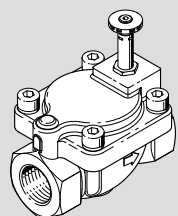


VZWM-L-M22C

Solenoid valve



FESTO

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Operating instruction

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Translation of the original instructions

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1 Applicable documents



All available documents for the product → www.festo.com/sp.

2 Safety

2.1 Safety instructions

- Use the valve only in the indicated flow direction.
- A suitable solenoid coil as specified in accessories is required for operation → www.festo.com/catalogue.
- Only use the product in its original condition without unauthorised modifications.
- Only use the product if it is in perfect technical condition.
- Do not operate the product with chemically unstable gases.
- Gaseous media must be dried at the temperature of the medium < 1 °C.
- The adjusting screw must be adjusted only in consultation with Festo technicians.

Return to Festo

Hazardous substances can endanger the health and safety of persons and cause damage to the environment. To prevent hazards, the product should only be returned if explicitly requested by Festo.

- Consult your regional Festo contact.
- Complete the declaration of contamination and attach it to the outside of the packaging.
- Comply with all legal requirements for the handling of hazardous substances and the transport of dangerous goods.

2.2 Intended use

The solenoid valve controls the flow of neutral, gaseous and liquid media in rigid piping systems.

2.3 Training of qualified personnel

Work on the product may only be carried out by qualified personnel who can evaluate the work and detect dangers. The qualified personnel have knowledge and experience in process automation.

3 Additional information

- Contact the regional Festo contact if you have technical problems → www.festo.com.
- Accessories and spare parts → www.festo.com/catalogue.

4 Product overview

4.1 Product design

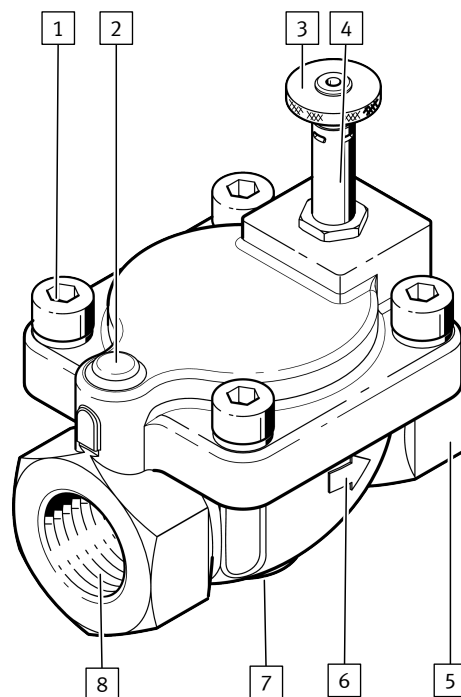


Fig. 1: Product design

- | | |
|--------------------------------------|--|
| 1 Cover screw | 6 Arrow for flow direction |
| 2 Adjusting screw, not for all sizes | 7 Mounting thread for mounting bracket |
| 3 Knurled nut for coil mounting | 8 Port P: input |
| 4 Armature guide tube | |
| 5 Port A: output | |

4.2 Function

The solenoid valve VZWM-L-M22C is a servo-controlled 2/2-way valve. The valve requires a pressure difference between the input and the output to ensure proper function.

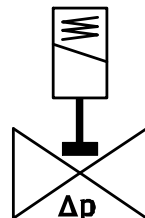


Fig. 2: Circuit symbol

- Open valve: when power is applied, a bypass is opened from the input to the output. The pressure on the diaphragm drops and the valve opens.
- Close valve: if the power supply is interrupted, the bypass is closed. The pressure on the diaphragm increases and the valve closes.

5 Assembly

5.1 Preparing assembly

- The piping system is unpressurised and does not contain medium.
- Select suitable solenoid coils for product types VZWM-...-F4 and VZWM-...-F5:
 - VZWM-...-F4: solenoid coils type MD-...
 - VZWM-...-F5: solenoid coils type MH-...
- The pipes are clean.



The effective pipe cross section at the input end should be at least as large as the output end to ensure fault-free operation. Take into account the pipe cross sections, lengths and elements that may reduce the flow rate, such as elbows.

Cleaning valve

There may be traces of residual grease on the valve as a result of the production process. Clean the valve immediately before installation, paying attention to the flow direction.

5.2 Installing solenoid valve

1. Place the solenoid coil on the armature guide tube.
2. Tighten the knurled nut for coil mounting. Observe the tightening torque → 10 Technical data
3. Place the valve in its mounting position. Note the flow direction.
4. Mount the solenoid valve on the mounting bracket.
5. Screw the valve connections to the piping. Observe the tightening torque → 10 Technical data.

6 Commissioning

Preparation

- 1. Check operating conditions ➔ 10 Technical data.
- 2. Check that the valve is fully mounted and connected.
- 3. If incompressible media are used, fill the piping system with the medium.
- 4. Check connection points for tightness.
- 5. Check that the devices in the system are compatible with the maximum pressure.

Commissioning the valve

- Slowly apply medium pressure to the valve.
 - ↳ The valve closes.

i

If medium pressure is applied suddenly, the valve opens briefly.

7 Operation

 **WARNING**

Risk of injury due to hot surface.

The valve can become hot if the temperature of the medium is high.

- Do not touch the valve during operation or immediately afterward.

After extended downtime:

- Actuate the valve several times and check for correct function.

8 Disassembly

 **WARNING**

Risk of injury from combustion and chemical burns.

The media in the piping system and the valve can be hot and under pressure. Traces of medium can remain in the product and can escape when open or dismantled.

- Allow the valve and piping to cool and depressurize them.
- Wear specified protective equipment.

- 1. De-pressurize the piping.
- 2. Allow the valve and piping to cool.
- 3. Drain the piping and valve completely.
 - Make sure no one is located in front of the outlet opening.
 - Catch discharging media in a suitable container.
- 4. Disconnect the piping connections and remove the valve.

9 Malfunctions

Malfunction	Cause	Remedy
Solenoid valve vibrates or does not switch	Pressure difference too low	<ul style="list-style-type: none">– Check application parameters.– Increase pressure difference between input and output.
	Flow resistance at the output too low	<ul style="list-style-type: none">– Check piping cross sections and line lengths.– Install flow-reducing components on the output side.
	Exhaust hole covered in the output	<ul style="list-style-type: none">– Open exhaust hole.
Solenoid valve does not switch	Valve faulty	<ul style="list-style-type: none">– Replace valve.
	Solenoid coil faulty	<ul style="list-style-type: none">– Check solenoid coil and replace.
Loud switching noises	High pressure surge	<ul style="list-style-type: none">– Select larger valve and pipe diameter.– Insert bypass valve.

Tab. 1: Fault clearance

10 Technical data

VZWM-L-M22C	
Certificates, declaration of conformity	➔ www.festo.com/sp
Valve function	2/2-way, closed monostable
Design	Poppet valve with diaphragm seal, pilot controlled
Actuation type	Electrical
Sealing principle	Soft
Type of mounting	In-line installation
Mounting position	Preferably upright
Medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4], inert gases, water, neutral liquids
Flow direction	Not reversible
Max. viscosity [mm²/s]	22
Temperature of medium for gaseous media [°C]	–10 ... +60
Temperature of medium for liquid media [°C]	+5 ... +50
Ambient temperature [°C]	–10 ... +60
Information on materials: housing	brass, cast stainless steel (-R1)

VZWM-L-M22C	
Information on materials: seal	NBR
Information on materials: armature tube	High-alloy steel

Tab. 2: Technical data, general

VZWM-...-		G14 N14	G38 N38	G12 N12	G34 N34	G1 N1	G114 N114	G112 N112	G2 N2
Nominal width	[mm]	13.5			27.5		40.0		50.0
Nominal width (-R1)	[mm]	13.0			25.0		40.0		50.0
Flow factor K _v	[m³/h]	1.6	2.0	2.4	8.5	10.7	21.3	27.4	39.0
Standard nominal flow rate	[l/min]	1400	2100	2400	10000	11700	24000	26400	31000
Differential pressure	[bar]	0.5					0.7		
Pressure of medium									
Gaseous media	[bar]	0.5 ... 10					0.7 ... 10		
Liquid media	[bar]	0.5 ... 6					0.7 ... 6		
Switching times for air									
On	[ms]	8			15		26		62
Off	[ms]	10			12		20		21
Switching times for liquid media									
On	[ms]	100	110	110	400	400	1400	1400	2100
On (-R1)	[ms]	80	110	110	420	420	1400	1400	2100
Off	[ms]	200	210	220	930	930	1900 ¹⁾	2000 ¹⁾	2800 ¹⁾
Off (-R1)	[ms]	100	190	200	950	950	1900 ¹⁾	2000 ¹⁾	2800 ¹⁾
CE marking,		no			In accordance with EU Pressure Equip- ment Directive				

1) Switching time adjustable with the adjusting screw

Tab. 3: Characteristics

VZWM-...-		G14 N14	G38 N38	G12 N12	G34 N34	G1 N1	G114 N114	G112 N112	G2 N2
Connecting thread A and P	[Nm]	35	60	105	200	350	450	540	620
Cover screw	[Nm]	20			30				
Coil mounting									
VZWM-...-F4	[Nm]	0.5							
VZWM-...-F5	[Nm]	2.0							

Tab. 4: Tightening torques