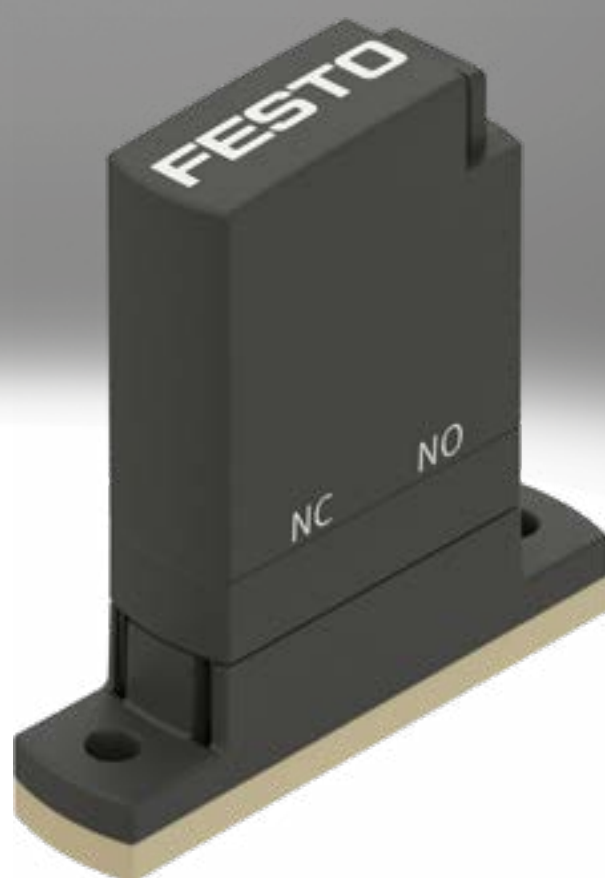


Media separated solenoid valves VYKA

FESTO



Key features

Special characteristics

- Very easy to clean thanks to media separation
- Low media consumption thanks to small internal volume
- Materials in contact with the media conform to FDA-listed materials
- Developed according to ISO 13485
- High-quality materials, therefore also suitable for aggressive media
- High flow rate with minimal size (width 7 mm and nominal width 1.2 mm)
- High repetition accuracy, switching frequency and precision, therefore also suitable for extremely small volumes and dosing tasks
- Low power consumption as a result of holding current reduction
- Extremely flexible in use thanks to 3/2-way and 2/2-way variants as well as 12 ... 26 V DC actuation

Function

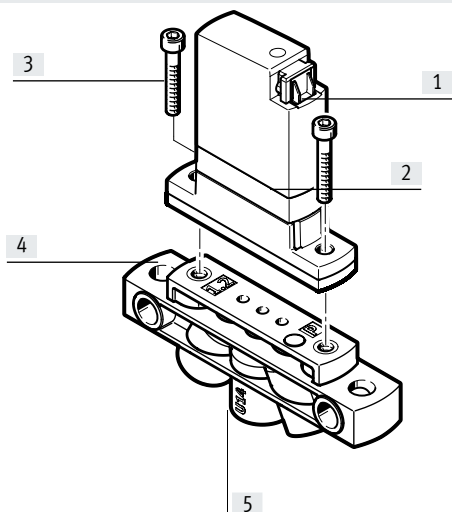
The media separated solenoid valve VYKA is designed for installation in laboratory devices. The valve is used to control gaseous and liquid media within the limits of the technical data. The chemical resistance of the valve materials coming into contact with the media must be checked for each application.

The valve VYKA is a directly actuated directional control valve with solenoid coil. In a de-energised state, the valve automatically returns to its normal position. The normal position is available as a closed or open variant.

Note

The valve uses FDA-listed materials but is not a food contact material in the sense of EC1935/2004. Country-specific regulations in respect of food contact must be taken into account.


Configuration



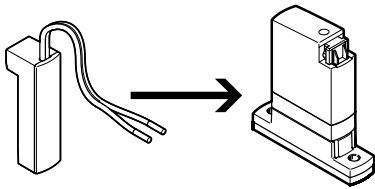
- [1] Terminal contact for E-box VAVE or connecting cable NEBV
- [2] Solenoid valve
- [3] Screws for mounting on the sub-base (included in the scope of delivery of the valves)
- [4] Sub-base VABS
- [5] Media connections

Key features

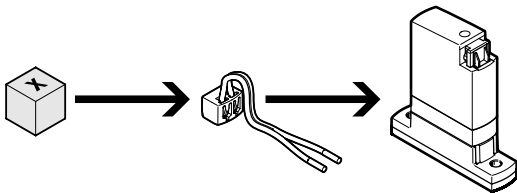
Control

-  - Note

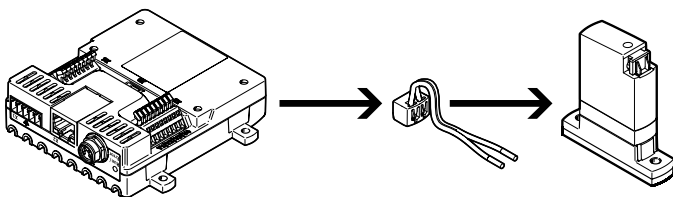
The solenoid valve VYKA is controlled by a constant-current source. A holding current reduction is essential as otherwise the valve will significantly heat up. A holding current reduction can be achieved as follows:



When using E-box VAVE, holding current reduction is integrated (recommended).

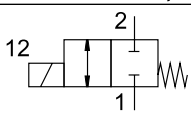
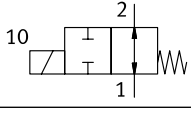
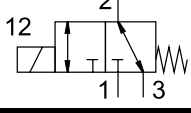


When using connecting cable NEBV, a separate way for the holding current reduction must be provided by the customer.



The valve control module VAEM together with the connecting cable NEBV (recommended) offers the option of control with holding current reduction.

Product range overview

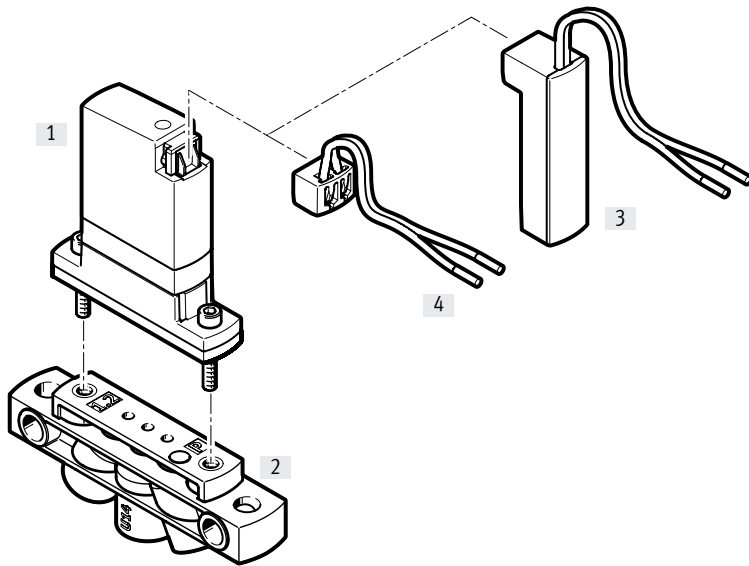
Function	Circuit symbol	Type	Valve function	Flow rate Kv		Operating voltage In combination with VAVE-K1	→ Page/ Internet
				[m ³ /h]	[l/min]		
Media separated solenoid valve	Rocker valve with diaphragm seal						
		VYKA-F7-M22C	2/2-way solenoid valve: • Single solenoid • Normally closed	0.013	0.22	12 ... 26 V DC	7
		VYKA-F7-M22U	2/2-way solenoid valve: • Single solenoid • Normally open	0.013	0.22	12 ... 26 V DC	7
		VYKA-F7-M32	3/2-way solenoid valve: • Single solenoid • Normally closed/open	0.021	0.35	12 ... 26 V DC	7

Type codes

001	Series	
VYKA	Solenoid valve	
002	Directional control valve type	
F	Flanged valve	
003	Size	
7	Size 7	
004	Valve function	
M22U	2/2-way valve, normally open	
M22C	2/2-way valve, normally closed	
M32	3/2-way valve, normally closed or open	
005	Nominal width	
12	1.2 mm	

006	Pressure range [bar]	
D2	0 ... 2	
007	Housing material	
P	PEEK	
008	Diaphragm and sealing material	
V	FPM	
F	FFPM	
009	Nominal operating voltage	
5Y	12 V DC to 26 V DC	
010	Electrical connection	
Q7	Plug socket, connection pattern Q	



Peripherals overview



Accessories

	Type/order code	Description	→ Page/Internet
[1]	VYKA	Solenoid valve	12
[2]	VABS	Sub-base	12
[3]	VAVE	E-box	12
[4]	NEBV	Connecting cable	12

Data sheet

-  7 mm
-  Flow rate
0.013 ... 0.021 m³/h



General technical data			
Valve function			2/2-way, single solenoid, closed 2/2-way, single solenoid, open 3/2-way, single solenoid, open/closed
Design			Rocker valve with diaphragm seal
Reset method			Mechanical spring
Size			7
Nominal width		[mm]	1.2
Grid dimension		[mm]	7.5
Fluid connection			Flange
Standard nominal flow rate	VYKA-F7-M22C	[l/min]	7.2
	VYKA-F7-M22U		7
	VYKA-F7-M32		11
Note on standard nominal flow rate			With a pressure drop 1 → 0 bar (gas)
Flow rate Kv	2/2-way valve	[m ³ /h]	0.013
		[l/min]	0.22
	3/2-way valve	[m ³ /h]	0.021
		[l/min]	0.35
Note on flow rate Kv			For water as medium Pressure difference 1 bar
Water flow rate at max. operating pressure	2/2-way valve	[m ³ /h]	0.018
		[l/min]	0.3
	3/2-way valve	[m ³ /h]	0.03
		[l/min]	0.5
Internal volume	2/2-way valve		20 µl including 2 fluid connections
	3/2-way valve		22 µl including 2 fluid connections
Sealing principle			Soft
Direction of flow			Reversible with restrictions
Actuation type			Electrical
Type of control			Direct
Manual override			None
Type of mounting			With through-hole for M2 screw
Mounting position			Any
Degree of protection			IP40
Note on degree of protection			In assembled state
Application information			For indoor use only
Corrosion resistance class ¹⁾			0
Product weight		[g]	10.9

1) Corrosion resistance class CRC 0 to Festo standard FN 940070

No corrosion stress. Applies to small, visually unimportant standards-based parts such as threaded pins, circlips and clamping sleeves which are usually only available on the market in a phosphated or burnished version (and possibly oiled) as well as to ball bearings (for components < CRC 3) and plain bearings.

Data sheet

Electrical data						
In combination with VAVE						
Operating voltage range		[V DC]	12 ... 26			
Note on operating voltage range	With E-box VAVE-K1-...					
Permissible voltage fluctuations		[%]	±10			
Electrical connection 1	Connection type		Socket			
	Connection technology		Plug pattern Q7			
	Number of pins/wires		2			
Insulation class	B					
Electrical power consumption		[W]	3.5			
Note on power consumption	Low-current phase 0.3 W, high-current phase 3.5 W for 60 ms, in combination with VAVE-K1-...					
Characteristic coil data	12 ... 26 V DC: low-current phase 0.06 W, high-current phase 2.2 W					
Duty cycle		[%]	100, in combination with holding current reduction			
	Observe notes on operating the solenoid valves					
Plug NEBV with use of individual constant-current source						
Inrush current		[mA]	300 for 60 ms			
Holding current		[mA]	50			
Permissible energy fluctuations		[%]	± 2			
Switching time						
			2/2-way valve		3/2-way valve	
			Diaphragm material FFPM	Diaphragm material FPM	Diaphragm material FFPM	Diaphragm material FPM
Switching time for gaseous media	On	[ms]	6	4	5	4
	Off	[ms]	6	4	5	5
Switching time for liquid media	On	[ms]	5	5	5	4
	Off	[ms]	7	6	6	6
Max. switching frequency		[Hz]	6			
Note on switching frequency	Dependent on the ambient temperature and installation state					
Switching frequency						
			Ambient temperature			
			< 20°C	20 ... 30°C	30 ... 40°C	40 ... 50°C
Maximum switching frequency	Individual valve	[Hz]	6	5	4	3
	Manifold assembly ¹⁾	[Hz]	2	1.5	1	0.5

1) Space between two valves: < 7.5 mm

Data sheet

Operating and environmental conditions		Diaphragm material FFPM	Diaphragm material FPM
Medium		Liquid media	
		Gaseous media	
Note on the medium		Note resistance of materials in contact with the media	
		Maximum particle size 5 µm	
Temperature of gaseous media	[°C]	15 ... 50	0 ... 50
Temperature of liquid media	[°C]	15 ... 50	0 ... 50
Ambient temperature	[°C]	15 ... 50	0 ... 50
Storage temperature	[°C]	-20 ... 70	-20 ... 70
Pressure of medium	[MPa]	0 ... 0.2	
	[bar]	0 ... 2	
	[psi]	0 ... 29	
Pressure of medium, reversible	[MPa]	0 ... 0.1	
	[bar]	0 ... 1	
	[psi]	0 ... 14.5	
Burst pressure	[MPa]	2.3	
	[bar]	23	
	[psi]	333.5	

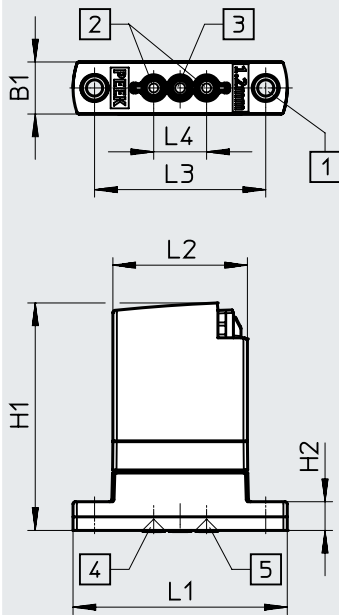
Information on materials		
Materials in contact with the media	All types	PEEK
	VYKA- ... -PF	FFPM
	VYKA- ... -PV	FPM
Food-safe		See supplementary material information
Housing material		Reinforced PA
		PEEK
		Reinforced PPA
Diaphragm material	VYKA- ... -PF	FFPM
	VYKA- ... -PV	FPM
Sealing material	VYKA- ... -PF	FFPM
	VYKA- ... -PV	FPM
Material of sub-base VABS		PEEK
Note on materials		RoHS-compliant
PWIS conformity		VDMA24364 zone III

Data sheet

Dimensions

Download CAD data → www.festo.com

Solenoid valve



- [1] Mounting holes, screws supplied for threaded hole M2
- [2] Fluid connection
- [3] COM port (only 3/2-way variants)
- [4] Valve inlet only for VYKA-F7-M22U
- [5] Valve inlet only for VYKA-F7-M22C

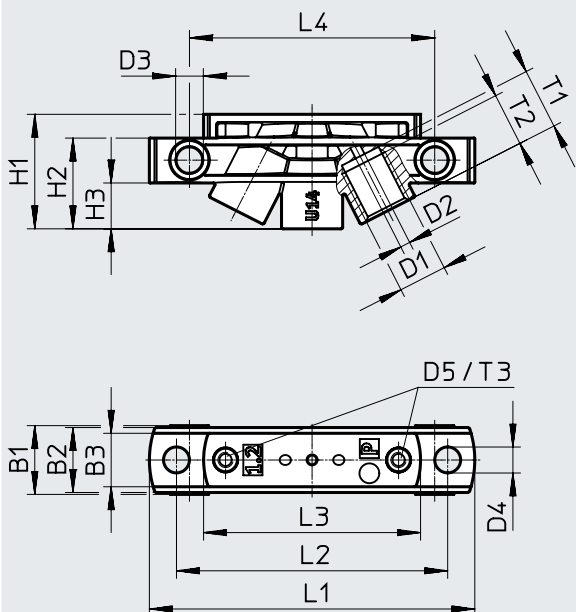
Type	B1	H1	H2	L1	L2	L3 ± 0.1	L4 ± 0.1
VYKA	7	30	3.8	28.4	17.8	22.7	7

Data sheet

Dimensions

Download CAD data → www.festo.com

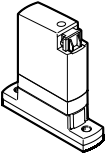
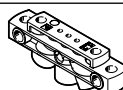
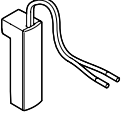
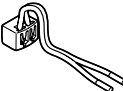
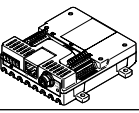



Manifold rail



Type	B1	B2	B3	D1	D2	D3	D4	D5
VABS-K1-7B-12-U14-P	9	8.5	7	UNF 1/4-28	1.3	3.6	3.4	M2
VABS-K1-7B-12-M5-P				M5				

Type	H1	H2	H3	L1	L2	L3	L4	T1	T2	T3
VABS-K1-7B-12-U14-P	15	11.9	6	42.6	35.5	28.4	32.1	8	7	5
VABS-K1-7B-12-M5-P										

Accessories

Ordering data		Description	Part no.	Type		
Solenoid valve						
	2/2-way valve, normally closed	Diaphragm and sealing material FFPM	8114566	VYKA-F7-M22C-12-D2-PF-5YQ7		
		Diaphragm and sealing material FPM	8114567	VYKA-F7-M22C-12-D2-PV-5YQ7		
	2/2-way valve, normally open	Diaphragm and sealing material FFPM	8114568	VYKA-F7-M22U-12-D2-PF-5YQ7		
		Diaphragm and sealing material FPM	8114569	VYKA-F7-M22U-12-D2-PV-5YQ7		
	3/2-way valve, normally closed or open	Diaphragm and sealing material FFPM	8114564	VYKA-F7-M32-12-D2-PF-5YQ7		
		Diaphragm and sealing material FPM	8114565	VYKA-F7-M32-12-D2-PV-5YQ7		
Sub-base						
	Female thread M5	Nominal width 1.2 mm	8047064	VABS-K1-7B-12-M5-P		
	Female thread 1/4-28 UNF	Nominal width 1.2 mm	8047063	VABS-K1-7B-12-U14-P		
E-box						
	Straight socket, plug pattern Q7, with holding current reduction		8115100	VAVE-K1-7-5YL1-LR		
Connecting cable						
	Straight socket, plug pattern Q7	Cable length 0.1 m	8115892	NEBV-Q7G2-PD-0.1-N-LE2		
		Cable length 0.5 m	8115099	NEBV-Q7G2-PD-0.5-N-LE2		
Valve control module						
	For up to 8 solenoid valves		8088772	VAEM-V-S8EPRS2		
Push-in fitting						
	Male thread M5	For tubing O.D. 4 mm	8085657	NPQR-DK-M5-Q4		
		For tubing O.D. 6 mm	8085659	NPQR-DK-M5-Q6		
Ordering data						
Ordering data		Description	Part no.	Type	PU ¹⁾	
Fitting						
	Male thread 1/4-28 UNF	For tubing I.D. 1.2 mm	8104288	NLFA-D-U14-B1.2-PP-P10	10	
		For tubing O.D. 1.6 mm	8104285	NLFA-D-U14-K1.6-PP-P10	10	
		For tubing I.D. 2.1 mm	8104289	NLFA-D-U14-B2.1-PP-P10	10	
		For tubing O.D. 3.0 mm	8104286	NLFA-D-U14-K3-PP-P10	10	
		For tubing O.D. 3.2 mm	8104287	NLFA-D-U14-K3.2-PP-P10	10	
Dosing nozzles						
	Dosing needle set	Dosing needle 30 mm	Nominal width 0.3 mm	8104295	VAVN-N-A1.6-03-30-F-V-V1-P10	10
				8104294	VAVN-N-A1.6-03-30-V-V1-P10	10
		Dosing needle 60 mm	Nominal width 0.3 mm	8104298	VAVN-N-A1.6-03-60-F-V-V1-P10	10
				8104297	VAVN-N-A1.6-03-60-V-V1-P10	10
		Dosing needle 30 mm	Nominal width 0.6 mm	8104290	VAVN-N-A1.6-06-30-V1-P10	10
				8104296	VAVN-N-A1.6-06-30-V-V1-P10	10
		Dosing needle 60 mm	Nominal width 0.6 mm	8104292	VAVN-N-A1.6-06-60-V1-P10	10
				8104299	VAVN-N-A1.6-06-60-V-V1-P10	10
		Dosing needle 30 mm	Nominal width 1.2 mm	8104291	VAVN-N-A1.6-12-30-V1-P10	10
				8104293	VAVN-N-A1.6-12-60-V1-P10	10

1) Packaging unit