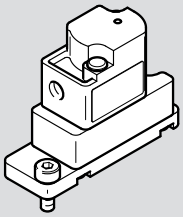
VZDB

Media separated pneumatic valve



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Operating instructions

8169626
2022-02a
[8169628]

8169626

Translation of the original instructions

1 Applicable documents

Document	Product	Table of contents
Application note	–	Constraints for liquid handling, including media resistance

Tab. 1

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

2 Safety

2.1 Safety instructions

2.1.1 General safety instructions

- Only use the product in its original condition without unauthorised modifications.
- Only use the product if it is in perfect technical condition.
- Do not subject the product to mechanical stress.
- Before working on the product: switch off the compressed air supply and medium supply and secure it against being switched on again.
- Use the product indoors only.
- Use the product in a dry environment only.
- Do not exceed the maximum permissible pressure of the medium. Also take potential pressure peaks in the system into account.
- Store the product in a cool, dry environment protected from UV and corrosion. Keep storage times short.

2.1.2 Media

- Media may escape in the event of leakage. Take suitable protective measures for use and handling of the product.
- When using crystallising media, plan appropriate rinsing routines for the product.
- Use only media that will not cause dangerous reactions if mixed.
- Use only media to which the materials used for the product are resistant. Materials in contact with the medium ➔ 10 Technical data.
- For evaluation of the media resistance ➔ 1 Applicable documents.

2.1.3 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 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 pneumatic valve VZDB is intended for installation in laboratory devices. The product is used to control gaseous and liquid media within the limits of the technical data. The chemical resistance of the materials of the product in contact with the media must be tested for every application.

- Operate the product only with a suitable sub-base. Observe the product labelling on the sub-base.

2.3 Foreseeable misuse

- Do not bring the product into direct contact with foods or their ingredients.
- Do not use the product in medical equipment used to maintain or monitor human life.
- Do not operate the product in reverse.

2.4 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 skills and experience in dealing with pneumatic (open-loop) control technology.

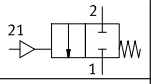
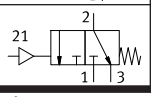
3 Additional information

- Contact the regional Festo contact if you have technical problems ➔ www.festo.com.

4 Product overview

4.1 Function

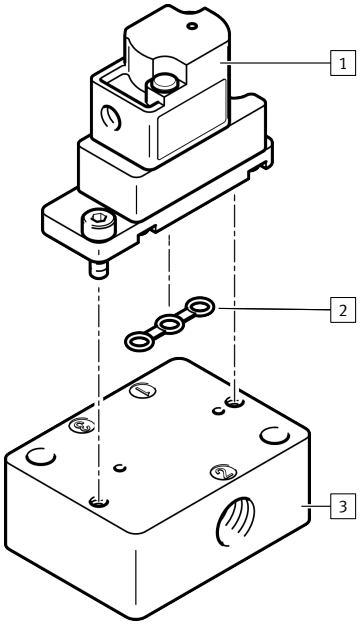
The product is a pilot-controlled directional control valve.

Product	Circuit symbol	Function
VZDB-...-M22C-...		2/2-way valve, normally closed (2) ➔ (1)
VZDB-...-M32-...		3/2-way valve, normally closed (2) ➔ (1) and opened (2) ➔ (3)

Tab. 2: Circuit symbols

4.2 Design

The product is a modular design. The seal and the sub-base are available as accessories. The seal is included in the scope of delivery.



1 Pneumatic valve VZDB
2 Seal VAVC-K2...
3 Sub-base VABS-K2...

Fig. 1: Product design

5 Assembly

5.1 Valve mounting

Requirements

- The medium lines are unpressurised and do not carry any medium.
- The medium lines are free of particles and fibres.
- The medium line ends are mounted.
- Dirt filters are installed in the medium line upstream from the product. Max. particle size: 5 µm.
- The compressed air supply is switched off.

Mechanical

- Mount the product with the accompanying screws. Observe the following tightening torque:

Thread size	Tightening torque [Nm]
M2	0.16 ... 0.2

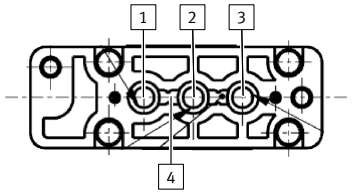
5.2 Mounting of medium connection

- Mount the fittings on the sub-base. Observe the following tightening torque:

Thread size	Tightening torque [Nm]
M6, 1/4-28 UNF	1.5 ... 1.8

6 Installation

6.1 Fluid installation



1 only 3/2-way valve: channel (3) "N/O"
2 Channel (2) "COM"
3 Channel (1) "N/C"
4 Seal

Fig. 2: Fluid connections

6.2 Pneumatic installation

- When tubing valves, observe the following tightening torque:

Thread size	Tightening torque [Nm]
M3	0.1 ... 0.11

7 Commissioning

Requirements

– The product is fully mounted and connected.

Commissioning the product

1. Switch on the media supply.
2. Switch on the compressed air supply.
3. Check the product for leakage.

8 Maintenance

– Inspect the product regularly from the outside for leakage and function.
– Clean the outside of the product as required with a soft dry cloth.

9 Disassembly

1. Switch off the compressed air supply.
2. Depressurise the valve and medium line and allow them to cool.
3. Drain the medium line and valve completely. Collect the discharged media in a suitable container.
4. Disassemble the valve.

10 Technical data

VZDB		
Technical data, general		
Design		Rocker valve with diaphragm seal
Installation location		use only indoors
Mounting position		any
Degree of protection		IP40
Load		
Vibration		severity level 2 in accordance with IEC 60068
Shock		severity level 2 in accordance with IEC 60068
Flow direction		non-reversible
Temperature range		
Medium	[°C]	0 ... 50
Environment	[°C]	0 ... 50
Storage	[°C]	–20 ... +70
Port		
pneumatic		M3
fluidic		flange with additional sub-base VABS; 1/4-28 UNF; M6
Min. grid dimension with block mounting	[mm]	11
Information on materials		Contains paint-wetting impairment substances[1)]
Technical data, fluidic		
Medium		– liquid media – gaseous media
Max. particle size	[µm]	5
Pressure of medium	[MPa]	–0.075 ... +0.1
Materials in contact with the medium		PEEK, EPDM, FFKM, FKM
Flow rate Kv	[m³/h]	0.034
Internal volume	[µl]	35
Technical data, pneumatic		
Pilot pressure	[MPa]	0.15 ... 0.3
Pilot medium		compressed air in accordance with ISO 8573-1:2010 [7:4:1]

1) PWIS = paint-wetting impairment substances

Tab. 3: Technical data

Type of severity level (SL)					
Vibration load					
Frequency range [Hz]		Acceleration [m/s²]		Deflection [mm]	
SL1	SL2	SL1	SG2	SL1	SL2
2 … 8	2 … 8	–	–	±3.5	±3.5
8 … 27	8 … 27	10	10	–	–
27 … 58	27 … 60	–	–	±0.15	±0.35
58 … 160	60 … 160	20	50	–	–
160 … 200	160 … 200	10	10	–	–
Shock load					
Acceleration [m/s²]		Duration [ms]		Shocks per direction	
SL1	SL2	SL1	SL2	SL1	SL2
±150	±300	11	11	5	5
Continuous shock load					
Acceleration [m/s²]		Duration [ms]		Shocks per direction	
±150		6		1000	

Tab. 4: Type of severity level (SL)