

Solenoid valves, to NAMUR

FESTO



Solenoid valves, to NAMUR

Product range overview

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Function	Version	Type	Nominal size [mm]	Standard nominal flow rate [l/min]	Pneumatic connection	Operating pressure [bar]	Ambient temperature [°C]
5/2-way valves ¹⁾		NVF3-...-EX	7	900	G1/4	2 ... 10	-5 ... +40 ATEX: -5 °C ≤ Ta ≤ +40 °C ATEX: -5 °C ≤ Ta ≤ +40 °C
		NVF3-...-IA-EX	7	900	G1/4	2 ... 10	ATEX: -5 °C ≤ Ta ≤ +40 °C
		MFH	8	1,000	G1/4	2 ... 10	-5 ... +40
		MN1H	8	1,000	G1/4	2 ... 10	-5 ... +50
		MGTBH	8	1,000	G1/4	2 ... 8	-20 ... +60
		VSNB-...-A1 ²⁾	8	950	G1/4	2.5 ... 8	-10 ... +60
		VSNB-...-P2 ²⁾	8	950	G1/4	2.5 ... 8	-10 ... +60

1) Can be changed to 3/2-way function by exchanging the seal plate

2) Single solenoid and double solenoid directional control valves

Solenoid valves, to NAMUR

Product range overview

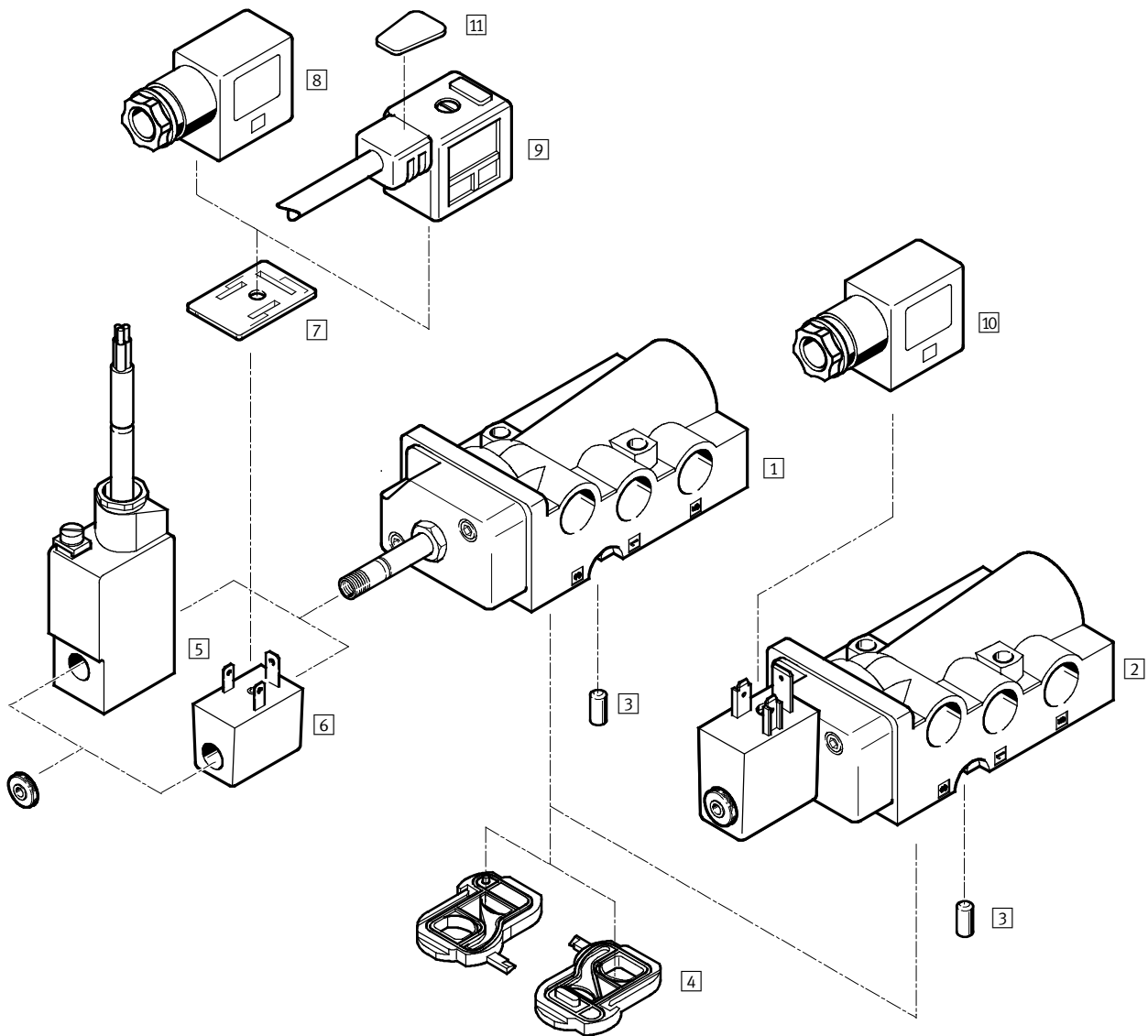
Type	Solenoid coil	Operating voltage range		Ignition protection type			→ Page/Internet
		[V DC]	[V AC]	nA = Non-sparking	m = Encapsulation	ia = Intrinsically safe	
NVF3-...-EX	MSFG-...-OD ¹⁾ , MSFW-...-OD ¹⁾	12, 24, 42, 48	24, 42, 48, 110, 230, 240	–	–	–	6
	MSFG-...-EX ¹⁾ , MSFW-...-EX ¹⁾	24	24, 110, 230	■	–	–	
	MSFG-...-M-EX ¹⁾ , MSFW-...-M-EX ¹⁾	24	24, 110, 230	–	■	–	
	Included in the scope of delivery	24	–	–	–	■	
MFH	MSFG-...-OD ¹⁾ , MSFW-...-OD ¹⁾	12, 24, 42, 48	24, 42, 48, 110, 230, 240	–	–	–	14
MN1H	MSFG-...-OD ¹⁾ , MSFW-...-OD ¹⁾	24	110, 230	–	–	–	18
MGTBH	Included in the scope of delivery	24	110, 230	–	–	–	22
VSNB- ... -A1	Included in the scope of delivery	24	–	–	–	–	28
VSNB- ... -P2	MDH-...-PI ¹⁾	24	110, 230	–	–	–	

1) Solenoid coil must be ordered separately

Solenoid valves NVF3, to NAMUR

Peripherals overview

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Solenoid valves NVF3, to NAMUR

Peripherals overview

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Solenoid valves and accessories			
	Brief description	→ Page/Internet	
Solenoid valves			
[1]	NVF3-MOH-5/2K-1/4-EX	Solenoid valve for F solenoid coil	6
[2]	NVF3-MOH-5/2K-1/4-IA-EX	Solenoid valve mounted with intrinsically safe solenoid coil, ignition protection type ia = intrinsically safe	
Accessories			
[3]	Coding pin	Included in the scope of delivery	–
[4]	Seal plate	For changing the valve function, included in the scope of delivery	–
[5]	Solenoid coil MSFG-...-M-EX and MSFW-...-M-EX	Ignition protection type m = encapsulation	10
[6]	Solenoid coil MSFG-...-EX and MSFW-...-EX	Ignition protection type nA = non-sparking	
[7]	Illuminating seal MF-LD	For indicating the switching status	
[8]	Plug socket MSSD-F-M16	Insert can be repositioned by 180°. Ignition protection type nA = non-sparking for solenoid coil in item [6]	
[9]	Plug socket with cable KMF	Insert can be repositioned by 180°	
[10]	Plug socket MSSD-V-M16	Insert can be repositioned by 180°. Ignition protection type ia = intrinsically safe for solenoid coil in item [2]	
[11]	Inscription labels KMC/F/V-BZ	For identifying the plug sockets	

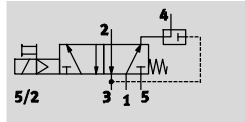
Solenoid valves NVF3, to NAMUR

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Technical data

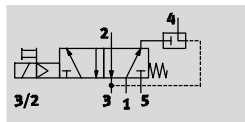
Function¹⁾

5/2-way valve



3/2-way valve

with exhaust air return



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

-  - Pressure
2 ... 10 bar

-  - Temperature range
-5 ... +40 °C
ATEX
-5 °C ≤ Ta ≤ +40 °C



1) Can be changed by exchanging the seal plate

General technical data		
	Solenoid valve with F coil of choice	Solenoid valve with mounted solenoid coil
Valve function	5/2-way or 3/2-way, single solenoid	
Conforms to	VDI/VDE 3845 (NAMUR)	
Width [mm]	53	
Design	Disk seat	
Sealing principle	Soft	
Actuation type	Electric	
Reset method	Mechanical spring	
Type of control	Piloted	
Direction of flow	Non-reversible	
Exhaust function	Flow control	
Manual override	Detenting, non-detenting	
Type of mounting	On manifold rail	
Mounting position	Any	
Non-overlapping	No	
Vent connection	Internal	
Nominal size [mm]	7	
Standard nominal flow rate 1 → 2, 2 → 3 [l/min]	900	
Exhaust air return 2 → 4 [l/min]	150	
b value	0.33	
C value [l/sbar]	4.2	
Pneumatic connection 1, 3, 5	G1/4	
2, 4	Port pattern as per NAMUR	
Pilot exhaust port 84	M5	
Product weight [g]	280	350

Solenoid valves NVF3, to NAMUR

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Technical data

Operating and environmental conditions		
	Solenoid valve with F coil of choice	Solenoid valve with mounted solenoid coil
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]	
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)	
Operating pressure [bar]	2 ... 10	
Ambient temperature [°C]	-5 ... +40	
Temperature of medium [°C]	-5 ... +40	
ATEX category for gas	II 2G	
Explosion ignition protection type for gas	c T6	
ATEX category for dust	II 2D	
Explosion ignition protection type for dust [°C]	40	
Explosion-proof temperature rating	-5 °C ≤ Ta ≤ +40 °C	
Explosion protection certification outside the EU	-	EPL Db (RU)
	-	EPL Dc (RU)
	-	EPL Gb (RU)
	-	EPL Gc (RU)
CE marking	To EU Explosion Protection Directive (ATEX)	
Corrosion resistance class CRC	1 ¹⁾	

1) Corrosion resistance class 1 according to Festo standard 940 070 Components subject to low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

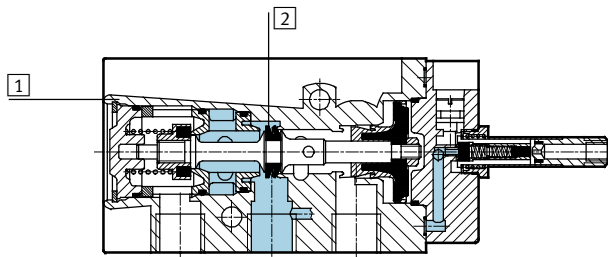
Electrical data		
	Solenoid valve with F coil of choice	Solenoid valve with mounted solenoid coil
Electrical connection	Plug, 3-pin or cable, 3-wire	Cable, 3-wire
Operating voltage range	[V DC] 12, 24, 42, 48	24 ±10%
	[V AC] 24, 42, 48, 110, 230, 240 at 50 ... 60 Hz	-
Coil characteristics, 24 V DC [W]	-	0.8
Max. input power [W]	-	1.46
Max. input voltage [V]	-	48
Max. input current [A]	-	0.487
Effective inductance	-	Negligibly low
Effective capacitance	-	Negligibly low
Protection class to EN 60529	IP65 with plug socket	IP65 with plug socket
Switching time on [ms]	50	50
Switching time off [ms]	100	100

Solenoid valves NVF3, to NAMUR

Technical data

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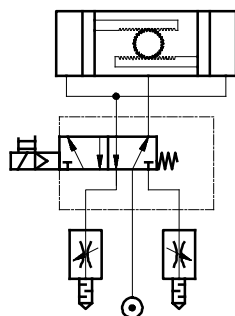
Materials



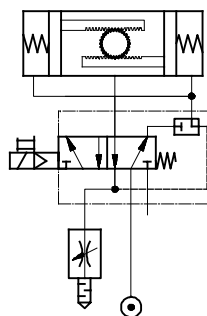
1	Housing	Anodised die-cast aluminium
2	Seals	NBR
		Contains PWIS (paint-wetting impairment substances)

Sample circuit

5/2-way valve



3/2-way valve with the option of exhaust air return



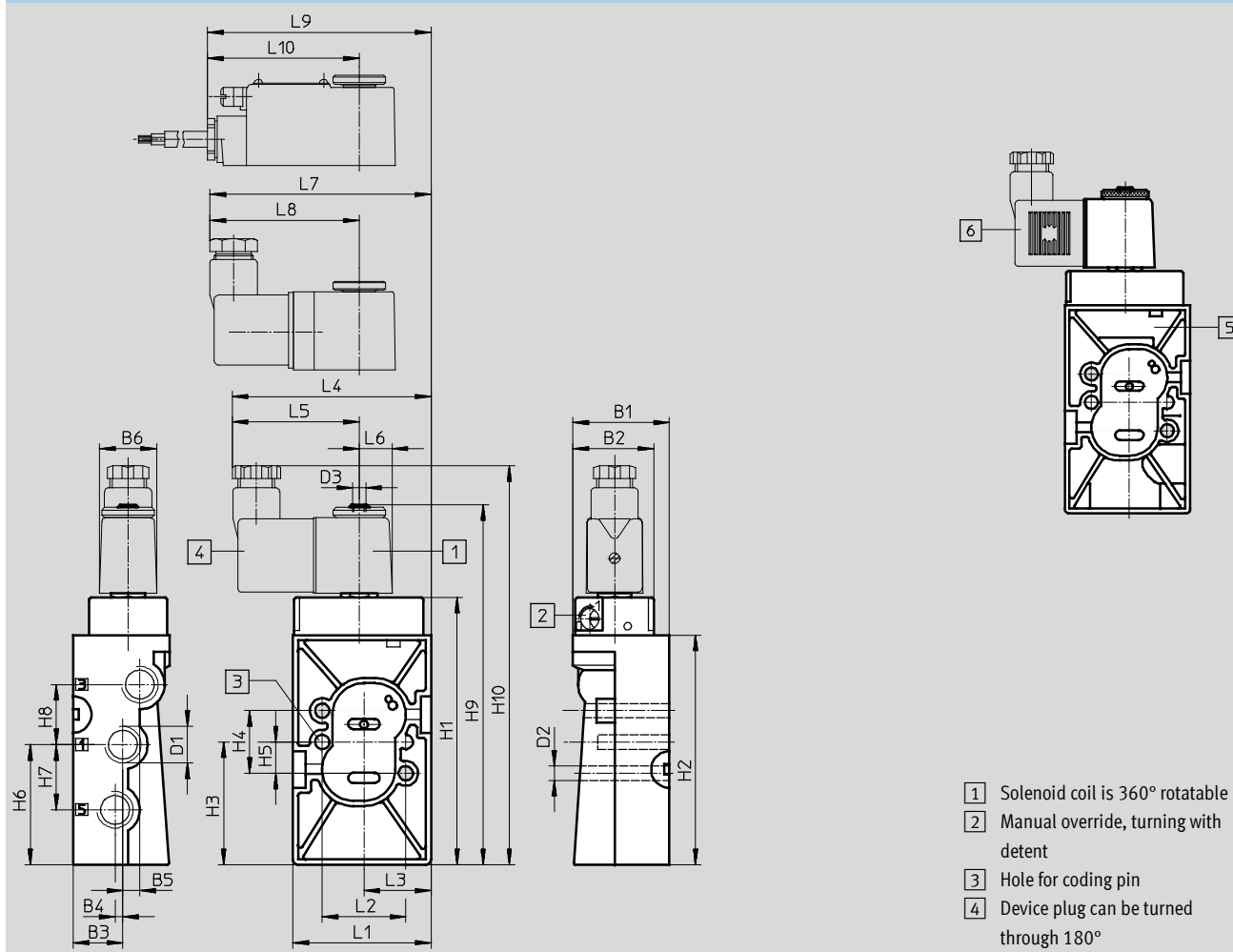
Solenoid valves NVF3, to NAMUR

Technical data

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Dimensions

Download CAD data → www.festo.com



Type	B1	B2	B3 ±0.1	B4 ±0.1	B5 ±0.1	B6	D1	D2 Ø	D3	H1	H2	H3 ±0.15	H4 ±0.15	H5 ±0.1	H6 ±0.1
NVF3-...	37	31	19	3	6.5	22	G¼	5.5	M5	102.4	88	47	24	12	46

Type	H7 ±0.15	H8 ±0.15	H9	H10	L1 ±0.2	L2 ±0.15	L3 ±0.1	L4	L5	L6	L7	L8	L9	L10
NVF3-...	25	23	136.4	153	53	32	27.7	76.5	49	12.5	84.7	57.2	85.3	57.8

Ordering data – Valves

Solenoid valve without solenoid coil¹⁾

Part No. Type

535987 NVF3-MOH-5/2-K-¼-EX

Solenoid valve mounted with intrinsically safe solenoid coil

Part No. Type

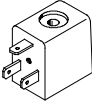
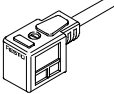
535988 NVF3-MOH-5/2-K-¼-IA-EX

1) Solenoid coil must be ordered separately → 10,
 Explosion-proof solenoid coil → 11

Solenoid valves NVF3, to NAMUR

Accessories

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Ordering data				
	Operating voltage	Cable length	Part No.	Type
F solenoid coil without plug socket Technical data → Internet: msfg, msfw				
	12 V DC	–	34410	MSFG-12DC-OD
	24 V DC	–	34411	MSFG-24/42-50/60-OD
	42 V DC	–	34413	MSFG-42DC-OD
	24 V AC/50 ... 60 Hz	–	34415	MSFW-24AC-OD
	42 V AC/50 ... 60 Hz	–	34411	MSFG-24/42-50/60-OD
	48 V AC/50 ... 60 Hz	–	34418	MSFW-48AC-OD
	110 V AC/50 ... 60 Hz	–	34420	MSFW-110AC-OD
	230 V AC/50 ... 60 Hz	–	34422	MSFW-230AC-OD
	240 V AC/50 ... 60 Hz	–	34424	MSFW-240AC-OD
Plug socket with screw terminal connection Technical data → Internet: mssd				
	–	–	34431	MSSD-F
	–	–	539710	MSSD-F-M16
Plug socket with insulation displacement connection Technical data → Internet: mssd				
	–	–	192746	MSSD-F-S-M16
Plug socket with cable Technical data → Internet: kmf-1				
	24 V DC	2.5 m	30935	KMF-1-24DC-2,5-LED
	0 ... 240 V DC/AC		30936	KMF-1-230AC-2,5
	24 V DC	5 m	30937	KMF-1-24DC-5-LED
	0 ... 240 V DC/AC		30938	KMF-1-230AC-5
Illuminating seal Technical data → Internet: mf-ld				
	12 ... 24 V DC/AC	–	19143	MF-LD-12-24DC
	230 V DC/AC	–	19144	MF-LD-230AC
Inscription label Technical data → Internet: kmc/f/v				
	–	–	33362	KMC/F/V-BZ-35X ¹⁾

1) Scope of delivery 35 pieces

 **Note**

Valve/solenoid coil combinations made up of a basic valve NVF3-MOH-5/2-K-1/4-EX and a solenoid coil MSF...-OD must not be used in hazardous areas.

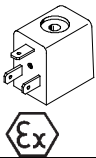
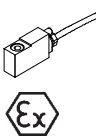
Only combinations with the approved solenoid coil MSF...-EX may be used here.

→ 11

Solenoid valves NVF3, to NAMUR

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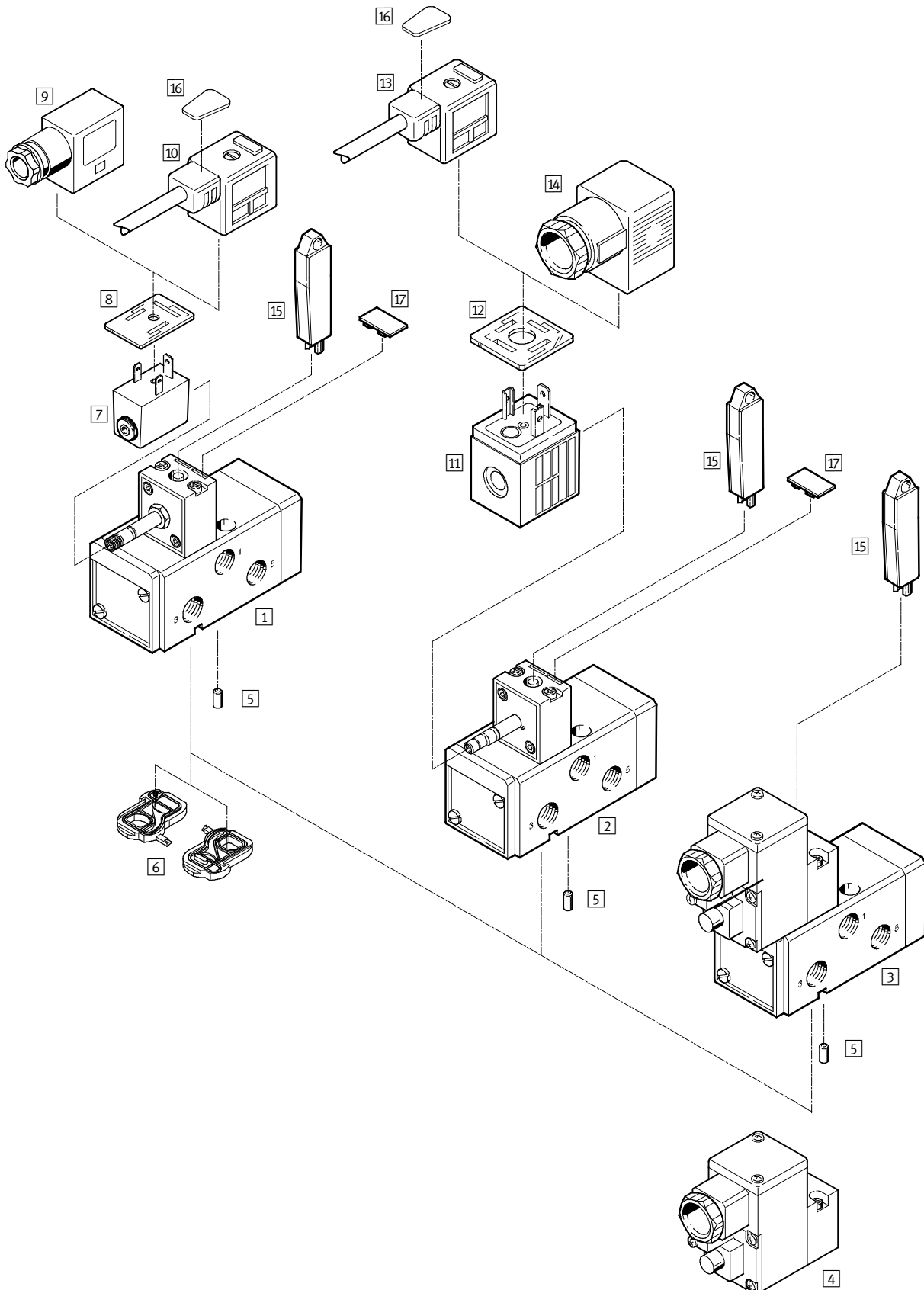
Accessories for ATEX environment

Ordering data				
	Operating voltage	Cable length	Part No.	Type
F solenoid coil for ignition protection type nA = non-sparking Technical data → Internet: msfw, msfg				
	24 V DC	–	536931	MSFG-24-EX
	24 V AC/50 ... 60 Hz	–	536932	MSFW-24-50/60-EX
	110 V AC/50 ... 60 Hz	–	536933	MSFW-110-50/60-EX
	230 V AC/50 ... 60 Hz	–	536934	MSFW-230-50/60-EX
F solenoid coil for ignition protection type m = encapsulation, moulded-in cable Technical data → Internet: msfw, msfg				
	24 V DC	1 m	535619	MSFG-24DC-M-EX
	24 V DC	5 m	535621	MSFG-24DC-K5-M-EX
	24 V AC/50 ... 60 Hz	1 m	535623	MSFW-24AC-M-EX
	110 V AC/50 ... 60 Hz	1 m	535622	MSFW-110AC-M-EX
	110 V AC/50 ... 60 Hz	5 m	535624	MSFW-110AC-K5-M-EX
	230 V AC/50 ... 60 Hz	1 m	535620	MSFW-230AC-M-EX
	230 V AC/50 ... 60 Hz	5 m	535625	MSFW-230AC-K5-M-EX
	24 V DC	x m	538215	MSFG-24DC-KX-M-EX
	24 V AC/50 ... 60 Hz	x m	538218	MSFW-24AC-KX-M-EX
	110 V AC/50 ... 60 Hz	x m	538217	MSFW-110AC-KX-M-EX
	230 V AC/50 ... 60 Hz	x m	538216	MSFW-230AC-KX-M-EX
Plug socket with screw terminal connection for solenoid coil MSF...-EX, ignition protection type nA = non-sparking Technical data → Internet: mssd				
	–	–	539710	MSSD-F-M16
Plug socket with screw terminal connection for solenoid valve NVF3-MOH-5/2-K-¼-IA-EX, ignition protection type ia = intrinsically safe Technical data → Internet: mssd				
	–	–	539713	MSSD-V-M16

Solenoid valves MFH, MN1H, MGTBH, to NAMUR

Peripherals overview

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Solenoid valves MFH, MN1H, MGTBH, to NAMUR

Peripherals overview

Solenoid valves and accessories		
	Brief description	→ Page/Internet
Solenoid valves		
1 MFH-5/2K-FR-NA	Basic valve with pilot valve for F solenoid coil	14
2 MN1H-5/2K-FR-NA	Basic valve with pilot valve for N1 solenoid coil	18
3 MGTBH-5/2K-FR-...-NA	Basic valve with pilot valve, solenoid coil and plug socket	22
Pilot valves		
4 MGTBH-3/2-1.2-...	Pilot valve with solenoid coil and push-in fitting	25
Accessories		
5 Coding pin	Included in the scope of delivery	–
6 Seal plate	For changing the valve function, included in the scope of delivery	–
7 Solenoid coil MSFG-...-OD/MSFW-...-OD		17
8 Illuminating seal MF-LD	For indicating the switching status	
9 Plug socket MSSD-F	Insert can be repositioned by 180°	
10 Plug socket with cable KMF	Insert can be repositioned by 180°	
11 Solenoid coil MSN1G/MSN1W		21
12 Illuminating seal MC-LD	For indicating the switching status	
13 Plug socket with cable KMC		
14 Plug socket MSSD-C		
15 Manual override AHB		17
16 Inscription labels KMC/F/V-BZ	For identifying the plug sockets	
17 Inscription labels IBS-9x17	For identifying the valves	

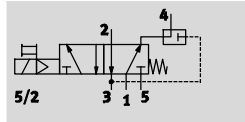
Solenoid valves MFH, to NAMUR

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Technical data

Function¹⁾

5/2-way valve

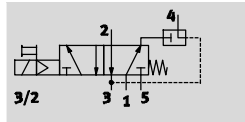


-  - Pressure
2 ... 10 bar

-  - Temperature range
-10 ... +60 °C

3/2-way valve

with exhaust air return



1) Can be changed by exchanging the seal plate



General technical data			
Valve function		5/2-way or 3/2-way, single solenoid	
Design		Piston spool valve	
Sealing principle		Soft	
Actuation type		Electric	
Reset method		Mechanical spring	
Type of control		Piloted	
Direction of flow		Reversible	
Exhaust function		Flow control	
Width	[mm]	44.5	
Nominal size	[mm]	8	
Standard nominal flow rate	1 → 2, 1 → 4	[l/min]	1,000
	2 → 3, 4 → 5	[l/min]	1,100
	Exhaust air return 2 → 4	[l/min]	140
b value		0.25	
C value		[l/sbar]	3
Pneumatic connection	1, 3, 5	G¼	
	2, 4	Port pattern as per NAMUR	
Mounting position		Any	
Manual override		Detenting	

Operating and environmental conditions		
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:-:-]
Pilot medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Operating pressure	[bar]	2 ... 10
Pilot pressure	[bar]	2 ... 10
Temperature of medium	[°C]	-10 ... +60
Ambient temperature	[°C]	-5 ... +40
Conforms to		VDI/VDE 3845 (NAMUR)
Protection class		IP65
		To IEC 60529
Switching time on	[ms]	20
Switching time off	[ms]	90
Corrosion resistance class CRC ¹⁾		3

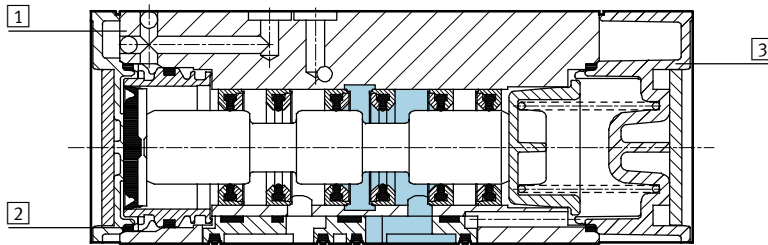
1) Corrosion resistance class 3 according to Festo standard 940 070
Components subject to high corrosion stress. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

Solenoid valves MFH, to NAMUR

Technical data

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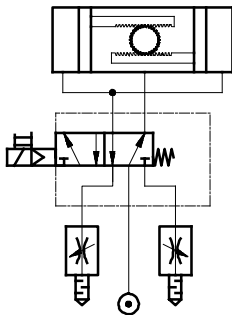
Materials



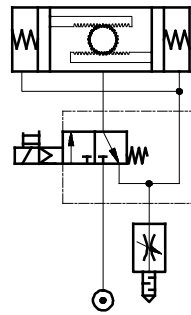
1	Housing	–
2	Seals	NBR
3	End cap	–

Sample circuit

5/2-way valve



3/2-way valve with the option of exhaust air return



Solenoid valves MFH, to NAMUR

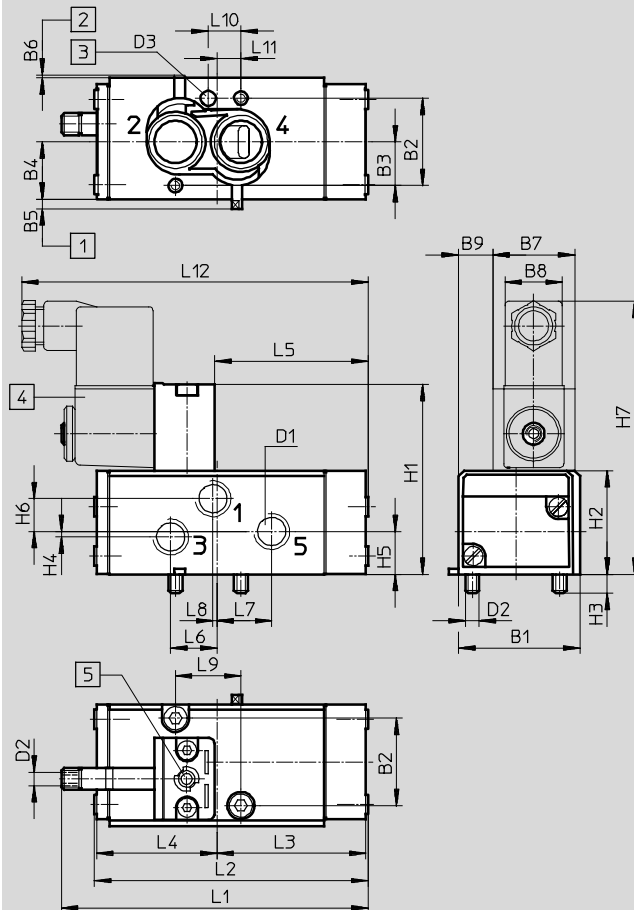
Technical data

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Dimensions

Download CAD data → www.festo.com

Solenoid valve MFH



1 Seal plate set to 5/2-way valve function

2 Seal plate set to 3/2-way valve function

3 Hole for coding pin

4 Solenoid coil is 360° rotatable

5 Manual override

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	D1	D2	D3 Ø	H1	H2	H3	H4
MFH-...	44.5	32	16	21	3.5	1	30	20	12.25	G $\frac{1}{4}$	M5	5.5x4	70	38	7	2

Type	H5	H6	H7	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
MFH-...	15.7	12	101	110.6	100	54.5	44.05	55.5	17	20	1.5	24	12	8.75	128

Ordering data – Valve

Solenoid valve without solenoid coil¹⁾

Part No. Type

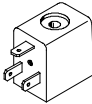
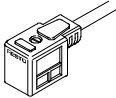
183973 MFH-5/2K-FR-NA

1) Solenoid coil must be ordered separately → 17

Solenoid valves MFH, to NAMUR

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Accessories

Ordering data				
	Operating voltage	Cable length	Part No.	Type
F solenoid coil without plug socket Technical data ➔ Internet: msf				
	12 V DC	–	34410	MSFG-12DC-OD
	24 V DC	–	34411	MSFG-24/42-50/60-OD
	42 V DC	–	34413	MSFG-42DC-OD
	24 V AC/50 ... 60 Hz	–	34415	MSFW-24AC-OD
	42 V AC/50 ... 60 Hz	–	34411	MSFG-24/42-50/60-OD
	48 V AC/50 ... 60 Hz	–	34418	MSFW-48AC-OD
	110 V AC/50 ... 60 Hz	–	34420	MSFW-110AC-OD
	230 V AC/50 ... 60 Hz	–	34422	MSFW-230AC-OD
	240 V AC/50 ... 60 Hz	–	34424	MSFW-240AC-OD
Illuminating seal Technical data ➔ Internet: ms-ld				
	12 ... 24 V DC/AC	–	19143	MF-LD-12-24DC
	230 V DC/AC	–	19144	MF-LD-230AC
Plug socket, plug socket with cable Technical data ➔ Internet: plug socket				
	–	–	34431	MSSD-F
	24 V DC	2.5 m	30935	KMF-1-24DC-2,5-LED
	0 ... 240 V DC/AC		30936	KMF-1-230AC-2,5
	24 V DC	5 m	30937	KMF-1-24DC-5-LED
	0 ... 240 V DC/AC		30938	KMF-1-230AC-5
	Plug socket with insulation displacement connection			
	–	–	192746	MSSD-F-S-M16
Manual override Technical data ➔ Internet: ahb-md/mf/mv				
	–	–	157651	AHB-MD/MF/MV
Inscription label Technical data ➔ Internet: kmc/f/v				
	–	–	33362	KMC/F/V-BZ-35X ¹⁾

1) Scope of delivery 35 pieces

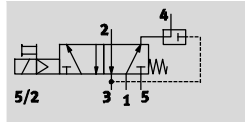
Solenoid valves MN1H, to NAMUR

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Technical data

Function¹⁾

5/2-way valve

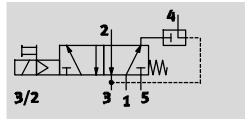


-  - Pressure
2 ... 10 bar

-  - Temperature range
-10 ... +50 °C

3/2-way valve

with exhaust air return



1) Can be changed by exchanging the seal plate



General technical data			
Valve function		5/2-way or 3/2-way, single solenoid	
Design		Piston spool valve	
Sealing principle		Soft	
Actuation type		Electric	
Reset method		Mechanical spring	
Type of control		Piloted	
Direction of flow		Reversible	
Exhaust function		Flow control	
Width		[mm]	44.5
Nominal size		[mm]	8
Standard nominal flow rate	1 → 2, 1 → 4	[l/min]	1,000
	2 → 3, 4 → 5	[l/min]	1,100
	Exhaust air return 2 → 4	[l/min]	140
b value		0.25	
C value		[l/sbar]	3
Pneumatic connection	1, 3, 5	G¼	
	2, 4	Port pattern as per NAMUR	
Vent connection		Internal	
Mounting position		Any	
Manual override		Detenting	

Operating and environmental conditions		
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:-:-]
Pilot medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Operating pressure	[bar]	2 ... 10
Pilot pressure	[bar]	2 ... 10
Temperature of medium	[°C]	-5 ... +50
Ambient temperature	[°C]	-5 ... +50
Conforms to		VDI/VDE 3845 (NAMUR)
Protection class		IP65
		To IEC 60529
Certification		Germanischer Lloyd
Electrical connection		Plug, square design to DIN 43650
Switching time on	[ms]	20
Switching time off	[ms]	90
Corrosion resistance class CRC ¹⁾		3

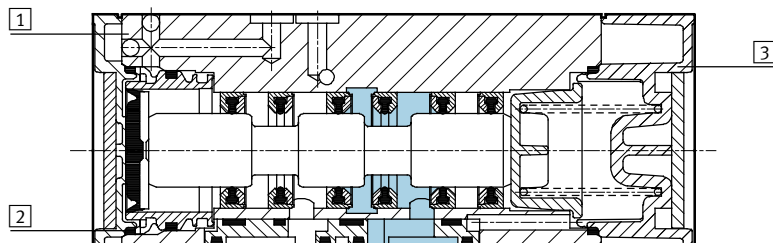
1) Corrosion resistance class 3 according to Festo standard 940 070
Components subject to high corrosion stress. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

Solenoid valves MN1H, to NAMUR

Technical data

FESTO

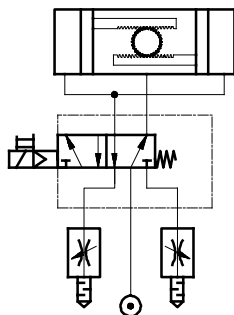
Materials



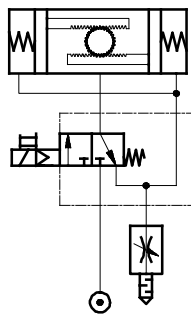
1	Housing	–
2	Seals	NBR
3	End cap	–

Sample circuit

5/2-way valve



3/2-way valve with the option of exhaust air return



Solenoid valves MN1H, to NAMUR

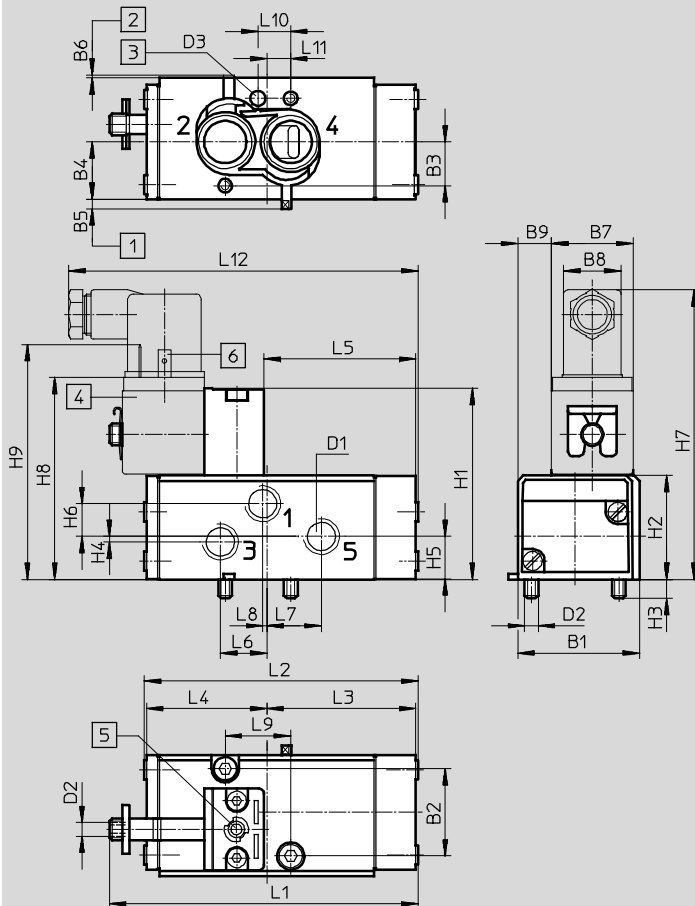
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

Solenoid valve MN1H



- | | | | |
|--|--|-----------------------------------|---|
| 1 Seal plate set to 5/2-way valve function | 2 Seal plate set to 3/2-way valve function | 3 Hole for coding pin | 5 Manual override |
| | | 4 Solenoid coil is 360° rotatable | 6 Plug socket connection to DIN 43650, type A |

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	D1	D2	D3 Ø	H1	H2	H3	H4	H5
MN1H-...	44.5	32	16	21	3.5	1	30	20	12.25	G $\frac{1}{4}$	M5	5.5x4	70	38	7	2	15.7

Type	H6	H7	H8	H9	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12
MN1H-...	12	106	86	106	113	100	54.5	44.05	55.5	17	20	1.5	24	12	8.75	128

Ordering data – Valve

Solenoid valve without solenoid coil¹⁾

Part No. Type

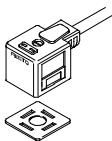
183974 MN1H-5/2K-FR-NA

1) Solenoid coil must be ordered separately → 21

Solenoid valves MN1H, to NAMUR

FESTO

Accessories

Ordering data				
	Operating voltage	Cable length	Part No.	Type
N1 solenoid coil without plug socket Technical data → Internet: msn1				
	24 V DC	–	123060	MSN1G-24DC-OD
	110 V AC/50 ... 60 Hz	–	123061	MSN1W-110AC-OD
	230 V AC/50 ... 60 Hz	–	123062	MSN1W-230AC-OD
Illuminating seal Technical data → Internet: mc-ld				
	12 ... 24 V DC/AC	–	19145	MC-LD-12-24DC
	230 V DC/AC	–	19146	MC-LD-230AC
Plug socket, plug socket with cable Technical data → Internet: plug socket				
	–	–	34583	MSSD-C
	24 V DC	2.5 m	30931	KMC-1-24DC-2,5-LED
	0 ... 240 V DC/AC		30932	KMC-1-230AC-2,5
	24 V DC	5 m	30933	KMC-1-24DC-5-LED
	0 ... 240 V DC/AC		30934	KMC-1-230AC-5
	Plug socket with insulation displacement connection			
	–	–	192748	MSSD-C-S-M16
Manual override Technical data → Internet: ahb-md/mf/mv				
	–	–	157651	AHB-MD/MF/MV
Inscription labels Technical data → Internet: inscription label				
	–	–	33362	KMC/F/V-BZ-35X ¹⁾
	–	–	18182	IBS-9x20 ²⁾

1) Scope of delivery 35 pieces

2) Scope of delivery 20 pieces

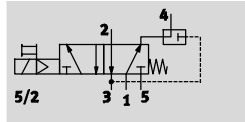
Solenoid valves MGTBH, to NAMUR

FESTO

Technical data

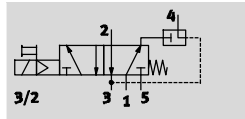
Function¹⁾

5/2-way valve



3/2-way valve

with exhaust air return



-  - Voltage
24 V DC
110, 230 V AC

-  - Pressure
2 ... 8 bar

-  - Temperature range
-20 ... +60 °C



1) Can be changed by exchanging the seal plate

General technical data	MGTBH-5/2K-FR-NA 24 V DC	MGTBH-5/2K-FR-110AC-NA 110 V AC	MGTBH-5/2K-FR-230AC-NA 230 V AC
Valve function	5/2-way, single solenoid		
Conforms to	VDI/VDE 3845 (NAMUR)		
Width [mm]	44.5	35	35
Design	Piston spool valve		
Sealing principle	Soft		
Actuation type	Electric		
Reset method	Mechanical spring		
Type of control	Piloted		
Direction of flow	Reversible		
Exhaust function	Flow control		
Manual override	Detenting		
Vent connection	Internal		
Nominal size [mm]	8		
Standard nominal flow rate [l/min]	400		
b value	0.25		
C value [l/sbar]	3	1.1	1.1
Pneumatic connection	Sub-base		
Mounting position	Any		
Manual override	Detenting		

Operating and environmental conditions	MGTBH-5/2K-FR-NA 24 V DC	MGTBH-5/2K-FR-110AC-NA 110 V AC	MGTBH-5/2K-FR-230AC-NA 230 V AC
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]		
Pilot medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]		
Operating pressure range [bar]	2 ... 8		
Pilot pressure [bar]	2 ... 10		
Ambient temperature [°C]	-20 ... +60		
Temperature of medium [°C]	-20 ... +60		
CE marking (see declaration of conformity)	-	To EU Low Voltage Directive	To EU Low Voltage Directive
Corrosion resistance class CRC ¹⁾	3		

1) Corrosion resistance class 3 according to Festo standard 940 070
Components subject to high corrosion stress. External visible parts in direct contact with industrial atmospheres or media such as solvents and cleaning agents, with a predominantly functional requirement for the surface.

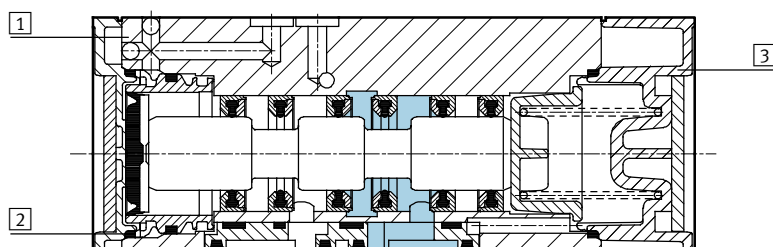
Solenoid valves MGTBH, to NAMUR

FESTO

Technical data

Electrical data		MGTBH-5/2K-FR-NA 24 V DC	MGTBH-5/2K-FR-110AC-NA 110 V AC	MGTBH-5/2K-FR-230AC-NA 230 V AC
Electrical connection		M20x1.5 socket with screw terminal		
Coil characteristics	Alternating current AC [V]	–	110	230
	Pull power 50/60 Hz [VA]	–	5	5
	Holding power 50/60 Hz [VA]	–	3.7	3.7
Protection class		IP 65 To IEC 60529		
Switching time on [ms]		20		
Switching time off [ms]		90		
Permissible frequency fluctuations [%]		–	±10	
Permissible voltage fluctuations [%]		–	±10	

Materials

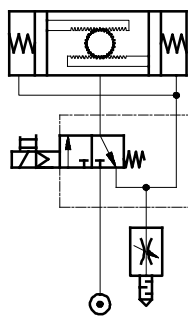
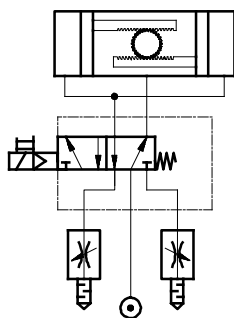


1	Housing	–
2	Seals	NBR
3	End cap	–

Sample circuit

5/2-way valve

3/2-way valve with the option of exhaust air return



Solenoid valves MGTBH, to NAMUR

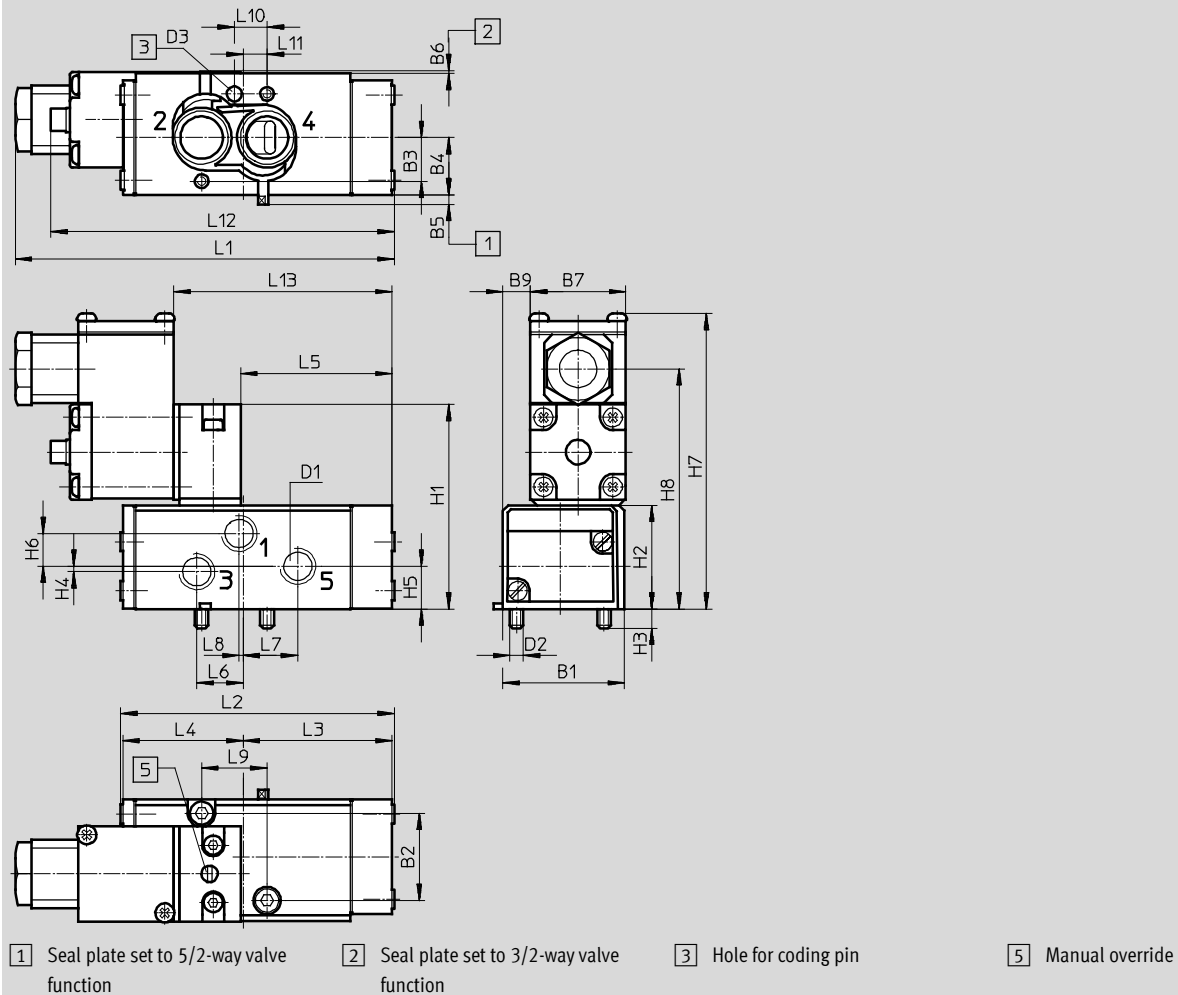
Technical data

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Dimensions

Download CAD data → www.festo.com

Solenoid valve MGTBH



Type	B1	B2	B3	B4	B5	B6	B7	B9	D1	D2	D3 Ø	H1	H2	H3	H4	H5
MGTBH-...	44.5	32	16	21	3.5	1	35	9.75	G $\frac{1}{4}$	M5	5.5x4	75	38	7	2	15.7

Type	H6	H7	H8	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
MGTBH-...	12	109	88	139	100	54.5	44.05	55.5	17	20	1.5	24	12	8.75	125.8	80

Solenoid valves MGTBH, to NAMUR



Technical data

Ordering data – Valve		
Solenoid valve with solenoid coil and plug socket ¹⁾		
Operating voltage	Part No.	Type
24 V DC	183978	MGTBH-5/2K-FR-NA
110 V AC	188400	MGTBH-5/2K-FR-110AC-NA
230 V AC	188401	MGTBH-5/2K-FR-230AC-NA

1) Individual pilot valve, with solenoid coil and plug socket → 25

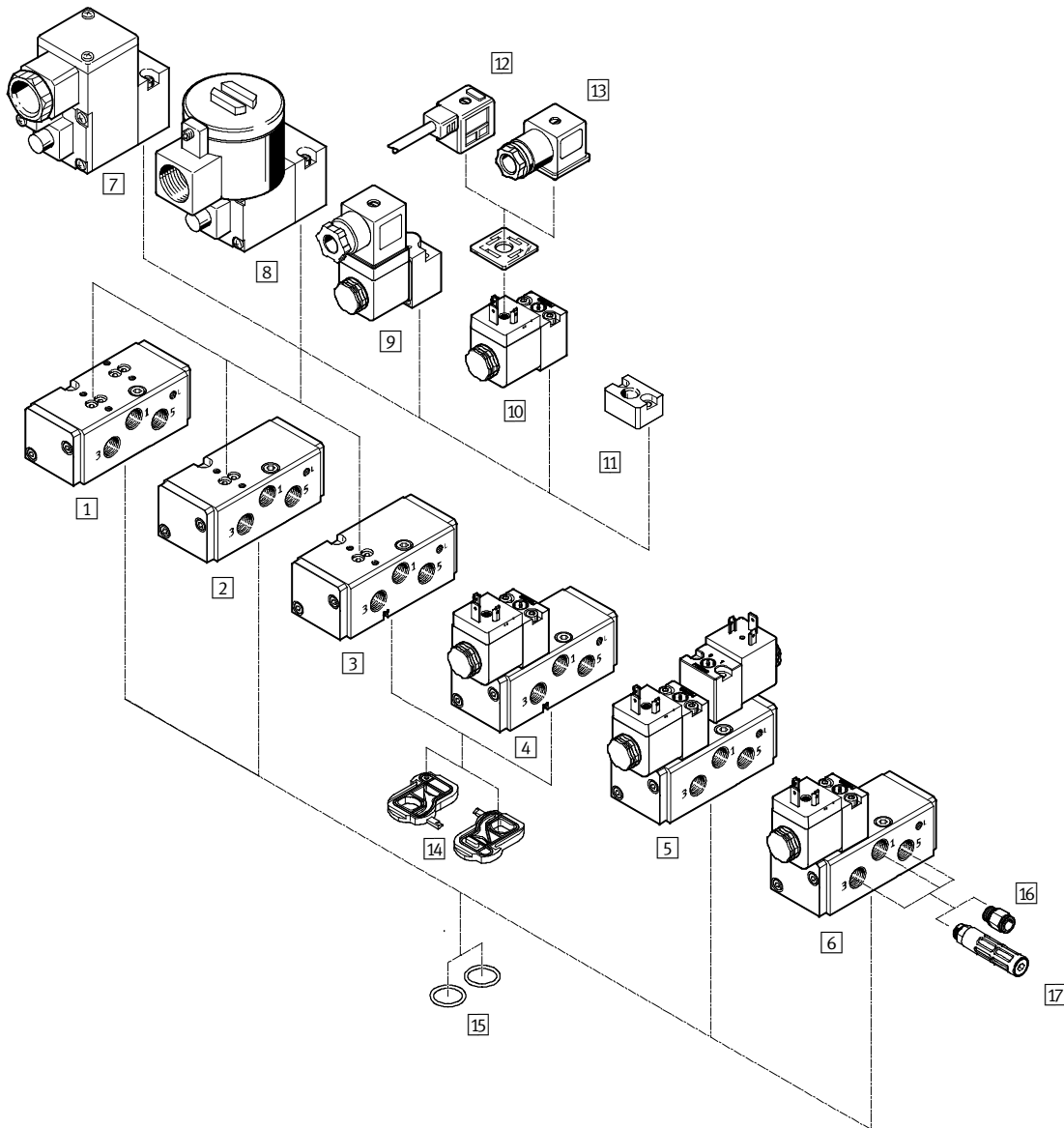
Ordering data – Accessories				
	Operating voltage	Cable length	Part No.	Type
Manual override				
	–	–	157651	AHB-MD/MF/MV
Technical data → Internet: ahb				
Inscription labels				
	–	–	18182	IBS-9x20¹⁾
Technical data → Internet: ibs				

1) Scope of delivery 20 pieces

Solenoid valves VSNB, to NAMUR

Peripherals overview

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Solenoid valves VSNB, to NAMUR

Peripherals overview

Solenoid valves and accessories		
	Brief description	→ Page/Internet
Basic valves		
1 VSNB-F-B52- ... -P2	Basic valve, double solenoid	28
2 VSNB-F-M52- ... -P2	Basic valve, single solenoid	28
3 VSNB-FC-M52- ... -P2	Basic valve, single solenoid with changeable seal	28
Solenoid valves		
4 VSNB-FC-M52- ...	Single solenoid valve with changeable seal, optionally with 24 V DC pilot control or with Ex-ia pilot control	31
5 VSNB-F-B52- ...	Double solenoid valve, optionally with 24 V DC pilot control or with Ex-ia pilot control	31
6 VSNB-F-M52- ...	Single solenoid valve, optionally with 24 V DC pilot control or with Ex-ia pilot control	31
Pilot valves		
7 MGXiAH	Ex-ia pilot valve with cable connection	mgxiah
8 MGXDH	Ex-d pilot valve with cable connection	mgxdh
9 MD-3/2- ... -P1	EX-ia pilot valve with plug pattern type A	md
10 MDH-3/2- ... -P1	Pilot valve with plug pattern type A	37
Accessories		
11 Control plate VAOP	The control plate enables a basic valve to be switched by means of a pneumatic signal	38
12 Plug socket with cable KMC	Connecting cables for pilot valves with plug pattern type A	38
13 Plug socket	Plug socket for pilot valve with plug pattern type A	38
14 Seal plate	For changing the valve function from 3/2-way to 5/2-way, included in the scope of delivery	–
15 O rings	Included in the scope of delivery	–
16 Push-in fitting QS	For connecting compressed air tubing with standard O.D.	qs
17 Silencer	–	u

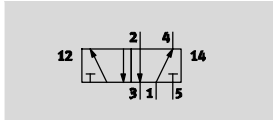
Solenoid valves VSNB, to NAMUR

FESTO

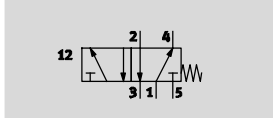
Technical data

Function

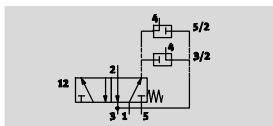
5/2-way valve, single solenoid¹⁾



3/2-way valve, single solenoid



1) Can be changed to 3/2-way valve by exchanging the seal plate



Basic valves



Pressure
2.5 ... 8 bar



Temperature range
-10 ... +60 °C



General technical data		VSNB-F-B52-G14-P2	VSNB-FC-M52-M-G14-P2	VSNB-F-M52-M-G14-P2
Valve function		5/2-way, double solenoid	5/2-way and 3/2-way, single solenoid	5/2-way, single solenoid
Pneumatic connection	1	G1/4	G1/4	G1/4
	2	Sub-base	Sub-base	Sub-base
	3	G1/4	G1/4	G1/4
	4	Sub-base	Sub-base	Sub-base
	5	G1/4	G1/4	G1/4
Vent connection		M5		
Design		Piston spool valve		
Exhaust function		Flow control		
Width	[mm]	44.5		
Mounting position		Any		
Type of mounting		On sub-base		
Duty cycle	[%]	100		
Sealing principle		Soft		
Non-overlapping		Yes		
Reset method		–	Mechanical spring	Mechanical spring
Actuation type		–	–	–
Direction of flow		Non-reversible		
Product weight	[g]	350		
Switching time off	[ms]	–	100	100
Switching time on	[ms]	–	30	30
Changeover time	[ms]	30	–	–
Nominal size	[mm]	8		
Standard nominal flow rate	[l/min]	950		

Solenoid valves VSNB, to NAMUR

FESTO

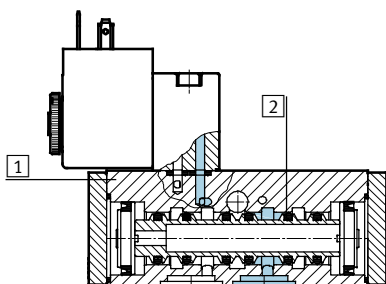
Technical data

Operating and environmental conditions	VSNB-F-B52-G14-P2	VSNB-FC-M52-M-G14-P2	VSNB-F-M52-M-G14-P2
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]		
Pilot medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]		
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)		
Operating pressure [bar]	2.5 ... 8		
Pilot pressure [bar]	2.5 ... 8		
Temperature of medium [°C]	-10 ... +60		
Ambient temperature [°C]	-10 ... +60		
Conforms to	VDI/VDE 3845 (NAMUR)		
Corrosion resistance class CRC ¹⁾	2		

1) 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.

Materials

Sectional view



Solenoid valves	
1 Housing	Anodised wrought aluminium alloy
2 Seals	NBR
- Screws	High-alloy stainless steel
- Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant

Solenoid valves VSNB, to NAMUR

Technical data

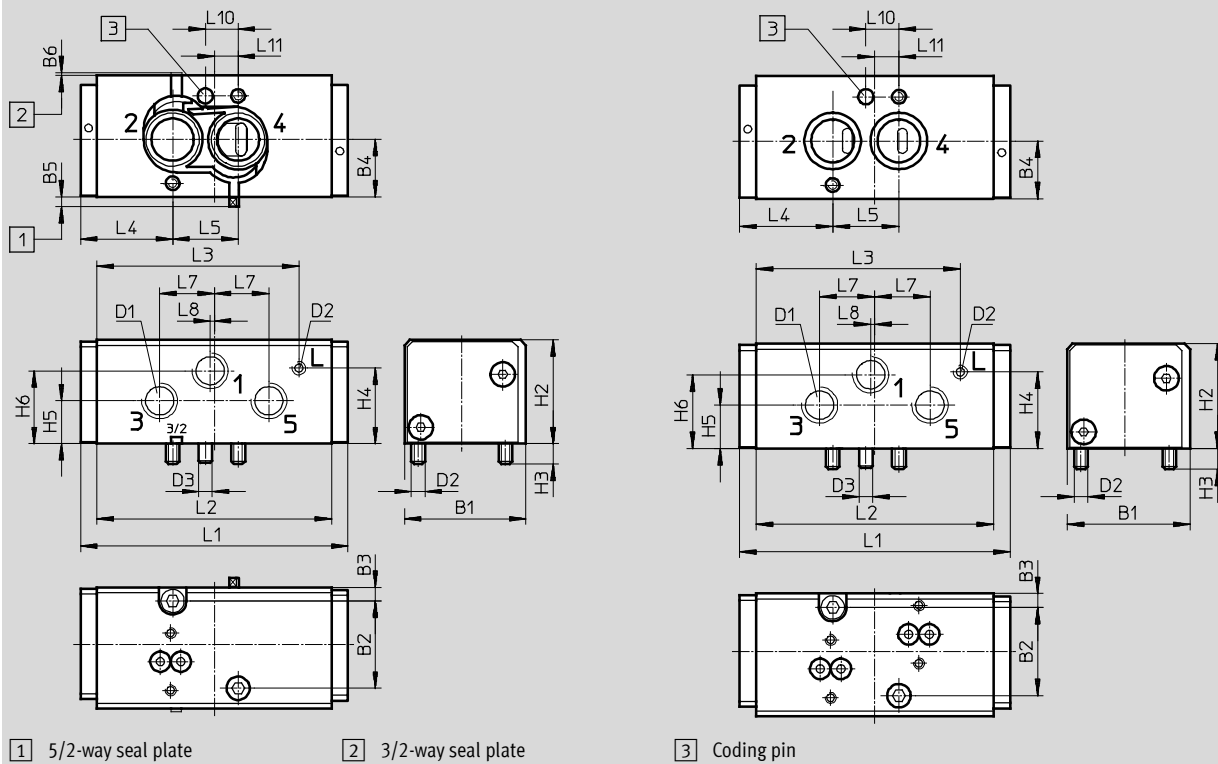
FESTO

Dimensions

Download CAD data → www.festo.com

Basic valve, single solenoid

Basic valve, double solenoid



Basic valve, single solenoid	B1	B2	B3	B4	B5	B6	D1	D2	D3	H2	H3	H4
VSNB-FC-M52-M-G14-P2	44.5	32	5	21	3.5	1	G $\frac{1}{4}$	M5	5.6	38	7.5	27.7
VSNB-F-M52-M-G14-P2	44.5	32	5	21	3.5	1	G $\frac{1}{4}$	M5	5.6	38	7.5	27.7
Basic valve, double solenoid												
VSNB-F-B52-G14-P2	44.5	32	5	21	3.5	1	G $\frac{1}{4}$	M5	5.6	38	7.5	27.7

Basic valve, single solenoid	H5	H6	L1	L2	L3	L4	L5	L7	L8	L10	L11
VSNB-FC-M52-M-G14-P2	15.7	26.7	98	86	74	33.75	24	20	1.5	12	8.75
VSNB-F-M52-M-G14-P2	15.7	26.7	98	86	74	33.75	24	20	1.5	12	8.75
Basic valve, double solenoid											
VSNB-F-B52-G14-P2	15.7	26.7	98	86	74	33.75	24	20	1.5	12	8.75

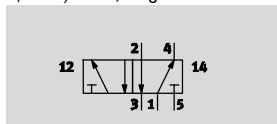
Solenoid valves VSNB, to NAMUR

FESTO

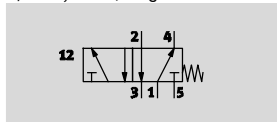
Technical data

Function

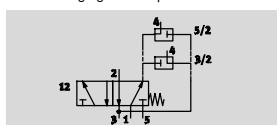
5/2-way valve, single solenoid¹⁾



3/2-way valve, single solenoid



1) Can be changed to 3/2-way valve by exchanging the seal plate



Solenoid valves

-  - Pressure
2.5 ... 8 bar

-  - Temperature range
-10 ... +60 °C



General technical data		VSNB-FC-M52-MH-G14-1A1	VSNB-F-M52-MH-G14-1A1	VSNB-F-B52-H-G14-1A1
Valve function		5/2-way and 3/2-way, single solenoid	5/2-way, single solenoid	5/2-way, double solenoid
Pneumatic connection	1	G1/4		
	2	Sub-base		
	3	G1/4		
	4	Sub-base		
	5	G1/4		
Vent connection		M5		
Design		Piston spool valve		
Exhaust function		Flow control		
Width	[mm]	44.5		
Mounting position		Any		
Type of mounting		On sub-base		
Duty cycle	[%]	100		
Sealing principle		Soft		
Non-overlapping		Yes		
Reset method		Mechanical spring		-
Actuation type		Electric		
Manual override		Non-detenting, detenting		
Type of control		Piloted		
Direction of flow		Non-reversible		
Product weight	[g]	510		656
Nominal size	[mm]	8		
Standard nominal flow rate	[l/min]	950		

Solenoid valves VSNB, to NAMUR

FESTO

Technical data

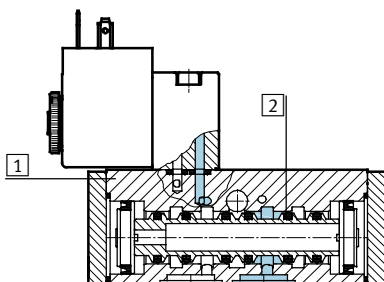
Operating and environmental conditions	VSNB-FC-M52-MH-G14-1A1	VSNB-F-M52-MH-G14-1A1	VSNB-F-B52-H-G14-1A1
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]		
Pilot medium	Compressed air in accordance with ISO 8573-1:2010 [7:-:-]		
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)		
Protection class	IP65		
Operating pressure [bar]	2.5 ... 8		
Pilot pressure [bar]	2.5 ... 8		
Temperature of medium [°C]	-10 ... +60		
Ambient temperature [°C]	-10 ... +60		
Conforms to	VDI/VDE 3845 (NAMUR)		
Corrosion resistance class CRC ¹⁾	2		

1) 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.

Electrical data	VSNB-FC-M52-MH-G14-1A1	VSNB-F-M52-MH-G14-1A1	VSNB-F-B52-H-G14-1A1
Electrical connection	To DIN EN 175301-803 Type A		
Coil characteristics [V DC]	24		
[W]	2.1		
Permissible voltage fluctuations [%]	-15/10		
Protection class	IP65		
Switching time On [ms]	30	30	-
Off [ms]	100	100	-
Change over [ms]	-	-	30

Materials

Sectional view



Solenoid valves	
1 Housing	Anodised wrought aluminium alloy
2 Seals	NBR, HNBR
- Screws	High-alloy stainless steel
- Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant

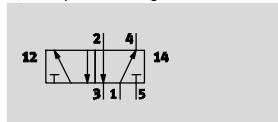
Solenoid valves VSNB, to NAMUR

FESTO

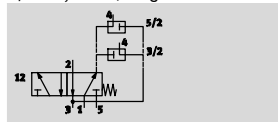
Technical data

Function

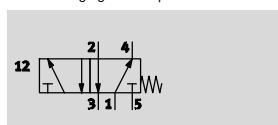
5/2-way valve, single solenoid¹⁾



3/2-way valve, single solenoid



1) Can be changed to 3/2-way valve by exchanging the seal plate



Ex Ia solenoid valves
with socket

-  Pressure
2.5 ... 8 bar

-  Temperature range
-10 ... +60 °C



General technical data		VSNB-F-B52-G14-1A1-Ex4A	VSNB-FC-M52-M-G14-1A1-Ex4A	VSNB-F-M52-M-G14-1A1-Ex4A
Valve function		5/2-way, double solenoid	5/2-way and 3/2-way, single solenoid	5/2-way, single solenoid
Pneumatic connection	1	G1/4	G1/4	G1/4
	2	Sub-base	Sub-base	Sub-base
	3	M5	M5	M5
	4	Sub-base	Sub-base	Sub-base
	5	G1/4	G1/4	G1/4
Vent connection		M5		
Design		Piston spool valve		
Exhaust function		Flow control		
Width	[mm]	44.5		
Mounting position		Any		
Type of mounting		On sub-base		
Duty cycle	[%]	100		
Sealing principle		Soft		
Non-overlapping		Yes		
Reset method		—	Mechanical spring	Mechanical spring
Actuation type		Electric		
Manual override		None		
Type of control		Piloted		
Direction of flow		Non-reversible		
Product weight	[g]	740	560	560
Nominal size	[mm]	8		
Standard nominal flow rate	[l/min]	950		

Operating and environmental conditions		VSNB-F-B52-G14-1A1-Ex4A	VSNB-FC-M52-M-G14-1A1-Ex4A	VSNB-F-M52-M-G14-1A1-Ex4A
Operating medium		Compressed air in accordance with ISO 8573-1:2010 [7:4:4]		
Pilot medium		Compressed air in accordance with ISO 8573-1:2010 [7:-:-]		
Note on operating/pilot medium		Operation with lubricated medium possible (in which case lubricated operation will always be required)		
Protection class		IP65		
Operating pressure	[bar]	2.5 ... 8		
Pilot pressure	[bar]	2.5 ... 8		
Temperature of medium	[°C]	-10 ... +60		
Conforms to		VDI/VDE 3845 (NAMUR)		
Corrosion resistance class CRC ¹⁾		2		

1) 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 VSNB, to NAMUR

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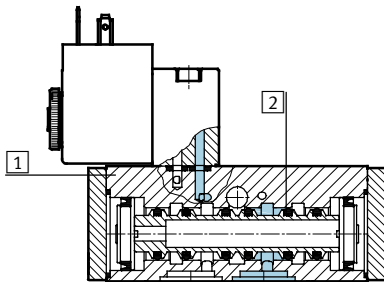
Technical data

ATEX			
	VSNB-F-B52-G14-1A1-Ex4A	VSNB-FC-M52-M-G14-1A1-Ex4A	VSNB-F-M52-M-G14-1A1-Ex4A
ATEX category for gas	II 2G		
Explosion ignition protection type for gas	Ex ia IIC T6 X		
ATEX category for dust	II 2D		
Explosion ignition protection type for dust	Ex tD A21 IP65 T80°C X		
Explosion-proof temperature rating [°C]	-20 °C ≤ Ta ≤ +50 °C		
Certificate issuing authority	PTB 09 ATEX 2043		
CE marking (see declaration of conformity)	To EU Explosion Protection Directive (ATEX)		

Electrical data					
Electrical connection			To DIN EN 175301-803		
			With socket		
			Type A		
Required current consumption		[mA]	27		
Max. input power		Pi	[W]	1.6	
Max. input voltage		Ui	[V]	28	
Max. input current		Ii	[mA]	115	
Effective internal inductance			Negligible		
Effective internal capacitance					
Switching time	Off	[ms]	–	160	160
	On	[ms]	–	30	30
	Change over	[ms]	30	–	–

Materials

Sectional view



Solenoid valves	
1 Housing	Anodised wrought aluminium alloy
2 Seals	NBR, HNBR
– Screws	High-alloy stainless steel
– Note on materials	Contains PWIS (paint-wetting impairment substances), RoHS-compliant

Solenoid valves VSNB, to NAMUR

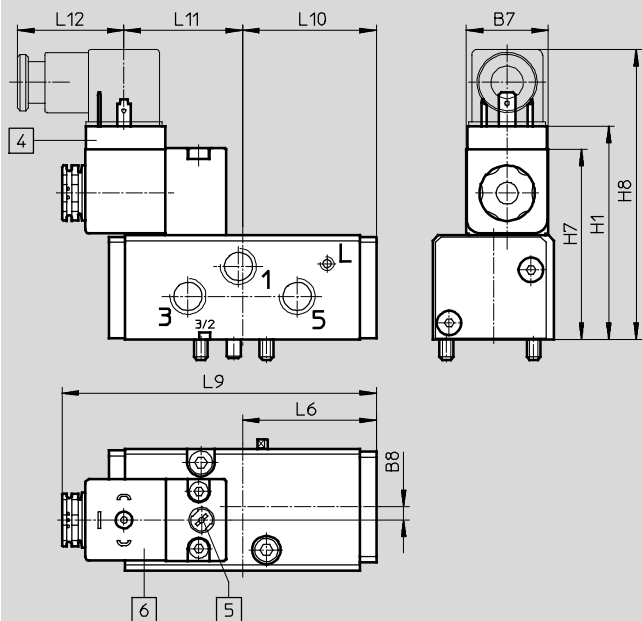
Technical data

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Dimensions

Download CAD data → www.festo.com

Single solenoid valve



4 Pilot valve

5 Pilot valve

6 Plug pattern to DIN EN 175301-803 type A

Type	B7	B8	H1	H7	H8	L6	L9	L10	L11	L12
VSNB-FC-M52-MH-G14-1A1	30	5	74.3	70	102.5	55	115.15	49	43.5	39
VSNB-F-M52-MH-G14-1A1										

Type with explosion-proof coil	B7	B8	H1	H7	H8	L6	L9	L10	L11	L12
VSNB-F-M52-M-G14-1A1-Ex4A	30	5	81.5	74	115	55	116.85	49	48.6	38.5
VSNB-FC-M52-M-G14-1A1-Ex4A										

Solenoid valves VSNB, to NAMUR

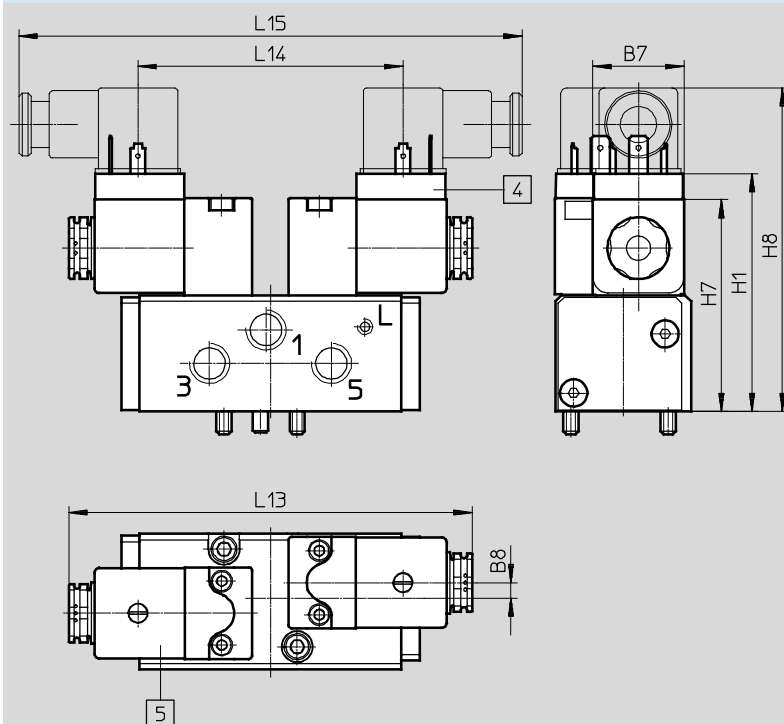
Technical data

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Dimensions

Download CAD data → www.festo.com

Double solenoid valve



4 Pilot valve

5 Plug pattern to DIN EN 175301-803 type A

Type	B7	B8	H1	H7	H8	L13	L14	L15
VSNB-F-B52-H-G14-1A1	30	5	74.3	70	102.5	132.3	87	165

Type with explosion-proof coil	B7	B8	H1	H7	H8	L13	L14	L15
VSNB-F-B52-G14-1A1-Ex4A	30	5	81.5	74	115	135.7	97.2	174.2

Solenoid valves VSNB, to NAMUR

FESTO

Technical data

Ordering data – Basic valves			
	Description	Part No.	Type
5/2-way single solenoid valve			
	Can be changed to 3/2-way valve	547017	VSNB-FC-M52-M-G14-P2
	Cannot be changed to 3/2-way valve	547021	VSNB-F-M52-M-G14-P2
5/2-way double solenoid valve			
	Cannot be changed to 3/2-way valve	547022	VSNB-F-B52-M-G14-P2

Ordering data – Solenoid valves			
	Description	Part No.	Type
5/2-way single solenoid valve			
	Can be changed to 3/2-way valve	547026	VSNB-FC-M52-MH-G14-1A1
	Cannot be changed to 3/2-way valve	547028	VSNB-F-M52-MH-G14-1A1
5/2-way double solenoid valve			
	Cannot be changed to 3/2-way valve	547029	VSNB-F-B52-H-G14-1A1

Ordering data – Ex-ia solenoid valves			
	Description	Part No.	Type
5/2-way single solenoid valve			
	Cannot be changed to 3/2-way valve	547023	VSNB-F-M52-M-G14-1A1-Ex4A
	Can be changed to 3/2-way valve	547019	VSNB-FC-M52-M-G14-1A1-Ex4A
5/2-way double solenoid valve			
	Cannot be changed to 3/2-way valve	547024	VSNB-F-B52-G14-1A1-Ex4A

Ordering data – Pilot valves			
	Nominal operating voltage	Part No.	Type
Pilot valve with solenoid coil			
	24 V DC	546019	MDH-3/2-24V DC-PI
	110 V AC	546020	MDH-3/2-110 VAC-PI
	230 V AC	546021	MDH-3/2-230 VAC-PI
Ex - d pilot valve			
	24 V DC	535615	MGXDH-3/2-1.2-24DC-Ex
	110 V AC	535616	MGXDH-3/2-1.2-110AC-Ex
	230 V AC	535617	MGXDH-3/2-1.2-230AC-Ex
Ex - ia pilot valve			
	24 V DC	546022	MD-3/2-24DC-PI-IA-Ex
Ex - ia pilot valve			
	24 V DC	535614	MGXIAH-3/2-0.8-24DC-Ex

Solenoid valves VSNB, to NAMUR

Accessories

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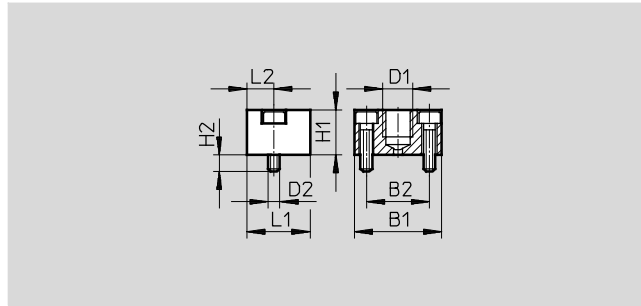
Control plate VAOP

Material:

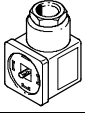
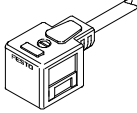
Wrought aluminium alloy

Function:

The control plate enables a basic valve to be switched by means of a pneumatic signal.



Dimensions and ordering data										
B1	B2	D1	D2	H1	H2	L1	L2	Weight [g]	Part No.	Type
29	21	G1/8	M4	15	5.6	21	9	21	547025	VAOP-C2-P2

Ordering data					
	Nominal operating voltage	Cable length	Signal status display	Part No.	Type
Plug socket Technical data → Internet: mssd					
	–	–	–	34583	MSSD-C
Plug socket with cable Technical data → Internet: kmc-1					
	24 V DC	2.5 m	LED	30931	KMC-1-24DC-2,5-LED
	24 V DC	5 m	LED	30933	KMC-1-24DC-5-LED
	24 V DC	10 m	LED	193459	KMC-1-24-10-LED
	Up to 230 A DC	2.5 m	–	30932	KMC-1-230AC-2,5
	Up to 230 A DC	5 m	–	30934	KMC-1-230AC-5
Illuminating seal					
	12 ... 24 V DC/AC	–	–	19145	MC-LD-12-24DC
	230 V DC/AC	–	–	19146	MC-LD-230AC
Push-in fittings QS Technical data → Internet: qs					
	–	–	–	–	–
Silencer U Technical data → Internet: u					
	–	–	–	–	–