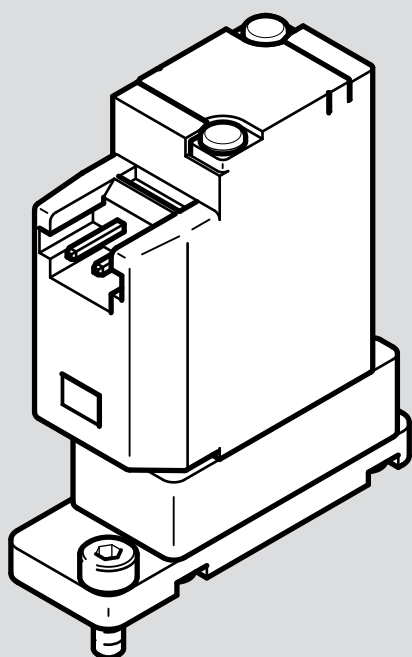


VYKB
Media separated solenoid valve

FESTO

Operating instruction



8216273

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2024-06c
[8216275]

Original instructions

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1 Applicable documents



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

Document	Product	Content
Application note	–	Constraints for liquid handling, including media resistance

Tab. 1

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 power supply, ensure that it is off and secure it against being switched on again.
- Before carrying out any work on the product: switch off the medium supply and secure it against being switched back on.
- Always grasp the plug by the housing. Do not pull on the cable.
- Comply with the handling specifications for electrostatically sensitive devices.
- The product can become hot during continuous operation, during operation in block assembly and in the event of specific faults. Take suitable protective measures when using and handling the product.
- Do not operate the product in the vicinity of highly flammable media and substances.
- Use the product indoors only.
- The product may generate high frequency interference, which may require interference suppression measures in residential areas.
- Do not exceed the maximum permissible pressure of the medium. Potential pressure peaks in the system must also be taken 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 solenoid valve controls gaseous and liquid media. The product is intended for installation in laboratory devices. The chemical resistance of the materials of the product in contact with the media must be tested for every application. The user is responsible for validating the application.

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 electrical (open-loop) control technology.

3 Additional information

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

4 Product overview

4.1 Product design

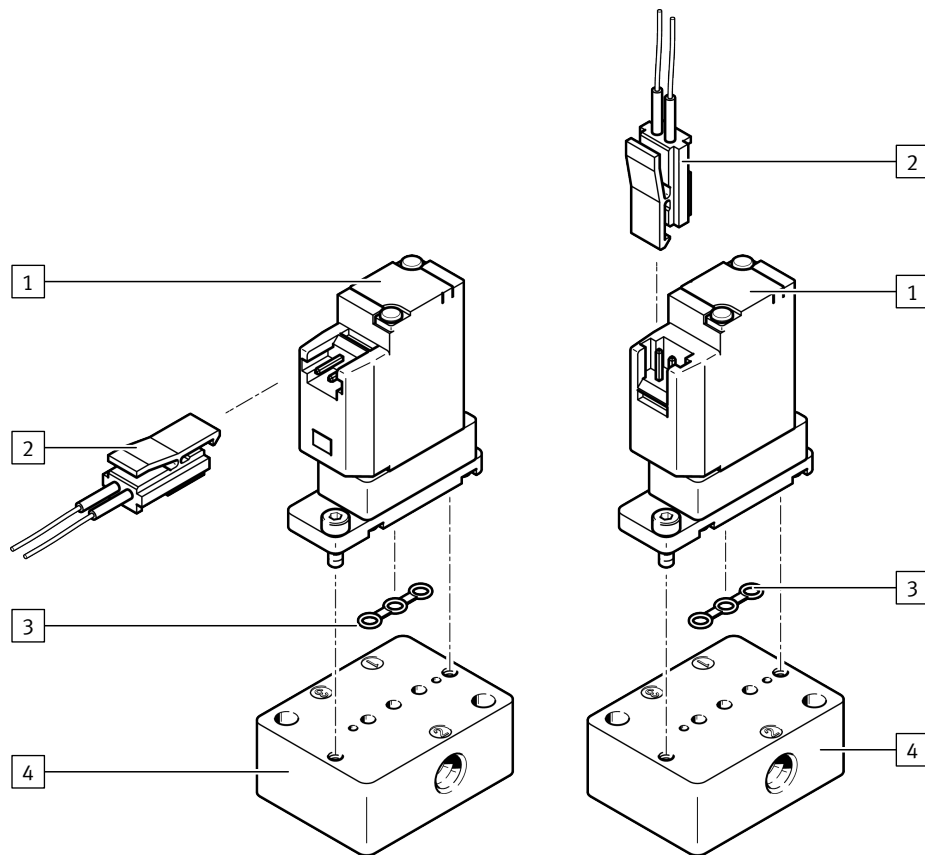


Fig. 1: Product design

- 1 Solenoid valve VYKB
- 2 Connecting cable NEBV-HPG2 (accessories)
- 3 Seal VAVC-K2 (included in scope of delivery and as accessories)
- 4 Sub-base VABS-K2 (accessories)

4.2 Function

The product is a directly actuated directional control valve with solenoid coil.

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

Tab. 2: Circuit symbols

5 Mounting

- The media lines are unpressurised and do not carry any medium.
- The media lines are free of particles and fibres.
- Dirt filters are installed in the medium line upstream from the product. Maximum particle size 5 µm.

- The ducts and sealing surfaces of the sub-base are free of particles and fibres.
- The power supply is switched off.

1. Provide a suitable sub-base.
2. Mount the product on the sub-base with the accompanying screws.

VYKB	-F10	-F12
Max. tightening torque [Nm]	0.18 ± 0.02	0.3 ± 0.03

3. Fasten the sub-base to the base. Maximum tightening torque: 0.6 Nm.
4. Mount the ends of the medium line.

6 Installation

6.1 Fluid installation

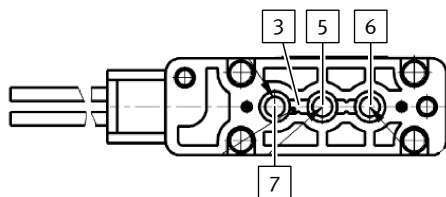


Fig. 2: Fluid installation

- 3 Seal
- 5 Channel (2) "COM"
- 6 Channel (1) "N/C"
- 7 For VYKB-...-M32: channel (3) "N/O"

1. Connect channels (1) and (2) of the sub-base with the connecting cables.
2. For VYKB-...M32: also connect channel (3) of the sub-base with the connecting cable.

6.2 Installation, electrical

⚠ WARNING

Risk of Injury due to Electric Shock.

- For the electric power supply, use only PELV circuits that ensure a reliable electric disconnection from the mains network.
- Observe IEC 60204-1/EN 60204-1.
- The unit must be powered by a power source that fulfils the requirements of an energy-limited circuit in accordance with IEC 61010-1/EN 61010-1.

1. Note the polarity (red cable = +).
2. Note the maximum cable length of 10 m.
3. Insert the plug until the locking lug clicks into place.

7 Commissioning

- The product is fully mounted and connected.

1. Switch on the media supply.
2. Switch on the power 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 Removal

1. Switch off the power 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. Unlock the locking lug when removing the plug.

10 Technical data

10.1 Technical data, general

VYKB	-F10	-F12
Design	Rocker valve with diaphragm seal	
Environment	< 90% rel. humidity, non-condensing	
Mounting position	Any	
Degree of protection	IP40	
Min. grid dimension with block [mm] mounting	11	13
Vibration resistance in accordance with IEC 60068-2-6	Severity level 2	
Shock resistance in accordance with IEC 60068-2-27	Severity level 2	
Temperature of medium [°C]	0 ... +50	
Ambient temperature [°C]	0 ... +50	
Storage temperature [°C]	-20 ... +70	
Fluidic connection	Sub-base VABS: 1/4-28 UNF, G 1/8, M5, M6	Sub-base VABS: 1/4-28 UNF, 1/8 NPT, G 1/8, M6
Electrical connection	Connecting cable NEBVHPG2-...	

Tab. 3: Technical data, general

Type of severity level (SL)					
Vibration load					
Frequency range [Hz]		Acceleration [m/s ²]		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/s ²]		Duration [ms]		Shocks per direction	
SL1	SL2	SL1	SL2	SL1	SL2
±150	±300	11	11	5	5

Type of severity level (SL)		
Continuous shock load		
Acceleration [m/s ²]	Duration [ms]	Shocks per direction
±150	6	1000

Tab. 4: Type of severity level (SL)

10.2 Technical data, electrical

VYKB		-F10	-F12
Max. switching frequency	[Hz]	2	
Duty cycle	[%]	100	
Overvoltage category		II	
Pollution degree		2	
Nominal operating voltage			
VYKB-...-5	[V DC]	12 + 10 %/- 5 %	
VYKB-...-1	[V DC]	24±10 %	
Max. power consumption at inrush current			
VYKB-...-5	[W]	3.7	5.2
VYKB-...-1	[W]	3.7	4.5
Max. power consumption with holding current	[W]	1	
Inrush current			
VYKB-...-5	[mA]	308	433
VYKB-...-1	[mA]	154	188
Holding current			
VYKB-...-5	[mA]	83	84
VYKB-...-1	[mA]	42	42

Tab. 5: Technical data, electrical

10.3 Technical data, fluidic

VYKB		-F10	-F12
Medium		Liquid media	
		Gaseous media	
Max. pollution degree of the medium	[µm]	5	
Materials in contact with the medium		PEEK, EPDM, FFKM, FKM	PEEK, EPDM
Pressure of medium	[MPa]	-0.075 ... +0.1	-0.075 ... +0.3
	[bar]	-0.75 ... +1	-0.75 ... +3
	[psi]	-10.875 ... +14.5	-10.875 ... +43.5
Flow rate Kv	[m ³ /h]	0.034	0.0558
Internal volume	[µl]	35	60

Tab. 6: Technical data, fluidic

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