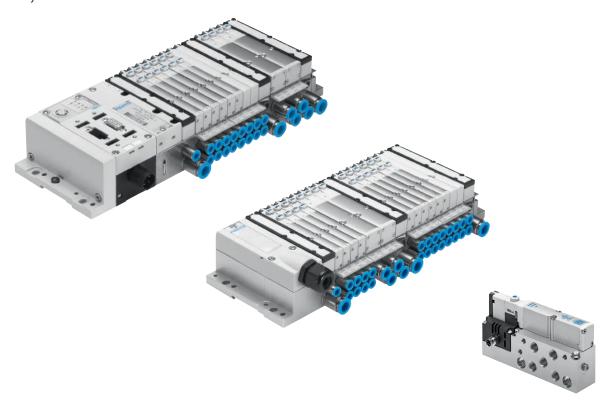
Valve terminal MPA-S

FESTO



Key features



Innovative

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

Versatile

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

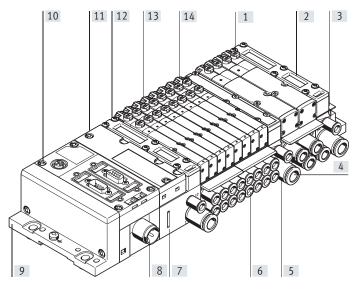
Reliable

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

Easy to install

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

Key features



- [1] Safe operation:Manual override, non-detenting/ detenting or concealed
- [2] Space-saving: Flat valves and flat plate silencer
- [3] Variable:

 64 valve positions/128 solenoid
 coils (fieldbus control)

 24 valve positions/24 solenoid
 coils (multi-pin control)
- [4] Practical: Sturdy metal thread or pre-assembled push-in fittings
- [5] Modular: Supply plates for creating pressure zones as well as numerous additional exhaust and supply ports
- [6] Wide range of valve functions

- [7] Convenient: large inscription labels
- [8] Reliable: Operating voltage range ±25%, outputs and valves can each be switched off separately
- [9] Quick to mount:Directly using screws or on anH-rail, automatic earthing
- [10] CPX diagnostic interface for handheld devices (channel-oriented diagnostics down to the individual valve)
- [11] Straightforward electrical connection: Multi-pin connection, fieldbus interface, control block, AS-Interface,
- [12] Pneumatic interface to CPX
- [13] Width 10 mm, 14 mm and 20 mm
- [14] Reduced downtimes: two-colour LED diagnostics on site

Equipment options

Valve functions

- 5/2-way valve, single solenoid
- 5/2-way valve, double solenoid
- 2x 3/2-way valve, normally open
- 2x 3/2-way valve, normally closed
- 2x 3/2-way valve,
 1x normally open,
 1x normally closed
- 5/3-way valve mid-position pressurised
- 5/3-way valve mid-position closed
- 5/3-way valve mid-position exhausted
- 2x2/2-way valve
 1x normally closed
 1x normally closed, reversible
- 2x 2/2-way valve normally closed
- 1x 3/2-way valve normally closed external compressed air supply
- 1x 3/2-way valve, normally open, external compressed air supply
- Manual pressure regulators
- Pilot air switching valve

- Proportional pressure regulators (for CPI connection, fieldbus)
- Pressure sensor

All valves have the same compact dimensions with an overall length of 107 mm and a width of 10 mm, 14 mm or 20 mm.

A height of 55 mm makes them a perfect match for the electrical peripherals CPX.

Special features

Multi-pin terminal

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

Fieldbus terminal/control block

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

Individual valve

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

AS-Interface

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

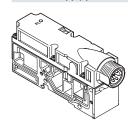
CPI interface

 Max. 32 valve positions/ max. 32 solenoid coils

Combinable

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

Electrical supply plate



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

- **Å** .

Note

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

Valve terminal MPA-S

Key features

Ordering data – Product options				
	Configurable product This product and all its product op-	The configurator can be found at → www.festo.com/catalogue/	Part no. 197330	Type CPX
	tions can be ordered using the config-	Enter the part number or the type.	546279	MPA-ASI-VI
	urator.		546280	MPA-CPI-VI
			530411	MPA-FB-VI
			569926	MPAL-VI
			539105	MPA-MPM-VI

Key features

Individual connection



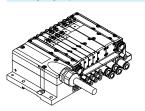
Valves on individual sub-bases can also be used for actuators further away from the valve terminal.

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

More information

→ VMPA1

Multi-pin plug connection



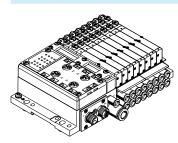
The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-core cable to the multi-pin plug connection. This substantially reduces installation time.

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

Versions

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

AS-Interface connection



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

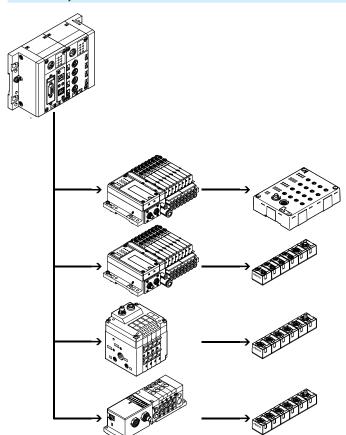
- With two to eight modular valve positions (max. 8 solenoid coils). This corresponds to 2 to 8 MPA1, 2 to 8 MPA14 or 2 to 8 MPA2 valves, or a combination of all of these.
- With all available valve functions.

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

More information

→ Internet: as-interface

Installation system CPI



Valve terminal for installation system CPI:

The valve terminal with CP connection is provided for connection to a higher-level bus node or to control blocks. A bus node or control block additionally enables the connection of decentralised input/output units. The following bus protocols are supported:

- PROFIBUS DP
- INTERBUS®
- DeviceNet[®]
- CANopen
- CC-LINK®
- EtherNet/IP
- PROFINET
- POWERLINK
- EtherCAT®
- Sercos III

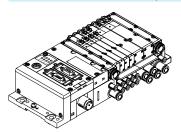
Four strings having up to 32 inputs and outputs can be connected to a bus node or control block. The connecting cables transmit the power supply for the input modules and the load voltage for the valves as well as control signals.

More information

→ Internet: cpi

Key features

Fieldbus connection via the CPX system



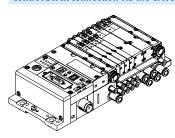
An integrated bus node manages communication with a higher-order PLC. This enables space-saving pneumatic and electronic solutions to be implemented.

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

Variants

- PROFIBUS DP
- INTERBUS®
- DeviceNet[®]
- CANopen
- CC-LINK®
- EtherNet/IP
- PROFINET
- POWERLINK
- EtherCAT®
- Sercos III
- Front end controller, remote
- Front end controller
- Remote I/O
- Modbus/TCP
- CPX terminal
- → More information: www.festo.com/ catalogue/cpx → Support/Downloads.

Control block connection via the CPX system



With controllers that are integrated in the Festo valve terminals, stand-alone control units to IP65 without control cabinets can be set up. In the slave operating mode, these valve terminals can be used for intelligent preprocessing and are therefore ideal modules for designing decentralised intelligence.

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

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

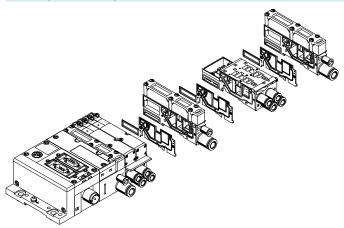


Note

Note possible restrictions for the IP protection class

→ ATEX declaration of conformity

Modular pneumatic components



The modular design of the MPA enables outstanding flexibility right from the planning stage and offers maximum ease of service in operation. The system consists of sub-bases and valves.

The sub-bases are screwed together, thus forming the support system for the valves. They contain the ducts for supplying compressed air to and exhausting from the valve terminal as well as the working ports for the pneumatic drives for each valve. Each sub-

base is connected to the next using three screws.

Individual valve terminal sections can be isolated and further blocks can be inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

Modular electrical peripherals

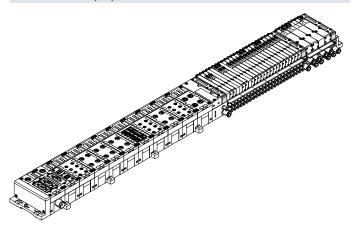
The valves are actuated differently depending on whether a multi-pin terminal or fieldbus terminal is used.

The MPA with CPX interface is based on the internal bus system of the CPX and uses this serial communication system for all solenoid coils and a range of electrical input and output functions.

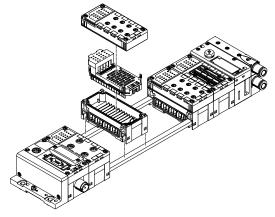
Serial links enable the following:

- Transmission of switching information
- · High valve density
- Compact design
- Diagnostics related to valve position
- Separate power supply for valves
- Flexible conversion without address shifting
- Transmission of status, parameter and diagnostic data
- → More information: www.festo.com/ catalogue/cpx → Support/Downloads.
- Option of CP interface
- CPX-CEC as stand-alone controller with access via Ethernet and web server

MPA with electrical peripherals CPX



Modularity with electrical peripherals CPX



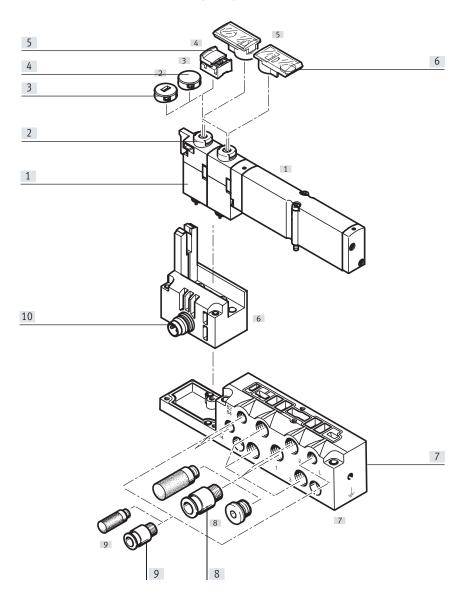
Individual sub-base

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).

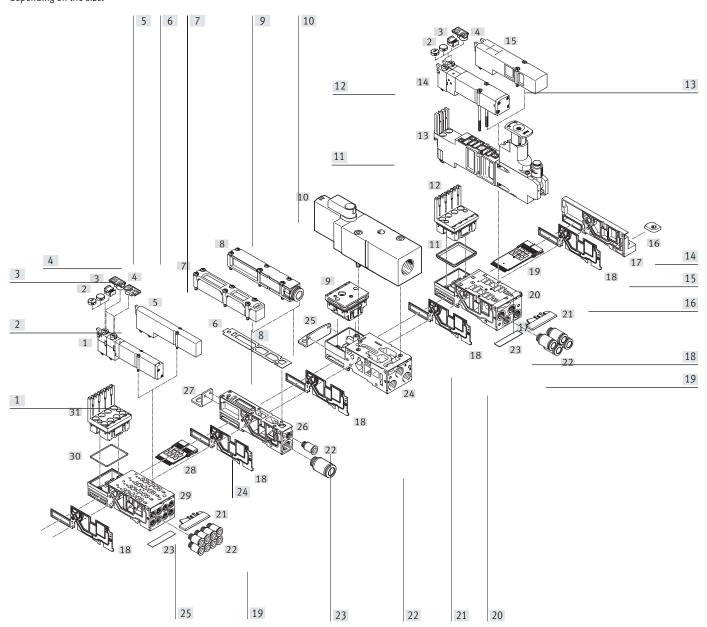


Design	ation	Description	→ Page/Internet
[1]	Solenoid valve	Width 10 mm, 14 mm, 20 mm	VMPA1
[2]	Manual override (MO)	Non-detenting/detenting by turning, per solenoid coil	VMPA1
[3]	Cover cap, coded	After fitting the cover cap, manual override operation is non-detenting only	VMPA1
[4]	Cover cap, concealed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

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

The sub-bases are prepared for either

- 2 or 4 single solenoid valves
- 2 or 4 double solenoid valves depending on the size.
- Double solenoid valve positions can be equipped with any valve or a cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves.



Valve terminal MPA-S

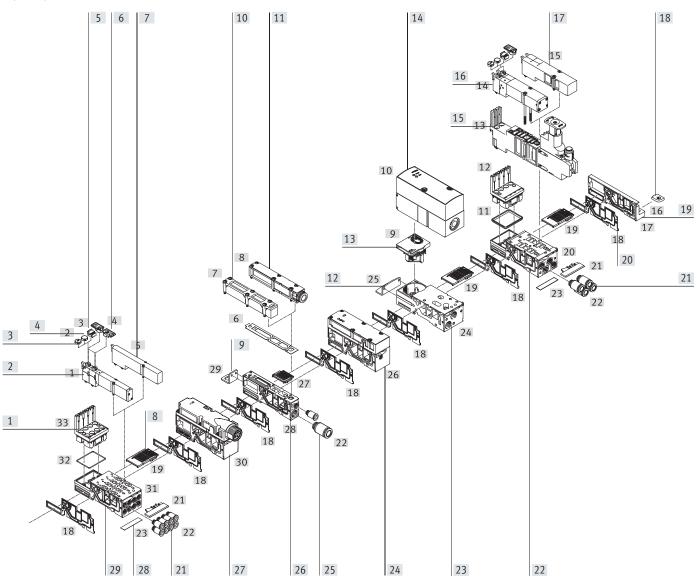
Peripherals overview

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

Pneumatic components of the valve terminal – CPI connection, fieldbus

The sub-bases are prepared for either $% \left(1\right) =\left(1\right) \left(1\right) \left$

- 2 or 4 single solenoid valves
- 2 or 4 double solenoid valves depending on the size.
- Double solenoid valve positions can be equipped with any valve or a cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves.



Valve terminal MPA-S

Peripherals overview

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

Valve terminal with multi-pin plug connection

Order code:

- 32P-... for the pneumatic components
- 32E-... for the electric components

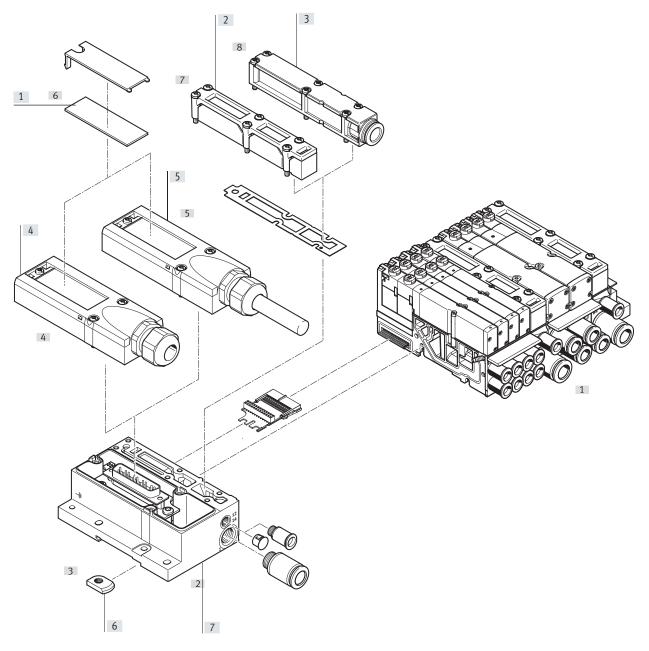
MPA valve terminals with multi-pin plug connection can be expanded by up to 24 solenoid coils.

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

The cable can be selected when ordering:

- 2.5 m
- 5 m
- 10 m

In each case for max. 8 or 24 valves



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

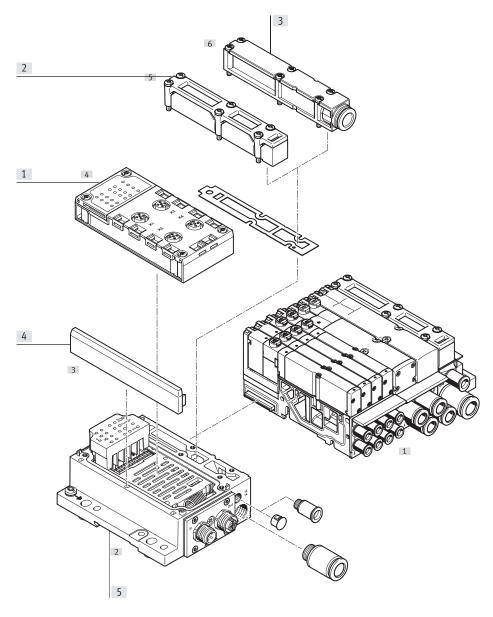
Valve terminal with AS-Interface connection

Order code:

• 32P-... for the pneumatic components

• 52E-... for the electric components

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



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

Valve terminal with CPI connection

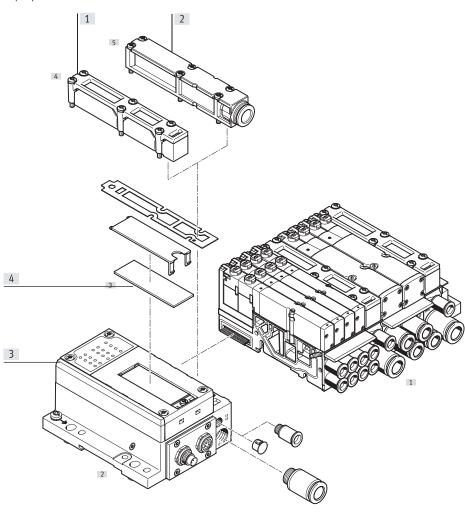
Order code:

• 32P-... for the pneumatic components

• 56E-... for the electrical

• peripherals

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



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

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

Order code:

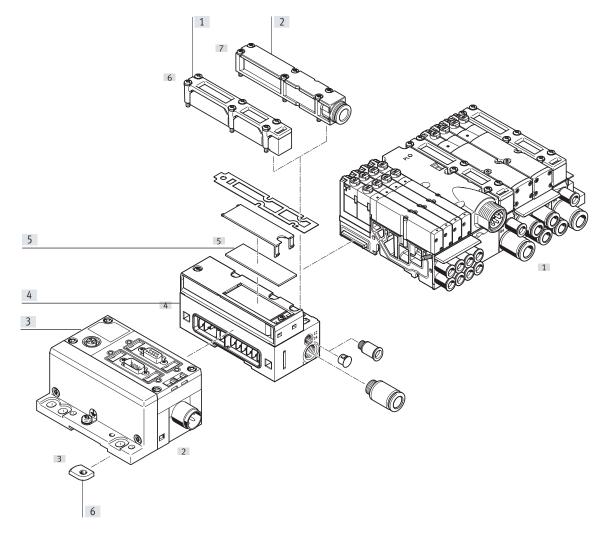
- 32P-... for the pneumatic components
- 50E-... for the electrical
- peripherals

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

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

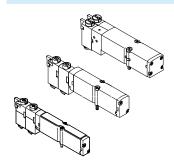
In general:

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



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

Sub-base valve



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

Sub-base valves can be replaced quickly since the tubing connections remain on the sub-base.

This design is also particularly flat.

Whatever valve function is required, there are sub-base valves with one solenoid coil (single solenoid) or with two solenoid coils (double solenoid or two single solenoid valves in one housing).

Design

Valve replacement

The valves are attached to the metal sub-base using two screws,

which means that they can be easily replaced. The mechanical sturdiness of the sub-base guarantees good long-term sealing.

Extension

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

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

5/2-way va	5/2-way valve					
Code	Circuit symbol	Valve size [mm]	Description			
M	14 2 12 12 14 5 1 3	10, 14, 20	Single solenoid Pneumatic spring return Reversible Operating pressure -0.09 +1 MPa			
MS	14 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10, 14, 20	Single solenoid Mechanical spring return Reversible Operating pressure -0.09 +0.8 MPa			
MU	14 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	10	Single solenoid Polymer poppet valve Mechanical spring return Reversible Operating pressure –0.09 +1 MPa 5/2-way function is achieved using two mechanically separate switching elements			
J	14 4 2 12 12 12 14 5 1 3 12	10, 14, 20	Double solenoid Reversible Operating pressure -0.09 +1 MPa			

2x 3/2-way	valve		I
Code	Circuit symbol	Valve size [mm]	Description
N	10 10 10 10 11 12/14 82/84 1 5 3	10, 14, 20	Single solenoid Normally open Pneumatic spring return Operating pressure 0.3 1 MPa
NS	10 10 10 10 10 11 12/14 82/84 1 15 3	10, 14, 20	 Single solenoid Normally open Mechanical spring return Reversible Operating pressure -0.09 +0.8 MPa
NU	10 10 10 10 10 11 12/14 82/84 1 15 3	10	Single solenoid Polymer poppet valve Normally open Mechanical spring return Reversible Operating pressure -0.09 +1 MPa
К	14 1 12 12 12 12 12 12 14 1 15 82/84 3	10, 14, 20	Single solenoid Normally closed Pneumatic spring return Operating pressure 0.3 1 MPa
KS	12/14 82/84 1 5 3	10, 14, 20	Single solenoid Normally closed Mechanical spring return Reversible Operating pressure –0.09 +0.8 MPa
KU	12/14 82/84 1 5 3	10	Single solenoid Polymer poppet valve Normally closed Mechanical spring return Reversible Operating pressure –0.09 +1 MPa
Н	12/14 82/84 1 5 3	10, 14, 20	Single solenoid Normal position 1x normally closed 1x normally open Pneumatic spring return Operating pressure 0.3 1 MPa
HS	14 10 10 10 11 12/14 82/84 1 5 3	10, 14, 20	Single solenoid Normal position 1x normally closed 1x normally open Mechanical spring return Reversible Operating pressure -0.09 +0.8 MPa
НИ	14 10 10 10 11 12/14 82/84 1 5 3	10	Single solenoid Polymer poppet valve Normal position 1 x normally closed 1 x normally open Mechanical spring return Reversible Operating pressure -0.09 +1 MPa

5/3-way	/alve Circuit symbol	Valve size	Description
В	14 W 12 W 12 T T T T T T T T T T T T T T T T T T	10, 14, 20	 Mid-position pressurised¹⁾ Mechanical spring return Reversible Operating pressure –0.09 +1 MPa
G	14 W 12 W 12 T T T T T T T T T T T T T T T T T T	10, 14, 20	Mid-position closed ¹⁾ Mechanical spring return Reversible Operating pressure -0.09 +1 MPa
E	14 W 12 W 12 14 84 5 1 3 82 12	10, 14, 20	Mid-position exhausted ¹⁾ Mechanical spring return Reversible Operating pressure -0.09 +1 MPa

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 va		1	
Code	Circuit symbol	Valve size [mm]	Description
W	20(14) 4 2 20(14) 84 2 5	10, 14, 20	Single solenoid Normally open External pressure supply Pneumatic spring return Reversible Operating pressure -0.09 +1 MPa Pressure supplied at working port 2 (-0.09 +1 MPa) can be switched with both internal and external pilot air supply.
X	42(14) 2 42(14) 84 4 3	10, 14, 20	Single solenoid Normally closed External pressure supply Pneumatic spring return Reversible Operating pressure -0.09 +1 MPa Pressure supplied at working port 4 (-0.09 +1 MPa) can be switched with both internal and external pilot air supply.

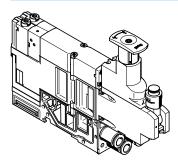
2x 2/2-v	vay valve		
Code	Circuit symbol	Valve size [mm]	Description
D	12/14 82/84 1	10, 14, 20	Single solenoid Normally closed Pneumatic spring return Operating pressure 0.3 1 MPa
DS	14 2 12 12 1 T W T W T W T W T W T W T W T W T W T	10, 14, 20	Single solenoid Normally closed Mechanical spring return Reversible Operating pressure -0.09 +0.8 MPa
I	12/14 82/84 5 1	10, 14, 20	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

- 🏺 - Note

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

3/2-way	<i>r</i> alve		
Code	Circuit symbol	Valve size [mm]	Description
IS	12 (14)2 P 1 3(4)	10,	Single solenoid Normally closed Mechanical spring return Operating pressure 0.3 0.8 MPa With internal power supply
IU	12 (14)2 P 1 3(4)	10,	Single solenoid Normally closed Mechanical spring return Operating pressure 0.3 0.8 MPa With internal power supply With external sensor M8 plug connector
ES	12 (14)2 P W (2)1 3(4)	10,	Single solenoid Normally closed Mechanical spring return Operating pressure 0.3 0.8 MPa With external power supply
EU	12 (14)2 P (2)1 3(4)	10,	 Single solenoid Normally closed Mechanical spring return Operating pressure 0.3 0.8 MPa With external power supply With external sensor M8 plug connector

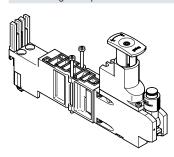
Vertical stacking



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

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

Pressure regulator plate



An adjustable pressure regulator can be installed between the sub-base and the valve in order to control the force of the triggered actuator.

This pressure regulator maintains a constant output pressure (secondary side) independent of pressure fluctua-

tions (primary side) and air consumption.

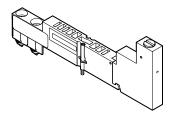
Standard version:

- For pressure regulation up to 6 bar or up to 10 bar
- Without pressure gauge (optional, rotatable, M5 connection with

MPA1, cartridge connection with MPA2)

- MPA2: Regulator head with 3 positions (locked, reference position, idle running)
- MPA1: Set using screwdriver

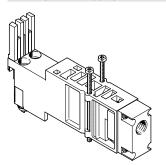
Vertical pressure shut-off plate for MPA1



The vertical pressure shut-off plate can be used to hot swap individual valves without switching off the overall air supply. The working pressure for the individual valve can be switched off manually via the vertical pressure shut-off plate using the actuating element.

Vertical stacking

Vertical pressure supply plate for MPA2



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

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

Check valve



The check valves prevent the air (back pressure) from exhaust ducts 3 and 5 from entering the solenoid valve, preventing the back pressure from having a disruptive effect on other connected actuators.

The check valves are integrated into ducts 3 and 5 of the sub-bases designed specifically for this purpose.

Please see the relevant assembly instructions:

→ www.festo.com/catalogue/mpa → Support/Downloads.

This function makes it possible to effectively protect single-acting process valves from the effects of back pressure.

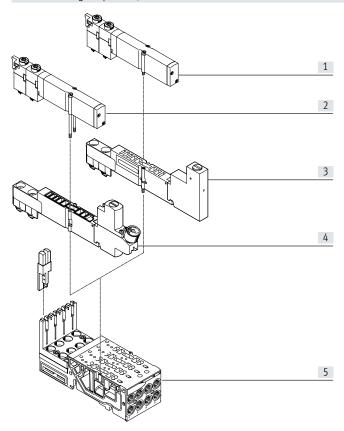
This ensures reliable and feedback-free switching operations, especially in the case of rapid switching operations.

- Note

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

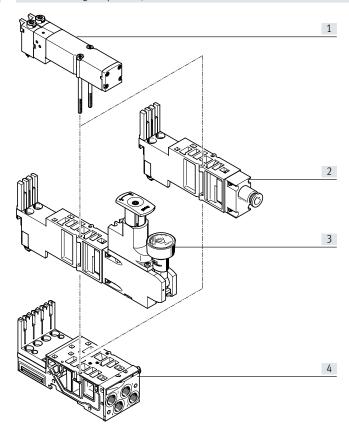
Vertical stacking

Vertical stacking components, valve size 10 mm



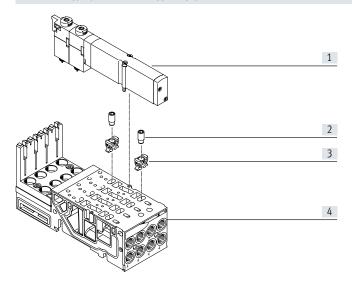
- [1] Valve VMPA1
- [2] Valve VMPA1, retaining screws replaced by long version (included in the scope of delivery of the regulator plate)
- [3] Vertical pressure shut-off plate VMPA1-HS
- [4] Regulator plate VMPA1
- [5] Sub-base

Vertical stacking components, valve size 20 mm



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

Fixed flow restrictor for manifold sub-bases MPA1



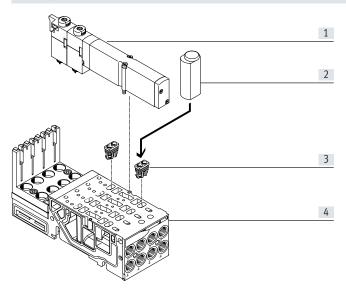
- [1] Valve VMPA1
- [2] Fixed flow restrictor
- [3] Retaining bracket
- [4] Sub-base

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

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

Vertical stacking

Check valve



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

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

Please see the relevant assembly instructions:

→ www.festo.com/catalogue/mpa → Support/Downloads.

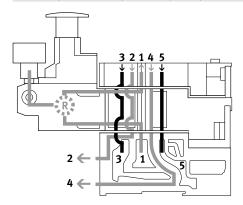
There are special sub-bases available that facilitate the installation of check valves for widths 14 mm and 20 mm.



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

Vertical stacking

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



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

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

Benefits

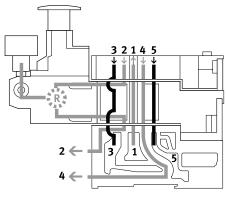
- The pressure regulator is not affected by exhausting, since the pressure is regulated upstream of the valve.
- The pressure regulator can always be adjusted, since the pressure

from the valve terminal is always present.

Application examples

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

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



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

Constraints

The pressure regulator can only be adjusted in the switched state (e.g. the

valve has switched to 2 and exhausts from 4 to 5).

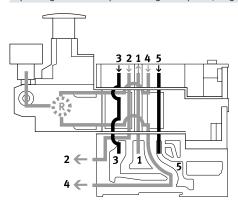
Sample application

The pressure regulator facilitates the reduction of pressure at port 2 of an in-

dividual valve rather than the operating pressure of the valve terminal

Vertical stacking

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



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

Constraints

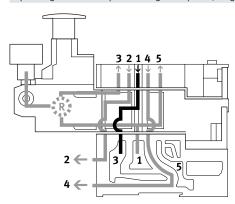
The pressure regulator can only be adjusted in the switched state (e.g. the

valve has switched to 4 and exhausts from 2 to 3).

Sample application

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

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



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

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

Application examples

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



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

Benefits

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

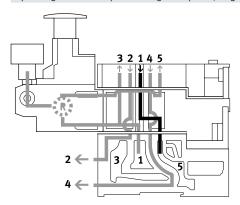
→ Internet: www.festo.com/catalogue/...

Constraints

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

Vertical stacking

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



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

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

Application examples

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



Note

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

Benefits

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

Constraints

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

Vertical stack	/ertical stacking – Pressure regulator plate						
Code		Width	Control range	Description			
		[mm]	1				
Pressure reg	Pressure regulator plate for port 1 (P regulator)						
PA		10	Up to max. 10 bar	Regulates the operating pressure in duct 1 upstream of the directional control valve			
		14					
	* • • *	20					
PF	L	10	Up to max. 6 bar				
		14					
		20					
Pressure regi	ulator plate for port 2 (B regulate	or)					
PC		10	Up to max. 10 bar	Regulates the operating pressure in duct 2 downstream of the directional control valve			
1		14					
		20					
PH	• • • • • • • • • • • • • • • • • •	10	Up to max. 6 bar				
		14					
		20					
Pressure regi	ulator plate for port 4 (A regulato						
PB	() ≥ ∗	10	Up to max. 10 bar	Regulates the operating pressure in duct 4 downstream of the directional control valve			
1	1 4	14					
		20	11. (- 21				
PG		10 14	Up to max. 6 bar				
		20					
		-					
	ulator plate for port 2, reversible						
PL	≱ ()	20	Up to max. 10 bar	Reversible pressure regulator for port 2			
PN 1	1 2	20	Up to max. 6 bar				
		1					
	ulator plate for port 4, reversible		11-1-1-1-1	Decree: has a construction of the first and the			
PK PM	→ (\)	20	Up to max. 10 bar Up to max. 6 bar	Reversible pressure regulator for port 4			
	1 4	20	טף נט ווומג. ס טמר				
		1					
		1					

Description of proportional pressure regulator

The proportional pressure regulator VPPM-... is used to regulate pressure proportional to a specified setpoint value.

A built-in pressure sensor records the pressure at the working port and compares this value with the setpoint value. In the event of deviations between the setpoint value and actual value,

the valve regulates until the output pressure has reached the setpoint value. For a constant pressure supply, which is required for high control quality, the proportional pressure regulator has an additional supply port.

The proportional pressure regulator can be configured via the PLC or on-site via the interface for CPX-FMT. The pro-

portional pressure regulator can be used for CPI connection and fieldbus.



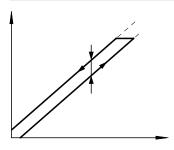
Note

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

Proportional pressure regulator						
Illustration	Code	Туре	Linearity error full-scale	Input pressure 1	Pressure regulation range	
			[%]	[MPa]	[MPa]	
$\overline{\wedge}$	QA	VPPM-6TA-L-1-F-0L2H	2	0 0.4	0.002 0.2	
	QB	VPPM-6TA-L-1-F-0L6H	2	0 0.8	0.006 0.6	
	QC	VPPM-6TA-L-1-F-0L10H	2	0 1.1	0.01 1	
	QD	VPPM-6TA-L-1-F-0L2H-S1	1	0 0.4	0.002 0.2	
	QE	VPPM-6TA-L-1-F-0L6H-S1	1	0 0.8	0.006 0.6	
	QF	VPPM-6TA-L-1-F-0L10H-S1	1	0 1.1	0.01 1	
	QG	VPPM-8TA-L-1-F-0L2H-C1	2	0 0.4	0.002 0.2	
	QH	VPPM-8TA-L-1-F-0L6H-C1	2	0 0.8	0.006 0.6	
	QK	VPPM-8TA-L-1-F-0L10H-C1	2	0 1.1	0.01 1	
\checkmark	QL	VPPM-8TA-L-1-F-0L2H-S1C1	1	0 0.4	0.002 0.2	
	QM	VPPM-8TA-L-1-F-0L6H-S1C1	1	00.8	0.006 0.6	
	QN	VPPM-8TA-L-1-F-0L10H-S1C1	1	0 1.1	0.01 1	

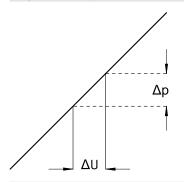
Terms related to the proportional-pressure regulator

Hysteresis



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

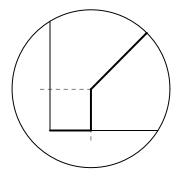
Response sensitivity



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

In this case, 0.01 bar.

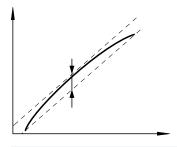
Zero point suppression



In practice, there can be a residual voltage or residual current at the setpoint input of the VPPM via the setpoint generator.

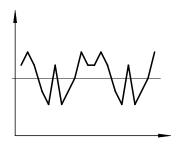
Zero point suppression is used so the valve is reliably exhausted at a setpoint value of zero.

Linearity error



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

Repetition accuracy (reproducibility)



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

Cover plate

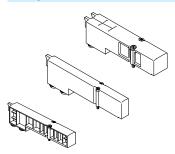


Plate without valve function for reserving valve positions on a valve terminal.

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

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

Compressed air supply and exhaust

Pneumatic interface



Supply plate

The valve terminal MPA can be supplied with air at one or more points. This ensures that the valve terminal will always have an adequate air supply and exhaust, even with large-scale expansions.

The main supply to the valve terminal is located on the pneumatic interface, which links the electrical and pneu-

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

matic parts. Additional provision is made for several supply plates.

Exhausting is either via integrated flat plate silencers or common lines for ducted exhaust air.

These exhausts are located on the pneumatic interface as well as on the

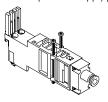
Exhausting is either via integrated flat plate silencers or common lines for ducted exhaust air.

For ducted exhaust air, at least one additional supply plate is required, which

supply plates and on the right end plate (VMPA-ERP-G).

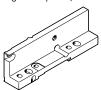
is used to exhaust the air from the pilot air supply (port 82/84) (when using a right end plate without port 82/84).

Vertical pressure supply plate



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

Right end plate (VMPA-ERP-G)



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

Pilot air supply

The port for the main pneumatic supply is located on the pneumatic inter-

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

- Internal
- External

Internal pilot air supply

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

External pilot air supply

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



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

Pilot air switching valve

downstream valves in a pressure zone ing valve can be used to implement the pected start-up".

The pilot air switching valve supplies the The compressed air to the pilot air switch-In the case of internal pressure supply ing valve can be supplied either internally from duct 1, vacuum operation (in duct 1) supply, please ensure that the pilot air with pilot air (12/14). The pilot air switch-via duct 1 of the valve terminal (or presis not possible. sure zone) or externally via port 2 of the safety function "Protection against unex- sub-base on which the pilot air switching valve is located.

When configuring the compressed air switching valve has a working pressure of 0.3...0.8 MPa.

Like all valves MPA, the pilot air switching valve has a manual override.

Pilot air switching valve Internal pilot air supply

Normal position:

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

Switching status:

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

External pilot air supply

Normal position:

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

Switching status:

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

Fluid powe	er supply and pilot air supply Illustration		Information	
	Type of compressed air supply a Pneumatic interface	and pilot air supply Supply plate	End plate, right	
S	3/5 82/84 12/14 1	3/5 3/5 82/84 82/84		Internal pilot air supply, flat plate silencer • Pilot air supply is branched internally from port 1 in the pneumatic interface • Exhaust port 3/5 and pilot exhaust port 82/84 via flat plate silencer • For operating pressure in the range 0.3 0.8 MPa
T	3/5 82/84 12/14 1 12/14 0 1	3/5 82/84 1 1		External pilot air supply, flat plate silencer • Pilot air supply between 0.3 and 0.8 MPa is connected at port 12/14 • Exhaust port 3/5 and pilot exhaust port 82/84 via flat plate silencer • For operating pressure in the range –0.09 +1 MPa (suitable for vacuum)
V	3/5 82/84 12/14 1	3/5 82/84 1 82/84		Internal pilot air supply, ducted exhaust air Pilot air supply is branched internally from port 1 in the pneumatic interface Exhaust port 3/5: connection to pneumatic interface and supply plate Pilot exhaust port 82/84: connection to supply plate only For operating pressure in the range 0.3 0.8 MPa
Х	3/5 82/84 12/14 12/14 12/14	3/5 82/84 1 82/84		External pilot air supply, ducted exhaust air Pilot air supply (0.3 0.8 MPa) is connected at port 12/14. Exhaust port 3/5: connection to pneumatic interface and supply plate Pilot exhaust port 82/84: connection to supply plate only For operating pressure in the range –0.09 +1 MPa (suitable for vacuum)
Y	3/5 82/84 112/14 1	3/5 82/84 1 82/84	82/84	Internal pilot air supply, ducted exhaust air via right-hand end plate • Pilot air supply is branched internally from port 1 in the pneumatic interface • Exhaust port 3/5: connection to pneumatic interface and supply plate • Pilot exhaust air 82/84 ducted via right-hand end plate (VMPA-EPR-G) • For operating pressure in the range 0.3 0.8 MPa
Z	3/5 82/84 12/14 12/14 12/14	3/5 82/84 1 82/84	82/84	External pilot air supply, ducted exhaust air via right-hand end plate • Pilot air supply (0.3 0.8 MPa) is connected at port 12/14. • Exhaust port 3/5: connection to pneumatic interface and supply plate • Pilot exhaust air 82/84 ducted via right-hand end plate (VMPA-EPR-G) • For operating pressure in the range –0.09 +1 MPa (suitable for vacuum)

Fluid pow	er supply and pilot air supply	
Code	Illustration Type of compressed air supply and pilot air supply Pilot air switching valve	Information
IS, IU	3/5 82/84 12/14	Internal pilot air supply, pilot air switching valve • Pilot air supply is branched internally from port 1 in the pilot air switching valve • Pilot air supply for the pressure zone to the right of the pilot air switching valve • In the unswitched state, duct 12/14 is exhausted via a silencer at port 4 of the pilot air switching valve • For operating pressure in the range 0.3 0.8 MPa • Separating seal to pneumatic interface required
ES, EU	3/5 82/84 12/14 1	External pilot air supply, pilot air switching valve • Pilot air supply is connected externally via port 2 on the pilot air switching valve • Pilot air supply for the pressure zone to the right of the pilot air switching valve • In the unswitched state, duct 12/14 is exhausted via a silencer at port 4 of the pilot air switching valve • For operating pressure in the range -0.09 +1.0 MPa • Separating seal to pneumatic interface required

Pneumat	Pneumatic interface				
Code	Code Pneumatic interface design variants		Information		
	Illustration	Туре			
M		VMPAEPL	Used together with compressed air supply S, T, V, X In combination with V or X, the pilot exhaust air must be exhausted at at least one supply plate. With several supply plates, port 82/84 on the final one is open ex works.		

Supply plate

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

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

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

This applies to the following interfaces:

- MPA with CPX
- MPA with multi-pin plug connection
- MPA with AS-Interface connection
- MPA with CPI connection

MPA with ducted exhaust air

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

Supply plates contain the ports:

- Compressed air supply (1)
- Exhaust for the pilot air supply (82/84) and pressure compensation
- Exhaust air (3/5)
 Depending on your order, the exhaust ducts are either ducted or exhausted via the flat plate silencer.

The supply plate is configured using the code letter U if no directly adjoining separating seal is required. If a separating seal (S, T or R) is selected directly to the right or left of the supply plate, then the code letter V or W identifies the position of the left or right separating seal. The code for the separating seal (S, T or R) is placed in front of the code for the supply plate (V or W).

Code ¹⁾	late (without exhaust plate)	Туре	Information
U		VMPA1SP	Supply plate without separating seal (no R, S or T selected)
V		VMPA1SP	Supply plate with separating seal on left, if R, S or T selected
W		VMPA1SP	Supply plate with separating seal on right, if R, S or T selected

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

Key features – Electrical components

Electrical supply plate

Electrical supply plate

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

MPA with CPX

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

An electrical supply plate is required after 8 valve sub-bases.

MPA with CPI connection

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

An electrical supply plate is required after 8 valve sub-bases.



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



Note

Please note that only the electronics modules with a separate circuit are permitted to the right of the electrical supply plate.

The electrical supply plate must not be installed directly to the left of a pneumatic supply plate (type VMPA1-FB-SP...).

Code	Illustration	Туре		Information	
L	1. P.	VMPA-FB-SP-V		Electrical supply plate with M18 plug connection, 3-pin	
		VMPA-FB-SP-7/8-V-5POL		Electrical supply plate with 7/8" plug connection, 5-pin	
		VMPA-FB	-SP-7/8-V-4POL	Electrical supply plate with 7/8" plug connection, 4-pin	
Pin alloc	cation for power supply				
		Pin	Allocation		
Pin alloc	cation for M18				
	2	2	24 V DC valves		
7+	++	3	0 VDC		
4	3	4	FE		
Din allas	cation for 7/8", 5-pin				
2	1	1	0 V DC valves		
3 🗐	3 + +		n.c.		
\t\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\		3	FE (leading)		
4	`5	4	n.c.		
			24 V DC valves		
Pin alloc	cation for 7/8", 4-pin	•	•		

n.c.

FE

24 V DC valves

0 V DC valves (leading)

В

С

D

Creating pressure zones and separating exhaust air



MPA offers a number of options for creating pressure zones if different working pressures are required. Depending on the electrical interface, up to 16 pressure zones are possible.

A pressure zone is created by isolating the internal supply ducts between the sub-bases using an appropriate separating seal or using a separator that is permanently integrated in the sub-base (code I or code III).

Compressed air is supplied and exhausted via a supply plate.

The position of the supply plates and separating seals can be freely selected with the valve terminal MPA.

Separating seals are integrated exworks as per your order.

Separating seals can be recognised by their coding, even when the valve terminal is assembled.

- 🌓

Note

The following must be taken into account for expansion or conversions at a later date:

Different separating seals are required for operating with ducted exhaust air and operation with flat plate silencers.

Creating	reating pressure zones – using a separating seal									
Code	For operation with flat plate silencer		For operation with ducted exhaust air		Information					
	Illustrated examples	Coding	Illustrated examples	Coding						
-	VMPADPU		VMPADP		No duct separation					
T	VMPADPU-P		VMPADP-P		Duct 1 separated					
S	VMPADPU-PRS		VMPADP-PRS		Duct 1 and 3/5 separated					
R	VMPADPU-RS		VMPADP-RS		Duct 3/5 separated					

Code	pressure zones — using a separating seal For operation with pilot air switching valve		Information
	Illustrated examples	Coding	
N ^{1), 2)}	5 1 3		Ducts 12/14 and 1, 3, 5 separated Coding with yellow marking
K ¹⁾	5 1 3		Duct 12/14 separated Coding with black marking

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

Creating p	Creating pressure zones – via sub-base								
Code	For operation with flat plate silencer or with ducted	Information							
	Illustrated examples	Coding							
I	5 1 30 %			Duct 1 separated (short marking)					
III	300			Duct 1 and 3/5 separated (long marking)					



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

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

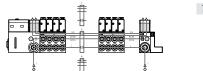
Examples: compressed air supply and pilot air supply

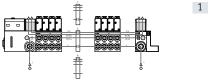
Internal pilot air supply, flat plate silencer

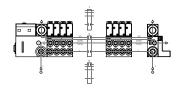
Pneumatic supply to the valve terminal: code S

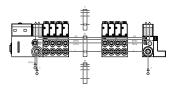
The illustration on the right shows an example of the configuration and connection of the air supply with internal pilot air supply. Port 12/14 on the pneumatic interface or on the electrical interface (multi-pin) is tightly sealed. Ports 3/5 and 82/84 are exhausted via the flat plate silencers. Port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

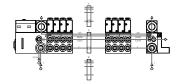


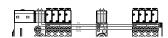












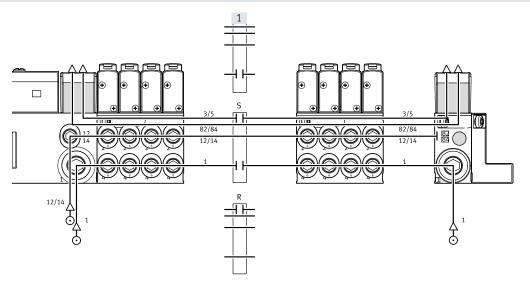


External pilot air supply, flat plate silencer

Pneumatic supply to the valve terminal: code T

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

[1] Optional separating seal



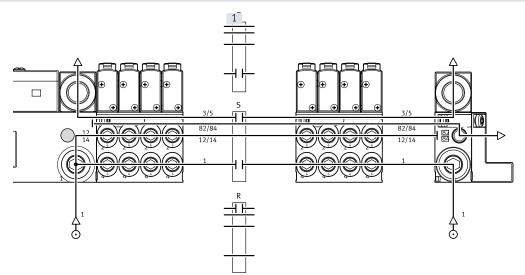
Examples: compressed air supply and pilot air supply

Internal pilot air supply, ducted exhaust air

Pneumatic supply to the valve terminal: code V

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

[1] Optional separating seal

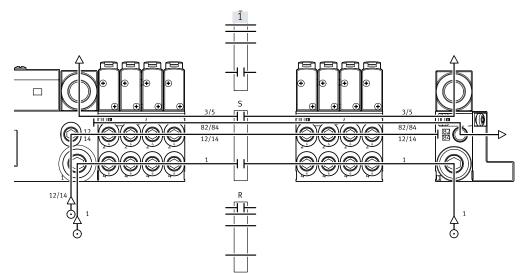


External pilot air supply, ducted exhaust air

Pneumatic supply to the valve terminal: code X

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

[1] Optional separating seal

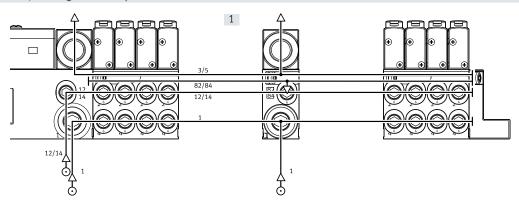


Examples: compressed air supply and pilot air supply

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

Pneumatic supply to the valve terminal: code Y

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



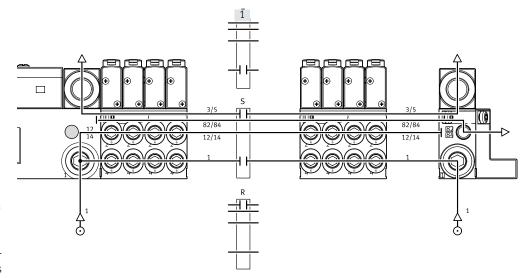
[1] Optional separating seal

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

Pneumatic supply to the valve terminal: code Z

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

[1] Optional separating seal



Examples: compressed air supply and pilot air supply

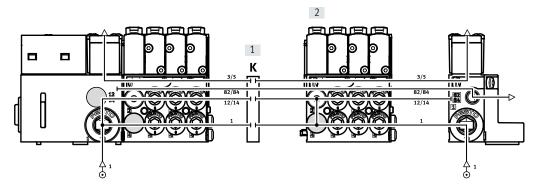
Pilot air switching valve for internal pilot air supply

Pneumatic supply to the valve terminal with internal pilot air.

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

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

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



Examples: compressed air supply and pilot air supply

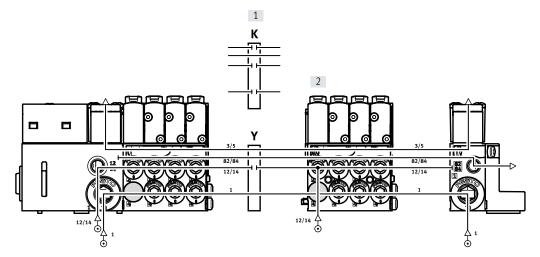
Pilot air switching valve for external pilot air supply

Pneumatic supply to the valve terminal with external pilot air.

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

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

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

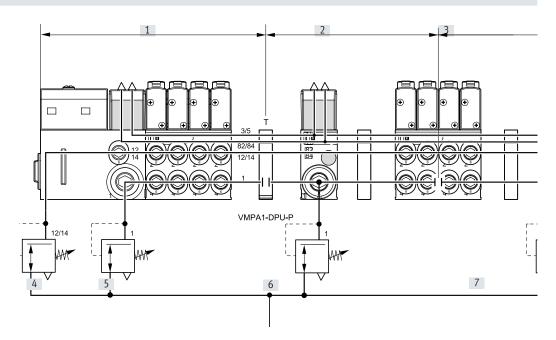


Examples: Creating pressure zones

MPA with CPX terminal connection

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

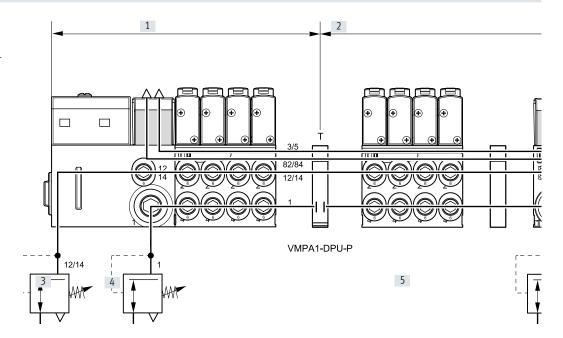
- [1] Zone 1
- [2] Zone 2
- [3] Zone 3
- [4] Pilot air supply
- [5] P1
- [6] P2
- [7] P3



MPA with multi-pin plug connection

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

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



Examples: Creating pressure zones

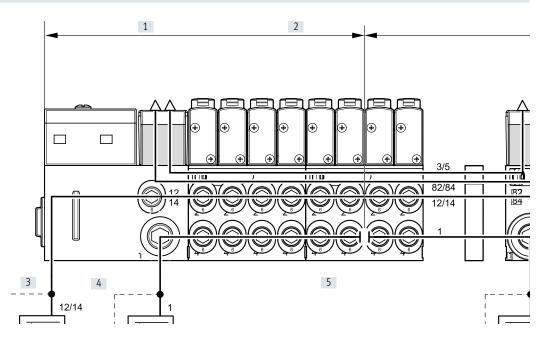
Sub-base with pressure zone separation in duct 1

Another option for pressure zone separation can be achieved by using sub-bases with pressure zone separation.

The illustration on the right shows the variant with pressure zone separation in duct 1.

Pilot air supply

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

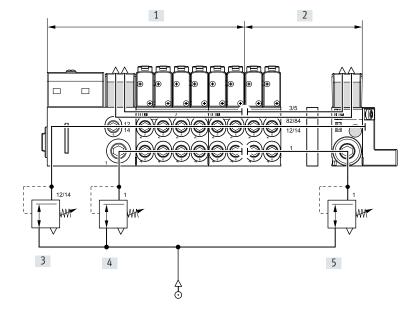


Sub-base with pressure zone separation in duct 1 and duct 3/5

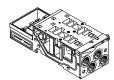
The illustration on the right shows the variant with pressure zone separation in duct 1 and duct 3/5.

Pilot air supply

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



Sub-base



 $\ensuremath{\mathsf{MPA}}$ is based on a modular system consisting of sub-bases and valves.

The sub-bases are screwed together, thus forming the support system for the valves.

They contain the ducts for supplying compressed air to and exhausting the valve terminal as well as the working

ports for the pneumatic drives for each valve.

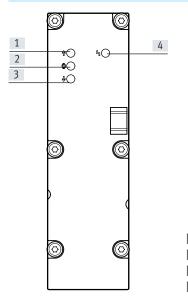
Each sub-base is connected to the next using three screws. Individual valve terminal sections can be isolated and further blocks can be inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

Sub-base			1	1		
Code	Illustration	Туре	Width [mm]	Number of valve positions (solenoid coils)	Information	
Sub-base	for multi-pin plug/fieldbus connection	1				
A, C ¹⁾		VMPA1-FB-AP-4-1	10	4 (8/41)	Working ports (2, 4) on sub-base • Connection sizes: MPA1: M7, QS4, QS6	
Al, Cl ¹⁾		VMPA1-FB-AP-4-1-T1			Code II: duct 1 separated in the sub-base Code III: duct 1 and duct 3/5 separated in the sub-base	
AIII, CIII ¹⁾	*	VMPA1-FB-AP-4-1-S1				
E, F ¹⁾	1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	VMPA14-FB-AP-4-1	14	4 (8/41)	Working ports (2, 4) on sub-base • Connection sizes MPA14: G1/8, QS6, QS8	
EI, FI ¹⁾		VMPA14-FB-AP-4-1-T1			Code I: duct 1 separated in the sub-base Code III: duct 1 and duct 3/5 separated in the sub-base	
EIII, FIII ¹⁾		VMPA14-FB-AP-4-1-S1			III tile sub-base	
B, D ¹⁾		VMPA2-FB-AP-2-1	20	2 (4/21)	Working ports (2, 4) on sub-base • Connection sizes MPA2: G1/8, QS6, QS8	
BI, DI ¹⁾		VMPA2-FB-AP-2-1-TO			Code I: duct 1 separated in the sub-base Code III: duct 1 and duct 3/5 separated in the sub-base	
BIII, DIII ¹⁾	_	VMPA2-FB-AP-2-1-SO			iii tile sub-base	
Sub-base	for pilot air switching valve, for fieldb	us connection	<u>'</u>			
QA		VMPA1-AP-4-EMG-8-S	10	1+3 (2+6/3)	Working ports (2, 4) on sub-base	
		VMPA1-AP-4-EMG-D2-8-S		Pilot air switching valve + valves	Connection sizes: MPA1: M7, QS4, QS6 Including electronics module	
QE		VMPA-14-AP-4-EMG-8-S VMPA14-AP-4-EMG-D2-8-S	14	1+3 (2+6/3) Pilot air switching valve + valves	Working ports (2, 4) on sub-base Connection sizes MPA14: G1/8, QS6, QS8 Including electronics module	

¹⁾ Only possible with multi-pin plug connection

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

Pressure sensor



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

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

[1] Red LED: pressure exceeded

[2] Green LED: pressure maintained

[3] Red LED: pressure not reached

[4] Red LED: common error display

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

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



Note

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

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

Ports for s	upply and exhaust							
Code		Connectio	n	Designation	Code L Push-in connector Large	Code K Push-in connector Small	Code D Thread for supply	
S		Internal p	ilot air supply, silencer					
		1	Working air/vacuum sup-	Push-in fitting	QS-G1/4-10-I	QS-G1/4-8-I	G1/4	
		3/5	Exhaust air	Flat plate silencer	-	_	_	
		12/14	Pilot air supply	-	-	_	-	
		82/84	Pilot exhaust air	Flat plate silencer	-	-	-	
			Pressure compensation port	Exhausts via silencer to atmos	sphere			
T	-	External r	ilot air supply, silencer					
ľ		1	Working air/vacuum sup-	Push-in fitting	QS-G1/4-10-I	QS-G1/4-8-I	G1/4	
		3/5	Exhaust air	Flat plate silencer	-	_	-	
		12/14	Pilot air supply	Push-in fitting	QSM-M7-6-I	QSM-M7-6-I	M7	
		82/84	Pilot exhaust air	Flat plate silencer	-	-	-	
			Pressure compensation port	Exhausts via silencer to atmos	sphere			
V		Internal p	ilot air supply, ducted exhau	ıst air	-			
		1	Working air/vacuum sup-	Push-in fitting	QS-G1/4-10-I	QS-G1/4-8-I	G1/4	
		3/5	Exhaust air	Push-in fitting	QS-10	QS-10	QS-10	
		12/14	Pilot air supply	-	-	-	-	
		82/84	Pilot exhaust air	Push-in fitting	QSM-M7-6-I	QSM-M7-6-I	M7	
	650		Pressure compensation port	sure compensation Exhausts into duct 82/84				
X	_	External r	ilot air supply, ducted exhau	ıst air				
		1	Working air/vacuum sup-	Push-in fitting	QS-G1/4-10-I	QS-G1/4-8-I	G1/4	
		3/5	Exhaust air	Push-in fitting	QS-10	QS-10	QS-10	
		12/14	Pilot air supply	Push-in fitting	QSM-M7-6-I	QSM-M7-6-I	M7	
		82/84	Pilot exhaust air	Push-in fitting	QSM-M7-6-I	QSM-M7-6-I	M7	
			Pressure compensation port	Exhausts into duct 82/84				
Υ		Internal n	ilot air sunnly ducted exhau	ıst air via right-hand end plate	(VMPA-FPR-G)			
		1	Working air/vacuum sup-	Push-in fitting	QS-G1/4-10-I	QS-G1/4-8-I	G1/4	
		3/5	Exhaust air	Push-in fitting	QS-10	QS-10	QS-10	
		12/14	Pilot air supply	-	-	-	-	
		82/84	Pilot exhaust air	Push-in fitting	QSM-M5-3-I	QSM-M5-3-I	M5	
			Pressure compensation port	Exhausts into duct 82/84				
Z	-	External r	ilot air supply, ducted exhau	ust air via right-hand end plate	(VMPA-EPR-G)			
		1	Working air/vacuum sup-	Push-in fitting	QS-G1/4-10-I	QS-G1/4-8-I	G1/4	
		3/5	Exhaust air	Push-in fitting	QS-10	QS-10	QS-10	
		12/14	Pilot air supply	Push-in fitting	QSM-M7-6-I	QSM-M7-6-I	M7	
		82/84	Pilot exhaust air	Push-in fitting	QSM-M5-3-I	QSM-M5-3-I	M5	
			Pressure compensation port	Exhausts into duct 82/84				
	•		•					

Key features - Mounting

Valve terminal mounting

Sturdy terminal mounting via:

- Four through-holes for wall mounting
- · Additional mounting brackets
- H-rail mounting

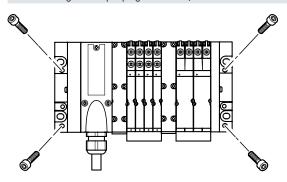


Note

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

brackets can be mounted on the pneumatic supply plates.

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

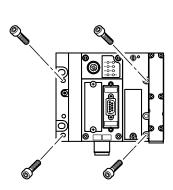


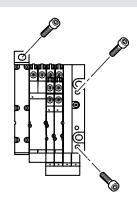
The MPA valve terminal is screwed onto the mounting surface using four M4 or M6 screws. The mounting holes

are on the pneumatic interface and on the right end plate.

Optional mounting brackets are also available.

Wall mounting - Fieldbus connection

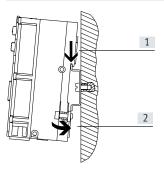




The MPA valve terminal is screwed onto the mounting surface using six M4 or M6 screws. The mounting holes are on the left end plate (CPX) and on the right end plate MPA.

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

H-rail mounting



The valve terminal MPA is hooked onto the H-rail → arrow [1].

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

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

• CPX-CPA-BG-NRH

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





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

→ VMPA1

Key features – Display and operation

Display and operation

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

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

Manual override

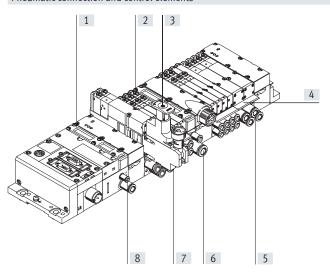
The manual override (MO) enables the valve to be switched when not electrically activated or energised.

The valve is switched by pushing the manual override. The set switching status can also be locked by turning the manual override (code R).

Alternatives:

- The cover cap (code N or as an accessory) prevents the manual override from being locked. The manual override can then only be activated by pushing it.
- The cover cap (code V or as an accessory) can prevent the manual override from being accidentally activated.
- The cover cap (code Y or as an accessory) can be used to operate the manual override in detenting mode without additional tools.

Pneumatic connection and control elements

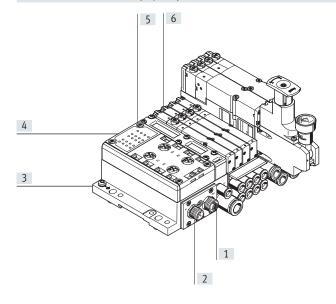


- [1] Flat plate silencer for exhaust port 3/5
- [2] Manual override (for each pilot solenoid coil, non-detenting or non-detenting)
- [3] Adjusting knob for optional pressure regulator plate
- [4] Inscription label holder for subbase
- [5] Working ports 2 and 4, per valve position
- [6] Supply port 1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

- Note

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

Electrical connection and display components on the AS-Interface

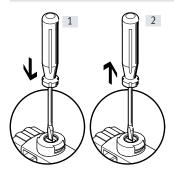


- [1] M12 socket for AS-Interface bus and additional supply (AS-i Out)
- [2] M12 plug for AS-Interface bus and auxiliary power supply (AS-i In)
- [3] Earth connection
- 4] Status LEDs for inputs
- [5] Status LEDs for AS-Interface
- [6] Diagnostic LEDs for valves

Key features – Display and operation

Manual override (MO)

MO with automatic return (non-detenting),



 Press in the plunger of the MO with a pointed object or screwdriver.

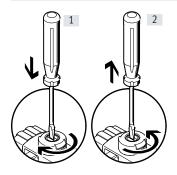
The pilot valve switches and actuates the main valve.

[2] Remove the pointed object or screwdriver.

The spring force pushes the plunger of the manual override back.

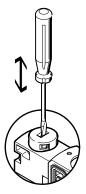
The pilot valve returns to its normal position as does the single solenoid main valve (not the case with double solenoid valve code)).

MO with locking (detenting)



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

MO with automatic return (non-detenting),



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

Valves can be ordered with a fitted cover cap in the valve terminal configurator using the selection menu "Manual override" (code N).

MO with lock - Assembly



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

Valves can be ordered with a fitted cover cap in the valve terminal configurator using the selection menu "Manual override" (code N).

MO with lock – Actuation



Sliding the cap for the MO with latch in the direction of the arrow results in:

- Cap locks into the end position
- The pilot valve switches and actuates the main valve.

MO with lock – Actuation

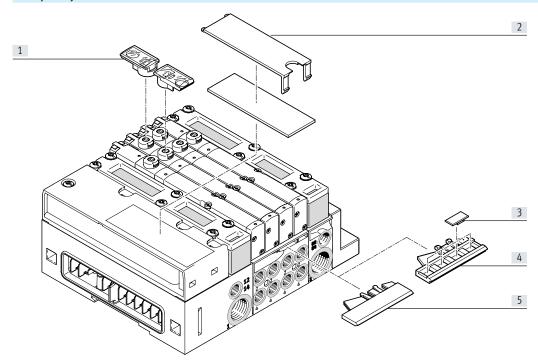


Sliding the cap for the MO with latch in the direction of the arrow results in:

- Cap locks into the end position
- The spring force pushes the plunger of the manual override back.
- The pilot valve returns to its normal position as does the main single solenoid valve (not the case with double solenoid valve code J).

Key features - Display and operation

Inscription system



- [1] Inscription label holder ASLR-D-L1
- [2] Inscription label on the flat plate silencer of the pneumatic interface
- [3] Inscription labels IBS

 6x10
- [4] Inscription label holder for subbase VMPA...-ST-2-4, 4-fold, for IBS-6x10 inscription labels
- [5] Inscription label holder for subbase VMPA...-ST-1-4, transparent, for paper foil labels

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

The sub-base for width 14 is wider. Separate inscription label holders VM-PA14-ST-1-4 (for paper labels) or VM-PA14-ST-2-4 (for inscription labels IBS-6x10) are therefore available for width 14. The inscription label holder ASLR-D-L1 can be pushed onto the manual over-

Inscription label holders/inscription labels that can be ordered individually → page 99.

As an alternative or in addition, large inscription labels can be applied to the flat plate silencer on the pneumatic interface.

Labelling templates can be downloaded from the online portal:
Additional information: www.festo.
com/catalogue/mpa → Support/
Downloads.

Key features - Electrical components

Electrical power as a result of current reduction

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

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

Individual valve

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

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

- Note

More information about the individual valve interface can be found at

→ VMPA1

Electrical multi-pin plug connection

The following multi-pin plug connection is offered for the valve terminal MPA:

 Sub-D multi-pin plug connection (25-pin)

Pin 1 ... 24 are used for addresses 1 ... 24 in order.

If fewer than 24 addresses are used for the valve terminal, the remaining pins

to 24 are left free. Pin 25 is reserved for the neutral conductor.

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

Each pin on the multi-pin plug can actuate exactly one solenoid coil. If the maximum configurable number of valve positions is 24, this means that 24 valves can be addressed, each with a single solenoid coil.

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



Note

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

Guidelines on addressing for valves/solenoid coils

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

Key features – Electrical components

AS-Interface® fieldbus connection

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

The AS-Interface connection of valve terminal MPA-S can be used to control up to 8 solenoid coils.

The electrical interface of the valve terminal contains the LEDs that indicate

the signal status and the protective circuit for the valves.

- 🛊

Note

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

CPI fieldbus connection

All CP valve terminals and CP modules are connected using a ready-to-install CP cable, and are attached to the CP interface. 4 modules, for example one CPV valve terminal and one to three CP

input modules, make up an installation string that ends at the CP interface. The installation system supports a maximum of 4 installation strings that can be connected to a CP bus node.



Note

More information can be found at
→ Internet: cpi

Fieldbus connection CPX

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

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



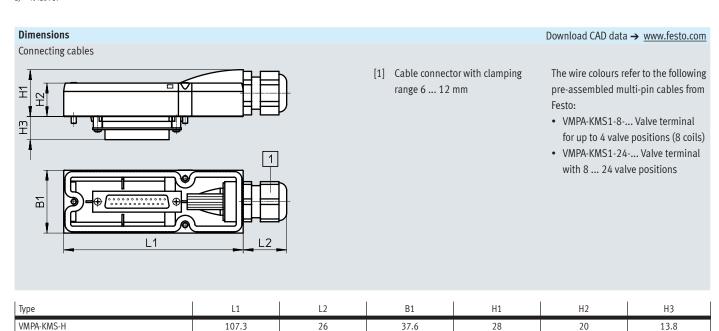
Note

More information can be found at
→ Internet: cpx

Key features – Electrical components

Pin allocation – Sub-D socket, cable	1				ı	1			
	Pin	Address/coil	Wire colour ²⁾		Pin	Address/coil	Wire colour ²⁾		
	1	0	WH		17	16	WH PK		
$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	2	1	GN		18	17	PK BN		
25(00000000000)14	3	2	YE		19	18	WH BU		
	4	3	GY		20	19	BN BU		
	5	4	PK		21	20	WH RD		
	6	5	BU	. ⊢	22	21	BN RD		
	7	6	RD		23	22	WH BK		
	8	7	VT		24	23	BN		
	9	8	GY PK		25	0 V ¹⁾	BK		
	10	9	RD BU		- 🛔 - Note				
	11	10	WH GN						
	12	11	BN GN						
	13	12	WH YE		The drawing shows a view of the Sub-D socket on				
	14	13	YE BN		the multi-pin plug cable VMPA-KMS1				
	15	14	WH GY	tne multi-pin plug	i-piii piug cable vi	DIE VMPA-KMS1			
	16	15	GY BN						

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



Туре	Casing	Length [m]	Wire x mm ²	D	Weight [g]	Part no.
VMPA-KMS1-8-2.5	PVC	2.5	10 x 0.34	6.9	287	533195
VMPA-KMS2-8-2.5-PUR	PUR	2.5	10 x 0.25	8.3	237	533504
VMPA-KMS1-8-5	PVC	5	10 x 0.34	6.9	510	533196
VMPA-KMS2-8-5-PUR	PUR	5	10 x 0.25	8.3	460	533505
VMPA-KMS1-8-10	PVC	10	10 x 0.34	6.9	956	533197
VMPA-KMS2-8-10-PUR	PUR	10	10 x 0.25	8.3	906	533506
VMPA-KMS1-24-2.5	PVC	2.5	25 x 0.34	11.4	563	533192
VMPA-KMS2-24-2.5-PUR	PUR	2.5	25 x 0.25	11.2	411	533501
VMPA-KMS1-24-5	PVC	5	25 x 0.34	11.4	1062	533193
VMPA-KMS2-24-5-PUR	PUR	5	25 x 0.25	11.2	910	533502
VMPA-KMS1-24-10	PVC	10	25 x 0.34	11.4	2055	533194
VMPA-KMS2-24-10-PUR	PUR	10	25 x 0.25	11.2	1908	533503
VMPA-KMS-H	Hood for self-assembly		•	•	71	533198

Key features – Electrical components

Instructions for use

Operating materials

Operate your system with unlubricated compressed air, if possible. Festo valves and cylinders are designed so that, if used as intended, they will not require additional lubrication and will still achieve a long service life.

The quality of compressed air downstream of the compressor must correspond to that of unlubricated compressed air. If possible, do not operate the entire system with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator requiring them.

Incorrect additional oil and too high an oil content in the compressed air reduce the service life of the valve terminal.

Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalogue (as specified in DIN 51524 HLP32; basic oil viscosity 32 CST at 40°C).

Bio-oils

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

Mineral oils

When using mineral oils (e.g. HLP oils to DIN 51524, parts 1 to 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m³ must not be exceeded (see ISO 8573-1 Class 4).

A higher residual oil content is not permitted, regardless of the compressor oil, because the permanent lubrication would otherwise be flushed out over a period of time.

Datasheet - Valve terminal

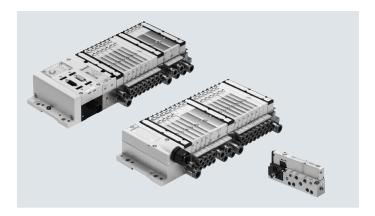
Flow rate

- **-** Voltage 24 V DC

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

- 🚺 - Valve width

MPA1: 10 mm MPA14: 14 mm MPA2: 20 mm



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



- Note

Note possible restrictions for the IP protection class

→ ATEX declaration of conformity

Operating and environmenta	l conditions						
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]					
Note on operating/		Lubricated operation possible (in which case lubrication will always be required)					
pilot medium							
Operating pressure	[MPa]	-0.09 1					
	[bar]	-0.9 10					
Pilot pressure	[MPa]	0.3 0.8					
	[bar]	38					
Ambient temperature	[°C]	-5+50					
Temperature of medium	[°C]	-5+50					
Storage temperature ¹⁾	[°C]	-20 +40					
Relative humidity		Max. 90% at 40°C					

¹⁾ Long-term storage

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

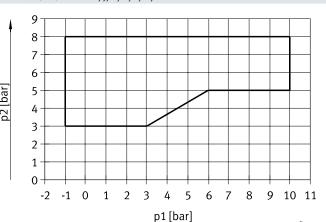
Interface versions that are not listed do not have any of the listed certifications
 For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

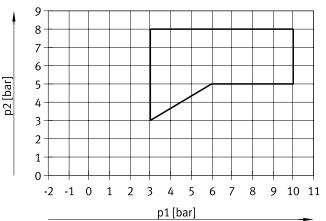
³⁾ More information: www.festo.com/x/topic/crc

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

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

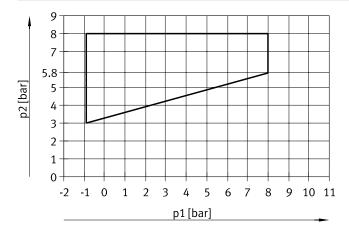


For valves with code: N, K, H, D, I

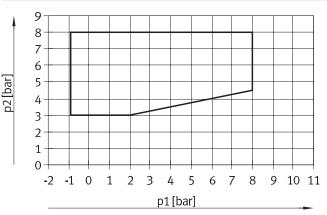


Pilot pressure p2 as a function of working pressure p1 for valves with mechanical spring return

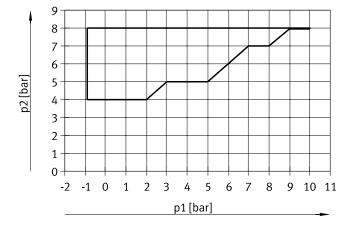
For valves in width 10 mm with code: MS, NS, KS, HS, DS



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



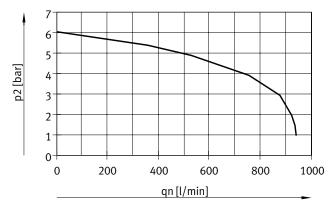
For valves in width 10 mm with code: MU, NU, KU, HU



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

(P regulator plate) for port 1

7 6 5 4 3 2 1 0 0 200 400 600 800 1000 qn [l/min] (B regulator plates) for port 2

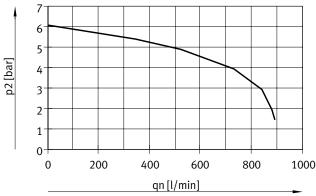


Supply pressure 10 bar, regulated pressure set at 6 bar

Supply pressure 10 bar, regulated pressure set at 6 bar

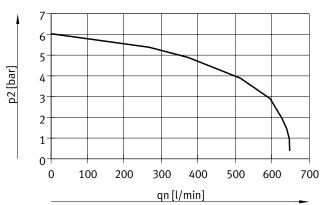
Flow rate qn as a function of output pressure p2 with pressure regulator plates (width 20 mm)

(A regulator plates) for ports 4



Supply pressure 10 bar, regulated pressure set at 6 bar

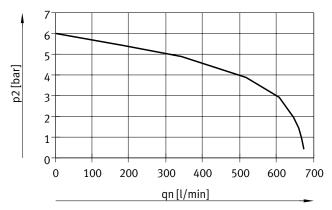
(B regulator plates, rev.) for ports 3, reversible



Supply pressure 10 bar, regulated pressure set at 6 bar

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

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



Supply pressure 10 bar, regulated pressure set at 6 bar

Technical data – Valv	e width 10 mr	n												
Code			M	J	N	K	Н	В	G	E	X	W	D	1
Design			Piston spool valve	Piston spool valve										
Sealing principle			Soft											
Overlap		Positive overlap	Positive overlap											
Reset method			Pneumatic spring	-	Pneumat	ic spring		Mechani	cal spring		Pneumat	ic 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-	[ms]	-	15	-	-	-	15	15	15	-	Ī-	-	-
	over													
Standard nominal flo	w rate	[l/min]	360	360	300	230	300	300	320	240	255	255	230	260
Operating pressure		[MPa]	-0.09 +1		0.3 1		-0.09 +1		-0.09 +1 0.3 1		0.3 1			
		[bar]	-0.9 +10		310		-0.9 +10		-0.9 +10 3		3 10			
Pilot pressure		[MPa]	0.3 0.8											
		[bar]	38											
Max. tightening torqu	ie for valve	[Nm]	0.25											
mounting														
Materials			Die-cast aluminium											
Product weight		[g]	49	56	56	56	56	56	56	56	49	49	56	56

Technical data – Valv	e width 10 m	m										
Code			MS	NS	KS	HS	DS	MU	NU	KU	HU	
Design			Piston sp	ool valve				Poppet valve with sp	Poppet valve with spring return			
Sealing principle	Soft					Soft						
Overlap			Positive (overlap				Negative overlap				
Reset method			Mechani	cal 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-	[ms]	-	-	-	-	-	-	-	-	-	
	over											
Max. switching freque	ncy	[Hz]	2	-	-	-	-	-	-	-	-	
Standard nominal flow	v rate	[l/min]	360	300	230	300	230	140 190	190	160	140 190	
Note on standard nom	inal flow rate		-					1 → 2: 190 l/min	-	-	1 → 2: 190 l/min	
								1 → 4: 140 l/min			1 → 4: 140 l/min	
Operating pressure		[MPa]	-0.09	+0.8				-0.09 +1	-0.09 +1			
		[bar]	-0.9 +	8				-0.9 +10	-0.9 +10			
Pilot pressure		[MPa]	0.3 0.	3				0.4 0.8	0.4 0.8			
		[bar]	3 8					4 8	48			
Max. tightening torqu	e for valve	[Nm]	0.25					0.25	0.25			
mounting												
Materials			Die-cast	aluminium				Reinforced PPA	Reinforced PPA			
Product weight		[g]	56					35	42	42	42	

Technical data – Valve width 10 m	ım							
Code		ES	EU	IS	IU			
Design		Poppet valve with spring return						
Sealing principle		Soft						
Overlap		Negative overlap						
Reset method		Mechanical spring						
Operating pressure	[MPa]	0.30.8						
	[bar]	38						
Pilot pressure	[MPa]	0.30.8						
	[bar]	38						
Max. tightening torque for valve	[Nm]	0.65	0.65	0.25	0.65			
mounting								
Materials		Die-cast aluminium						
Product weight	[g]	32						

Code			M	J	N	K	Н	В				
Design			Piston spool valve									
Sealing principle			Soft									
Overlap			Positive overlap	Positive overlap								
Reset method			Pneumatic spring					Mechanical sprin				
Switching times	On	[ms]	13	9	9	10	10	12				
	Off	[ms]	20	-	28	28	26	40				
	Change-	[ms]	-	24	-	-	-	18				
	over											
Standard nominal flo	w rate	[l/min]	550 670	550 670	550 650	550 600	550 650	550 630				
Note on standard non	ninal flow rate		MPA-S: 550 l/min	MPA-S: 550 l/min	MPA-S: 550 l/min	MPA-S: 550 l/min	MPA-S: 550 l/min	MPA-S: 550 l/mir				
			MPA-L: 670 l/min	MPA-L: 670 l/min	MPA-L: 650 l/min	MPA-L: 600 l/min	MPA-L: 650 l/min	MPA-L: 630 l/min				
Operating pressure		[MPa]	-0.09 +1		0.3 1			-0.09 +1				
		[bar]	-0.9 +10									
Pilot pressure		[MPa]	0.3 0.8									
·		[bar]	38									
Max. tightening torqu	e for valve	[Nm]	0.65									
mounting												
Materials			Die-cast aluminium									
Product weight		[g]	77									
Technical data – Valv	e width 14 m	m										
Code												
			G	E	X	W	D	1				
Design			G Piston spool valve	E	X	W	D	I				
•				E	X	w	D	I				
Sealing principle			Piston spool valve	E	X	W	D	I				
Sealing principle Overlap			Piston spool valve Soft	E	X Pneumatic spring	w	D	I				
Sealing principle Overlap Reset method	On	[ms]	Piston spool valve Soft Positive overlap	E		W	D 9	10				
Sealing principle Overlap Reset method	On Off		Piston spool valve Soft Positive overlap Mechanical spring		Pneumatic spring			10 28				
Sealing principle Overlap Reset method	Off	[ms] [ms]	Piston spool valve Soft Positive overlap Mechanical spring 10	12	Pneumatic spring	12	9					
Sealing principle Overlap Reset method		[ms] [ms]	Piston spool valve Soft Positive overlap Mechanical spring 10 40	12 40	Pneumatic spring	12 20	9	28				
Sealing principle Overlap Reset method Switching times	Off Change- over	[ms] [ms]	Piston spool valve Soft Positive overlap Mechanical spring 10 40	12 40	Pneumatic spring	12 20	9	28				
Sealing principle Overlap Reset method Switching times	Off Change- over w rate	[ms] [ms]	Piston spool valve Soft Positive overlap Mechanical spring 10 40 20	12 40 18	Pneumatic spring 12 20 -	12 20 -	9 26 -	28 – 550 670				
Sealing principle Overlap Reset method Switching times	Off Change- over w rate	[ms] [ms]	Piston spool valve Soft Positive overlap Mechanical spring 10 40 20 500 610	12 40 18 420 480	Pneumatic spring 12 20 - 360 400	12 20 - 300 340	9 26 - 550 650	28 – 550 670 MPA-S: 550 l/mir				
Sealing principle Overlap Reset method Switching times Standard nominal flo	Off Change- over w rate	[ms] [ms]	Piston spool valve Soft Positive overlap Mechanical spring 10 40 20 500 610 MPA-S: 500 l/min	12 40 18 420 480 MPA-S: 420 l/min	Pneumatic spring 12 20 - 360 400 MPA-S: 360 I/min	12 20 - 300 340 MPA-S: 340 l/min	9 26 - 550 650 MPA-S: 550 l/min	28 – 550 670 MPA-S: 550 l/mii				
Sealing principle Overlap Reset method Switching times Standard nominal floo Note on standard nom	Off Change- over w rate	[ms] [ms] [ms]	Piston spool valve Soft Positive overlap Mechanical spring 10 40 20 500 610 MPA-S: 500 l/min MPA-L: 610 l/min	12 40 18 420 480 MPA-S: 420 l/min	Pneumatic spring 12 20 - 360 400 MPA-S: 360 I/min	12 20 - 300 340 MPA-S: 340 l/min	9 26 - 550 650 MPA-S: 550 I/min MPA-L: 650 I/min	28 – 550 670 MPA-S: 550 l/mii				
Sealing principle Overlap Reset method Switching times Standard nominal flor Note on standard non Operating pressure	Off Change- over w rate	[ms] [ms] [ms] [[l/min]	Piston spool valve Soft Positive overlap Mechanical spring 10 40 20 500 610 MPA-S: 500 l/min MPA-L: 610 l/min -0.09 +1	12 40 18 420 480 MPA-S: 420 l/min	Pneumatic spring 12 20 - 360 400 MPA-S: 360 I/min	12 20 - 300 340 MPA-S: 340 l/min	9 26 - 550 650 MPA-S: 550 l/min MPA-L: 650 l/min 0.3 1	28 – 550 670 MPA-S: 550 l/mir				
Design Sealing principle Overlap Reset method Switching times Standard nominal floo Note on standard non Operating pressure Pilot pressure	Off Change- over w rate	[ms] [ms] [ms] [l/min]	Piston spool valve Soft Positive overlap Mechanical spring 10 40 20 500 610 MPA-S: 500 l/min MPA-L: 610 l/min -0.09 +1 -0.9 +10	12 40 18 420 480 MPA-S: 420 l/min	Pneumatic spring 12 20 - 360 400 MPA-S: 360 I/min	12 20 - 300 340 MPA-S: 340 l/min	9 26 - 550 650 MPA-S: 550 l/min MPA-L: 650 l/min 0.3 1	28 -				

Max. tightening torque for valve

mounting Materials

Product weight

[Nm]

[g]

0.65

77

Die-cast aluminium

Technical data – Valve wi	idth 14 mr	n								
Code			MS	NS		KS		HS	DS	
Design			Piston spool valve			:				
Sealing principle			Soft							
Overlap			Positive overlap							
Reset method			Mechanical spring							
Switching times	On	[ms]	10	12		12		12	10	
-	Off	[ms]	30	20		20		20	20	
	Change-	[ms]	-	-		-		_	-	
	over									
Max. switching frequency	,	[Hz]	2 –			-		_	-	
Standard nominal flow rate [l/min]			550 670	470) 520	470 560) .	470 520	500 570	
Note on standard nomina	l flow rate		MPA-S: 550 l/min MPA-L: 670 l/min		A-S: 470 l/min A-L: 520 l/min	MPA-S: 470 MPA-L: 560		MPA-S: 470 l/min MPA-L: 520 l/min	MPA-S: 500 l/min MPA-L: 570 l/min	
Operating pressure		[MPa]	-0.09+0.8	IVIE	4-L. 320 (/IIIIII	WIFA-L. JO	O t/IIIIII	WIFA-L. J20 (/IIIIII	MIFA-L. 370 (/IIIIII	
operating pressure			-0.09+0.8							
Pilot pressure		[bar]	0.3 0.8							
not pressure		[MPa] [bar]	38							
Max. tightening torque for	rvalvo	[Nm]	0.65	0.2	5					
max. tigntening torque for mounting	ı valve	[IIIII]	0.05	0.2	J					
Materials			Die-cast aluminium							
Product weight		[g]	77							
Troduct Weight		151	77	:		:				
Technical data – Valve wi	idth 14 mr	n								
Code			ES		EU		IS		IU	
Design		-	Poppet valve with s	oring return	:		<u>'</u>			
Sealing principle		-	Soft	<u></u>						
Overlap			Negative overlap							
Reset method			Mechanical spring							
Operating pressure		[MPa]	0.30.8							
operating pressure		[bar]	38							
Pilot pressure		[MPa]	0.3 0.8							
Thot pressure		[bar]	38							
Max. tightening torque for	rvalve	[Nm]	0.25							
mounting	i vaive	[IVIII]	0.23							
Materials			Die-cast aluminium							
Product weight		[g]	36							
r routet weight		191	30							
Technical data – Valve wi	idth 20 mr	n								
Code			M	J	N		K	Н	В	
Design			Piston spool valve							
Sealing principle			Soft							
Overlap			Positive overlap							
Reset method			Pneumatic spring						Mechanical spri	
Switching times	On	[ms]	15	9	8		8	8	11	
	Off	[ms]	28	-	28		28	28	46	
	Change-	[ms]	_	22			_	20	23	
	over	[III]			-			-	2)	
Standard nominal flow ra		[l/min]	670	670	5.5	0 610	500 550	550	510	
Note on standard nomina		[4,11111]	070	-		PA-S: 550 l/min	MPA-S: 500 l/r		-	
Note on Standard Holffilld	ii now rate					PA-L: 610 l/min	MPA-L: 550 l/r			
Operating pressure		[MPa]	-0.09 +1	'		3 1			-0.09 +1	
. •.		[bar]	-0.9 +10			10			-0.9 +10	
Pilot pressure		[MPa]	0.3 0.8		1				1	
-1		[bar]	38							
Max tightening torque for	rvalvo	[Nm]	0.65							

Max. tightening torque for valve mounting

Materials

Product weight

[Nm]

[g]

Die-cast aluminium

100

Code			G	lε	x	w	D	Li				
Code			G	E	٨	VV	טן	I				
Design			Piston spool valve									
Sealing principle			Soft	Soft								
Overlap			Positive overla	ıp								
Reset method			Mechanical sp	ring	Pneumatic sp	ring						
Switching times	On	[ms]	10	11	13	13	7	7				
	Off	[ms]	40	47	22	22	25	25				
	Change-	[ms]	21	23				-				
	over											
Standard nominal flo	w rate	[l/min]	610	590	470	470	650 840	650 850				
Note on standard nor	ninal flow rate		-	-	-	-	MPA-S: 650 l/min	MPA-S: 650 l/min				
							MPA-L: 840 l/min	MPA-L: 850 l/min				
Operating pressure		[MPa]	-0.09 +1				0.3 1	0.3 1				
		[bar]	-0.9 +10				3 10	310				
Pilot pressure		[MPa]	0.3 0.8				<u> </u>					
		[bar]	3 8									
Max. tightening torqu	ie for valve	[Nm]	0.65									
mounting												
Materials			Die-cast alum	nium								
Product weight		[g]	100									

Technical data – Valv	e width 20 mi	n									
Code			MS	NS	KS	HS	DS				
Design			Piston spool valve	Piston spool valve							
Sealing principle			Soft								
Overlap			Positive overlap								
Reset method			Mechanical spring								
Switching times	On	[ms]	8	12	12	12	12				
	Off	[ms]	36	25	25	25	25				
	Change-	[ms]	-	-	-	-	-				
	over										
Max. switching freque	ency	[Hz]	2	-	-	-	_				
Standard nominal flo	w rate	[l/min]	670 840	550 620	500	550	650 820				
Note on standard non	ninal flow rate		MPA-S: 670 l/min	MPA-S: 550 l/min	-	_	MPA-S: 650 l/min				
			MPA-L: 840 l/min	MPA-L: 620 l/min			MPA-L: 820 l/min				
Operating pressure		[MPa]	-0.09+0.8								
		[bar]	-0.9 +8								
Pilot pressure		[MPa]	0.3 0.8								
		[bar]	38								
Max. tightening torqu	e for valve	[Nm]	0.65	,							
mounting											
Materials			Die-cast aluminium	·		·					
Product weight		[g]	100		•						

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

Valve terminal MPA-S

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

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

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

Power supply for electronics and sensors
 Load voltage supply for valves
 Load voltage outside of function range

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

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

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

Dimensions Download CAD data → www.festo.com Valve terminal with multi-pin plug connection: H2 НЗ H4 L10 12 11 B 19 7 <u>D1</u> <u>L11</u> <u>2</u> B5 B3 B2 8 9 .15 L5 Н5 19 2 3 4 5 6 5 L20 [1] Solenoid valve MPA1 [12] Earthing screw [6] Working ports [2] Solenoid valve MPA2 H-rail [19] Vertical stacking MPA1 Solenoid valve MPA14 H-rail mounting [20] Vertical stacking MPA2 [3] [8] Manual override Mounting holes [4] [9] Supply/exhaust ports [11] Multi-pin plug connection [5] В5 В9 Type В1 B2 В3 В4 В6 В7 В8 B10 B11 B12 B13 B14 B15 MPA-S (MP) 107.3 178 149.2 133.8 128.9 66.3 33.5 65 23.5 7.5 6.6 4.4 11 6.6 18 D1 D2 H1 H2 H3 H4 H5 H6 H7 H8 Н9 H10 H11 H13 H14 Туре MPA-S (MP) M6 M4 132.3 60.5 59 56 84.9 63.1 23.9 23.1 10.8 9.8 45.1 22.1 20.3 H16 L31) L5¹⁾ L6 L7 L8 L9 Туре H17 L1 L10 L11 L12 L13 MPA-S (MP) 8.7 8.2 68.9 n x 42 n x 65.5 17.9 20 55.8 6.5 5.6 6.5 9 14.5

L20

5.3

1122

16.7

L23

18

119

10.5

Type MPA-S (MP) L15

13.5

L16

1

118

21

114

1.5

L29

9.1

L28

14.8

L25

7.7

126

12.7

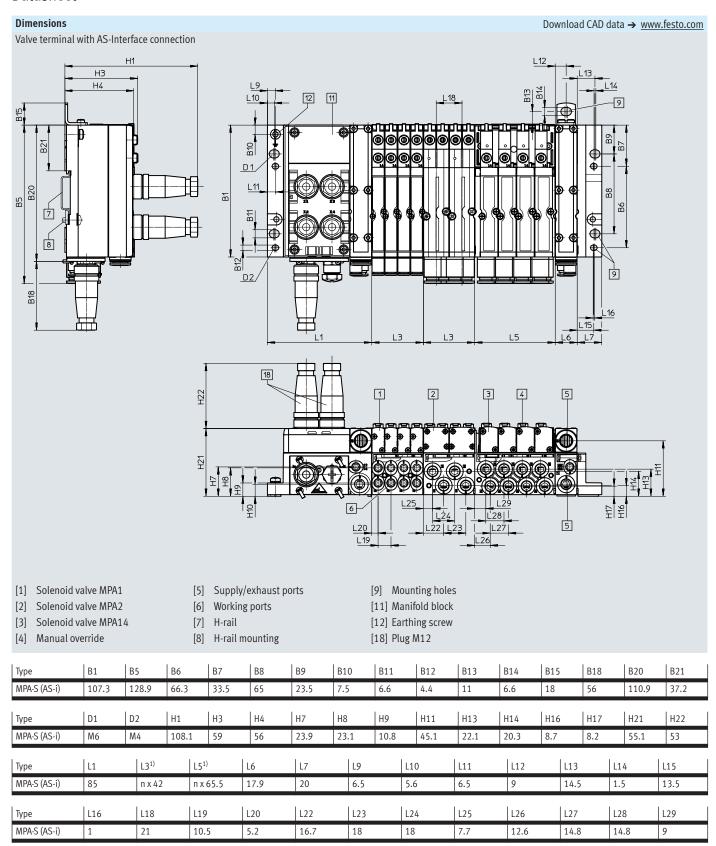
127

14.8

124

18

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



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

Dimensions Download CAD data → www.festo.com Valve terminal with CPI connection НЗ L11 D1 占 8 .15 i 1 14 15 2 3 4 5 5 [1] Solenoid valve MPA1 [15] Proportional pressure regulator [8] H-rail mounting Solenoid valve MPA2 Mounting holes [16] Connecting cable with angled [9] [2] Solenoid valve MPA14 [11] Manifold block [3] plug [4] Manual override [12] Earthing screw [17] Connecting cable with straight Supply/exhaust ports [13] Electrical supply plate [5] plug Working ports [14] Pressure sensor [6] H-rail [7] В1 R8 B10 B15 B20 Туре В5 В6 B7 B9 B11 B12 B13 B14 B16 B17 B18 B19 B21 MPA-S (CPI) 107.3 128.9 66.3 33.5 23.5 7.5 4.4 6.6 18 6.6 45.2 44.3 110.9 37.2 65 6.6 11 11 D1 D2 H1 Н2 H3 H4 H7 Н8 Н9 H10 H11 H12 H13 H14 H15 H17 Type H16 MPA-S (CPI) M4 M6 90.6 60.5 59.1 56 23.9 23.1 10.8 9.8 45.1 23.9 22.1 20.3 9.8 8.7 8.2 L5¹⁾ H18 H19 H20 L31) L9 Туре H21 L1 L4 L6 L7 L10 L11 L12 L13 MPA-S (CPI) 14.5 22.6 22.9 9.9 55.1 85 n x 42 32 17.9 20 6.5 5.5 n x 65.5 6.5 9 L14 L15 L17 L18 L19 L24 L25 L27 L28 L29 L30 L32 Туре L16 L20 L21 L22 L23 L26 MPA-S (CPI) 13.5 1 21 21 5.3 10.5 11.9 16.6 18 18 7.6 12.6 14.8 14.8 9 15.8 42

1.5

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

Datasheet

Dimensions Download CAD data → www.festo.com Valve terminal with fieldbus interface НЗ 10 3 4 5 5 [1] Solenoid valve MPA1 [8] H-rail mounting [14] Pressure sensor [2] Solenoid valve MPA2 [9] Mounting holes [15] Proportional pressure regulator Solenoid valve MPA14 [10] Pneumatic interface MPA [19] Vertical stacking MPA1 [3] Manual override [11] CPX module [20] Vertical stacking MPA2 [4] Supply/exhaust ports [12] Earthing screw [5] [6] Working ports [13] Electrical supply plate [7] H-rail В1 В2 В8 B11 B12 B13 B14 B15 B16 B17 D1 Type MPA-S (FB) 107.3 178 149.2 129 66.4 33.5 65 23.5 6.6 4.4 6.6 18 6.6 M6 M4 11 11 H1 H2 Н3 H4 H5 Н7 Н8 Н9 H10 H11 H12 H13 H14 H15 H16 H17 H18 H19 H20 Type MPA-S (FB) 132.3 60.5 59.1 84.9 23.9 23.1 10.8 9.8 23.9 22.1 20.3 22.6 22.9 9.9 56 45.1 9.8 8.7 8.2 L11) L32) L52) L14 Туре L2 L4 L6 L7 L8 L9 L10 L11 L12 L13 L16 L15 MPA-S (FB) m x 50.1 51.3 n x 42 32 n x 65.5 17.9 20 30 7.9 6.8 8.5 9 14.5 1.5 13.5 1

L17

21

L18

21

L19

5.3

L20

10.5

Туре

MPA-S (FB)

16.6

L23

18

L24

18

L25

7.6

L26

12.6

L27

14.8

L28

14.8

L30

15.8

L31

30.4

L32

42

L21

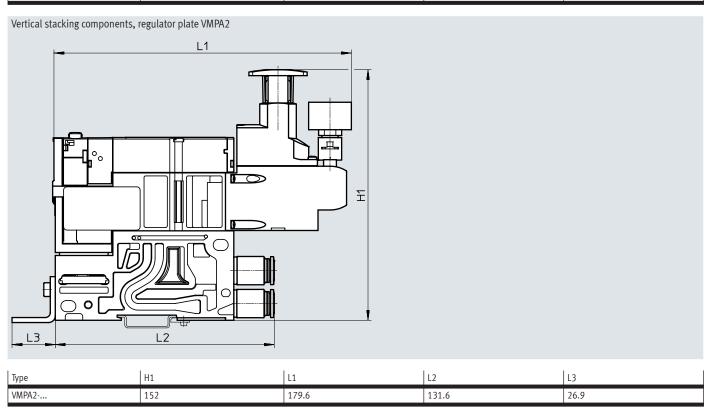
11.9

¹⁾ m = number of CPX modules

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

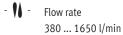
Datasheet

Dimensions Download CAD data → www.festo.com Vertical stacking components, regulator plate VMPA1 L1 Ξ L3 L2 H1 L1 L2 L3 Туре VMPA1-.. 105 151.1 122.3 26.9



Datasheet – Proportional pressure regulator VPPM

Function: +W -W -W 2



Pressure regulation ranges 0.02 ... 10 bar

- **** - Voltage 21.6 ... 26.4 V DC



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

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



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

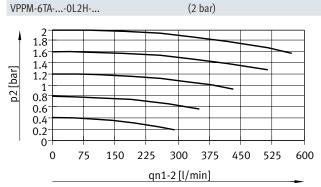


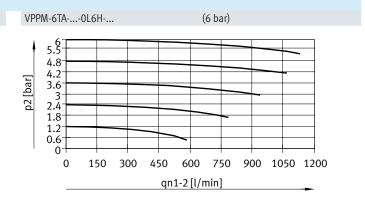
Note possible restrictions for the IP protection class

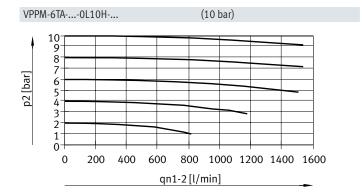
→ ATEX declaration of conformity

Datasheet - Proportional pressure regulator VPPM

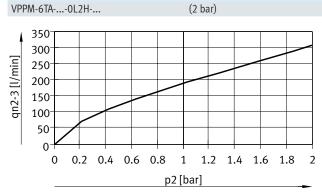
Flow rate qn from 1 \rightarrow 2 as a function of output pressure p2

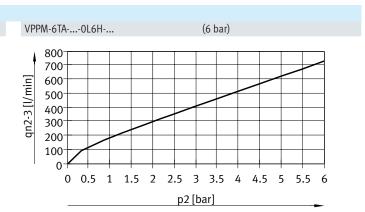


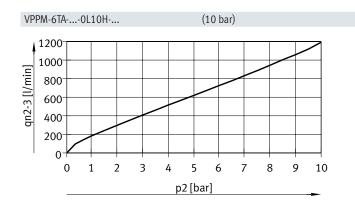




Flow rate qn from 2} \rightarrow 3 as a function of output pressure p2

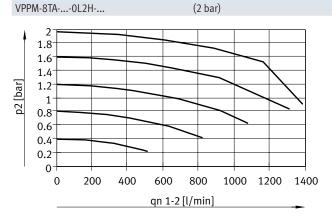


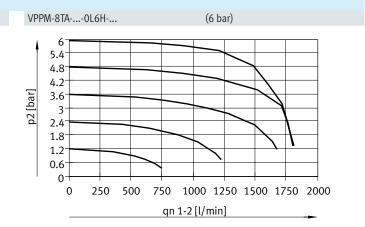


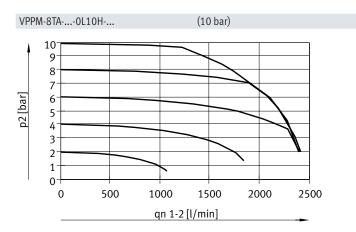


Datasheet - Proportional pressure regulator VPPM

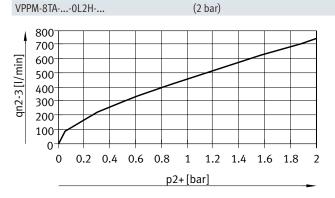
Flow rate qn from $1 \rightarrow 2$ as a function of output pressure p2

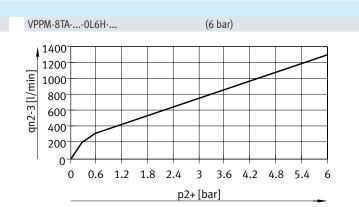


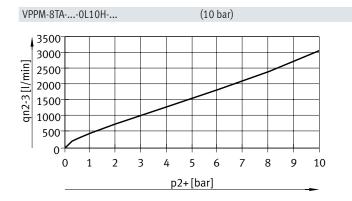




Flow rate qn from 2 \rightarrow 3 as a function of output pressure p2







Datasheet – Proportional pressure regulator VPPM

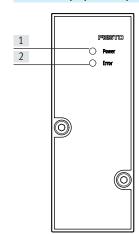
Operating and environmental conditions				
			VPPM-6TA	VPPM-8TA
Operating medium			Compressed air to ISO 8573	3-1:2010 [7:4:4]
			Inert gases	
Note on the operating/pilot medium			Lubricated operation not po	ossible
Pressure regulation range	VPPM0L2H	[MPa]	0.0020.2	
		[bar]	0.02 2	
	VPPM0L6H	[MPa]	0.006 0.6	
		[bar]	0.06 6	
	VPPM0L10H	[MPa]	0.01 1	
		[bar]	0.1 10	
Input pressure 1 ¹⁾	VPPM0L2H	[MPa]	00.4	
		[bar]	0 4	
	VPPM0L6H	[MPa]	0 0.8	
		[bar]	08	
	VPPM0L10H	[MPa]	0 1.1	
		[bar]	0 11	
Max. pressure hysteresis	VPPM0L2H	[bar]	0.01	
	VPPM0L6H	[bar]	0.03	
	VPPM0L10H	[bar]	0.05	
Linearity error FS (full scale)	Standard	[%]	2	
	Type S1	[%]	1	
Repetition accuracy FS (full scale)		[%]	0.5	
Temperature coefficient		[%/K]	0.04	
Ambient temperature		[°C]	0 60	0 50
Temperature of medium		[°C]	10 50	,
Corrosion resistance class CRC ²⁾			2	
KC marking			KC EMC	
CE marking (see declaration of conformity) ⁴⁾			To EU EMC Directive ³⁾	
			To EU RoHS Directive	
UKCA marking (see declaration of conformity) ⁴⁾			To UK EMC regulations ³⁾	
			To UK RoHS regulations	
Certification			RCM	
			c UL us - Listed (OL)	
Certificate-issuing authority			UL E322346	
LABS (PWIS) conformity			VDMA24364-B1/B2-L	

- 1) Input pressure 1 should always be 1 bar greater than the maximum regulated output pressure.
- 2) More information: www.festo.com/x/topic/crc
- 3) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/...

 Support/Downloads.

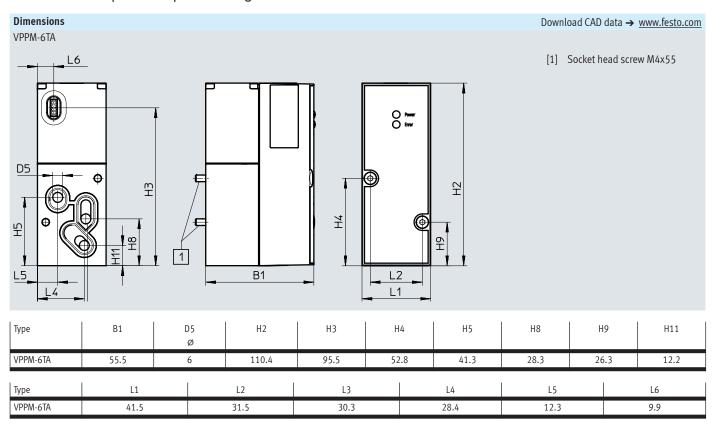
 If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
- More information: www.festo.com/catalogue/... → Support/Downloads.

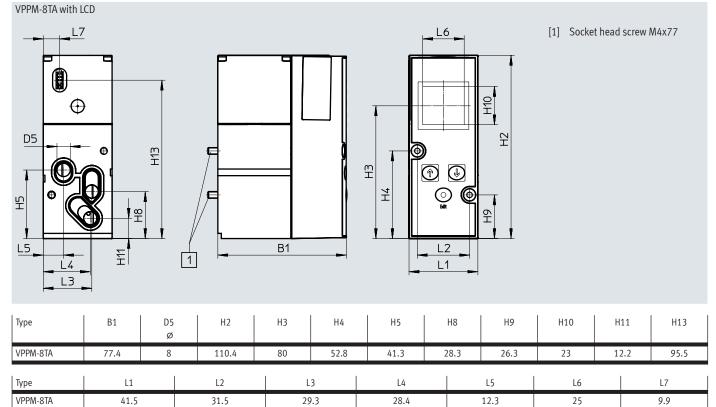
LEDs on the proportional pressure regulator VPPM-6TA



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

Datasheet - Proportional pressure regulator VPPM





Datasheet – Proportional pressure regulator VPPM

Ordering data					
Code	Overall accuracy [%]	Input pressure 1 [MPa]	Pressure regulation range [MPa]	Part no.	Туре
QA	2	0 0.4	0.002 0.2	542220	VPPM-6TA-L-1-F-0L2H
QD	1	0 0.4	0.002 0.2	542217	VPPM-6TA-L-1-F-0L2H-S1
QB	2	00.8	0.006 0.6	542221	VPPM-6TA-L-1-F-0L6H
QE	1	0 0.8	0.006 0.6	542218	VPPM-6TA-L-1-F-0L6H-S1
QC	2	0 1.1	0.01 1	542222	VPPM-6TA-L-1-F-0L10H
QF	1	0 1.1	0.01 1	542219	VPPM-6TA-L-1-F-0L10H-S1
QL	1	0 0.4	0.002 0.2	572407	VPPM-8TA-L-1-F-0L2H-S1C1
QG	2	0 0.4	0.002 0.2	572410	VPPM-8TA-L-1-F-0L2H-C1
QM	1	00.8	0.006 0.6	572408	VPPM-8TA-L-1-F-0L6H-S1C1
QH	2	00.8	0.006 0.6	572411	VPPM-8TA-L-1-F-0L6H-C1
QN	1	0 1.1	0.01 1	572409	VPPM-8TA-L-1-F-0L10H-S1C1
QK	2	0 1.1	0.01 1	572412	VPPM-8TA-L-1-F-0L10H-C1

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

Ordering data				
	Code	Valve function	Part no.	Туре
Individual solenoid valv	e – width 10 mm			
	5/2-way valve			
	Position function 1-32: M Single solenoid			VMPA1-M1H-M-PI
The state of the s	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,	553113	VMPA1-M1H-MU-PI
•		mechanical spring return		
	Position function 1-32: J	Double solenoid	533343	VMPA1-M1H-J-PI
	2x 3/2-way valve	N II .	522240	WADAG MALI N DI
	Position function 1-32: N Position function 1-32: NS	Normally open	533348	VMPA1-M1H-N-PI
	POSITION IUNICTION 1-32: NS	Normally open, mechanical spring return	556839	VMPA1-M1H-NS-PI
	Position function 1-32: NU	Polymer poppet valve, normally open,	553111	VMPA1-M1H-NU-PI
	1 osition function 1 32: No	mechanical spring return	333111	VIII ALI MILI NO II
	Position function 1-32: K	Normally closed	533347	VMPA1-M1H-K-PI
	Position function 1-32: KS	normally closed,	556838	VMPA1-M1H-KS-PI
		mechanical spring return		
	Position function 1-32: KU	Polymer poppet valve, normally closed,	553110	VMPA1-M1H-KU-PI
		mechanical spring return		
	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,	556840	VMPA1-M1H-HS-PI
		mechanical spring return		
	Position function 1-32: HU	Polymer poppet valve,	553112	VMPA1-M1H-HU-PI
		1x normally open, 1x normally closed,		
	E/2 way ya bia	mechanical spring return		
	5/3-way valve Position function 1-32: B	Mid-position pressurised	533344	VMPA1-M1H-B-PI
	Position function 1-32: G	Mid-position pressurised Mid-position closed	533345	VMPA1-M1H-G-PI
	Position function 1-32: E	Mid-position etosed Mid-position exhausted	533346	VMPA1-M1H-E-PI
	1x 3/2-way valve	mid position exhausted	333340	VMI AZ MZII Z I I
	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	1	00 / 120	
	Position function 1-32: D	Normally closed	533350	VMPA1-M1H-D-PI
	Position function 1-32: DS	normally closed,	556841	VMPA1-M1H-DS-PI
		mechanical spring return		
	Position function 1-32: I	1x normally closed,	543605	VMPA1-M1H-I-PI
		1x normally closed, reversible only		
Vacant position – width	10 mm			
R\	Position function 1-32: L	Cover plate for a valve position in width 10 mm	533351	VMPA1-RP
		A self-adhesive label is supplied.		
*				
Pilot air switching valve		Tale and the second sec		I.m
	Valve positions 0-64	3/2-way pilot air switching valve, internal pilot air supply via duct 1 of	8126790	VMPA1-M1H-IS-PI
		the pressure zone	0436703	VMDA1 M1U III DI
		3/2-way pilot air switching valve, internal pilot air supply via duct 1 of the pressure zone, with pilot air detection via sensor, external, M8 plug	8126792	VMPA1-M1H-IU-PI
		the pressure zone, with pilot air detection via sensor, external, M8 plug		
277		Connection		
	Valve positions 0-64	3/2-way pilot air switching valve, external pilot air supply via duct 2 of	8126791	VMPA1-M1H-ES-PI
	valve positions 0-04	manifold block	0120/71	VMI AT-MITI-ES-TT
		3/2-way pilot air switching valve, external pilot air supply via duct 2 of	8126793	VMPA1-M1H-EU-PI
		the manifold block, with pilot air detection via sensor, external, M8		
		plug connection		

Valve terminal MPA-S

	Code	Description			Part no.	Туре
rtical stacking mod	ules – width 10 mm					
n)	Pressure regulator 1-32: PF	Pressure regulator plate	For port 1	0.5 6 bar	564911	VMPA1-B8-R1-M5-06
	Pressure regulator 1-32: PA	with fixed threaded con-		0.5 8.5 bar	564908	VMPA1-B8-R1-M5-10
	Pressure regulator 1-32: PH	nection M5	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
1	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
n	Pressure regulator 1-32: PF	Pressure regulator plate	For port 1	0.5 6 bar	549052	VMPA1-B8-R1C2-C-06
	Pressure regulator 1-32: PA	with swivelling threaded connection M5		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	For manually disconnecting air supply of the valve terms	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			VMPA1-HS
	Pressure gauge 1-32: VE	Screw-in pressure gauge sure regulator plate with s		Unit of measure:	132340	MA-15-10-M5
	Pressure gauge 1-32: VD	nection Unit of measure:			132341	MA-15-145-M5-PSI
	Pressure gauge 1-32: VC	Locking push-in fitting with thread M5 for pressure regulator plate			153291	QSK-M5-4

Ordering data						
	Code	Description		Part no.	Туре	PU ¹⁾
Fixed flow restrictor – W	idth 10 mm					
	Pneumatic port 3, 1-40: V03	Hollow bolt, for flow control of the	3.5 5.5 l/min	572544	VMPA1-FT-NW0.3-10	10
	Pneumatic port 5, 1-40: Q03	exhaust air				
\mathbb{H}	Pneumatic port 3, 1-40: V05		9 12 l/min	572545	VMPA1-FT-NW0.5-10	10
	Pneumatic port 5, 1-40: Q05					
	Pneumatic port 3, 1-40: V07		18 22 l/min	572546	VMPA1-FT-NW0.7-10	10
	Pneumatic port 5, 1-40: Q07					
	Pneumatic port 3, 1-40: V10		36 41 l/min	572547	VMPA1-FT-NW1.0-10	10
	Pneumatic port 5, 1-40: Q10					
	Pneumatic port 3, 1-40: V12		52 58 l/min	572548	VMPA1-FT-NW1.2-10	10
	Pneumatic port 5, 1-40: Q12					
	Pneumatic port 3, 1-40: V15		81 89 l/min	572549	VMPA1-FT-NW1.5-10	10
	Pneumatic port 5, 1-40: Q15					
	Pneumatic port 3, 1-40: V17		105 115 l/min	572550	VMPA1-FT-NW1.7-10	10
	Pneumatic port 5, 1-40: Q17					
Restrictor set – width 10) mm					
	_	Fixed flow restrictor, two of each size		572543	VMPA1-FT-NW0.3-1.7	14
		two retainers and one assembly too	ĺ			
Retainer for fixed flow re	strictor – Width 10 mm					
	-	Retainer for exhaust outlet in the po	rt plate	572542	VMPA1-FTI-10	10
			-1	3, 23, 12		- 9
125						

¹⁾ Packaging unit.

Ordering data	Code	Description		Part no.	Туре
Sub-base – width 10 m		Description	:	Turtino.	Турс
Sub-base – Width 10 ii	 -	For multi-pin plug/fieldbus, four valve posi-	No duct separation	533352	VMPA1-FB-AP-4-1
		tions, no electrical interlinking module	Duct 1 blocked	538657	VMPA1-FB-AP-4-1-T1
			Duct 1 blocked and duct	555901	VMPA1-FB-AP-4-1-S1
			3/5 blocked		
Sub-bases with check v	/alve in duct 3 and 5 – w	idth 10 mm			
1 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2 2	-	For multi-pin plug/fieldbus, four valve posi-	No duct separation	8034547	VMPA1-FB-AP-4-1-RV
		tions, no electrical interlinking module	Duct 1 blocked	8034549	VMPA1-FB-AP-4-1-T1-RV
			Duct 1 blocked and duct 3/5 blocked	8034551	VMPA1-FB-AP-4-1-S1-RV
Sub-base – including e	electrical interlinking and	d electronics modules – width 10 mm			
	_	For fieldbus	Four valve positions	546802	VMPA1-AP-4-1-EMS-8
		For multi-pin plug	Four solenoid coils	546806	VMPA1-AP-4-1-EMM-4
			Eight solenoid coils	546804	VMPA1-AP-4-1-EMM-8
				8157743	VMPA1-AP-4-EMM-8-SK
				8157744	VMPA1-AP-4-EMM-8-SL
		For fieldbus	Eight solenoid coils	8157739	VMPA1-AP-4-EMG-8-S
				8157740	VMPA1-AP-4-EMG-D2-8-S
Inscription label holde	r for sub-base – width 10	O mm			
	-	For foil Inscription label holder for sub-base, transpa	arent, for paper foil label	533362	VMPA1-ST-1-4
	-	For IBS Inscription label holder for sub-base, 4-fold,	for IBS-6x10	544384	VMPA1-ST-2-4
	-	Inscription labels, 6 x 10 in frames, pack of 6	54	18576	IBS-6x10
Sub-base – width 10 m	ım				
M	-	For individual connection, without ATEX	Internal pilot air	533394	VMPA1-IC-AP-1
		specification	External pilot air	533395	VMPA1-IC-AP-S-1
		For individual connection, with ATEX specifi-	Internal pilot air	8005149	VMPA1-IC-AP-1-EX1E
00000		cation: II 3G Ex nA IICT4 XGc	External pilot air	8005150	VMPA1-IC-AP-S-1-EX1E
Electronics module – w	ridth 10 mm				
	-	For fieldbus connection,	8 coils	533360	VMPA1-FB-EMS-8
		without separate circuit			
		For fieldbus connection,	8 coils	533361 8108543	VMPA1-FB-EMG-8
		with separate circuit	·		VMPA1-FB-EM-8-S
		For fieldbus connection, with enhanced diagnostic function, without separate circuit	8 coils	543331	VMPA1-FB-EMS-D2-8
		For fieldbus connection, with enhanced di-	8 coils	543333	VMPA1-FB-EMG-D2-8
		agnostic function, with separate circuit		8108545	VMPA1-FB-EMG-D2-8-S
		For multi-pin plug connection	4 coils	537987	VMPA1-MPM-EMM-4
			8 coils	537988	VMPA1-MPM-EMM-8

Ordering data	Ordering data						
	Code	Description		Part no.	Туре		
Electrical interlinking mo	dule – width 10 mm						
	-	For a multi-pin connection and AS-Interface for a sub-	4 coils	537993	VMPA1-MPM-EV-AB-4		
		base	8 coils	537994	VMPA1-MPM-EV-AB-8		
		For multi-pin plug connection and AS-Interface for a	4 coils	537995	VMPA1-MPM-EV-ABV-4		
		sub-base with pneumatic supply plate (on the left	8 coils	537996	VMPA1-MPM-EV-ABV-8		
		next to the sub-base)					
San Comment	-	For fieldbus connection and CPI, for sub-bases MPA siz	e 1 and 2 and propor-	537998	VMPA1-FB-EV-AB		
		tional pressure regulator					
		For fieldbus connection and CPI for a pneumatic supply	537999	VMPA1-FB-EV-V			

Ordering data							
	Code	Valve function	Part no.	Туре			
Individual solenoid va	lve – width 14 mm						
	5/2-way valve						
	Position function 1-32: M	Single solenoid	573718	VMPA14-M1H-M-PI			
	Position function 1-32: MS	Single solenoid, mechanical spring return	573974	VMPA14-M1H-MS-PI			
	Position function 1-32: J	Double solenoid	573717	VMPA14-M1H-J-PI			
	2x 3/2-way valve						
	Position function 1-32: N	Normally open	573725	VMPA14-M1H-N-PI			
	Position function 1-32: NS	Normally open,	575977	VMPA14-M1H-NS-PI			
		mechanical spring return					
	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,	575979	VMPA14-M1H-HS-PI			
		mechanical spring return					
	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,	575978	VMPA14-M1H-DS-PI			
		mechanical spring return					
	Position function 1-32: I	1x normally closed,	573728	VMPA14-M1H-I-PI			
		1x normally closed,					
		reversible only					
acant position – widt	:h 14 mm						
	Position function 1-32: L	Cover plate for a valve position in width 14 mm	573729	VMPA14-RP			
		A self-adhesive label is supplied.					
	- 14G d4b 4 /						
ilot air switching valv	Valve positions 0-64	3/2-way pilot air switching valve, internal pilot air supply via duct 1 of	8126785	VMPA14-M1H-IS-PI			
	valve positions 0-04	the pressure zone	0120/03	AMILATA-MITH-13-E1			
THE SERVICE SERVICES		3/2-way pilot air switching valve, internal pilot air supply via duct 1 of	8126787	VMPA14-M1H-IU-PI			
		the pressure zone, with pilot air detection via sensor, external, M8	0120707	VIII ALT III IO I I			
		plug connection					
	Valve positions 0-64	3/2-way pilot air switching valve, external pilot air supply via duct 2 of manifold block	8126786	VMPA14-M1H-ES-PI			
Million.		3/2-way pilot air switching valve, external pilot air supply via duct 2 of	8126788	VMPA14-M1H-EU-PI			
		the manifold block, with pilot air detection via sensor, external, M8	2220,00				
		plug connection					
		-					

Ordering data						
	Code	Description			Part no.	Туре
Vertical stacking module	s – width 14 mm					
R.	Pressure regulator 1-32: PF	Optional pressure	Pressure regulator for 1	0.5 6 bar	8043342	VMPA14-B8-R1C2-C-06
	Pressure regulator 1-32: PA	gauge possible		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
(4)	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 sup- ply plate	Connecting thread	G1/8	8110621	VMPA14-VSP-0
<u> </u>	-		With fitting for tubing	6 mm	8110627	VMPA14-VSP-QS6
			O.D.	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, internal pilot air supply			8110429	VMPA14-HS
	Pressure gauge 1-32: VE		e with M5 thread for pres- h swivelling threaded con-	Unit of measure: bar	132340	MA-15-10-M5
	Pressure gauge 1-32: VD	nection		Unit of measure: psi	132341	MA-15-145-M5-PSI
	Pressure gauge 1-32: VC	Push-in fitting, self-sealing, with M5 thread for pressure regulator plate			153291	QSK-M5-4
Check valve – width 14 n	nm					
	-	Check valve for installat (scope of delivery: 10 ch	ion in duct 3 or 5 neck valves, one assembly to	pol)	8039820	VMPA14-RV

Valve terminal MPA-S

	Code	Description	·	Part no.	Туре
ub-base – width 14	mm				
100000	-	For multi-pin plug/fieldbus, four valve posi-	No duct separation	8074666	VMPA14-FB-AP-4-1
		tions, no electrical interlinking module	Duct 1 blocked	8043928	VMPA14-FB-AP-4-1-T1
			Duct 1 blocked and duct	8043929	VMPA14-FB-AP-4-1-S1
			3/5 blocked		
ub-base – including	electrical interlinking	and electronics modules – width 14 mm			
	-	For fieldbus	Four valve positions	8066778	VMPA14-AP-4-1-EMS-8
		For multi-pin plug	Four solenoid coils	8066779	VMPA14-AP-4-1-EMM-4
			Eight solenoid coils	8066780	VMPA14-AP-4-1-EMM-8
				8157745	VMPA14-AP-4-EMM-8-SK
				8157746	VMPA14-AP-4-EMM-8-SL
•		For fieldbus	Eight solenoid coils	8157741	VMPA14-AP-4-EMG-8-S
				8157742	VMPA14-AP-4-EMG-D2-8-S
nscription label hold	er for sub-base – widtl -	For foil Inscription label holder for sub-base, transpa	arent, for paper foil label	8085996	VMPA14-ST-1-4
	-	For IBS Inscription label holder for sub-base, 4-fold,	for IBS-6x10	8085997	VMPA14-ST-2-4
	-	Inscription labels, 6 x 10 in frames, pack of 6	54	18576	IBS-6x10
Sub-base – width 14	mm	,			
M)	-	For individual connection, without ATEX	Internal pilot air	8023666	VMPA14-IC-AP-1
		specification	External pilot air	8023667	VMPA14-IC-AP-S-1
		For individual connection, with ATEX specifi-	Internal pilot air	8023668	VMPA14-IC-AP-1-EX1E
and the second		cation:	External pilot air	8023669	VMPA14-IC-AP-S1-EX1E
\ \(\bar{\chi} \cdot \chi \)	1	II 3G Ex nA IIC T4 XGc			

Ordering data					
	Code	Description		Part no.	Туре
Electronics module – v	vidth 14 mm				
	-	For fieldbus connection, without separate circuit	8 coils	8066764	VMPA14-FB-EMS-8
		For fieldbus connection,	8 coils	8066765	VMPA14-FB-EMG-8
		with separate circuit		8108547	VMPA14-FB-EMG-8-S
		For fieldbus connection, with enhanced diagnostic function, without separate circuit	8 coils	8066766	VMPA14-FB-EMS-D2-8
		For fieldbus connection, with enhanced di-	8 coils	8066767	VMPA14-FB-EMG-D2-8
		agnostic function, with separate circuit		8108549	VMPA14-FB-EMG-D2-8-S
		For multi-pin plug connection	4 coils	8066768	VMPA14-MPM-EMM-4
			8 coils	8066769	VMPA14-MPM-EMM-8
Electrical interlinking	module – width 14 mm	1			
	-	For a multi-pin connection and AS-Interface	4 coils	8066770	VMPA14-MPM-EV-AB-4
/ *** * **		for a sub-base	8 coils	8066771	VMPA14-MPM-EV-AB-8
		For multi-pin plug connection and AS-Interface for a sub-base with pneumatic supply	4 coils	8066772	VMPA14-MPM-EV-ABV-4
		plate (on the left next to the sub-base)	8 coils	8066773	VMPA14-MPM-EV-ABV-8
	-	For fieldbus connection and CPI, for sub-base	es MPA size 14	8066774	VMPA14-FB-EV-AB

Valve terminal MPA-S

rdering data							
	Code	Valve function	Part no.	Type			
lividual solenoid valv	ve – width 20 mm						
	5/2-way valve						
	Position function 1-32: M	Single solenoid	537952	VMPA2-M1H-M-PI			
1.	Position function 1-32: MS	Single solenoid, mechanical spring return	571333	VMPA2-M1H-MS-PI			
	Position function 1-32: J	Double solenoid	537953	VMPA2-M1H-J-PI			
	2x 3/2-way valve						
	Position function 1-32: N	Normally open	537958	VMPA2-M1H-N-PI			
	Position function 1-32: NS	Normally open, 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	537954	VMPA2-M1H-B-PI			
	Position function 1-32: G	Mid-position closed	537955	VMPA2-M1H-G-PI			
	Position function 1-32: E	Mid-position exhausted	537956	VMPA2-M1H-E-PI			
	1x 3/2-way valve		1	•			
	Position function 1-32: W	Normally open, external compressed air supply	540051	VMPA2-M1H-W-PI			
	Position function 1-32: X	Normally closed, external compressed air supply	537961	VMPA2-M1H-X-PI			
	2x 2/2-way valve		,				
	Position function 1-32: D	Normally closed	537960	VMPA2-M1H-D-PI			
	Position function 1-32: DS	normally closed,	568657	VMPA2-M1H-DS-PI			
		mechanical spring return					
	Position function 1-32: I	1x normally closed,	543703	VMPA2-M1H-I-PI			
		1x normally closed, reversible only					
ant position – width	1 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			

Ordering data						
	Code	Valve function			Part no.	Туре
Vertical stacking module	es – width 20 mm					
M -	Pressure regulator 1-32: PA	Pressure regulator plate	For port 1	0.5 8.5 bar	543342	VMPA2-B8-R1C2-C-10
	Pressure regulator 1-32: PF	(with 10 mm cartridge		0.5 8.5 bar	549055	VMPA2-B8-R1C2-C-06
	Pressure regulator 1-32: PC	connection for pressure	For port 2	2 8.5 bar	543343	VMPA2-B8-R2C2-C-10
	Pressure regulator 1-32: PH	gauge)		2 8.5 bar	549056	VMPA2-B8-R2C2-C-06
	Pressure regulator 1-32: PB		For port 4	2 8.5 bar	543344	VMPA2-B8-R3C2-C-10
	Pressure regulator 1-32: PG			2 8.5 bar	549057	VMPA2-B8-R3C2-C-06
	Pressure regulator 1-32: PL		For port 2, reversible	0.5 8.5 bar	543347	VMPA2-B8-R6C2-C-10
	Pressure regulator 1-32: PN			0.5 6 bar	549113	VMPA2-B8-R6C2-C-06
	Pressure regulator 1-32: PK		For port 4, reversible	0.5 8.5 bar	543348	VMPA2-B8-R7C2-C-10
	Pressure regulator 1-32: PM			0.5 6 bar	549114	VMPA2-B8-R7C2-C-06
	Pressure regulator 1-32: PV	Vertical pressure supply plate	Connecting thread	G1/8	8029486	VMPA2-VSP-0
MI]		With fitting for tubing	6 mm	8035441	VMPA2-VSP-QS6
			0.D.	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	Display unit	0 16 bar	543487	PAGN-26-16-P10
		cartridge connection, for	bar/psi	0 10 bar	543488	PAGN-26-10-P10
	-	pressure regulator plate	Display unit	0 1.0 MPa	563736	PAGN-26-1M-P10
			MPa	0 1.6 MPa	563735	PAGN-26-1.6M-P10
	Pressure gauge 1-32: VF	Threaded adapter for cartr	idge connection 10 mm to	thread G1/8	565811	QSP10-G1/8
Check valve – width 20 r	mm			·		
	-	Check valve for installation (scope of delivery: 10 chec		ol)	8039821	VMPA2-RV

Ordering data					
	Code	Description		Part no.	Туре
Sub-base – width 20 r	mm				
	-	For multi-pin plug/fieldbus, two valve posi-	No duct separation	538000	VMPA2-FB-AP-2-1
		tions, no electrical interlinking module	Duct 1 blocked	538677	VMPA2-FB-AP-2-1-T0
			Duct 1 blocked and duct	555902	VMPA2-FB-AP-2-1-S0
			3/5 blocked		
ub-bases for check v	alves – width 20 mm				
	-	For multi-pin plug/fieldbus, two valve posi-	No duct separation	578863	VMPA2-FB-APF-2-1
		tions, no electrical interlinking module	Duct 1 blocked	578864	VMPA2-FB-APF-2-1-T0
			Duct 1 blocked and duct	578865	VMPA2-FB-APF-2-1-S0
			3/5 blocked		
ub-bases with check	valve in duct 3 and 5 – v	vidth 20 mm			
	_	For multi-pin plug/fieldbus, two valve posi-	No duct separation	8034548	VMPA2-FB-AP-2-1-RV
		tions, no electrical interlinking module	Duct 1 blocked	8034550	VMPA2-FB-AP-2-1-T0-RV
			Duct 1 blocked and duct	8034552	VMPA2-FB-AP-2-1-S0-RV
			3/5 blocked		
ub-base – including	electrical interlinking ar	nd electronics modules – width 20 mm			
	-	For fieldbus	Two valve positions	546803	VMPA2-AP-2-1-EMS-4
		For multi-pin plug	Two solenoid coils	546807	VMPA2-AP-2-1-EMM-2
			Four solenoid coils	546805	VMPA2-AP-2-1-EMM-4
scription label holde	er for sub-base – width 2	· · · · · · · · · · · · · · · · · · ·			
	_	For foil Inscription label holder for sub-base, transpa	arent, for paper foil label	533362	VMPA1-ST-1-4
	-	For IBS		544384	VMPA1-ST-2-4
		Inscription label holder for sub-base, 4-fold,	f== IDC (10		
		iliscription tabel flotder for sub-base, 4-lold,	101 182-9X10		
		inscription tabet notice for sub-base, 4-rota,	101.182-9X10		
	-	Inscription labels, 6 x 10 in frames, pack of 6		18576	IBS-6x10
	-			18576	IBS-6x10
ub-base – width 20 i				18576	IBS-6x10
ub-base – width 20 r				18576 537981	IBS-6x10 VMPA2-IC-AP-1
ub-base – width 20 r		Inscription labels, 6 x 10 in frames, pack of 6			
ub-base – width 20 r		Inscription labels, 6 x 10 in frames, pack of 6	Internal pilot air External pilot air Internal pilot air	537981	VMPA2-IC-AP-1
Sub-base – width 20 r		For individual connection, without ATEX specification For individual connection, with ATEX specification:	Internal pilot air External pilot air	537981 537982	VMPA2-IC-AP-1 VMPA2-IC-AP-S-1
iub-base – width 20 i		For individual connection, without ATEX specification For individual connection, with ATEX specification	Internal pilot air External pilot air Internal pilot air	537981 537982 8005151	VMPA2-IC-AP-1 VMPA2-IC-AP-S-1 VMPA2-IC-AP-1-EX1E

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

Valve terminal MPA-S

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

Ordering data			
Designation		Part no.	Туре
Sub-base for proportiona			
	without electrical interlinking module and without electronics module	542223	VMPA-FB-AP-P1
Electronics module for pr	oportional pressure regulator		
	-	542224	VMPA-FB-EMG-P1

Ordering data Designation				Part no.	Туре
nd plate and fieldbus	pneumatic interface				
	End plate, right	with port 82/84 for ducted exhaust air (M5 connecting thread)	_	8029133	VMPA-EPR-G
		Without port 82/84	-	533373	VMPA-EPR
	Pneumatic interface	Ducted exhaust air, internal pilot air	For CPX plastic interlink- ing block	533370	VMPA-FB-EPL-G
			For CPX metal interlink- ing block	552286	VMPA-FB-EPLM-G
		Ducted exhaust air, external pilot air	For CPX plastic interlink- ing block	533369	VMPA-FB-EPL-E
			For CPX metal interlink- ing block	552285	VMPA-FB-EPLM-E
		Flat plate silencer, inter- nal pilot air	For CPX plastic interlink- ing block	533372	VMPA-FB-EPL-GU
			For CPX metal interlink- ing block	552288	VMPA-FB-EPLM-GU
		Flat plate silencer, exter- nal pilot air	For CPX plastic interlink- ing block	533371	VMPA-FB-EPL-EU
			For CPX metal interlink- ing block	552287	VMPA-FB-EPLM-EU
ectrical interface for A	AS-Interface				
No.		Internal pilot air	Ducted exhaust air	546989	VMPA-ASI-EPL-G-4E4A-Z
		memar proc an	Silencer	546991	VMPA-ASI-EPL-GU-4E4A-Z
	100,000	External pilot air	Ducted exhaust air	546988	VMPA-ASI-EPL-E-4E4A-Z
		External prior an	Silencer	546990	VMPA-ASI-EPL-EU-4E4A-Z
	9 inputs/9 outputs	Internal pilot air	Ducted exhaust air	546993	VMPA-ASI-EPL-G-8E8A-Z
		internal pilot an	Silencer	546995	VMPA-ASI-EPL-G-8E8A-Z
	to spec. 2.1	External pilot air	Ducted exhaust air		
		External pilot an		546992	VMPA-ASI-EPL-E-8E8A-Z
*	0: 1:/0:- 1 1:	1.	Silencer	546994	VMPA-ASI-EPL-EU-8E8A-Z
		Internal pilot air	Ducted exhaust air	573184	VMPA-ASI-EPL-G-8E8A-CE
	to spec. 3.0, expanded addressing range		Silencer	573186	VMPA-ASI-EPL-GU-8E8A-CE
		External pilot air	Ducted exhaust air	573183	VMPA-ASI-EPL-E-8E8A-CE
			Silencer	573185	VMPA-ASI-EPL-EU-8E8A-CE
anifold block for AS-I	nterface			-	
	Socket M12, 5-pin			195704	CPX-AB-4-M12X2-5POL
	M8 socket, 3-pin			195706	CPX-AB-8-M8-3POL
	Spring-loaded terminals, 32-pin			195708	CPX-AB-8-KL-4POL
	Socket, Sub-D, 25-pin			525676	CPX-AB-1-SUB-BU-25POL
ectrical interface for (Lunna col col c
	External pilot air	Ducted exhaust air		546983	VMPA-CPI-EPL-E
		Silencer		546985	VMPA-CPI-EPL-EU
200 300	Internal pilot air	Ducted exhaust air Silencer		546984 546986	VMPA-CPI-EPL-G VMPA-CPI-EPL-GU
and the street					
lectrical interface for i		Durated and the Co		F / C C C C	WADA4 MDM ED! E
	External pilot air	Ducted exhaust air		540893	VMPA1-MPM-EPL-E
		Silencer		540895	VMPA1-MPM-EPL-EU
Pneumatic interface Pneumatic interface As-Interface 4 inputs/4 outputs, to spec. 2.1 8 inputs/8 outputs, to spec. 2.1 8 inputs/8 outputs, to spec. 3.0, expanded addressing rar anifold block for As-Interface Socket M12, 5-pin M8 socket, 3-pin	Internal pilot air	Ducted exhaust air Silencer		540894 540896	VMPA1-MPM-EPL-G VMPA1-MPM-EPL-GU

Ordering data Designation		ı	Part no.	Туре
Electrical supply plate			T dit iio.	Турс
ciectrical supply plate	Plug connection M18, 3-pin		541082	VMPA-FB-SP-V
1 m	Plug connection 7/8", 5-pin		541082	VMPA-FB-SP-7/8-V-5POL
	Plug connection 7/8", 4-pin		541085	VMPA-FB-SP-7/8-V-4POL
	riug connection 7/8 , 4-pm		341004	VMIRAL D-3F-7/6-V-4FUL
Pressure sensor				
	For monitoring the operating pressure in duct 1		541085	VMPA-FB-PS-1
The state of the s	For monitoring the pressure in exhaust ducts 3 and 5		541086	VMPA-FB-PS-3/5
	For monitoring an external process pressure	541087	VMPA-FB-PS-P1	
Covering				
	Cover plate		559638	VMPA-P-RP
	Cover cap for manual override with coded cover cap, manual override non-det	enting (10 pieces)	540897	VMPA-HBT-B
	Cover cap for manual override, concealed, manual override blocked (pack of 1))	540898	VMPA-HBV-B
\wedge	Cover cap for manual override, manual override detenting, can be operated m	anually without accesso-	8002234	VAMC-L1-CD
	ries (pack of 10)	·		
	Inscription label holder for inscription label and cover for signal status indicate	on and manual override	570818	ASLR-D-L1
	(blocked) (pack of 10)			
Seal for sub-base				
De.	MPA with ducted exhaust air	t separation	533359	VMPA1-DP
		2/14 separated	8161482	VMPA-1-DP-Y
AT MANY		separated	533363	VMPA1-DP-P
		/5 separated	533364	VMPA1-DP-RS
7		and 3/5 separated	533365	VMPA1-DP-PRS
		1, 3/5 and 12/14 sepa-	8161481	VMPA1-DP-PRS-Y
	rate	. '		
	MPA with flat plate silencer No du	t separation	533355	VMPA1-DPU
	· · · · · · · · · · · · · · · · · · ·	separated	533356	VMPA1-DPU-P
		/5 separated	533357	VMPA1-DPU-RS
		and 3/5 separated	533358	VMPA1-DPU-PRS

Ordering data Designation			Part no.	Туре
			rait iio.	туре
Exhaust air plate				Lunana an
	Ducted exhaust air, with 10 mm push-in connector		533375	VMPA-AP
	Ducted exhaust air, with connector QS-3/8		541629	VMPA-AP-3/8
	Flat plate silencer		533374	VMPA-APU
Supply plate (without e	exhaust plate)			
	For ducted exhaust air		533354	VMPA1-FB-SP
	For flat plate silencer		533353	VMPA1-FB-SPU
Multi-pin plug connect	ion, electrical			
<u></u>	Cover without connecting cable, for self-assembly		533198	VMPA-KMS-H
	PVC connecting cable for 8 solenoid coils	2.5 m	533195	VMPA-KMS1-8-2.5
		5 m	533196	VMPA-KMS1-8-5
1316		10 m	533197	VMPA-KMS1-8-10
	PVC connecting cable for 24 solenoid coils	2.5 m	533192	VMPA-KMS1-24-2.5
		5 m	533193	VMPA-KMS1-24-5
		10 m	533194	VMPA-KMS1-24-10
	PUR connecting cable for 8 solenoid coils,	2.5 m	533504	VMPA-KMS2-8-2.5-PUR
	suitable for energy chains	5 m	533505	VMPA-KMS2-8-5-PUR
	6,	10 m	533506	VMPA-KMS2-8-10-PUR
	PUR connecting cable for 24 solenoid coils,	2.5 m	533501	VMPA-KMS2-24-2.5-PUR
	suitable for energy chains	5 m	533502	VMPA-KMS2-24-5-PUR
	saltazio ioi enelg, ename	10 m	533503	VMPA-KMS2-24-10-PUR
Connecting cable, AS-I	nterface connection			
Connecting capte, A3-1	Straight socket, M12 x 1, 5-pin, A-coded	0.5 m	8000208	NEBU-M12G5-K-0.5-M12G4
	Straight plug, M12 x 1, 4-pin, A-coded	0.5 111	3000200	NEBO-MIZOJ-N-V.J-MIZO4
	Modular system for a choice of connecting cables	,	-	→ Internet: nebu
Connecting cable, CPI o				
	Angled plug, 5-pin	0.25 m	540327	KVI-CP-3-WS-WD-0.25
	Angled socket, 5-pin	0.5 m	540328	KVI-CP-3-WS-WD-0.5
		2 m	540329	KVI-CP-3-WS-WD-2
		5 m	540330	KVI-CP-3-WS-WD-5
		8 m	540331	KVI-CP-3-WS-WD-8
	Straight plug, 5-pin	2 m	540332	KVI-CP-3-GS-GD-2
	Straight socket, 5-pin	5 m	540333	KVI-CP-3-GS-GD-5
MIL.		8 m	540334	KVI-CP-3-GS-GD-8
		- ···	3.0334	

Ordering data Designation			Size	Part no.	Туре	PU ¹⁾
	ub-base, pneumatic interface, supply plate		1		1.7F-	
<u> </u>	M5 connecting thread for tubing O.D.	3 mm	Mini	153313	QSM-M5-3-I	10
		4 mm	Standard	153315	QSM-M5-4-I	10
			Mini	578370	NPQH-DK-M5-Q4-P10	10
		6 mm	Standard	153317	QSM-M5-6-I	10
			Mini	578371	NPQH-DK-M5-Q6-P10	10
		5/32"	Standard	130593	QSM-M5-5/32-I-U-M	1
		3/16"		183750	QSM-M5-3/16-I-U-M	1
		1/4"		130591	QSM-M5-1/4-I-U-M	50
	M7 connecting thread for tubing O.D.	4 mm		153319	QSM-M7-4-I	10
			Mini	578372	NPQH-DK-M7-Q4-P10	10
		6 mm	Standard	153321	QSM-M7-6-I	10
				132919	QSM-M7-6-I-R-100	100
			Mini	578373	NPQH-DK-M7-Q6-P10	10
		3/16"	Standard	183739	QSM-M7-3/16-I-U-M	1
		1/4"	- Januara	183740	QSM-M7-1/4-I-U-M	50
	G1/8 connecting thread for tubing O.D.	6 mm		186107	QS-G1/8-6-I	10
	= -, o solutioning thread for tubing o.b.	1	Mini	578375	NPQH-DK-G18-Q6-P10	10
		8 mm	Standard	186109	QS-G1/8-8-I	10
			Mini	578376	NPQH-DK-G18-Q8-P10	10
		1/4"	Standard	183741	QS-1/8-1/4-I-U-M	1
		5/16"	Standard	183742	QS-1/8-5/16-I-U-M	1
	G1/4 connecting thread for tubing O.D.	8 mm		186110	QS-G1/4-8-I	10
	01/4 connecting timead for tubing 0.b.	0 111111	Mini	578377	NPQH-DK-G14-Q8-P10	10
		10 mm	Standard	186112	QS-G1/4-10-I	10
		10 111111	Mini			10
		5/16"	Standard	578378	NPQH-DK-G14-Q10-P10	10
		3/8"	Stalldald	183743 183744	QS-1/4-5/16-I-U-M QS-1/4-3/8-I-U-M	1
		3/0		163/44	Q3-1/4-3/6-1-U-IVI	1
Silencer						
	Connecting thread	M5		165003	UC-M5	1
		M7		161418	UC-M7	1
		G1/4		165004	UC-1/4	1
		G1/8		161419	UC-1/8	1
	Push-in sleeve connection	3 mm		165005	UC-QS-3H	1
		4 mm		165006	UC-QS-4H	1
To the same of the		6 mm		165007	UC-QS-6H	1
		8 mm		175611	UC-QS-8H	1
		10 mm		526475	UC-QS-10H	1
		1-7		522.775	1	
Blanking plug	T			2010	1	
	M5 thread			3843	B-M5	10
				578404	NPQH-BK-M5-P10	10
				47/000		- 10
$\mathcal{D}_{\overline{a}}$	Maril 1				B-M7	10
	M7 thread			174309		
				578405	NPQH-BK-M7-P10	10
	M7 thread G1/8 thread			578405 3568	B-1/8	10 10
	G1/8 thread			578405 3568 578406	B-1/8 NPQH-BK-G18-P10	10 10 10
				578405 3568 578406 3569	B-1/8 NPQH-BK-G18-P10 B-1/4	10 10 10 10
	G1/8 thread			578405 3568 578406	B-1/8 NPQH-BK-G18-P10	10 10 10
Plug	G1/8 thread			578405 3568 578406 3569	B-1/8 NPQH-BK-G18-P10 B-1/4	10 10 10 10
Plug	G1/8 thread	4 mm		578405 3568 578406 3569	B-1/8 NPQH-BK-G18-P10 B-1/4	10 10 10 10
Plug	G1/8 thread G1/4 thread	4 mm 6 mm		578405 3568 578406 3569 578407	B-1/8 NPQH-BK-G18-P10 B-1/4 NPQH-BK-G14-P10	10 10 10 10 10
Plug	G1/8 thread G1/4 thread			578405 3568 578406 3569 578407	B-1/8 NPQH-BK-G18-P10 B-1/4 NPQH-BK-G14-P10 QSC-4H QSC-6H	10 10 10 10 10 10
Plug	G1/8 thread G1/4 thread	6 mm 8 mm		578405 3568 578406 3569 578407 153267 153268 153269	B-1/8 NPQH-BK-G18-P10 B-1/4 NPQH-BK-G14-P10 QSC-4H QSC-6H QSC-8H	10 10 10 10 10 10 10
Plug	G1/8 thread G1/4 thread	6 mm 8 mm 10 mm		578405 3568 578406 3569 578407 153267 153268 153269 153270	B-1/8 NPQH-BK-G18-P10 B-1/4 NPQH-BK-G14-P10 QSC-4H QSC-6H QSC-8H QSC-10H	10 10 10 10 10 10
Plug	G1/8 thread G1/4 thread	6 mm 8 mm 10 mm 3/16"		578405 3568 578406 3569 578407 153267 153268 153269 153270 564785	B-1/8 NPQH-BK-G18-P10 B-1/4 NPQH-BK-G14-P10 QSC-4H QSC-6H QSC-8H QSC-10H QBC-3/16H-U	10 10 10 10 10 10 10 10 10 10 10
Plug	G1/8 thread G1/4 thread	6 mm 8 mm 10 mm		578405 3568 578406 3569 578407 153267 153268 153269 153270	B-1/8 NPQH-BK-G18-P10 B-1/4 NPQH-BK-G14-P10 QSC-4H QSC-6H QSC-8H QSC-10H	10 10 10 10 10 10 10 10 10 10

¹⁾ Packaging unit.

Ordering data				
Designation			Part no.	Туре
Inscription labels				
	For foil Inscription label holder for sub-base, transparent, for paper foil label	Can be used for VMPA1, VMPA2 Can be used for	533362 8085996	VMPA1-ST-1-4
		VMPA14	0003770	
	For IBS Inscription label holder for sub-base, 4-fold, for IBS-6x10	Can be used for VMPA1, VMPA2	544384	VMPA1-ST-2-4
		Can be used for VMPA14	8085997	VMPA14-ST-2-4
	Inscription labels, 6 x 10 in frames, pack of 64		18576	IBS-6x10
	Inscription label holder for an inscription label and a cover for the manual override, pack of 10		570818	ASLR-D-L1
Mounting				
	For H-rail		526032	CPX-CPA-BG-NRH
	Mounting (for supply plate)		534416	VMPA-BG-RW
	Mounting (for proportional pressure regulator valve sub-base)		558844	VMPA-BG
Jser documentation				
	MPA pneumatic components	German	534240	P.BE-MPA-DE
		English	534241	P.BE-MPA-EN
		French	534243	P.BE-MPA-FR
		Spanish	534242	P.BE-MPA-ES
		Italian	534244	P.BE-MPA-IT
	Manual – MPA electronic components	German	562112	P.BE-MPA-Elektronik-DE
	(pneumatic modules, pressure sensors, proportional pressure regu-	English	562113	P.BE-MPA-Elektronik-EN
	lators, etc.)	French	562115	P.BE-MPA-Elektronik-FR
		Spanish	562114	P.BE-MPA-Elektronik-ES
		Italian	562116	P.BE-MPA-Elektronik-IT
		Italiail	302110	THE MAY ELECTION I