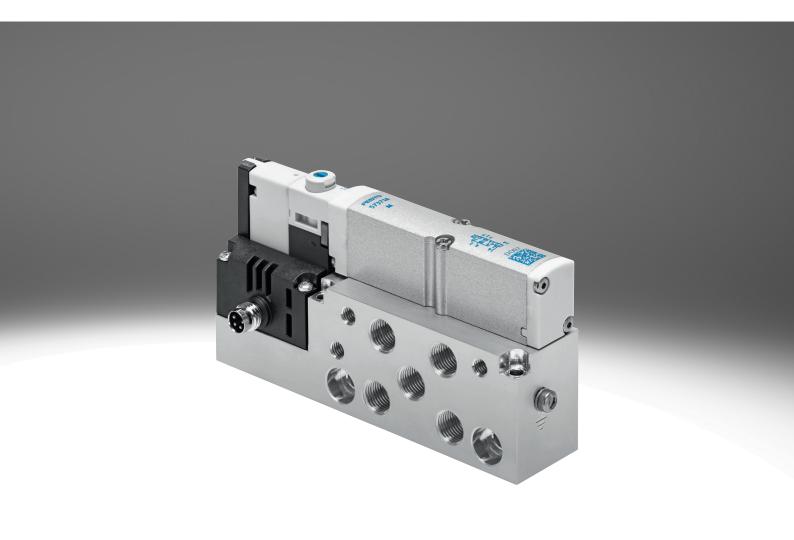
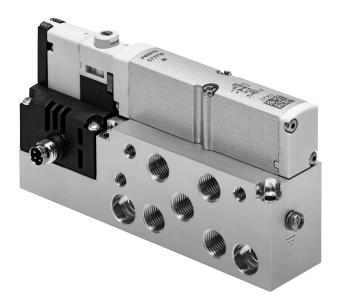
Solenoid valves VMPA

FESTO



Key features



Innovative

- Flat, high-performance valves in a sturdy metal housing
- MPA1 (width 10 mm) flow rate up to 360 l/min
- MPA14 (width 14 mm) flow rate up to 670 l/min
- MPA2 (width 20 mm) flow rate up to 840 l/min

The valves are identical to the valves in the valve terminal MPA-S and MPA-L.

This simplifies planning, ordering and warehousing.

Versatile

- High pressure range
- −0.09 ... +1 MPa
- Wide range of valve functions

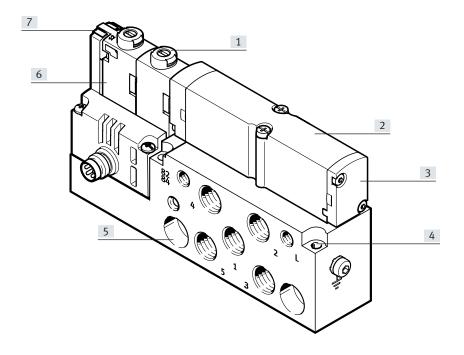
Reliable

- Fast troubleshooting with LEDs on the valves
- Extensive operating voltage range ±25%
- Easy to service thanks to replaceable valves and electronic modules
- Manual override either nondetenting, detenting or protected against unauthorised activation (concealed)

Easy to install

Solid wall mounting

Key features



- [1] Safe operation: Manual override, non-detenting/detenting or concealed
- [2] Space-saving flat valves
- [3] Wide range of valve functions
- [4] Quick to mount: directly using screws
- [5] Practical: sturdy metal thread
- [6] Width 10, 14 and 20 mm
- [7] Reduced downtimes: on-site LED diagnostics

Equipment options

Valve functions

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

Special features

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

Peripherals overview

Individual sub-base for solenoid valve, width 10 mm

Ordering:

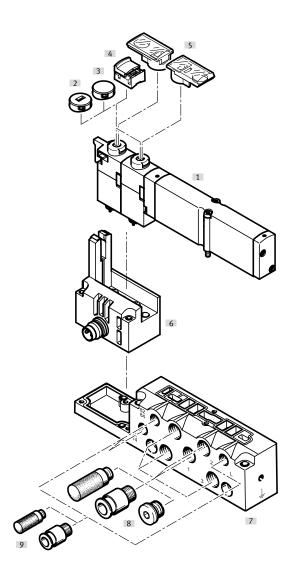
• Using individual part numbers

Individual sub-bases of type VMPA1-IC-... can be equipped with any

solenoid valve VMPA1

with a width of 10 mm.

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



Designation		Brief description	→ Page/Internet
[1]	Solenoid valve	VMPA1	25
[2]	Cover cap, coded	After fitting the cover cap, the manual override is non-detenting only	27
[3]	Cover cap, concealed	After fitting the cover cap, the manual override is blocked	27
[4]	Cover cap, manual override detenting	After fitting the cover cap, the manual override is detenting and can be operated without tools	27
[5]	Inscription label holder	Can be pushed onto the manual override	27
[6]	Electrical connection M8	4-pin	-
[7]	Sub-base	For solenoid valve VMPA1	27
[8]	Fittings, silencers or blanking plugs M7 for working ports (2, 4) and air supply/exhaust ports (1, 3, 5)		28
[9]	Fittings and/or silencers	M5 for pilot air supply/pilot exhaust air (12/14, 82/84) and pressure compensation	28

Peripherals overview

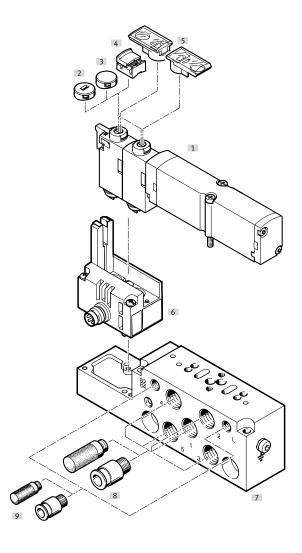
Individual sub-base for solenoid valve, width 14 mm

Ordering:

• Using individual part numbers

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

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



Desig	gnation	Brief description	→ Page/Internet	
[1]	Solenoid valve	VMPA14	25	
[2]	Cover cap, coded	After fitting the cover cap, the manual override is non-detenting only	27	
[3]	Cover cap, concealed	After fitting the cover cap, the manual override is blocked	27	
[4]	Cover cap, manual override detenting	After fitting the cover cap, the manual override is detenting and can be operated without tools	27	
[5]	Inscription label holder	Can be pushed onto the manual override	27	
[6]	Electrical connection M8	4-pin	_	
[7]	Sub-base	For solenoid valve VMPA14	27	
[8]	Fittings, silencers or blanking plugs	G1/8 for working ports (2, 4) and air supply/exhaust ports (1, 3, 5)	28	
[9]	Fittings and/or silencers	M5 for pilot air supply/pilot exhaust air (12/14, 82/84) and pressure compensation	28	

Peripherals overview

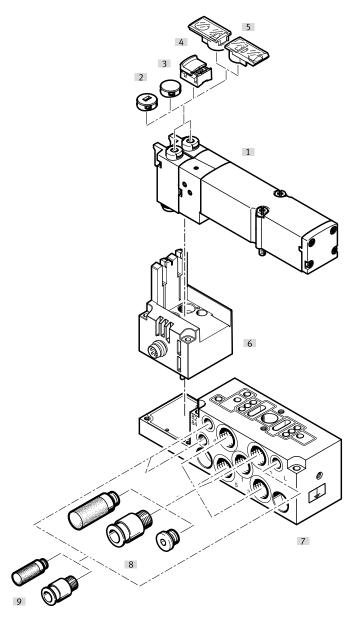
Individual sub-base for solenoid valve, width 20 mm

Ordering:

• Using individual part numbers

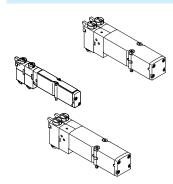
Individual sub-bases of type VMPA2-IC-... can be equipped with any solenoid valve VMPA2 with a width of 20 mm

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



Designation		Brief description	→ Page/Internet
[1]	Solenoid valve	VMPA2	25
[2]	Cover cap, coded	After fitting the cover cap, the manual override is non-detenting only	27
[3]	Cover cap, concealed	After fitting the cover cap, the manual override is blocked	27
[4]	Cover cap, manual override detenting	After fitting the cover cap, the manual override is detenting and can be operated	27
		without tools	
[5]	Inscription label holder	Can be pushed onto the manual override	27
[6]	Electrical connection M8	4-pin	_
[7]	Sub-base	For solenoid valve VMPA2	27
[8]	Fittings, silencers or blanking plugs G1/8 for working ports (2, 4) and air supply/exhaust ports (1, 3, 5)		28
[9]	Fittings and/or silencers	M5 for pilot air supply/pilot exhaust air (12/14, 82/84) and pressure compensation	28

Solenoid valve



VMPA 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.

Solenoid valves can be replaced quickly since the tubing connections remain on the subbase.

This design is also very flat.

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

Design

Replacing valves

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

which means that they can be easily replaced. The sturdy mechanical structure of the subbase ensures efficient, durable sealing.

Valve code

The valve code (M, MS, MU, J, N, NS, NU, K, KS, KU, H, HS, HU, B, G, E, X, W, D, DS, I) is located

on the front of the valve beneath the manual override

5/2-way valve Type	Circuit symbol	Width [mm]	Description
M	14 4 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	14	Single solenoid Piston spool valve Mechanical spring return Reversible Operating pressure -0.09 +0.8 MPa
MSC	10 10 10 10 10 11 12/14 82/84 1 5 3	10, 14, 20	Single solenoid Poppet valve with spring return Mechanical spring return Reversible Operating pressure -0.09 +1 MPa
J	14 4 2 12 14 5 1 3 12	10, 14, 20	Double solenoid Reversible Operating pressure -0.09 +1 MPa

2x 3/2-wa	2x 3/2-way valve								
Туре	Circuit symbol	Width [mm]	Description						
N	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 12/14 82/84 1 5 3	14	 Single solenoid Normally open Mechanical spring return Reversible Operating pressure -0.09 +0.8 MPa 						
К	12/14 1 5 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	14	Single solenoid Normally closed Mechanical spring return Reversible Operating pressure -0.09 +0.8 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	12/14 82/84 1 5 3	14	Single solenoid Normal position 1x normally closed 1x normally open Mechanical spring return Reversible Operating pressure -0.09 +0.8 MPa						

5/3-way va	ılve		
Туре	Circuit symbol	Width [mm]	Description
В	14 W 4 2 W 12 14 84 5 1 3 82 12	10, 14, 20	 Mid-position pressurised¹⁾ Mechanical spring return Reversible Operating pressure -0.09 +1 MPa
G	14 W 4 2 W 12 14 84 5 1 3 82 12	10, 14, 20	 Mid-position closed¹⁾ Mechanical spring return Reversible Operating pressure -0.09 +1 MPa
Е	14 W 4 2 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 assumes its mid-position by spring force.
 If both coils are energised at the same time, the valve remains in the previously assumed switching position.

2x 2/2-way	x 2/2-way valve								
Туре	Circuit symbol	Width [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 12 12 12 12 12 12 12 12 14 12 12 14 182/84 11	14	 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).

Pilot air supply

The pneumatic connection is located on the individual subbase.

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

- internal pilot air and
- external pilot air.

Internal pilot air supply

Internal pilot air supply can be selected if the required working pressures are between 0.3 and 0.8 MPa.

In this case, the pilot air supply in the sub-base is branched from the compressed air supply 1 using an internal connection. Port 12/14 is sealed at the factory 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 VMPA valve using external pilot air. The pilot air is then supplied via port 12/14 of the sub-base.

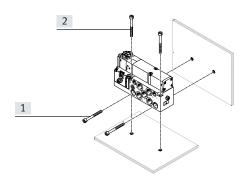


Note

If a gradual pressure build-up is required in the system by using a soft-start valve, then external pilot air should be selected so that the pilot pressure is already applied in full at the point of switch-on.

Key features – Mounting and operation

Assembly



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

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

Display and operation

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

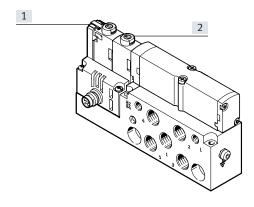
Manual override

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

The pilot valve is switched by pushing the manual override. The set switching status can also be locked by turning the manual override.

Alternatives:

- A covering (VMPA-HBT-B) prevents the manual override from being locked. The manual override can then only be activated by pushing it.
- A covering (VMPA-HBV-B) can be fitted over the manual override to prevent it from being accidentally activated.
- [1] LED indicator
- [2] Manual override





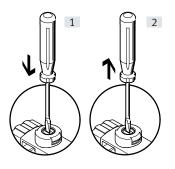
A manually operated valve (manual override) cannot be reset electrically. Conversely, an electrically actuated valve cannot be reset using the mechanical manual override.

• The cover cap (VAMC-L1-CD) can be used to operate the manual override in detenting mode without additional tools.

Key features – Mounting 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.

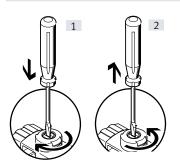
[2] Remove the pointed object or

screwdriver.

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

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

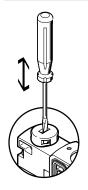
MO with locking (detenting)



- [1] Press in the plunger of the MO with a pointed object or screwdriver until the valve switches and then turn the plunger 90° clockwise until the stop is reached.

 The valve remains in the switching position
- [2] Turn the plunger 90° anticlockwise 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).

MO with lock – Assembly



Turn MO to clip it onto the pilot valve.

The cap for the MO can then be operated (detenting) without tools.

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 – Electrical components

Electrical power as a result of current reduction

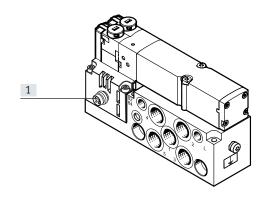
Each MPA solenoid coil is protected with a spark arresting protective circuit as well as against polarity reversal.

In addition, all valve types have integrated current reduction.

MPA valves are supplied with operating voltage in the range 18 ... 30 V (24 V +/-25%). This high tolerance is made possible

by the integrated control electronics and offers additional safety, e.g. in the case of a drop in operating voltage.

Electrical connection



[1] Electrical connection, plug 4-pin, M8, to EN 60947-5-2 Tightening torque for M8 plug: 0.25 ... 0.5 Nm (manual torque)

Pin assignment to ISO 20401

24
/+ +/
$_{1}(+ +)_{3}$

	Pin	With positive logic	With negative logic
	1	n.c.	n.c.
	2	U _B for coil 12	0 V for coil 12
	3	0 V for coil 12 and 14	U _B for coil 12 and 14
Ì	4	U _B for coil 14	0 V for coil 14

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 polyalphaolefins (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 – Solenoid valve on sub-base

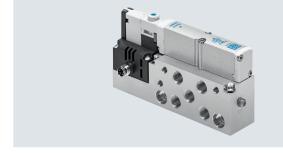
· N - Flow rate

VMPA1: up to 360 l/min VMPA14: up to 670 l/min VMPA2: up to 700 l/min Voltage 24 V DC



Repair service

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



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

Technical data – Valv	Technical data – Valve width 10 mm											
Code			M	J	N	К	Н	В	G	E	D	1
Design			Piston spo	Piston spool valve								
Sealing principle			Soft									
Overlap			Positive ov	erlap								
Reset method			Pneumatic spring	-	Pneumatio	spring		Mechanic	al spring		Pneumati	c spring
Switching times	On	[ms]	11	10	10	10	10	10	10	10	10	8
	Off	[ms]	20	-	20	20	20	35	35	35	20	20
	um	[ms]	-	15	-	-	-	15	15	15	_	_
Standard nominal flow	v rate	[l/min]	360	360	300	230	300	300	320	240	230	260
Operating pressure		[MPa]	-0.09 +1 0.3 1		-0.09 +1			0.3 1				
		[bar]	-0.9 +1	+10 3 10			-0.9 +10			3 10		
Pilot pressure		[MPa]	0.3 0.8	0.3 0.8								
		[bar]	3 8									
Max. tightening torque for [Nm]		0.25	0.25									
valve mounting												
Materials		Die-cast al	uminium									
Product weight		[g]	49	56	56	56	56	56	56	56	56	56

Technical data – Valve	echnical data – Valve width 10 mm					
Code			MSC			
Design			Poppet valve with spring return			
Sealing principle			Soft			
Overlap			Negative overlap			
Reset method			Mechanical spring			
Switching times	On	[ms]	10			
	Off	[ms]	8			
	um	[ms]	-			
Standard nominal flow	rate	[l/min]	190			
Operating pressure		[MPa]	-0.09 +1			
		[bar]	-0.9 +10			
Pilot pressure		[MPa]	0.4 0.8			
		[bar]	48			
Max. tightening torque for [Nm]		[Nm]	0.25			
valve mounting						
Materials			Reinforced PPA			
Product weight		[g]	96			

Technical data – Valve Code	: width 1	4 mm	М	lı.	N	K	Н	В	G	E	D	Li
		-			IN	K	П	Б	G		U	
Design				oool valve								
Sealing principle			Soft									
Overlap			Positive									
Reset method				tic spring				Mechanic				
Switching times	On	[ms]	13	9	12	12	12	16	13	13	12	9
	Off	[ms]	30	-	38	38	38	44	44	44	30	25
	um	[ms]	-	24	-	-	-	26	26	26	_	-
Standard nominal flow	ı rate	[l/min]	550	590	580	550	550	560	540	460	570	570
Operating pressure		[MPa]	-0.09	+1	0.3 1			-0.09	+1		0.3 1	
		[bar]	-0.9 +	10	3 10			-0.9 +1	10		3 10	
Pilot pressure		[MPa]	0.3 0.	8								
		[bar]	3 8									
Max. tightening torque valve mounting	e for	[Nm]	0.65									
Materials			Die-cast	Die-cast aluminium								
Product weight		[g]	77									
Technical data – Valve Code	. Wideii z	7										
code			MS		MSC		NS	KS		HS	[)S
				oool valve	MSC Poppet va		NS Piston sp			HS])S
Design				oool valve	Poppet va					HS	[)S
Design Sealing principle			Piston s		Poppet va	urn		ool valve	i	HS	[OS
Design Sealing principle Overlap			Piston sp Soft Positive		Poppet va spring ret	urn overlap	Piston sp	ool valve overlap		HS	[OS .
Design Sealing principle Overlap Reset method	On	[ms]	Piston sp Soft Positive	overlap	Poppet va spring reti	urn overlap	Piston sp	ool valve overlap		HS		05
Design Sealing principle Overlap Reset method	On Off	[ms] [ms]	Piston sp Soft Positive Pneuma	overlap	Poppet va spring reto Negative of Mechanica	urn overlap	Positive of Pneumat	ool valve	:		1	
Design Sealing principle Overlap Reset method			Piston sp Soft Positive Pneuma 13	overlap	Poppet va spring reto Negative of Mechanica	urn overlap	Positive of Pneumat 12	ool valve	:	12	1	.0
Design Sealing principle Overlap Reset method Switching times	Off um	[ms]	Piston sp Soft Positive Pneuma 13 41	overlap	Poppet va spring reto Negative of Mechanica 10	urn overlap	Positive of Pneumat 12 23	ool valve overlap ic spring 12 23	:	12 23	1 2	.0
Design Sealing principle Overlap Reset method Switching times Max. switching frequel	Off um ncy	[ms]	Piston sp Soft Positive Pneuma 13 41	overlap tic spring	Poppet va spring reti Negative of Mechanica 10 10	overlap al spring	Positive of Pneumat 12 23 –	ool valve overlap c spring 12 23		12 23 -	1 2	.0
Design Sealing principle Overlap Reset method Switching times Max. switching frequent Standard nominal flow	Off um ncy rate	[ms] [ms] [Hz] [l/min]	Piston sp Soft Positive Pneuma 13 41 - 2 550 6	overlap tic spring	Negative of Mechanica 10 10	overlap al spring	Positive of Pneumat 12 23	ool valve overlap c spring 12 23 -		12 23 - -	1 2	0 25
Design Sealing principle Overlap Reset method Switching times Max. switching frequent Standard nominal flow	Off um ncy rate	[ms] [ms] [Hz] [l/min]	Piston sp Soft Positive Pneuma 13 41 2 550 6 MPA-S: 5	overlap tic spring	Negative of Mechanica 10 10 - 140 19	overlap al spring 0	Positive of Pneumat 12 23 - 460	ool valve overlap c spring 12 23 50		12 23 - - 460	1 2 5	0 25
Design Sealing principle Overlap Reset method Switching times Max. switching frequent Standard nominal flow Note on standard nom	Off um ncy rate	[ms] [ms] [Hz] [l/min]	Piston sp Soft Positive Pneuma 13 41 2 550 6 MPA-S: 5	overlap tic spring 70 550 l/min 570 l/min	Poppet va spring retr Negative of Mechanica 10 10 -	overlap al spring 0 0 l/min 0 l/min	Positive of Pneumat 12 23 - 460	ool valve overlap (c spring) 12 23		12 23 - - 460	1 2 5	0 25
Design Sealing principle Overlap Reset method Switching times Max. switching frequent Standard nominal flow Note on standard nom	Off um ncy rate	[ms] [ms] [Hz] [l/min] rate	Piston sp Soft Positive Pneuma 13 41 2 550 6 MPA-S: 9 MPA-L: 6	overlap tic spring 70 550 l/min +0.8	Negative of Mechanica 10 10 140 19 1->2: 190 1->4: 140 0	overlap al spring 0 0 l/min 0 l/min	Positive of Pneumat 12 23 - 460 -	ool valve overlap (c spring) 12 23		12 23 - - 460	1 2 5	0 25
Design Sealing principle Overlap Reset method Switching times Max. switching frequent Standard nominal flow	Off um ncy rate	[ms] [ms] [Hz] [l/min] rate	Piston sp Soft Positive Pneuma 13 41 2 550 6 MPA-S: 9 MPA-L: 6 -0.09	overlap tic spring 70 650 l/min 670 l/min +0.8	Negative of Mechanica 10 10 10 140 19 1->2: 190 1->4: 140 0.09 +	overlap al spring 0 0 l/min 0 l/min	Positive of Pneumat 12 23 4600.09	ool valve overlap ic spring 12 23 50 - +0.8		12 23 - - 460	1 2 5	0 25
Design Sealing principle Overlap Reset method Switching times Max. switching frequent Standard nominal flow Note on standard nom Operating pressure	Off um ncy rate	[ms] [ms] [Hz] [l/min] rate	Piston sp Soft Positive Pneuma 13 41 – 2 550 6 MPA-S: 9 MPA-L: 6 –0.09 4	overlap tic spring 70 650 l/min 670 l/min +0.8	Negative of Mechanica 10 10 10 - 140 19 1->2: 190 1->4: 140 -0.09 + 1 -0.9 + 1	overlap al spring 0 0 l/min 0 l/min	Positive of Pneumat 12 23 - 460	ool valve overlap ic spring 12 23 50 - +0.8		12 23 - - 460	1 2 5	0 25
Design Sealing principle Overlap Reset method Switching times Max. switching frequent Standard nominal flow Note on standard nom Operating pressure	Off um ncy v rate iinal flow	[ms] [ms] [Hz] [l/min] rate [MPa] [bar] [MPa]	Piston sp Soft Positive Pneuma 13 41 - 2 550 6 MPA-S: 9 MPA-L: 6 -0.09 + 0.3 0	overlap tic spring 70 650 l/min 670 l/min +0.8	Negative of Mechanica 10 10 10 - 140 19 1->2: 190 1->4: 140 19 10.4 8	overlap al spring 0 0 l/min 0 l/min	Piston sp Positive of Pneumat 12 23 460	ool valve overlap ic spring 12 23 50 - +0.8		12 23 - - 460	1 2 5	0 25

Technical data – Valve	width 2	0 mm										
Code	: Wiutii 2	.0 111111	М	J	N	К	Н	В	G	E	D	1
Design			Piston spo	ol valve								
Sealing principle			Soft									
Overlap			Positive ov	verlap								
Reset method			Pneumatio	spring				Mechanic	al spring		Pneumat	ic spring
Switching times	On	[ms]	15	9	8	8	8	11	10	11	7	7
	Off	[ms]	28	-	28	28	28	46	40	47	25	25
	um	[ms]	-	22	-	_	-	23	21	23	-	-
Standard nominal flow	rate	[l/min]	700	670	550 600	500	550	450	610	590	650	650
Note on standard nom	inal flow	rate	_	-	MPA-S: 550 l/min MPA-L: 600 l/min	_	_	-	-	-	-	_
Operating pressure		[MPa]	-0.09 +	1	0.3 1			-0.09	+1		0.3 1	
		[bar]	-0.9 +1	0	3 10	-0.9		-0.9 +1	.9 +10		3 10	
Pilot pressure		[MPa]	0.3 0.8									
		[bar]	3 8									
Max. tightening torque for [Nm] 0.65 valve mounting												
Materials			Die-cast al	uminium								
Product weight		[g]	100									

Reinforced PPA

118

Die-cast aluminium

77

[g]

valve mounting Materials

Product weight

Die-cast aluminium

77

Solenoid valves VMPA

Datasheet – Solenoid valve

Technical data – Valve	width 2	20 mm				
Code			MSC			
Design			Poppet valve with spring return			
Sealing principle			Soft			
Overlap			Negative overlap			
Reset method			Mechanical spring			
Switching times	On	[ms]	14			
	Off	[ms]	10			
	um	[ms]	-			
Standard nominal flow	rate	[l/min]	140 190			
Note on standard nomi	nal flow	rate	1->2: 190 l/min			
			1->4: 140 l/min			
Operating pressure		[MPa]	-0.09 +1			
		[bar]	-0.9 +10			
Pilot pressure		[MPa]	0.4 8			
		[bar]	48			
Max. tightening torque	for	[Nm]	0.25			
valve mounting						
Materials			Reinforced PPA			
Product weight		[g]	140			

Datasheet – Solenoid valve

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

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

Electrical data		
Nominal voltage	[V DC]	24
Operating voltage range	[V DC]	1830
Residual ripple	[Vss]	4
Degree of protection to EN 60529		IP67 (for all types of signal transmission in assembled state)

Operating and environmental conditions		
Operating medium	Compressed air according to ISO 8573-1:2010 [7:4:4]	
Note on operating/ pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)	
Ambient temperature [°C]	−5 +50	
Temperature of medium [°C]	−5 +50	
Storage temperature [°C]	-20 +40	
Relative humidity	Max. 90% at 40 ℃	
Corrosion resistance class CRC ¹⁾	1	
CE marking (see declaration of	To EU EMC Directive ²)	
conformity)	To EU RoHS Directive2)	
UKCA marking (see declaration of	To UK EMC regulations ²⁾	
conformity)	To UK RoHS regulations ²⁾	
Certification	c UL us - Recognized (OL)	

¹⁾ More information www.festo.com/x/topic/crc

 $^{2) \}quad \text{For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/VMPA d Support/Downloads.} \\$

Materials				
Housing	Die-cast aluminium, reinforced PPA			
Seals	NBR			
Note on materials	RoHS-compliant			
LABS (PWIS) conformity	VDMA24364-B1/B2-L			

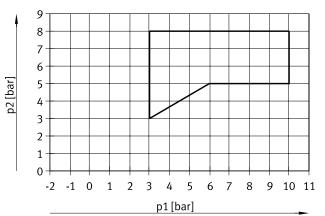
Datasheet - Solenoid valve

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

9 8 7 6 5 4 3 2 1 0 1 2 3 4 5 6 7 8 9 10 11 p1[bar]

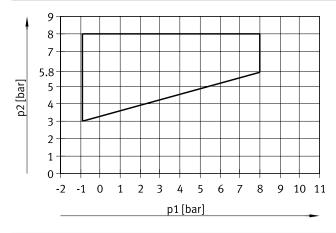
For valves with code: N, K, H, D, I

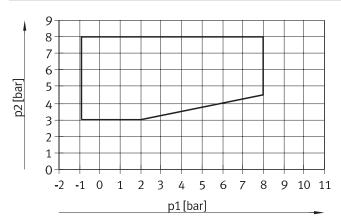


Pilot pressure p2 as a function of working pressure p1 for valves with mechanical spring return

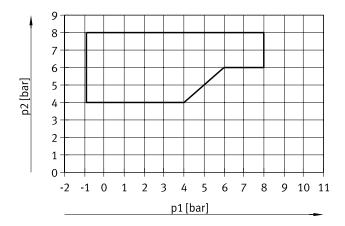
For valve width 10 mm with code: MS, NS, KS, HS, DS

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

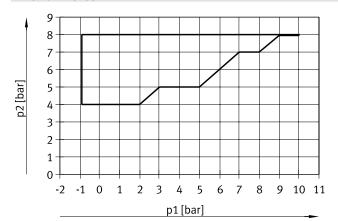




For valves in width 14 mm with code: NS, KS, HS, DS



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



Datasheet - Sub-base

Flow rate
VMPA1: up to 360 l/min

VMPA1: up to 360 l/min VMPA14: up to 670 l/min VMPA2: up to 700 l/min - **** - Voltage 24 V DC

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



General technical data				
Width		10 mm	14 mm	20 mm
Electrical connection		Plug M8x1, 4-pin, to EN 60	0947-5-2	
Type of mounting		With through-hole		
Mounting position	Mounting position			
Pneumatic connections				
Supply port	1	M7	G1/8	G1/8
Exhaust port	3	M7	G1/8	G1/8
	5	M7	G1/8	G1/8
Working ports	2	M7	G1/8	G1/8
	4	M7	G1/8	G1/8
Pilot air connection	12/14	M5	M5	M5
Pilot exhaust air port	82/84	M5	M5	M5

Operating and environmenta	l conditions				
Туре			VMPA1	VMPAEX1E	
Operating medium		Compressed air according to IS	60 8573-1:2010 [7:4:4]		
Note on the operating/pilot medium			Lubricated operation possible (in which case lubricated operation will always be required)		
Operating pressure	Internal pilot air supply	[MPa]	0.3 0.8		
		[bar]	38		
	External pilot air supply	[MPa]	-0.09 +1		
		[bar]	-0.9 +10		
Pilot pressure		[bar]	38		
Ambient temperature		[°C]	-5 +50		
CE marking (see declaration of conformity)			To EU EMC Directive ¹)	To EU EMC Directive ¹)	
			-	To EU Explosion Protection Directive (ATEX)	

¹⁾ For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/VMPA d 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.

ATEX ¹⁾			
Туре		VMPAEX1E	
ATEX category for gas		II 3G	â
Type of (ignition) protection for gas		Ex ec IIC T4 Gc X	- Francisco - Note
Explosion-proof ambient temperature	[°C]	-5 ≤ Ta ≤ +50	Also applies to the sub-base for
CE marking (see declaration of conformity)		To EU Explosion Protection Directive (ATEX)	individual connection type VMPA EX1E with retrofitted valve (see declaration of conformity).

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

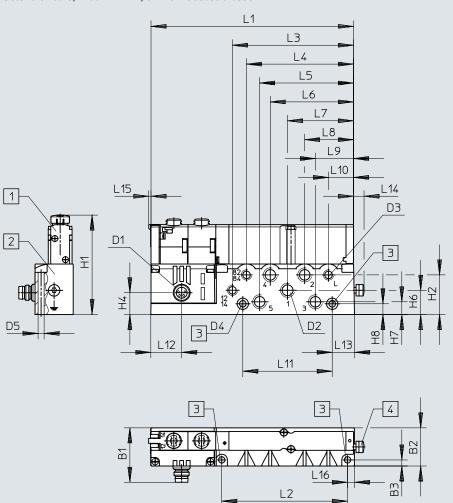
Materials				
Sub-base	Die-cast aluminium			
Note on materials	RoHS-compliant			
LABS (PWIS) conformity	VDMA24364-B1/B2-L			

Datasheet

Dimensions

Download CAD data → www.festo.com

Solenoid valve, width 10 mm, on individual sub-base





- [1] Solenoid valve
- [2] Individual sub-base
- [3] 4x mounting holes for screw M3
- [4] Earthing screw

Туре	B1	B2	В3	D1	D2	D3	D4Ø	D5 Ø	H1	H2	H4	H6	H7	Н8	
VMPA1	28.8	20.2	3.2	M8x1	M7	M5	3.4	3.4	52.2	21	11.6	12.9	6.8	5.7	
Tuno		12 12	. 1.6	115	114	117	10		10 111	1 1112	1112	1114	1115	1116	1

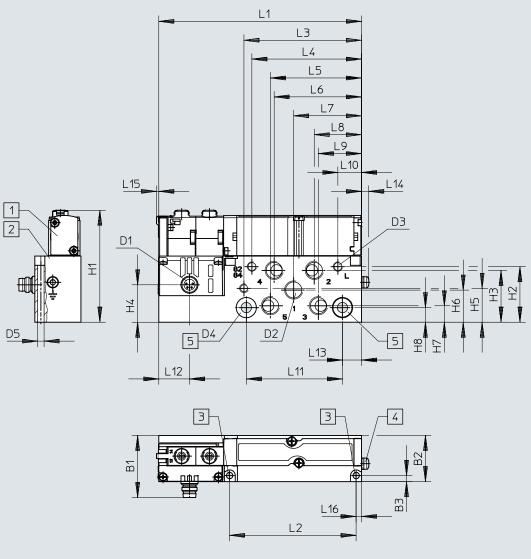
Туре	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
VMPA1	107.3	66.6	64.2	56.7	49.8	44.1	35	25.9	20.3	13.3	47.4	16.4	11.3	5.6	1.2	3.2

Datasheet

Dimensions

Download CAD data → www.festo.com

Solenoid valve, width 14 mm, on individual sub-base





- [1] Solenoid valve
- [2] Individual sub-base
- [3] 4x mounting holes for screw M3
- [4] Earthing screw
- [5] 2x mounting holes for screw M5

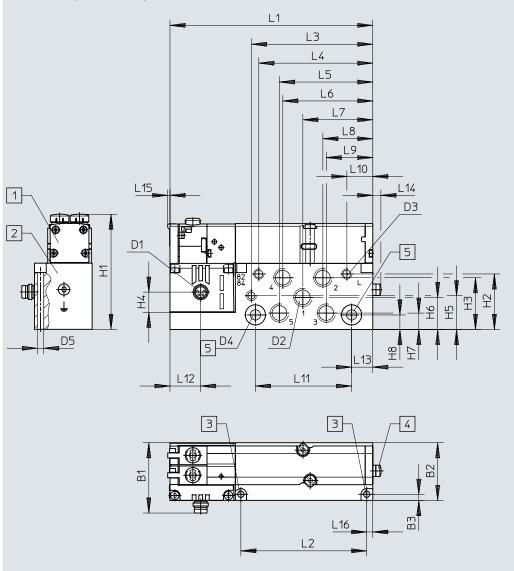
Туре	B1	B2	В3	D1	D2	D3	D4Ø	D5 Ø	H1	H2	Н3	H4	H5	Н6	H7	Н8
VMPA14	35.1	24.4	3.2	M8x1	G1/8	M5	5.5	3.4	59	29.4	27.4	19.8	17.9	17	8.7	7.7
Туре	L1	L2	L3	L4	L5	L6	 L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
VMPA14	107.3	67	62.2	58	48.2	46.2	35.9	25	22.8	12.5	50.9	16.3	10.1	3.9	1.2	2.9

Datasheet

Dimensions

Download CAD data → www.festo.com

Solenoid valve, width 20 mm, on individual sub-base





- [1] Solenoid valve
- [2] Individual sub-base
- [3] 2x mounting holes for screw M3
- [4] Earthing screw
- [5] 2x mounting holes for screw M5

Туре	B1	B2	В3	D1	D2	D3	D4Ø	D5Ø	H1	H2	Н3	H4	H5	Н6	H7	Н8
VMPA2	37.2	30.5	3.2	M8x1	G1/8	M5	5.5	3.4	60.5	29.4	27.4	10.7	17.9	17	8.7	7.7
Туре	L1	L ₂	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16
VMPA2	107.3	66.6	64,2	60.3	49.4		37	26.4	24.6	13.7	50.9	16.3	11.2	4.4	1.2	3.2

Ordering data				
	Valve function	Width [mm]	Part no.	Туре
ternal pilot air su	pply – Set comprising solenoid valve on individual sub-base			
R9_	5/2-way valve			
	Single solenoid	10	533376	VMPA1-M1H-M-M7-PI
		14	8023543	VMPA14-M1H-M-G1/8-PI
		20	537963	VMPA2-M1H-M-G1/8-PI
0000	Single solenoid, mechanical reset	14	8023554	VMPA14-M1H-MS-G1/8-PI
	Double solenoid	10	533377	VMPA1-M1H-J-M7-PI
		14	8023542	VMPA14-M1H-J-G1/8-PI
		20	537964	VMPA2-M1H-J-G1/8-PI
	2x 3/2-way valve			
	Normally open	10	533382	VMPA1-M1H-N-M7-PI
		14	8023550	VMPA14-M1H-N-G1/8-PI
		20	537969	VMPA2-M1H-N-G1/8-PI
30	Normally open, mechanical reset	14	8023556	VMPA14-M1H-NS-G1/8-PI
AT PO	Normally closed	10	533381	VMPA1-M1H-K-M7-PI
		14	8023549	VMPA14-M1H-K-G1/8-PI
		20	537968	VMPA2-M1H-K-G1/8-PI
	Normally closed, mechanical reset	14	8023555	VMPA14-M1H-KS-G1/8-PI
48000	1x normally open	10	533383	VMPA1-M1H-H-M7-PI
	1x normally closed	14	8023551	VMPA14-M1H-H-G1/8-PI
		20	537970	· · · · · · · · · · · · · · · · · · ·
	1x normally open	14	8023558	· ·
	1x normally closed, mechanical reset		002000	VMPA1-M1H-M-M7-PI VMPA14-M1H-M-G1/8-PI VMPA2-M1H-M-G1/8-PI VMPA14-M1H-M5-G1/8-PI VMPA1-M1H-J-M7-PI VMPA14-M1H-J-G1/8-PI VMPA2-M1H-J-G1/8-PI VMPA14-M1H-N-G1/8-PI VMPA2-M1H-N-G1/8-PI VMPA14-M1H-N5-G1/8-PI VMPA14-M1H-K-M7-PI VMPA14-M1H-K-G1/8-PI VMPA14-M1H-K-G1/8-PI VMPA14-M1H-K-G1/8-PI VMPA14-M1H-K-G1/8-PI VMPA14-M1H-K-G1/8-PI
	5/3-way valve			
	Mid-position pressurised	10	533378	VMPA1-M1H-B-M7-PI
		14	8023544	VMPA14-M1H-B-G1/8-PI
		20	537965	· · · · · · · · · · · · · · · · · · ·
	Mid-position closed	10	533379	
		14	8023546	
		20	537966	
	Mid-position exhausted	10	533380	· · · · · · · · · · · · · · · · · · ·
	ma position extraosted	14	8023545	
		20	537967	· · · · · · · · · · · · · · · · · · ·
	2x 2/2-way valve	20	337707	Tim 712 M211 2 G2/G11
	Normally closed	10	533384	VMPA1-M1H-D-M7-PI
	Hormany crosed	14	8023552	
		20	537971	· · · · · · · · · · · · · · · · · · ·
	Normally closed, mechanical reset	14	8023557	
	1x normally closed	10	545230	<u> </u>
	1x normally closed 1x normally closed, reversible			
	17 Hornially closed, reversible	14	8023553	· · · · · · · · · · · · · · · · · · ·
		20	545232	VMPAZ-M1H-I-G1/8-PI

Solenoid valves VMPA

iering data	Valve function	Width [mm]	Part no.	Туре
1 11 4 1				
ernal pilot air	supply – Set consisting of solenoid valve on individual sub	-base		
₹ 9-^	5/2-way valve	10	533385	VMDA4 M4H M C M7 DI
Sin Sin	Single solenoid	10	8023560	VMPA1-M1H-M-S-M7-PI
				VMPA14-M1H-M-S-G1/8-PI
	Simple of the state of the stat	20	537972	VMPA2-M1H-M-S-G1/8-PI
00000	Single solenoid, mechanical reset	14	8023571	VMPA14-M1H-MS-S-G1/8-P
	Double solenoid	10	533386	VMPA1-M1H-J-S-M7-PI
B		14	8023559	· ·
		20	537973	VMPA2-M1H-J-S-G1/8-PI
	2x 3/2-way valve			
	Normally open	10	533391	VMPA1-M1H-N-S-M7-PI
00000	<u> </u>	14	8023567	VMPA14-M1H-N-S-G1/8-PI
000	9]	20	537978	VMPA2-M1H-N-S-G1/8-PI
\sim	Normally open, mechanical reset	14	8023573	VMPA14-M1H-NS-S-G1/8-P
	Normally closed	10	533390	VMPA1-M1H-K-S-M7-PI
		14	8023566	VMPA14-M1H-K-S-G1/8-PI
		20	537977	VMPA2-M1H-K-S-G1/8-PI
	Normally closed, mechanical reset	14	8023572	VMPA14-M1H-KS-S-G1/8-P
10000	1x normally open	10	533392	VMPA1-M1H-H-S-M7-PI
On a	1x normally closed	14	8023568	VMPA14-M1H-H-S-G1/8-PI
V		20	537979	VMPA2-M1H-H-S-G1/8-PI
	1x normally open 1x normally closed, mechanical reset	14	8023575	VMPA14-M1H-HS-S-G1/8-P
	5/3-way valve			
	Mid-position pressurised	10	533387	VMPA1-M1H-B-S-M7-PI
	, ,	14	8023561	VMPA14-M1H-B-S-G1/8-PI
		20	537974	VMPA2-M1H-B-S-G1/8-PI
	Mid-position closed	10	533388	VMPA1-M1H-G-S-M7-PI
	This position closed	14	8023563	VMPA14-M1H-G-S-G1/8-PI
		20	537975	VMPA2-M1H-G-S-G1/8-PI
	Mid-position exhausted	10	533389	VMPA1-M1H-E-S-M7-PI
	Mid-position exhausted	14	8023562	VMPA14-M1H-E-S-G1/8-PI
	21.2/2	20	537976	VMPA2-M1H-E-S-G1/8-PI
	2x 2/2-way valve	140	F22202	VMDA4 MAII D C MZ DI
	Normally closed	10	533393	VMPA1-M1H-D-S-M7-PI
		14	8023569	
		20	537980	VMPA2-M1H-D-S-G1/8-PI
	Normally closed, mechanical reset	14	8023574	· · · · · · · · · · · · · · · · · · ·
	1x normally closed	10	545231	VMPA1-M1H-I-S-M7-PI
	1x normally closed, reversible only	14	8023570	VMPA14-M1H-I-S-G1/8-PI
		20	545233	VMPA2-M1H-I-S-G1/8-PI

Ordering data				
0 · · · · ·	Valve function	Width	Part no.	Туре
		[mm]		
Individual solenoid va	alve, piston spool valve			
©3.	5/2-way valve			
	Single solenoid	10	533342	VMPA1-M1H-M-PI
		14	573718	VMPA14-M1H-M-PI
		20	537952	VMPA2-M1H-M-PI
~	Single solenoid, mechanical spring return	10	571334	VMPA1-M1H-MS-PI
		14	573974	VMPA14-M1H-MS-PI
		20	571333	VMPA2-M1H-MS-PI
	Double solenoid	10	533343	VMPA1-M1H-J-PI
•		14	573717	VMPA14-M1H-J-PI
~ 22		20	537953	VMPA2-M1H-J-PI
	2x 3/2-way valve			
	Normally open	10	533348	VMPA1-M1H-N-PI
		14	573725	VMPA14-M1H-N-PI
-		20	537958	VMPA2-M1H-N-PI
	Normally open, mechanical spring return	10	556839	VMPA1-M1H-NS-PI
		14	575977	VMPA14-M1H-NS-PI
		20	568655	VMPA2-M1H-NS-PI
	Normally closed	10	533347	VMPA1-M1H-K-PI
		14	573724	VMPA14-M1H-K-PI
		20	537957	VMPA2-M1H-K-PI
	Normally closed,	10	556838	VMPA1-M1H-KS-PI
	Mechanical spring return	14	575976	VMPA14-M1H-KS-PI
		20	568656	VMPA2-M1H-KS-PI
	1x normally open,		533349	VMPA1-M1H-H-PI
	1x normally closed		+	VMPA14-M1H-H-PI
				VMPA2-M1H-H-PI
	1x normally open,			VMPA1-M1H-HS-PI
	1x normally closed,		_	VMPA14-M1H-HS-PI
	mechanical spring return	20	568658	VMPA2-M1H-HS-PI
	5/3-way valve			1
	Mid-position pressurised			VMPA1-M1H-B-PI
				VMPA14-M1H-B-PI
				VMPA2-M1H-B-PI
	Mid-position closed			VMPA1-M1H-G-PI
				VMPA14-M1H-G-PI
	Antid maritim colorosta !			VMPA2-M1H-G-PI
	Mid-position exhausted			VMPA1-M1H-E-PI
				VMPA14-M1H-E-PI
		20	53/956	VMPA2-M1H-E-PI
Oudantam J-t-				
Ordering data	Value for extens	Large total	Dante	T
	Valve function		Part no.	Type
		[[[[[[[[[[[[[[[[[[[
Single solenoid valve	, poppet valve with return spring			
	5/2-way valve	T	01015	VMB44 M471 MCC B:
	Single solenoid, mechanical spring return			VMPA1-M1H-MSC-PI
		14 573718 VMPA 20 537952 VMPA 10 571334 VMPA 14 573974 VMPA 20 571333 VMPA 10 533343 VMPA 14 573717 VMPA 20 537953 VMPA 14 573725 VMPA 10 556839 VMPA 10 556839 VMPA 10 556839 VMPA 10 556838 VMPA 10 556840 VMPA 10 533349 VMPA 10 556840 VMPA 10 556840 VMPA 10 556840 VMPA 10 556840 VMPA 10 556858 VMPA 10 556858 VMPA 10 556858 VMPA 10 553344 VMPA 10 553344 VMPA 10 553344 VMPA 10 533345 VMPA 10 533345 VMPA 10 533345 VMPA 10 533346 VMPA	VMPA14-M1H-MSC-PI	
		20	8186955	VMPA2-M1H-MSC-PI

Solenoid valves VMPA

Ordering data				
	Valve function	Width [mm]	Part no.	Туре
Individual solenoid	valve, piston spool valve			
%9	2x 2/2-way valve			
	Normally closed	10	533350	VMPA1-M1H-D-PI
		14	573727	VMPA14-M1H-D-PI
		20	537960	VMPA2-M1H-D-PI
	Normally closed,	10	556841	VMPA1-M1H-DS-PI
	mechanical spring return	14	575978	VMPA14-M1H-DS-PI
		20	568657	VMPA2-M1H-DS-PI
	1x normally closed	10	543605	VMPA1-M1H-I-PI
	1x normally closed, reversible	14	573728	VMPA14-M1H-I-PI
		20	543703	VMPA2-M1H-I-PI

Ordering data					
Designation			Width [mm]	Part no.	Туре
Sub-base for individu	ual connection				
AN)	Without ATEX specification	Internal pilot air	10	533394	VMPA1-IC-AP-1
		supply	14	8023666	VMPA14-IC-AP-1
			20	537981	VMPA2-IC-AP-1
10 10 10 10 10 10 10 10 10 10 10 10 10 1		External pilot air	10	533395	VMPA1-IC-AP-S-1
2000 O		supply	14	8023667	VMPA14-IC-AP-S-1
			20	537982	VMPA2-IC-AP-S-1
	With ATEX category → 19	Internal pilot air	10	8005149	VMPA1-IC-AP-1-EX1E
		supply	14	8023668	VMPA14-IC-AP-1-EX1E
Collin Collins			20	8005151	VMPA2-IC-AP-1-EX1E
00000		External pilot air	10	8005150	VMPA1-IC-AP-S-1-EX1E
		supply	14	8023669	VMPA14-IC-AP-S-1-EX1E
			20	8005152	VMPA2-IC-AP-S-1-EX1E
100000 B					

Ordering data			1		
Designation			Part no.	Туре	PU ¹⁾
Covering					
	Cover cap for manual override with coded cover cap, manual override non-deter	nting	540897	VMРА-НВТ-В	10
	Cover cap for manual override, concealed, manual override blocked		540898	VMPA-HBV-B	10
	Cover cap for manual override, manual override detenting, manually operated waccessories	vithout	8002234	VAMC-L1-CD	10
	Inscription label holder for an inscription label and cover of the switching status and the manual override (blocked)	indication	570818	ASLR-D-L1	10
Connecting cable, ind	ividual connection				
	Straight socket, M8x1, 4-pin,	2.5 m	8078227	NEBA-M8G4-U-2.5-N-LE4	1
	• open end, 4-core	5 m	8078228	NEBA-M8G4-U-5-N-LE4	1
	Angled socket, M8x1, 4-pin,	2.5 m	8078233	NEBA-M8W4-U-2.5-N-LE4	1
Control of the contro	• open end, 4-core	5 m	8078234	NEBA-M8W4-U-5-N-LE4	1

¹⁾ Packaging unit.

Solenoid valves VMPA

Accessories

Ordering data Designation			Part no.	Туре	PU ¹
		:	i ditiio.	Туре	110
Push-in fitting	Connecting thread Mr for tubing O.D.	2 mm	153313	QSM-M5-3-I	10
	Connecting thread M5 for tubing O.D.	3 mm		+ -	
		4 mm	153315	QSM-M5-4-I	10
			578370	NPQH-DK-M5-Q4-P10	10
		6 mm	153317	QSM-M5-6-I	10
			578371	NPQH-DK-M5-Q6-P10	10
	Connecting thread M7 for tubing O.D.	4 mm	153319	QSM-M7-4-I	10
			578372	NPQH-DK-M7-Q4-P10	10
		6 mm	153321	QSM-M7-6-I	10
			132919	QSM-M7-6-I-R-100	100
			578373	NPQH-DK-M7-Q6-P10	10
	Connecting thread G1/8 for tubing O.D.	6 mm	186107	QS-G1/8-6-I	10
			578375	NPQH-DK-G18-Q6-P10	10
		8 mm	186109	QS-G1/8-8-I	10
			578376	NPQH-DK-G18-Q8-P10	10
Silencer					
Mencer	Connecting thread	M5	165003	UC-M5	1
	Connecting timead	IWI	103003	OC-M3	1
	3	M7	161418	UC-M7	1
		G1/8	161419	UC-1/8	1
		01/6	101419	00-1/6	1
	Push-in sleeve connection	3 mm	165005	UC-QS-3H	1
		4 mm	165006	UC-QS-4H	1
		6 mm	165007	UC-QS-6H	1
		8 mm	175611	UC-QS-8H	1
N I-t I		<u>'</u>			
Blanking plug	AAC three d		F70/0/	NDOU DV ME D40	10
- (1)	M5 thread		578404	NPQH-BK-M5-P10	10
	M7 thread		174309	D M7	10
	IM7 tilledu		1/4309	B-M7	10
			F7040F	NDOU DI MA DAO	10
			578405	NPQH-BK-M7-P10	10
	G1/8 thread		3568	B-1/8	10
	G1/8 tilleau		3300	D-1/0	10
			578406	NPQH-BK-G18-P10	10
			378400	NFQII-BK-G10-F10	10
Stopper					
	Blanking plug for tubing O.D.	4 mm	153267	QSC-4H	10
		6 mm	153268	QSC-6H	10
9 5		8 mm	153269	QSC-8H	10

¹⁾ Packaging unit.