

Solenoid valves VZWM-L, NPT

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Key features and type codes

General

- Indirectly actuated diaphragm valve
- Process valve connection
N14 ... N2
- Flow rate
1,400 ... 31,000 l/min
- Available in brass or stainless steel casting
- Wide range of coils

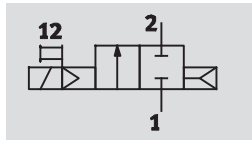
VZWM – L – M22C – N14 – F4 –	
Type	
VZWM	Solenoid valve, process directional control valve
Design	
L	In-line valve
Valve function	
M22C	2/2-way valve, normally closed
Process valve connection	
N14	NPT1/4
N38	NPT3/8
N12	NPT1/2
N34	NPT3/4
N1	NPT1
N114	NPT1 1/4
N112	NPT1 1/2
N2	NPT2
Electrical connection	
F4	MD-2-With armature tube for solenoid coil MD-2- ... -PA
F5	MH-2-With armature tube for solenoid coil MH-2- ... -PA
Housing material	
R1	Stainless steel casting
	Brass

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Technical data

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Function



-  - Flow rate
1,400 ... 31,000 l/min

-  - Voltage
24 V DC
110, 230 V AC



General technical data									
Process valve connection		NPT1/4	NPT3/8	NPT1/2	NPT3/4	NPT1	NPT1 1/4	NPT1 1/2	NPT2
Nominal size (DN)	[mm]	13.5	13.5	13.5	27.5	27.5	40	40	50
Valve function		2/2-way, single solenoid							
Design		Diaphragm valve							
Sealing principle		Soft							
Actuation type		Electric							
Reset method		Pneumatic spring							
Type of control		Piloted							
Direction of flow		Non-reversible							
Exhaust function		No flow control							
Manual override		None							
Type of mounting		In-line installation							
Mounting position		Preferably vertical							
Standard nominal flow rate	[l/min]	1,400	2,100	2,400	10,000	11,700	24,000	26,400	31,000
Flow rate Kv	[m ³ /h]	1.6	2	2.4	8.5	10.7	21.3	27.4	39
c value	[l/sbar]	6	8.8	9.8	39	41	75	82	110
b value		0.3	0.35	0.37	0.5	0.5	0.6	0.67	0.68
Pressure differential	[bar]	0.5	0.5	0.5	0.5	0.5	0.7	0.7	0.7
Materials	Housing	Brass or stainless steel casting							
	Diaphragm	Nitrile rubber							
	Armature tube	High-alloy steel							
Note on materials		Contains PWIS (paint-wetting impairment substances)							
Max. tightening torque	Connecting thread	[Nm]	35	60	105	200	350	450	540
	Cover screw	[Nm]	20	20	20	30	30	30	30
	Coil mounting	[Nm]	2	2	2	2	2	2	2

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Operating and environmental conditions										
Process valve connection			NPT1/4	NPT3/8	NPT1/2	NPT3/4	NPT1	NPT1 1/4	NPT1 1/2	NPT2
Operating medium			Compressed air in accordance with ISO 8573-1:2010 [7:4:4]							
			Neutral liquids							
			Inert gases							
			Water							
Note on operating/pilot medium			Operation with lubricated medium required							
Ambient temperature ¹⁾		[°C]	−10 ... +60							
Operating pressure, valve	Gases	[bar]	0.5 ... 10					0.7 ... 10		
	Fluids	[bar]	0.5 ... 6					0.7 ... 6		
Medium pressure	Gases	[bar]	0.5 ... 10					0.7 ... 10		
	Fluids	[bar]	0.5 ... 6					0.7 ... 6		
Temperature of medium	Gases	[°C]	−10 ... +60							
	Fluids	[°C]	5 ... 50							
Max. viscosity		[mm²/s]	22							
Corrosion resistance class CRC ²⁾	Brass		1							
	Stainless steel casting		3							

1) Note ambient temperature of solenoid coils

2) Corrosion resistance class 1 according to Festo standard 940 070

Components subject to low corrosion stress. Transport and storage protection. Parts that do not have primarily decorative surface requirements, e.g. in internal areas that are not visible or behind covers.

Corrosion resistance class 3 according to Festo standard 940 070

Components subject to high corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as solvents and cleaning agents.

Valve switching times									
Process valve connection		NPT1/4	NPT3/8	NPT1/2	NPT3/4	NPT1	NPT1 1/4	NPT1 1/2	NPT2
Gases									
Switching time	Off	[ms]	10	10	10	12	12	20	21
	On	[ms]	8	8	8	15	15	26	62
Liquids									
Switching time	Off	[ms]	200	210	220	930	930	1,900	2,800
	On	[ms]	100	110	110	400	400	1,400	2,100
Switching time of variant R1	Off	[ms]	210	190	200	950	950	1,900	2,800
	On	[ms]	80	110	110	420	300	1,400	2,100

Electrical data										
			NPT1/4	NPT3/8	NPT1/2	NPT3/4	NPT1	NPT1 1/4	NPT1 1/2	NPT2
Electrical connection			F4, with armature tube for solenoid coil MD-2- ... -PA, must be ordered separately					MH-2-F5, with armature tube for solenoid coil MH-2- ... -PA, must be ordered separately		
Operating voltage	DC voltage	[V DC]	24							
	AC voltage	[V AC]	110/230 (50 ... 60 Hz)							
Coil characteristics	DC voltage	[W]	6.8					7.9		
	AC voltage	[VA]	Pull: 14.5 Hold: 10.5					14		
Protection class to EN 60529			IP65 (with plug socket)							

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Weight [g]			
Brass housing		Stainless steel casting housing	
VZWM-L-M22C-N14-F4	500	VZWM-L-M22C-N14-F5-R1	400
VZWM-L-M22C-N38-F4	450	VZWM-L-M22C-N38-F5-R1	400
VZWM-L-M22C-N12-F4	415	VZWM-L-M22C-N12-F5-R1	400
VZWM-L-M22C-N34-F4	1,220	VZWM-L-M22C-N34-F5-R1	1,200
VZWM-L-M22C-N1-F4	1,200	VZWM-L-M22C-N1-F5-R1	1,100
VZWM-L-M22C-N114-F5	2,700	VZWM-L-M22C-N114-F5-R1	2,600
VZWM-L-M22C-N112-F5	2,510	VZWM-L-M22C-N112-F5-R1	2,500
VZWM-L-M22C-N2-F5	4,000	VZWM-L-M22C-N2-F5-R1	3,700

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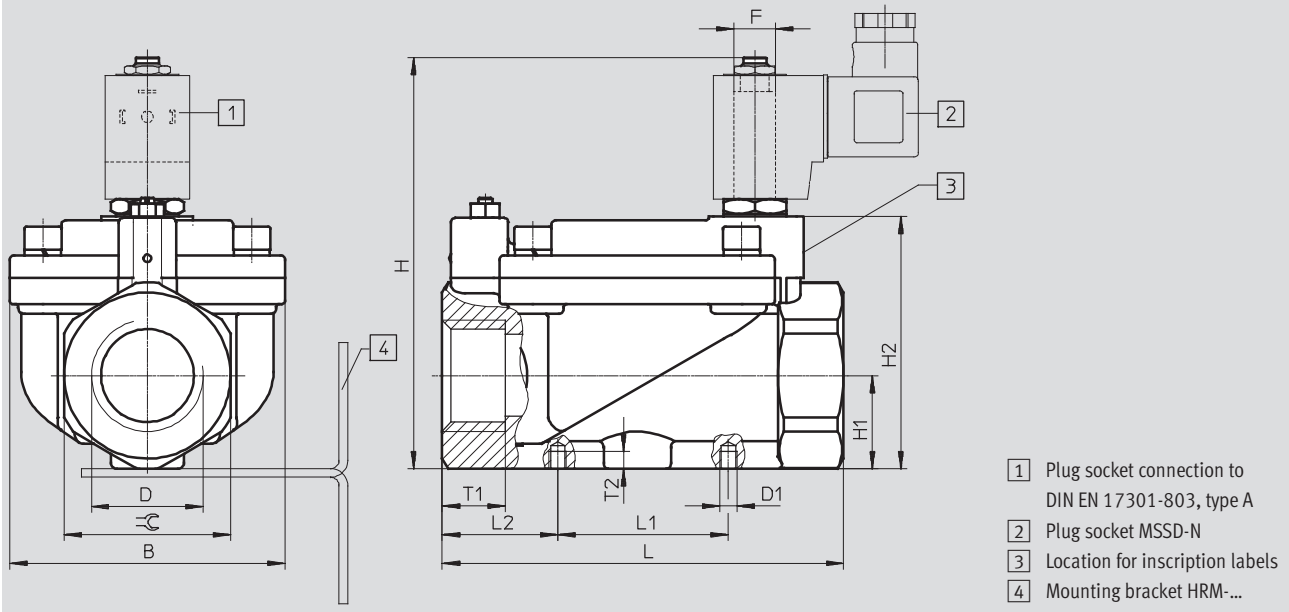
Technical data

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Dimensions

Download CAD Data → www.festo.com/us/cad

2/2-way valve



Type	B ±1.5	D	D1	H ±2	H1 ±1.5	H2 ±1	L ±2	L1 ±1.5	L2	F	T1	T2 ±0.5	≈
VZWM-L-M22C-N14-F4	48	NPT1/4	M4	85.5	15	49	67	25	21	F5	12	4	27
VZWM-L-M22C-N38-F4	48	NPT3/8	M4	85.5	15	49	67	25	21	F5	12	4	27
VZWM-L-M22C-N12-F4	48	NPT1/2	M4	85	15	49	67	25	21	F5	12	4	27
VZWM-L-M22C-N34-F4	70	NPT3/4	M6	107	24.2	70.5	96	40	28	F5	16	6	41
VZWM-L-M22C-N1-F4	70	NPT1	M6	107	24.2	70.5	96	40	28	F5	16	6	41
VZWM-L-M22C-N114-F5	96	NPT1 1/4	M6	143.5	32.5	87	140	59.5	40.25	F5	22	6	58
VZWM-L-M22C-N112-F5	96	NPT1 1/2	M6	143.5	32.5	87	140	59.5	40.25	F5	22	6	58
VZWM-L-M22C-N2-F5	112	NPT2	M6	159	38.5	103.5	168	59.5	54.25	F5	25	6	70
VZWM-L-M22C-N14-F5-R1	44	NPT1/4	M4	106	15.6	51	67	25	21	F4	-	4	27
VZWM-L-M22C-N38-F5-R1	44	NPT3/8	M4	106	15.6	51	67	25	21	F4	-	4	27
VZWM-L-M22C-N12-F5-R1	44	NPT1/2	M4	106	15.6	51	67	25	21	F4	-	4	27
VZWM-L-M22C-N34-F5-R1	70	NPT3/4	M6	126	24.2	70	96	40	28	F4	-	6	41
VZWM-L-M22C-N1-F5-R1	70	NPT1	M6	126	24.2	70	96	40	28	F4	-	6	41
VZWM-L-M22C-N114-F5-R1	96	NPT1 1/4	M6	145	34	89.5	140	59.5	40.25	F5	-	6	58
VZWM-L-M22C-N112-F5-R1	96	NPT1 1/2	M6	145	34	89.5	140	59.5	40.25	F5	-	6	58
VZWM-L-M22C-N2-F5-R1	112	NPT2	M6	159	38.5	104	168	59.5	40.25	F5	-	6	70

Ordering data

Process valve connection	Brass housing		Stainless steel casting housing	
	Part No.	Type	Part No.	Type
NPT1/4	546 154	VZWM-L-M22C-N14-F4	546 170	VZWM-L-M22C-N14-F5-R1
NPT3/8	546 155	VZWM-L-M22C-N38-F4	546 171	VZWM-L-M22C-N38-F5-R1
NPT1/2	546 156	VZWM-L-M22C-N12-F4	546 172	VZWM-L-M22C-N12-F5-R1
NPT3/4	546 157	VZWM-L-M22C-N34-F4	546 173	VZWM-L-M22C-N34-F5-R1
NPT1	546 158	VZWM-L-M22C-N1-F4	546 174	VZWM-L-M22C-N1-F5-R1
NPT1 1/4	546 159	VZWM-L-M22C-N114-F5	546 175	VZWM-L-M22C-N114-F5-R1
NPT1/2	546 160	VZWM-L-M22C-N112-F5	546 176	VZWM-L-M22C-N112-F5-R1
NPT2	546 161	VZWM-L-M22C-N2-F5	546 177	VZWM-L-M22C-N2-F5-R1

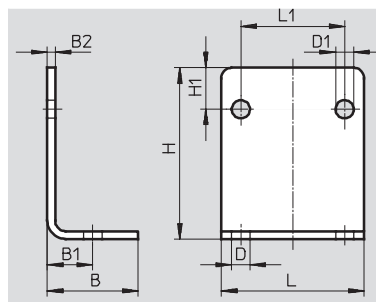
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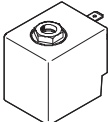
Accessories

Mounting bracket HRM

Material:
Galvanised steel



Dimensions and ordering data											
B	B1	B2	D Ø	D1 Ø	H	H1	L	L1	Weight [g]	Part No.	Type
25	12.5	2	6	5	37	10	40	25	39	9 769	HRM-1
35	17.5	3	7	7	66	16	55	40	130	9 770	HRM-2
47	23.5	3	9	7	87	23	75	59.5	246	9 771	HRM-3

Ordering data – Solenoid coils			Technical data → Internet: solenoid coil	
	Voltage	Part No.	Type	
Solenoid coil for VZWM- ... -F4- ... ¹⁾				
	24 V DC	549 903	MD-2-24VDC-PA	
	110 V AC, 50 ... 60 Hz	549 904	MD-2-110VAC-PA	
	230 V AC, 50 ... 60 Hz	549 905	MD-2-230VAC-PA	
Solenoid coil for VZWM- ... -F5- ... ¹⁾				
	24 V DC	549 906	MH-2-24VDC-PA	
	110 V AC, 50 ... 60 Hz	549 907	MH-2-110VAC-PA	
	230 V AC, 50 ... 60 Hz	549 908	MH-2-230VAC-PA	

1) Ambient temperature –20 ... 50 °C

Ordering data – Plug socket				Technical data → Internet: mssd-n	
		Part No.	Type		
	3-pin, square design MSF	550 067	MSSD-N		

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