Solenoid/pneumatic valves, ISO 15 407-1

FESTO

- Electrically or pneumatically actuated valves
- With internal or external pilot air
- Pneumatic or mechanical reset

Specified types in accordance with ATEX directive for potentially explosive atmospheres
➔ www.festo.com/en/ex

Solenoid valves, ISO 15 407-1

Product range overview

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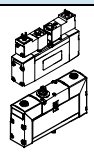
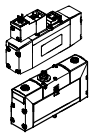
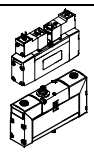
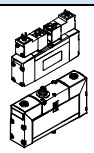
Function	Design	Type	ISO size		Nominal flow rate	Working port on sub-base		Operating voltage				
								[V DC]		[V AC]		
			02	01	[l/min]	G1/8	G1/4	12	24	24	110	230
2x 3/2-way valves in one housing	Solenoid valve											
		MN2H-2x3-...	■	■	490/950	■	■	■	■	■	■	■
		MN2H-2x3-...-...-ZSR	■	■		■	■	–	■	–	–	–
		VSVA-...-T32-...1R...	–	■	1,000	–	■	–	■	–	–	–

Function	Design	Type	ISO size		Nominal flow rate	Working port on sub-base		Operating voltage				
								[V DC]		[V AC]		
			02	01	[l/min]	G1/8	G1/4	12	24	24	110	230
5/2-way valves	Single solenoid valve											
		MN2H	■	■	500/1,000	■	■	■	■	■	■	■
		MN2H-...-ZSR	■	■	500/1,000	■	■	–	■	–	–	–
		VSVA-...-M52-...1R...	–	■	1,000	–	■	–	■	–	–	–
	Double solenoid valve											
		JMN2H	■	■	500/1,000	■	■	■	■	■	■	■
		JMN2DH	■	■	500/1,000	■	■	■	■	■	■	■
		JMN2H-...-ZSR	■	■	500/1,000	■	■	–	■	–	–	–
		VSVA-...-B52-...1R...	–	■	1,000	–	■	–	■	–	–	–
		JMN2DH-...-ZSR	■	■	500/1,000	■	■	–	■	–	–	–
		VSVA-...-D52-...1R...	–	■	1,000	–	■	–	■	–	–	–

Function	Design	Type	ISO size		Nominal flow rate	Working port on sub-base		Operating voltage				
								[V DC]		[V AC]		
			02	01	[l/min]	G1/8	G1/4	12	24	24	110	230
5/3-way valves	Solenoid valve											
		MN2H-5/3...	■	■	500/1,000	■	■	■	■	■	■	■
		MN2H-5/3...-...-ZSR	■	■	500/1,000	■	■		■			
		VSVA-...-P53-...1R...	–	■	1,000	–	■		■			

Solenoid valves, ISO 15 407-1

Product range overview

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Type	Plug			Pilot air supply		Spring return		Normal position (normal position)			→ Page
	Cube	Central round		Internal	External	Pneumatic	Mechanical	2x closed	2x open	1x open 1x closed	
	MEB	M8x1	M12x1								
Solenoid valve											
MN2H-2x3...	■	–	–	■	■	■	–	■	■	■	2 / 1.1-12
MN2H-2x3-...-...-ZSR	–	–	■	■	■	■	–	■	■	■	2 / 1.1-12
VSVA-...-T32-...1R...	–	■	■	■	■	■	–	■	■	■	2 / 1.1-18

Type	Plug			Pilot air supply		Spring return		Signal processing			→ Page
	Cube	Central round		Internal	External	Pneumatic	Mechanical	single solenoid	double solenoid		
	MEB	M8x1	M12x1						Equal	Dominant	
Single solenoid valve											
MN2H	■	–	–	■	■	■	■	■	–	–	2 / 1.1-22
MN2H-...-ZSR	–	–	■	■	■	■	■	■	–	–	2 / 1.1-22
VSVA-...-M52-...1R...	–	■	■	■	■	■	■	■	–	–	2 / 1.1-34
Double solenoid valve											
JMN2H	■	–	–	■	■	–	–	–	■	–	2 / 1.1-28
JMN2DH	■	–	–	■	■	–	–	–	–	■	2 / 1.1-28
JMN2H-...-ZSR	–	–	■	■	■	–	–	–	■	–	2 / 1.1-28
VSVA-...-B52-...1R...	–	■	■	■	■	–	–	–	■	–	2 / 1.1-38
JMN2DH-...-ZSR	–	–	■	■	■	–	–	–	–	■	2 / 1.1-28
VSVA-...-D52-...1R...	–	■	■	■	■	–	–	–	–	■	2 / 1.1-38

Type	Design			Pilot air supply		Neutral position (normal position)			→ Page
	Cube	Central round		Internal	External	Closed	Exhausted	Pressurised	
	MEB	M8x1	M12x1						
Solenoid valve									
MN2H-5/3...	■	–	–	■	■	■	■	■	2 / 1.1-42
MN2H-5/3-...-...-ZSR	–	–	■	■	■	■	■	■	2 / 1.1-42
VSVA-...-P53-...1R...	–	■	■	■	■	■	■	■	2 / 1.1-48

Pneumatic valves, ISO 15 407-1

Product range overview

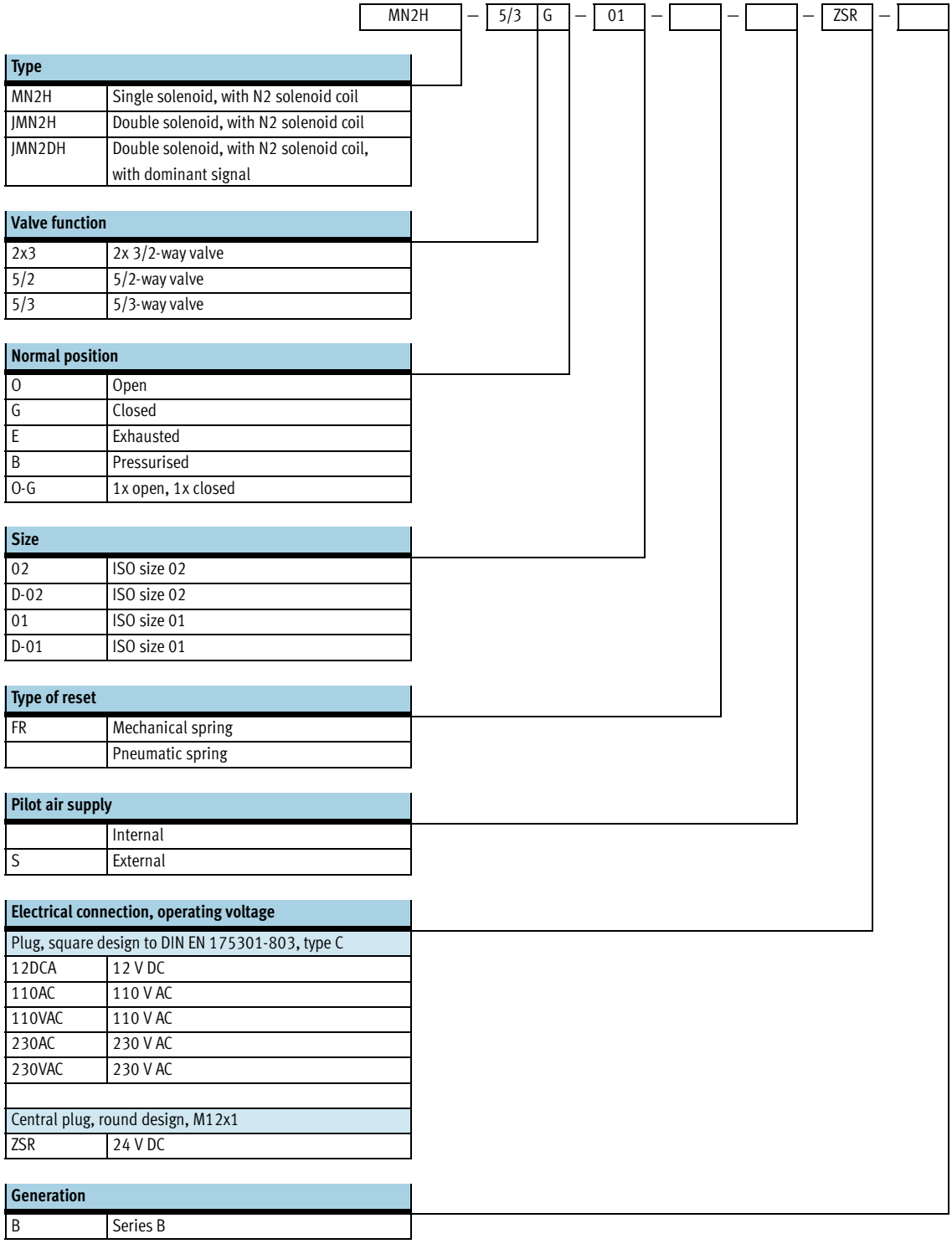
FESTO

Function	Design	Type	ISO size	Nominal flow rate [l/min]	Pneumatic working port on subbase	Type of reset		→ Page
						pneumatic spring	mechanical spring	
5/2-way valves	Pneumatic valve							
		VL-5/2	02	500	G⅛	■	■	2 / 1.1-56
			01	1,000	G¼	■	■	
	Double pilot valve							
		J-5/2	02	500	G⅛	–	–	2 / 1.1-59
			01	1,000	G¼	–	–	
	Double pilot valve with dominant signal							
		JD-5/2	02	500	G⅛	–	–	2 / 1.1-59
			01	1,000	G¼	–	–	

Function	Design	Type	ISO size	Nominal flow rate [l/min]	Pneumatic working port on subbase	Normal position			→ Page
						Closed	Exhausted	Pressurised	
5/3-way valves	Pneumatic valve								
		VL-5/3...	02	500	G⅛	■	■	■	2 / 1.1-62
			01	1,000	G¼	■	■	■	

Solenoid valves MN2H, ISO 15 407-1

Type codes



Type	
MN2H	Single solenoid, with N2 solenoid coil
JMN2H	Double solenoid, with N2 solenoid coil
JMN2DH	Double solenoid, with N2 solenoid coil, with dominant signal

Valve function	
2x3	2x 3/2-way valve
5/2	5/2-way valve
5/3	5/3-way valve

Normal position	
O	Open
G	Closed
E	Exhausted
B	Pressurised
O-G	1x open, 1x closed

Size	
02	ISO size 02
D-02	ISO size 02
01	ISO size 01
D-01	ISO size 01

Type of reset	
FR	Mechanical spring
	Pneumatic spring

Pilot air supply	
	Internal
S	External

Electrical connection, operating voltage	
Plug, square design to DIN EN 175301-803, type C	
12DCA	12 V DC
110AC	110 V AC
110VAC	110 V AC
230AC	230 V AC
230VAC	230 V AC
Central plug, round design, M12x1	
ZSR	24 V DC

Generation	
B	Series B

Solenoid valves VSVA, ISO 15 407-1

Type codes

VSVA	–	B	–	T	32	C	–	A	Z	H	–	A1	–	1		R2	L

Valve family

VSVA	Standard valves ISO 15 407-1/-2

Valve type

B	Sub-base valve

Valve function

M	Single solenoid
B	Double solenoid
D	Double pilot with dominance on one side
P	Mid-position
T	2 single solenoid valves in one housing

Connections / switching positions

32	3/2-way valve
52	5/2-way valve
53	5/3-way valve

Normal position

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

Type of reset

A	Pneumatic spring
M	Mechanical spring
	Double solenoid valve

Pilot air supply

Z	External
	Internal

Manual override facility

H	By pushing

Standard

A1	ISO size 01
A2	ISO size 02

Operating voltage

1	24 V

Type of voltage

	DC

Electrical connection

R2	Central plug M8x1
R5	Central plug M12x1

LED

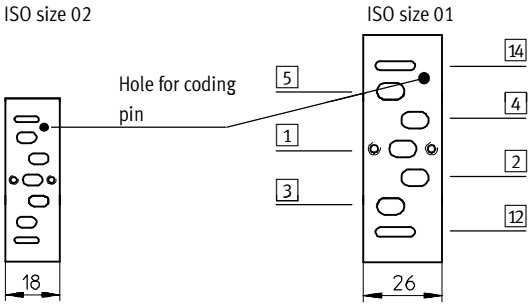
L	Integrated

Solenoid valves, ISO 15 407-1

Peripherals overview

Port pattern on sub-base to ISO 15 407-1

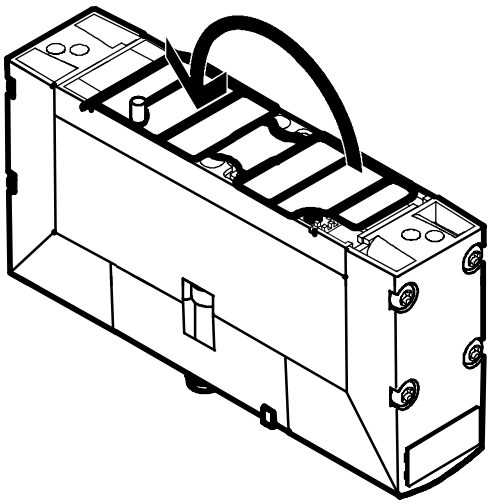
Standard updates given below



VSVA

Conversion of pilot air venting

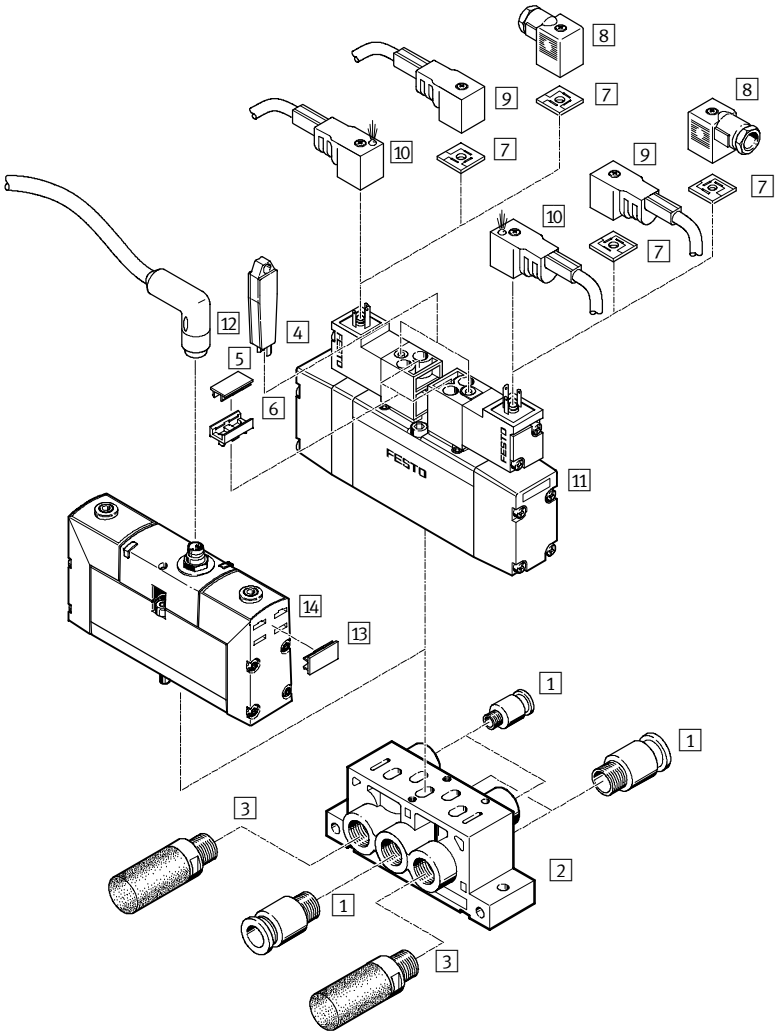
VSVA valve manifolds are supplied with unducted ventilation of the pilot air. By turning the seal between the valve and manifold block, ventilation can be diverted into the pilot duct 12 and it can thus be contained and silenced (see Figure).



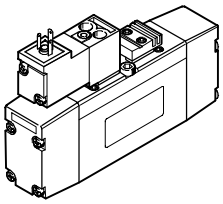
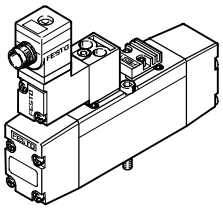
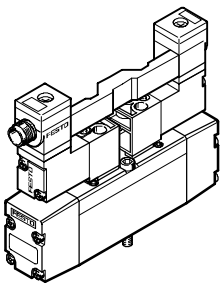
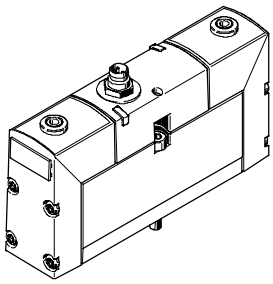
Solenoid valves, ISO 15 407-1

Peripherals overview

Individual mounting



Variants

MN2H-5/2-...	MN2H-5/2-...-ZSR	MN2H-2x3-...-ZSR, JMN2H-5/2-...-ZSR, MN2H-5/3-...-ZSR	VSVA-B-...-A1-1R2L VSVA-B-...-A1-1R5L
			

Solenoid valves, ISO 15 407-1

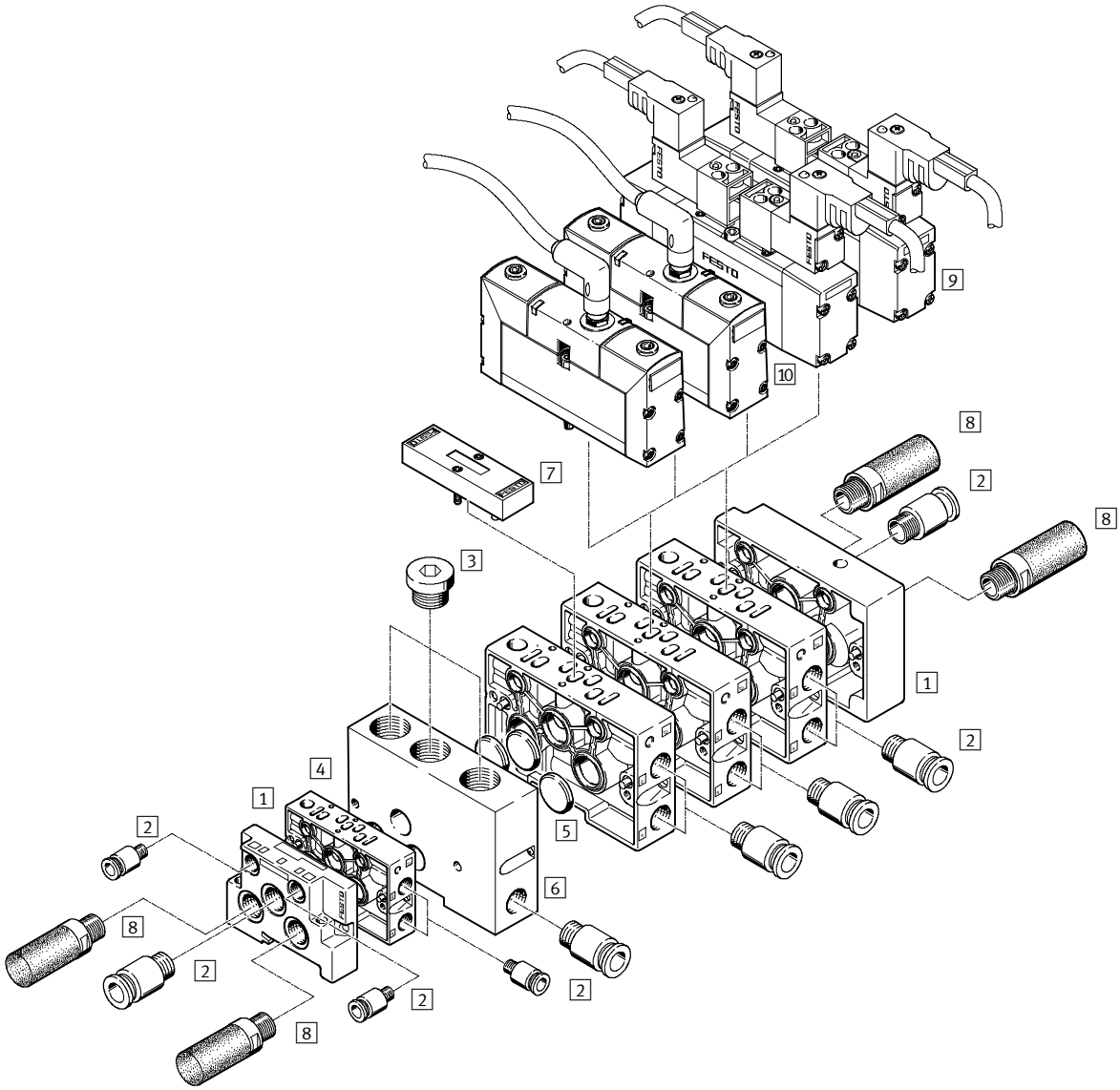
Peripherals overview

Accessories			
		Brief description	**➔ Page**
1	Push-in fitting QS	For connecting compressed air tubing with standard O.D. to CETOP RP 54 P	Volume 3
2	Individual sub-base NAS	With lateral ports	2 / 1.1-65
–	Individual sub-base NAU	With ports underneath	2 / 1.1-66
3	Silencers U	For fitting in exhaust ports	Volume 3
4	Manual override tool AHB-MEB	Detenting	2 / 1.1-70
5	Inscription labels IBS-9x17	For identifying the valves MN2H	2 / 1.1-70
6	Inscription clip MN2H	For holding the inscription label	2 / 1.1-69
7	Illuminating seal MEB-LD	For indicating the switching status	2 / 1.1-72
8	Plug socket MSSD-EB	–	2 / 1.1-71
9	Plug socket with cable KMEB	–	2 / 1.1-71
10	Plug socket with cable and LED KMEB-...-LED	For indicating the switching status	2 / 1.1-71
11	Solenoid valve MN2H	Port pattern to ISO 15 407-1	2 / 1.1-2
12	Plug socket with cable	Round plug M12x1 or M8x1	2 / 1.1-70
13	Inscription labelsIBS-9x20	For identifying the valves VSVA	2 / 1.1-71
14	Solenoid valve VSVA	Port pattern to ISO 15 407-1	2 / 1.1-2

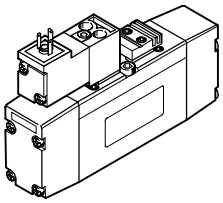
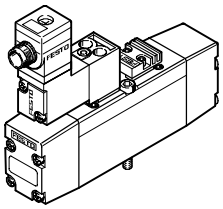
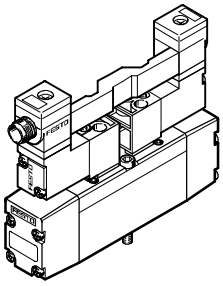
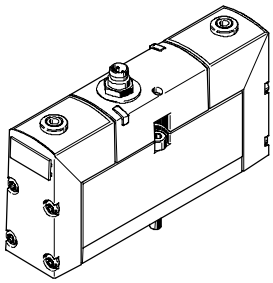
Solenoid valves, ISO 15 407-1

Peripherals overview

Manifold mounting



Variants

MN2H-5/2-...	MN2H-5/2-...-ZSR	MN2H-2x3-...-ZSR, JMN2H-5/2-...-ZSR, MN2H-5/3-...-ZSR	VSVA-B-...-A1-1R2L VSVA-B-...-A1-1R5L
			

Solenoid valves, ISO 15 407-1

Peripherals overview

Accessories			
		Brief description	**➔ Page**
1	End plate kit NEV	For sealing the manifold sub-bases	2 / 1.1-66
2	Push-in fitting QS	For connecting compressed air tubing with standard O.D. to CETOP RP 54 P	Volume 3
3	Blanking plugs B	For sealing unused ports	2 / 1.1-71
4	Manifold sub-base NAW	With lateral ports 2 and 4	2 / 1.1-66
5	Isolating disc NSC	For sealing the common lines 1, 3, 5 on the manifold sub-base or to create a seal between 2 manifold sub-bases for creating pressure zones	2 / 1.1-69
6	Intermediate plate NZV	For connecting ISO size 01 and ISO size 02 manifold sub-bases	2 / 1.1-67
7	Blanking plate NDV	For sealing vacant valve positions	2 / 1.1-67
8	Silencers U	For fitting in exhaust ports	Volume 3
9	Solenoid valve MN2H	Port pattern to ISO 15 407-1, corresponding plug sockets ➔ 2 / 1.1-71	2 / 1.1-2
10	Solenoid valve VSVA	Port pattern to ISO 15 407-1, corresponding plug sockets ➔ 2 / 1.1-71	2 / 1.1-2

Note

When supplying different pressure zones, both a left and right isolating disc for the pressure supply and for the pilot line are needed for pilot air.

For design reasons, only the silencer U-3/8-B can be screwed into ports 3 and 5 when assembling ISO size 02 mounting rails.

Solenoid valves MN2H, ISO 15 407-1

Technical data – 2x 3/2-way valves

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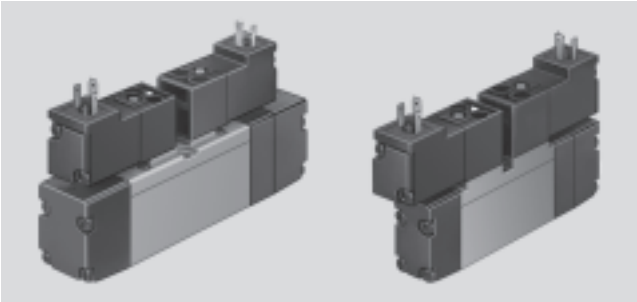
- Flow rate
  490 ... 950 l/min

- Voltage
  12, 24 V DC
  24, 110, 230 V AC

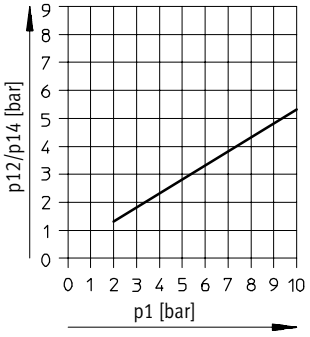


General technical data				
ISO size			02	01
Valve function			2x 3/2-way, single solenoid	
Constructional design			Piston spool	
Sealing principle			Soft	
Actuation type			Electrical	
Type of reset			Pneumatic spring	
Type of control			Piloted	
Pilot air supply			Internal	
Direction of flow			Non reversible	
Exhaust function			Flow control	
Manual override facility			Via tool accessory, detenting	
Type of mounting			Via through-holes	
Assembly position			Any	
Nominal size		[mm]	6	8
Standard nominal flow rate		[l/min]	440	950
Grid dimension		[mm]	19	27
Pneumatic connection	1, 2, 3, 4, 5		G⅛	G¼
	12, 14		M5	M5
Product weight		[g]	210	320
Noise level		[dB (A)]	75	

Operating and environmental conditions				
ISO size			02	01
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum	
Operating pressure	Internal pilot air supply	[bar]	2 ... 10	
	External pilot air supply	[bar]	–0.9 ... 10	–0.9 ... 16
Pilot pressure		[bar]	2 ... 10[1)]	
Ambient temperature		[°C]	–10 ... +50	
Temperature of medium		[°C]	–10 ... +50	

1) Pilot pressure dependent on operating pressure ➔ Graph

Minimum pilot pressure p12, p14 as a function of the operating pressure p1 (external pilot air supply)

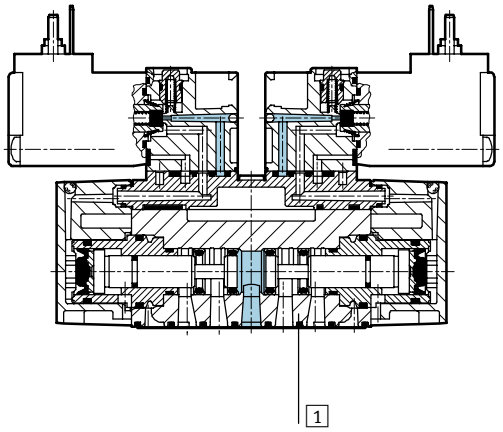


Valve response times [ms]		
ISO size	02	01
On	15	20
Off	16	33

Electrical data			
Electrical connection			Plug, square design to EN 175301-803, type C
			Central plug, round design, M12x1
Operating voltage	D.C. voltage	[V DC]	12, 24 +10%/–15%
	AC voltage	[V AC]	24, 110/230 ±10% (50 ... 60 Hz)
Coil characteristics	D.C. voltage	[W]	1.5
	AC voltage	[VA]	Pull: 3 Hold: 2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
CE symbol			73/23/EEC (low voltage)

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
	Material note	Designs free of copper and PTFE ➔ Ordering data

Solenoid valves MN2H, ISO 15 407-1

Technical data – 2x 3/2-way valves

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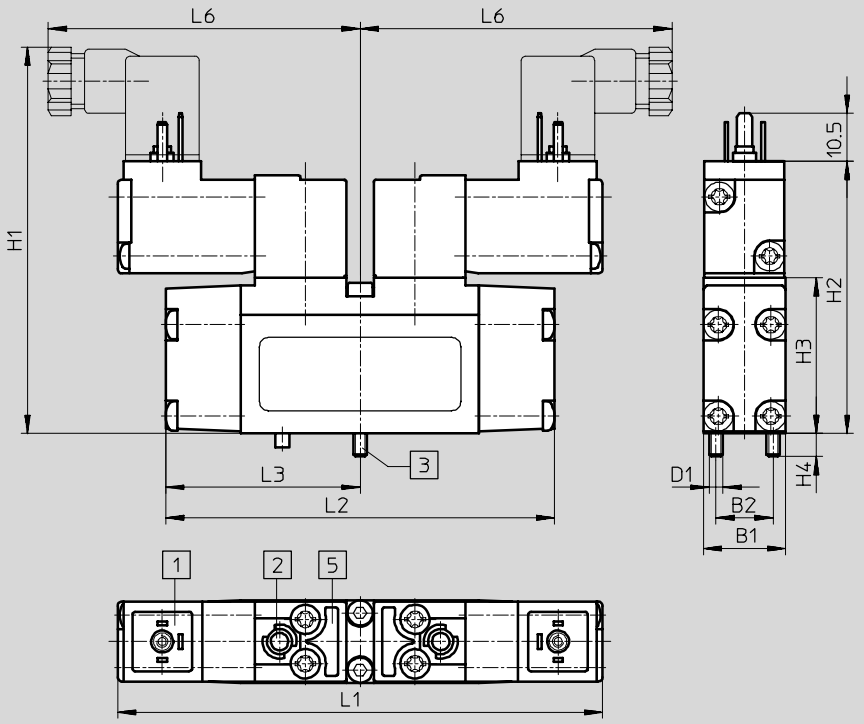
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



1 Plug socket connection pattern to EN 175301-803, type C
2 Manual override
3 Captive mounting screws
5 Slot for inscription clip

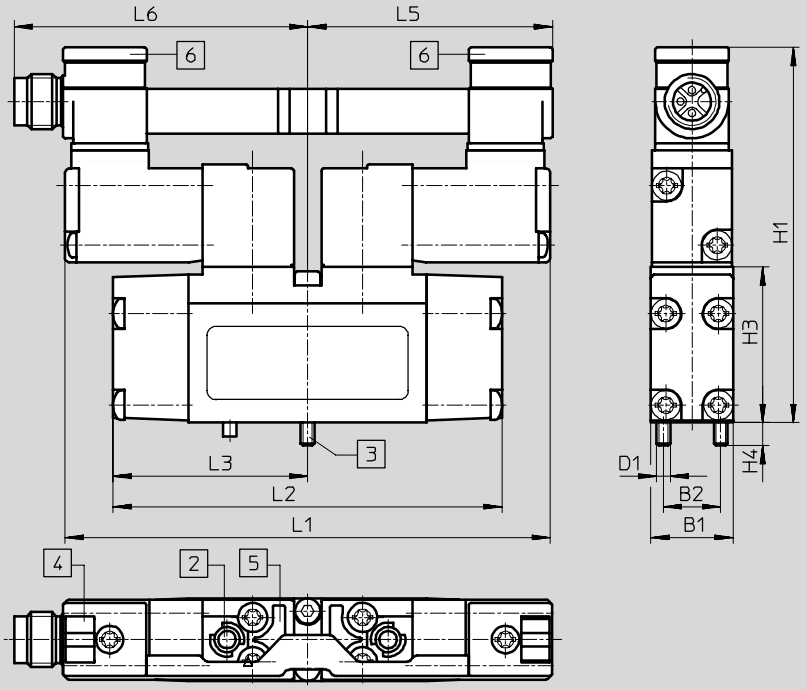
ISO size	B1	B2	D1	H1	H2	H3	H4	L1	L2	L3	L6
02	18	12.5	M3	92	59.5	34	5	106	85	42.5	70
01	26.2	19	M4	93	60.5	35	7	108	110	55	71

Solenoid valves MN2H, ISO 15 407-1

Technical data – 2x 3/2-way valves

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

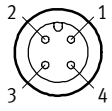
MN2H-...-ZSR with round central plug



ISO size	B1	B2	D1	H1	H3	H4	L2	L3	L5	L6
02	18	12.5	M3	82	34	5	85	42.5	52.5	64.2
01	26.2	19	M4	85	35	7	110	55	53.5	65.2

M12 central plug – Terminal allocation

Duo connection



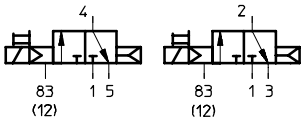
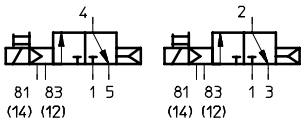
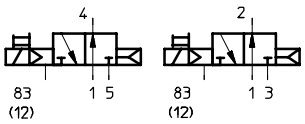
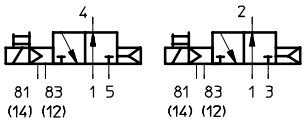
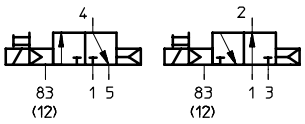
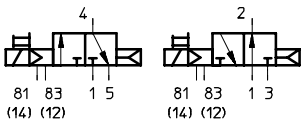
1	Unused
2	Signal (+) Solenoid 12
3	com (–)
4	Signal (+) Solenoid 14

Solenoid valves MN2H, ISO 15 407-1

Technical data – 2x 3/2-way valves

FESTO

Ordering data – ISO size 02

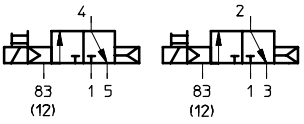
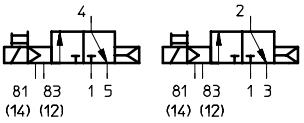
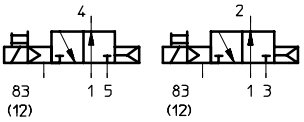
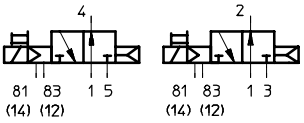
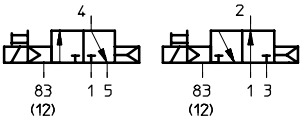
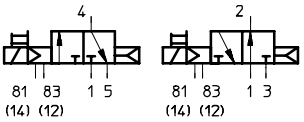
Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Normally closed, internal pilot air supply	24 V DC	–	**187 976**	**MN2H-2x3G-02[2]**
		12 V DC, 24 V AC	–	**191 372**	**MN2H-2x3G-02-12DCA**
		110 V AC	–	**191 374**	**MN2H-2x3G-02-110VAC**
		230 V AC	–	**191 376**	**MN2H-2x3G-02-230AC**
		24 V DC	■	**191 370**	**MN2H-2x3G-02-ZSR**
	Normally closed, external pilot air supply	24 V DC	–	**187 979**	**MN2H-2x3G-02-S[2]**
		12 V DC, 24 V AC	–	**191 373**	**MN2H-2x3G-02-S-12DCA**
		110 V AC	–	**191 375**	**MN2H-2x3G-02-S-110AC**
		230 V AC	–	**191 377**	**MN2H-2x3G-02-S-230AC**
		24 V DC	■	**191 371**	**MN2H-2x3G-02-S-ZSR**
	Normally open, internal pilot air supply	24 V DC	–	**187 977**	**MN2H-2x3O-02[2]**
		12 V DC, 24 V AC	–	**191 380**	**MN2H-2x3O-02-12DCA**
		110 V AC	–	**191 382**	**MN2H-2x3O-02-110VAC**
		230 V AC	–	**191 384**	**MN2H-2x3O-02-230VAC**
		24 V DC	■	**191 378**	**MN2H-2x3O-02-ZSR**
	Normally open, external pilot air supply	24 V DC	–	**187 980**	**MN2H-2x3O-02-S[2]**
		12 V DC, 24 V AC	–	**191 381**	**MN2H-2x3O-02-S-12DCA**
		110 V AC	–	**191 383**	**MN2H-2x3O-02-S-110VAC**
		230 V AC	–	**191 385**	**MN2H-2x3O-02-S-230VAC**
		24 V DC	■	**191 379**	**MN2H-2x3O-02-S-ZSR**
	Normally 1x closed, 1x open, internal pilot air supply	24 V DC	–	**187 978**	**MN2H-2x3O-G-02[2]**
		12 V DC, 24 V AC	–	**191 388**	**MN2H-2x3O-G-02-12DCA**
		110 V AC	–	**191 390**	**MN2H-2x3O-G-02-110VAC**
		230 V AC	–	**191 392**	**MN2H-2x3O-G-02-230AC**
		24 V DC	■	**191 386**	**MN2H-2x3O-G-02-ZSR**
	Normally 1x closed, 1x open, external pilot air supply	24 V DC	–	**187 981**	**MN2H-2x3O-G-02-S[2]**
		12 V DC, 24 V AC	–	**191 389**	**MN2H-2x3O-G-02-S-12DCA**
		110 V AC	–	**191 391**	**MN2H-2x3O-G-02-S-110AC**
		230 V AC	–	**191 393**	**MN2H-2x3O-G-02-S-230AC**
		24 V DC	■	**191 387**	**MN2H-2x3O-G-02-S-ZSR**

1) Included in the scope of delivery
2) Free of copper and PTFE

Solenoid valves MN2H, ISO 15 407-1

Technical data – 2x 3/2-way valves

Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Normally closed, internal pilot air supply	24 V DC	–	**187 970**	**MN2H-2x3G-01[2]**
		12 V DC, 24 V AC	–	**191 342**	**MN2H-2x3G-01-12DCA**
		110 V AC	–	**191 344**	**MN2H-2x3G-01-110VAC**
		230 V AC	–	**191 346**	**MN2H-2x3G-01-230AC**
		24 V DC	■	**191 340**	**MN2H-2x3G-01-ZSR**
	Normally closed, external pilot air supply	24 V DC	–	**187 973**	**MN2H-2x3G-01-S[2]**
		12 V DC, 24 V AC	–	**191 343**	**MN2H-2x3G-01-S-12DCA**
		110 V AC	–	**191 345**	**MN2H-2x3G-01-S-110AC**
		230 V AC	–	**191 347**	**MN2H-2x3G-01-S-230AC**
		24 V DC	■	**191 341**	**MN2H-2x3G-01-S-ZSR**
	Normally open, internal pilot air supply	24 V DC	–	**187 971**	**MN2H-2x3O-01[2]**
		12 V DC, 24 V AC	–	**191 350**	**MN2H-2x3O-01-12DCA**
		110 V AC	–	**191 352**	**MN2H-2x3O-01-110VAC**
		230 V AC	–	**191 354**	**MN2H-2x3O-01-230VAC**
		24 V DC	■	**191 348**	**MN2H-2x3O-01-ZSR**
	Normally open, external pilot air supply	24 V DC	–	**187 974**	**MN2H-2x3O-01-S[2]**
		12 V DC, 24 V AC	–	**191 351**	**MN2H-2x3O-01-S-12DCA**
		110 V AC	–	**191 353**	**MN2H-2x3O-01-S-110VAC**
			–	**191 355**	**MN2H-2x3O-01-S-230VAC**
		24 V DC	■	**191 349**	**MN2H-2x3O-01-S-ZSR**
	Normally 1x closed, 1x open, internal pilot air supply	24 V DC	–	**187 972**	**MN2H-2x3O-G-01[2]**
		12 V DC, 24 V AC	–	**191 358**	**MN2H-2x3O-G-01-12DCA**
		110 V AC	–	**191 360**	**MN2H-2x3O-G-01-110VAC**
		230 V AC	–	**191 362**	**MN2H-2x3O-G-01-230AC**
		24 V DC	■	**191 356**	**MN2H-2x3O-G-01-ZSR**
	Normally 1x closed, 1x open, external pilot air supply	24 V DC	–	**187 975**	**MN2H-2x3O-G-01-S[2]**
		12 V DC, 24 V AC	–	**191 359**	**MN2H-2x3O-G-01-S-12DCA**
		110 V AC	–	**191 361**	**MN2H-2x3O-G-01-S-110AC**
		230 V AC	–	**191 363**	**MN2H-2x3O-G-01-S-230AC**
		24 V DC	■	**191 357**	**MN2H-2x3O-G-01-S-ZSR**

1) Included in the scope of delivery
2) Free of copper and PTFE

Solenoid valves VSVA, ISO 15 407-1

Technical data – 2x 3/2-way valves

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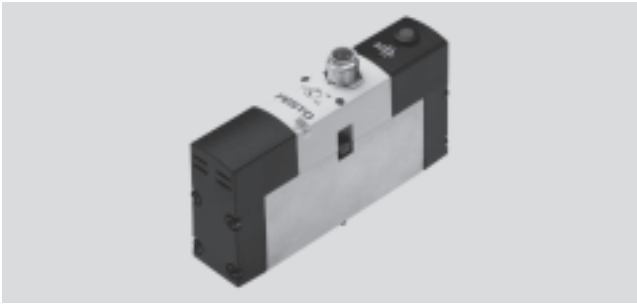
Flow rate
1,000 l/min

Voltage
24 V DC



General technical data			
ISO size			01
Valve function			2x 3/2-way, single solenoid
Constructional design			Piston spool
Sealing principle			Soft
Actuation type			Electrical
Type of reset			Pneumatic spring
Type of control			Piloted
Pilot air supply			Internal or external
Direction of flow			Non reversible
Exhaust function			Flow control
Manual override facility			Resetting
Type of mounting			Via through-holes
Assembly position			Any
Nominal size		[mm]	9
Standard nominal flow rate		[l/min]	1,000
Grid dimension		[mm]	27
Corrosion resistance class		CRC	2
Pneumatic connection	1, 2, 3, 4, 5		G¼
	12, 14		M5
Product weight		[g]	270

Operating and environmental conditions			
ISO size			01
Operating medium			Filtered compressed air, lubricated or unlubricated
Operating pressure	Internal pilot air supply	[bar]	3 ... 8
	External pilot air supply	[bar]	3... 10
Pilot pressure		[bar]	3 ... 8[1)]
Ambient temperature		[°C]	–5 ... +50
Temperature of medium		[°C]	–5 ... +50

1) Pilot pressure dependent on operating pressure ➔ Graph

Solenoid valves VSVA, ISO 15 407-1

Technical data – 2x 3/2-way valves

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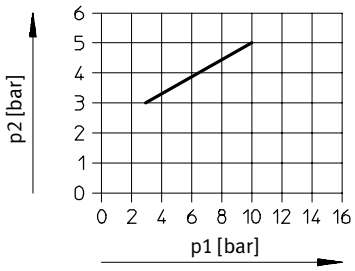
Minimum pilot pressure p12, p14 as a function of the operating pressure p1 (external pilot air supply)

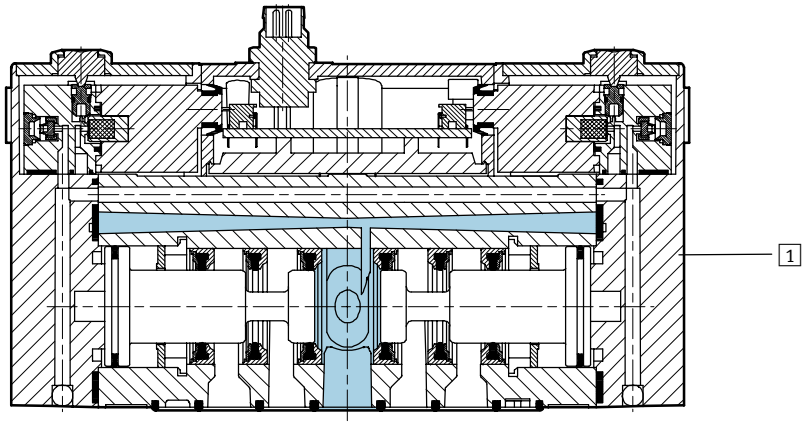


Valve response times [ms]	
ISO size	01
On	20
Off	33

Electrical data			
Electrical connection according to IEC 60 947-5-2			Central plug, round design, M8x1
			Central plug, round design, M12x1
Coil characteristics	Voltage	[V DC]	21.6...26.4
	Power	[W]	2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
Protective circuit and LED			Integrated in the valve
CE symbol			89/336/EEC (EMC)

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
–	Material note	Free of copper and PTFE

Solenoid valves VSVA, ISO 15 407-1

Technical data – 2x 3/2-way valves, solenoid valves

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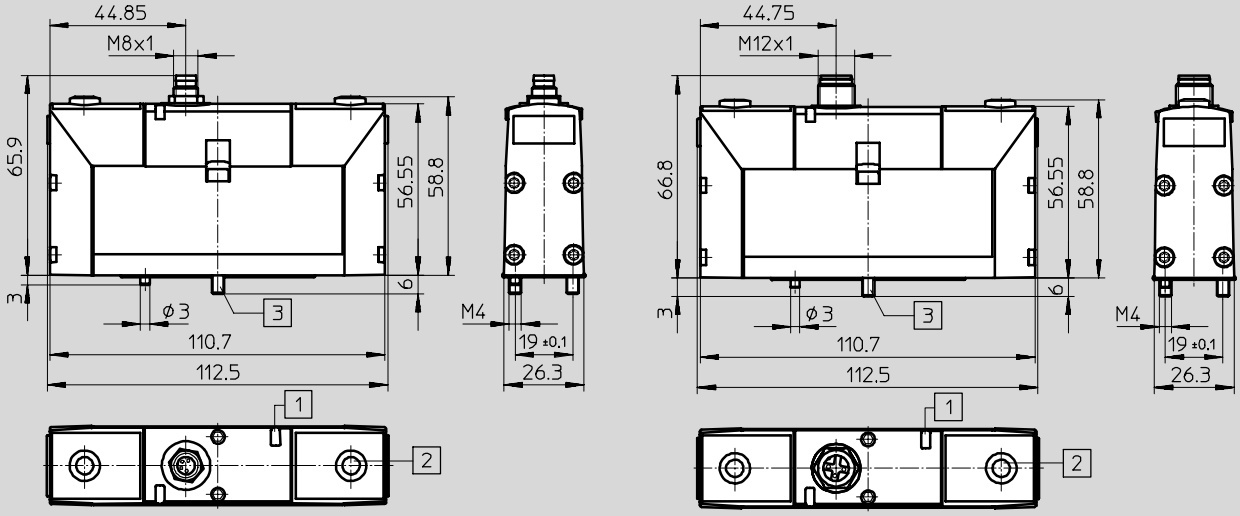
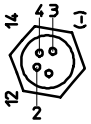
Dimensions

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



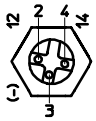
1 Light emitting diode (LED)
2 Manual override
3 Captive mounting screws

M8x1 – Terminal allocation



1	Unused
2	Signal (+) Solenoid 12
3	com (–)
4	Signal (+) Solenoid 14

M12x1 – Terminal allocation



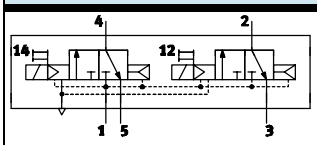
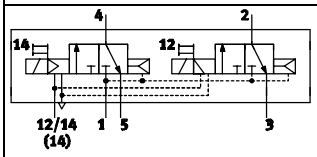
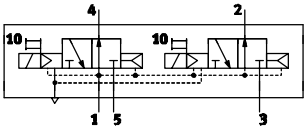
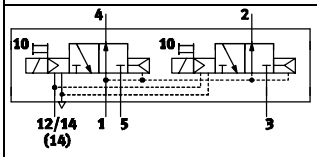
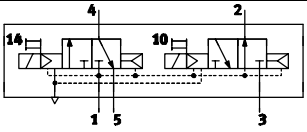
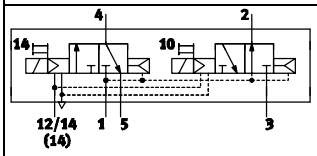
2	Signal (+) Solenoid 12
3	com (–)
4	Signal (+) Solenoid 14

Solenoid valves VSVA, ISO 15 407-1

Technical data – 2x 3/2-way valves

FESTO

Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug	Part No.	Type
	Normal position closed, internal pilot air supply	24 V DC	M8x1	**534 532**	**VSVA-B-T32C-AH-A1-1R2L**
			M12x1	**534 552**	**VSVA-B-T32C-AH-A1-1R5L**
	Normal position closed, external pilot air supply	24 V DC	M8x1	**534 522**	**VSVA-B-T32C-AZH-A1-1R2L**
			M12X1	**534 542**	**VSVA-B-T32C-AZH-A1-1R5L**
	Normal position open, internal pilot air supply	24 V DC	M8x1	**534 533**	**VSVA-B-T32U-AH-A1-1R2L**
			M12X1	**534 553**	**VSVA-B-T32U-AH-A1-1R5L**
	Normal position open, external pilot air supply	24 V DC	M8x1	**534 523**	**VSVA-B-T32U-AZH-A1-1R2L**
			M12X1	**534 543**	**VSVA-B-T32U-AZH-A1-1R5L**
	Normal position 1x closed, 1x open, internal pilot air supply	24 V DC	M8x1	**534 534**	**VSVA-B-T32H-AH-A1-1R2L**
			M12X1	**534 554**	**VSVA-B-T32H-AH-A1-1R5L**
	Normal position 1x closed, 1x open, external pilot air supply	24 V DC	M8x1	**534 524**	**VSVA-B-T32H-AZH-A1-1R2L**
			M12X1	**534 544**	**VSVA-B-T32H-AZH-A1-1R5L**

Solenoid valves MN2H, ISO 15 407-1

Technical data 5/2-way valves

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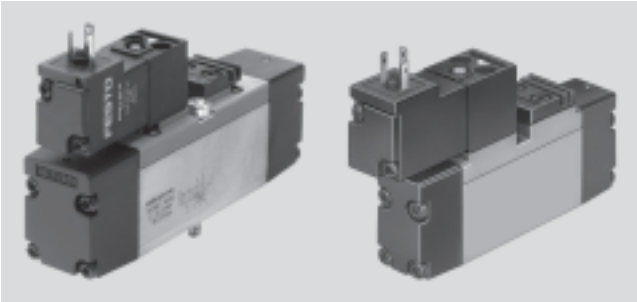
- Flow rate
  500 ... 1,000 l/min

- Voltage
  12, 24 V DC
  24, 110, 230 V AC



General technical data				
ISO size			02	01
Valve function			5/2-way, single solenoid	
Constructional design			Piston spool	
Sealing principle			Soft	
Actuation type			Electrical	
Type of reset			Mechanical or pneumatic spring	
Type of control			Piloted	
Pilot air supply			Internal or external	
Direction of flow			Non reversible	
Exhaust function			Flow control	
Manual override facility			Via tool accessory, detenting	
Type of mounting			Via through-holes	
Assembly position			Any	
Nominal size		[mm]	6	8
Standard nominal flow rate		[l/min]	500	1,000
Grid dimension		[mm]	19	27
Pneumatic connection	1, 2, 3, 4, 5		G⅛	G¼
	12, 14		M5	M5
Product weight		[g]	160	270
Noise level		[dB (A)]	75	

Operating and environmental conditions						
ISO size			02		01	
Type of reset			Pneumatic	Mechanical	Pneumatic	Mechanical
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum			
Operating pressure	Internal pilot air supply	[bar]	2 ... 10	3 ... 10	2 ... 10	3 ... 10
	External pilot air supply	[bar]	–0.9 ... +10	–0.9 ... +10	–0.9 ... +16	–0.9 ... +16
Pilot pressure		[bar]	2 ... 10	3 ... 10	2 ... 10	3 ... 10
Ambient temperature		[°C]	–10 ... +50			
Temperature of medium		[°C]	–5 ... +50			

Valve response times [ms]				
ISO size	02		01	
Type of reset	Pneumatic	Mechanical	Pneumatic	Mechanical
On	23	18	31	24
Off	27	34	43	58

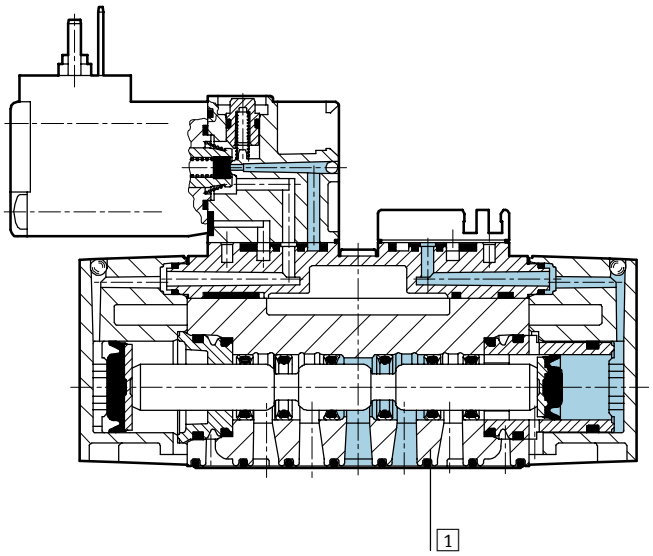
Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/2-way valves

Electrical data			
Electrical connection			Plug, square design to EN 175301-803, type C
			Central plug, round design, M12x1
Operating voltage	D.C. voltage	[V DC]	12, 24 +10%/–15%
	AC voltage	[V AC]	24, 110/230 ±10% (50 ... 60 Hz)
Coil characteristics	D.C. voltage	[W]	1.5
	AC voltage	[VA]	Pull: 3 Hold: 2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
CE symbol			73/23/EEC (low voltage)

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
	Material note	Designs free of copper and PTFE ➔ Ordering data

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/2-way valves

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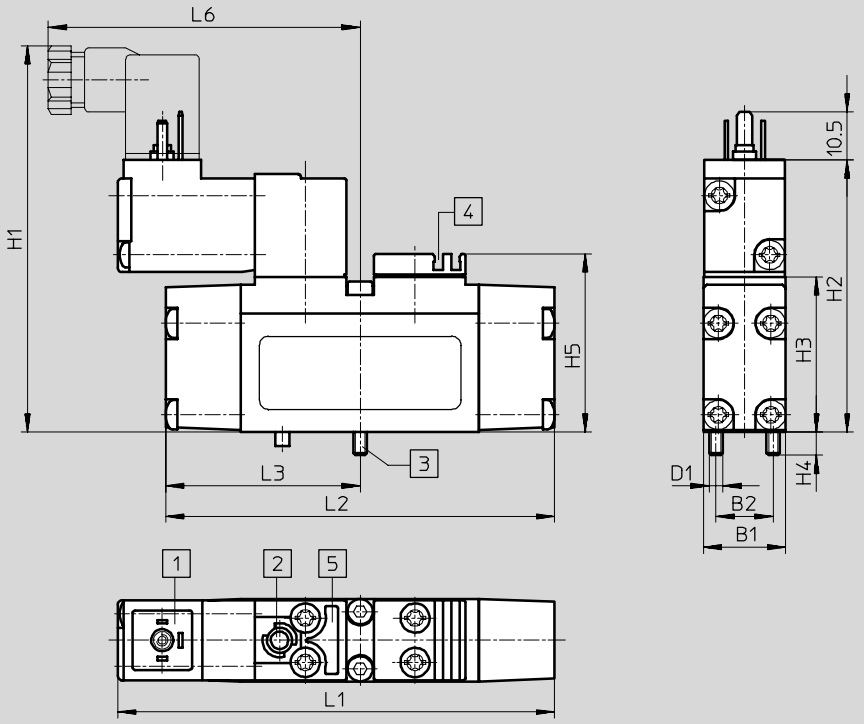
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



1 Plug socket connection pattern to EN 175301-803, type C
2 Manual override
3 Captive mounting screws
4 Slot for inscription label
5 Slot for inscription clip

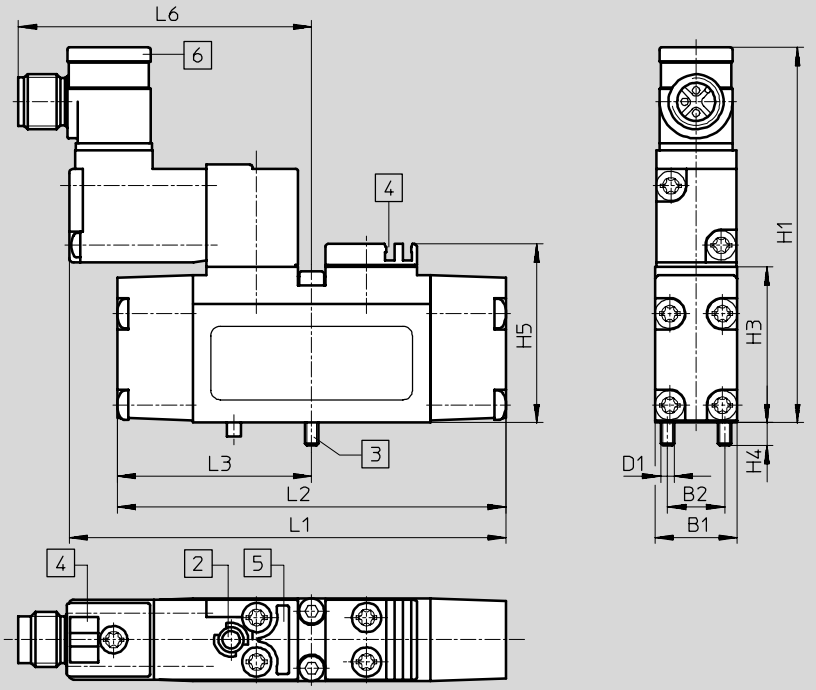
Type	B1	B2	D1	H1	H2	H3	H4	H5	L1	L2	L3	L6
ISO size 02												
MN2H-5/2-...	18	12.5	M3	92	59.5	34	5	39	95.5	85	42.5	70
MN2H-5/2-...-FR									107.5	97		
ISO size 01												
MN2H-5/2-...	26.2	19	M4	93	60.5	35	7	42	109	110	55	71
MN2H-5/2-...-FR												

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/2-way valves

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

MN2H-...-ZSR with round central plug

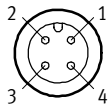


2 Manual override
3 Captive mounting screws
4 Slot for inscription label
5 Slot for inscription clip
6 LED

Type	B1	B2	D1	H1	H3	H4	H5	L1	L2	L3	L6
ISO size 02											
MN2H-5/2-...ZSR	18	12.5	M3	82	34	5	39	95.5	85	42.5	64.2
MN2H-5/2-...-FR-ZSR								107.5	97		
ISO size 01											
MN2H-5/2-...-ZSR	26.2	19	M4	85	35	7	42	109	110	55	65.2
MN2H-5/2-...-FR-ZSR											

M12 central plug – Terminal allocation

Mono connection



1 Unused
2 Unused
3 com (–)
4 Signal (+) Solenoid 14

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/2-way valves

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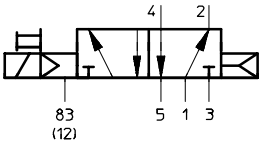
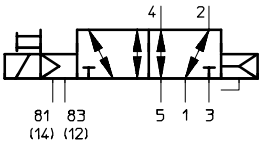
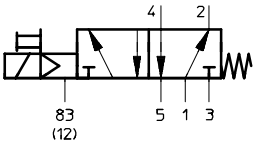
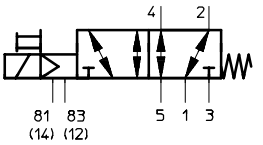
Ordering data – ISO size 02

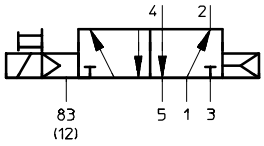
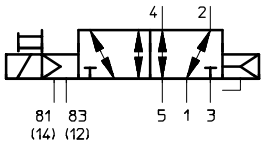
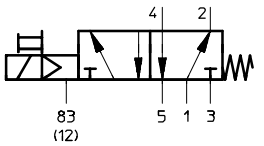
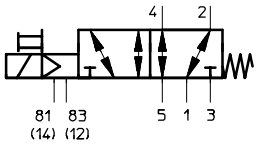
Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Pneumatic reset, internal pilot air supply	12 V DC, 24 V AC	–	**187 890**	**MN2H-5/2-02-12DCA**
		24 V DC	–	**161 088**	**MN2H-5/2-D-02**
		24 V DC	–	**184 308**	**MN2H-5/2-D-02-B[2]**
		110 V AC	–	**161 908**	**MN2H-5/2-D-02-110AC**
		230 V AC	–	**161 922**	**MN2H-5/2-D-02-230AC**
		24 V DC	■	**191 323**	**MN2H-5/2-02-ZSR**
	Pneumatic reset, external pilot air supply	12 V DC, 24 V AC	–	**187 891**	**MN2H-5/2-02-S-12DCA**
		24 V DC	–	**161 089**	**MN2H-5/2-D-02-S**
		24 V DC	–	**184 309**	**MN2H-5/2-D-02-S-B[2]**
		110 V AC	–	**161 909**	**MN2H-5/2-D-02-S-110AC**
		230 V AC	–	**161 923**	**MN2H-5/2-D-02-S-230AC**
		24 V DC	■	**191 324**	**MN2H-5/2-02-S-ZSR**
	Mechanical reset, internal pilot air supply	12 V DC, 24 V AC	–	**187 926**	**MN2H-5/2-02-FR-12DCA**
		24 V DC	–	**161 090**	**MN2H-5/2-D-02-FR**
		24 V DC	–	**184 310**	**MN2H-5/2-D-02-FR-B[2]**
		110 V AC	–	**161 910**	**MN2H-5/2-D-02-FR-110AC**
		230 V AC	–	**161 924**	**MN2H-5/2-D-02-FR-230AC**
		24 V DC	■	**191 325**	**MN2H-5/2-02-FR-ZSR**
	Mechanical reset, external pilot air supply	12 V DC, 24 V AC	–	**187 927**	**MN2H-5/2-02-FR-S-12DCA**
		24 V DC	–	**161 091**	**MN2H-5/2-D-02-FR-S**
		24 V DC	–	**184 311**	**MN2H-5/2-D-02-FR-S-B[2]**
		110 V AC	–	**161 911**	**MN2H-5/2-D-02-FR-S-110AC**
		230 V AC	–	**161 925**	**MN2H-5/2-D-02-FR-S-230AC**
		24 V DC	■	**191 326**	**MN2H-5/2-02-FR-S-ZSR**

1) Included in the scope of delivery
2) Free of copper and PTFE

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/2-way valves

Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Pneumatic reset, internal pilot air supply	12 V DC, 24 V AC	–	**187 876**	**MN2H-5/2-01-12DCA**
		24 V DC	–	**161 067**	**MN2H-5/2-D-01[2]**
		110 V AC	–	**161 880**	**MN2H-5/2-D-01-110AC**
		230 V AC	–	**161 894**	**MN2H-5/2-D-01-230AC**
		24 V DC	■	**191 309**	**MN2H-5/2-01-ZSR[2]**
	Pneumatic reset, external pilot air supply	12 V DC, 24 V AC	–	**187 877**	**MN2H-5/2-01-S-12DCA**
		24 V DC	–	**161 068**	**MN2H-5/2-D-01-S[2]**
		110 V AC	–	**161 881**	**MN2H-5/2-D-01-S-110AC**
		230 V AC	–	**161 895**	**MN2H-5/2-D-01-S-230AC**
		24 V DC	■	**191 310**	**MN2H-5/2-01-S-ZSR[2]**
	Mechanical reset, internal pilot air supply	12 V DC, 24 V AC	–	**187 878**	**MN2H-5/2-01-FR-12DCA**
		24 V DC	–	**161 069**	**MN2H-5/2-D-01-FR[2]**
		110 V AC	–	**161 882**	**MN2H-5/2-D-01-FR-110AC**
		230 V AC	–	**161 896**	**MN2H-5/2-D-01-FR-230AC**
		24 V DC	■	**191 311**	**MN2H-5/2-01-FR-ZSR[2]**
	Mechanical reset, external pilot air supply	12 V DC, 24 V AC	–	**187 879**	**MN2H-5/2-01-FR-S-12DCA**
		24 V DC	–	**161 070**	**MN2H-5/2-D-01-FR-S[2]**
		110 V AC	–	**161 883**	**MN2H-5/2-D-01-FR-S-110AC**
		230 V AC	–	**161 897**	**MN2H-5/2-D-01-FR-S-230AC**
		24 V DC	■	**191 312**	**MN2H-5/2-01-FR-S-ZSR[2]**

1) Included in the scope of delivery
2) Free of copper and PTFE

Solenoid valves JMN2H, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid

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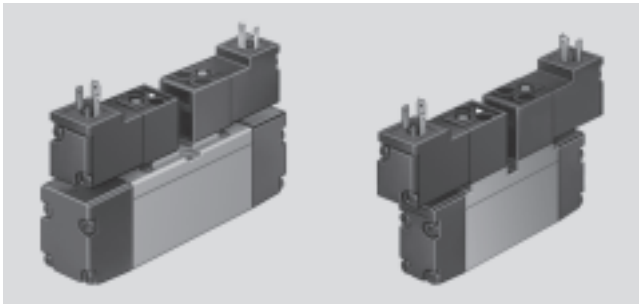
- Flow rate
  Size 01: 1,000 l/min.
  Size 02: 500 l/min

- Voltage
  12, 24 V DC
  24, 110, 230 V AC



General technical data					
ISO size			02	01	
Valve function			5/2-way, double pilot		
Constructional design			Piston spool		
Sealing principle			Soft		
Actuation type			Electrical		
Type of control			Piloted		
Pilot air supply			Internal		
Direction of flow			Non reversible		
Exhaust function			Flow control		
Manual override facility			Via tool accessory, detenting		
Type of mounting			Via through-holes		
Assembly position			Any		
Nominal size		[mm]	6	8	
Standard nominal flow rate		[l/min]	500	1,000	
Grid dimension		[mm]	19	27	
Pneumatic connection	1, 2, 3, 4, 5		G1/8	G1/4	
	12, 14		M5	M5	
Product weight		[g]	210	320	
Noise level		[dB (A)]	75		

Operating and environmental conditions				
ISO size			02	01
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum	
Operating pressure	Internal pilot air supply	[bar]	2 ... 10	2 ... 10
	External pilot air supply	[bar]	–0.9 ... +10	–0.9 ... +16
Pilot pressure		[bar]	2 ... 10	2 ... 10
Ambient temperature		[°C]	–10 ... +50	
Temperature of medium		[°C]	–5 ... +50	

Valve response times [ms]				
ISO size	02		01	
		Dominant signal at 14		Dominant signal at 14
On/changeover	–	16	–	16
Off/changeover	16	16	18	18

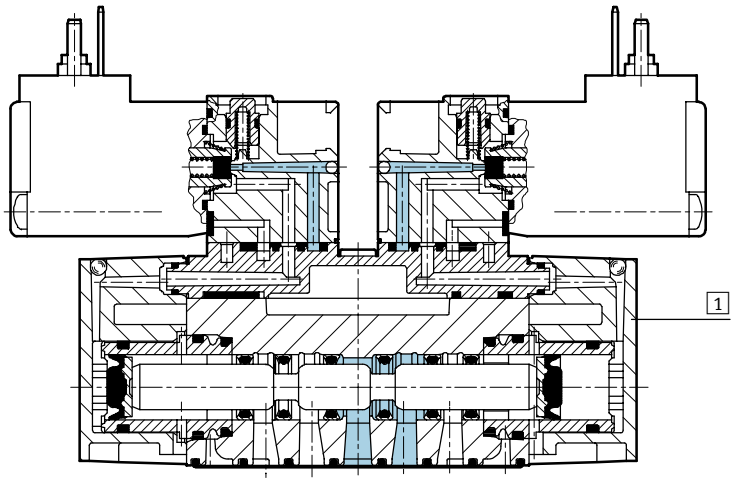
Solenoid valves JMN2H, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid

Electrical data			
Electrical connection			Plug, square design to EN 175301-803, type C
			Central plug, round design, M12x1
Operating voltage	D.C. voltage	[V DC]	12, 24 +10%/–15%
	AC voltage	[V AC]	24, 110/230 ±10% (50 ... 60 Hz)
Coil characteristics	D.C. voltage	[W]	1.5
	AC voltage	[VA]	Pull: 3 Hold: 2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
CE symbol			73/23/EEC (low voltage)

Materials

Sectional view

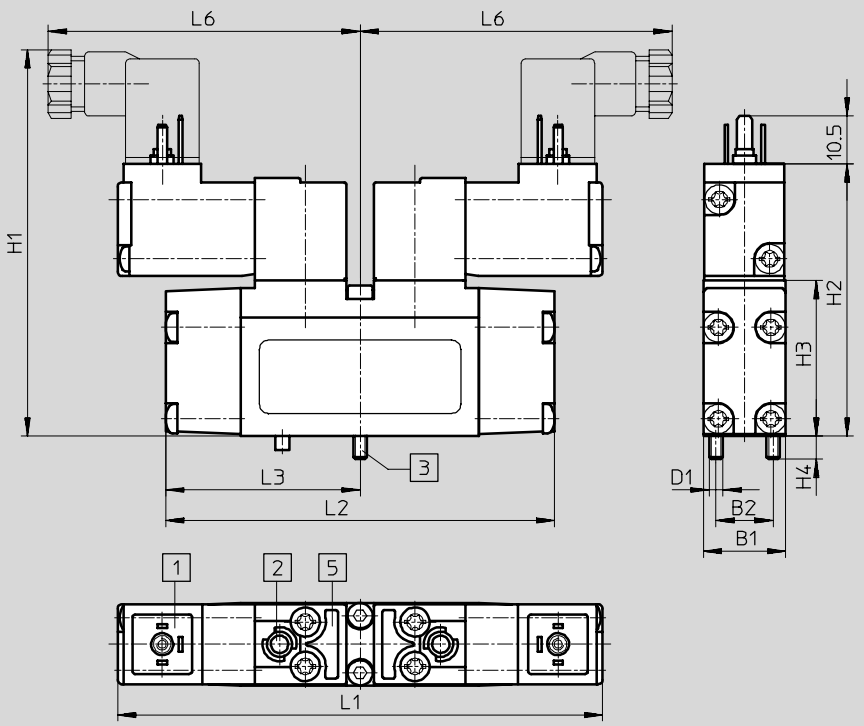


1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
	Material note	Designs free of copper and PTFE ➔ Ordering data

Solenoid valves JMN2H, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid

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



1 Plug socket connection pattern to EN 175301-803, type C
2 Manual override
3 Captive mounting screws
5 Slot for inscription clip

ISO size	B1	B2	D1	H1	H2	H3	H4	L1	L2	L3	L6
02	18	12.5	M3	92	59.5	34	5	106	85	42.5	70
01	26.2	19	M4	93	60.5	35	7	108	110	55	71

Solenoid valves JMN2H, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid

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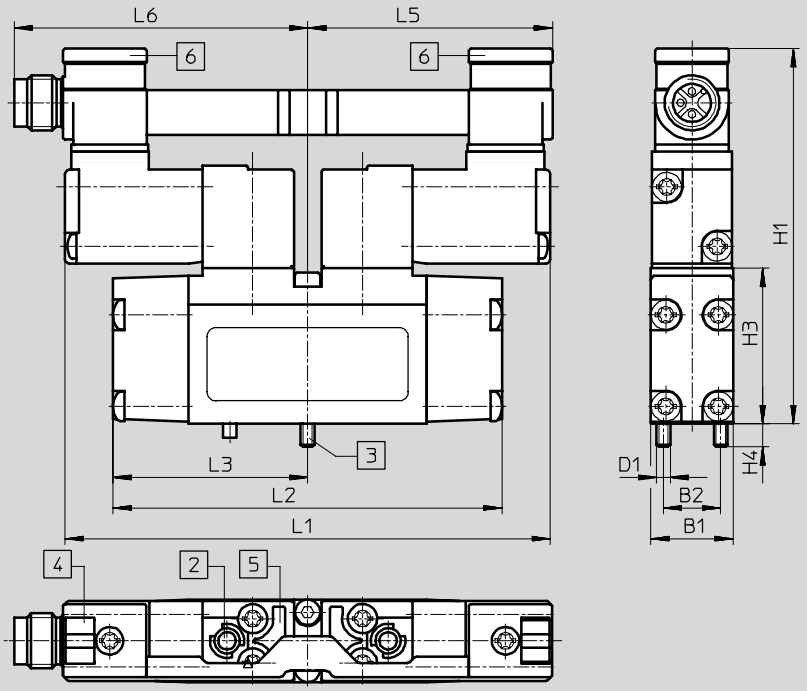
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

JMN2H/JMN2DH-...-ZSR with round central plug

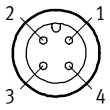


2 Manual override
3 Captive mounting screws
4 Slot for inscription label
5 Slot for inscription clip
6 LED

ISO size	B1	B2	D1	H1	H3	H4	L2	L3	L5	L6
02	18	12.5	M3	82	34	5	85	42.5	52.5	64.2
01	26.2	19	M4	85	35	7	110	55	53.5	65.2

M12 central plug – Terminal allocation

Duo connection



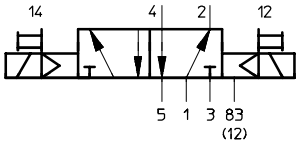
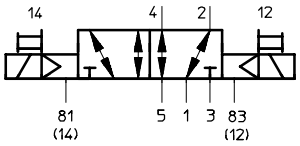
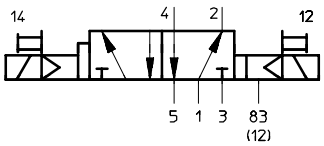
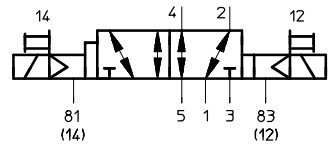
1 Unused
2 Signal (+) Solenoid 12
3 com (–)
4 Signal (+) Solenoid 14

Solenoid valves JMN2H, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid

FESTO

Ordering data – ISO size 02

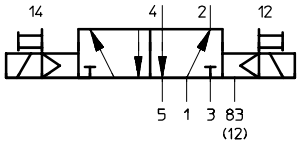
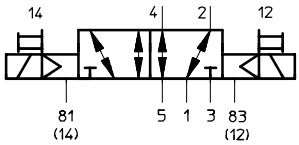
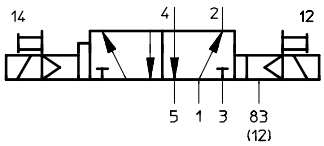
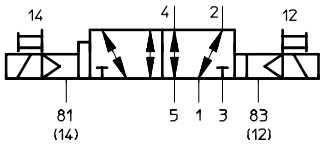
Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Internal pilot air supply	12 V DC, 24 V AC	–	**187 928**	**JMN2H-5/2-02-12DCA**
		24 V DC	–	**161 092**	**JMN2H-5/2-D-02**
		110 V AC	–	**161 912**	**JMN2H-5/2-D-02-110AC**
		230 V AC	–	**161 926**	**JMN2H-5/2-D-02-230AC**
		24 V DC	■	**191 333**	**JMN2H-5/2-02-ZSR**
	External pilot air supply	12 V DC, 24 V AC	–	**187 929**	**JMN2H-5/2-02-S-12DCA**
		24 V DC	–	**161 093**	**JMN2H-5/2-D-02-S**
		110 V AC	–	**161 913**	**JMN2H-5/2-D-02-S-110AC**
		230 V AC	–	**161 927**	**JMN2H-5/2-D-02-S-230AC**
		24 V DC	■	**191 334**	**JMN2H-5/2-02-S-ZSR**
	With dominant signal at 14, internal pilot air supply	12 V DC, 24 V AC	–	**187 930**	**JMN2DH-5/2-02-12DCA**
		24 V DC	–	**161 094**	**JMN2DH-5/2-D-02**
		110 V AC	–	**161 914**	**JMN2DH-5/2-D-02-110AC**
		230 V AC	–	**161 928**	**JMN2DH-5/2-D-02-230AC**
		24 V DC	■	**191 335**	**JMN2DH-5/2-02-ZSR**
	With dominant signal at 14, external pilot air supply	12 V DC, 24 V AC	–	**187 931**	**JMN2DH-5/2-02-S-12DCA**
		24 V DC	–	**161 095**	**JMN2DH-5/2-D-02-S**
		110 V AC	–	**161 915**	**JMN2DH-5/2-D-02-S-110AC**
		230 V AC	–	**161 929**	**JMN2DH-5/2-D-02-S-230AC**
		24 V DC	■	**191 336**	**JMN2DH-5/2-02-S-ZSR**

1) Included in the scope of delivery

Solenoid valves JMN2H, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid

Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Internal pilot air supply	12 V DC, 24 V AC	–	**187 880**	**JMN2H-5/2-01-12DCA**
		24 V DC	–	**161 071**	**JMN2H-5/2-D-01[2]**
		110 V AC	–	**161 884**	**JMN2H-5/2-D-01-110AC**
		230 V AC	–	**161 898**	**JMN2H-5/2-D-01-230AC**
		24 V DC	■	**191 319**	**JMN2H-5/2-01-ZSR[2]**
	External pilot air supply	12 V DC, 24 V AC	–	**187 881**	**JMN2H-5/2-01-S-12DCA**
		24 V DC	–	**161 072**	**JMN2H-5/2-D-01-S[2]**
		110 V AC	–	**161 885**	**JMN2H-5/2-D-01-S-110AC**
		230 V AC	–	**161 899**	**JMN2H-5/2-D-01-S-230AC**
		24 V DC	■	**191 320**	**JMN2H-5/2-01-S-ZSR[2]**
	With dominant signal at 14, internal pilot air supply	12 V DC, 24 V AC	–	**187 882**	**JMN2DH-5/2-01-12DCA**
		24 V DC	–	**161 073**	**JMN2DH-5/2-D-01[2]**
		110 V AC	–	**161 886**	**JMN2DH-5/2-D-01-110AC**
		230 V AC	–	**161 900**	**JMN2DH-5/2-D-01-230AC**
		24 V DC	■	**191 321**	**JMN2DH-5/2-01-ZSR[2]**
	With dominant signal at 14, external pilot air supply	12 V DC, 24 V AC	–	**187 883**	**JMN2DH-5/2-01-S-12DCA**
		24 V DC	–	**161 074**	**JMN2DH-5/2-D-01-S[2]**
		110 V AC	–	**161 887**	**JMN2DH-5/2-D-01-S-110AC**
		230 V AC	–	**161 901**	**JMN2DH-5/2-D-01-S-230AC**
		24 V DC	■	**191 322**	**JMN2DH-5/2-01-S-ZSR[2]**

1) Included in the scope of delivery
2) Free of copper and PTFE

Solenoid valves VSVA, ISO 15 407-1

Technical data 5/2-way valves, single solenoid

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Flow rate
1,000 l/min

Voltage
24 V DC

General technical data			
ISO size			01
Valve function			5/2-way, single solenoid
Constructional design			Piston spool
Sealing principle			Soft
Actuation type			Electrical
Type of reset			Mechanical or pneumatic spring
Type of control			Piloted
Pilot air supply			Internal or external
Direction of flow			Non reversible
Exhaust function			Flow control
Manual override facility			Resetting
Type of mounting			Via through-holes
Assembly position			Any
Nominal size		[mm]	9
Standard nominal flow rate		[l/min]	1,000
Grid dimension		[mm]	27
Corrosion resistance class		CRC	2
Pneumatic connection	1, 2, 3, 4, 5		G¼
	12, 14		M5
Product weight		[g]	270

Operating and environmental conditions			
ISO size			01
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum
Operating pressure	Internal pilot air supply	[bar]	3 ... 8
	External pilot air supply	[bar]	–0.9 ... +16
Pilot pressure		[bar]	3 ... 8
Ambient temperature		[°C]	–5 ... +50
Temperature of medium		[°C]	–5 ... +50

Valve response times [ms]		
ISO size	01	
Type of reset	Pneumatic	Mechanical
On	25	20
Off	40	52

Solenoid valves VSVA, ISO 15 407-1

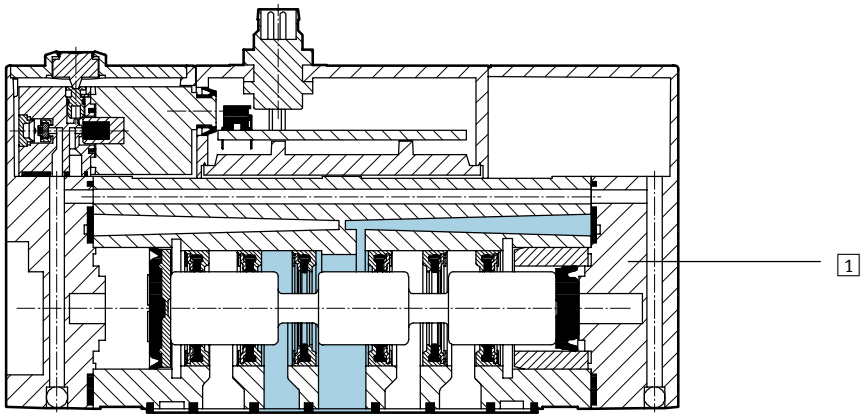
Technical data – 5/2-way valves

FESTO

Electrical data			
Electrical connection according to IEC 60 947-5-2			Central plug, round design, M8x1
			Central plug, round design, M12x1
Coil characteristics	Voltage	[V DC]	21.6...26.4
	Power	[W]	2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
Protective circuit and LED			Integrated in the valve
CE symbol			89/336/EEC (EMC)

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
	Material note	Free of copper and PTFE

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/2-way valves

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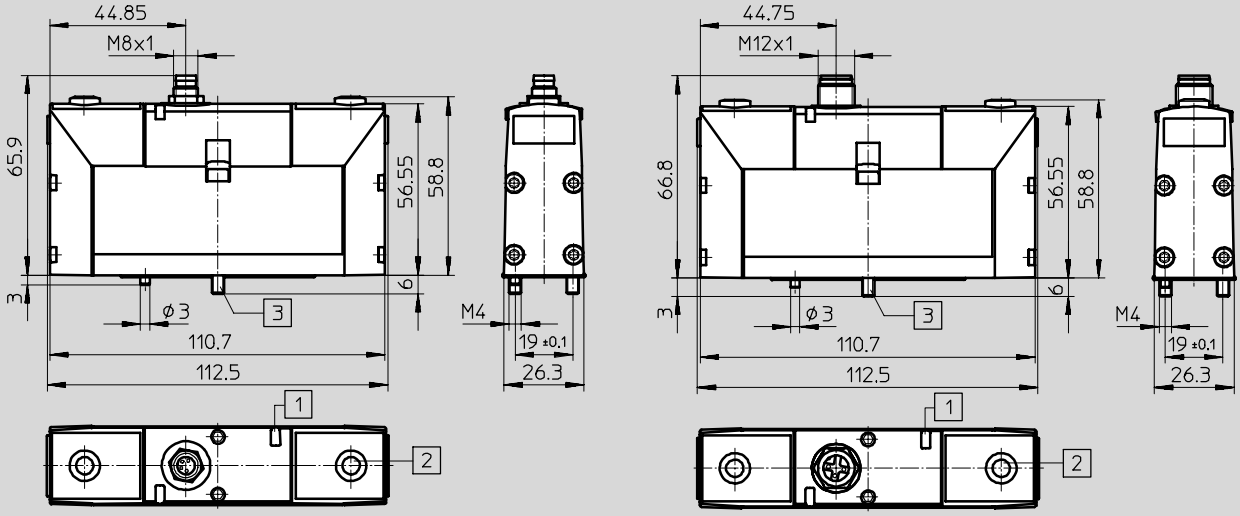
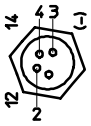
Dimensions

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



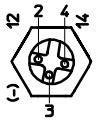
1 Light emitting diode (LED)
2 Manual override
3 Captive mounting screws

M8x1– Terminal allocation



1	Unused
2	Unused
3	com (–)
4	Signal (+) Solenoid 14

M12x1 – Terminal allocation



2	Unused
3	com (–)
4	Signal (+) Solenoid 14

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/2-way valves

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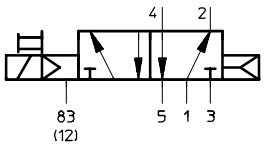
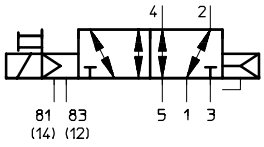
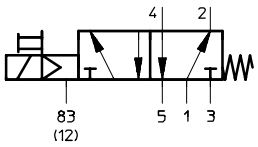
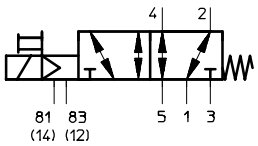
Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug	Part No.	Type
	Pneumatic reset, internal pilot air supply	24 V DC	M8x1	**534 535**	**VSVA-B-M52-AH-A1-1R2L**
			M12x1	**534 555**	**VSVA-B-M52-AH-A1-1R5L**
	Pneumatic reset, external pilot air supply	24 V DC	M8x1	**534 525**	**VSVA-B-M52-AZH-A1-1R2L**
			M12x1	**534 545**	**VSVA-B-M52-AZH-A1-1R5L**
	Mechanical reset, internal pilot air supply	24 V DC	M8x1	**534 536**	**VSVA-B-M52-MH-A1-1R2L**
			M12x1	**534 556**	**VSVA-B-M52-MH-A1-1R5L**
	Mechanical reset, external pilot air supply	24 V DC	M8x1	**534 526**	**VSVA-B-M52-MZH-A1-1R2L**
			M12x1	**534 546**	**VSVA-B-M52-MZH-A1-1R5L**

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid valves

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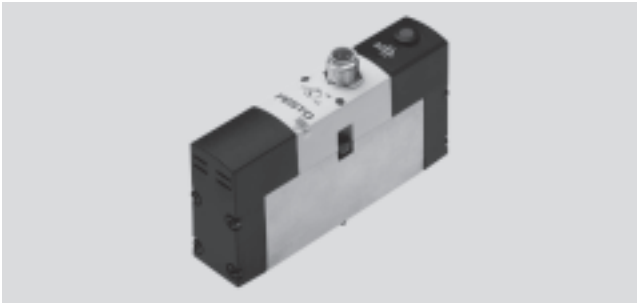
Flow rate
1,000 l/min

Voltage
24 V DC



General technical data			
ISO size			01
Valve function			5/2-way, double pilot
Constructional design			Piston spool
Sealing principle			Soft
Actuation type			Electrical
Type of control			Piloted
Pilot air supply			Internal or external
Direction of flow			Non reversible
Exhaust function			Flow control
Manual override facility			Resetting
Type of mounting			Via through-holes
Assembly position			Any
Nominal size		[mm]	9
Standard nominal flow rate		[l/min]	1,000
Grid dimension		[mm]	27
Corrosion resistance class		CRC	2
Pneumatic connection	1, 2, 3, 4, 5		G¼
	12, 14		M5
Product weight		[g]	270

Operating and environmental conditions			
ISO size			01
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum
Operating pressure	Internal pilot air supply	[bar]	3 ... 8
	External pilot air supply	[bar]	–0.9 ... +16
Pilot pressure		[bar]	3 ... 8
Ambient temperature		[°C]	–5 ... +50
Temperature of medium		[°C]	–5 ... +50

Valve response times [ms]		
ISO size	01	
		Dominant signal at 14
Changeover	15	25

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid valves

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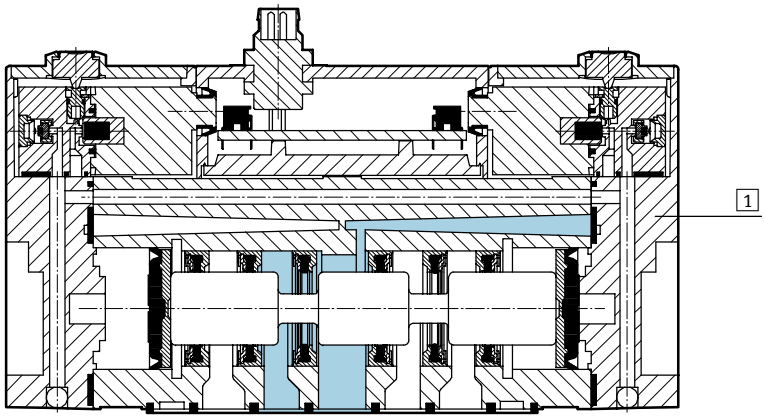
Electrical data			
Electrical connection according to IEC 60 947-5-2			Central plug, round design, M8x1
			Central plug, round design, M12x1
Coil characteristics	Voltage	[V DC]	21.6...26.4
	Power	[W]	2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
Protective circuit and LED			Integrated in the valve
CE symbol			89/336/EEC (EMC)

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
	Material note	Free of copper and PTFE

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid valves

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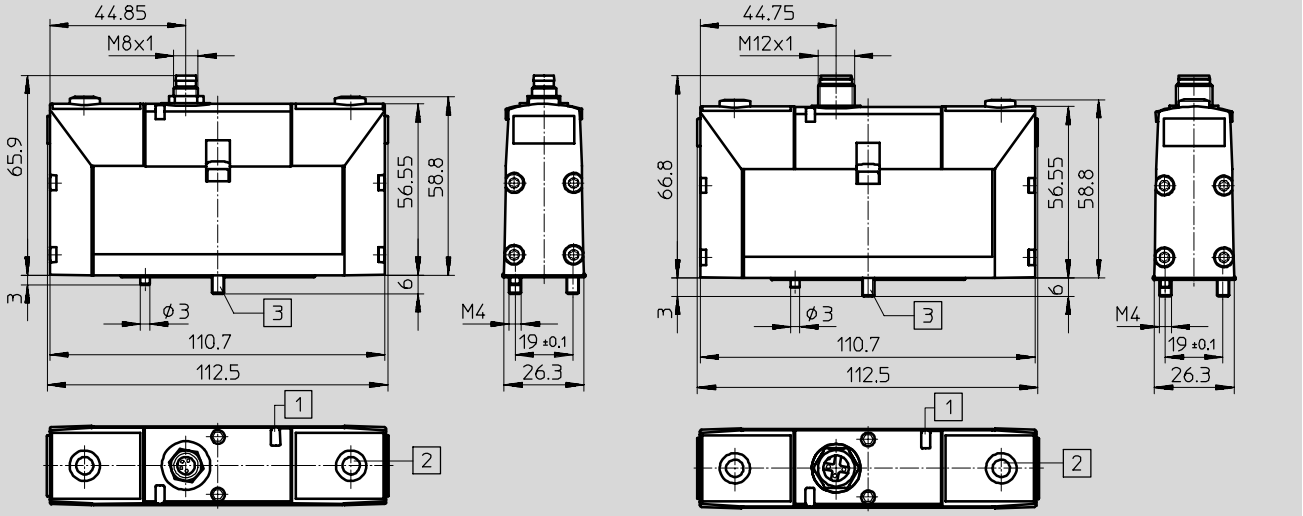
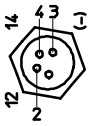
Dimensions

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



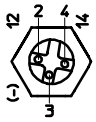
1 Light emitting diode (LED)
2 Manual override
3 Captive mounting screws

M8x1– Terminal allocation



1	Unused
2	Signal (+) Solenoid 12
3	com (–)
4	Signal (+) Solenoid 14

M12x1 – Terminal allocation



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

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/2-way valves, double solenoid valves

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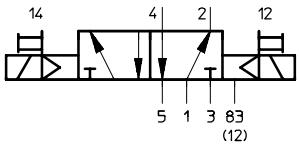
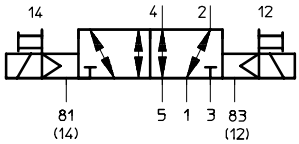
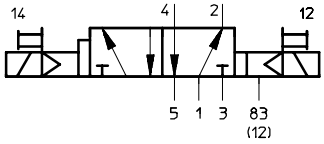
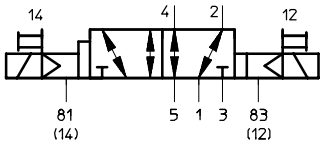
Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug	Part No.	Type
	Internal pilot air supply	24 V DC	M8x1	**534 537**	**VSVA-B-B52-H-A1-1R2L**
			M12x1	**534 557**	**VSVA-B-B52-H-A1-1R5L**
	External pilot air supply	24 V DC	M8x1	**534 527**	**VSVA-B-B52-ZH-A1-1R2L**
			M12x1	**534 547**	**VSVA-B-B52-ZH-A1-1R5L**
	With dominant signal at 14, internal pilot air supply	24 V DC	M8x1	**534 538**	**VSVA-B-D52-H-A1-1R2L**
			M12x1	**534 558**	**VSVA-B-D52-H-A1-1R5L**
	With dominant signal at 14, external pilot air supply	24 V DC	M8x1	**534 528**	**VSVA-B-D52-ZH-A1-1R2L**
			M12x1	**534 548**	**VSVA-B-D52-ZH-A1-1R5L**

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/3-way valves

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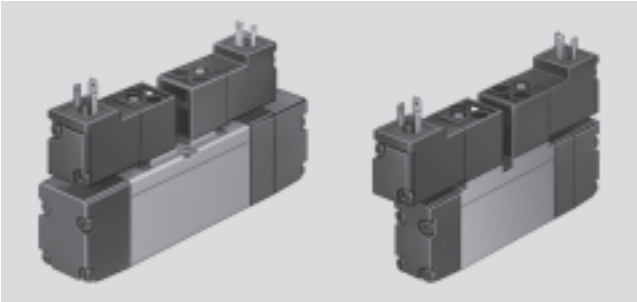
- Flow rate
  500 … 1,000 l/min

- Voltage
  12, 24 V DC
  24, 110, 230 V AC



General technical data				
ISO size			02	01
Valve function			5/3-way, single solenoid	
Constructional design			Piston spool	
Sealing principle			Soft	
Actuation type			Electrical	
Type of reset			Mechanical spring	
Type of control			Piloted	
Pilot air supply			Internal	
Direction of flow			Non reversible	
Exhaust function			Flow control	
Manual override facility			Via tool accessory, detenting	
Type of mounting			Via through-holes	
Assembly position			Any	
Nominal size		[mm]	6	8
Standard nominal flow rate		[l/min]	500	1,000
Grid dimension		[mm]	19	27
Pneumatic connection	1, 2, 3, 4, 5		G⅛	G¼
	12, 14		M5	M5
Product weight		[g]	220	340
Noise level		[dB (A)]	75	

Operating and environmental conditions				
ISO size			02	01
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum	
Operating pressure	Internal pilot air supply	[bar]	3 … 10	3 … 10
	External pilot air supply	[bar]	–0.9 … +10	–0.9 … 16
Pilot pressure		[bar]	3 … 10	3 … 10
Ambient temperature		[°C]	–10 … +50	
Temperature of medium		[°C]	–5 … +50	

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/3-way valves

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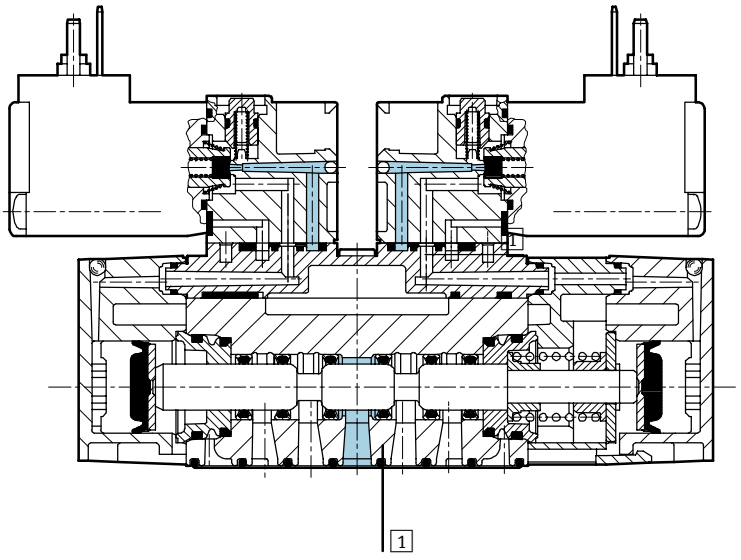
Valve response times [ms]			
ISO size		02	01
Closed	On	17	23
	Off	22	52
Exhausted	On	18	23
	Off	28	52
Pressurised	On	18	23
	Off	30	52

Electrical data			
Electrical connection	Construction		Plug, square design to EN 175301-803, type C
			Central plug, round design, M12x1
Operating voltage	D.C. voltage	[V DC]	12, 24 +10 %/–15 %
	AC voltage	[V AC]	24, 110/230 ±10 % (50 ... 60 Hz)
Coil characteristics	D.C. voltage	[W]	1.5
	AC voltage	[VA]	Pull: 3 Hold: 2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
CE certification			In accordance with EU Directive 73/23/EEC

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
	Material note	Designs free of copper and PTFE ➔ Ordering data

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/3-way valves

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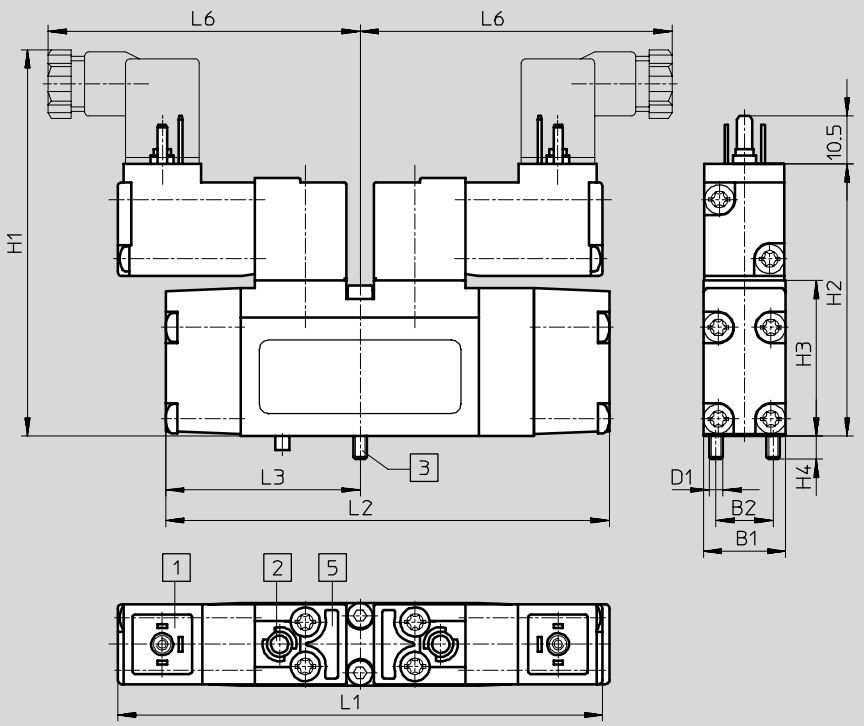
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



1 Plug socket connection pattern to EN 175301-803, type C
2 Manual override
3 Captive mounting screws
5 Slot for inscription clip

ISO size	B1	B2	D1	H1	H2	H3	H4	L1	L2	L3	L6
02	18	12.5	M3	92	59.5	34	5	106	97	42.5	70
01	26.2	19	M4	93	60.5	35	7	108	124	55	71

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/3-way valves

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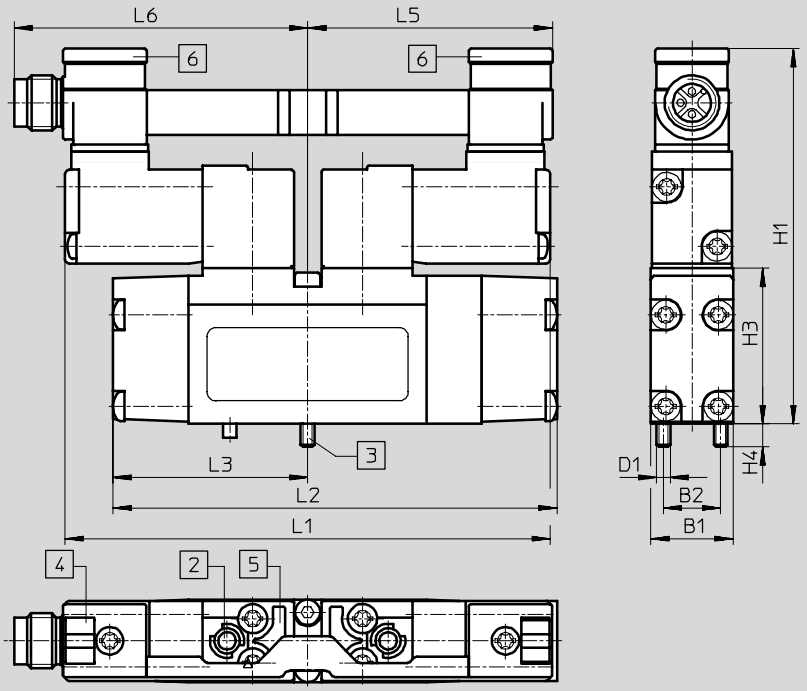
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**

MN2H-...-ZSR with round central plug

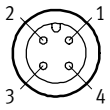


2 Manual override
3 Captive mounting screws
4 Slot for inscription label
5 Slot for inscription clip
6 LED

ISO size	B1	B2	D1	H1	H3	H4	L2	L3	L4	L6
02	18	12.5	M3	82	34	5	97	42.5	52.5	64.2
01	26.2	19	M4	85	35	7	124	55	53.5	65.2

M12 central plug – Terminal allocation

Duo connection



1 Unused
2 Signal (+) Solenoid 12
3 com (–)
4 Signal (+) Solenoid 14

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/3-way valves

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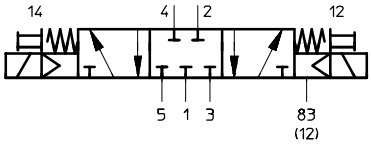
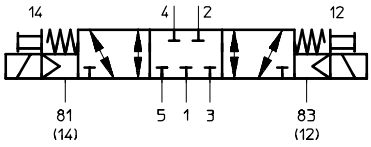
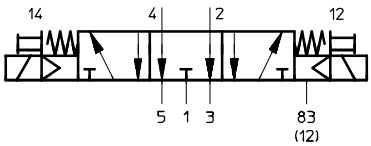
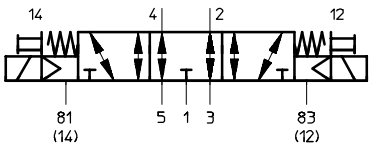
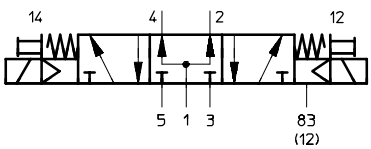
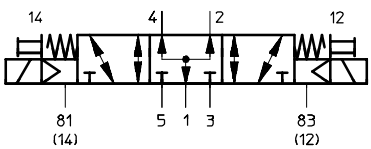
Ordering data – ISO size 02

Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Normally closed, internal pilot air supply	12 V DC, 24 V AC	–	**187 932**	**MN2H-5/3G-02-12DCA**
		24 V DC	–	**161 096**	**MN2H-5/3G-D-02**
		24 V DC	–	**184 316**	**MN2H-5/3G-D-02-B[2]**
		110 V AC	–	**161 916**	**MN2H-5/3G-D-02-110AC**
		230 V AC	–	**161 930**	**MN2H-5/3G-D-02-230AC**
		24 V DC	■	**191 327**	**MN2H-5/3G-02-ZSR**
	Normally closed, external pilot air supply	12 V DC, 24 V AC	–	**187 933**	**MN2H-5/3G-02-S-12DCA**
		24 V DC	–	**161 097**	**MN2H-5/3G-D-02-S**
		24 V DC	–	**184 317**	**MN2H-5/3G-D-02-S-B[2]**
		230 V AC	–	**161 917**	**MN2H-5/3G-D-02-S-110AC**
		230 V AC	–	**161 931**	**MN2H-5/3G-D-02-S-230AC**
		24 V DC	■	**191 328**	**MN2H-5/3G-02-S-ZSR**
	Normally exhausted, internal pilot air supply	12 V DC, 24 V AC	–	**187 934**	**MN2H-5/3E-02-12DCA**
		24 V DC	–	**161 098**	**MN2H-5/3E-D-02**
		24 V DC	–	**184 314**	**MN2H-5/3E-D-02-B[2]**
		110 V AC	–	**161 918**	**MN2H-5/3E-D-02-110AC**
		230 V AC	–	**161 932**	**MN2H-5/3E-D-02-230AC**
		24 V DC	■	**191 329**	**MN2H-5/3E-02-ZSR**
	Normally exhausted, external pilot air supply	12 V DC, 24 V AC	–	**187 935**	**MN2H-5/3E-02-S-12DCA**
		24 V DC	–	**161 099**	**MN2H-5/3E-D-02-S**
		24 V DC	–	**184 315**	**MN2H-5/3E-D-02-S-B[2]**
		110 V AC	–	**161 919**	**MN2H-5/3E-D-02-S-110AC**
		230 V AC	–	**161 933**	**MN2H-5/3E-D-02-S-230AC**
		24 V DC	■	**191 330**	**MN2H-5/3E-02-S-ZSR**
	Normally pressurised, internal pilot air supply	12 V DC, 24 V AC	–	**187 936**	**MN2H-5/3B-02-12DCA**
		24 V DC	–	**161 100**	**MN2H-5/3B-D-02**
		24 V DC	–	**184 312**	**MN2H-5/3B-D-02-B[2]**
		110 V AC	–	**161 920**	**MN2H-5/3B-D-02-110AC**
		230 V AC	–	**161 934**	**MN2H-5/3B-D-02-230AC**
		24 V DC	■	**191 331**	**MN2H-5/3B-02-ZSR**
	Normally pressurised, external pilot air supply	12 V DC, 24 V AC	–	**187 937**	**MN2H-5/3B-02-S-12DCA**
		24 V DC	–	**161 101**	**MN2H-5/3B-D-02-S**
		24 V DC	–	**184 313**	**MN2H-5/3B-D-02-S-B[2]**
		110 V AC	–	**161 921**	**MN2H-5/3B-D-02-S-110AC**
		230 V AC	–	**161 935**	**MN2H-5/3B-D-02-S-230AC**
		24 V DC	■	**191 332**	**MN2H-5/3B-02-S-ZSR**

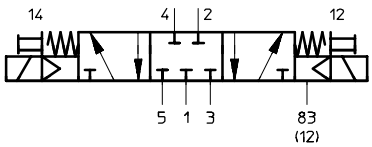
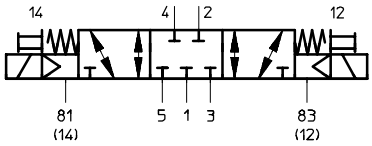
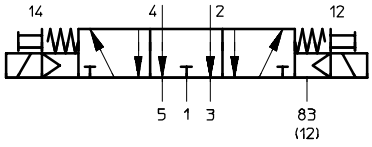
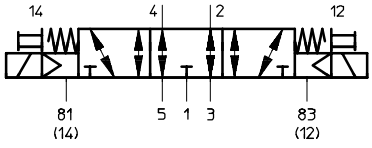
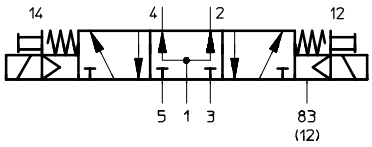
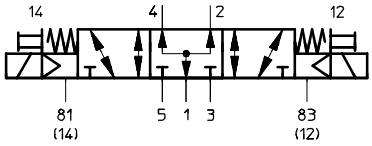
1) Included in the scope of delivery
2) Free of copper and PTFE

Solenoid valves MN2H, ISO 15 407-1

Technical data – 5/3-way valves

FESTO

Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug[1]	Part No.	Type
	Normally closed, internal pilot air supply	12 V DC, 24 V AC	–	**187 884**	**MN2H-5/3G-01-12DCA**
		24 V DC	–	**161 075**	**MN2H-5/3G-D-01[2]**
		110 V AC	–	**161 888**	**MN2H-5/3G-D-01-110AC**
		230 V AC	–	**161 902**	**MN2H-5/3G-D-01-230AC**
		24 V DC	■	**191 313**	**MN2H-5/3G-01-ZSR[2]**
	Normally closed, external pilot air supply	12 V DC, 24 V AC	–	**187 885**	**MN2H-5/3G-01-S-12DCA**
		24 V DC	–	**161 076**	**MN2H-5/3G-D-01-S[2]**
		110 V AC	–	**161 889**	**MN2H-5/3G-D-01-S-110AC**
		230 V AC	–	**161 903**	**MN2H-5/3G-D-01-S-230AC**
		24 V DC	■	**191 314**	**MN2H-5/3G-01-S-ZSR[2]**
	Normally exhausted, internal pilot air supply	12 V DC, 24 V AC	–	**187 886**	**MN2H-5/3E-01-12DCA**
		24 V DC	–	**161 077**	**MN2H-5/3E-D-01[2]**
		110 V AC	–	**161 890**	**MN2H-5/3E-D-01-110AC**
		230 V AC	–	**161 904**	**MN2H-5/3E-D-01-230AC**
		24 V DC	■	**191 315**	**MN2H-5/3E-01-ZSR[2]**
	Normally exhausted, external pilot air supply	12 V DC, 24 V AC	–	**187 887**	**MN2H-5/3E-01-S-12DCA**
		24 V DC	–	**161 078**	**MN2H-5/3E-D-01-S[2]**
		110 V AC	–	**161 891**	**MN2H-5/3E-D-01-S-110AC**
		230 V AC	–	**161 905**	**MN2H-5/3E-D-01-S-230AC**
		24 V DC	■	**191 316**	**MN2H-5/3E-01-S-ZSR[2]**
	Normally pressurised, internal pilot air supply	12 V DC, 24 V AC	–	**187 888**	**MN2H-5/3B-01-12DCA**
		24 V DC	–	**161 079**	**MN2H-5/3B-D-01[2]**
		110 V AC	–	**161 892**	**MN2H-5/3B-D-01-110AC**
		230 V AC	–	**161 906**	**MN2H-5/3B-D-01-230AC**
		24 V DC	■	**191 317**	**MN2H-5/3B-01-ZSR[2]**
	Normally pressurised, external pilot air supply	12 V DC, 24 V AC	–	**187 889**	**MN2H-5/3B-01-S-12DCA**
		24 V DC	–	**161 080**	**MN2H-5/2-D-01-S[2]**
		110 V AC	–	**161 893**	**MN2H-5/3B-D-01-S-110AC**
		230 V AC	–	**161 907**	**MN2H-5/3B-D-01-S-230AC**
		24 V DC	■	**191 318**	**MN2H-5/3B-01-S-ZSR[2]**

1) Included in the scope of delivery
2) Free of copper and PTFE

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/3-way valves

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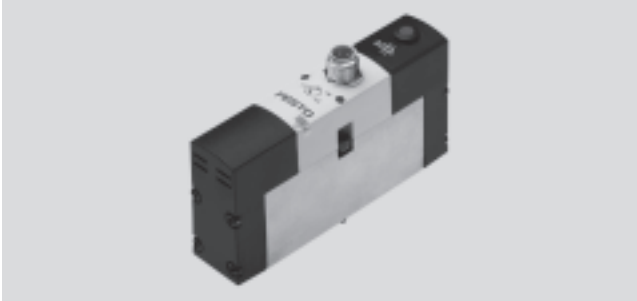
Flow rate
1,000 l/min

Voltage
24 V DC



General technical data			
ISO size			01
Valve function			5/3-way, single solenoid
Constructional design			Piston spool
Sealing principle			Soft
Actuation type			Electrical
Type of reset			Mechanical spring
Type of control			Piloted
Pilot air supply			Internal or external
Direction of flow			Non reversible
Exhaust function			Flow control
Manual override facility			Resetting
Type of mounting			Via through-holes
Assembly position			Any
Nominal size		[mm]	9
Standard nominal flow rate		[l/min]	1,000
Grid dimension		[mm]	27
Corrosion resistance class		CRC	2
Pneumatic connection	1, 2, 3, 4, 5		G¼
	12, 14		M5
Product weight		[g]	270

Operating and environmental conditions			
ISO size			01
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum
Operating pressure	Internal pilot air supply	[bar]	3 ... 8
	External pilot air supply	[bar]	–0.9 ... +16
Pilot pressure		[bar]	3 ... 8
Ambient temperature		[°C]	–5 ... +50
Temperature of medium		[°C]	–5 ... +50

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/3-way valves

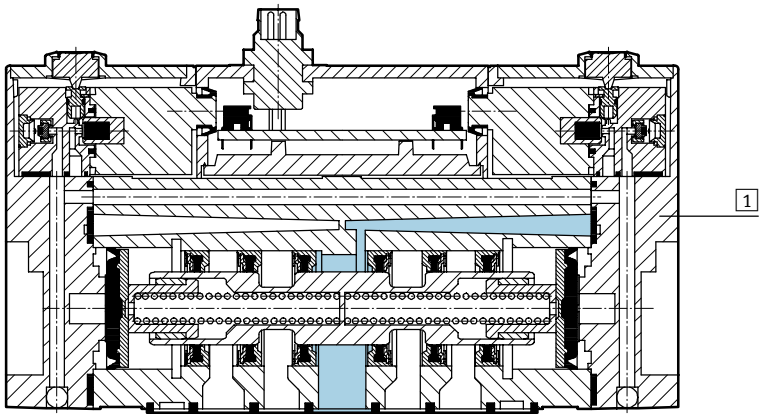
FESTO

Valve response times [ms]		
ISO size		01
Closed	On	20
	Off	52
Exhausted	On	20
	Off	52
Pressurised	On	20
	Off	52

Electrical data			
Electrical connection according to IEC 60 947-5-2			Central plug, round design, M8x1
			Central plug, round design, M12x1
Coil characteristics	Voltage	[V DC]	21.6...26.4
	Power	[W]	2.4
Protection class to EN 60 529			IP65 (in combination with plug socket)
Protective circuit and LED			Integrated in the valve
CE symbol			89/336/EEC (EMC)

Materials

Sectional view



1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber
	Material note	Free of copper and PTFE

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/3-way valves

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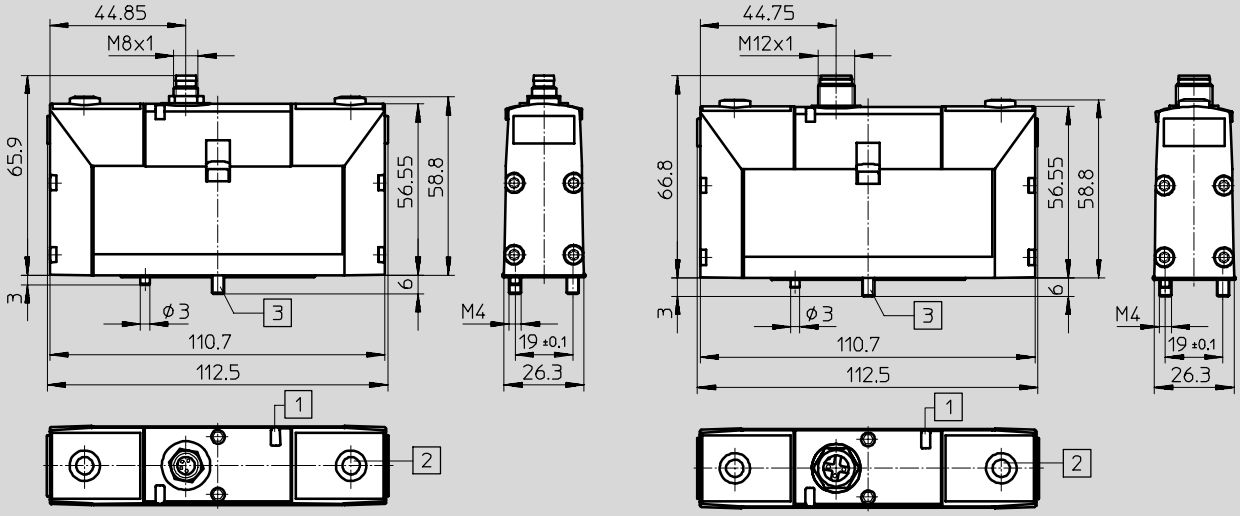
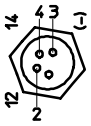
Dimensions

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



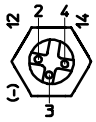
1 Light emitting diode (LED)
2 Manual override
3 Captive mounting screws

M8x1– Terminal allocation



1	Unused
2	Unused
3	com (–)
4	Signal (+) Solenoid 14

M12x1 – Terminal allocation



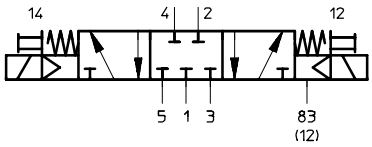
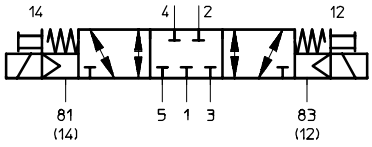
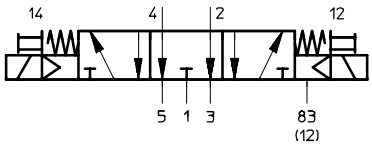
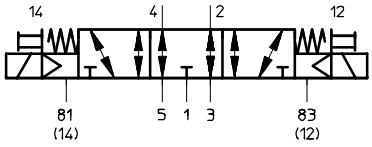
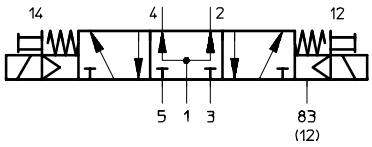
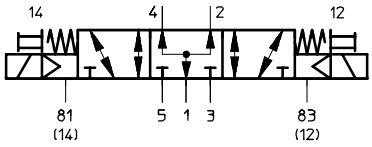
2	Unused
3	com (–)
4	Signal (+) Solenoid 14

Solenoid valves VSVA, ISO 15 407-1

Technical data – 5/3-way valves

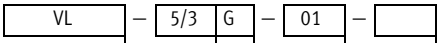
FESTO

Ordering data – ISO size 01

Circuit symbol	Description	Voltage	Central plug	Part No.	Type
	Normally position closed, internal pilot air supply	24 V DC	M8x1	**534 539**	**VSVA-B-P53C-H-A1-1R2L**
			M12x1	**534 559**	**VSVA-B-P53C-H-A1-1R5L**
	Normally position closed, external pilot air supply	24 V DC	M8x1	**534 529**	**VSVA-B-P53C-ZH-A1-1R2L**
			M12x1	**534 549**	**VSVA-B-P53C-ZH-A1-1R5L**
	Normally position exhausting, internal pilot air supply	24 V DC	M8x1	**534 540**	**VSVA-B-P53E-H-A1-1R2L**
			M12x1	**534 560**	**VSVA-B-P53E-H-A1-1R5L**
	Normally position exhausting, external pilot air supply	24 V DC	M8x1	**534 530**	**VSVA-B-P53E-ZH-A1-1R2L**
			M12x1	**534 550**	**VSVA-B-P53E-ZH-A1-1R5L**
	Normally position pressurized, internal pilot air supply	24 V DC	M8x1	**534 541**	**VSVA-B-P53U-H-A1-1R2L**
			M12x1	**534 561**	**VSVA-B-P53U-H-A1-1R5L**
	Normally position pressurising, external pilot air supply	24 V DC	M8x1	**534 531**	**VSVA-B-P53C-ZH-A1-1R2L**
			M12x1	**534 551**	**VSVA-B-P53U-ZH-A1-1R5L**

Pneumatic valves, ISO 15 407-1

Type code



Type	
VL	Single pilot
J	Double pilot
JD	Double pilot, with dominant signal

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

Normal position	
G	Closed
E	Exhausted
B	Pressurised

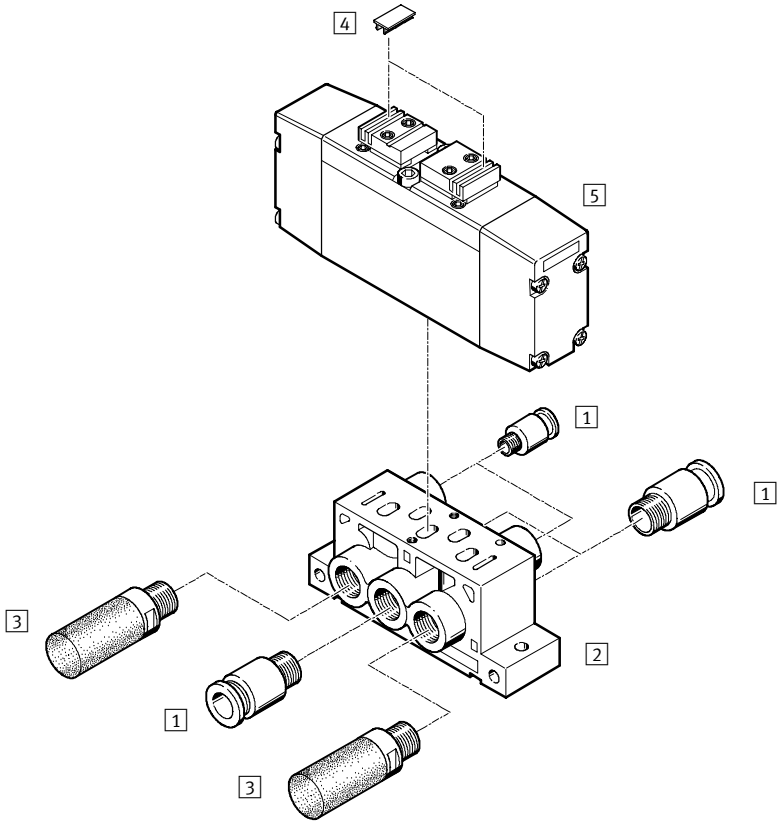
Size	
02	ISO size 02
D-02	ISO size 02
01	ISO size 01
D-01	ISO size 01

Type of reset	
FR	Mechanical spring
	Pneumatic spring

Pneumatic valves, ISO 15 407-1

Peripherals overview

Individual mounting

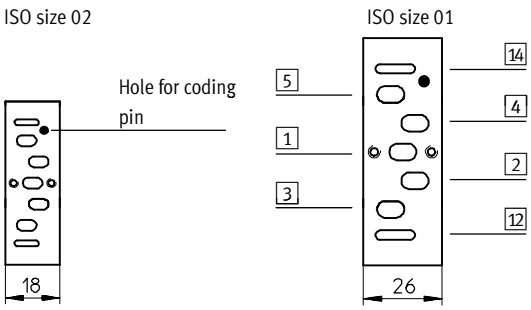


Accessories

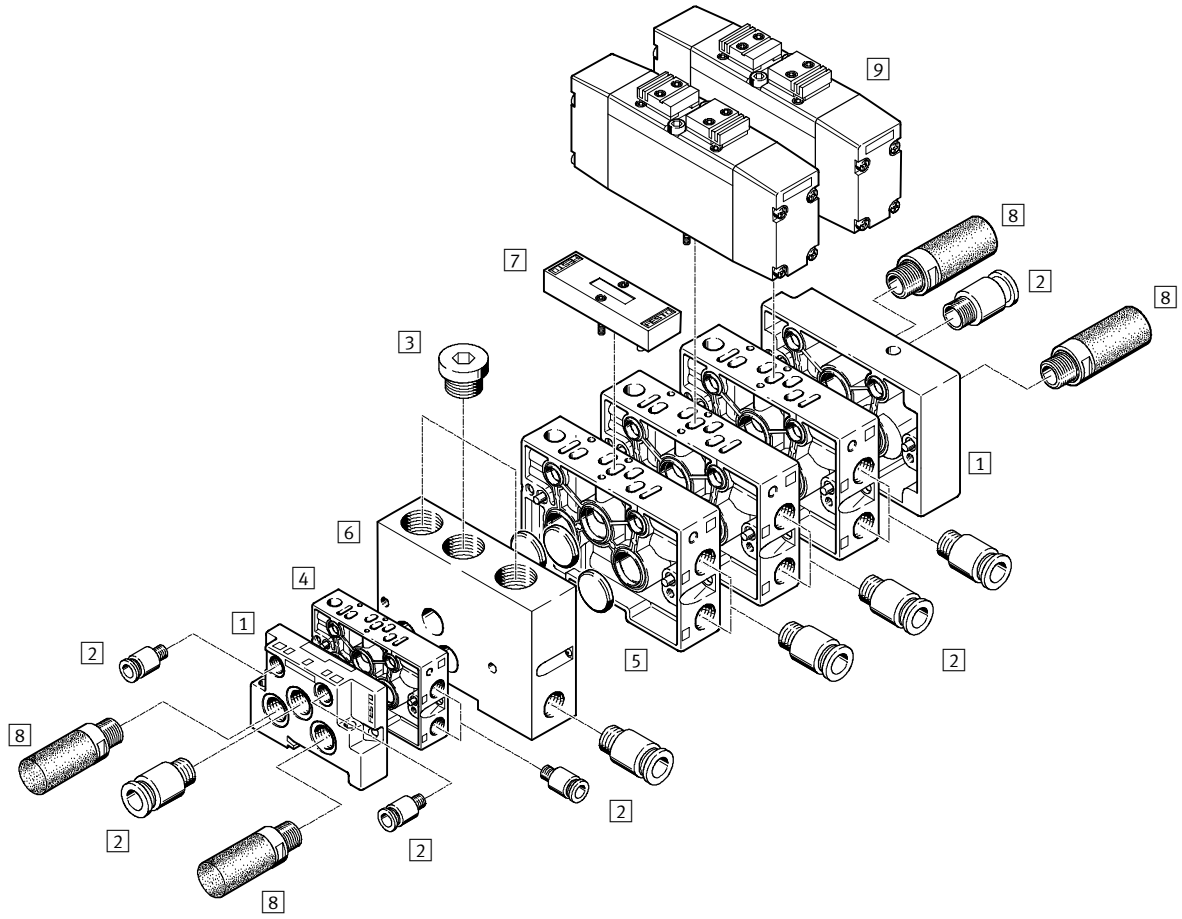
	Brief description	➔ Page
1 Push-in fitting QS	For connecting compressed air tubing with standard O.D.	Volume 3
2 Individual sub-base NAS	With lateral ports	2 / 1.1-65
– Individual sub-base NAU	With ports underneath	2 / 1.1-66
3 Silencer	For fitting in exhaust ports	Volume 3
4 Inscription labels IBS-9x17	For identifying the valves	2 / 1.1-70
5 Pneumatic valve	Port pattern to ISO 15 407-1	2 / 1.1-4

Port pattern on sub-base to ISO 15 407-1

Standard updates given below



Manifold mounting



Pneumatic valves, ISO 15 407-1

Peripherals overview

Accessories		
	Brief description	**➔ Page**
1 End plate kit NEV	For sealing the manifold sub-bases	2 / 1.1-66
2 Push-in fitting QS	For connecting compressed air tubing with standard O.D.	Volume 3
3 Blanking plug B	For sealing unused ports	2 / 1.1-71
4 Manifold sub-base NAW	With lateral ports 2 and 4	2 / 1.1-66
5 Isolating disc NSC	For sealing the common lines 1, 3, 5 on the manifold sub-base or to create a seal between 2 manifold sub-bases for creating pressure zones	2 / 1.1-69
6 Intermediate plate NZV	For connecting manifold sub-bases size 02 and size 01	2 / 1.1-67
7 Blanking plate NDV	For sealing vacant valve positions	2 / 1.1-67
8 Silencer	For fitting in exhaust ports	Volume 3
9 Pneumatic valve	Port pattern to ISO 15 407-1	2 / 1.1-4

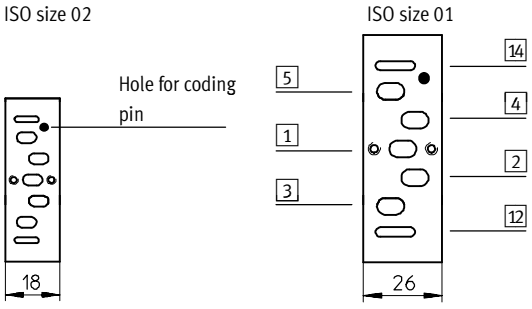
- Note

When supplying different pressure zones, both a left and right isolating disc for the pressure supply and for the pilot line are needed for pilot air.

For design reasons, only the silencer U-3/8-B can be screwed into ports 3 and 5 when assembling ISO size 02 mounting rails.

Port pattern on sub-base to ISO 15 407-1

Standard updates given below



Pneumatic valves VL, ISO 15 407-1

Technical data – 5/2-way valves

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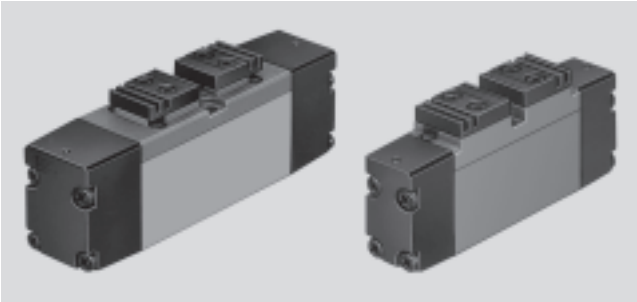
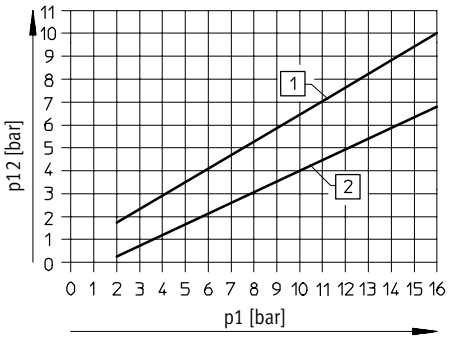
Flow rate
500 ... 1000 l/min



General technical data				
ISO size			02	01
Valve function			5/2-way, single pilot	
Constructional design			Piston spool	
Sealing principle			Soft	
Actuation type			Pneumatic	
Type of reset			Mechanical or pneumatic spring	
Type of pilot control			Direct	
Direction of flow	Pneumatic reset		Non-reversible	
	Mechanical reset		Reversible	
Exhaust function			With flow control	
Manual override			None	
Type of mounting			Via through-holes	
Mounting position			Any	
Nominal size		[mm]	6	8
Standard nominal flow rate		[l/min]	500	1000
Grid dimension		[mm]	19	27
Pneumatic connection	1, 2, 3, 4, 5		G1/8	G1/4
	12, 14		M5	M5
Product weight		[g]	120	230
Noise level		[dB (A)]	75	

Operating and environmental conditions						
ISO size			02		01	
Type of reset			Pneumatic	Mechanical	Pneumatic	Mechanical
Operating medium			Filtered compressed air, lubricated or unlubricated Vacuum			
Operating pressure		[bar]	2 ... 10	–0.9 ... +10	2 ... 16	–0.9 ... +16
Pilot pressure		[bar]	2 ... 10	3 ... 10	2 ... 16	3 ... 16
Ambient temperature		[°C]	–10 ... +60			
Temperature of medium		[°C]	–10 ... +60			

Minimum pilot pressure p12, p14 as a function of the operating pressure p1 with auxiliary pilot air

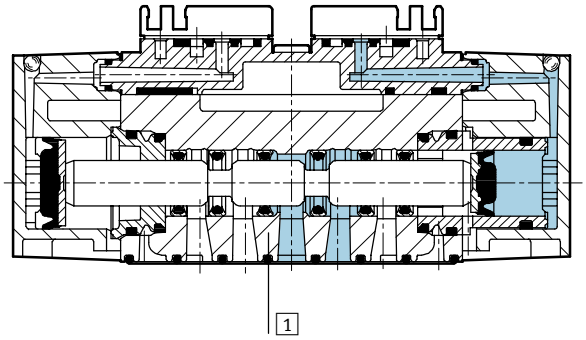


1 Switch-on pressure
2 Reset pressure

Valve response times [ms]				
ISO size	02		01	
Type of reset	Pneumatic	Mechanical	Pneumatic	Mechanical
On	11	8	18	10
Off	20	18	30	35

Materials

Sectional view



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

Pneumatic valves VL, ISO 15 407-1

Technical data – 5/2-way valves

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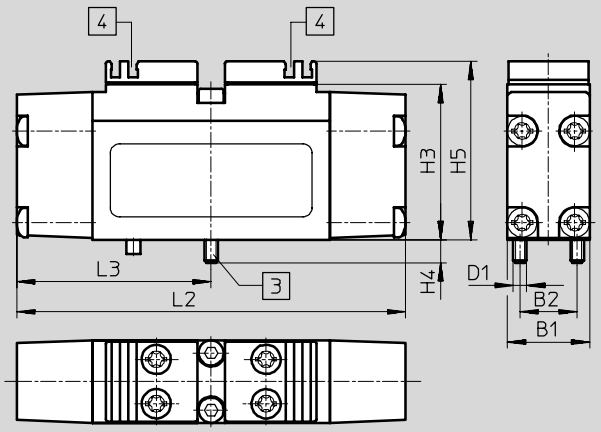
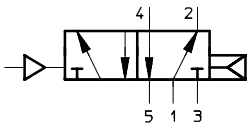
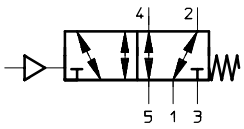
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



3 Captive mounting screws
4 Slot for inscription label

Type	B1	B2	D1	H3	H4	H5	L2	L3
ISO size 02								
VL-5/2-...	18	12.5	M3	34	5	39	85	42.5
VL-5/2-...-FR							97	
ISO size 01								
VL-5/2-...	26.2	19	M4	35	7	42	110	55
VL-5/2-...-FR								

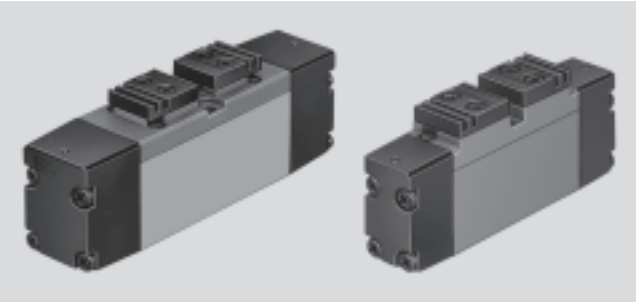
Ordering data

ISO size		02		01	
Circuit symbol	Description	Part No.	Type	Part No.	Type
	Pneumatic reset	**161 081**	**VL-5/2-D-02**	**161 060**	**VL-5/2-D-01**
	Mechanical reset	**161 082**	**VL-5/2-D-02-FR**	**161 061**	**VL-5/2-D-01-FR**

Pneumatic valves J, ISO 15 407-1

Technical data – 5/2-way valves, double pilot

Flow rate
500 ... 1000 l/min



General technical data				
ISO size			02	01
Valve function			5/2-way, double pilot or double pilot with dominant signal	
Constructional design			Piston spool	
Sealing principle			Soft	
Actuation type			Pneumatic	
Type of pilot control			Direct	
Pilot air supply			Internal	
Direction of flow			Reversible	
Exhaust function			With flow control	
Manual override			None	
Type of mounting			Via through-holes	
Mounting position			Any	
Nominal size		[mm]	6	8
Standard nominal flow rate		[l/min]	500	1000
Grid dimension		[mm]	19	27
Pneumatic connection	1, 2, 3, 4, 5		G1/8	G1/4
	12, 14		M5	M5
Product weight		[g]	110	230
Noise level		[dB (A)]	75	

Operating and environmental conditions			
ISO size		02	01
Operating medium		Filtered compressed air, lubricated or unlubricated Vacuum	
Operating pressure	[bar]	–0.9 ... +10	–0.9 ... +16
Pilot pressure	[bar]	2 ... 10	2 ... 16
Ambient temperature	[°C]	–10 ... +60	
Temperature of medium	[°C]	–10 ... +60	

Valve response times [ms]				
ISO size	02		01	
		Dominant signal at 14		Dominant signal at 14
On/changeover	–	6	–	9
Off/changeover	6	6	10	10

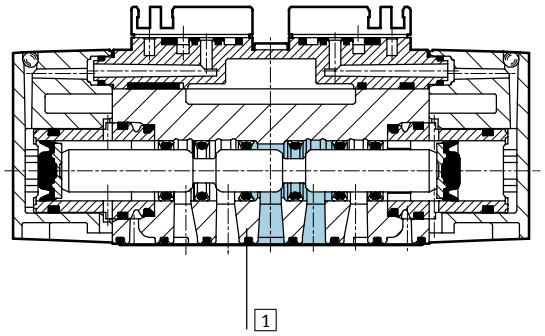
Pneumatic valves J, ISO 15 407-1

Technical data – 5/2-way valves, double pilot

FESTO

Materials

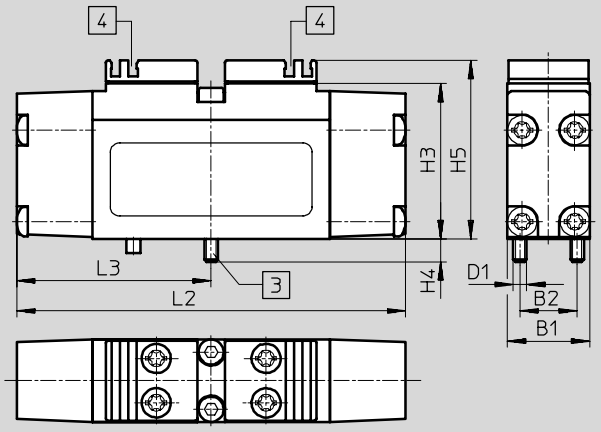
Sectional view



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

Dimensions

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



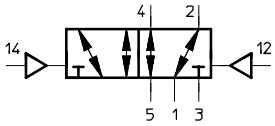
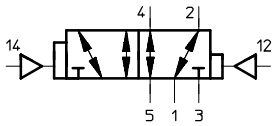
3 Captive mounting screws
4 Slot for inscription label

ISO size	B1	B2	D1	H3	H4	H5	L2	L3
02	18	12.5	M3	34	5	39	85	42.5
01	26.2	19	M4	35	7	42	110	55

Pneumatic valves J, ISO 15 407-1

Technical data – 5/2-way valves, double pilot

FESTO

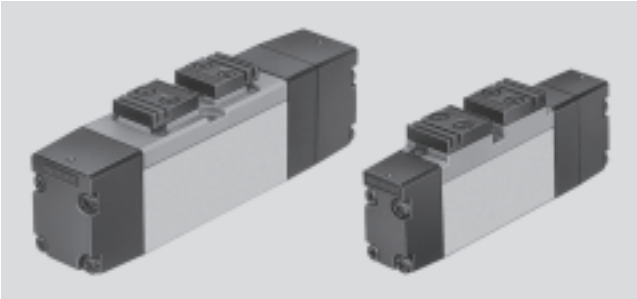
Ordering data					
ISO size		02		01	
Circuit symbol	Description	Part No.	Type	Part No.	Type
	Double pilot valve	**161 083**	**J-5/2-D-02**	**161 062**	**J-5/2-D-01**
	Double pilot valve with dominant signal at 14	**161 084**	**JD-5/2-D-02**	**161 063**	**JD-5/2-D-01**

Pneumatic valves VL, ISO 15 407-1

Technical data – 5/3-way valves

FESTO

Flow rate
500 ... 1000 l/min



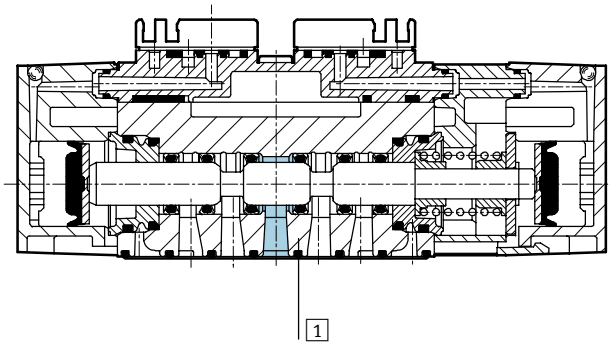
General technical data				
ISO size			02	01
Valve function			5/3-way, single pilot	
Constructional design			Piston spool	
Sealing principle			Soft	
Actuation type			Pneumatic	
Type of reset			Mechanical spring	
Type of pilot control			Direct	
Pilot air supply			Internal	
Direction of flow			Reversible	
Exhaust function			With flow control	
Manual override			None	
Type of mounting			Via through-holes	
Mounting position			Any	
Nominal size		[mm]	6	8
Standard nominal flow rate		[l/min]	500	1000
Grid dimension		[mm]	19	27
Pneumatic connection	1, 2, 3, 4, 5		G1/8	G1/4
	12, 14		M5	M5
Product weight		[g]	120	330
Noise level		[dB (A)]	75	

Operating and environmental conditions			
ISO size		02	01
Operating medium		Filtered compressed air, lubricated or unlubricated Vacuum	
Operating pressure	[bar]	–0.9 ... +10	–0.9 ... +16
Pilot pressure	[bar]	3 ... 10	3 ... 16
Ambient temperature	[°C]	–10 ... +60	
Temperature of medium	[°C]	–10 ... +60	

Valve response times			
ISO size		02	01
Closed	On	9	13
	Off	18	32
Exhausted	On	8	13
	Off	18	38
Pressurised	On	9	13
	Off	18	33

Materials

Sectional view



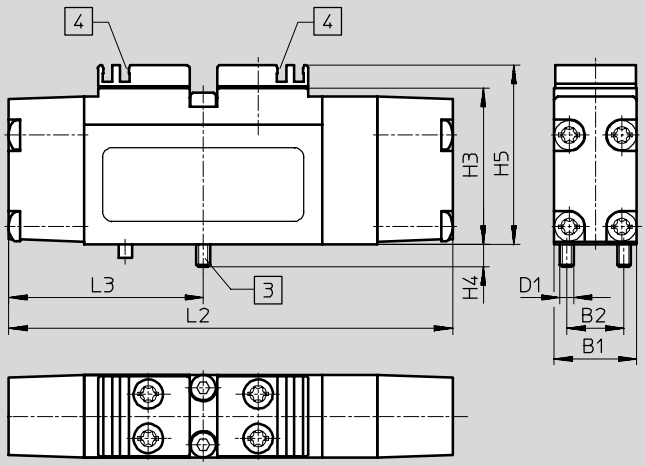
1	Housing	Die-cast aluminium, polyacetate
–	Seals	Nitrile rubber

Pneumatic valves VL, ISO 15 407-1

Technical data – 5/3-way valves

FESTO

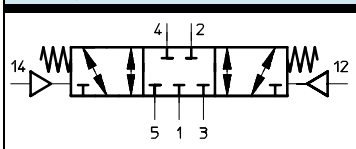
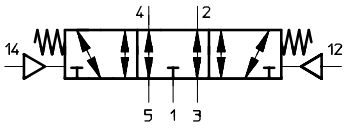
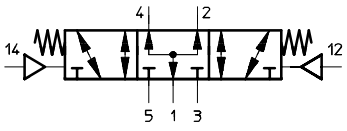
Dimensions Download CAD data ➔ **www.festo.com/en/engineering**



3 Captive mounting screws
4 Slot for inscription label

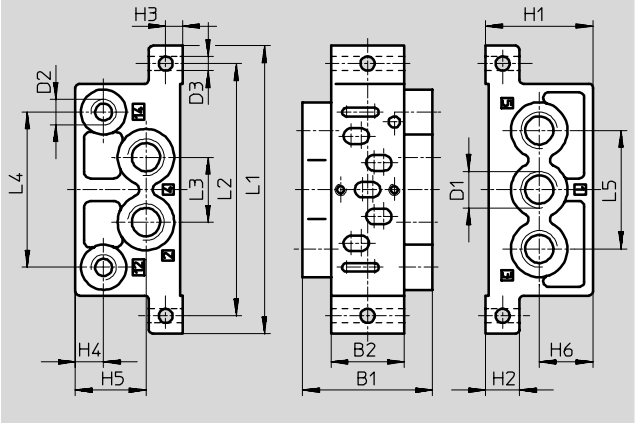
ISO size	B1	B2	D1	H3	H4	H5	L2	L3
02	18	12.5	M3	34	5	39	97	42.5
01	26.2	19	M4	35	7	42	124	55

Ordering data

ISO size		02		01	
Circuit symbol	Description	Part No.	Type	Part No.	Type
	Normally closed	**161 085**	**VL-5/3G-D-02**	**161 064**	**VL-5/3G-D-01**
	Normally exhausted	**161 086**	**VL-5/3E-D-02**	**161 065**	**VL-5/3E-D-01**
	Normally pressurised	**161 087**	**VL-5/3B-D-02**	**161 066**	**VL-5/3B-D-01**

Individual sub-base
NAS

Materials:
Die-cast aluminium
Free of copper and PTFE



Dimensions and ordering data

ISO size	B1	B2	D1	D2	D3 ∅	H1	H2	H3	H4	H5	H6
02	28.5	18	G⅛	M5	5.5	31	10	5	7	20	14.5
01	46	26	G¼	G⅛	5	38	12	6	10	25	19

Dimensions and ordering data

ISO size	L1	L2	L3	L4	L5	Weight [g]	Part No.	Type
02	79	66.5	17	40	32	67	**161 115**	**NAS-⅛-02-VDMA**
01	102	89.4	23	55	42	160	**161 109**	**NAS-¼-01-VDMA**

General technical data

ISO size		02	01
Type of mounting		2 through-holes in housing	2 through-holes in housing
Pneumatic connection	1, 2, 3, 4, 5	G⅛	G¼
	12, 14	M5	G⅛

Solenoid/pneumatic valves, ISO 15 407-1

Accessories

FESTO

Manifold sub-base NAW

Material:
Die-cast aluminium

Ordering data – NAW for solenoid valves					
ISO size	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3, 4, 5	12, 14	[g]		
02	G⅛	M5	130	**161 110**	**NAW-⅛-02-VDMA**
01	G¼	M5	225	**161 102**	**NAW-¼-01-VDMA**

Ordering data – NAW for pneumatic valves					
ISO size	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3, 4, 5	12, 14	[g]		
02	G⅛	M5	130	**161 111**	**NAW-⅛-02-VDMA-VL**
01	G¼	M5	225	**161 103**	**NAW-¼-01-VDMA-VL**

Dimensions ➔ 2 / 1.1-68

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]		
02	G⅜	G⅛	280	**161 112**	**NEV-02-VDMA**
01	G½	G⅛	445	**161 104**	**NEV-01-VDMA**

Dimensions ➔ 2 / 1.1-68

Solenoid/pneumatic valves, ISO 15 407-1

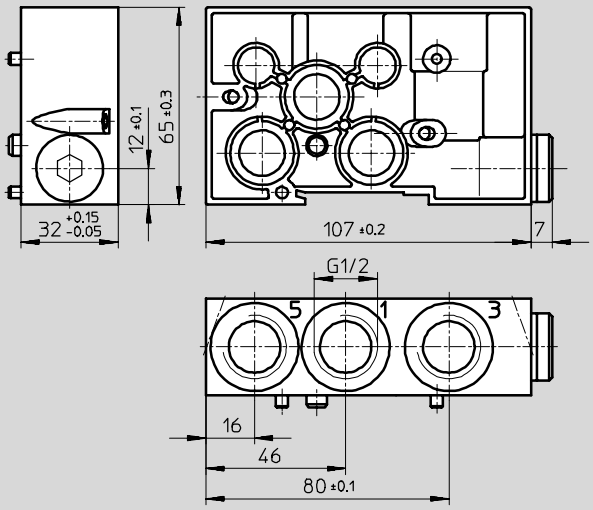
Accessories

FESTO

Intermediate plate NZV

Material:
Die-cast aluminium
Free of copper and PTFE

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



Ordering data

ISO size	Pneumatic connection		Weight	Part No.	Type
	1, 2, 3, 4, 5	12, 14	[g]		
02, 01	G½	–	270	**161 108**	**NZV-01/02-VDMA**

Blanking plate NDV

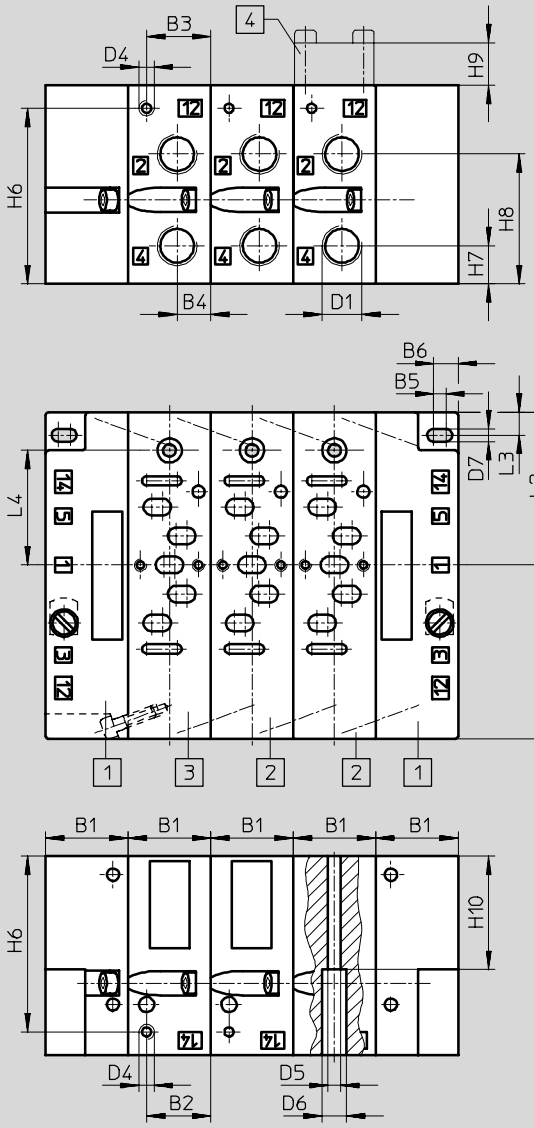
Material:
Polymer
Free of copper and PTFE

Ordering data

ISO size	Weight [g]	Part No.	Type
02	22	**161 114**	**NDV-02-VDMA**
01	36	**161 107**	**NDV-01-VDMA**

Dimensions ➔ 2 / 1.1-68

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



1 End plate kit
NEV-...VDMA
➔ 2 / 1.1-66

2 Manifold sub-base
NAW-...-VDMA
➔ 2 / 1.1-66

3 Manifold sub-base
NAW-...-VDMA-VL
➔ 2 / 1.1-66

4 Blanking plate
NDV-...-VDMA
➔ 2 / 1.1-67

5 Mounting rail
NRH-35-2000
➔ 2 / 7.8-1

Note

For design reasons, only the silencer U-3/8-B can be screwed into ports 3 and 5 when assembling ISO size 02 mounting rails.

ISO size	B1	B2	B3	B4	B5	B6	D1	D2	D3	D4
02	19	6	13	7.5	1	4.5	G1/8	G3/8	G1/8	M5
01	27	21	21	11	4	8	G1/4	G1/2	G1/8	M5

ISO size	D5	D6	D7	H1	H2	H3	H4	H5	H6	H7
02	3.3	6.3	4.3	55	17	28.8	18.5	–	48	10.5
01	4.2	8	4.2	65	27.5	28	15.5	3	57.5	12.5

ISO size	H8	H9	H10	L1	L2	L3	L4	L5	L6	L7	L8
02	35.5	12	40	81	36.5	5.6	30.9	20	20	18	18
01	42.5	14	37	107	50	7.5	37.5	30.3	28.3	33	26.8

Isolating disc NSC

Material:
Aluminium

Ordering data – NSC for ports 1, 2, 3 (solenoid/pneumatic valves)			
ISO size	Weight [g]	Part No.	Type
02	2	**161 113**	**NSC-3/8-02-VDMA**
01	2	**161 105**	**NSC-1/2-01-VDMA**

Ordering data – NSC for ports 12, 14 (pneumatic valves)			
ISO size	Weight [g]	Part No.	Type
02	2	**161 106**	**NSC-1/8-01-VDMA**
01	2	**161 106**	**NSC-1/8-01-VDMA**

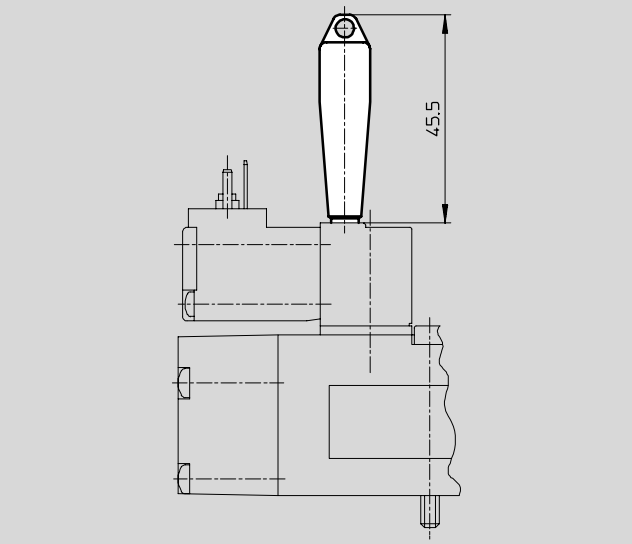
Inscription clip
MN2H-BZT-10X

for holding the inscription label IBS

Ordering data			
	Weight [g]	Part No.	Type
Inscription clip for valves MN2H (10 included in scope of delivery)	7	**161 936**	**MN2H-BZT-10X**

Manual override tool
AHB

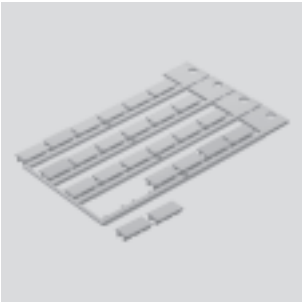
Material:
Polymer



Ordering data			
For valve	Weight [g]	Part No.	Type
MN2H/JMN2H/JMN2DH/VSVA	5	**157 601**	**AHB-MEB**

Inscription label
IBS

Material:
Polymer

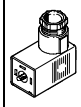
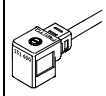


Ordering data		
	Part No.	Type
Inscription label for valves MN2H (24 in frames included in scope of delivery)	**161 937**	**IBS-9x17**
Inscription label for valves VSVA (24 in frames included in scope of delivery)	**18 182**	**ISB-9x20**

Core Range

Ordering data					
				Part No.	Type
Blanking plugs					
				**3570**	**B-3/8**[1]
Silencers					
				➔ Volume 3	

1) Scope of delivery 10 pieces

Ordering data – Plug sockets, plug socket cables for EB and N2 solenoid coils					
	Voltage	Cable length [m]	Switching status display with LED	Part No.	Type
Plug socket without cable				Technical data ➔ 2 / 7.2-10	
	–	–	–	**151 687**	**MSSD-EB**
Plug socket without cable with insulation displacement technology				Technical data ➔ 2 / 7.2-10	
	–	–	–	**192 745**	**MSSD-EB-S-M14**
Plug socket with cable				Technical data ➔ 2 / 7.3-21	
	24 V DC	2.5	■	**151 688**	**KMEB-1-24-2,5-LED**
	24 V DC	5	■	**151 689**	**KMEB-1-24-5-LED**
	24 V DC	10	■	**193 457**	**KMEB-1-24-10-LED**
	Up to 240 V	2.5	–	**151 690**	**KMEB-1-230AC-2,5**
	Up to 240 V	5	–	**151 691**	**KMEB-1-230AC-5**

Ordering data – Plug sockets, plug socket with cable for valves with central plug					
	Voltage	Cable length [m]	LED	Part No.	Type
Plug socket without cable				Technical data ➔ 2 / 7.2-10	
	–	–	–	**185 498**	**SEA-M12-4WD-PG7**
Plug socket with cable				Technical data ➔ 2 / 7.3-21	
	–	1	–	**185 499**	**KM-12-M12-GSWD-1-4**

Core Range

Ordering data – Plug sockets with cable M12x1 for VSVA valves — Technical data ➔ Volume 4

	Mounting	Connection	Switch output		Cable length	Part No.	Type
			PNP	NPN	[m]		
Straight plug socket							
	Locknut M12x1	4-pin	■	■	5	**164 259**	**SIM-M12-4GD-5-PU**
Angled plug socket							
	Locknut M12x1	4-pin	■	■	5	**164 258**	**SIM-M12-4WD-5-PU**

Ordering data – Plug sockets with cable M8x1 for VSVA valves — Technical data ➔ Volume 4

	Mounting	Connection	Switch output		Cable length	Part No.	Type
			PNP	NPN	[m]		
Straight plug socket							
	Locknut M8x1	4-pin	■	■	2.5	**158 960**	**SIM-M8-4GD-2,5-PU**
					5	**158 961**	**SIM-M8-4GD-5-PU**
Angled plug socket							
	Locknut M8x1	4-pin	■	■	2.5	**158 962**	**SIM-M8-4WD-2,5-PU**
					5	**158 963**	**SIM-M8-4WD-5-PU**

Ordering data – Illuminating seal for EB solenoid coils — Technical data ➔ 2 / 7.4-1

	Voltage		Part No.	Type
	[V DC]	[V AC]		
	12 ... 24	–	**151 717**	**MEB-LD-12-24DC**
	–	230	**151 718**	**MEB-LD-230AC**

Core Range