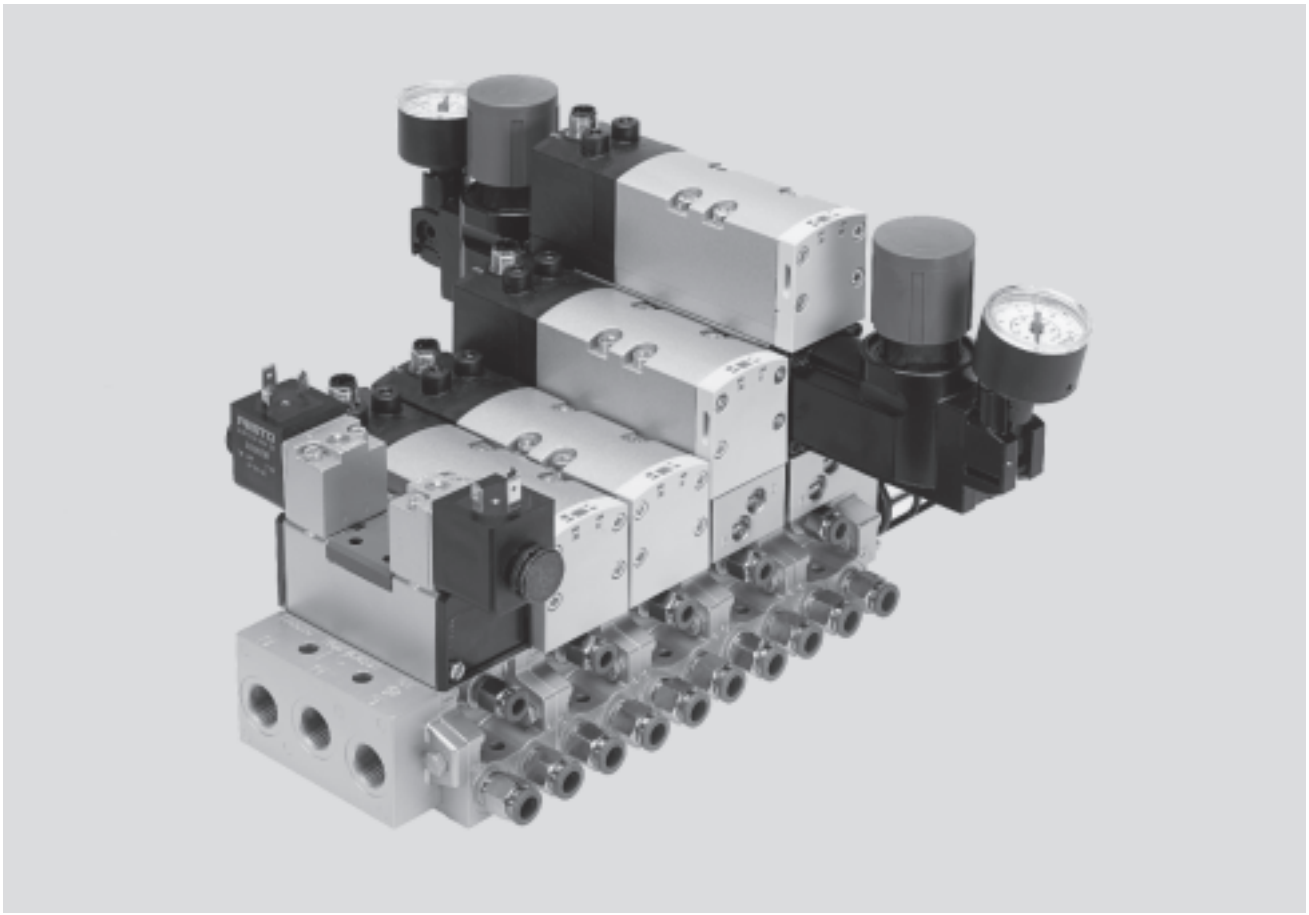
Solenoid valves, to ISO 5599-1

FESTO

New

Solenoid valves, to ISO 5599-1

Key features



Innovative

- High-performance valves in sturdy metal housing
- Individual electrical connection via square plug sockets or centrally for each valve via round plug sockets
- Valve replacement under pressure possible using vertical pressure shut-off plate
- Reverse operation
- Vacuum operation

Versatile

- Modular system offering a range of configuration options
- Conversions and extensions are possible at any time
- Integration of innovative function modules possible
  - Pressure regulator plate
  - Flow control plate
  - Vertical pressure shut-off plate
  - Vertical supply plate
- Vertical supply plates permit a flexible air supply and variable pressure zones
- Wide range of valve functions
- Extensive operating voltage range from 12 V DC to 230 V AC

Reliable

- Sturdy and durable metal components
  - Valves
  - Horizontal stacking plates
  - Vertical stacking plates
- Fast troubleshooting thanks to LED in the plug socket or illuminating seal
- LED integrated in the valve with the round plug variant
- Reliability of service thanks to valves that can be replaced quickly and easily
- Manual override
- Durable thanks to tried-and-tested piston spool valves

Easy to mount

- Plug-in pressure gauges on the pressure regulator plate

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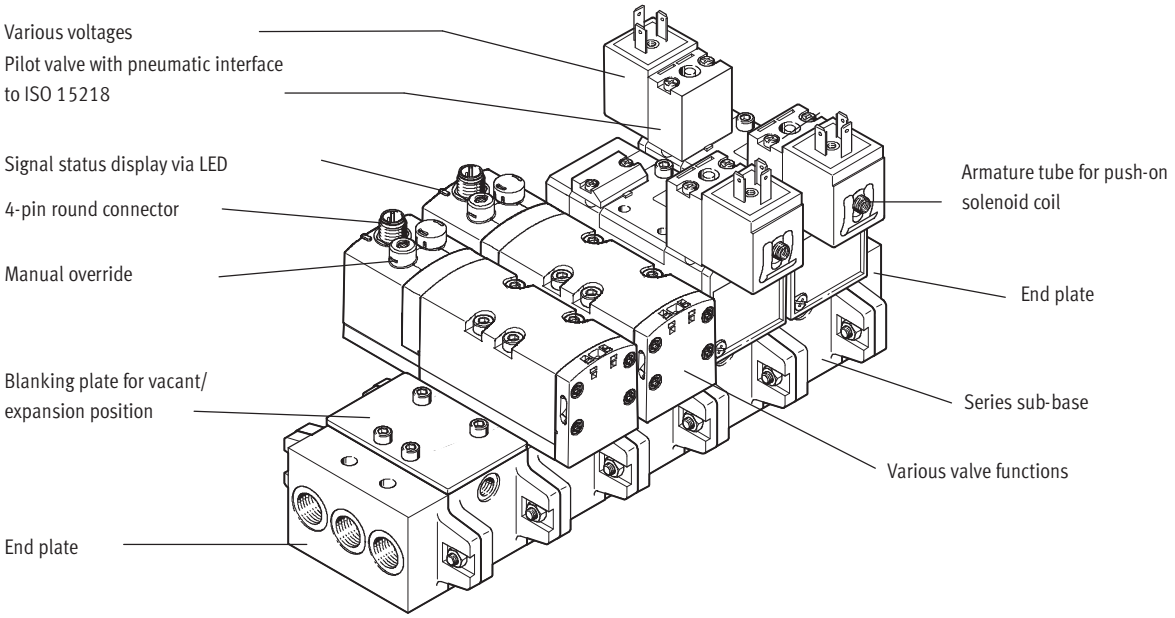
Key features

Individual valve manifold



Equipment options

5/2-way valve

- Single solenoid, pneumatic or spring return
- Double solenoid valve
- Double solenoid valve with dominance at 14

2x 3/2-way valve, single solenoid

- Normally open
- Normally closed
- 1x normally open, 1x normally closed
- All reversible 2x 3/2-way valves can be ordered using the modular system part number 565 448, as can 2x 2/2-way valves

5/3-way valve, single solenoid

- Mid-position valve
  - Normally open
  - Normally closed
  - Normally exhausted

Special features

Operation with external pilot air

- For vacuum applications
- For working pressures lower than 3 bar
- For significant pressure fluctuations in the power section. Power section and pneumatic control section are decoupled
- For heavily lubricated air in the power section
- For manifolds if the pressure zones are created via ducts 3 and 5 (not possible with 2x 3/2)
- For manifolds or pressure zones that are equipped with reversible 2x 3/2-way valves

Operation with internal pilot air

- For small pressure fluctuations in the power section
- For using pressure regulator plates in a vertical stacking construction, also in reverse operation
- As a low-cost solution

Reverse operation with pressure supply via ducts 3 and 5

- Pressure zone separation via ducts 3 and 5
  - Example: duct 3 vacuum, duct 5 ejector pulse
  - Example: duct 3 high pressure for advancing the piston rod of a double-acting cylinder. Duct 5 low pressure for retracting the piston rod with low energy consumption
- 2x 3/2-way valves used as 5/4-way valve with controllable overlapping and pressure zone separation with the reversible variant

Reverse operation with a pressure regulator plate, compressed air supply via duct 1

- Reversible pressure regulator combined with a reversible 2x 3/2-way valve regulates outputs 2 and 4
  - AB regulator for outputs 2 and 4
  - A regulator for output A
  - B regulator for output 2
- Reversible pressure regulators are in the control position immediately after the power supply is switched on
  - Adjustment possible at all times
  - Dynamic response characteristics
  - Reduced regulator load because the supply pressure is maintained when the valve is switched
  - Venting not via the regulator

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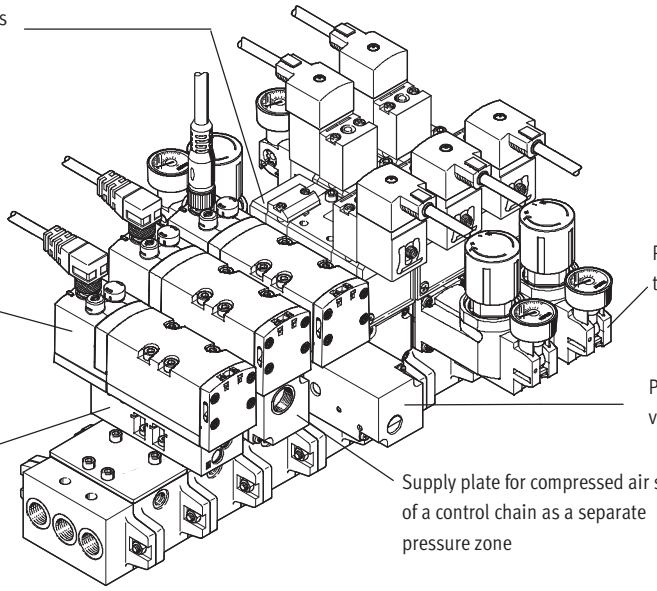
Key features

Valve manifold with vertical stacking



Vertical stacking function

Pressure regulator

- Single variant to regulate the pressure at output 4(A) or 2(B) or at input 1(P)
- Dual variant to regulate the pressure at output 4(A) and 2(B) individually
- Reverse variant for the outputs so that the regulator is in the control position
- With pressure gauge connection

Flow control plate

- Designed with two flow control valves at which the exhaust air flow rate at exhausts 5 or 3 can be adjusted. This enables the movement of the drive to be initiated and the desired speed to be set at the manifold using the manual override.

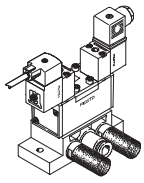
Vertical pressure shut-off plate

- Equipped with a switch via which the compressed air supply can be shut off. This enables a directional control valve or subsequent vertical stacking plate to be replaced without switching off the overall air supply
- If the control chain has a redundant design, the cycle can continue even with cyclical control

Vertical supply plate

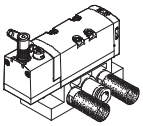
- As additional air supply for one valve
- To supply a third pressure zone

Individual connection with square plug



The directional control valve has a pilot control to ISO 15218. The solenoid coil pushed onto the armature tube can be chosen in different designs and operating voltages.

Individual connection with central round plug

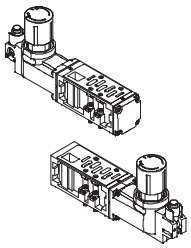


The electrical connection is established via a standardised M12 socket 24 V DC (EN 61076-2-101).

Solenoid valves, to ISO 5599-1

Key features

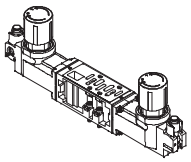
Pressure regulator plate with one pressure regulator



Versions

- Width 42
- For pressure regulation at the supply input 1 (P). Set pressure is the same for outputs 2 and 4
- For pressure regulation at the working port 4 (A)
  - The pressure regulator for reverse operation is supplied via port 1 of the sub-base and supplies port 5 on the directional control valve
  - The directional control valve vents via port 1 to ports 3 and 5 of the sub-base
- For pressure regulation at the working port 2 (B)
  - Input 3 is supplied here in reverse operation

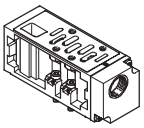
Pressure regulator plate with two pressure regulators



Versions

- Width 42 mm
- For pressure regulation at the working ports 4 (A) and 2 (B)
  - The pressure regulators for reverse operation are supplied via port 1 of the sub-base and supply inputs 5 and 3 on the directional control valve
  - The directional control valve vents via port 1 to ports 3 and 5 of the sub-base

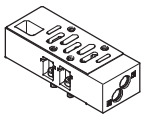
Vertical supply plate



Versions

- Width 42 mm
- As intermediate supply
  - For one valve
  - To supply a third pressure zone
- Can be equipped with a directional control valve

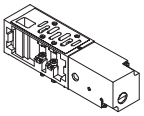
Flow control plate



Versions

- Width 42 mm
- Exhaust air restrictors in ducts 3 and 5
  - The flow control plates function as supply air restrictors for pressure zones that are formed via ducts 3 and 5

Vertical pressure shut-off plate



Versions

- Width 42 mm
- A switch activated with a slotted head screwdriver shuts off duct 1
  - The overlying flow control plates, pressure regulator plates or directional control valves can be replaced
  - Other components of the control chain such as drives, for example, can be replaced following venting via the directional control valve

Pressure gauge

Version

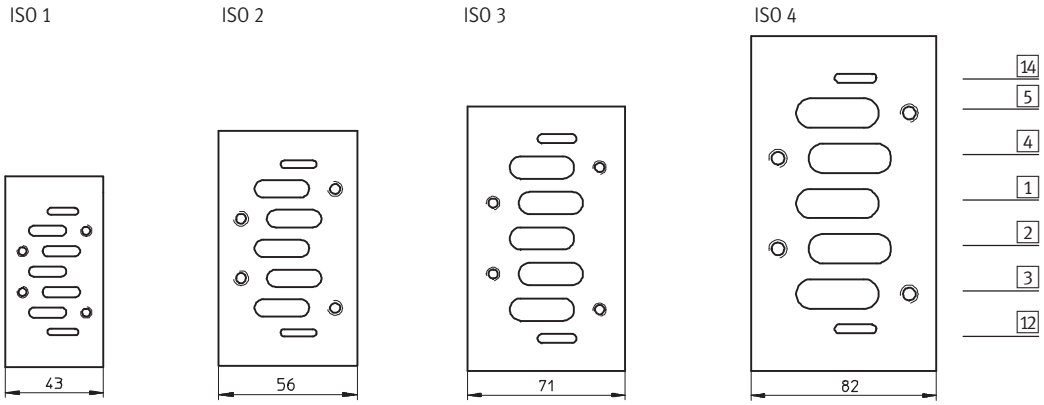
- Can be connected to the pressure regulator plates

Solenoid valves, to ISO 5599-1

Key features

Port pattern on sub-base to ISO 5599-1

Defined interface between valve and sub-base



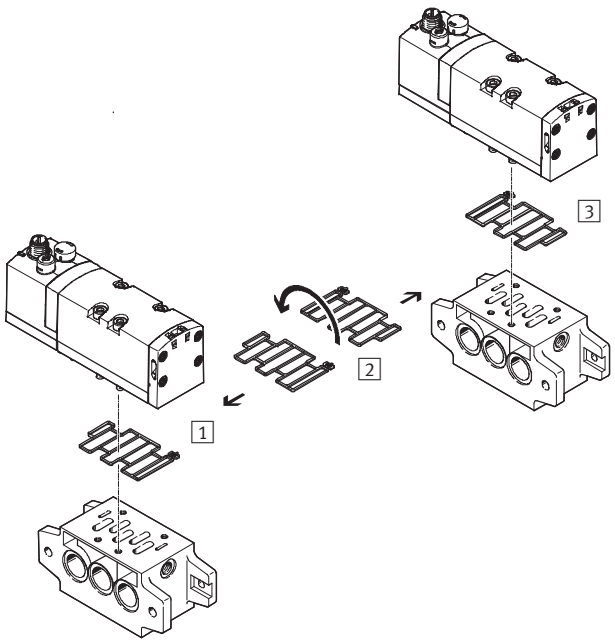
Sub-base port designations

	Solenoid valves
14 Control section	External pilot air supply for pilot valves 12 and 14
5 Power section	Exhaust port 5
4 Power section	Working line 4
1 Power section	Working air supply connection 1
2 Power section	Working line 2
3 Power section	Exhaust port 3
12 Control section	Exhaust port for pilot air from 12 and 14

VSVA

Conversion of pilot air venting

VSVA valve manifolds are supplied with unducted venting of the pilot air. By turning the seal between the valve and manifold block, exhaust air (pilot air) can be diverted into pilot duct 12 and can thus be contained and silenced (see illustration).



1 Ducted pilot air venting
2 Turning seal by 180°
3 Unducted pilot air venting (as supplied)

Solenoid valves, to ISO 5599-1

Key features

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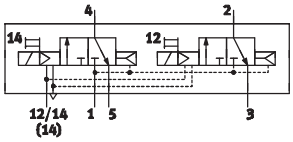
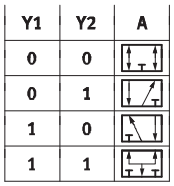
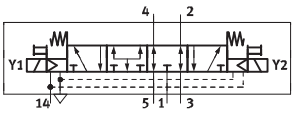
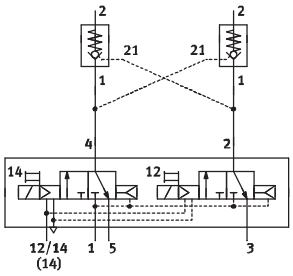
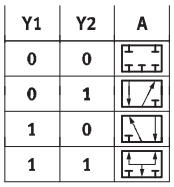
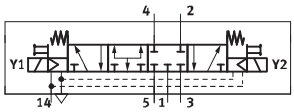
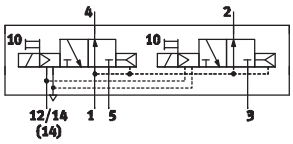
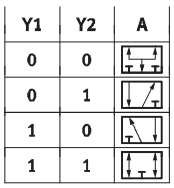
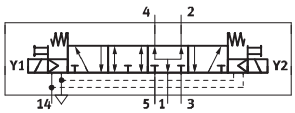
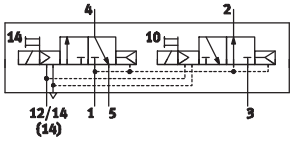
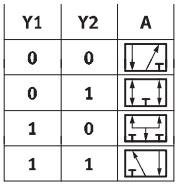
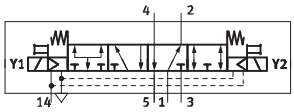
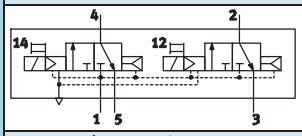
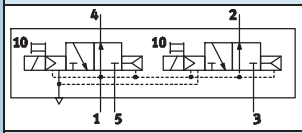
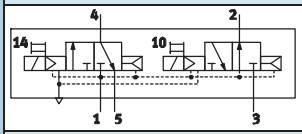
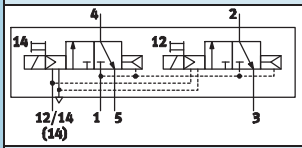
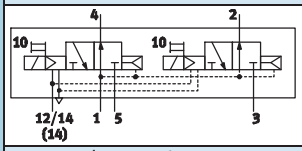
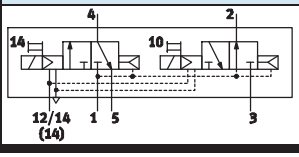
Use of 2x 3/2-way valve as 5/4-way valve

Code	Circuit symbol	Value table	Equivalent circuit symbol	Function
K				• Normally exhausted • The double-acting drive connected to outputs 2 and 4 is unpressurised when the valve is in the normal position and can be moved by an external force • If there is a signal present at Y1(14) and Y2(12), there is pressure at outputs 2 and 4
				• Normally closed (by combining directional control valve code K and two piloted non-return valves) • The piloted non-return valves connected to outputs 2 and 4 are unpressurised when the valve is in the normal position and the pressures in the drive close the non-return valves leak-tight • The drive stops when the forces are in equilibrium • Leakages can only occur via the drive seals • If there is a signal present at Y1(14) and Y2(12), the same pressure is present at outputs 2 and 4
N				• Normally open • The double-acting drive connected to outputs 2 and 4 is supplied with the same compressed air at both ends when the valve is in the normal position and stops when the forces are in equilibrium • If there is a signal present at Y1(10) and Y2(10), outputs 2 and 4 are exhausted, the drive is unpressurised and can be moved by an external force
H				• Normally open after output 2 • The double-acting drive connected to outputs 2 and 4 is supplied with compressed air via output 2 when the valve is in the normal position. Output 4 is exhausted. The drive is thus in a clearly defined position in the initial position of the system, as would also be the case with a single solenoid 5/2-way valve • If there is a signal present at Y1(14) and Y2(10), output 2 is exhausted and pressure is supplied to output 4. The drive leaves the initial position • A closed circuit can be created with this 2x 3/2-way valve by combining it with piloted non-return valves. However, this is then selected by an active signal at Y2(10)

Solenoid valves, to ISO 5599-1

Product range overview

FESTO

ISO size/width	Circuit symbol	Normal position	Pilot air supply	Plug	Operating voltage [V DC]	→ Page/ Internet
1/42 mm	VSVA 2x3/2-way valve					
		2x closed	Internal	M12x1 round	24	25
	VSVA 2x3/2-way valve					
		2x open	Internal	M12x1 round	24	25
	VSVA 2x3/2-way valve					
		1x closed, 1x open	Internal	M12x1 round	24	25
	VSVA 2x3/2-way valve					
		2x closed	External	M12x1 round	24	25
	VSVA 2x3/2-way valve					
		2x open	External	M12x1 round	24	25
	VSVA 2x3/2-way valve					
		1x closed, 1x open	External	M12x1 round	24	25

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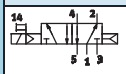
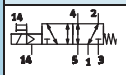
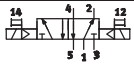
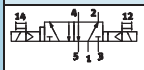
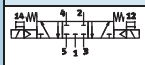
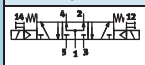
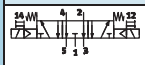
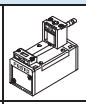
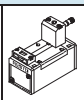
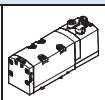
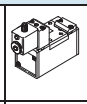
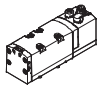
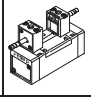
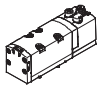
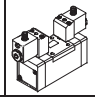
Product range overview

FESTO

ISO size/width	Circuit symbol	Solenoid coil	Operating voltage									➔ Page/ Internet
			[V DC]			[V AC]						
			12	24	42	24	42	48	110	230	240	
1/42 mm	5/2-way valve, single solenoid with pneumatic spring											
		N1	–	■	–	–	–	–	■	■	–	25
		F	■	■	■	■	■	■	■	■	■	
		VSVA	–	■	–	–	–	–	–	–	–	
		D[1)]	–	■	–	–	–	–	–	–	–	
	5/2-way valve, single solenoid with mechanical spring											
		N1	–	■	–	–	–	–	■	■	–	25
		F	■	■	■	■	■	■	■	■	■	
		VSVA	–	■	–	–	–	–	–	–	–	
	5/2-way valve, double solenoid											
		N1	–	■	–	–	–	–	■	■	–	25
		F	■	■	■	■	■	■	■	■	■	
		VSVA	–	■	–	–	–	–	–	–	–	
		D[1)]	–	■	–	–	–	–	–	–	–	
	5/2-way valve, double solenoid with dominant signal at 14											
		N1	–	■	–	–	–	–	■	■	–	25
		F	■	■	■	■	■	■	■	■	■	
		VSVA	–	■	–	–	–	–	–	–	–	
		D[1)]	–	■	–	–	–	–	–	–	–	
	5/3-way valve, single solenoid, normally closed, mid-position valve											
		N1	–	■	–	–	–	–	■	■	–	25
		F	■	■	■	■	■	■	■	■	■	
		VSVA	–	■	–	–	–	–	–	–	–	
		D[1)]	–	■	–	–	–	–	–	–	–	
	5/3-way valve, single solenoid, normally open, mid-position valve											
		N1	–	■	–	–	–	–	■	■	–	25
		F	■	■	■	■	■	■	■	■	■	
		EB	–	■	–	–	–	–	–	–	–	
		D[1)]	–	■	–	–	–	–	–	–	–	
	5/3-way valve, single solenoid, normally exhausted, mid-position valve											
		N1	–	■	–	–	–	–	■	■	–	25
		F	■	■	■	■	■	■	■	■	■	
		VSVA	–	■	–	–	–	–	–	–	–	
		D[1)]	–	■	–	–	–	–	–	–	–	

1) Only with internal pilot air supply

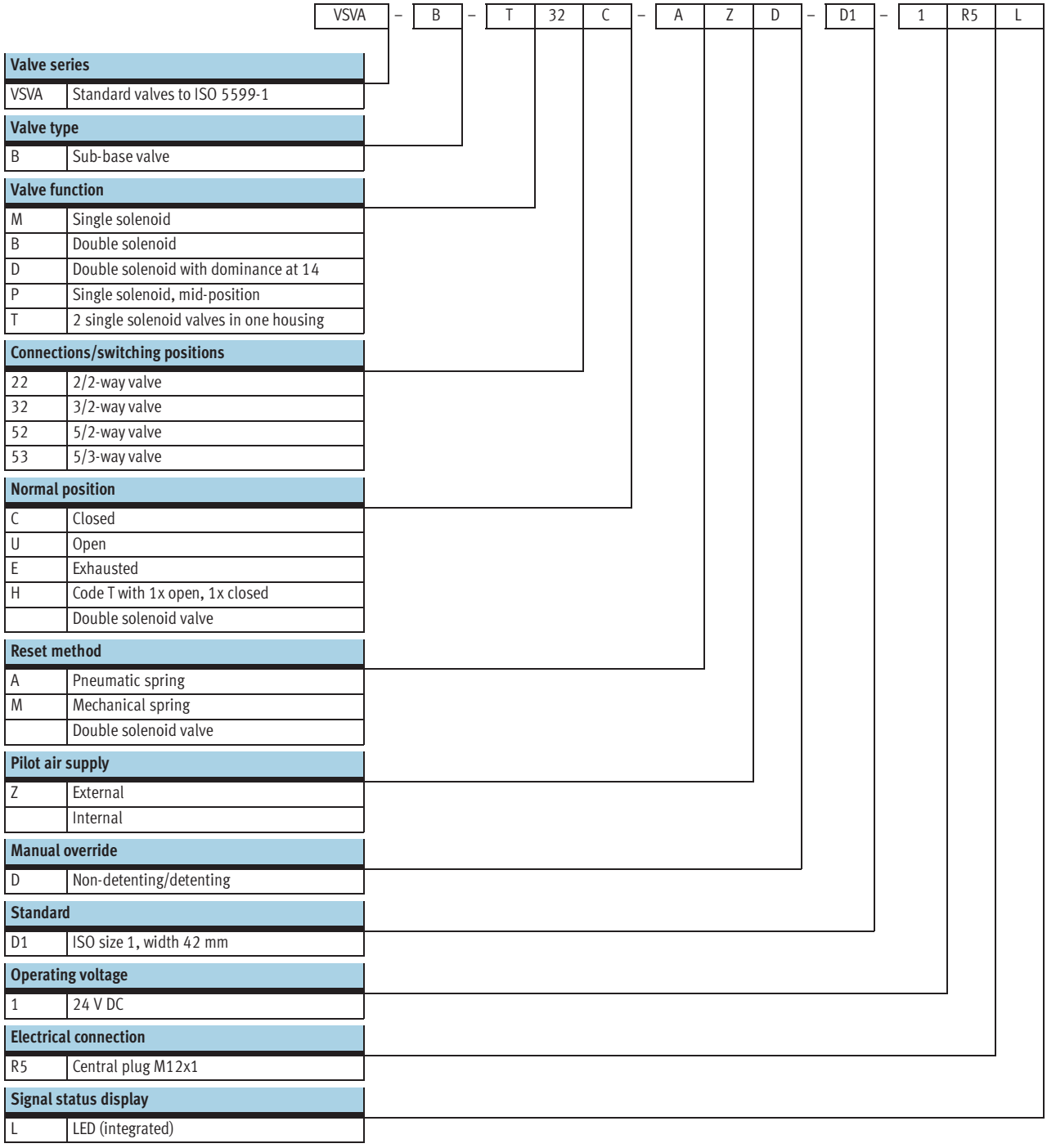
Solenoid valves, to ISO 5599-1				
Solenoid coil	N1[1)]	F[1)]	VSVA	D
Function				
5/2-way valve, single solenoid				
5/2-way valve, double solenoid				
5/3-way valve, single solenoid				

1) Coil with required voltage must be ordered separately

Solenoid valves VSVA, to ISO 5599-1

Type codes for valves with round plug

FESTO



Valve series	
VSVA	Standard valves to ISO 5599-1

Valve type	
B	Sub-base valve

Valve function	
M	Single solenoid
B	Double solenoid
D	Double solenoid with dominance at 14
P	Single solenoid, mid-position
T	2 single solenoid valves in one housing

Connections/switching positions	
22	2/2-way valve
32	3/2-way valve
52	5/2-way valve
53	5/3-way valve

Normal position	
C	Closed
U	Open
E	Exhausted
H	Code T with 1x open, 1x closed
	Double solenoid valve

Reset method	
A	Pneumatic spring
M	Mechanical spring
	Double solenoid valve

Pilot air supply	
Z	External
	Internal

Manual override	
D	Non-detenting/detenting

Standard	
D1	ISO size 1, width 42 mm

Operating voltage	
1	24 V DC

Electrical connection	
R5	Central plug M12x1

Signal status display	
L	LED (integrated)

Solenoid valves, to ISO 5599-1

Type codes for valves with square plug

FESTO

MN1H	–	5/3	G	–	D-1	–		–		–		–	C	–	

Type	
MN1H	Single solenoid, for N1 solenoid coil
MFH	Single solenoid, for F solenoid coil
MDH	Single solenoid, with D solenoid coil
JMN1H	Double solenoid, for N1 solenoid coil
JMN1DH	Double solenoid, for N1 solenoid coil, with dominant signal at 14
JMFH	Double solenoid, for F solenoid coil
JMFDH	Double solenoid, for F solenoid coil, with dominant signal at 14
JMDH	Double solenoid, with D solenoid coil

Valve function	
5/2	5/2-way valve
5/3	5/3-way valve

Normal position	
G	Closed
E	Exhausted
B	Pressurised

Size	
D-1	ISO size 1
D-2	ISO size 2
D-3	ISO size 3
¾-D-4	ISO size 4

Electrical connection, operating voltage	
Plug, square design to DIN EN 175301-803, type A	
24DC	24 V DC

Pilot air supply	
	Internal
S	External

Reset method	
FR	Mechanical spring
	Pneumatic spring

Generation	
C	C series

CT	Free of copper and PTFE (being discontinued)

Solenoid valves, to ISO 5599-1

Type codes for valves with round plug

FESTO

MDH	–	5/3	G	–	D-1	–		–		–		–	C	–	

Type	
MDH	Single solenoid, with D solenoid coil
JMDH	Double solenoid, for D solenoid coil
JMDDH	Double solenoid, for D solenoid coil, with dominant signal at 14

Valve function	
5/2	5/2-way valve
5/3	5/3-way valve

Normal position	
G	Closed
E	Exhausted
B	Pressurised

Size	
D-1	ISO size 1
D-2	ISO size 2
D-3	ISO size 3

Electrical connection, operating voltage	
Central plug, round design, M12x1	
ZSR	24 V DC
Individual plug, round design, M12x1	
M12	24 V DC

Pin allocation	
	2-pin to VDMA
D	4-pin to Desina

Pilot air supply	
	Internal
S	External

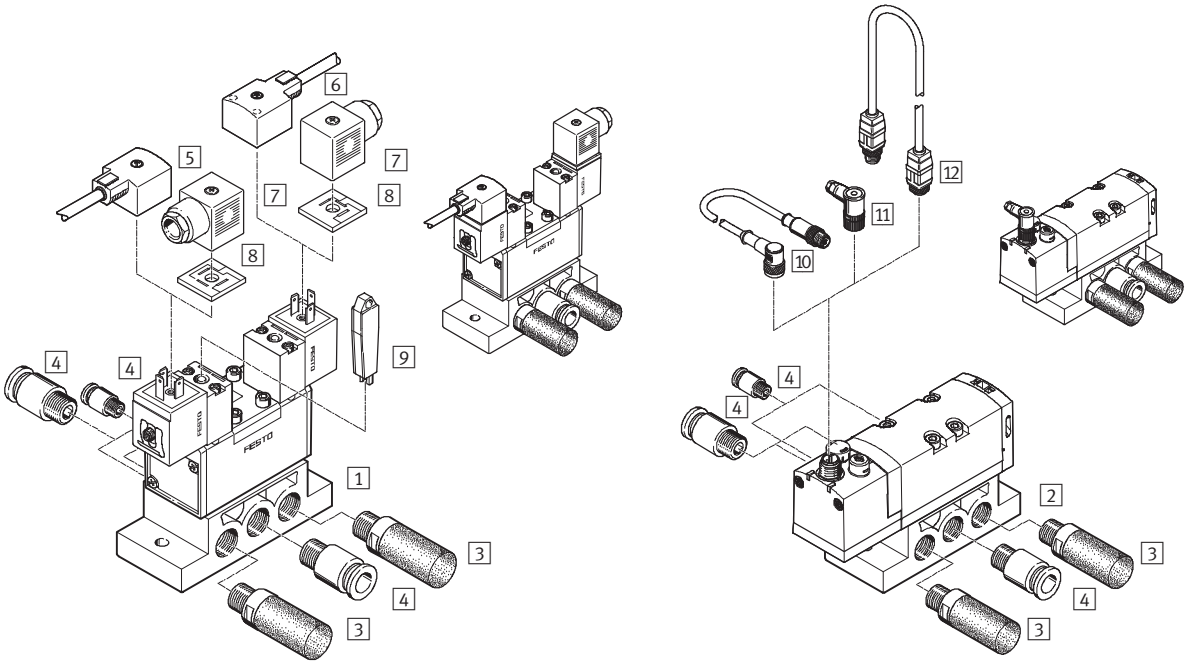
Reset method	
FR	Mechanical spring Pneumatic spring

Generation	
C	C series

Solenoid valves, to ISO 5599-1

Peripherals overview

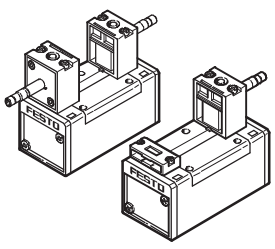
Individual mounting with square plug or round plug



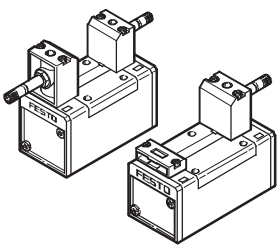
Component parts			
	Type	Brief description	➔ Page/ Internet
1 Solenoid valve on individual sub-base	MN1H-..., NAS	Port pattern to ISO 5599-1, corresponding solenoid coils ➔ 45	35
2 Solenoid valve on individual sub-base	VSVA..., NAS	Port pattern to ISO 5599-1	
3 Silencer	U	For fitting in exhaust ports	u
4 Push-in fitting	QS	For connecting compressed air tubing with standard O.D.	qs
5 Plug socket with cable	KMC-...	Without LED	45
6 Plug socket with cable	KMC-...LED	With LED	
7 Plug socket	MSSD-C		
8 Illuminating seal	M...-LD	For indicating the signal status	
9 Manual override	AHB	Tool for detenting manual override	
10 Connecting cable	NEBU		
11 Plug socket	SAE		
12 Plug socket with cable	KM		

Variants

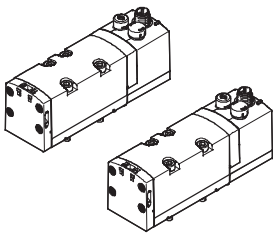
MN1H, JMN1H



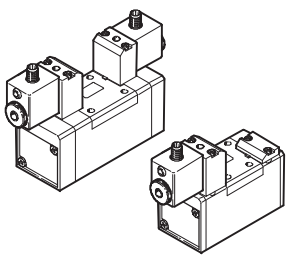
MFH, JMFH



VSVA (width 42 mm)



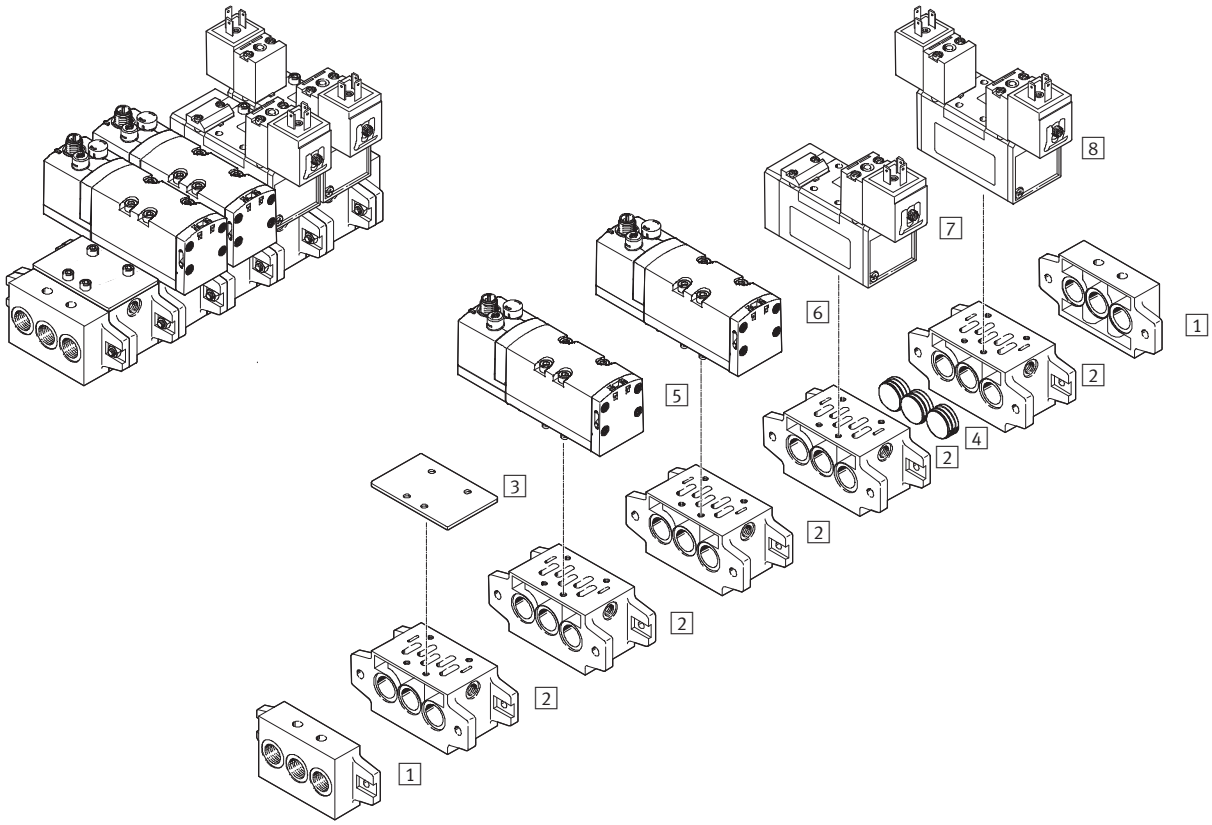
MDH, JMDH



Solenoid valves, to ISO 5599-1

System overview

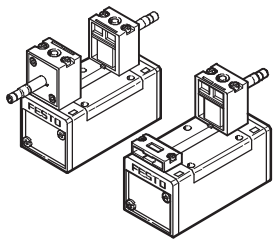
Manifold assembly without vertical stacking



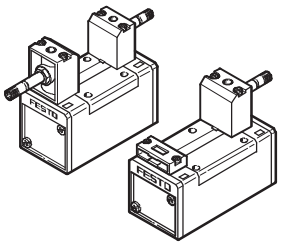
Component parts			
	Type	Brief description	➔ Page/ Internet
1 End plate kit	NEV	With ports for air supply 1 and exhausts 3 and 5	35
2 Manifold sub-base	NAV	With ports 2 and 4 underneath	
3 Blanking plate	NDV	For sealing unused manifold sub-bases	
4 Isolating disc	NSC	For sealing the common lines 1, 3, 5 between end plates and manifold sub-bases or between 2 manifold sub-bases, e.g. for different working pressures	
5 Solenoid valve	VSVA	Port pattern to ISO 5599-1, all functions	25
6 Solenoid valve	VSVA		
7 Solenoid valve	MN1H	Port pattern to ISO 5599-1, corresponding solenoid coils ➔ 45	17
8 Solenoid valve	JMN1H		

Variants

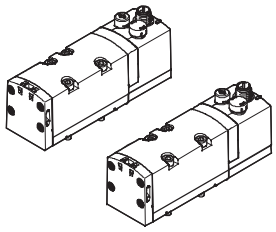
MN1H, JMN1H



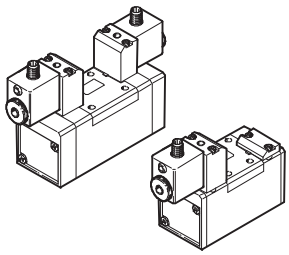
MFH, JMFH



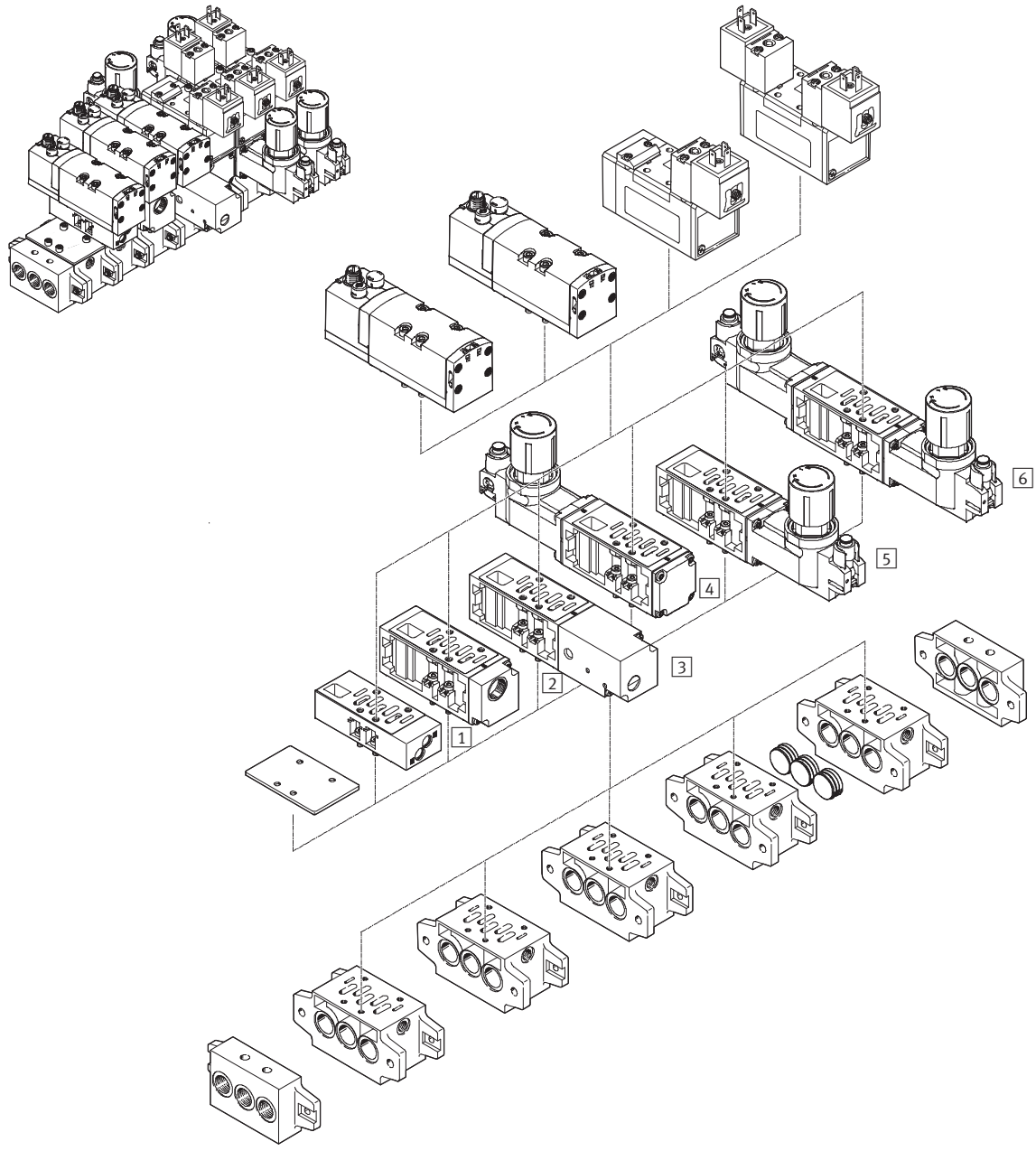
VSVA (width 42 mm)



MDH, JMDH



Manifold assembly with vertical stacking

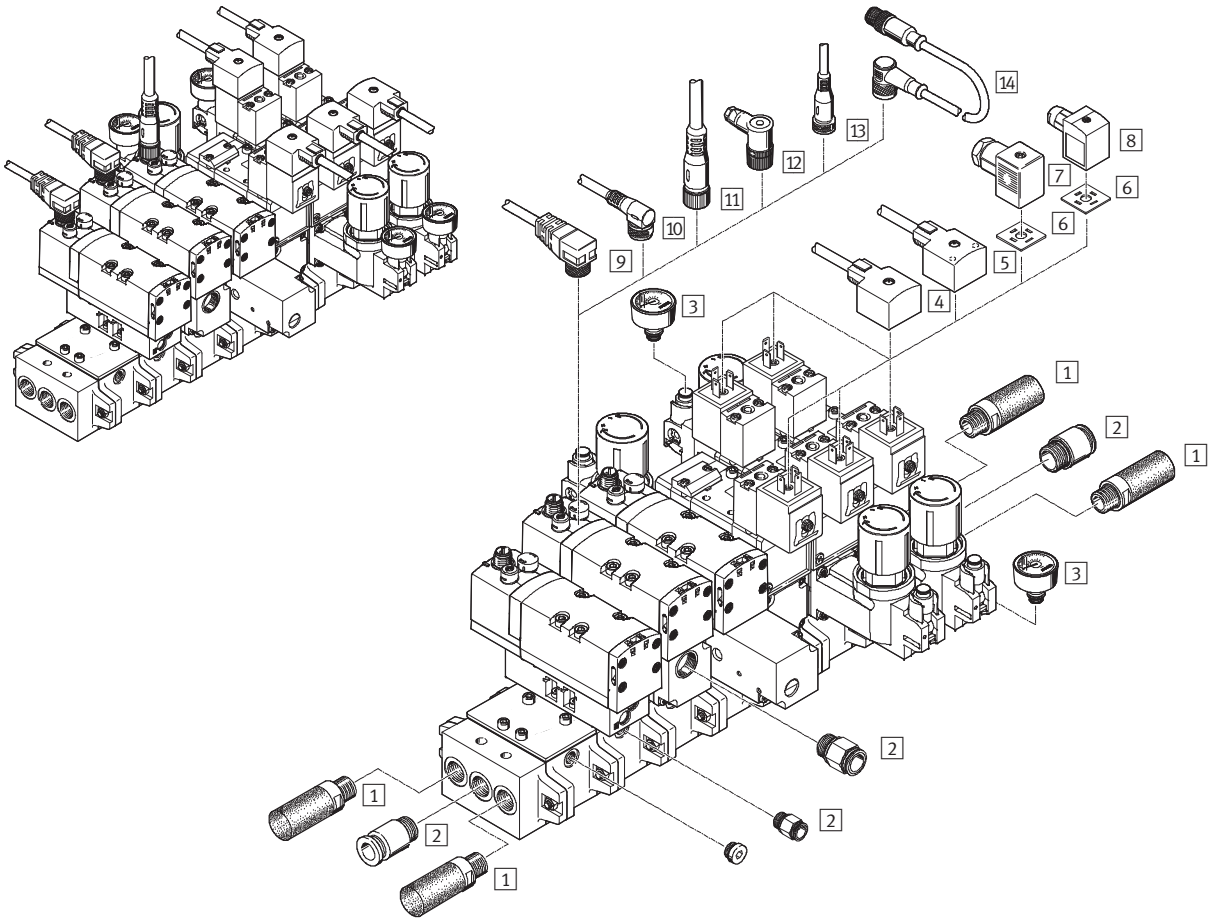


Component parts			
	Type	Brief description	➔ Page/ Internet
1 Flow control plate	VABF-S1-1-F1B1-C164	Controls the flow of exhaust air in 3 and 5	42
2 Vertical supply plate	VABF-S1-1-L1D1-C	Supplies the mounted valve with air	43
3 Vertical pressure shut-off plate	VABF-S1-1-P1A3-G38	Switch for shutting off the air supply 1 to the valve	44
4 Regulator plate P	VABF-S1-1-R1...	Regulates input 1	39
5 Regulator plate B	VABF-S1-1-R3...	Regulates output 2	
6 Regulator plate AB	VABF-S1-1-R4...	Regulates outputs 2 and 4 individually	

Solenoid valves, to ISO 5599-1

Peripherals overview

Accessories



Component parts			
	Type	Brief description	➔ Page/ Internet
1 Silencer	U	For fitting in exhaust ports	u
2 Push-in fitting	QS	For connecting compressed air tubing with standard O.D.	qs
3 Pressure gauge	PAGN	With push-in connector	45
4 Plug socket with cable	KMC-...	Without LED	
5 Plug socket with cable	KMC-...LED	With LED	
6 Illuminating seal	M...-LD	For indicating the signal status	
7 Plug socket	MSSD-C-M16	With screw terminal connection	
8 Plug socket	MSSD-C-S-M16	With insulation displacement connection	
9 Plug socket with cable	NEBU		
10 Connecting cable	NEBU		
11 Plug socket with cable	NEBU		
12 Plug socket	SAE		
13 Connecting cable	NEBU		
14 Plug socket with cable	KM-12-M12-GSWD-1-4		km

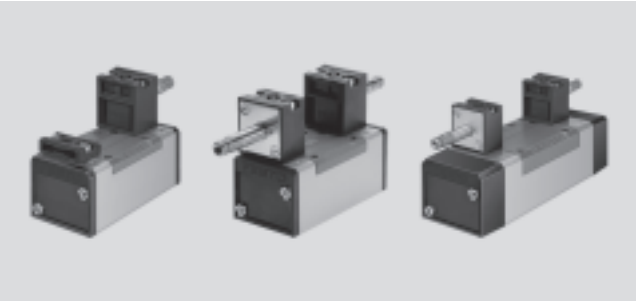
Solenoid valves MN1H, JMN1H, JMN1DH, to ISO 5599-1

Technical data – Width 42 mm

FESTO

Flow rate
1,200 l/min

Voltage
24 V DC
110, 230 V AC



General technical data						
Valve function		5/2-way		5/3-way		
Normal position		–	–	G[1]	B[2]	E[3]
Memory stability		Monostable	Bistable	Monostable		
Pneumatic spring reset method		Yes	–	No		
Mechanical spring reset method		Yes	–	Yes		
Design		Piston spool valve				
Sealing principle		Soft				
Actuation type		Electrical				
Type of control		Piloted				
Pilot interface		To ISO 15218				
Pilot air supply		Internal or external				
Direction of flow		Reversible with external pilot air supply				
Exhaust function		Flow control				
Manual override		Non-detenting, detenting with tool				
Type of mounting		On sub-base				
Mounting position		Any				
Nominal size	[mm]	8				
Standard nominal flow rate	[l/min]	1,200				
Switching time on/off, pneumatic spring	[ms]	23/32	–	–		
Switching time on/off, mechanical spring	[ms]	17/39	–	20/44	20/46	
Changeover time	[ms]	–	18	–		
Switching time with dominance at 14 (12/14)	[ms]	–	18/15	–		
Width	[mm]	42				
Grid dimension	[mm]	43				
Ports on the sub-base 1, 2, 3, 4, 5		G¼				
12, 14		M5				
Tightening torque, valve mounting	[Nm]					
Noise level	[dB (A)]	85				
Conforms to		ISO 5599-1 and interface for pilot valve ISO 15218				
Certification		Germanischer Lloyd				
Corrosion resistance class	CRC	2[4]				
Product weight	[g]	450	610	650		

1) G = Normally closed
2) B = Normally open
3) E = Normally exhausted
4) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

Solenoid valves MN1H, JMN1H, JMN1DH, to ISO 5599-1

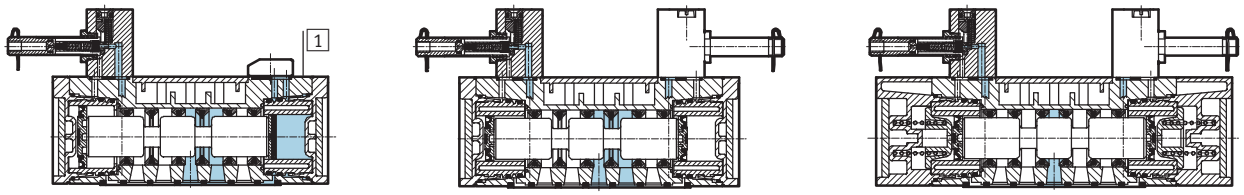
Technical data – Width 42 mm

Operating and environmental conditions				
Reset method			Pneumatic	Mechanical
Operating medium			Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated, vacuum	
Operating pressure	Internal pilot air supply	[bar]	2 ... 10	3 ... 10
	External pilot air supply	[bar]	–0.9 ... +16	–0.9 ... +16
Pilot pressure		[bar]	2 ... 10	3 ... 10
Ambient temperature		[°C]	–5 ... +50	
Temperature of medium		[°C]	–5 ... +50	

Electrical data			
N1 solenoid coil			
Electrical connection			Plug, square design to EN 175301-803, type A
Operating voltage	DC voltage	[V DC]	24
	AC voltage	[V AC]	110/230 (50 ... 60 Hz)
Coil characteristics	DC voltage	[W]	2.5
	AC voltage	[VA]	Pull: 7.5 Hold: 5
Protection class to EN 60 529			IP65

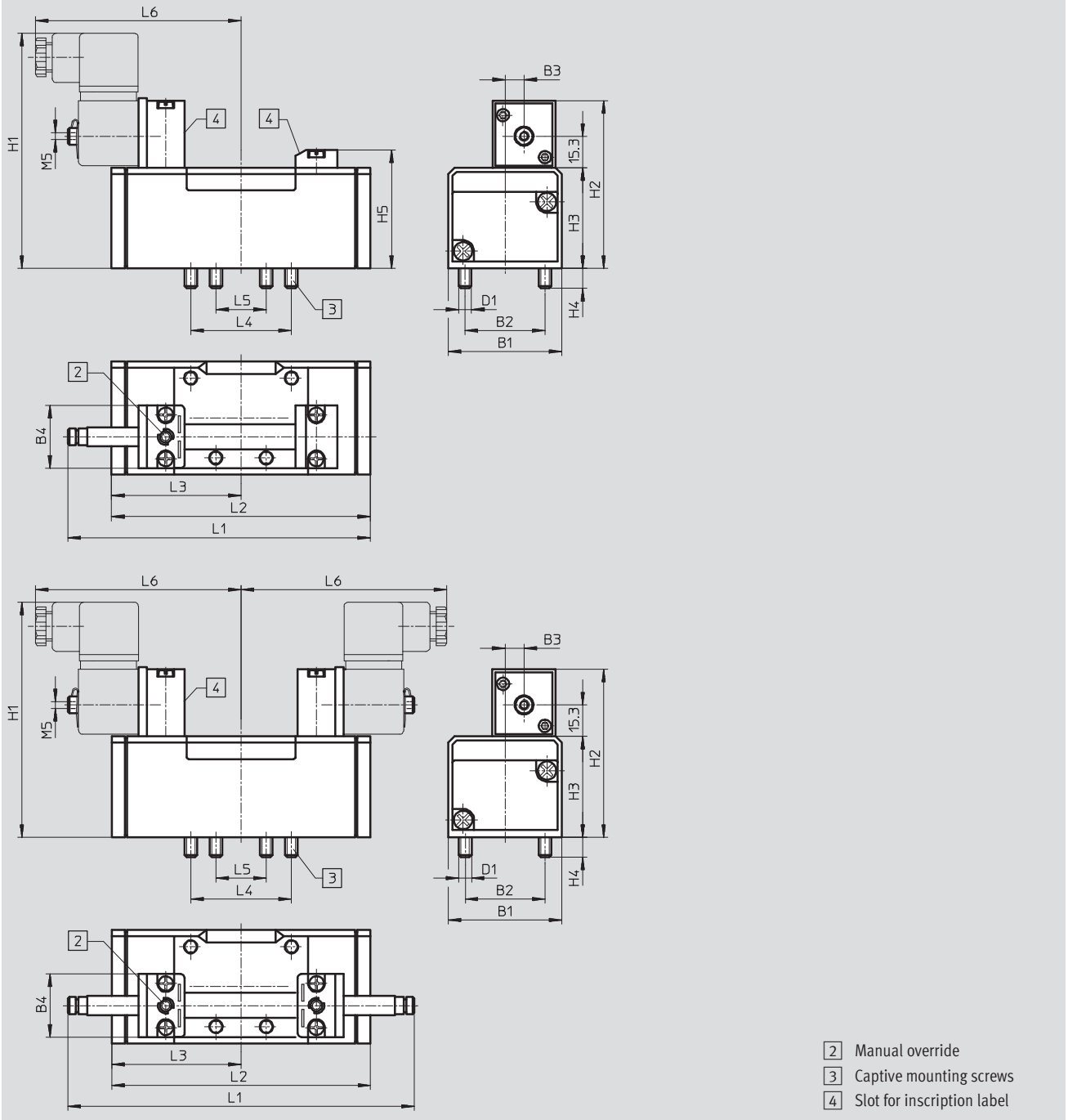
Materials

Sectional view



1	Housing	Die-cast aluminium
–	Seals	NBR (nitrile rubber)
	Note on materials	Designs free of copper and PTFE ➔ Ordering data RoHS-compliant

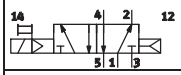
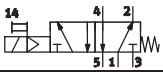
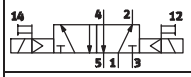
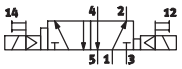
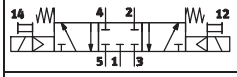
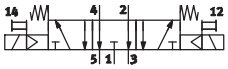
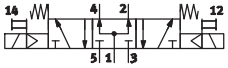
Dimensions Download CAD data ➔ **www.festo.com**



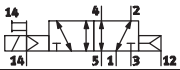
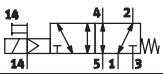
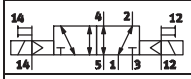
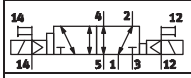
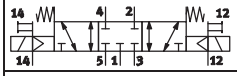
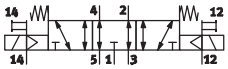
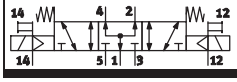
Type	B1	B2	B3	B4	D1	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5	L6
MN1H-5/2-...	42	28	6	30	M5	106	74	38	9	46.5	117.5	87.6	43.8	36	18	89
JMN1H-5/2-...											147.3					
MN1H-5/3-...												108.4				
MN1H-5/2-...-FR											128	98				

Solenoid valves MN1H, JMN1H, JMN1DH, to ISO 5599-1

Ordering data – Width 42 mm

Ordering data – Solenoid valves without solenoid coil[1], internal pilot air supply			
Circuit symbol	Description	Part No.	Type
5/2-way valve, single solenoid			
	Pneumatic reset	159688	MN1H-5/2-D-1-C
		184637	MN1H-5/2-D-1-C-CT[2]
	Mechanical reset	159687	MN1H-5/2-D-1-FR-C
		184638	MN1H-5/2-D-1-FR-C-CT[2]
5/2-way valve, double solenoid			
	–	159690	JMN1H-5/2-D-1-C
	With dominant signal at 14	159691	JMN1DH-5/2-D-1-C
5/3-way valve, single solenoid			
	Normally closed	159681	MN1H-5/3G-D-1-C
		184658	MN1H-5/3G-D-1-C-CT[2]
	Normally exhausted	159683	MN1H-5/3E-D-1-C
		184652	MN1H-5/3E-D-1-C-CT[2]
	Normally open	159685	MN1H-5/3B-D-1-C
		184650	MN1H-5/3B-D-3-C-CT[2]

1) N1 solenoid coils ➔ 45
2) Free of copper and PTFE

Ordering data – Solenoid valves without solenoid coil[1], external pilot air supply			
Circuit symbol	Description	Part No.	Type
5/2-way valve, single solenoid			
	Pneumatic reset	159686	MN1H-5/2-D-1-S-C
	Mechanical reset	159716	MN1H-5/2-D-1-FR-S-C
5/2-way valve, double solenoid			
	–	159689	JMN1H-5/2-D-1-S-C
	With dominant signal at 14	159717	JMN1DH-5/2-D-1-S-C
5/3-way valve, single solenoid			
	Normally closed	159680	MN1H-5/3G-D-1-S-C
	Normally exhausted	159682	MN1H-5/3E-D-1-S-C
	Normally open	159684	MN1H-5/3B-D-1-S-C

1) N1 solenoid coils ➔ 45
2) Free of copper and PTFE

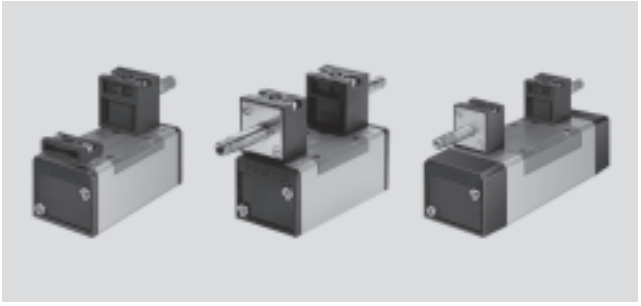
Solenoid valves MFH, JMFH, JMFDH, to ISO 5599-1

Technical data – Width 42 mm

FESTO

Flow rate
1,200 l/min

Voltage
12, 24, 42, 48 V DC
24, 42, 48, 110, 230,
240 V AC



General technical data							
Valve function			5/2-way		5/3-way		
Normal position			–	–	G[1]	B[2]	E[3]
Memory stability			Monostable	Bistable	Monostable		
Pneumatic spring reset method			Yes	–	No		
Mechanical spring reset method			Yes	–	Yes		
Design			Piston spool valve				
Sealing principle			Soft				
Actuation type			Electrical				
Type of control			Piloted				
Pilot interface			To ISO 15218				
Pilot air supply			Internal or external				
Direction of flow			Reversible with external pilot air supply				
Exhaust function			Flow control				
Manual override			Non-detenting, detenting with tool				
Type of mounting			On sub-base				
Mounting position			Any				
Nominal size		[mm]	8				
Standard nominal flow rate		[l/min]	1,200				
Switching time on/off, pneumatic spring		[ms]	23/35	–	–		
Switching time on/off, mechanical spring		[ms]	16/45	–	18/35	18/36	
Changeover time		[ms]	–	16	–		
Switching time with dominance at 14 (12/14)		[ms]	–	16/13	–		
Width		[mm]	42				
Grid dimension		[mm]	43				
Ports on the sub-base	1, 2, 3, 4, 5		G¼				
	12, 14		M5				
Noise level		[dB (A)]	85				
Conforms to			ISO 5599-1 and interface for pilot valve ISO 15218				
Certification			Germanischer Lloyd				
Corrosion resistance class		CRC	2[4]				
Product weight		[g]	550	600	630		

1) G = Normally closed
2) B = Normally open
3) E = Normally exhausted
4) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

Solenoid valves MFH, JMFH, JMFDH, to ISO 5599-1

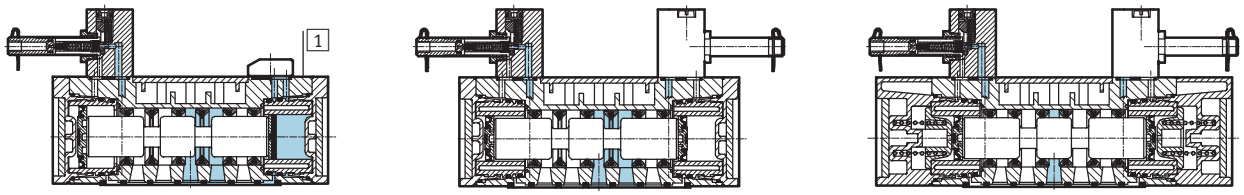
Technical data – Width 42 mm

Operating and environmental conditions				
Reset method			Pneumatic	Mechanical
Operating medium			Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated, vacuum	
Operating pressure	Internal pilot air supply	[bar]	2 ... 10	3 ... 10
	External pilot air supply	[bar]	–0.9 ... +16	–0.9 ... +16
Pilot pressure		[bar]	2 ... 10	3 ... 10
Ambient temperature		[°C]	–5 ... +40	
Temperature of medium		[°C]	–10 ... +60	

Electrical data			
F solenoid coil			
Electrical connection			Plug vanes for plug sockets MSSD-F, KMF
Operating voltage	DC voltage	[V DC]	12, 24, 42, 48
	AC voltage	[V AC]	24, 42, 48, 110, 230, 240 (50 ... 60 Hz)
Coil characteristics	DC voltage	[W]	4.5
	AC voltage	[VA]	Pull: 7.5 Hold: 6
Protection class to EN 60529			IP65

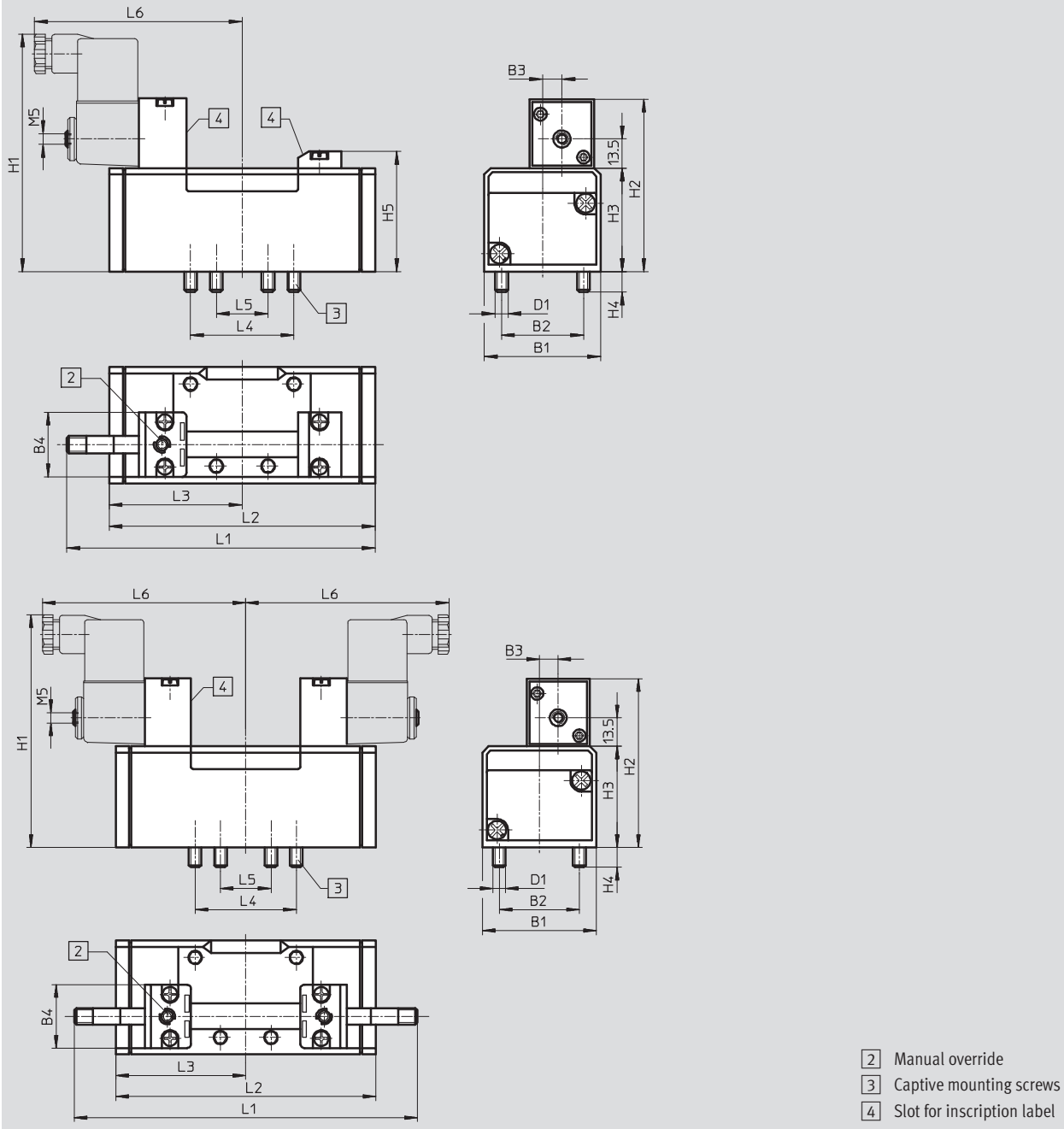
Materials

Sectional view



1	Housing	Die-cast aluminium
–	Seals	NBR (nitrile rubber)
	Note on materials	RoHS-compliant

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

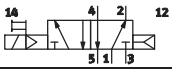
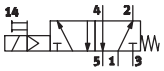
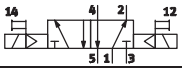
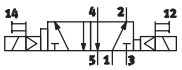
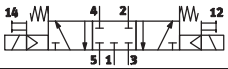
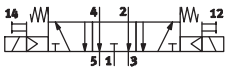
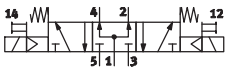


2 Manual override
3 Captive mounting screws
4 Slot for inscription label

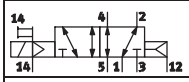
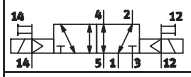
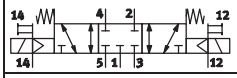
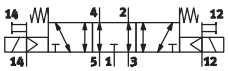
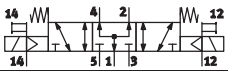
Type	B1	B2	B3	B4	D1	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5	L6
MFH-5/2-...	42	28	6	30	M5	100	70.3	38	9	46.5	115	87.6	43.8	36	18	89
MFH-5/2-...-FR											125.6	98				
JMFH-5/2-...				30						–	142.6	87.6				
MFH-5/3-...				30								108.4	54.2			

Solenoid valves MFH, JMFH, JMFDH, to ISO 5599-1

Ordering data – Width 42 mm

Ordering data – Solenoid valves without solenoid coil[1], internal pilot air supply			
Circuit symbol	Description	Part No.	Type
5/2-way valve, single solenoid			
	Pneumatic reset	150981	MFH-5/2-D-1-C
	Mechanical reset	151016	MFH-5/2-D-1-FR-C
5/2-way valve, double solenoid			
	–	150980	JMFH-5/2-D-1-C
	With dominant signal at 14	151019	JMFDH-5/2-D-1-C
5/3-way valve, single solenoid			
	Normally closed	150982	MFH-5/3G-D-1-C
	Normally exhausted	150983	MFH-5/3E-D-1-C
	Normally open	150984	MFH-5/3B-D-1-C

1) F solenoid coils ➔ 45

Ordering data – Solenoid valves without solenoid coil[1], external pilot air supply			
Circuit symbol	Description	Part No.	Type
5/2-way valve, single solenoid			
	Pneumatic reset	152562	MFH-5/2-D-1-S-C
5/2-way valve, double solenoid			
	–	152563	JMFH-5/2-D-1-S-C
5/3-way valve, single solenoid			
	Normally closed	152564	MFH-5/3G-D-1-S-C
	Normally exhausted	152565	MFH-5/3E-D-1-S-C
	Normally open	152566	MFH-5/3B-D-1-S-C

1) F solenoid coils ➔ 45

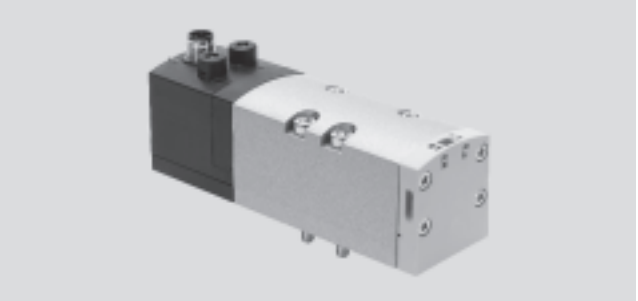
Solenoid valves VSVA, to ISO 5599-1/central plug M12x1

Technical data – Width 42 mm

FESTO

Flow rate
1,100 ... 1,300 l/min

Voltage
24 V DC



General technical data									
Valve function		2x 3/2-way			5/2-way		5/3-way		
Normal position		C[1]	U[2]	H[4]	–	–	C[1]	U[2]	E[3]
Memory stability		Monostable				Bistable	Monostable		
Pneumatic spring reset method		Yes			Yes	–	No		
Mechanical spring reset method		No			Yes	–	Yes		
Design		Piston spool valve							
Sealing principle		Soft							
Actuation type		Electrical							
Type of control		Piloted							
Pilot air supply		Internal or external							
Direction of flow		Non-reversible			Reversible with external pilot air supply				
Exhaust function		Flow control, external or via vertically stacked flow control plate							
Manual override		Non-detenting, detenting							
Type of mounting		On sub-base							
Mounting position		Any							
Nominal size	[mm]	11							
Flow rate of valve	[l/min]	1,400			1,800		1,700		
Flow rate of valve on individual sub-base	[l/min]	1,200			1,400		1,400		
Flow rate of pneumatically interlinked valve	[l/min]	1,100			1,300		1,300		
Standard nominal flow rate	[l/min]	1,100			1,300		1,300		
Switching time on/off, pneumatic spring	[ms]	20/38			27/45	–	–		
Switching time on/off, mechanical spring	[ms]	–			22/60	–	22/65		
Changeover time, dominance at 1st signal	[ms]	–				16	–		
Changeover time, dominance at 14	[ms]	–				19	–		
Non-overlapping		Yes							
Width	[mm]	42							
Grid dimension	[mm]	43							
Ports on the sub-base	1, 2, 3, 4, 5	G¼, end plates G⅜							
	12, 14	M5							
Pilot exhaust air	82/84	Either ducted (12) or unducted (standard)							
Product weight	[g]	442			426	439	456		
Conforms to		ISO 5599-1							
Corrosion resistance class	CRC	2[5]							

1) C = Normally closed
2) U = Normally open
3) E = Normally exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents

Solenoid valves VSVA, to ISO 5599-1/central plug M12x1

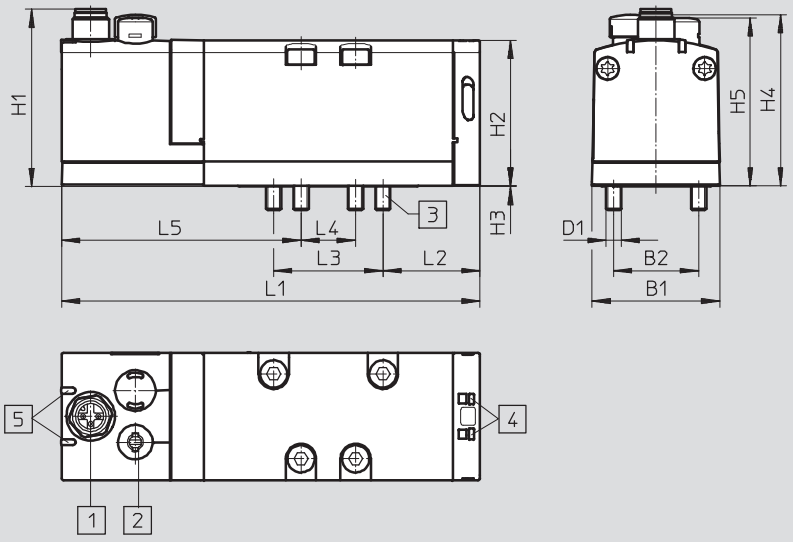
Technical data – Directional control valves, width 26 mm

Operating and environmental conditions					
Valve function			2x 3/2-way	5/2-way	5/3-way
Operating medium			Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated, vacuum		
Operating pressure	Internal pilot air supply	[bar]	3 ... 10		
	External pilot air supply	[bar]	3 ... 10	–0.9 ... 10	
Pilot pressure[1)]		[bar]	3 ... 10		
Ambient temperature		[°C]	–5 ... +50		
Temperature of medium		[°C]	–5 ... +50		
Information on materials	Seals		FPM, NBR		
	Housing		Die-cast aluminium, PA		
	Screws		Galvanised steel		
	Note		RoHS-compliant		

1) Minimum pilot pressure 50% of the operating pressure

Electrical data					
Valve function			2x 3/2-way	5/2-way	5/3-way
Electrical connection to IEC 60 947-5-2			Central plug, round design M12x1, 4-pin		
Coil characteristics	Voltage	[V DC]	24±10% = 21.6 ... 26.4		
	Output	[W]	1.3	1.6	
Duty cycle		%	100		
Protection class to EN 60529			IP65 EN 60529 and NEMA4 (in combination with a plug socket)		
Protective circuit and LED			Integrated in the valve		

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



1 Plug, 4-pin
2 Manual override
3 Captive screws M5x48
4 Slot for inscription label
5 LED

Type												
VSVA-B-...-D1-1R5L	B1	B2	D1	H1	H2	H3	H4	H5	L1	L2	L3	L4
	42	28	M5	58.3	48	0.25	46.6	55.3	137.8	32	36	18
	L5											
	69.3											

Solenoid valves VSVA, to ISO 5599-1/central plug M12x1

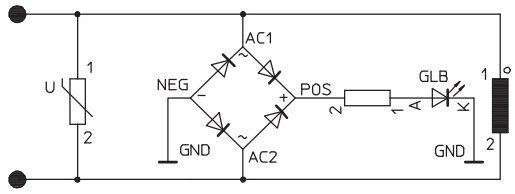
Technical data – Directional control valves, width 42 mm

FESTO

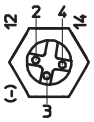
Protective circuit

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

24 V DC version (width 42 mm)



M12x1 – Pin allocation



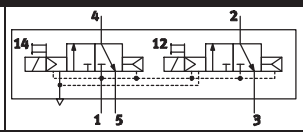
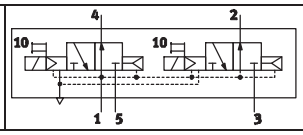
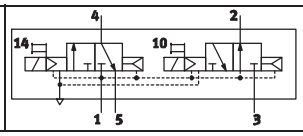
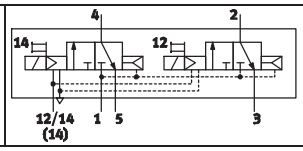
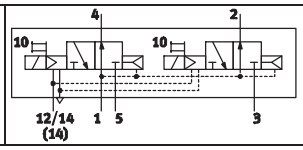
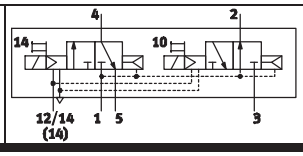
2	Signal (+) solenoid 12
3	com (–)
4	Signal (+) solenoid 14

Solenoid valves VSVA, to ISO 5599-1/central plug M12x1

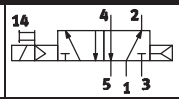
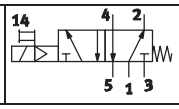
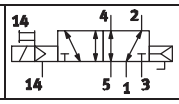
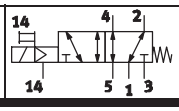
Ordering data – Width 42 mm

FESTO

Ordering data – 2x 3/2-way valve

Code	Circuit symbol	Normal position	Pilot air supply	Plug M12x1	Part No.	Type
K		2x closed	Internal	24 V DC	**561359**	**VSVA-B-T32C-AD-D1-1R5L**
N		2x open	Internal	24 V DC	**561360**	**VSVA-B-T32U-AD-D1-1R5L**
H		1x closed, 1x open	Internal	24 V DC	**561361**	**VSVA-B-T32H-AD-D1-1R5L**
K		2x closed	External	24 V DC	**561369**	**VSVA-B-T32C-AZD-D1-1R5L**
N		2x open	External	24 V DC	**561370**	**VSVA-B-T32U-AZD-D1-1R5L**
H		1x closed, 1x open	External	24 V DC	**561371**	**VSVA-B-T32H-AZD-D1-1R5L**

Ordering data – 5/2-way valve, single solenoid

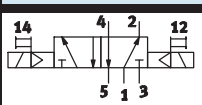
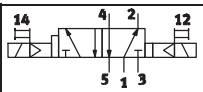
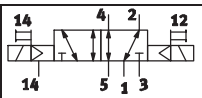
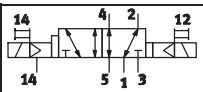
Code	Circuit symbol	Reset method	Pilot air supply	Plug M12x1	Part No.	Type
M		Pneumatic	Internal	24 V DC	**561362**	**VSVA-B-M52-AD-D1-1R5L**
O		Mechanical spring	Internal	24 V DC	**561363**	**VSVA-B-M52-MD-D1-1R5L**
M		Pneumatic	External	24 V DC	**561372**	**VSVA-B-M52-AZD-D1-1R5L**
O		Mechanical spring	External	24 V DC	**561373**	**VSVA-B-M52-MZD-D1-1R5L**

Solenoid valves VSVA, to ISO 5599-1/central plug M12x1

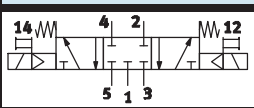
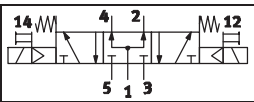
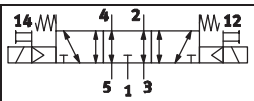
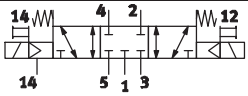
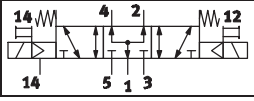
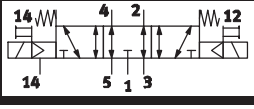
Ordering data – Width 42 mm

FESTO

Ordering data – 5/2-way valve, double solenoid

Code	Circuit symbol	Dominance	Pilot air supply	Plug M12x1	Part No.	Type
J		1st signal	Internal	24 V DC	**561364**	**VSVA-B-B52-D-D1-1R5L**
D		At 14	Internal	24 V DC	**561365**	**VSVA-B-D52-D-D1-1R5L**
J		1st signal	External	24 V DC	**561374**	**VSVA-B-B52-ZD-D1-1R5L**
D		At 14	External	24 V DC	**561375**	**VSVA-B-D52-ZD-D1-1R5L**

Ordering data – 5/3-way valve

Code	Circuit symbol	Normal position	Pilot air supply	Plug M12x1	Part No.	Type
G		Closed	Internal	24 V DC	**561366**	**VSVA-B-P53C-D-D1-1R5L**
B		Open	Internal	24 V DC	**561368**	**VSVA-B-P53U-D-D1-1R5L**
E		Exhausted	Internal	24 V DC	**561367**	**VSVA-B-P53E-D-D1-1R5L**
G		Closed	External	24 V DC	**561376**	**VSVA-B-P53C-ZD-D1-1R5L**
B		Open	External	24 V DC	**561378**	**VSVA-B-P53U-ZD-D1-1R5L**
E		Exhausted	External	24 V DC	**561377**	**VSVA-B-P53E-ZD-D1-1R5L**

Solenoid valves MDH-M12, to ISO 5599-1

Technical data – Width 42 mm

FESTO

- Flow rate
  1,200 l/min

- Voltage
  24 V DC

General technical data							
Valve function			5/2-way		5/3-way		
Normal position			–	–	G[1]	B[2]	E[3]
Memory stability			Monostable	Bistable	Monostable		
Pneumatic spring reset method			Yes	–	No		
Mechanical spring reset method			Yes	–	Yes		
Design			Piston spool valve				
Sealing principle			Soft				
Actuation type			Electrical				
Type of control			Piloted				
Pilot interface			To ISO 15218				
Pilot air supply			Internal or external				
Direction of flow			Reversible with external pilot air supply				
Exhaust function			Flow control				
Manual override			Non-detenting				
Type of mounting			On sub-base				
Mounting position			Any				
Nominal size		[mm]	8				
Standard nominal flow rate		[l/min]	1,200				
Switching time on/off, pneumatic spring		[ms]	25/36	–	–		
Switching time on/off, mechanical spring		[ms]	20/42	–	25/55		
Changeover time		[ms]	–	18	–		
Switching time with dominance at 14 (12/14)		[ms]	–	18	–		
Width		[mm]	42				
Grid dimension		[mm]	43				
Ports on the sub-base	1, 2, 3, 4, 5		G¼, end plates G⅜				
	12, 14		M5				
Conforms to			ISO 5599-1 and interface for pilot valve ISO 15218				
Product weight		[g]	420	550	580		

1) G = Normally closed
2) B = Normally open
3) E = Normally exhausted

Operating and environmental conditions				
Reset method			Pneumatic spring	Mechanical spring
Operating medium			Dried compressed air, lubricated or unlubricated, grade of filtration 40 µm, vacuum	
Operating pressure	Internal pilot air supply	[bar]	2 … 10	3 … 10
	External pilot air supply	[bar]	–0.9 … +16	
Pilot pressure		[bar]	2 … 10	3 … 10
Ambient temperature		[°C]	–10 … +50	
Temperature of medium		[°C]	–10 … +50	

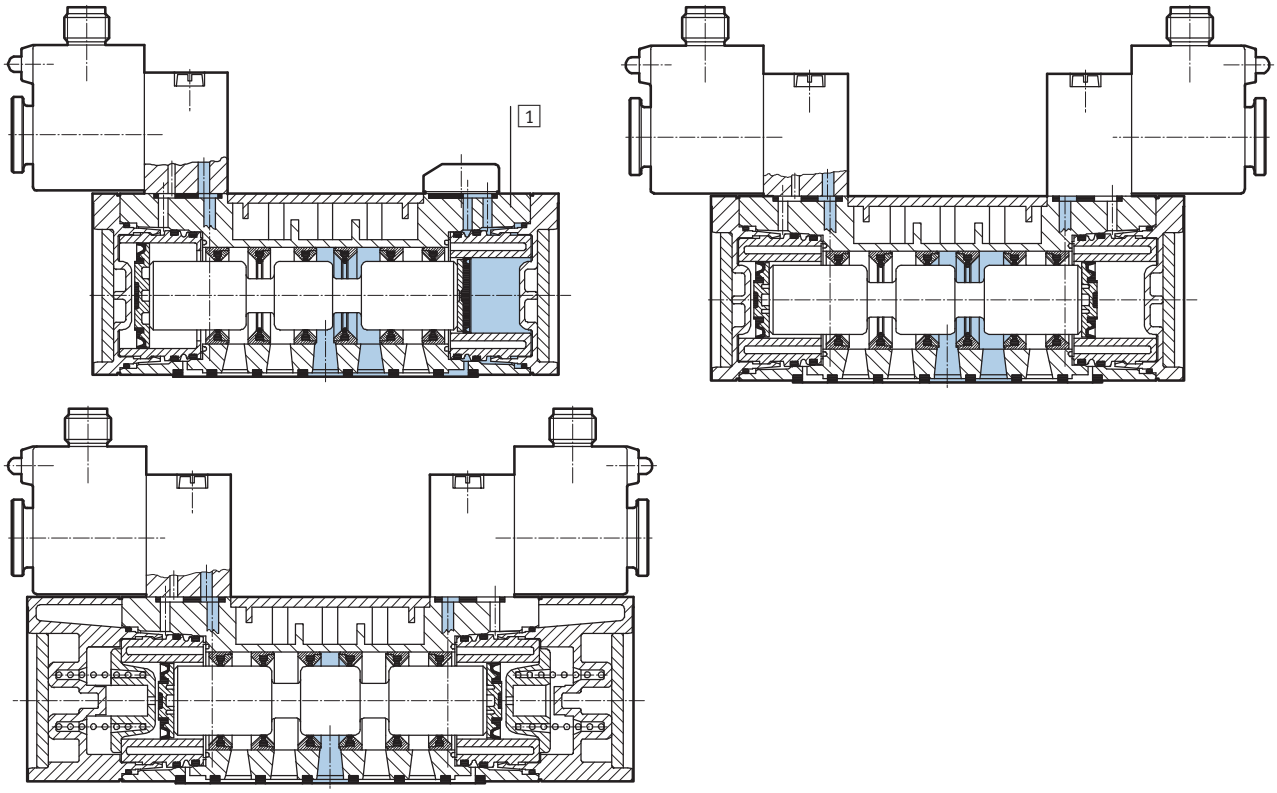
Solenoid valves MDH-M12, to ISO 5599-1

Technical data – Width 42 mm

Electrical data			
D solenoid coil with round plug M12x1			
Electrical connection	Design		M12X1
Coil characteristics	DC voltage	[V DC]	21.6...26.4
	Output	[W]	2.7
Duty cycle		[%]	100
Protection class to EN 60 529			IP65

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetal
–	Seals	Nitrile rubber

Solenoid valves MDH-M12, to ISO 5599-1

Technical data – Width 42 mm

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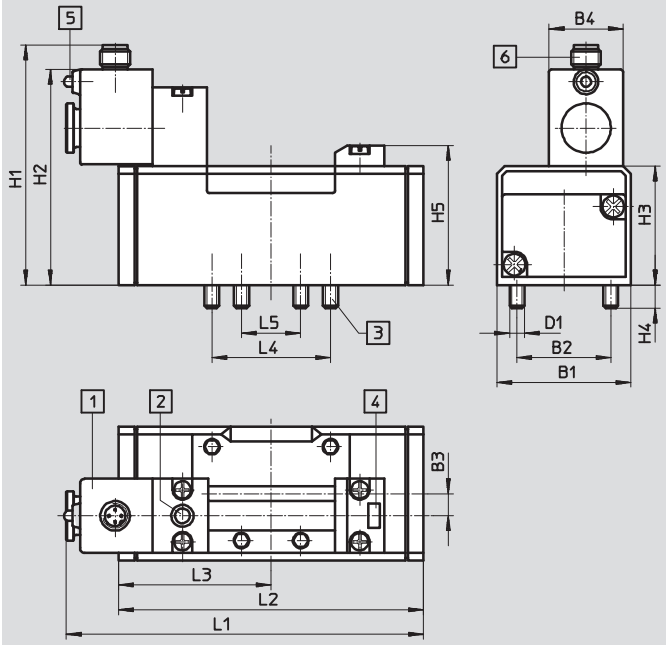
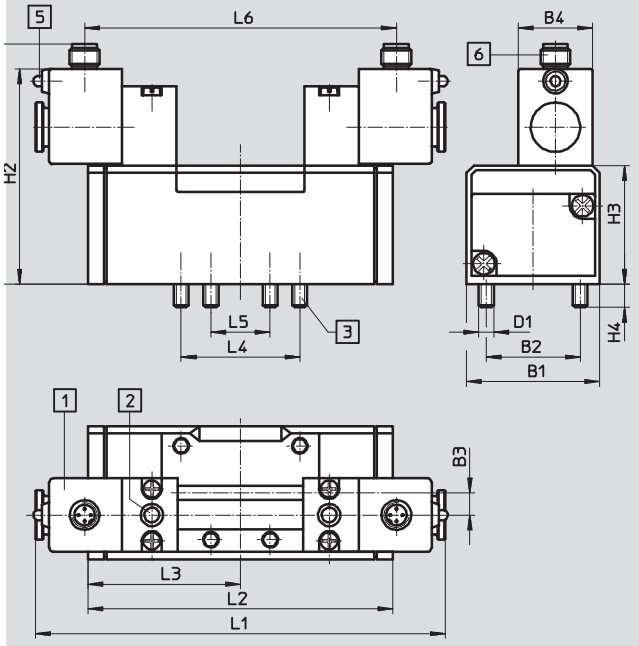
Dimensions Download CAD data ➔ **www.festo.com**



1 Solenoid coil can be repositioned by 90° regardless of manual override
2 Manual override
3 Captive mounting screws
4 Slot for inscription label
5 LED display
6 Device plug M12x1
Coil, 2-pin to VDMA
Coil, 4-pin to Desina

Type	B1	B2	B3	B4	D1	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5
MDH-5/2-...	42	28	6	30	M5	87.2	77.3	38	9	46.5	121.8	87.6	43.8	36	18
MDH-5/2-...-FR											132.2	98			

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



1 Solenoid coil can be repositioned by 90° regardless of manual override
2 Manual override
3 Captive mounting screws
5 LED display
6 Device plug M12x1
Coil, 2-pin to VDMA
Coil, 4-pin to Desina

Type	B1	B2	B3	B4	D1	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6
JMDH-5/2-...	42	28	6	30	M5	87.2	77.2	38	9	148	87.6	43.8	36	18	108.5

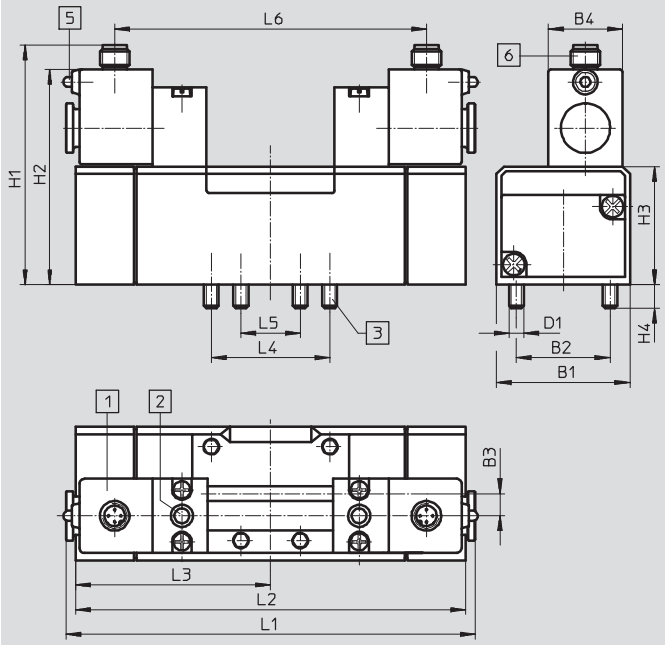
Solenoid valves MDH-M12, to ISO 5599-1

Technical data – Width 42 mm

FESTO

Dimensions

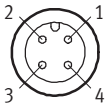
Download CAD data ➔ **www.festo.com**



1 Solenoid coil can be repositioned by 90° regardless of manual override
2 Manual override
3 Captive mounting screws
5 LED display
6 Device plug M12x1
Coil, 2-pin to VDMA
Coil, 4-pin to Desina

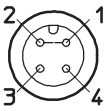
Type	B1	B2	B3	B4	D1	H1	H2	H3	H4	L1	L2	L3	L4	L5	L6
MDH-5/3-...	42	28	6	30	M5	87.2	77.2	38	9	148	108.4	54.3	36	18	108.5

M12 plug – Pin allocation, 2-pin to VDMA



1 Unused
2 Unused
3 com (–)
4 Signal (+)

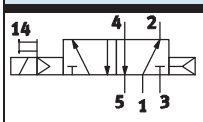
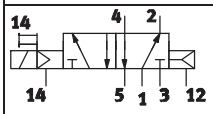
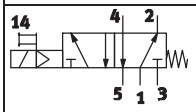
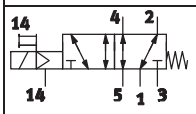
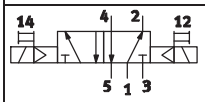
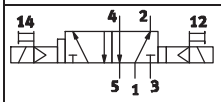
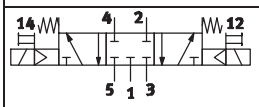
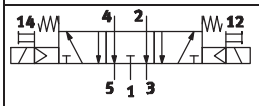
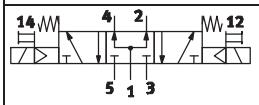
M12 plug – Pin allocation, 4-pin to Desina



1 Connected with 2
2 Connected with 1
3 com (–)
4 Signal (+)

Solenoid valves MDH-M12, to ISO 5599-1

Ordering data – Width 42 mm

Ordering data						
Circuit symbol	Description	ISO size	Coil, 2-pin to VDMA		Coil, 4-pin to Desina	
			Part No.	Type	Part No.	Type
	Reset method: – Pneumatic Pilot air supply: – Internal	1	**197 125**	**MDH-5/2-D-1-M12-C**	**540803**	**MDH-5/2-D-1-M12D-C**
	Reset method: – Pneumatic Pilot air supply: – External	1	**533 332**	**MDH-5/2-D-1-S-M12-C**	**540810**	**MDH-5/2-D-1-S-M12D-C**
	Reset method: – Mechanical Pilot air supply: – Internal	1	**533 010**	**MDH-5/2-D-1-FR-M12-C**	**540804**	**MDH-5/2-D-1-FR-M12D-C**
	Reset method: – Mechanical Pilot air supply: – External	1	**533 761**	**MDH-5/2-D-1S-FR-M12-C**	**540811**	**MDH-5/2-D-1S-FR-M12D-C**
	Pilot air supply: – Internal	1	**532 687**	**JMDH-5/2-D-1-M12-C**	**540809**	**JMDH-5/2-D-1-M12D-C**
	Pilot air supply: – Internal Dominance: – Signal at 14	1	**539 079**	**JMDDH-5/2-D-1-M12-C**	**540808**	**JMDDH-5/2-D-1-M12D-C**
	Normal position: – Closed Pilot air supply: – Internal	1	**525 307**	**MDH-5/3G-D-1-M12-C**	**540806**	**MDH-5/3G-D-1-M12D-C**
	Normal position: – Exhausted Pilot air supply: – Internal	1	**197 126**	**MDH-5/3E-D-1-M12-C**	**540805**	**MDH-5/3E-D-1-M12D-C**
	Normal position: – Pressurised Pilot air supply: – Internal	1	**533 005**	**MDH-5/3B-D-1-M12-C**	**540807**	**MDH-5/3B-D-1-M12D-C**

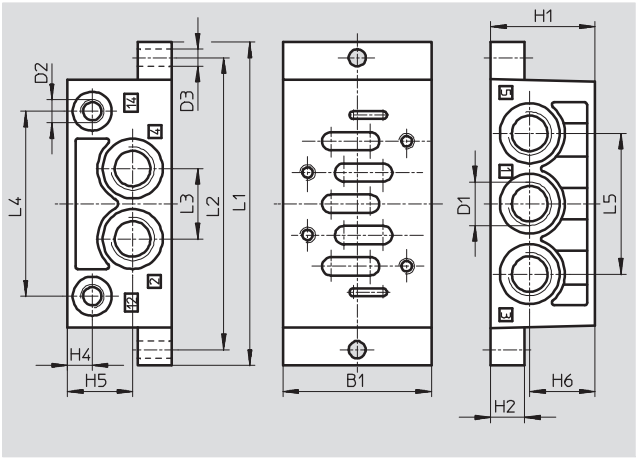
Manifold components, to ISO 5599-1

Horizontal stacking for width 42 mm

Individual sub-base NAS

Ports at side

Material:
Size 1, 2, 3
Die-cast aluminium



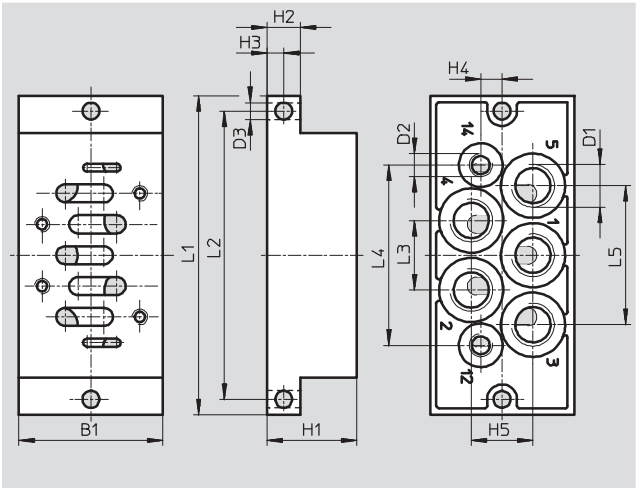
Dimensions and ordering data																	
ISO size/width	B1	D1	D2	D3 ∅	H1	H2	H4	H5	H6	L1	L2	L3	L4	L5	Weight [g]	Part No.	Type
1/42	48	G¼	G⅛	5.5	32	10	9	20.3	20.3	110	98	23	60	46	190	**9484**	**NAS-¼-1A-ISO[1)]**

1) Free of copper and PTFE

Individual sub-base NAU

Ports underneath

Material:
Die-cast aluminium



Dimensions and ordering data																	
ISO size/width	B1	D1	D2	D3 ∅	H1	H2	H3	H4	H5	L1	L2	L3	L4	L5	Weight [g]	Part No.	Type
1/42	46	G¼	G⅛	5.5	30	10	5	7.5	20	110	98	23	60.7	46	280	**9485**	**NAU-¼-1B-ISO[1)]**

1) Free of copper and PTFE

Manifold components, to ISO 5599-1

Horizontal stacking for width 42 mm

Manifold sub-base NAV
Ports underneath

Material:
Die-cast aluminium

Ordering data					
ISO size/width	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3, 4, 5	12, 14	[g]		
1/42	G¼	G⅛	240	**10173**	**NAV-¼-1C-ISO**

Dimensions ➔ 38

90° connection plate NAW
Ports at side and underneath

Material:
Die-cast aluminium

Ordering data					
ISO size/width	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3, 4, 5	12, 14	[g]		
1/42	G¼	G⅛	360	**11304**	**NAW-¼-1E-ISO**[1)]

Dimensions ➔ 38
1) Free of copper and PTFE

Manifold sub-base with 90° connections NAVW
Ports at side and underneath

Material:
Die-cast aluminium

Ordering data					
ISO size/width	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3, 4, 5	12, 14	[g]		
1/42	G¼	G⅛	320	**152789**	**NAVW-¼-1-ISO**

Dimensions ➔ 38

Manifold components, to ISO 5599-1

Horizontal stacking for width 42 mm

FESTO

End plate kit NEV

Material:
Die-cast aluminium

Ordering data					
ISO size	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3, 4, 5	12, 14	[g]		
1	G3/8	–	280	**10174**	**NEV-1DA/DB-ISO**[1)]

Dimensions ➔ 38
1) Free of copper and PTFE
Note: This product conforms to ISO 1179-1 and to ISO 228-1

Blanking plate NDV

Material:
Steel

Ordering data			
ISO size/width	Weight	Part No.	Type
	[g]		
1/42	113	**9489**	**NDV-1-ISO**

Dimensions ➔ 38

Isolating disc NSC

Material:
Wrought aluminium alloy

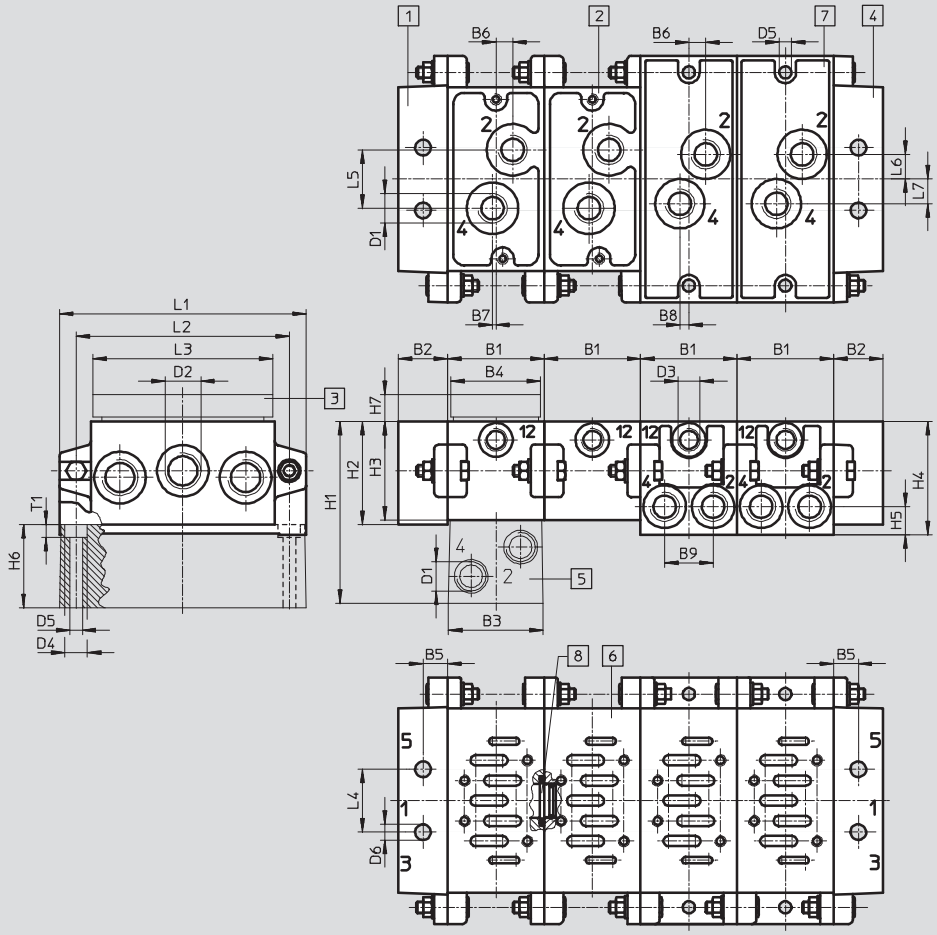
Ordering data					
ISO size/width	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3	12, 14	[g]		
1/42	¼	–	6	**11550**	**NSC-¼-1-ISO**[1)]

Dimensions ➔ 38
1) Free of copper and PTFE

Manifold components, to ISO 5599-1

Horizontal stacking for width 42 mm

Dimensions – Manifold assembly Download CAD data ➔ **www.festo.com/en/engineering**



1 Left-hand end plate
2 Manifold sub-base NAV
3 Blanking plate NDV
4 Right-hand end plate
5 90° connection plate NAW
6 Port pattern to ISO 5599-1
7 Manifold sub-base with 90° connections NAVW
8 Isolating disc NSC

ISO size/width	B1	B2	B3	B4	B5	B6	B7	B8	B9	D1	D2	D3	D4 ∅	D5 ∅	D6 ∅
1/42	43	22	42	40	11	7.5	1.5	4	21.6	G¼	G⅜	G⅛	10	5.5	7

ISO size/width	H1	H2	H3	H4	H5	H6	H7	L1	L2	L3	L4	L5	L6	L7	T1
1/42	81	46	44	50.5	12.5	37	5	110	95	80	28	26	11	11	5.7

Note: This product conforms to ISO 1179-1 and to ISO 228-1

Manifold components, to ISO 5599-1

Vertical stacking – Width 42 mm

FESTO

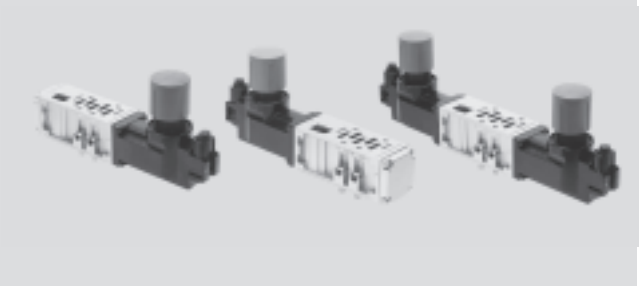
Regulator plate
VABF-S1-1-R ...

Regulating function:
Supply pressure: 0.5 ... 10 bar

Materials:
Housing: Die-cast aluminium
Control section: PA

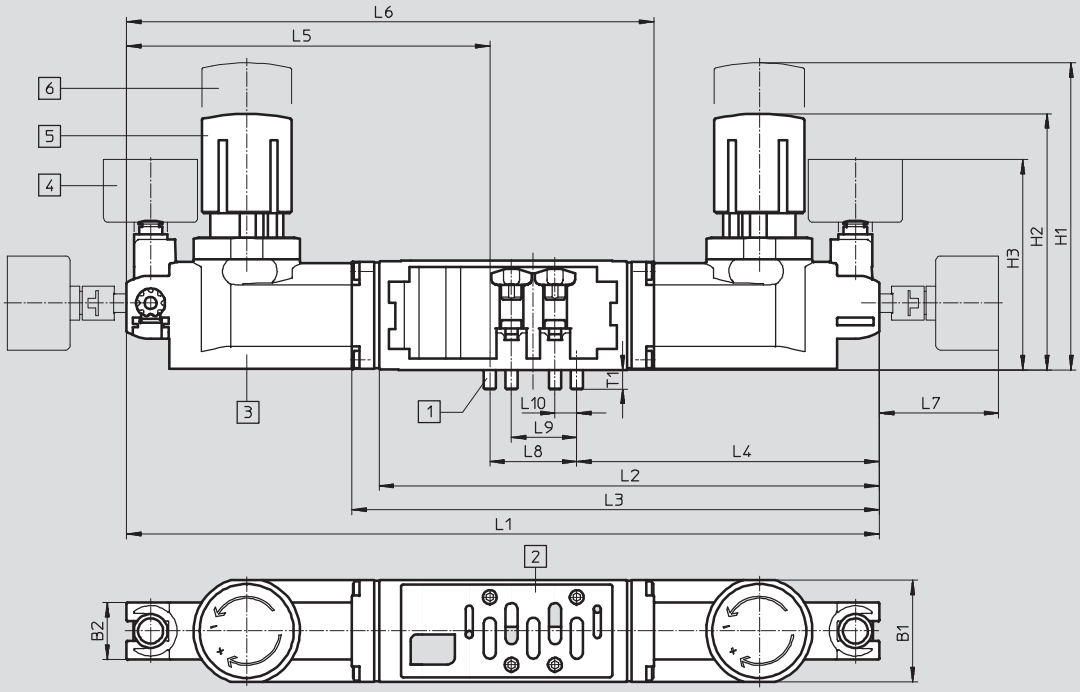
Pressure regulating ranges:
0.5 ... 6 bar, 0.5 ... 10 bar
Output pressure constant
with secondary venting

Temperature range
–5 ... +50 °C



Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Regulator plate: A regulator, B regulator, AB regulator, P regulator



1 Captive screws M5x25
2 Port pattern to ISO 5599-1
3 Regulator
4 Pressure gauge
5 Regulator head in the locked state
6 Regulator head with pressure adjustment

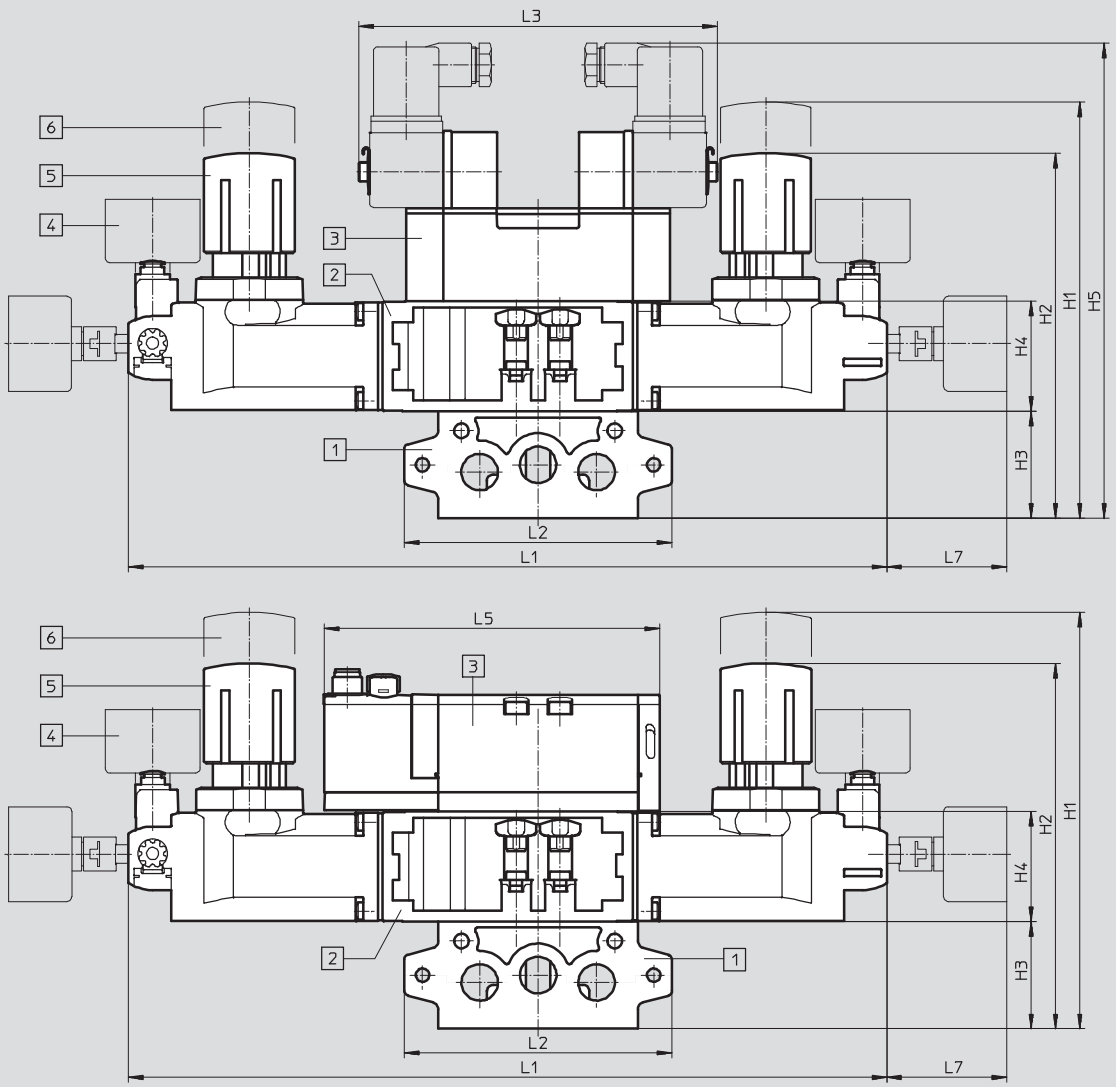
Type												
	B1	B2	H1	H2	H3	L1	L2	L3	L4	L5	L6	L7
VABF-S1-1-R1...	21.1	23.6	127.2	106.1	87.5	–	207.1	–	125.3	–	–	49.35
VABF-S1-1-R4(5)...						316.6	–		–			
VABF-S1-1-R3(7)...						–			125.3	150.3	216.1	
VABF-S1-1-R2(6)...								216.2		–	–	
	L8	L9	L10	T1	Weight [g]							
VABF-S1-1-R1...	36	27	9	7.9	640							
VABF-S1-1-R4(5)...					920							
VABF-S1-1-R3(7)...					640							
VABF-S1-1-R2(6)...												

Manifold components, to ISO 5599-1

Vertical stacking – Width 42 mm

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Regulator plate with manifold sub-base and solenoid valve



1 Manifold sub-base NAV
2 Pressure regulator plate
3 Solenoid valve
4 Pressure gauge, freely positionable
5 Regulator head in the locked state
6 Regulator head with pressure adjustment

Type										
VABF-S1-1-R...	H1	H2	H3	H4	H5	L1	L2	L3	L5	L7
	171.1	150.1	44	45.3	195.3	311.6	110	147.3	137.8	49.35

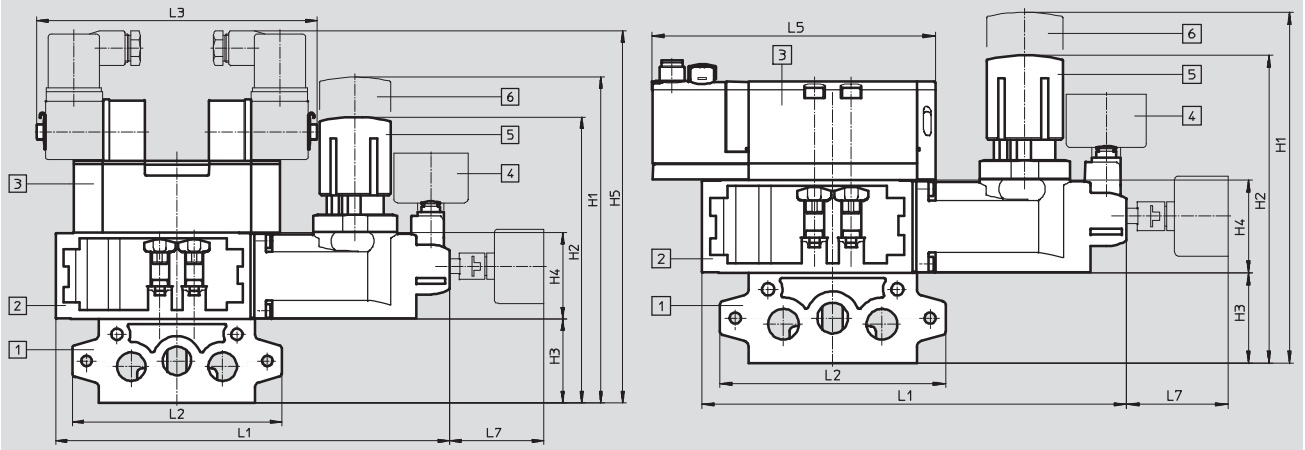
Manifold components, to ISO 5599-1

Vertical stacking – Width 42 mm

FESTO

Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

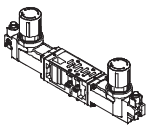
Regulator plate with manifold sub-base and solenoid valve



1 Manifold sub-base NAV
2 Pressure regulator plate
3 Solenoid valve
4 Pressure gauge, freely positionable
5 Regulator head in the locked state
6 Regulator head with pressure adjustment

Type										
VABF-S1-1-R...	H1	H2	H3	H4	H5	L1	L2	L3	L5	L7
	171.1	150.1	44	45.3	195.3	207.1	110	147.3	137.8	49.35

Ordering data

Code		For port	Regulator	Regulation range	Part No.	Type
Regulator plate, width 42 mm						
ZA		1	P	0.5 ... 10 bar	**546818**	**VABF-S1-1-R1C2-C-10**
ZF		1	P	0.5 ... 6 bar	**546817**	**VABF-S1-1-R1C2-C-6**
ZB		4	A	0.5 ... 10 bar	**546822**	**VABF-S1-1-R2C2-C-10**
ZG		4	A	0.5 ... 6 bar	**546821**	**VABF-S1-1-R2C2-C-6**
ZC		2	B	0.5 ... 10 bar	**546820**	**VABF-S1-1-R3C2-C-10**
ZH		2	B	0.5 ... 6 bar	**546819**	**VABF-S1-1-R3C2-C-6**
ZD		2 and 4	AB	0.5 ... 10 bar	**546824**	**VABF-S1-1-R4C2-C-10**
ZI		2 and 4	AB	0.5 ... 6 bar	**546823**	**VABF-S1-1-R4C2-C-6**
ZE		2 and 4, reversible	AB	0.5 ... 10 bar	**546826**	**VABF-S1-1-R5C2-C-10**
ZJ		2 and 4, reversible	AB	0.5 ... 6 bar	**546825**	**VABF-S1-1-R5C2-C-6**
ZL		2, reversible	B	0.5 ... 10 bar	**546828**	**VABF-S1-1-R6C2-C-10**
ZN		2, reversible	B	0.5 ... 6 bar	**546827**	**VABF-S1-1-R6C2-C-6**
ZK		4, reversible	A	0.5 ... 10 bar	**546830**	**VABF-S1-1-R7C2-C-10**
ZM		4, reversible	A	0.5 ... 6 bar	**546829**	**VABF-S1-1-R7C2-C-6**

New

Manifold components, to ISO 5599-1

Vertical stacking – Width 42 mm

FESTO

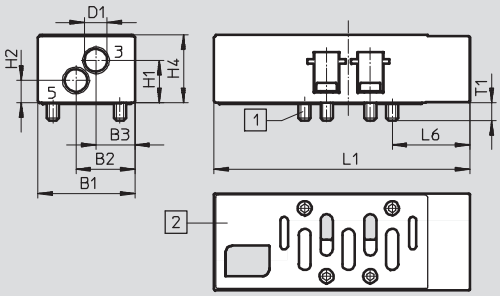
Flow control plate
VABF-S1-1-F1B1-C

Material:
Housing: Die-cast aluminium

Temperature range
–5 ... +50 °C

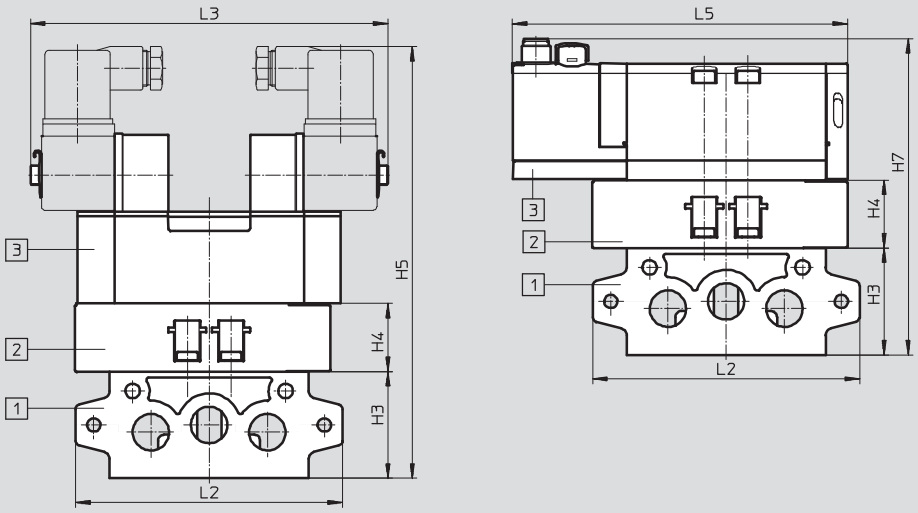
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Flow control plate



1 Captive screws M5x25
2 Port pattern to ISO 5599-1

Flow control plate with manifold sub-base and solenoid valve



1 Manifold sub-base NAV
2 Flow control plate
3 Solenoid valve

Type												
VABF-S1-1-F1B1-C	B1	B2	B3	⌀ D1	H1	H2	H3	H4	H5	H7	L1	L2
	39.9	24.3	16.05	9.3	17.5	9.2	44	28	178	130.3	105.3	110
	L3	L5	L6	T1								
	147.3	137.8	32	7.3								

Ordering data

Code	Description	Weight [g]	Part No.	Type
X	For exhaust air flow control in ports 3 and 5 of the valve	220	**549102**	**VABF-S1-1-F1B1-C**

Manifold components, to ISO 5599-1

Vertical stacking – Width 42 mm

FESTO

Vertical supply plate
VABF-S1-1-P1A3-G38

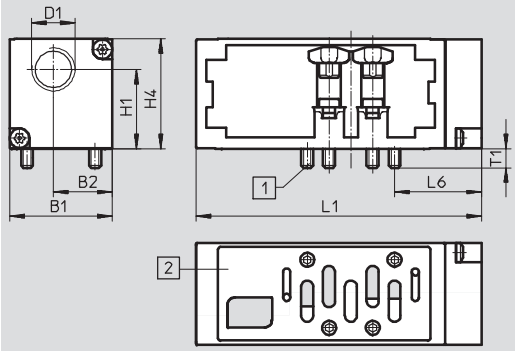
Material:
Housing: Die-cast aluminium

Temperature range
–5 ... +50 °C

Pressure
–0.9 ... +10 bar

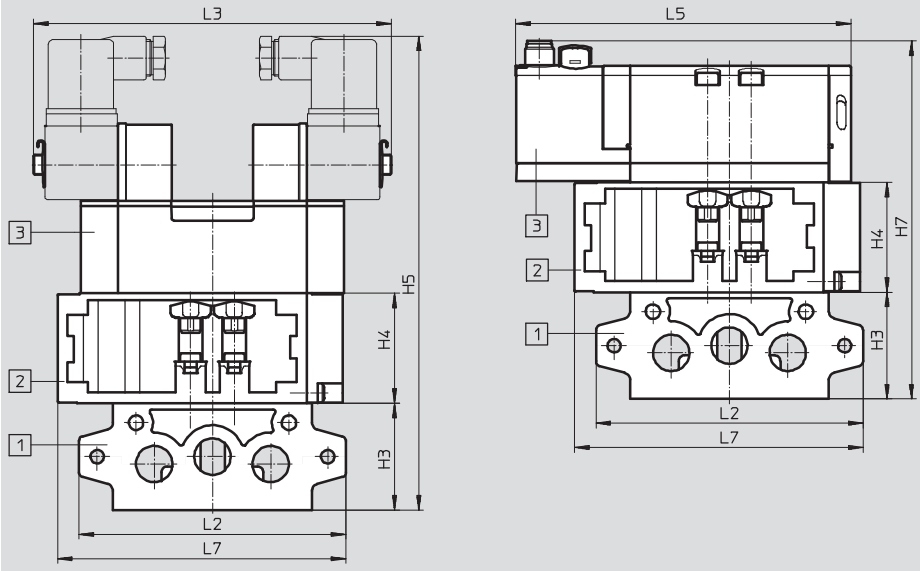
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Vertical supply plate



1 Captive screws M5x25
2 Port pattern to ISO 5599-1

Vertical supply plate with manifold sub-base and solenoid valve



1 Manifold sub-base NAV
2 Vertical supply plate
3 Solenoid valve

Type												
VABF-S1-1-P1A3-G38	B1	B2	D1	H1	H3	H4	H5	H7	L1	L2	L3	L5
	42.1	24.2	G3⁄8	32.7	44	45.3	195.3	147.6	117.6	110	147.3	137.8
	L6	L7	T1									
	35.8	118.8	7.9									

Ordering data

Code	Description	Weight [g]	Part No.	Type
ZU	For the independent working air supply of a valve	340	**549100**	**VABF-S1-1-P1A3-G38**

New

Manifold components, to ISO 5599-1

Vertical stacking – Width 42 mm

Vertical pressure shut-off plate
VABF-S1-1-L1D1-C

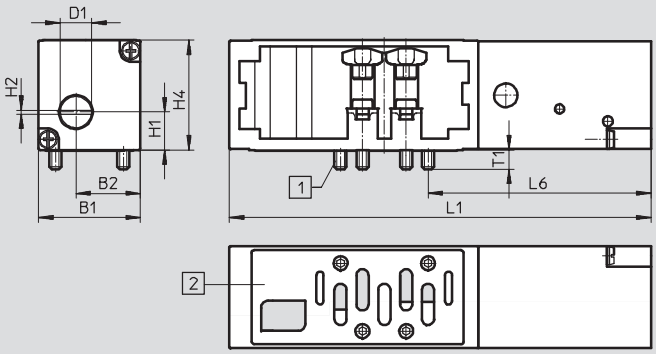
Material:
Housing: Die-cast aluminium

Temperature range
–5 ... +50 °C

Pressure
–0.9 ... +10 bar

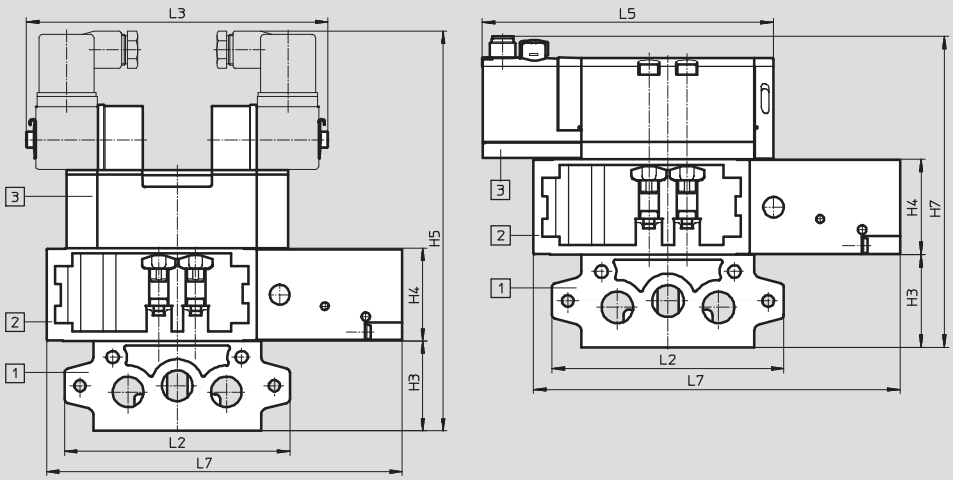
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

Vertical pressure shut-off plate



1 Captive screws M5x25
2 Port pattern to ISO 5599-1

Vertical pressure shut-off plate with manifold sub-base and solenoid valve

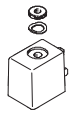


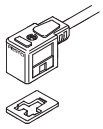
1 Manifold sub-base NAV
2 Vertical pressure shut-off plate
3 Solenoid valve

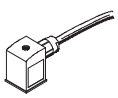
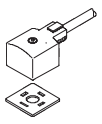
Type												
VABF-S1-1-L1D1-C	B1	B2	D1	H1	H2	H3	H4	H5	H7	L1	L2	L3
	42.1	26.7	12.8	15.6	1.6	44	45.3	195.3	147.6	173.8	110	147.3
	L5	L6	L7	T1								
	137.8	96	173.8	7.9								

Ordering data

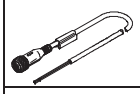
Code	Description	Weight [g]	Part No.	Type
ZT	For shutting off a valve from the supply pressure	600	**549103**	**VABF-S1-1-L1D1-C**

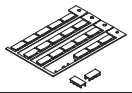
Ordering data – Solenoid coils			
	Voltage	Part No.	Type
F solenoid coils for valves MFH, JMFH			
	12 V DC	**34410**	**MSFG-12DC-OD**
	24 V DC and 42 V AC, 50 ... 60 Hz	**34411**	**MSFG-24/42-50/60-OD**
	42 V DC	**34413**	**MSFG-42DC-OD**
	24 V AC	**34415**	**MSFG-24AC-OD**
	48 V AC, 50 ... 60 Hz	**34418**	**MSFW-48AC-OD**
	110 V AC, 50 ... 60 Hz and 120 V AC, 60 Hz	**34420**	**MSFW-110AC-OD**
	230 V AC, 50 ... 60 Hz and 240 V AC, 60 Hz	**34422**	**MSFW-230AC-OD**
	240 V AC, 50 ... 60 Hz	**34424**	**MSFW-240AC-OD**
N1 solenoid coils for valves MN1H, JMN1H			
	24 V DC	**123060**	**MSN1G-24DC-OD**
	12 V DC and 24 V AC, 50 ... 60 Hz	**170152**	**MSN1W-24AC/12DC**
	110 V AC, 50 ... 60 Hz	**123061**	**MSN1W-110AC-OD**
	230 V AC, 50 ... 60 Hz	**123062**	**MSN1W-230AC-OD**

Ordering data – Plug sockets, plug sockets with cable for F solenoid coils					
	Voltage	Cable length [m]	Switching status display via LED	Part No.	Type
Plug socket					
	–	–	–	**34431**	**MSSD-F**
	–	–	–	**59710**	**MSSD-F-M16**
Plug socket with insulation displacement technology					
	–	–	–	**192746**	**MSSD-F-S-M16**
Plug socket with cable					
	24 V DC	2.5	■	**30935**	**KMF-1-24DC-2,5-LED**
	24 V DC	5	■	**30937**	**KMF-1-24DC-5-LED**
	24 V DC	10	■	**193458**	**KMF-1-24DC-10-LED**
	Up to 240 V	2.5	–	**30936**	**KMF-1-230AC-2,5**
	Up to 240 V	5	–	**30938**	**KMF-1-230AC-5**

Ordering data – Plug sockets, plug sockets with cable for N1 and D solenoid coils					
	Voltage	Cable length [m]	Switching status display via LED	Part No.	Type
Plug socket					
	–	–	–	**34583**	**MSSD-C**
Plug socket without cable with insulation displacement technology					
	–	–	–	**192748**	**MSSD-C-S-M16**
Plug socket with cable					
	24 V DC	2.5	■	**30931**	**KMC-1-24DC-2,5-LED**
	24 V DC	5	■	**30933**	**KMC-1-24DC-5-LED**
	24 V DC	10	■	**193459**	**KMC-1-24DC-10-LED**
	Up to 230 V	2.5	–	**30932**	**KMC-1-230AC-2,5**
	Up to 230 V	5	–	**30934**	**KMC-1-230AC-5**

Ordering data – Illuminating seals			
	Voltage	Part No.	Type
For F solenoid coils			
	12 ... 24 V DC	**19143**	**MF-LD-12-24DC**
For N1 solenoid coils			
	12 ... 24 V DC	**19145**	**MC-LD-12-24DC**
	230 V DC/V AC	**19146**	**MC-LD-230AC**

Ordering data – Plug sockets, connecting cables for VSVA					
	Voltage	Cable length [m]	Switching status display via LED	Part No.	Type
Plug socket					Technical data ➔ Internet: nebu
	–	–	–	**185498**	**SEA-M12-4WD-PG7**
Connecting cable M12x1, 4-pin, straight socket/open end					Technical data ➔ Internet: nebu
	24 V DC	2.5	–	**541363**	**NEBU-M12G5-K-2,5-LE3**
		5	–	**541364**	**NEBU-M12G5-K-5-LE3**
Connecting cable M12x1, 4-pin, straight angled socket/open end					
	24 V DC	2.5	–	**541367**	**NEBU-M12W5-K-2,5-LE3**
		5	–	**541370**	**NEBU-M12W5-K-5-LE3**

Ordering data			
		Part No.	Type
Pressure gauge			Technical data ➔ Internet: pagn
	With cartridge connection for regulator, 10 bar	**543487**	**PAGN-26-16-P10**
	With cartridge connection for regulator, 6 bar	**543488**	**PAGN-26-10-P10**
Inscription label			Technical data ➔ Internet: ibs
	Inscription label for valves VSVA (24 in frames included in scope of delivery)	**18182**	**IBS-9x20**
Inscription label holder			Technical data ➔ Internet: ascf
	Clip-on inscription label holder for valve cap (pack of 5 included in scope of delivery)	**540888**	**ASCF-T-S6**
Manual override			Technical data ➔ Internet: ahb
	Tool for manual override for MN1H/MFH valves	**157651**	**AHB-MD/MF/MV**