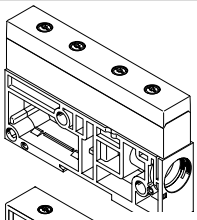
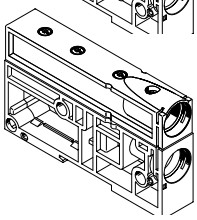
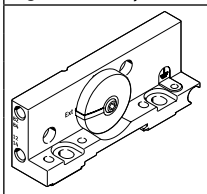
Graphical illustration	Code	Notes
Right-hand end plate, with supply ports		
	Right-hand end plate: D Pilot air: –	Internal pilot air supply • Pilot air is branched internally from port 1 in the right-hand end plate • Exhaust air 3/5 via right-hand end plate or supply module • Pilot exhaust air 82/84 via right-hand end plate • For operating pressure in the range 0.3 ... 0.8 MPa
	Right-hand end plate: D Pilot air: E	External pilot air supply • Pilot air supply (0.3 ... 0.8 MPa) is connected at port 12/14 on the right-hand end plate • Exhaust air 3/5 via right-hand end plate or supply module • Pilot exhaust air 82/84 via right-hand end plate • For operating pressure in the range –0.09 ... +1 MPa (suitable for vacuum)
Right-hand end plate, without supply ports		
	Right-hand end plate: – Pilot air: –	Internal pilot air supply • Pilot air is branched internally from port 1 in the right-hand end plate • Exhaust air 3/5 via supply module • Pilot exhaust air 82/84 via right-hand end plate • For operating pressure in the range 0.3 ... 0.8 MPa
	Right-hand end plate: – Pilot air: E	External pilot air supply • Pilot air supply (0.3 ... 0.8 MPa) is connected at port 12/14 on the right-hand end plate • Exhaust air 3/5 via supply module • Pilot exhaust air 82/84 via right-hand end plate • For operating pressure in the range –0.09 ... +1 MPa (suitable for vacuum)
Supply module, flat plate silencer		
	Type of module block 1-40: U Exhaust port: –	• Exhaust air 3/5 via flat plate silencer • Pilot exhaust air 82/84 via right-hand end plate • For operating pressure in the range –0.09 ... +1 MPa (suitable for vacuum)
Supply module, ducted exhaust air		
	Type of module block 1-40: U Exhaust port: UD, UE, UF, UM, UN, UP or UG	• Exhaust air 3/5 via supply module • Pilot exhaust air 82/84 via right-hand end plate • For operating pressure in the range –0.09 ... +1 MPa (suitable for vacuum)

Characteristics – Pneumatic components

Supply module

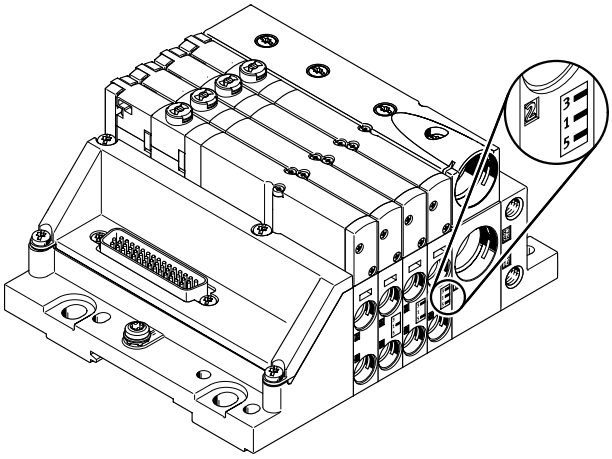
Graphical illustration	Code	Type	Designation	Notes
	Exhaust port: UD, UE, UF, UM, UN, UP or UG	VMPAL-EG	Exhaust plate for ducted exhaust air	Additional supply modules can be used for larger terminals or to create pressure zones. Supply modules can be configured at any point upstream or downstream of the sub-bases. Supply modules contain the following ports: • Compressed air supply (duct 1) • Exhaust air (duct 3/5) Depending on your order, the exhaust ducts are either ducted or exhausted via the flat plate silencer.
	Exhaust port: –	VMPAL-EU	Flat plate silencer	
	Type of module block 1-40: U	VMPAL-SP-0	Supply module with electrical manifold module	

Ports for supply and exhaust

	Code	Port			Push-in fitting/cartridge
Right-hand end plate with supply ports 1, 3, 5					
	Right-hand end plate: D	1	Work air/vacuum supply	G1/4 thread	Straight or angled push-in fitting, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8"
		3	Exhaust air	G1/4 thread	
		5	Exhaust air	G1/4 thread	
		12/14	Pilot air supply	M7 thread	Straight or angled push-in fitting, for tubing O.D. 4 mm, 6 mm Straight push-in fitting, for tubing O.D. 3/16", 1/4"
		82/84	Pilot exhaust air	M7 thread	
Supply module					
 	Type of module block 1-40: U	1	Work air/vacuum supply	Cartridge	Straight cartridge, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2", adapter for thread G1/4
		3/5	Exhaust air	Flat plate silencer	–
				Cartridge	Straight cartridge, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2", adapter for thread G1/4
		12/14	Pilot air supply	–	–
		82/84	Pilot exhaust air	–	–
Right-hand end plate without supply ports					
	Right-hand end plate: –	1	Work air/vacuum supply	–	–
		3	Exhaust air	–	–
		5	Exhaust air	–	–
		12/14	Pilot air supply	M7 thread	Straight or angled push-in fitting, for tubing O.D. 4 mm, 6 mm Straight push-in fitting, for tubing O.D. 3/16", 1/4"
		82/84	Pilot exhaust air	M7 thread	

Characteristics – Pneumatic components

Creating pressure zones and separating exhaust air

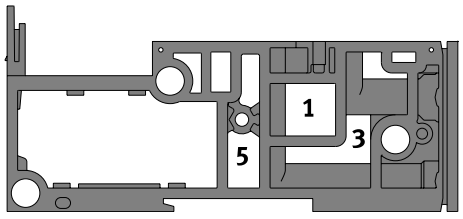
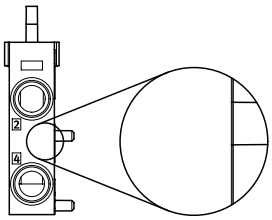
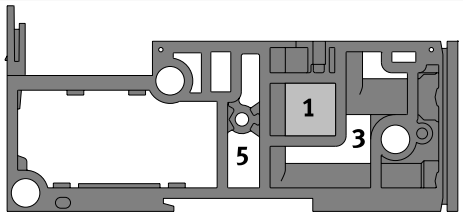
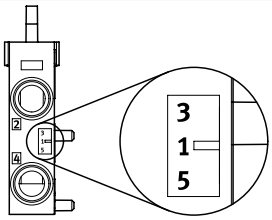
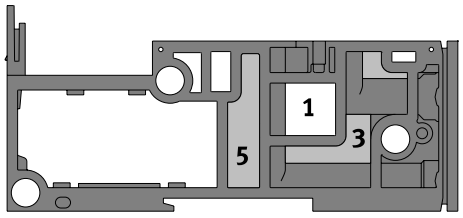
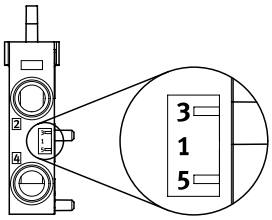
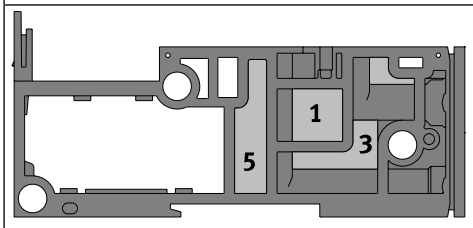
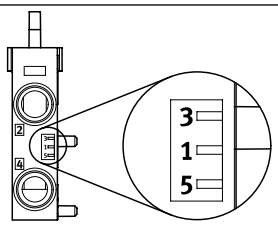


MPA-L offers a number of options for creating pressure zones if different working pressures are required. A total of up to 20 pressure zones can be created.
Pressure zones are created by isolating the internal supply ducts in a special sub-base. Each pressure zone must have its own compressed air supply. Compressed air can be supplied and exhausted via a supply module and/or the right-hand end plate.

The position of the supply modules and the sub-bases with pressure zone separation can be freely chosen with the valve terminal MPA-L.

The sub-bases with pressure zone separation are integrated into the terminal at the factory as specified in your order.
They can be distinguished by their coding, even when the valve terminal is assembled. Duct separation always takes place to the right of the sub-base.

Creating pressure zones

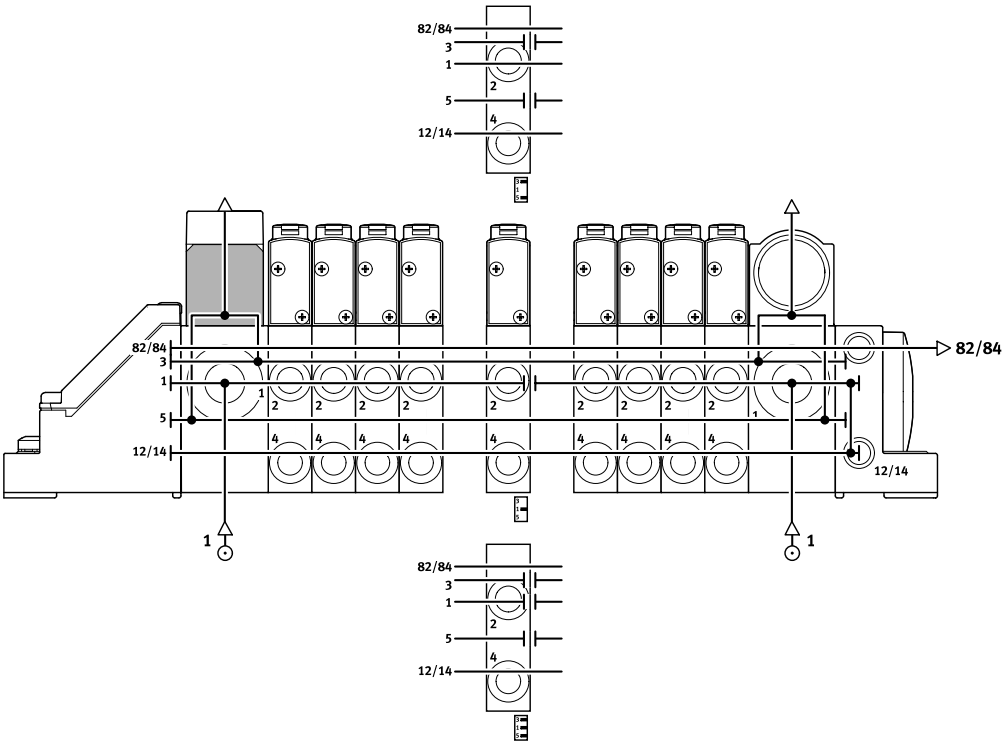
Sub-bases with pressure zone separation Illustrated examples	Coding	Code	Notes
		Duct separation to the right of sub-base 1 - 40: –	• No duct separation
		Duct separation to the right of sub-base 1 - 40: T	• Duct 1 separated • VMPAL-...-T1
		Duct separation to the right of sub-base 1 - 40: TR	• Duct 3/5 separated • VMPAL-...-T35
		Duct separation to the right of sub-base 1 - 40: TS	• Ducts 1 and 3/5 separated • VMPAL-...-T135

Characteristics – Pneumatic components

Examples: compressed air supply and pilot air supply

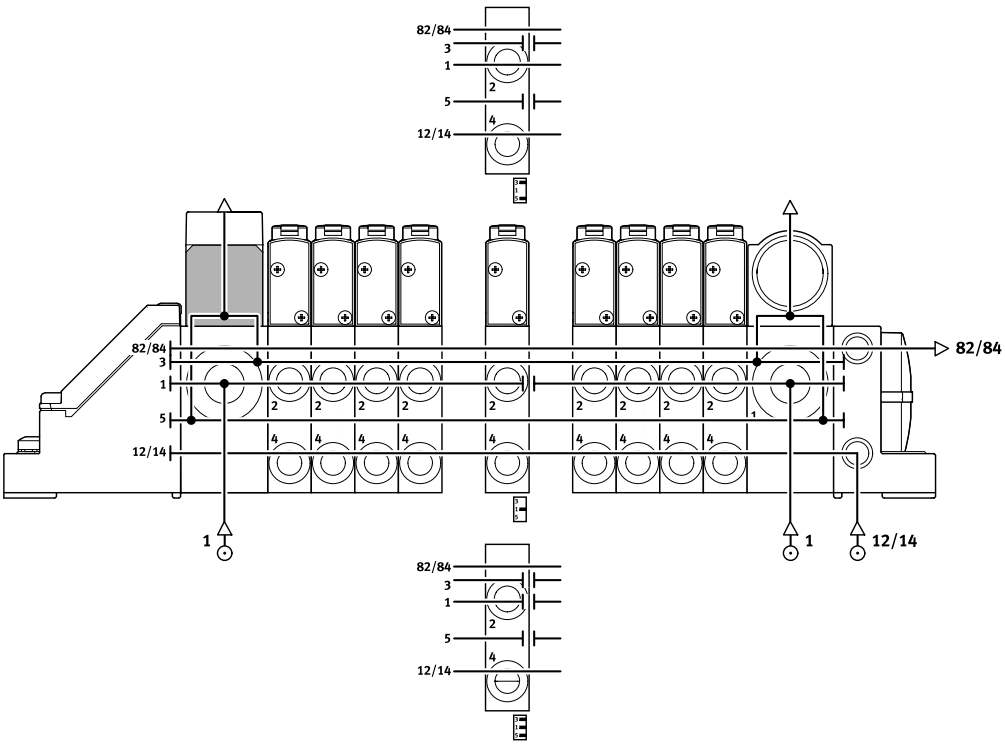
Internal pilot air supply, right-hand end plate without supply ports

The adjacent diagram shows an example of the configuration and connection of the air supply with internal pilot air supply.
The exhaust air (duct 3/5) is discharged via supply modules.
The pilot exhaust air (duct 82/84) is discharged via the right-hand end plate.
Special sub-bases are used to create pressure zones.



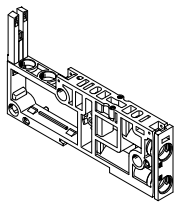
External pilot air supply, right-hand end plate without supply ports

The adjacent diagram shows an example of the configuration and connection of the compressed air supply with external pilot air supply. Port 12/14 on the right-hand end plate is equipped with a fitting for this.
The exhaust air (duct 3/5) is discharged via supply modules.
The pilot exhaust air (duct 82/84) is discharged via the right-hand end plate.
Special sub-bases are used to create pressure zones.



Characteristics – Pneumatic components

Sub-base

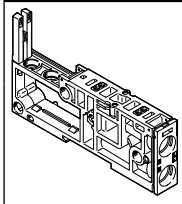
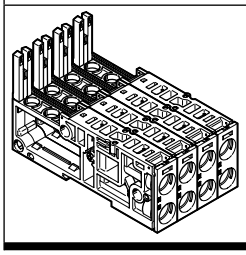


MPA-L is based on a modular system consisting of sub-bases and valves.
The sub-bases are joined together using tie rods and thus form the support system for the valves.
They contain the ducts for supplying compressed air to and exhausting from the valve terminal as well as the working ports for the pneumatic drives for each valve.
The tie rod used to join the sub-bases together consists of a threaded rod, threaded sleeve and screw.

In principle, sub-bases have a modular structure. If this modularity is not required within a terminal, then four individual sub-bases can be combined with a 4-way electrical manifold module to save costs.
The threaded rod/sleeve combination is selected as appropriate to the number and width of the individual sub-bases or sub-base combination.
To add further blocks, simply loosen the tie rod and adapt with extenders.

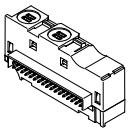
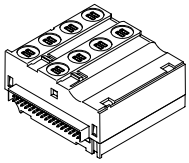
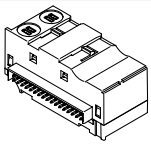
There are no restrictions on extensions; a tie rod could be constructed almost entirely from extenders.

Sub-base variants

Graphical illustration	Code	Type	Notes
	–	VMPAL-AP-10 VMPAL-AP-14 VMPAL-AP-20	• Without cartridge • Without electrical manifold module
		VMPAL-AP-...-QS...-1... VMPAL-AP-...-QS...-2...	• With cartridge (push-in connector for compressed air tubing with standard O.D.) • With electrical manifold module • With/without duct separation
		VMPAL-AP-...-T1...	• Duct separation in duct 1 • With/without cartridge (push-in connector for compressed air tubing with standard O.D.) • With/without electrical manifold module • With/without check valve in duct 3 and 5
		VMPAL-AP-...-T35...	• Duct separation in ducts 3 and 5 • Without electrical manifold module • With/without check valve in duct 3 and 5
		VMPAL-AP-...-T135...	• Duct separation in ducts 1, 3 and 5 • Without electrical manifold module • With/without check valve in duct 3 and 5
		VMPAL-AP-...-RV	• With check valve in duct 3 and 5 • Without electrical manifold module • With/without duct separation
	Combination manifold block: Z	VMPAL-AP-4x10 VMPAL-AP-4x14	• Four-way block, not suitable for pressure zone separation • No duct separation • With/without electrical manifold module • With/without cartridge

Characteristics – Pneumatic components

Electrical manifold module

Graphical illustration	Code	Type	No. of solenoid coils (valve positions)	Notes
	Type of module block 1-40: A	VMPAL-EVAP-10-...-2	2 (1), double solenoid	Each solenoid coil must be assigned to a specific pin of the multi-pin plug for the valves to be actuated. Regardless of whether cover plates or valves are used, valve positions occupy: • One coil/address (single solenoid valves) • Two coils/addresses (double solenoid valves) The electrical manifold modules are colour-coded: • Single solenoid – grey • Double solenoid – black
	Type of module block 1-40: E	VMPAL-EVAP-14-...-2		
	Type of module block 1-40: B	VMPAL-EVAP-20-...-2		
	Type of module block 1-40: C	VMPAL-EVAP-10-...-1	1 (1), single solenoid	
	Type of module block 1-40: F	VMPAL-EVAP-14-...-1		
	Type of module block 1-40: D	VMPAL-EVAP-20-...-1		
	Type of module block 1-40: A	VMPAL-EVAP-10-2-4	8 (4), double solenoid	Each solenoid coil must be assigned to a specific pin of the multi-pin plug for the valves to be actuated. Regardless of whether cover plates or valves are used, valve positions occupy: • One coil/address (single solenoid valves) • Two coils/addresses (double solenoid valves) The electrical manifold modules are colour-coded: • Single solenoid – grey • Double solenoid – black
	Type of module block 1-40: E	VMPAL-EVAP-14-2-4		
	Type of module block 1-40: C	VMPAL-EVAP-10-1-4	4 (4), single solenoid	
	Type of module block 1-40: F	VMPAL-EVAP-14-1-4		
	Type of module block 1-40: U	VMPAL-EVAP-20-SP	–	Electrical manifold module for supply module

Characteristics – Mounting

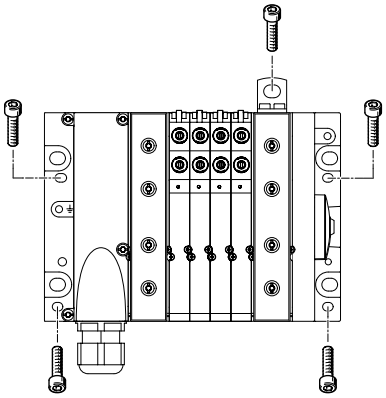
Valve terminal mounting

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

Note

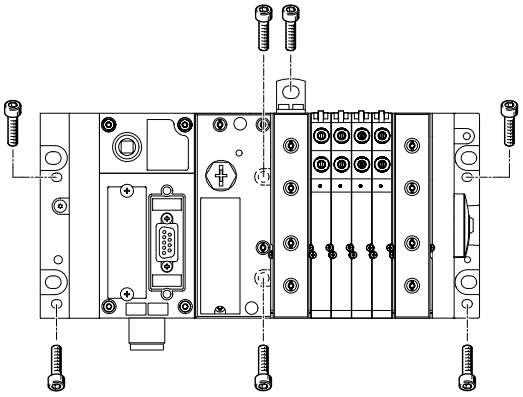
If the terminal is subject to strong vibrations or shock loads, use additional mounting brackets of the type VMPAL-BD for wall mounting.
These should be attached to the valve terminal every 13 cm (one mounting bracket every 10 valve positions).

Wall mounting – Multi-pin plug connection



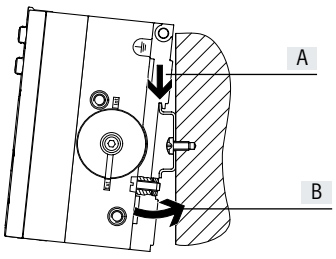
The MPA-L valve terminal is screwed onto the mounting surface using four M4 or M6 screws. The mounting holes are on the multi-pin plug connection and on the right-hand end plate.
Optional mounting brackets are also available.

Wall mounting – Fieldbus interface (CPX terminal)



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

H-rail mounting



The MPA-L valve terminal is attached to the H-rail (see arrow A).
The MPA-L valve terminal is then swivelled onto the H-rail and secured in place with the clamping element (see arrow B).

The following MPA-L mounting kit is required for H-rail mounting of the valve terminal:
- With multi-pin plug connection:
- CPX-CPA-BG-NRH
- With fieldbus interface (CPX terminal):
- VMPAF-FB-BG-NRH

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

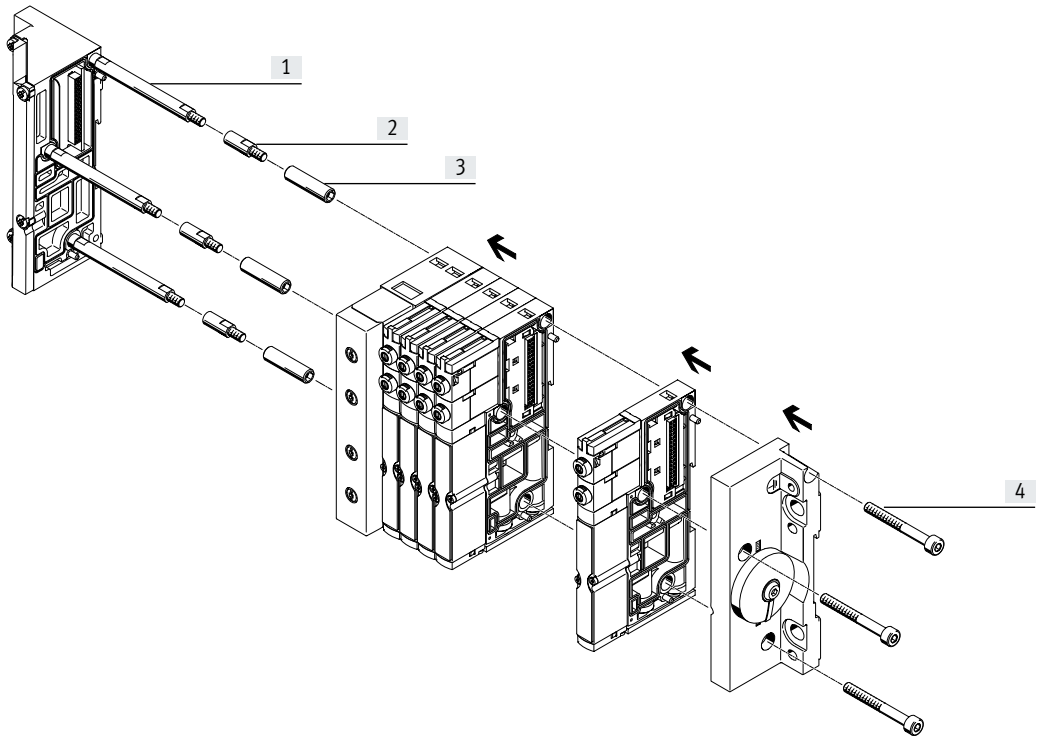
Note

The mounting kits (see above) only lock the valve terminal in horizontal mounting position.

Characteristics – Mounting

Tie rod

Design



[1] Threaded rod
[2] Tie rod extender
[3] Sleeve
[4] Screw

Mode of operation

The tie rod for MPA-L consists of four parts:
- Threaded rod
- Tie rod extender
- Sleeve
- Screw

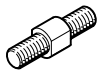
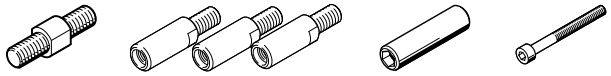
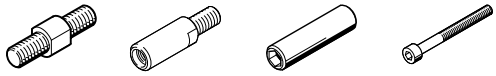
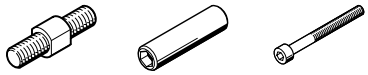
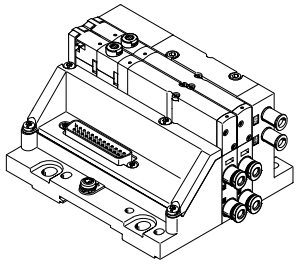
This enables valve terminals of any length to be created.
It takes just 4 steps to assemble the tie rod and the valve terminal:
- Screw the threaded rods to the left-hand end plate
- Screw the sleeves to the threaded rods
- Push the sub-bases and supply modules onto the rod/sleeve combination
- Push on the right-hand end plate and secure with screws that engage into the sleeves

The tie rod enables the valve terminal to be extended at a later date. This is done by loosening the tie rod screws and disassembling the relevant components. The additional sub-base or supply module is inserted at the required location. The previously disassembled components are then re-assembled.

To compensate for the change in length, the tie rod must be extended by the increase in length. This is done by screwing in extenders between the threaded rod and sleeve. There are suitable extenders for each sub-base, combination of four sub-bases and supply module.

Characteristics – Mounting

Tie rod – Components and design

Tie rod (threaded rod)	Tie rod extender	Sleeve	Screw
			
The threaded rod is used to construct a cost-optimised fixed-grid tie rod. The threaded rod is required with valve terminal lengths exceeding 42.45 mm, for example at least four sub-bases (10.7 mm each), since only the combination of a threaded rod and sleeve offers the optimum compensation of tolerances (by compressing the seals between the sub-bases).	The valve terminal can be extended almost infinitely at any time using tie rod extenders. The tie rod extenders are inserted between the threaded rod and sleeve and are available in appropriate lengths for sub-bases and supply modules.	The primary purpose of the sleeve is to compensate for tolerances that occur, for example, when the seals are compressed between the sub-bases during assembly. The sleeves come in different lengths, tailored to the use of a tie rod in a fixed grid as well as generally for the individual modular tie rods.	The entire valve terminal is clamped via the tie rod using the screw. Tolerances that occur, for example when the seals are compressed between the sub-bases during assembly, are compensated for by the interaction of the screw and sleeve.
Individual modular tie rod			
		Tie rods can be constructed entirely using tie rod extenders. The threaded rod and sleeve are required to compensate for tolerances that occur, for example, when the	seals are compressed between the sub-bases during assembly.
Fixed-grid tie rod with extension			
		The tie rod extenders are inserted between the threaded rod and the sleeve.	They are available in suitable lengths for sub-bases and supply modules.
Fixed-grid tie rod			
		The fixed-grid tie rod minimises assembly work when assembling previously defined valve terminals. These valve terminals can be extended at any time.	The threaded rod (and, if applicable, the sleeve too) must be replaced if the valve terminal length is reduced.
Short valve terminal			
	Valve terminals with a small number of valve positions are created by means of the following combinations:	**Width 10 mm** • Valve terminals with two valve positions and without a supply module are connected solely using screws • Valve terminals with three valve positions and without a supply module (or with one valve position and one supply module) are connected using a 10 mm tie rod extender and screw	**Width 14 mm** • Valve terminals with two valve positions and without a supply module are connected using a 10 mm tie rod extender and screw

Characteristics – Mounting

Ordering data – Fixed-grid tie rod

Reference length	Part no.	Type	Part no.	Type
L = 10.65 x V + 14.85 x W + 21.15 x Z + 21.15 x S	**Tie rod**		**Sleeve**	
42.30 ... 62.64	**561116**	**VMPAL-ZAS-5**	**561135**	**VMPAL-ZAH-36**
62.65 ... 72.29	**561116**	**VMPAL-ZAS-5**	**561136**	**VMPAL-ZAH-46**
72.30 ... 81.94	**561116**	**VMPAL-ZAS-5**	**561137**	**VMPAL-ZAH-56**
81.95 ... 91.59	**561116**	**VMPAL-ZAS-5**	**561138**	**VMPAL-ZAH-66**
91.60 ... 101.24	**561117**	**VMPAL-ZAS-45**	**561135**	**VMPAL-ZAH-36**
101.25 ... 110.89	**561117**	**VMPAL-ZAS-45**	**561136**	**VMPAL-ZAH-46**
110.90 ... 120.54	**561117**	**VMPAL-ZAS-45**	**561137**	**VMPAL-ZAH-56**
120.55 ... 130.19	**561117**	**VMPAL-ZAS-45**	**561138**	**VMPAL-ZAH-66**
130.20 ... 139.84	**561118**	**VMPAL-ZAS-85**	**561135**	**VMPAL-ZAH-36**
139.85 ... 149.49	**561118**	**VMPAL-ZAS-85**	**561136**	**VMPAL-ZAH-46**
149.50 ... 159.49	**561118**	**VMPAL-ZAS-85**	**561137**	**VMPAL-ZAH-56**
159.50 ... 169.14	**561118**	**VMPAL-ZAS-85**	**561138**	**VMPAL-ZAH-66**
169.15 ... 178.79	**561119**	**VMPAL-ZAS-125**	**561135**	**VMPAL-ZAH-36**
178.80 ... 188.44	**561119**	**VMPAL-ZAS-125**	**561136**	**VMPAL-ZAH-46**
188.45 ... 198.09	**561119**	**VMPAL-ZAS-125**	**561137**	**VMPAL-ZAH-56**
198.10 ... 207.74	**561119**	**VMPAL-ZAS-125**	**561138**	**VMPAL-ZAH-66**
207.75 ... 217.39	**561120**	**VMPAL-ZAS-165**	**561135**	**VMPAL-ZAH-36**
217.40 ... 227.04	**561120**	**VMPAL-ZAS-165**	**561136**	**VMPAL-ZAH-46**
227.05 ... 236.69	**561120**	**VMPAL-ZAS-165**	**561137**	**VMPAL-ZAH-56**
236.70 ... 246.34	**561120**	**VMPAL-ZAS-165**	**561138**	**VMPAL-ZAH-66**
246.35 ... 255.99	**561121**	**VMPAL-ZAS-205**	**561135**	**VMPAL-ZAH-36**
256.00 ... 265.99	**561121**	**VMPAL-ZAS-205**	**561136**	**VMPAL-ZAH-46**
266.00 ... 275.64	**561121**	**VMPAL-ZAS-205**	**561137**	**VMPAL-ZAH-56**
275.65 ... 285.29	**561121**	**VMPAL-ZAS-205**	**561138**	**VMPAL-ZAH-66**
285.30 ... 294.94	**561122**	**VMPAL-ZAS-245**	**561135**	**VMPAL-ZAH-36**
294.95 ... 304.59	**561122**	**VMPAL-ZAS-245**	**561136**	**VMPAL-ZAH-46**
304.60 ... 314.24	**561122**	**VMPAL-ZAS-245**	**561137**	**VMPAL-ZAH-56**
314.25 ... 323.89	**561122**	**VMPAL-ZAS-245**	**561138**	**VMPAL-ZAH-66**
323.90 ... 333.54	**561123**	**VMPAL-ZAS-285**	**561135**	**VMPAL-ZAH-36**
333.55 ... 343.19	**561123**	**VMPAL-ZAS-285**	**561136**	**VMPAL-ZAH-46**
343.20 ... 352.84	**561123**	**VMPAL-ZAS-285**	**561137**	**VMPAL-ZAH-56**
352.85 ... 362.49	**561123**	**VMPAL-ZAS-285**	**561138**	**VMPAL-ZAH-66**
362.50 ... 372.49	**561124**	**VMPAL-ZAS-325**	**561135**	**VMPAL-ZAH-36**
372.50 ... 382.49	**561124**	**VMPAL-ZAS-325**	**561136**	**VMPAL-ZAH-46**
382.50 ... 392.49	**561124**	**VMPAL-ZAS-325**	**561137**	**VMPAL-ZAH-56**
392.50 ... 402.49	**561124**	**VMPAL-ZAS-325**	**561138**	**VMPAL-ZAH-66**
402.50 ... 412.49	**561125**	**VMPAL-ZAS-365**	**561135**	**VMPAL-ZAH-36**
412.50 ... 422.49	**561125**	**VMPAL-ZAS-365**	**561136**	**VMPAL-ZAH-46**
422.50 ... 432.49	**561125**	**VMPAL-ZAS-365**	**561137**	**VMPAL-ZAH-56**
432.50 ... 442.49	**561125**	**VMPAL-ZAS-365**	**561138**	**VMPAL-ZAH-66**
442.50 ... 452.49	**561126**	**VMPAL-ZAS-405**	**561135**	**VMPAL-ZAH-36**
452.50 ... 462.49	**561126**	**VMPAL-ZAS-405**	**561136**	**VMPAL-ZAH-46**
462.50 ... 472.49	**561126**	**VMPAL-ZAS-405**	**561137**	**VMPAL-ZAH-56**
472.50 ... 482.49	**561126**	**VMPAL-ZAS-405**	**561138**	**VMPAL-ZAH-66**
482.50 ... 492.49	**561127**	**VMPAL-ZAS-445**	**561135**	**VMPAL-ZAH-36**
492.50 ... 502.49	**561127**	**VMPAL-ZAS-445**	**561136**	**VMPAL-ZAH-46**
502.50 ... 512.49	**561127**	**VMPAL-ZAS-445**	**561137**	**VMPAL-ZAH-56**
512.50 ... 522.49	**561127**	**VMPAL-ZAS-445**	**561138**	**VMPAL-ZAH-66**

V Number of valve positions in width 10 mm
W Number of valve positions in width 14 mm
Z Number of valve positions in width 20 mm
S Number of supply modules

Characteristics – Mounting

Ordering data – Fixed-grid tie rod

Reference length	Part no.	Type	Part no.	Type
L = 10.65 x V + 14.85 x W + 21.15 x Z + 21.15 x S	**Tie rod**		**Sleeve**	
522.50 ... 532.49	**561128**	**VMPAL-ZAS-485**	**561135**	**VMPAL-ZAH-36**
532.50 ... 542.49	**561128**	**VMPAL-ZAS-485**	**561136**	**VMPAL-ZAH-46**
542.50 ... 552.49	**561128**	**VMPAL-ZAS-485**	**561137**	**VMPAL-ZAH-56**
552.50 ... 562.49	**561128**	**VMPAL-ZAS-485**	**561138**	**VMPAL-ZAH-66**
562.50 ... 572.49	**561129**	**VMPAL-ZAS-525**	**561135**	**VMPAL-ZAH-36**
572.50 ... 582.49	**561129**	**VMPAL-ZAS-525**	**561136**	**VMPAL-ZAH-46**
582.50 ... 592.49	**561129**	**VMPAL-ZAS-525**	**561137**	**VMPAL-ZAH-56**
592.50 ... 602.49	**561129**	**VMPAL-ZAS-525**	**561138**	**VMPAL-ZAH-66**
602.50 ... 612.49	**561130**	**VMPAL-ZAS-565**	**561135**	**VMPAL-ZAH-36**
612.50 ... 622.49	**561130**	**VMPAL-ZAS-565**	**561136**	**VMPAL-ZAH-46**
622.50 ... 632.49	**561130**	**VMPAL-ZAS-565**	**561137**	**VMPAL-ZAH-56**
632.50 ... 642.49	**561130**	**VMPAL-ZAS-565**	**561138**	**VMPAL-ZAH-66**
642.50 ... 652.49	**561131**	**VMPAL-ZAS-605**	**561135**	**VMPAL-ZAH-36**
652.50 ... 662.49	**561131**	**VMPAL-ZAS-605**	**561136**	**VMPAL-ZAH-46**
662.50 ... 672.49	**561131**	**VMPAL-ZAS-605**	**561137**	**VMPAL-ZAH-56**
672.50 ... 682.49	**561131**	**VMPAL-ZAS-605**	**561138**	**VMPAL-ZAH-66**
682.50 ... 692.49	**561132**	**VMPAL-ZAS-645**	**561135**	**VMPAL-ZAH-36**
692.50 ... 702.49	**561132**	**VMPAL-ZAS-645**	**561136**	**VMPAL-ZAH-46**
702.50 ... 712.49	**561132**	**VMPAL-ZAS-645**	**561137**	**VMPAL-ZAH-56**
712.50 ... 722.49	**561132**	**VMPAL-ZAS-645**	**561138**	**VMPAL-ZAH-66**
722.50 ... 732.49	**561133**	**VMPAL-ZAS-685**	**561135**	**VMPAL-ZAH-36**
732.50 ... 742.49	**561133**	**VMPAL-ZAS-685**	**561136**	**VMPAL-ZAH-46**
742.50 ... 752.49	**561133**	**VMPAL-ZAS-685**	**561137**	**VMPAL-ZAH-56**
752.50 ... 762.49	**561133**	**VMPAL-ZAS-685**	**561138**	**VMPAL-ZAH-66**
762.50 ... 772.49	**561134**	**VMPAL-ZAS-725**	**561135**	**VMPAL-ZAH-36**
772.50 ... 782.49	**561134**	**VMPAL-ZAS-725**	**561136**	**VMPAL-ZAH-46**
782.50 ... 792.49	**561134**	**VMPAL-ZAS-725**	**561137**	**VMPAL-ZAH-56**
792.50 ... 802.49	**561134**	**VMPAL-ZAS-725**	**561138**	**VMPAL-ZAH-66**
802.50 ... 812.49	**561175**	**VMPAL-ZAS-765**	**561135**	**VMPAL-ZAH-36**
812.50 ... 822.49	**561175**	**VMPAL-ZAS-765**	**561136**	**VMPAL-ZAH-46**
822.50 ... 832.49	**561175**	**VMPAL-ZAS-765**	**561137**	**VMPAL-ZAH-56**
832.50 ... 842.49	**561175**	**VMPAL-ZAS-765**	**561138**	**VMPAL-ZAH-66**
842.50 ... 852.49	**561176**	**VMPAL-ZAS-805**	**561135**	**VMPAL-ZAH-36**
852.50 ... 862.49	**561176**	**VMPAL-ZAS-805**	**561136**	**VMPAL-ZAH-46**

V Number of valve positions in width 10 mm
W Number of valve positions in width 14 mm
Z Number of valve positions in width 20 mm
S Number of supply modules

Characteristics – Display and operation

Display and operation

Signal status indication

Each solenoid coil is allocated an LED that indicates its signal status.

- Indicator 12 shows the signal status of the coil for duct 2
- Indicator 14 shows the signal status of the coil for duct 4

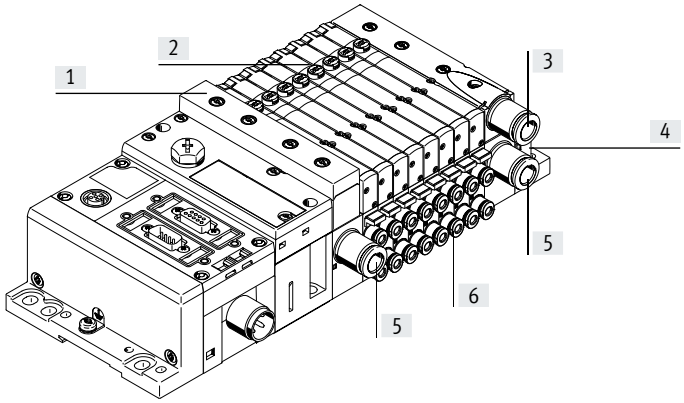
Manual override

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.

Alternatives:

- A cover cap (code: N, code: Y or as accessory) enables the manual override to be actuated by pressing it using an appropriate tool.
- A cover cap (code: V) can be fitted over the manual override to prevent it from being accidentally actuated.

Pneumatic connection and control elements



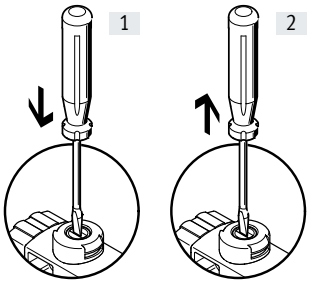
[1] Flat plate silencer, duct 3/5
[2] Manual override
(for each pilot solenoid coil, non-detenting or non-detenting/detenting)
[3] Ducted exhaust air, duct 3/5
[4] Ports 12/14 for external pilot air supply and 82/84 for pilot exhaust air in the right-hand end plate (depending on version also ducts 1, 3 and 5)
[5] Supply port, duct 1
[6] Working ports, ducts 2 and 4, for each valve position

Note

A valve actuated manually (by means of the manual override) cannot be reset electrically.
Conversely, an electrically actuated valve cannot be reset using the manual override.

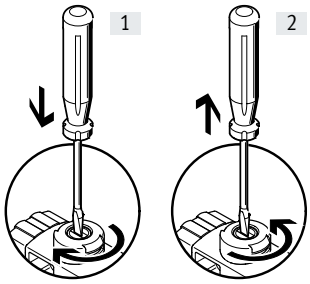
Manual override (MO)

MO with automatic reset (non-detenting)



[1] Press in the stem of the MO with a pointed object or screwdriver.
Pilot valve switches and actuates the main valve.
[2] Remove the pointed object or screwdriver.
The spring force pushes the stem of the MO 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 detent (locking)

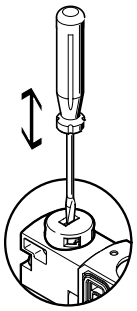


[1] Press in the stem of the MO with a pointed object or screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached.
The valve remains in switching position.
[2] Turn the plunger anti-clockwise by 90° until the stop is reached and then remove the pointed object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

Characteristics – Electrical components

Manual override (MO)

MO with cover cap, non-detenting

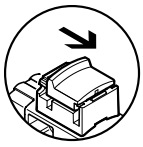


The MO is actuated by pushing it with a pointed object or screwdriver and reset by spring force (detenting position prevented due to cover cap).

MO with cover cap, detenting without accessories, mounting

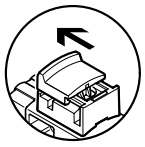
Clip the covering onto the pilot valve. The MO is then actuated by moving the slide on the cover cap.

MO with cover cap, detenting without accessories, actuation



Moving the slide on the cover cap in the direction of the arrow has the following effect:

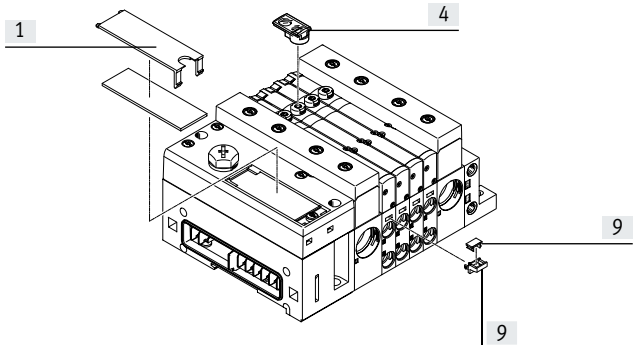
- The slide locks into the end position.
- Pilot valve switches and actuates the main valve.



Moving the slide on the cover cap in the direction of the arrow has the following effect:

- The slide locks into the end position.
- The spring force pushes the stem of the MO 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).

Inscription system



A holder VMPAL-ST-AP-10 (part no. 561109) with inscription labels (part no. 18576, IBS-6x10) can be mounted on each sub-base for labelling the valves.

The inscription label holder ASLR-D-L1 can be pushed onto the manual override.
Large inscription labels can be attached to the pneumatic interface as an alternative or in addition to the smaller labels.

Electrical power as a result of current reduction

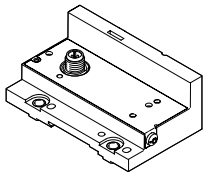
Each solenoid coil is protected with a spark arresting protective circuit as well as against polarity reversal.

All valve types are additionally equipped with integrated current reduction.

MPA-L valves are supplied with operating voltage in the range 21.6 ... 26.4 V (24 V +/–10%).

Characteristics – Electrical components

Electrical connection – Left-hand end plate



The electrical connection from the valves to a higher-order controller is in the left-hand end plate of the MPA-L.

Switching between the various connection options is easy: simply swap the left-hand end plate; the pneumatic linkage remains as is.

The valves are switched by positive or negative logic (PNP or NPN). Mixed operation is not permitted.

Guidelines on addressing for valves/solenoid coils

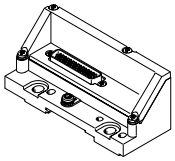
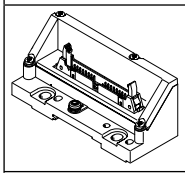
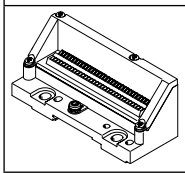
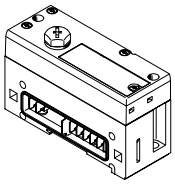
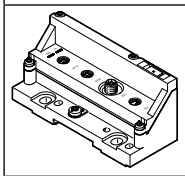
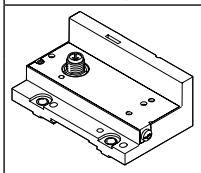
- The numbering of the addresses goes from left to right in ascending consecutive order. The following applies at the individual valve positions: address x for coil 14 and address x+1 for coil 12.
- Each sub-base/electrical manifold module occupies a defined number of addresses/pins:
  - For single solenoid valve: 1
  - For double solenoid valve: 2
  - For combination of four sub-bases for single solenoid valves: 4
  - For combination of four sub-bases for double solenoid valves: 8

Note

If a single solenoid valve is assembled on a double solenoid valve position, the second address (for coil 12) is also occupied and cannot be used.

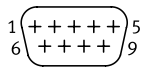
Characteristics – Electrical components

Variants of the left-hand end plate

Graphical illustration	Code	Type	Max. number of addresses	Degree of protection	Notes
Electrical multi-pin plug connection					
	Electrical connection: MS1	VMPAL-EPL-SD25-IP40	24	IP40	Electrical connection: Sub-D, 25-pin
	Electrical connection: MS2	VMPAL-EPL-SD9-IP40	8	IP40	Electrical connection: Sub-D, 9-pin
	Electrical connection: MS3	VMPAL-EPL-SD44-IP40	32	IP40	Electrical connection: Sub-D, 44-pin
	Electrical connection: MS6	VMPAL-EPL-SD25	24	IP67	Electrical connection: Sub-D, 25-pin
	Electrical connection: MS8	VMPAL-EPL-SD44	32	IP67	Electrical connection: Sub-D, 44-pin
	Electrical connection: MF1	VMPAL-EPL-FL40-IP40	32	IP40	Electrical connection: ribbon cable, 40-pin
	Electrical connection: MC	VMPAL-EPL-KL33-IP40	32	IP40	Electrical connection: terminal strip, 33-pin
Fieldbus interface/CPX terminal					
	Electrical connection: CX	VMPAL-EPL-CPX	32	IP67	Electrical connection: CPX linkage
Interface to automation system CPX-AP-I					
	Electrical connection: API	VMPAL-EPL-AP	32	IP65 IP67	Electrical connection • 2x socket, M8x1, D-coded, 4-pin, AP-COM • M8x1, A-coded, 4-pin for power supply
I-Port interface/IO-Link					
	Electrical connection: LK	VMPAL-EPL-IPO32	32	IP65 IP67	Electrical connection: M12, 5-pin, IO-Link
	Electrical connection: PT	VMPAL-EPL-IPO32	32	IP65 IP67	Electrical connection: M12, 5-pin, I-Port interface

Characteristics – Electrical components

Pin allocation for electrical multi-pin plug connection – Sub-D plug, 9-pin



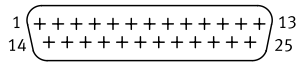
Pin	Address/coil	Pin	Address/coil
1	0	6	5
2	1	7	6
3	2	8	7
4	3	9	0 V[1]
5	4		

Note

The drawing shows the view onto the pins of the Sub-D plug.

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

Pin allocation for electrical multi-pin plug connection – Sub-D plug, 25-pin



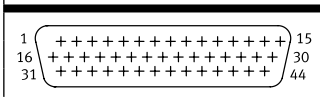
Pin	Address/coil	Pin	Address/coil
1	0	14	13
2	1	15	14
3	2	16	15
4	3	17	16
5	4	18	17
6	5	19	18
7	6	20	19
8	7	21	20
9	8	22	21
10	9	23	22
11	10	24	23
12	11	25	0 V[1]
13	12		

Note

The drawing shows the view onto the pins of the Sub-D plug.

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

Pin allocation for electrical multi-pin plug connection – Sub-D plug, 44-pin



Pin	Address/coil	Pin	Address/coil	Pin	Address/coil
1	0	18	17	35	n.c.
2	1	19	18	36	n.c.
3	2	20	19	37	n.c.
4	3	21	20	38	n.c.
5	4	22	21	39	n.c.
6	5	23	22	40	n.c.
7	6	24	23	41	0 V[1]
8	7	25	24	42	0 V[1]
9	8	26	25	43	0 V[1]
10	9	27	26	44	0 V[1]
11	10	28	27		
12	11	29	28		
13	12	30	29		
14	13	31	30		
15	14	32	31		
16	15	33	n.c.		
17	16	34	n.c.		

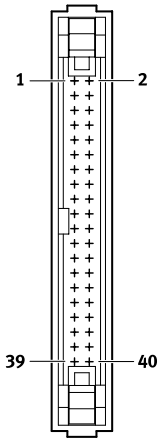
Note

The drawing shows the view onto the pins of the Sub-D plug.

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

Characteristics – Electrical components

Pin allocation for electrical multi-pin plug connection – Ribbon cable, 40-pin



Pin	Address/coil	Pin	Address/coil	Pin	Address/coil
1	0	18	17	35	0 V[1]
2	1	19	18	36	0 V[1]
3	2	20	19	37	0 V[1]
4	3	21	20	38	0 V[1]
5	4	22	21	39	0 V[1]
6	5	23	22	40	0 V[1]
7	6	24	23		
8	7	25	24		
9	8	26	25		
10	9	27	26		
11	10	28	27		
12	11	29	28		
13	12	30	29		
14	13	31	30		
15	14	32	31		
16	15	33	0 V[1]		
17	16	34	0 V[1]		

Note

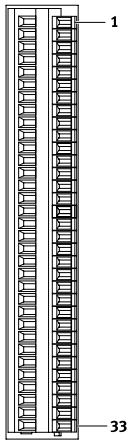
The drawing shows the view onto the pins of the ribbon cable plug.

The ribbon cable connection is established using a plug in accordance with DIN EN 60603-13:1998-09 (NECU-FCG40-K).

→ Internet: necu

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

Pin allocation for electrical multi-pin plug connection – Terminal strip, 33-pin



Pin	Address/coil	Pin	Address/coil	Pin	Address/coil
1	0	16	15	31	30
2	1	17	16	32	31
3	2	18	17	33	0 V[1]
4	3	19	18		
5	4	20	19		
6	5	21	20		
7	6	22	21		
8	7	23	22		
9	8	24	23		
10	9	25	24		
11	10	26	25		
12	11	27	26		
13	12	28	27		
14	13	29	28		
15	14	30	29		

Note

The drawing shows the view onto the pins of the terminal strip.

Cables with the following specifications can be connected:

- Conductor cross section 0.08 ... 0.5 mm^2
- Stripped insulation 5 ... 6 mm

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

Characteristics – Electrical components

Fieldbus interface/CPX terminal

All functions and features of the electrical peripherals CPX apply in combination with the CPX interface.
This means the following:
- The valves and outputs are supplied via the system supply for the CPX terminal
- The valves can optionally be actuated or switched off separately from the outputs

The pneumatic interface (left-hand end plate) serves as an adapter between the two current feeds.

In the pneumatic interface, the serial signals from the CPX terminal are converted into parallel signals.
The number of addresses (solenoid coils that can be connected) is set in the range 4 ... 32 solenoid coils via a selector (rotary switch) on the pneumatic interface. The default setting upon delivery provides 32 addresses. This enables extensions to be pre-assigned in a control program and called up by manual settings.

After converting or extending the valve terminal, the number of output addresses occupied by the pneumatic components must be checked and if applicable adjusted on the pneumatic interface.

Note
More information can be found at:
➔ Internet: cpx

Automation system CPX-AP-I

All functions and features of the CPX-AP-I apply in combination with the automation system CPX-AP-I:
- Power supply via the connection in the left-hand end plate of the MPA-L
- Power supply together with other modules or individually for the valve terminal
- Valves actuated via the communication cable from the preceding module
- Up to 50 m cable length between the modules
- Up to 80 individual modules/valve terminals per bus interface

Note
More information can be found at:
➔ Internet: cpx-ap-i

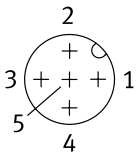
I-Port interface/IO-Link

The I-Port interface/IO-Link enables the valve terminal CPV to be connected to the following systems:
- I-Port Master from Festo (CPX terminal)
- Bus node CTEU from Festo
- IO-Link Master

The maximum distance between the I-Port/IO-Link Master and valve terminal with I-Port interface/IO-Link is 20 m.
The 5-pin connecting cables contain the power supply for the valves; separate from this is the power supply for the internal valve terminal electronics and the control signals.

Note
More information can be found at:
➔ Internet: cteu

I-Port interface/IO-Link pin allocation



Pin	Designation
1	24 V DC supply voltage for electronics and inputs
2	24 V DC load voltage supply for valves and outputs
3	0 V DC supply voltage for electronics and sensors
4	Communication signal C/Q, data transmission line
5	0 V DC load voltage supply for valves and outputs

Characteristics – Electrical components

Instructions for use

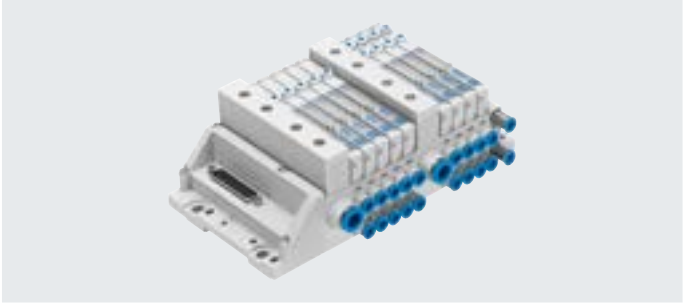
Operating medium	Bio-oils	Mineral oils
Operate your system with unlubricated compressed air if possible. Festo valves and cylinders are designed so that, if used as intended, they will not require additional lubrication and will still achieve a long service life. The quality of compressed air downstream 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).	When using bio-oils (oils which are based on synthetic or native ester, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m^3 must not be exceeded (see ISO 8573-1 Class 2).	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.

Data sheet

- Flow rate
  up to 870 l/min

- Width of valves
  10 mm
  14 mm
  20 mm

- Voltage
  24 V DC



General technical data					
Valve terminal composition		Valve sizes can be mixed			
Electrical actuation		Fieldbus	Multi-pin plug	IO-Link	I-Port
Electric I/O system		Yes			
Actuation type		Electrical			
Type of control		Electrical			
Nominal operating voltage	[V DC]	24			
Permissible voltage fluctuations	[%]	±25			
Max. no. of valve positions		32			
Max. no. of pressure zones		20			
Valve size	[mm]	10, 14, 20			
Signal status indication		LED			
Switching position indication		LED			
Pilot air supply		Internal or external			
Suitable for vacuum		Yes			
Mounting position		Any			
Manual override		Non-detenting, detenting			
Corrosion resistance class CRC[1]		3			
Note on materials		RoHS-compliant			
Degree of protection		IP65, IP67			

1) Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. Externally visible parts with primarily functional surface requirements which are in direct contact with a normal industrial environment.

Operating and environmental conditions		
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4] ➔ 37
Note on the operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure	[MPa]	–0.09 ... +1
	[bar]	–0.9 ... +10
Ambient temperature	[°C]	–5 ... +50
Temperature of medium	[°C]	–5 ... +50
Storage temperature[1]	[°C]	–20 ... +40
CE marking (see declaration of conformity)		To EU EMC Directive[2]
		To EU RoHS Directive[2]
UKCA marking (see declaration of conformity)		To UK instructions for EMC[2]
		To UK RoHS instructions[2]
PWIS conformity		VDMA24364-B1/B2-L
Certification		c UL us listed (OL)
		RCM compliance mark

1) Long-term storage
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.

Data sheet

Technical data – Valve width 10 mm														
Code for position function 1-32			M	J	N	K	H	B	G	E	X	W	D	I
Design			Piston spool valve											
Sealing principle			Soft											
Overlap			Positive overlap											
Flow direction			Reversible		Non-reversible			Reversible			Reversible		Non-reversible	
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
Standard nominal flow rate with QS-6		[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											
Corrosion resistance class CRC[1)]			1											
Materials			Die-cast aluminium											
Product weight		[g]	49	56	56	56	56	56	56	56	49	49	56	56

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Technical data – Valve width 10 mm											
Code for position function 1-32			MS	NS	KS	HS	DS	MU	NU	KU	HU
Design			Piston spool valve					Poppet valve with return spring			
Sealing principle			Soft					Soft			
Overlap			Overlap					Underlap			
Flow direction			Reversible					Reversible			
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]	–	–	–	–	–	–	–	–	–
Maximum switching frequency		[Hz]	2	–	–	–	–	–	–	–	–
Standard nominal flow rate		[l/min]	360	300	230	300	230	140 ... 190	190	160	140 ... 190
Standard nominal flow rate with QS-6		[l/min]	360	300	230	300	230	140 ... 190	190	160	140 ... 190
Note on standard nominal flow rate			–					1 ⇢ 2: 190 l/min 1 ⇢ 4: 140 l/min	–	–	1 ⇢ 2: 190 l/min 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			
Corrosion resistance class CRC[1)]			1					3			
Materials			Die-cast aluminium					Reinforced PPA			
Product weight		[g]	56					35	42	42	42

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).
Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. Externally visible parts with primarily functional surface requirements which are in direct contact with a normal industrial environment.

Data sheet

Technical data – Valve width 14 mm										
Code for position function 1-32			M	J	N	K	H	B	G	E
Design			Piston spool valve							
Sealing principle			Soft							
Overlap			Positive overlap							
Flow direction			Reversible		Non-reversible			Reversible		
Reset method			Pneumatic spring					Mechanical spring		
Switching times	On	[ms]	13	9	9	10	10	12	10	12
	Off	[ms]	30	–	28	28	26	40	40	40
	Change-over	[ms]	–	24	–	–	–	18	20	18
Standard nominal flow rate		[l/min]	550 ... 670	550 ... 670	550 ... 650	550 ... 600	550 ... 650	550 ... 630	500 ... 610	420 ... 480
Standard nominal flow rate with QS-8		[l/min]	550 ... 720	550 ... 670	550 ... 730	550 ... 760	550 ... 730	550 ... 690	500 ... 660	420 ... 550
Note on standard nominal flow rate		[l/min]	MPA-S: 550	MPA-S: 550	MPA-S: 550	MPA-S: 550	MPA-S: 550	MPA-S: 550	MPA-S: 500	MPA-S: 420
		[l/min]	MPA-L: 670	MPA-L: 670	MPA-L: 650	MPA-L: 600	MPA-L: 650	MPA-L: 630	MPA-L: 610	MPA-L: 480
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							
Corrosion resistance class CRC[1)]			1							
Materials			Die-cast aluminium							
Product weight		[g]	77							

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Technical data – Valve width 14 mm										
Code for position function 1-32			X	W	D	I	MS	NS	KS	HS	DS
Design			Piston spool valve								
Sealing principle			Soft								
Overlap			Positive overlap								
Flow direction			Reversible		Non-reversible		Reversible				
Reset method			Pneumatic spring				Mechanical spring				
Switching times	On	[ms]	12	12	9	10	13	12	12	12	10
	Off	[ms]	20	20	26	28	41	20	20	23	20
	Change-over	[ms]	–	–	–	–	–	–	–	–	–
Maximum switching frequency		[Hz]	–	–	–	–	2	–	–	–	–
Standard nominal flow rate		[l/min]	360 ... 400	300 ... 340	550 ... 650	550 ... 670	550 ... 670	470 ... 520	470 ... 560	470 ... 520	500 ... 570
Standard nominal flow rate with QS-8		[l/min]	360 ... 510	300 ... 450	550 ... 720	550 ... 730	550 ... 730	470 ... 550	470 ... 600	470 ... 550	500 ... 570
Note on standard nominal flow rate		[l/min]	MPA-S: 360	MPA-S: 340	MPA-S: 550	MPA-S: 550	MPA-S: 550	MPA-S: 470	MPA-S: 470	MPA-S: 470	MPA-S: 500
		[l/min]	MPA-L: 400	MPA-L: 300	MPA-L: 650	MPA-L: 670	MPA-L: 670	MPA-L: 520	MPA-L: 560	MPA-L: 520	MPA-L: 570
Operating pressure		[MPa]	–0.09 ... +1		0.3 ... 1		–0.09 ... +0.8				
		[bar]	–0.9 ... +10		3 ... 10		–0.9 ... +8				
Pilot pressure		[MPa]	0.3 ... 0.8								
		[bar]	3 ... 8								
Max. tightening torque for valve mounting		[Nm]	0.65				0.65	0.25			
Corrosion resistance class CRC[1)]			1								
Materials			Die-cast aluminium								
Product weight		[g]	77								

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Data sheet

Technical data – Valve width 20 mm										
Code for position function 1-32			M	J	N	K	H	B	G	E
Design			Piston spool valve							
Sealing principle			Soft							
Overlap			Positive overlap							
Flow direction			Reversible		Non-reversible			Reversible		
Reset method			Pneumatic spring					Mechanical spring		
Switching times	On	[ms]	15	9	8	8	8	11	10	11
	Off	[ms]	28	–	28	28	28	46	40	47
	Change-over	[ms]	–	22	–	–	–	23	21	23
Standard nominal flow rate		[l/min]	870	860	550 ... 600	500 ... 550	550	550	750	700
Standard nominal flow rate with QS-8		[l/min]	–	–	550	500	550	450	–	–
Standard nominal flow rate with QS-10		[l/min]	870	860	600	550	550	550	750	700
Note on standard nominal flow rate		[l/min]	–	–	MPA-S: 550	MPA-S: 500	–	–	–	–
		[l/min]	–	–	MPA-L: 600	MPA-L: 550	–	–	–	–
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							
Corrosion resistance class CRC[1)]			1							
Materials			Die-cast aluminium							
Product weight		[g]	100							

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Technical data – Valve width 20 mm										
Code for position function 1-32			X	W	D	I	MS	NS	KS	HS	DS
Design			Piston spool valve								
Sealing principle			Soft								
Overlap			Positive overlap								
Flow direction			Reversible		Non-reversible		Reversible				
Reset method			Pneumatic spring				Mechanical spring				
Switching times	On	[ms]	13	13	7	7	8	12	12	12	12
	Off	[ms]	22	22	25	25	36	25	25	25	25
	Change-over	[ms]	–	–	–	–	–	–	–	–	–
Maximum switching frequency		[Hz]	–	–	–	–	2	–	–	–	–
Standard nominal flow rate		[l/min]	350	480	650 ... 840	650 ... 850	670 ... 840	550 ... 580	500	550	650 ... 820
Standard nominal flow rate with QS-8		[l/min]	–	–	650	650	670	550	500	550	650
Standard nominal flow rate with QS-10		[l/min]	350	480	840	850	840	580	480	550	820
Note on standard nominal flow rate		[l/min]	–	–	MPA-S: 650	MPA-S: 650	MPA-S: 670	MPA-S: 550	MPA-S: 500	–	MPA-S: 650
		[l/min]	–	–	MPA-L: 840	MPA-L: 850	MPA-L: 840	MPA-L: 580	MPA-L: 480	–	MPA-L: 820
Operating pressure		[MPa]	–0.09 ... +1		0.3 ... 1		–0.09 ... +0.8				
		[bar]	–0.9 ... +10		3 ... 10		–0.9 ... +8				
Pilot pressure		[MPa]	0.3 ... 0.8								
		[bar]	3 ... 8								
Max. tightening torque for valve mounting		[Nm]	0.65								
Corrosion resistance class CRC[1)]			1								
Materials			Die-cast aluminium								
Product weight		[g]	100								

1) Corrosion resistance class CRC 1 to Festo standard FN 940070
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

Data sheet

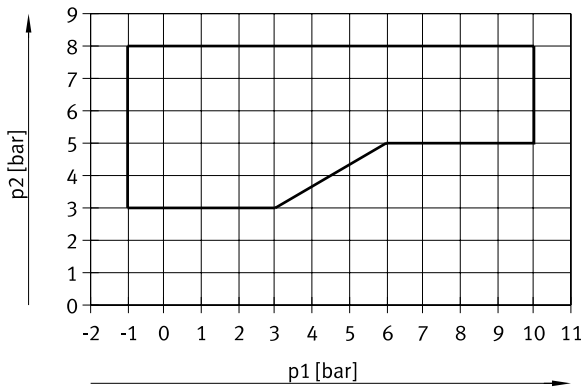
Safety data			
	Valve width 10 mm	Valve width 14 mm	Valve width 20 mm
Max. positive test pulse with logic 0 [µs]	400	400	400
Max. negative test pulse with logic 1 [µs]	200	200	900
Shock resistance	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27		
Vibration resistance	Transport application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

Pneumatic connections		
Right-hand end plate		
Supply	1	Thread G1/4 (straight or angled push-in fitting, for tubing O.D. 6 mm, 8 mm, 10 mm, 12 mm, 5/16", 3/8")
Exhaust port	3	Thread G1/4 (straight or angled push-in fitting, for tubing O.D. 6 mm, 8 mm, 10 mm, 5/16", 3/8")
	5	Thread G1/4 (straight or angled push-in fitting, for tubing O.D. 6 mm, 8 mm, 10 mm, 5/16", 3/8")
Pilot air supply	12/14	Thread M7 (straight or angled push-in fitting, for tubing O.D. 4 mm, 6 mm; straight push-in fitting, for tubing O.D. 3/16", 1/4")
Pilot exhaust air	82/84	Thread M7 (straight or angled push-in fitting, for tubing O.D. 4 mm, 6 mm; straight push-in fitting, for tubing O.D. 3/16", 1/4")
Supply module with exhaust plate		
Supply	1	Cartridge 20 mm (straight cartridge, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2", adapter for thread G1/4), flat plate silencer
Exhaust port	3/5	Cartridge 20 mm (straight cartridge, for tubing O.D. 8 mm, 10 mm, 12 mm, 5/16", 3/8", 1/2", adapter for thread G1/4), flat plate silencer
Vertical pressure supply plate, width 20 mm		
Supply	1	Thread G1/8 (straight push-in fitting, for tubing O.D. 8 mm, 10 mm, 5/16", 3/8")
Sub-base, width 10 mm		
Working ports	2	Cartridge 10 mm (straight or angled cartridge, for tubing O.D. 4 mm, 6 mm, 5/32", 1/4", adapter for thread M7)
	4	Cartridge 10 mm (straight or angled cartridge, for tubing O.D. 4 mm, 6 mm, 5/32", 1/4", adapter for thread M7)
Sub-base, width 14 mm		
Working ports	2	Cartridge 14 mm (straight or angled cartridge, for tubing O.D. 6 mm, 8 mm, 1/4", 5/16", adapter for thread G1/8)
	4	Cartridge 14 mm (straight or angled cartridge, for tubing O.D. 6 mm, 8 mm, 1/4", 5/16", adapter for thread G1/8)
Sub-base, width 20 mm		
Working ports	2	Cartridge 18 mm (straight or angled cartridge, for tubing O.D. 8 mm, 10 mm, 5/16", 3/8", adapter for thread G1/4)
	4	Cartridge 18 mm (straight or angled cartridge, for tubing O.D. 8 mm, 10 mm, 5/16", 3/8", adapter for thread G1/4)

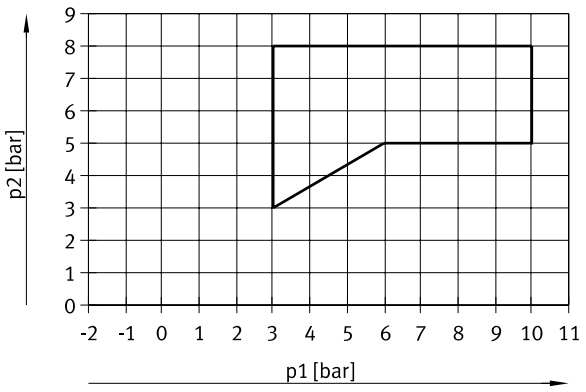
Data sheet

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

For valves with code for position function 1-32: M, J, B, G, E, W, X

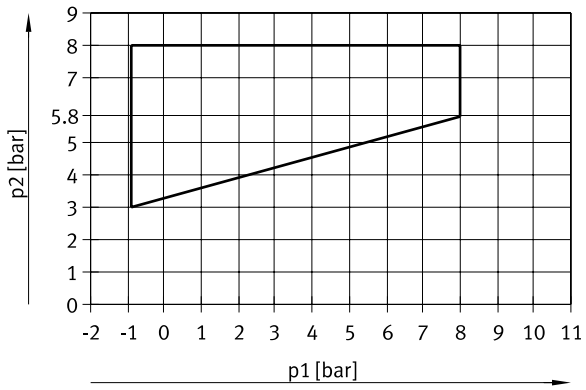


For valves with code for position function 1-32: N, K, H, D, I

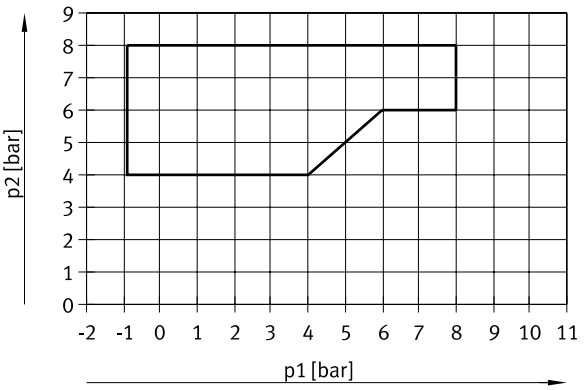


Pilot pressure p2 as a function of working pressure p1 for valves with mechanical spring return

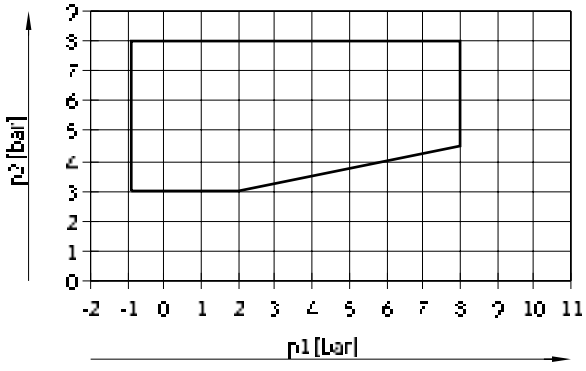
For valves in width 10 mm with code for position function 1-32: MS, NS, KS, HS, DS



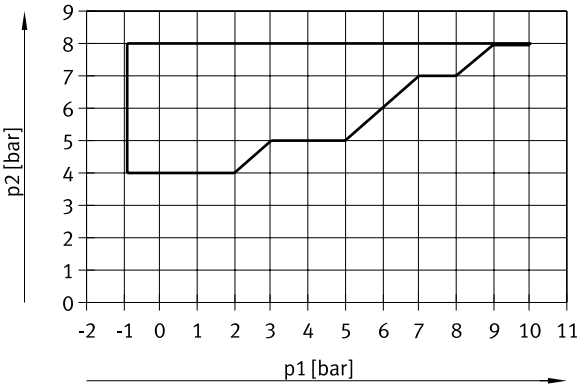
For valves in width 14 mm with code for position function 1-32: MS, NS, KS, HS, DS



For valves in width 20 mm with code for position function 1-32: MS, NS, KS, HS, DS



For valves in width 10 mm with code for position function 1-32: MU, NU, KU, HU



Data sheet

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

Electrical data – MPA-L with electrical interface for CPX terminal		
Intrinsic current consumption of the valve terminal (internal electronics, without valves)		
At 24 V $U_{EL/SEN}$[1]	[mA]	Typically 13
At 24 V Uval[2]	[mA]	Typically 35
Diagnostic message		
Undervoltage U_{OUT}[3]	[V]	17.7 ... 17.8

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

Electrical data – MPA-L with electrical interface for automation system CPX-AP-I		
Intrinsic current consumption of the valve terminal (internal electronics, without valves)		
At 24 V $U_{EL/SEN}$[1]	[mA]	Typically 30
At 24 V Uval[2]	[mA]	Typically 15

1) Power supply for electronics and sensors
2) Load voltage supply for valves

Electrical data – MPA-L with I-Port interface/IO-Link		
Intrinsic current consumption of the valve terminal (internal electronics, without valves)		
Operating voltage	[mA]	30
Load voltage	[mA]	30

Materials	
Sub-base	PA
Supply module	PPA
End plate	Die-cast aluminium, PA, PBT
Seals	NBR
Exhaust plate	PA
Flat plate silencer	PE
Electrical manifold module	PBT, PA, copper alloy
Pressure regulator plate	PA
Vertical pressure shut-off plate	Reinforced PA, wrought aluminium alloy
Vertical pressure supply plate	Reinforced PA
Tie rod	High-alloy stainless steel

Data sheet

Product weight [g]	
CPX module (complete)	Approx. 210
Left-hand end plate with interface to automation system CPX-AP-I	194
Left-hand end plate, multi-pin plug, Sub-D, 44-pin	130
Left-hand end plate, I-Port interface/IO-Link	170
Supply module with electrical manifold module, without cartridge	64
Supply module with electrical manifold module, with cartridge	70
Right-hand end plate without supply ports	105
Right-hand end plate with supply ports	160
Valve	→ 39
M4 screw for tie rod[1)]	3
M3 screw for linking four sub-bases[2)]	70
Sleeve[1)], internal hexagon 4 mm	18/24/27/33 (36/46/56/66 mm for tie rod)
Tie rod extender[1)]	23/31/46 (for extending the valve terminal by one sub-base with a width of 10/14/20 mm)
	279/387 (for extending the valve terminal by four sub-bases with a width of 10/14 mm)
Plate for ducted exhaust air/flat plate silencer	36/40
QSM-M7-4-I QSM-M7-6-I QS-G1/4-8-I QS-G1/4-10-I	4 5 22 23
QSPKG10-3 QSPKG10-4 QSPKG10-6 QSPKG20-8 QSPKG20-10 QSPKG20-12	1.5 1.4 1.8 6 9 13

1) Weight for a pack of 3
2) Weight for a pack of 10

Product weight [g]			
	Width 10 mm	Width 14 mm	Width 20 mm
Black sub-base (with seal, light guide)	21	33	47
Electrical manifold module for one sub-base	9	9	14
Electrical manifold module for combination of four sub-bases	29	29	–
Per vacant position L	20	40	45
Pressure regulator plate	74	76	180
Vertical pressure shut-off plate	60	240	–
Vertical pressure supply plate	–	30	70

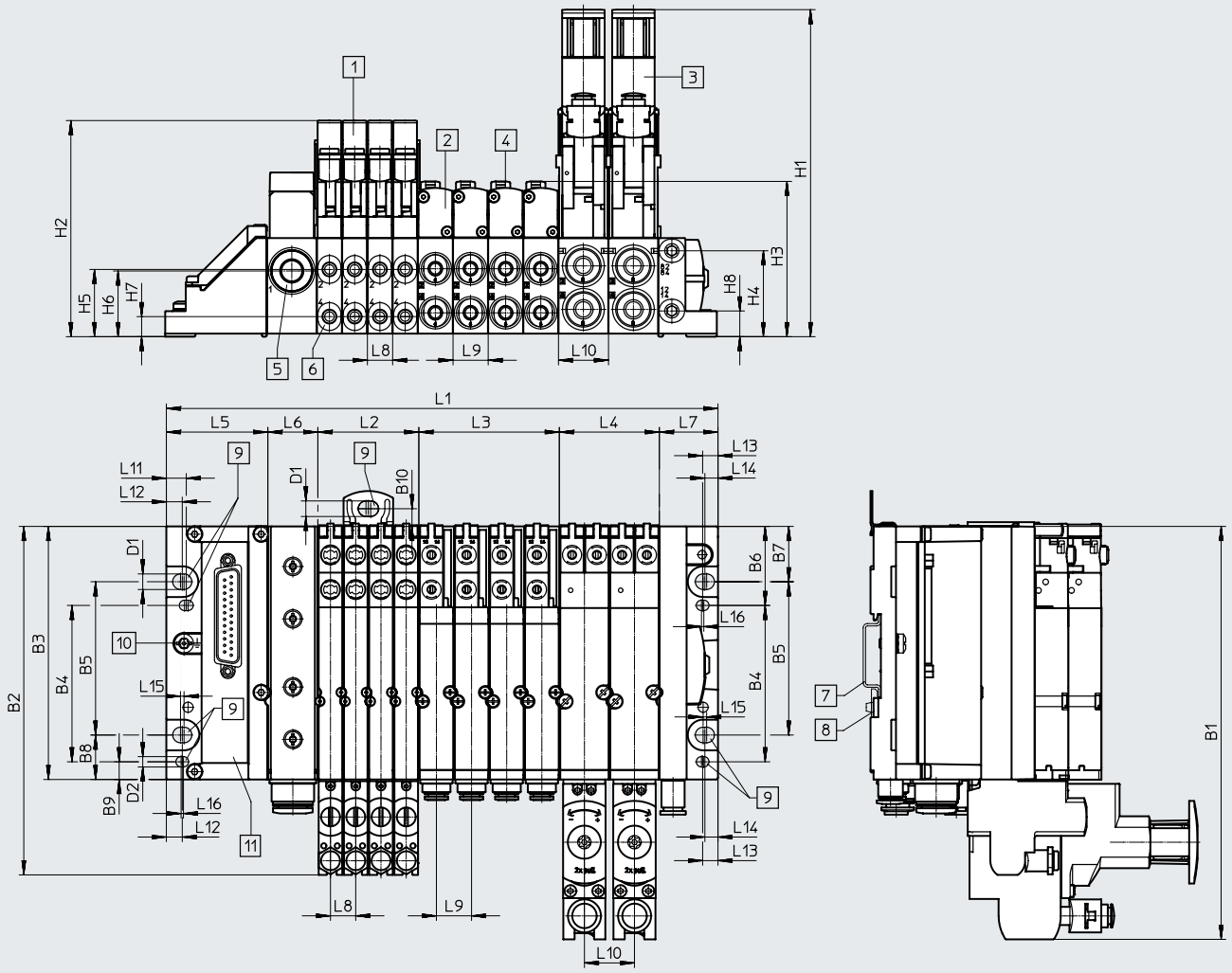
Product weight – Threaded rod for tie rod																		
Length	**[mm]**	**5**	**45**	**85**	**125**	**165**	**205**	**245**	**285**	**325**	**365**	**405**	**445**	**485**	**525**	**565**	**605**	**645**
Product weight[1)]	[g]	6	33	60	60	114	141	168	192	219	246	273	300	327	354	378	405	432
Length	**[mm]**	**685**	**725**	**765**	**805**													
Product weight[1)]	[g]	459	483	513	540													

1) Weight for a pack of 3

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Valve terminal with multi-pin plug connection



[1] Solenoid valve VMPA1
[2] Solenoid valve VMPA14
[3] Solenoid valve VMPA2
[4] Manual override
[5] Supply module
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[10] Earthing screw
[11] Multi-pin plug connection

Type	L1[1)]	L2[1)]	L3[1)]	L4[1)]	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
MPA-L	89.1 + L2 + L3 + L4	m x 10.7	n x 14.9	o x 21.2	43	21.2	24.9	10.7	14.9	21.2	8.5	6.8	6.5	5.6	1.5	1

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10
MPA-L	175.1	147.8	107.3	66.3	65	33.5	23.5	18.9	7.5	7.5

Type	D1	D2	H1	H2	H3	H4	H5	H6	H7	H8
MPA-L	6.6	4.4	138.7	92.6	65.7	36.4	28.5	7.9	8.5	10.9

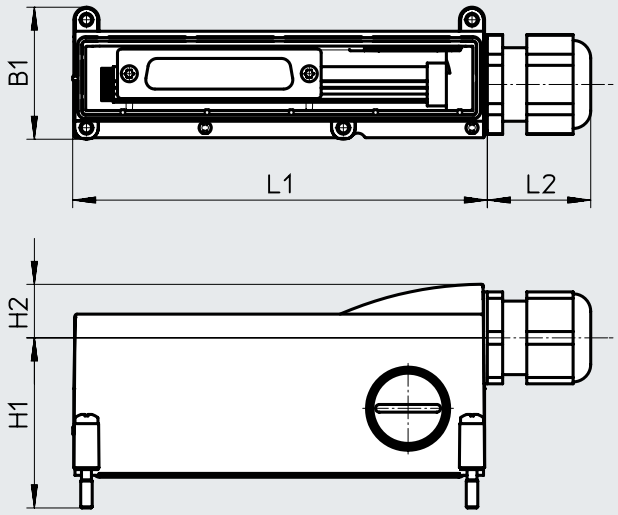
1) m, n, o = number of sub-bases/valve positions (m = width 10 mm, n = width 14 mm, o = width 20 mm)

Data sheet

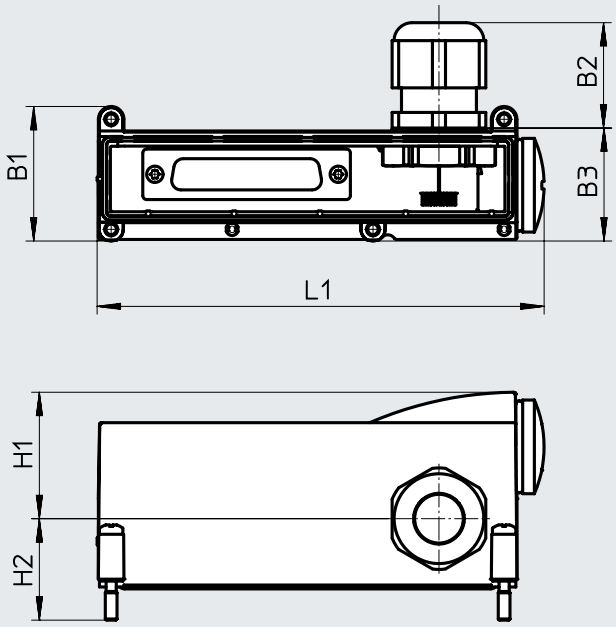
Dimensions – Hood for multi-pin plug connection

Download CAD data ➔ www.festo.com

Cable outlet to front



Cable outlet to side

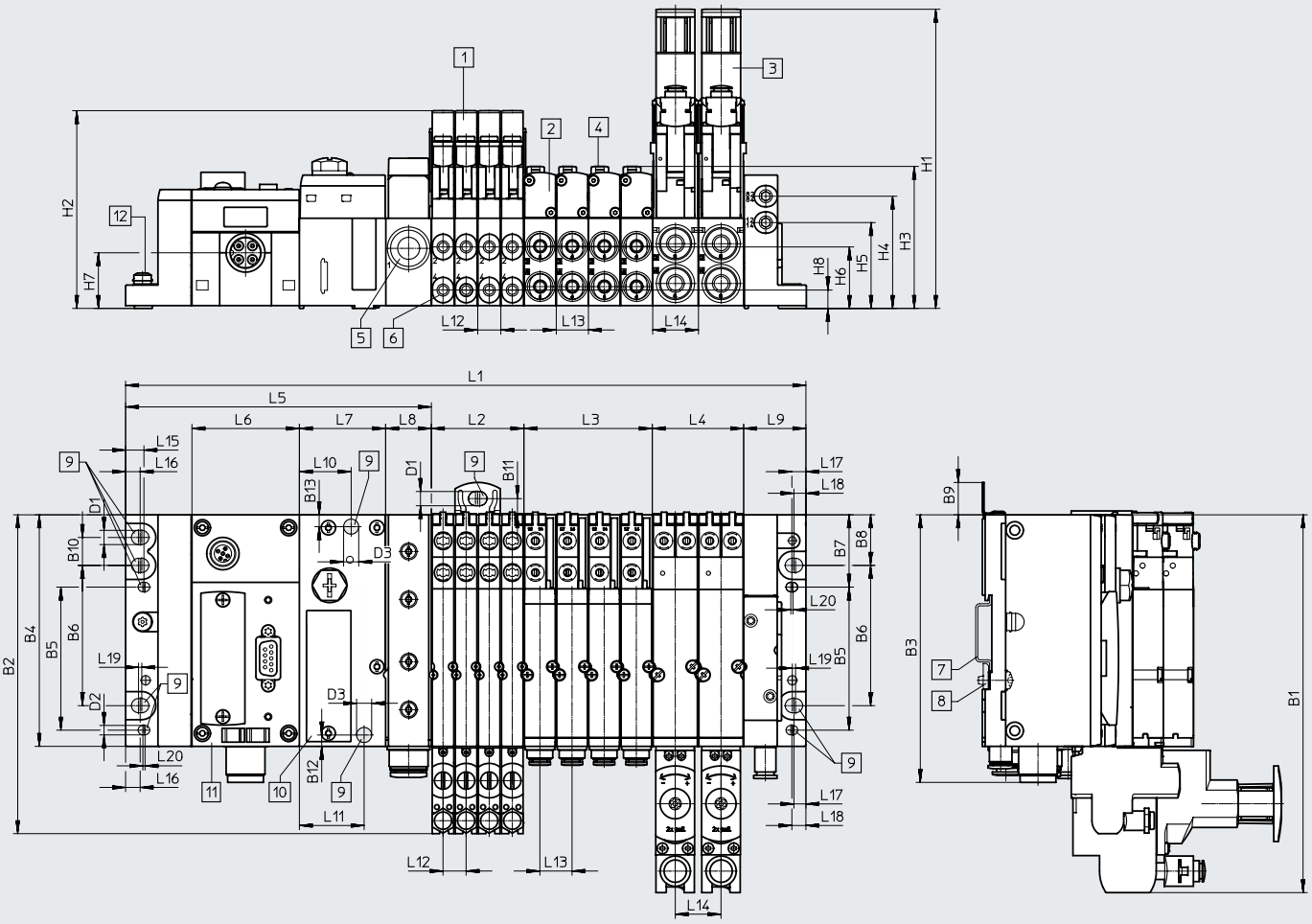


Type	L1	L2	H1	H2	B1	B2	B3
Cable outlet to front	108.3	27	44.4	14	34.5	–	–
Cable outlet to side	114.5	–	32.4	26	34.5	27	29

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Valve terminal with fieldbus interface



[1] Solenoid valve VMPA1
[2] Solenoid valve VMPA14
[3] Solenoid valve VMPA2
[4] Manual override
[5] Supply module
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[10] Pneumatic interface, CPX terminal
[11] CPX module
[12] Earthing screw

Type	L1[1]	L2[1]	L3[1]	L4[1]	L5	L6	L7	L8	L9
MPA-L	170.65 + L2 + L3 + L4	m x 10.7	n x 14.9	o x 21.2	142	50	40.1	21.2	28.8

Type	L10	L11	L12	L13	L14	L15	L16	L17	L18	L19	L20
MPA-L	24	30	10.7	14.9	21.2	8.5	6.75	5.55	6.5	1.5	1

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	B13
MPA-L	175.1	147.8	124	107.3	66.3	65	33.5	23.45	15	12.95	7.5	5.25	5.5

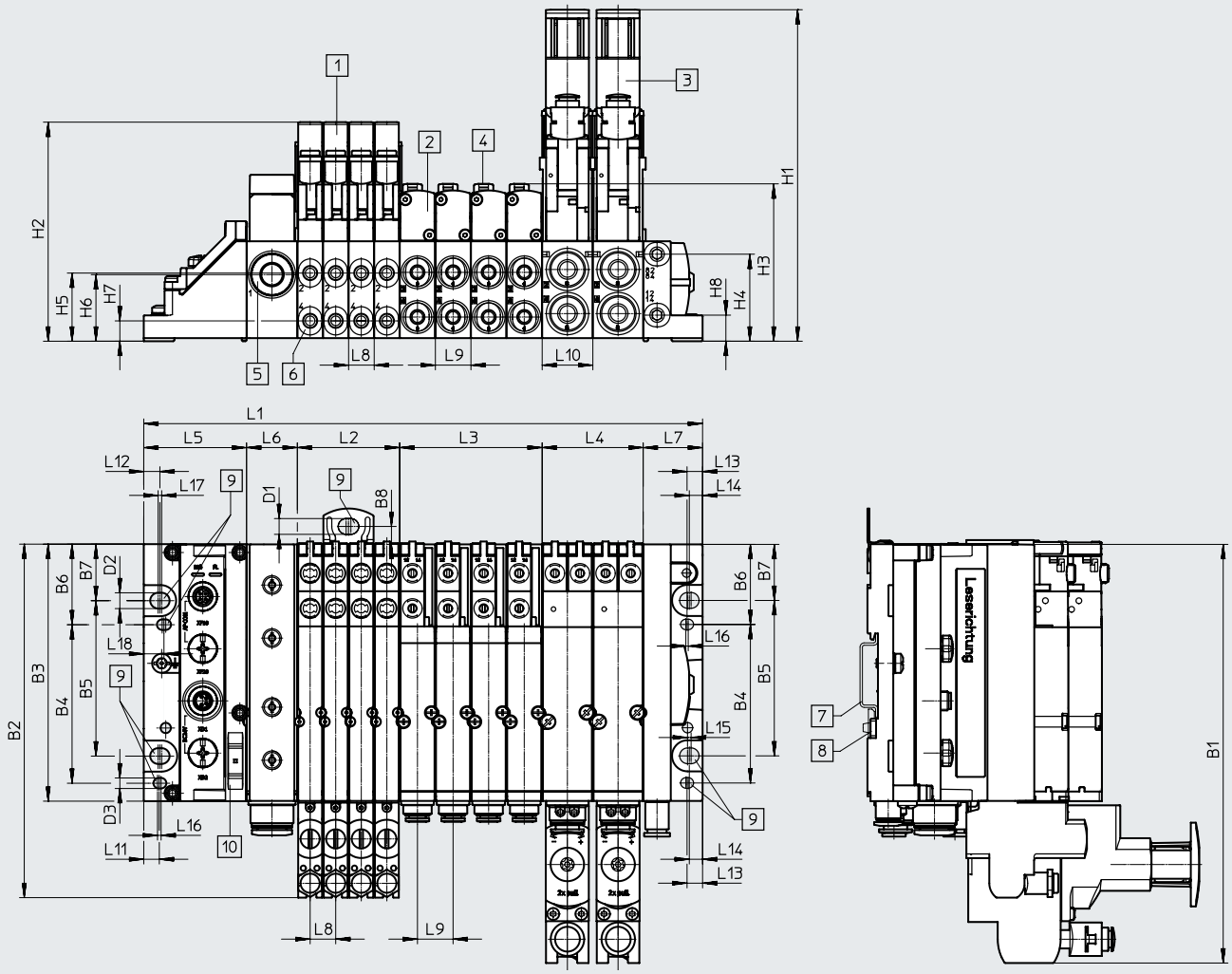
Type	D1	D2	D3	H1	H2	H3	H4	H5	H6	H7	H8
MPA-L	6.6	4.4	7	138.7	92.6	65.7	52	39.8	28.5	25.8	8.5

1) m, n, o = number of sub-bases/valve positions (m = width 10 mm, n = width 14 mm, o = width 20 mm)

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Valve terminal with interface to automation system CPX-AP-I



[1] Solenoid valve VMPA1
[2] Solenoid valve VMPA14
[3] Solenoid valve VMPA2
[4] Manual override
[5] Supply module
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[10] Left-hand end plate with CPX-AP-I interface

Type	B1	B2	B3	B4	B5	B6	B7	B8	D1	D2	D3	H1	H2	H3	H4	H5	H6	H7	H8
MPA-L	175	147.8	107.3	66.3	65	33.7	23.7	18.9	6.6	6.6	4.4	138.7	92.6	65.7	36.4	28.5	27.9	8.5	10.9

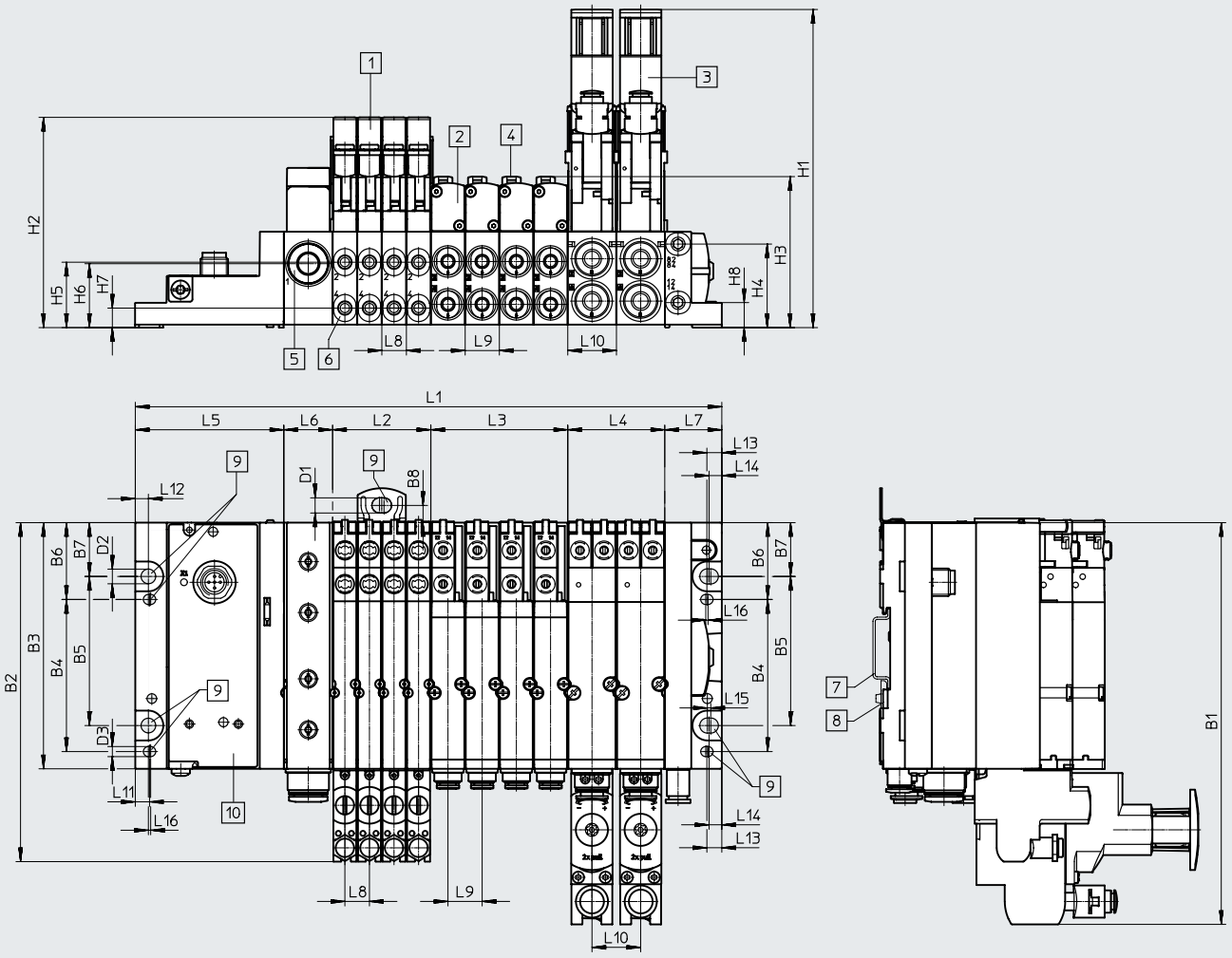
Type	L1[1)]	L2[1)]	L3[1)]	L4[1)]	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17	L18
MPA-L	89.1 + L2 + L3 + L4	m x 10.7	n x 14.9	o x 21.2	43	21.2	24.9	10.7	14.9	21.2	6.5	6.8	6.5	5.6	1.5	1.5	1.5	8.5

1) m, n, o = number of sub-bases/valve positions (m = width 10 mm, n = width 14 mm, o = width 20 mm)

Data sheet

Dimensions Download CAD data ➔ www.festo.com

Valve terminal with I-Port interface/IO-Link



[1] Solenoid valve VMPA1
[2] Solenoid valve VMPA14
[3] Solenoid valve VMPA2
[4] Manual override
[5] Supply module
[6] Working ports
[7] H-rail
[8] H-rail mounting
[9] Mounting holes
[10] Left-hand end plate with I-Port interface/IO-Link

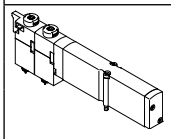
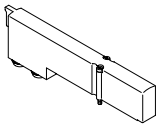
Type	B1	B2	B3	B4	B5	B6	B7	B8	D1	D2	D3	H1	H2	H3	H4	H5	H6	H7	H8
MPA-L	175.1	147.8	107.3	66.3	65	33.5	23.5	18.9	6.6	6.4	4.5	138.7	92.6	65.7	36.4	28.5	27.9	8.5	10.9

Type	L1[1)]	L2[1)]	L3[1)]	L4[1)]	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
MPA-L	110.9 + L2 + L3 + L4	m x 10.7	n x 14.9	o x 21.2	64.8	21.2	24.9	10.7	14.9	21.2	6.2	5.7	6.5	5.6	1.5	1

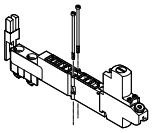
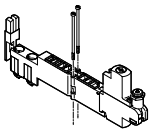
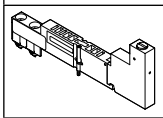
1) m, n, o = number of sub-bases/valve positions (m = width 10 mm, n = width 14 mm, o = width 20 mm)

Accessories

Ordering data

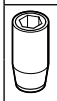
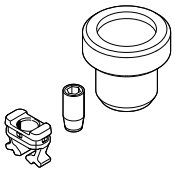
	Code	Valve function	Part no.	Type
Individual solenoid valve – Width 10 mm				
	**5/2-way valve**			
	Position function 1-32: M	Single solenoid	**533342**	**VMPA1-M1H-M-PI**
	Position function 1-32: MS	Single solenoid, mechanical spring return	**571334**	**VMPA1-M1H-MS-PI**
	Position function 1-32: MU	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 – Installation width 10 mm				
	Position function 1-32: L	Cover plate for a valve position in width 10 mm A self-adhesive label is supplied.	**533351**	**VMPA1-RP**

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 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, internal pilot air supply			**567805**	**VMPA1-HS**
	Pressure gauge 1-32: VE	Screw-in pressure gauge with thread M5 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 thread M5 for pressure regulator plate			**153291**	**QSK-M5-4**

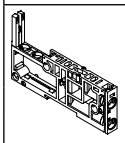
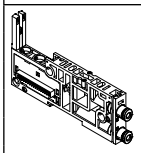
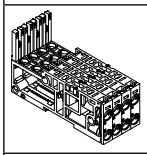
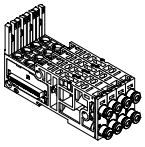
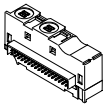
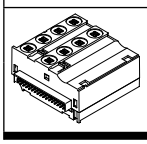
Accessories

Ordering data

	Code	Description		Part no.	Type
Fixed flow restrictor – Width 10 mm					
	Pneumatic connection 3, 1-40: V03	Hollow bolt, for restricting the exhaust air	3.5 ... 5.5 l/min	**572544**	**VMPA1-FT-NW0.3-10**
	Pneumatic connection 5, 1-40: Q03				
	Pneumatic connection 3, 1-40: V05		9 ... 12 l/min	**572545**	**VMPA1-FT-NW0.5-10**
	Pneumatic connection 5, 1-40: Q05				
	Pneumatic connection 3, 1-40: V07		18 ... 22 l/min	**572546**	**VMPA1-FT-NW0.7-10**
	Pneumatic connection 5, 1-40: Q07				
	Pneumatic connection 3, 1-40: V10		36 ... 41 l/min	**572547**	**VMPA1-FT-NW1.0-10**
	Pneumatic connection 5, 1-40: Q10				
	Pneumatic connection 3, 1-40: V12		52 ... 58 l/min	**572548**	**VMPA1-FT-NW1.2-10**
	Pneumatic connection 5, 1-40: Q12				
	Pneumatic connection 3, 1-40: V15		81 ... 89 l/min	**572549**	**VMPA1-FT-NW1.5-10**
	Pneumatic connection 5, 1-40: Q15				
	Pneumatic connection 3, 1-40: V17		105 ... 115 l/min	**572550**	**VMPA1-FT-NW1.7-10**
	Pneumatic connection 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**
Retainer for fixed flow restrictor – Width 10 mm					
	–	Retainer for exhaust opening in the sub-base		**572542**	**VMPA1-FTI-10**

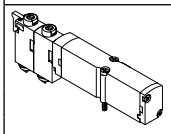
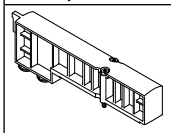
Accessories

Ordering data

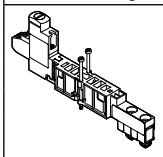
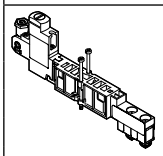
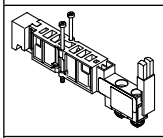
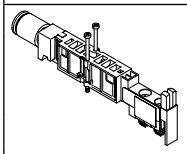
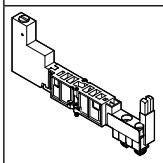
	Code	Description			Part no.	Type
Sub-base – Width 10 mm						
	Duct separation to the right of sub-base 1-40: –	Individual, without electrical manifold module, without cartridge	No duct separation	–	**554311**	**VMPAL-AP-10**
				With check valve	**8035230**	**VMPAL-AP-10-RV**
	Duct separation to the right of sub-base 1-40: T		Duct 1 separated	–	**554312**	**VMPAL-AP-10-T1**
				With check valve	**8035231**	**VMPAL-AP-10-T1-RV**
	Duct separation to the right of sub-base 1-40: TR		Duct 3, 5 separated	–	**554313**	**VMPAL-AP-10-T35**
				With check valve	**8035232**	**VMPAL-AP-10-T35-RV**
	Duct separation to the right of sub-base 1-40: TS		Duct 1 and 3, 5 separated	–	**554315**	**VMPAL-AP-10-T135**
				With check valve	**8035233**	**VMPAL-AP-10-T135-RV**
	–	Individual, with electrical manifold module, single solenoid (for 1 solenoid coil), with cartridge	No duct separation, tubing O.D.	4 mm	**560994**	**VMPAL-AP-10-QS4-1**
				6 mm	**560987**	**VMPAL-AP-10-QS6-1**
				5/32"	**561005**	**VMPAL-AP-10-QS5/32"-1**
				1/4"	**560999**	**VMPAL-AP-10-QS1/4"-1**
			Duct 1 separated, tubing O.D.	4 mm	**561017**	**VMPAL-AP-10-QS4-1-T1**
				6 mm	**561011**	**VMPAL-AP-10-QS6-1-T1**
				5/32"	**561029**	**VMPAL-AP-10-QS5/32"-1-T1**
				1/4"	**561023**	**VMPAL-AP-10-QS1/4"-1-T1**
		Individual, with electrical manifold module, double solenoid (for 2 solenoid coils), with cartridge	No duct separation, tubing O.D.	4 mm	**560988**	**VMPAL-AP-10-QS4-2**
				6 mm	**560993**	**VMPAL-AP-10-QS6-2**
				5/32"	**561006**	**VMPAL-AP-10-QS5/32"-2**
				1/4"	**561000**	**VMPAL-AP-10-QS1/4"-2**
			Duct 1 separated, tubing O.D.	4 mm	**561018**	**VMPAL-AP-10-QS4-2-T1**
				6 mm	**561012**	**VMPAL-AP-10-QS6-2-T1**
				5/32"	**561030**	**VMPAL-AP-10-QS5/32"-2-T1**
				1/4"	**561024**	**VMPAL-AP-10-QS1/4"-2-T1**
Combination of four sub-bases – Width 10 mm						
	Combination manifold block: Z	Without electrical manifold module, without cartridge	–	–	**560981**	**VMPAL-AP-4X10**
	–	With electrical manifold module, single solenoid (for 1 solenoid coil), with cartridge	No duct separation, tubing O.D.	4 mm	**561089**	**VMPAL-AP-4X10-QS4-1**
				6 mm	**561083**	**VMPAL-AP-4X10-QS6-1**
				5/32"	**561101**	**VMPAL-AP-4X10-QS5/32"-1**
				1/4"	**561095**	**VMPAL-AP-4X10-QS1/4"-1**
		With electrical manifold module, double solenoid (for 2 solenoid coils), with cartridge	No duct separation, tubing O.D.	4 mm	**561090**	**VMPAL-AP-4X10-QS4-2**
				6 mm	**561084**	**VMPAL-AP-4X10-QS6-2**
				5/32"	**561102**	**VMPAL-AP-4X10-QS5/32"-2**
				1/4"	**561096**	**VMPAL-AP-4X10-QS1/4"-2**
Electrical manifold module – Width 10 mm						
	Type of module block 1-40: C	For one sub-base (1 valve position)	Grey – single solenoid (1 solenoid coil)		**560961**	**VMPAL-EVAP-10-1**
	Type of module block 1-40: A		Black – double solenoid (2 solenoid coils)		**560962**	**VMPAL-EVAP-10-2**
	Type of module block 1-40: C	For combination of four sub-bases (4 valve positions)	Grey – single solenoid (4 solenoid coils)		**560967**	**VMPAL-EVAP-10-1-4**
	Type of module block 1-40: A		Black – double solenoid (8 solenoid coils)		**560968**	**VMPAL-EVAP-10-2-4**

Accessories

Ordering data

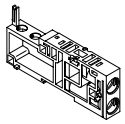
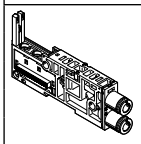
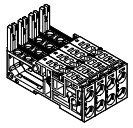
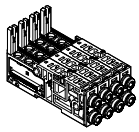
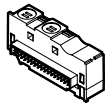
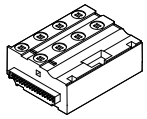
	Code	Valve function	Part no.	Type
Individual solenoid valve – Width 14 mm				
	**5/2-way valve**			
	Position function 1-32: M	Single solenoid	**573718**	**VMPA14-M1H-M-PI**
	Position function 1-32: MS	Single solenoid	**573974**	**VMPA14-M1H-MS-PI**
	Position function 1-32: J	Double solenoid	**573717**	**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, 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, 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, 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, mechanical spring return	**575978**	**VMPA14-M1H-DS-PI**
	Position function 1-32: I	1x normally closed, 1x normally closed, 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 A self-adhesive label is supplied.	**573729**	**VMPA14-RP**

Accessories

Ordering data	Code	Description			Part no.	Type
Vertical stacking modules – Width 14 mm						
	Pressure regulator 1-32: PF	Optional pressure gauge	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 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, internal pilot air supply			**8110429**	**VMPA14-HS**
	Pressure gauge 1-32: VE	Screw-in pressure gauge with thread M5 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 thread M5 for pressure regulator plate			**153291**	**QSK-M5-4**
Check valve – Width 14 mm						
	–	Check valve for installation in duct 3 or 5 (scope of delivery: 10 check valves, one assembly tool)			**8039820**	**VMPA14RV**

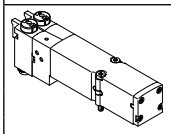
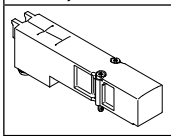
Accessories

Ordering data

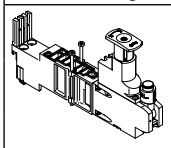
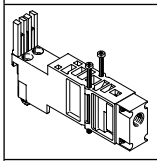
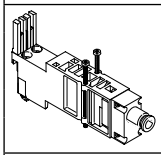
	Code	Valve function			Part no.	Type
Sub-base – Width 14 mm						
	Duct separation to the right of sub-base 1-40: –	Individual, without electrical manifold module, without cartridge	No duct separation	–	**560973**	**VMPAL-AP-14**
				With check valve	**8034557**	**VMPAL-AP-14-RV**
	Duct separation to the right of sub-base 1-40: T		Duct 1 separated	–	**560975**	**VMPAL-AP-14-T1**
				With check valve	**8034558**	**VMPAL-AP-14-T1-RV**
	Duct separation to the right of sub-base 1-40: TR		Duct 3, 5 separated	–	**560977**	**VMPAL-AP-14-T35**
				With check valve	**8034559**	**VMPAL-AP-14-T35-RV**
	Duct separation to the right of sub-base 1-40: TS		Duct 1 and 3, 5 separated	–	**560979**	**VMPAL-AP-14-T135**
				With check valve	**8034560**	**VMPAL-AP-14-T135-RV**
	–	Individual, with electrical manifold module, single solenoid (for 1 solenoid coil), with cartridge	No duct separation, tubing O.D.	6 mm	**560995**	**VMPAL-AP-14-QS6-1**
				8 mm	**560989**	**VMPAL-AP-14-QS8-1**
				1/4"	**561007**	**VMPAL-AP-14-QS1/4"-1**
				5/16"	**561001**	**VMPAL-AP-14-QS5/16"-1**
			Duct 1 separated, tubing O.D.	6 mm	**561019**	**VMPAL-AP-14-QS6-1-T1**
				8 mm	**561013**	**VMPAL-AP-14-QS8-1-T1**
				1/4"	**561031**	**VMPAL-AP-14-QS1/4"-1-T1**
				5/16"	**561025**	**VMPAL-AP-14-QS5/16"-1-T1**
		Individual, with electrical manifold module, double solenoid (for 2 solenoid coils), with cartridge	No duct separation, tubing O.D.	6 mm	**560996**	**VMPAL-AP-14-QS6-2**
				8 mm	**560990**	**VMPAL-AP-14-QS8-2**
				1/4"	**561008**	**VMPAL-AP-14-QS1/4"-2**
				5/16"	**561002**	**VMPAL-AP-14-QS5/16"-2**
			Duct 1 separated, tubing O.D.	6 mm	**561020**	**VMPAL-AP-14-QS6-2-T1**
				8 mm	**561014**	**VMPAL-AP-14-QS8-2-T1**
				1/4"	**561032**	**VMPAL-AP-14-QS1/4"-2-T1**
				5/16"	**561026**	**VMPAL-AP-14-QS5/16"-2-T1**
Combination of four sub-bases – Width 14 mm						
	Combination manifold block: Z	Without electrical manifold module, without cartridge	–	–	**560983**	**VMPAL-AP-4X14**
	–	With electrical manifold module, single solenoid (for 1 solenoid coil), with cartridge	No duct separation, tubing O.D.	6 mm	**561091**	**VMPAL-AP-4X14-QS6-1**
				8 mm	**561085**	**VMPAL-AP-4X14-QS8-1**
				1/4"	**561103**	**VMPAL-AP-4X14-QS1/4"-1**
				5/16"	**561097**	**VMPAL-AP-4X14-QS5/16"-1**
		With electrical manifold module, double solenoid (for 2 solenoid coils), with cartridge	No duct separation, tubing O.D.	6 mm	**561092**	**VMPAL-AP-4X14-QS6-2**
				8 mm	**561086**	**VMPAL-AP-4X14-QS8-2**
				1/4"	**561104**	**VMPAL-AP-4X14-QS1/4"-2**
				5/16"	**561098**	**VMPAL-AP-4X14-QS5/16"-2**
Electrical manifold module – Width 14 mm						
	Type of module block 1-40: F	For one sub-base (1 valve position)	Grey – single solenoid (1 solenoid coil)		**560963**	**VMPAL-EVAP-14-1**
	Type of module block 1-40: E		Black – double solenoid (2 solenoid coils)		**560964**	**VMPAL-EVAP-14-2**
	Type of module block 1-40: F	For combination of four sub-bases (4 valve positions)	Grey – single solenoid (4 solenoid coils)		**560969**	**VMPAL-EVAP-14-1-4**
	Type of module block 1-40: E		Black – double solenoid (8 solenoid coils)		**560970**	**VMPAL-EVAP-14-2-4**

Accessories

Ordering data

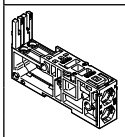
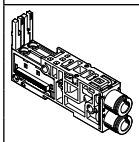
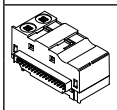
	Code	Valve function	Part no.	Type
Individual solenoid valve – Width 20 mm				
	**5/2-way valve**			
	Position function 1-32: M	Single solenoid	**8022034**	**VMPA2-M1BH-M-PI**
	Position function 1-32: MS	Single solenoid, mechanical spring return	**571333**	**VMPA2-M1H-MS-PI**
	Position function 1-32: J	Double solenoid	**8022035**	**VMPA2-M1BH-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, 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, 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, mechanical spring return	**568658**	**VMPA2-M1H-HS-PI**
	5/3-way valve			
	Position function 1-32: B	Mid-position pressurised	**8022036**	**VMPA2-M1BH-B-PI**
	Position function 1-32: G	Mid-position closed	**8022037**	**VMPA2-M1BH-G-PI**
	Position function 1-32: E	Mid-position exhausted	**8022038**	**VMPA2-M1BH-E-PI**
	1x 3/2-way valve			
	Position function 1-32: W	Normally open, external compressed air supply	**8022040**	**VMPA2-M1BH-W-PI**
	Position function 1-32: X	Normally closed, external compressed air supply	**8022039**	**VMPA2-M1BH-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, mechanical spring return	**568657**	**VMPA2-M1H-DS-PI**
	Position function 1-32: I	1x normally closed, 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 A self-adhesive label is supplied.	**537962**	**VMPA2-RP**

Accessories

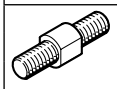
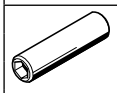
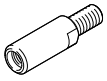
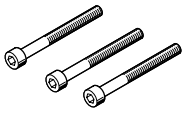
Ordering data						
	Code	Valve function			Part no.	Type
Vertical stacking modules – Width 20 mm						
	Pressure regulator 1-32: PA	Pressure regulator plate (with 10 mm cartridge connection for pressure gauge)	For port 1	0.5 ... 8.5 bar	**543342**	**VMPA2-B8-R1C2-C-10**
	Pressure regulator 1-32: PF			0.5 ... 6 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 ... 6 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 ... 6 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**	**VMPA2RV**

Accessories

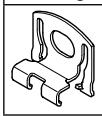
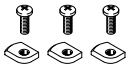
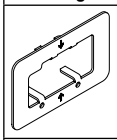
Ordering data

	Code	Description			Part no.	Type
Sub-base – Width 20 mm						
	Duct separation to the right of sub-base 1-40: –	Individual, without electrical manifold module, without cartridge	No duct separation	–	**560974**	**VMPAL-AP-20**
				With check valve	**8034561**	**VMPAL-AP-20-RV**
	Duct separation to the right of sub-base 1-40: T		Duct 1 separated	–	**560976**	**VMPAL-AP-20-T1**
				With check valve	**8034562**	**VMPAL-AP-20-T1-RV**
	Duct separation to the right of sub-base 1-40: TR		Duct 3, 5 separated	–	**560978**	**VMPAL-AP-20-T35**
				With check valve	**8034563**	**VMPAL-AP-20-T35-RV**
	Duct separation to the right of sub-base 1-40: TS		Duct 1 and 3, 5 separated	–	**560980**	**VMPAL-AP-20-T135**
				With check valve	**8034564**	**VMPAL-AP-20-T135-RV**
	–	Individual, with electrical manifold module, single solenoid (for 1 solenoid coil), with cartridge	No duct separation, tubing O.D.	8 mm	**560997**	**VMPAL-AP-20-QS8-1**
				10 mm	**560991**	**VMPAL-AP-20-QS10-1**
				5/16"	**561009**	**VMPAL-AP-20-QS5/16"-1**
				3/8"	**561003**	**VMPAL-AP-20-QS3/8"-1**
			Duct 1 separated, tubing O.D.	8 mm	**561021**	**VMPAL-AP-20-QS8-1-T1**
				10 mm	**561015**	**VMPAL-AP-20-QS10-1-T1**
				5/16"	**561033**	**VMPAL-AP-20-QS5/16"-1-T1**
				3/8"	**561027**	**VMPAL-AP-20-QS3/8"-1-T1**
		Individual, with electrical manifold module, double solenoid (for 2 solenoid coils), with cartridge	No duct separation, tubing O.D.	8 mm	**560998**	**VMPAL-AP-20-QS8-2**
				10 mm	**560992**	**VMPAL-AP-20-QS10-2**
				5/16"	**561010**	**VMPAL-AP-20-QS5/16"-2**
				3/8"	**561004**	**VMPAL-AP-20-QS3/8"-2**
			Duct 1 separated, tubing O.D.	8 mm	**561022**	**VMPAL-AP-20-QS8-2-T1**
				10 mm	**561016**	**VMPAL-AP-20-QS10-2-T1**
				5/16"	**561034**	**VMPAL-AP-20-QS5/16"-2-T1**
				3/8"	**561028**	**VMPAL-AP-20-QS3/8"-2-T1**
Electrical manifold module – Width 20 mm						
	Type of module block 1-40: D	For one sub-base (1 valve position)	Grey – single solenoid (1 solenoid coil)		**560965**	**VMPAL-EVAP-20-1**
	Type of module block 1-40: B		Black – double solenoid (2 solenoid coils)		**560966**	**VMPAL-EVAP-20-2**

Accessories

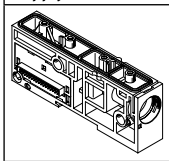
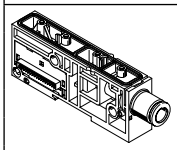
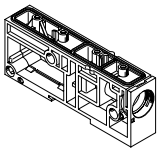
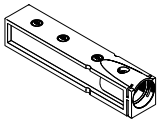
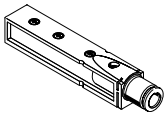
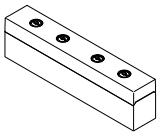
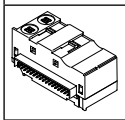
Ordering data	Code	Description		Pack size	Part no.	Type
Tie rod						
	Tie rod: –	Threaded rod for tie rod, width across flats 5 mm The threaded rod/sleeve combination is selected based on the number and width of the individual sub-bases.	5 mm	3	**561116**	**VMPAL-ZAS-5**
			45 mm	3	**561117**	**VMPAL-ZAS-45**
			85 mm	3	**561118**	**VMPAL-ZAS-85**
			125 mm	3	**561119**	**VMPAL-ZAS-125**
			165 mm	3	**561120**	**VMPAL-ZAS-165**
			205 mm	3	**561121**	**VMPAL-ZAS-205**
			245 mm	3	**561122**	**VMPAL-ZAS-245**
			285 mm	3	**561123**	**VMPAL-ZAS-285**
			325 mm	3	**561124**	**VMPAL-ZAS-325**
			365 mm	3	**561125**	**VMPAL-ZAS-365**
			405 mm	3	**561126**	**VMPAL-ZAS-405**
			445 mm	3	**561127**	**VMPAL-ZAS-445**
			485 mm	3	**561128**	**VMPAL-ZAS-485**
			525 mm	3	**561129**	**VMPAL-ZAS-525**
			565 mm	3	**561130**	**VMPAL-ZAS-565**
			605 mm	3	**561131**	**VMPAL-ZAS-605**
			645 mm	3	**561132**	**VMPAL-ZAS-645**
			685 mm	3	**561133**	**VMPAL-ZAS-685**
			725 mm	3	**561134**	**VMPAL-ZAS-725**
			765 mm	3	**561175**	**VMPAL-ZAS-765**
			805 mm	3	**561176**	**VMPAL-ZAS-805**
	–	Sleeve, internal hexagon 4 mm	36 mm	3	**561135**	**VMPAL-ZAH-36**
			46 mm	3	**561136**	**VMPAL-ZAH-46**
			56 mm	3	**561137**	**VMPAL-ZAH-56**
			66 mm	3	**561138**	**VMPAL-ZAH-66**
	–	Tie rod extender for subsequently extending the valve terminal with one sub-base in width	10 mm	3	**561139**	**VMPAL-ZAE-10**
			14 mm	3	**561140**	**VMPAL-ZAE-14**
			20 mm	3	**561141**	**VMPAL-ZAE-20**
		Tie rod extender for subsequently extending the valve terminal with a supply module	20 mm	3	**561141**	**VMPAL-ZAE-20**
		Tie rod extender for subsequently extending the valve terminal with four sub-bases in width	10 mm	3	**570779**	**VMPAL-ZAE-10-4**
			14 mm	3	**570780**	**VMPAL-ZAE-14-4**
	–	M4 screw with internal hexagon 2.5 mm, for tie rod	30 mm	3	**571924**	**VMPAL-M4X30**
Screw						
	–	M3 screw and square nut for linking four sub-bases	39 mm	10	**561142**	**VMPAL-MS-4x10**

Accessories

Ordering data	Code	Description		Pack size	Part no.	Type
Mounting						
	–	Mounting bracket Wall brackets should be mounted max. every 13 cm on the valve terminal.		–	**560949**	**VMPAL-BD**
H-rail mounting						
	Mounting accessories: H	MPA-L with multi-pin plug connection		–	**526032**	**CPX-CPA-BG-NRH**
	Mounting accessories: H	MPA-L with fieldbus interface		–	**560798**	**VMPAF-FB-BG-NRH**
Releasing tool						
	–	For releasing the electrical manifold module from the sub-base		–	**572017**	**VMPAL-LW**
Cover cap						
	Manual override: N	Cover cap for manual override, non-detenting		–	**540897**	**VMPA-HBT-B**
	Manual override: V	Cover cap for manual override, concealed		–	**540898**	**VMPA-HBV-B**
	Manual override: Y	Cover cap for manual override, detenting without accessories		–	**8002234**	**VAMC-L1-CD**
	–	Identification holder for an inscription label and covering for the manual override		–	**570818**	**ASLR-D-L1**
Inscription label holders/inscription labels						
	Inscription label holder for sub-bases: TM	Holder for inscription label IBS-6x10	Width 10 mm	10	**561109**	**VMPAL-ST-AP-10**
			Width 14 mm	10	**561112**	**VMPAL-ST-AP-14**
			Width 20 mm	10	**561115**	**VMPAL-ST-AP-20**
	–	Inscription label, 6x10 mm		–	**18576**	**IBS-6X10**

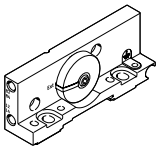
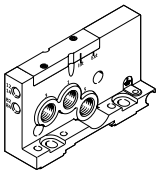
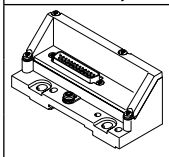
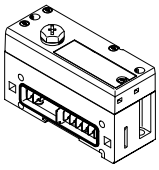
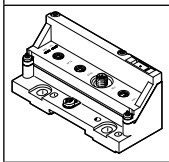
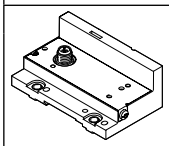
Accessories

Ordering data

	Code	Description		Part no.	Type
Supply module					
	Type of module block 1-40: U	With electrical manifold module, without cartridge		**560950**	**VMPAL-SP-0**
	Type of module block 1-40: U	With electrical manifold module, with cartridge for tubing O.D.	8 mm	**573645**	**VMPAL-SP-QS8**
			10 mm	**560951**	**VMPAL-SP-QS10**
			12 mm	**560952**	**VMPAL-SP-QS12**
			5/16"	**573646**	**VMPAL-SP-QS5/16"**
			3/8"	**560953**	**VMPAL-SP-QS3/8"**
			1/2"	**560954**	**VMPAL-SP-QS1/2"**
	Type of module block 1-40: U	Without electrical manifold module, without cartridge		**570774**	**VMPAL-SP**
Plate					
	Exhaust port: UD, UE, UF, UM, UN, UP or UG	Exhaust plate for ducted exhaust air, without cartridge		**560956**	**VMPAL-EG**
	Exhaust port: UE	Exhaust plate for ducted exhaust air, with cartridge for tubing O.D. 10 mm		**560957**	**VMPAL-EG-QS10**
	Exhaust port: UN	Exhaust plate for ducted exhaust air, with cartridge for tubing O.D. 3/8"		**560959**	**VMPAL-EG-QS3/8"**
	Exhaust port: –	Flat plate silencer		**560955**	**VMPAL-EU**
Electrical manifold module					
	Type of module block 1-40: U	Black For supply module (signals are passed through)		**571011**	**VMPAL-EVAP-20-SP**

Accessories

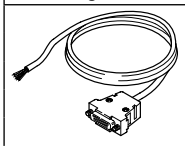
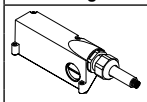
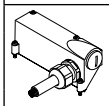
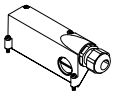
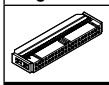
Ordering data

	Code	Description		Part no.	Type
Right-hand end plate					
	Right-hand end plate: –	Low, with ports 12/14, 82/84, with pilot air selector for choosing the pilot air supply (internal or external)		**560945**	**VMPAL-EPR**
	Right-hand end plate: D	High, with ports 1, 3, 5, 12/14, 82/84, with pilot air selector for choosing the pilot air supply (internal or external), reversible operation possible		**560947**	**VMPAL-EPR-SP**
Left-hand end plate					
	Electrical connection: MS2	Electrical interface for multi-pin plug connection, IP40	Sub-D, 9-pin, 8 addresses	**570777**	**VMPAL-EPL-SD9-IP40**
	Electrical connection: MS1		Sub-D, 25-pin, 24 addresses	**560940**	**VMPAL-EPL-SD25-IP40**
	Electrical connection: MS3		Sub-D, 44-pin, 32 addresses	**560941**	**VMPAL-EPL-SD44-IP40**
	Electrical connection: MF1		Ribbon cable, 40-pin, 32 addresses	**560942**	**VMPAL-EPL-FL40-IP40**
	Electrical connection: MC		Terminal strip, 33-pin, 32 addresses	**560943**	**VMPAL-EPL-KL33-IP40**
	Electrical connection: MS6	Electrical interface for multi-pin plug connection, IP67	Sub-D, 25-pin, 24 addresses	**560938**	**VMPAL-EPL-SD25**
	Electrical connection: MS8		Sub-D, 44-pin, 32 addresses	**560939**	**VMPAL-EPL-SD44**
	Electrical connection: CX	Pneumatic interface for CPX terminal	32 addresses	**570783**	**VMPAL-EPL-CPX**
	Electrical connection: API	Pneumatic interface for automation system CPX-AP-I	32 addresses	**8087171**	**VMPAL-EPL-AP**
	Electrical connection: LK	Node with IO-Link	32 addresses	**575667**	**VMPAL-EPL-IPO32**
	Electrical connection: PT	Node with I-Port interface			

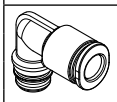
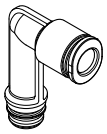
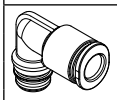
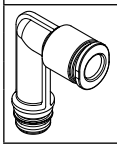
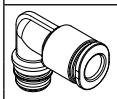
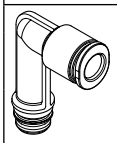
1) A self-adhesive label is supplied.

Accessories

Ordering data

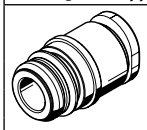
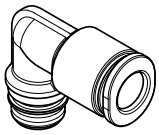
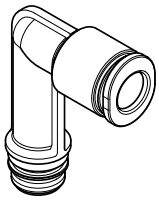
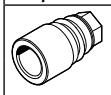
	Code	Description			Part no.	Type
Connecting cable for multi-pin plug connection with Sub-D plug socket, degree of protection IP40						
	Connecting cable: DA	Socket 9-pin, Sub-D, open cable end 9-pin		2.5 m	**531184**	**KMP6-09P-8-2.5**
	Connecting cable: DB			5 m	**531185**	**KMP6-09P-8-5**
	Connecting cable: DC			10 m	**531186**	**KMP6-09P-8-10**
	–	Socket 25-pin, Sub-D, open cable end 15-pin		2.5 m	**530049**	**KMP6-25P-12-2.5**
	–			5 m	**530050**	**KMP6-25P-12-5**
	–			10 m	**530051**	**KMP6-25P-12-10**
	Connecting cable: DD	Socket 25-pin, Sub-D, open cable end 25-pin		2.5 m	**530046**	**KMP6-25P-20-2.5**
	Connecting cable: DK			5 m	**530047**	**KMP6-25P-20-5**
	Connecting cable: DF			10 m	**530048**	**KMP6-25P-20-10**
	Connecting cable: DG	Socket 44-pin, Sub-D, open cable end 44-pin		2.5 m	**575113**	**NEBV-S1G44-K-2.5-N-LE44-S6**
	Connecting cable: DH			5 m	**575114**	**NEBV-S1G44-K-5-N-LE44-S6**
	Connecting cable: DJ			10 m	**575115**	**NEBV-S1G44-K-10-N-LE44-S6**
Connecting cable for multi-pin plug connection with Sub-D plug socket, degree of protection IP67						
	Connecting cable: CA	Cable outlet to front (only with left-hand end plate MS6)	25-pin	2.5 m	**560416**	**VMPAL-KM-V-SD25-IP67-2.5**
	Connecting cable: CB			5 m	**560417**	**VMPAL-KM-V-SD25-IP67-5**
	Connecting cable: CC			10 m	**560418**	**VMPAL-KM-V-SD25-IP67-10**
	–			0.5 ... 30 m	**562389**	**VMPAL-KM-V-SD25-IP67-**
	Connecting cable: CQ	Cable outlet to front (only with left-hand end plate MS6) Suitable for energy chains	25-pin	2.5 m	**560410**	**VMPAL-KMSK-V-SD25-IP67-2.5**
	Connecting cable: CR			5 m	**560411**	**VMPAL-KMSK-V-SD25-IP67-5**
	Connecting cable: CS			10 m	**560412**	**VMPAL-KMSK-V-SD25-IP67-10**
	–			0.5 ... 30 m	**562391**	**VMPAL-KMSK-V-SD25-IP67-**
	Connecting cable: CJ	Cable outlet to front (only with left-hand end plate MS8)	44-pin	2.5 m	**560422**	**VMPAL-KM-V-SD44-IP67-2.5**
	Connecting cable: CK			5 m	**560423**	**VMPAL-KM-V-SD44-IP67-5**
	Connecting cable: CL			10 m	**560424**	**VMPAL-KM-V-SD44-IP67-10**
	–			0.5 ... 30 m	**562390**	**VMPAL-KM-V-SD44-IP67-**
	Connecting cable: CD	Cable outlet to side (only with left-hand end plate MS6)	25-pin	2.5 m	**560419**	**VMPAL-KM-S-SD25-IP67-2.5**
	Connecting cable: CE			5 m	**560420**	**VMPAL-KM-S-SD25-IP67-5**
	Connecting cable: CH			10 m	**560421**	**VMPAL-KM-S-SD25-IP67-10**
	–			0.5 ... 30 m	**562392**	**VMPAL-KM-S-SD25-IP67-**
	Connecting cable: CT	Cable outlet to side (only with left-hand end plate MS6) Suitable for energy chains	25-pin	2.5 m	**560413**	**VMPAL-KMSK-S-SD25-IP67-2.5**
	Connecting cable: CU			5 m	**560414**	**VMPAL-KMSK-S-SD25-IP67-5**
	Connecting cable: CV			10 m	**560415**	**VMPAL-KMSK-S-SD25-IP67-10**
	–			0.5 ... 30 m	**562394**	**VMPAL-KMSK-S-SD25-IP67-**
	Connecting cable: CM	Cable outlet to side (only with left-hand end plate MS8)	44-pin	2.5 m	**560425**	**VMPAL-KM-S-SD44-IP67-2.5**
	Connecting cable: CN			5 m	**560426**	**VMPAL-KM-S-SD44-IP67-5**
	Connecting cable: CP			10 m	**560427**	**VMPAL-KM-S-SD44-IP67-10**
	–			0.5 ... 30 m	**562393**	**VMPAL-KM-S-SD44-IP67-**
Hood for multi-pin plug connection without connecting cable with Sub-D plug socket, degree of protection IP67						
	Electrical multi-pin plug hood: EZ	Cable outlet to side or front (only with left-hand end plate MS6)	25-pin	–	**560428**	**VMPAL-KM-SD25-IP67-0**
	Electrical multi-pin plug hood: EY	Outlet either to the side or front (only with left-hand end plate MS8)	44-pin	–	**560429**	**VMPAL-KM-SD44-IP67-0**
Plug						
	–	Self-assembly plug for ribbon cable, 40-pin, for ribbon cable conductor cross section 0.08 ... 0.13 mm^2			**570895**	**NECU-FCG40-K**

Accessories

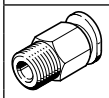
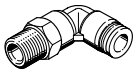
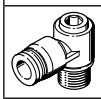
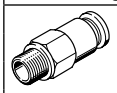
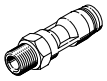
Ordering data	Code		Description		Pack size	Part no.	Type
Cartridge for sub-base in width 10 mm							
	Standard connection for valve size 10 mm:	AA	10 mm cartridge, plastic, for working ports, connection for tubing O.D.	3 mm	10	**132621**	**QSPKG10-3**
		AB		4 mm	10	**132622**	**QSPKG10-4**
		–		6 mm	10	**132623**	**QSPKG10-6**
		AJ		1/8"	10	**132852**	**QSPKG10-1/8-U**
		AQ		5/32"	10	**132624**	**QSPKG10-5/32-U**
		AL		1/4"	10	**132626**	**QSPKG10-1/4-U**
		–	10 mm cartridge, nickel-plated brass, for working ports, connection for tubing O.D.	4 mm	10	**172972**	**QSP10-4**
		–		6 mm	10	**172973**	**QSP10-6**
	–		10 mm cartridge, plastic, L-shaped, for working ports, connection for tubing O.D.	3 mm	10	**132853**	**QSPLKG10-3**
				4 mm	10	**132920**	**QSPLKG10-4**
				6 mm	10	**132921**	**QSPLKG10-6**
				1/8"	10	**132854**	**QSPLKG10-1/8-U**
				1/4"	10	**132924**	**QSPLKG10-1/4-U**
	–		10 mm cartridge, plastic, L-shaped long, for working ports, connection for tubing O.D.	3 mm	10	**132861**	**QSPLLKG10-3**
				4 mm	10	**132925**	**QSPLLKG10-4**
				6 mm	10	**132926**	**QSPLLKG10-6**
				1/8"	10	**132862**	**QSPLLKG10-1/8-U**
				1/4"	10	**132929**	**QSPLLKG10-1/4-U**
Cartridge for sub-base in width 14 mm							
	Standard connection for valve size 14 mm:	BC	14 mm cartridge, plastic, for working ports, connection for tubing O.D.	6 mm	10	**132930**	**QSPKG14-6**
		–		8 mm	10	**132931**	**QSPKG14-8**
		BL		1/4"	10	**132932**	**QSPKG14-1/4-U**
		BQ		5/16"	10	**132933**	**QSPKG14-5/16-U**
	–		14 mm cartridge, plastic, L-shaped, for working ports, connection for tubing O.D.	6 mm	10	**132938**	**QSPLKG14-6**
				8 mm	10	**132939**	**QSPLKG14-8**
				1/4"	10	**132940**	**QSPLKG14-1/4-U**
				5/16"	10	**132941**	**QSPLKG14-5/16-U**
	–		14 mm cartridge, plastic, L-shaped long, for working ports, connection for tubing O.D.	6 mm	10	**132942**	**QSPLLKG14-6**
				8 mm	10	**132943**	**QSPLLKG14-8**
				1/4"	10	**132944**	**QSPLLKG14-1/4-U**
				5/16"	10	**132945**	**QSPLLKG14-5/16-U**
Cartridge for sub-base in width 20 mm							
	Standard connection for valve size 20 mm:	CD	18 mm cartridge, plastic, for working ports, connection for tubing O.D.	8 mm	10	**132649**	**QSPKG18-8**
		–		10 mm	10	**132650**	**QSPKG18-10**
		CQ		5/16"	10	**132651**	**QSPKG18-5/16-U**
		CT		3/8"	10	**132652**	**QSPKG18-3/8-U**
	–		18 mm cartridge, plastic, L-shaped, for working ports, connection for tubing O.D.	8 mm	10	**132946**	**QSPLKG18-8**
				10 mm	10	**132947**	**QSPLKG18-10**
				5/16"	10	**132948**	**QSPLKG18-5/16-U**
				3/8"	10	**132949**	**QSPLKG18-3/8-U**
	–		18 mm cartridge, plastic, L-shaped long, for working ports, connection for tubing O.D.	8 mm	10	**132950**	**QSPLLKG18-8**
				10 mm	10	**132951**	**QSPLLKG18-10**
				5/16"	10	**132952**	**QSPLLKG18-5/16-U**
				3/8"	10	**132953**	**QSPLLKG18-3/8-U**

Accessories

Ordering data

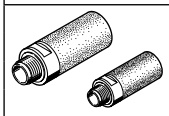
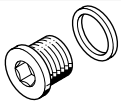
	Code	Description		Pack size	Part no.	Type
Cartridge for supply module						
	–	20 mm cartridge, plastic, for supply ports, connection for tubing O.D.	8 mm	10	**132633**	**QSPKG20-8**
			10 mm	10	**132634**	**QSPKG20-10**
			12 mm	10	**132635**	**QSPKG20-12**
			5/16"	10	**132636**	**QSPKG20-5/16-U**
			3/8"	10	**132637**	**QSPKG20-3/8-U**
			1/2"	10	**132638**	**QSPKG20-1/2-U**
	–	20 mm cartridge, plastic, L-shaped, for supply ports, connection for tubing O.D.	8 mm	10	**132855**	**QSPLKG20-8**
			10 mm	10	**132856**	**QSPLKG20-10**
			12 mm	10	**132857**	**QSPLKG20-12**
			3/8"	10	**132859**	**QSPLKG20-3/8-U**
			1/2"	10	**132860**	**QSPLKG20-1/2-U**
	–	20 mm cartridge, plastic, L-shaped long, for supply ports, connection for tubing O.D.	8 mm	10	**132863**	**QSPLLKG20-8**
			10 mm	10	**132864**	**QSPLLKG20-10**
			12 mm	10	**132865**	**QSPLLKG20-12**
Adapter for sub-bases						
	Standard connection for valve size 10 mm: AGG	Adapter for cartridge connection 10 mm to thread M7		10	**572380**	**VMPAL-F10-M7**
	Standard connection for valve size 14 mm: BGG	Adapter for cartridge connection 14 mm to thread G1/8		10	**574084**	**VMPAL-F14-G1/8**
	Standard connection for valve size 20 mm: CGG	Adapter for cartridge connection 18 mm to thread G1/4		10	**573914**	**VMPAL-F20-G1/4**
Adapter for supply module/sub-base						
	–	Adapter for cartridge connection 20 mm to thread G1/4		10	**572381**	**VMPAL-FSP-G1/4**

Accessories

Ordering data	Code	Description		Pack size	Part no.	Type
Push-in fitting						
	–	Connecting thread M7 with sealing ring, with internal hexagon, for tubing O.D.	4 mm	10	**153319**	**QSM-M7-4-I**
			6 mm	10	**153321**	**QSM-M7-6-I**
	–	Connecting thread G1/4 with sealing ring, with internal hexagon, for tubing O.D.	6 mm	10	**186108**	**QS-G1/4-6-I**
	–	Connecting thread G1/4 with sealing ring, with external hexagon, for tubing O.D.	6 mm	10	**186097**	**QS-G1/4-6**
			8 mm	10	**186099**	**QS-G1/4-8**
			10 mm	10	**186101**	**QS-G1/4-10**
			12 mm	10	**578344**	**NPQH-D-G14-Q12-P10**
	–	Connecting thread G1/4, with external hexagon, flame retardant, for tubing O.D.	6 mm	–	**186316**	**QS-VO-G1/4-6**
			8 mm	–	**186317**	**QS-VO-G1/4-8**
			10 mm	–	**186318**	**QS-VO-G1/4-10**
Push-in L-connector						
	–	Push-in sleeve diameter	6 mm	10	**153057**	**QSL-6H**
			8 mm	10	**153058**	**QSL-8H**
		Long push-in sleeve diameter	6 mm	10	**153066**	**QSL-6HL**
	–	Push-in fitting with sealing ring, connecting thread M7, with external hexagon, for tubing O.D.	4 mm	10	**186352**	**QSML-M7-4**
				100	**130773**	**QSML-M7-4-100**
			6 mm	10	**186353**	**QSML-M7-6**
				100	**130774**	**QSML-M7-6-100**
	–	Long push-in fitting with sealing ring, connecting thread M7, with external hexagon, for tubing O.D.	4 mm	10	**186354**	**QSMLL-M7-4**
			6 mm	10	**186355**	**QSMLL-M7-6**
	–	Push-in fitting with sealing ring, connecting thread G1/4, with external hexagon, for tubing O.D.	6 mm	10	**186118**	**QSL-G1/4-6**
			8 mm	10	**186120**	**QSL-G1/4-8**
			10 mm	10	**186122**	**QSL-G1/4-10**
	–	Push-in fitting, connecting thread G1/4, with internal hexagon, for tubing O.D.	6 mm	10	**186149**	**QSLV-G1/4-6-I**
			8 mm	10	**186151**	**QSLV-G1/4-8-I**
Push-in fittings, self-sealing						
	–	With sealing ring, with external hexagon, connecting thread G1/4, for tubing O.D.	6 mm	1	**186296**	**QSK-G1/4-6**
			8 mm	1	**186298**	**QSK-G1/4-8**
			10 mm	1	**186300**	**QSK-G1/4-10**
		With sealing ring, with external hexagon, L-shaped, connecting thread G1/4, for tubing O.D.	6 mm	1	**186306**	**QSKL-G1/4-6**
			8 mm	1	**186308**	**QSKL-G1/4-8**
			10 mm	1	**186310**	**QSKL-G1/4-10**
Push-in fittings, rotatable						
	–	With external hexagon, connecting thread G1/4, for tubing O.D.	6 mm	1	**186278**	**QSR-G1/4-6**
			8 mm	1	**186280**	**QSR-G1/4-8**
		With external hexagon, L-shaped, connecting thread G1/4, for tubing O.D.	6 mm	1	**186287**	**QSRL-G1/4-6**
			8 mm	1	**186289**	**QSRL-G1/4-8**

Accessories

Ordering data

	Code	Description		Pack size	Part no.	Type
Silencers						
	–	Connecting thread	M7	1	**161418**	**UC-M7**
				50	**534218**	**UC-M7-50**
			G1/4	1	**165004**	**UC-1/4**
				20	**534220**	**UC-1/4-20**
Blanking plug						
	–	Thread	M7	10	**174309**	**B-M7**
			G3/8	10	**3570**	**B-3/8**
		Cartridge	10 mm	1	**172976**	**QSP10-PTB**
			14 mm	1	**172987**	**QSP14-PTB**
			18 mm	1	**172996**	**QSP17-PTB**
User documentation						
	Documentation: DE	MPA-L pneumatic components	German	–	**556353**	**MPAL-VI-DE**
	Documentation: EN		English	–	**556354**	**MPAL-VI-EN**
	Documentation: FR		French	–	**556356**	**P.BE-MPAL-FR**
	Documentation: ES		Spanish	–	**556355**	**P.BE-MPAL-ES**
	Documentation: IT		Italian	–	**556357**	**P.BE-MPAL-IT**