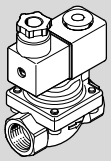
Solenoid valve VZWP-L-M22C



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Operating instructions

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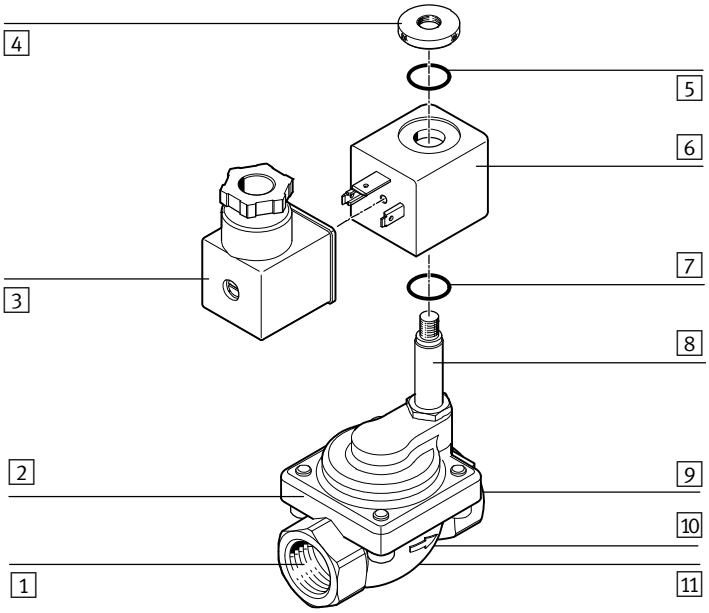
Solenoid valve VZWP-L-M22C ..... English

1 Design



1 Port 1: Input
2 Valve body
3 Electrical plug connector with seal and mounting screw
4 Knurled nut
5 O-ring
6 Solenoid coil
7 O-ring
8 Armature guiding tube
9 Port 2: Output
10 Arrow for flow direction
11 Thread for mounting bracket

Fig. 1

2 Function

The solenoid valve VZWP–L–M22C is a servo controlled 2/2-way valve with solenoid coil.
The solenoid valve VZWP–L–M22C is closed when de-energised (Normally Closed - NC). When power is supplied, the differential pressure is relieved from the secondary side of the piston via the servo hole. The effective differential pressure lifts the piston away from the valve seat.

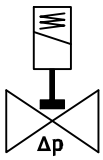


Fig. 2

The pilot function of the valve actuator can be used to control high pressures with large nominal diameters by means of small solenoid coils.
The minimum differential pressure must always be present to ensure smooth functioning of the servo control (➔ Technical data).

3 Application

Solenoid valves of the series VZWP–L–M22C are intended to control the flow of gaseous and fluid media in rigid piping systems.

- The product may only be used in its original state without unauthorised modifications. Only the mounting and commissioning activities described in these operating instructions are permissible. Do not open the valve body or dismantle the armature guiding tube.
- Do not use the product in closed circuits.
- Do not use the VZWP solenoid valve as a safety component.
- Use the product only in perfect technical condition.
- Only use media in accordance with specification. Before using other media, please contact our customer support.
- Operation with chemically unstable gases, abrasive media and solids is impermissible.
- Use the solenoid valve only in the marked flow direction.

Return to Festo

Hazardous substances can endanger the health and safety of personnel and cause damage to the environment. To prevent hazards, the product should only be returned upon explicit request by Festo.

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

4 Product variants

Features	Type code	Description
Type	VZWP	Solenoid valve, servo controlled
Valve type	L	In-line valve
Valve function	M22C	2/2-way valve, normally closed (NC)
Connection to valves and fittings	G14 to G1 N14 to N1	Pipe thread per DIN ISO 228 NPT pipe thread per ANSI B 1.20.1
Nominal size (DN)	130 250	13 mm 25 mm
Sealing material	– V	NBR FPM
Nominal voltage	1 2A 3A	24 V DC 110 V AC (50-60 Hz) 230 V AC (50-60 Hz)
Electrical connection	P4	Plug socket, 3-pin
Operating pressure	40	Max. 40 bar

Fig. 3

5 Transport and storage

- When shipping used products: Comply with all legal requirements for handling hazardous substances and transporting dangerous goods.
  For return to Festo ➔ Kapitel 3.
- Store the product in a cool, dry, UV- and corrosion-protected environment.

6 Installation

➔ **Note**

- Installation only by qualified personnel.
- Avoid contamination. In this way you will prevent small holes from becoming blocked (e.g. servo hole) and restriction or blockage of the function.
- Avoid mechanical stresses especially on the solenoid coil and the armature guiding tube.
- Ensure sufficient thermal circulation at the installation location.

1. Before installation, check the system requirements:
   – The tubing system is unpressurised and does not hold any medium.
   – The pipelines are clean.
   – The ends of the pipelines are mounted.
   – The power supply is switched off.
2. Put the solenoid valve in its mounting position. Please note the flow direction. The permissible flow direction is marked by an arrow on the valve body.
3. Screw the ends of the pipelines to the valve ports. Observe the permissible tightening torques.
4. Establish the electrical connection. Use only the specified plug type (➔ Technical data).
   – Connect the electrical cable to the plug connector.
   – Attach the seal to the electrical contacts.
   – Plug in the plug connector and secure it in place with the mounting screw (torque 0.3...0.5 Nm).
5. Connect the power supply.

7 Commissioning

Note

- Commissioning only by qualified personnel.
- When incompressible media (e.g. neutral water) are used, switching the valve causes pressure surges in the tubing system. Prior to commissioning, check the compatibility of the devices in the system to avoid damaging them. If necessary, adjust your application parameters.

- Observe the information on the rating plate.
- Start up the solenoid valve only when it is completely assembled and installed.
- Check the connection points for leaks.
- Prior to commissioning, check for compliance with the operating conditions and the permissible limit values (➔ Technical data).

8 Operation

- Observe the operating conditions.
- Always observe the permissible limit values.

Warning

Danger of burning on hot surfaces.
The surface temperature of the solenoid valve can exceed 75 °C.
- Do not touch the solenoid valve.

9 Dismantling

Warning

Danger of injury due to hot media under pressure.
The media in the piping system and the solenoid valve can be hot and can be under pressure.
- Allow the solenoid valve and pipelines to cool and depressurise them.

Note

The solenoid valve may be dismantled only by qualified personnel.

1. Depressurise the pipeline.
2. Switch off the voltage.
3. Completely drain the pipeline and valve.
   – Allow the solenoid valve and pipeline to cool off.
   – Make sure that no one is in front of the outlet opening.
   – Catch escaping media in a suitable container.
4. Remove the solenoid valve from the pipeline (unplug the electrical plug connector, detach the mounting bracket and unscrew the fittings).

10 Changing the solenoid coil

The solenoid coil can be changed for repairs.

Warning

Danger of injury from hot surfaces.
The surface temperature of the solenoid valve can exceed 75 °C.
- Let the solenoid valve cool off.

Dismantling:

1. Switch off the voltage.
2. Disconnect the electrical plug connector.
3. Undo the knurled nut and remove the solenoid coil from the armature guiding tube.

Mounting:

1. Push the O-ring and solenoid coil over the armature guiding tube.
2. Secure the solenoid coil with the O-ring and knurled nut.
   – Torque for tightening the knurled nut: finger-tight (about 1...1.5 Nm).

11 Service and maintenance

- Check the solenoid valve for leakage at least every 6 months.
- Check the functioning of the solenoid valve at least every 6 months.
- Regularly clean the outside of the valve with a soft cloth. The permissible cleaning agent is soap suds.

12 Eliminating malfunctions

Malfunction	Possible cause	Remedy
Solenoid valve not closing	Solenoid valve is defective.	• Replace the solenoid valve.
	Flow direction is incorrect	• Install the solenoid valve in accordance with the flow arrow
	Nominal voltage is still applied	• Check electrical connection.
	Differential pressure too low	• Make sure the specified minimum differential pressure is supplied.
Solenoid valve does not open	Solenoid coil or solenoid valve is defective.	• Replace the solenoid coil. • Replace the solenoid valve.
	Nominal voltage interrupted or not sufficient	• Check voltage.

Fig. 4

13 Technical data

General		VZWP-L-M22C-...
Valve function		2/2-way, closed, monostable
Design		Pilot-actuated piston poppet valve
Actuation type		Electrical
Mounting position		Coil preferably on top
Sealing principle		Soft
Medium		Compressed air in accordance with ISO8573-1:2010 [7:4:4] Inert gases, Neutral fluids[1)]
Direction of flow		Non-reversible
Viscosity	[mm^2/s]	≤ 22
Grade of filtration	[µm]	40
Temperature of medium	[°C]	–10...+80
Ambient temperature	[°C]	–10...+35
Protection class		IP65 as per DIN EN 60529
Degree of contamination		3 as per IEC 60664-1
Attachment type		In-line installation
Materials information, housing		Cast brass
Materials information for seals		NBR, FPM

1) Other media on request

Fig. 5

Electrical data		VZWP-...1-...	VZWP-...2A-...	VZWP-...3A-...
Nominal voltage				
– DC voltage	[V DC]	24 (±10%)	–	–
– AC voltage (50...60 Hz)	[V AC]	–	110 (±10%)	230 (±10%)
Rated output	[W]	6.8	–	–
	[VA]		7.5	10.5
Surge resistance	[kV]	–	2.5	4.0
Duty cycle		100% (continuous duty)		
Electrical connection		Device plug per DIN EN 175301-803, format A		
Connecting cable				
– Cable cross-section	[mm^2]	0.75...1.5		
– Cable diameter	[mm]	5...9		
– Cable entry thread		M20x1.5		

Fig. 6

Port size	["]	¼	⅜	½	¾	1
Pipe thread per DIN ISO 228 Pipe thread per ANSI B 1.20.1		G¼ N¼	G⅜ N⅜	G½ N½	G¾ N¾	G1 N1
Differential pressure	[bar]	0.5				
Nominal size DN	[mm]	13			25	
Standard nominal flow rate	[l/min]	1600	2100	2650	8750	12250
Flow factor K_v	[m^3/h]	1.5	2.0	2.5	8.2	11.5
Operating pressure	[bar]	0,5...40				
Overload pressure	[bar]	45				
Switching times for gaseous media[1)]						
– On	[ms]	100			130	
– Off	[ms]	250			300	
Tightening torques						
– Pipe connection	[Nm]	35	60	105	200	350
– Mounting of solenoid coil	[Nm]	2				
Weight	[g]	600	575	550	1500	1400

1) Depending on the viscosity, longer switching times with fluid media

Fig. 7