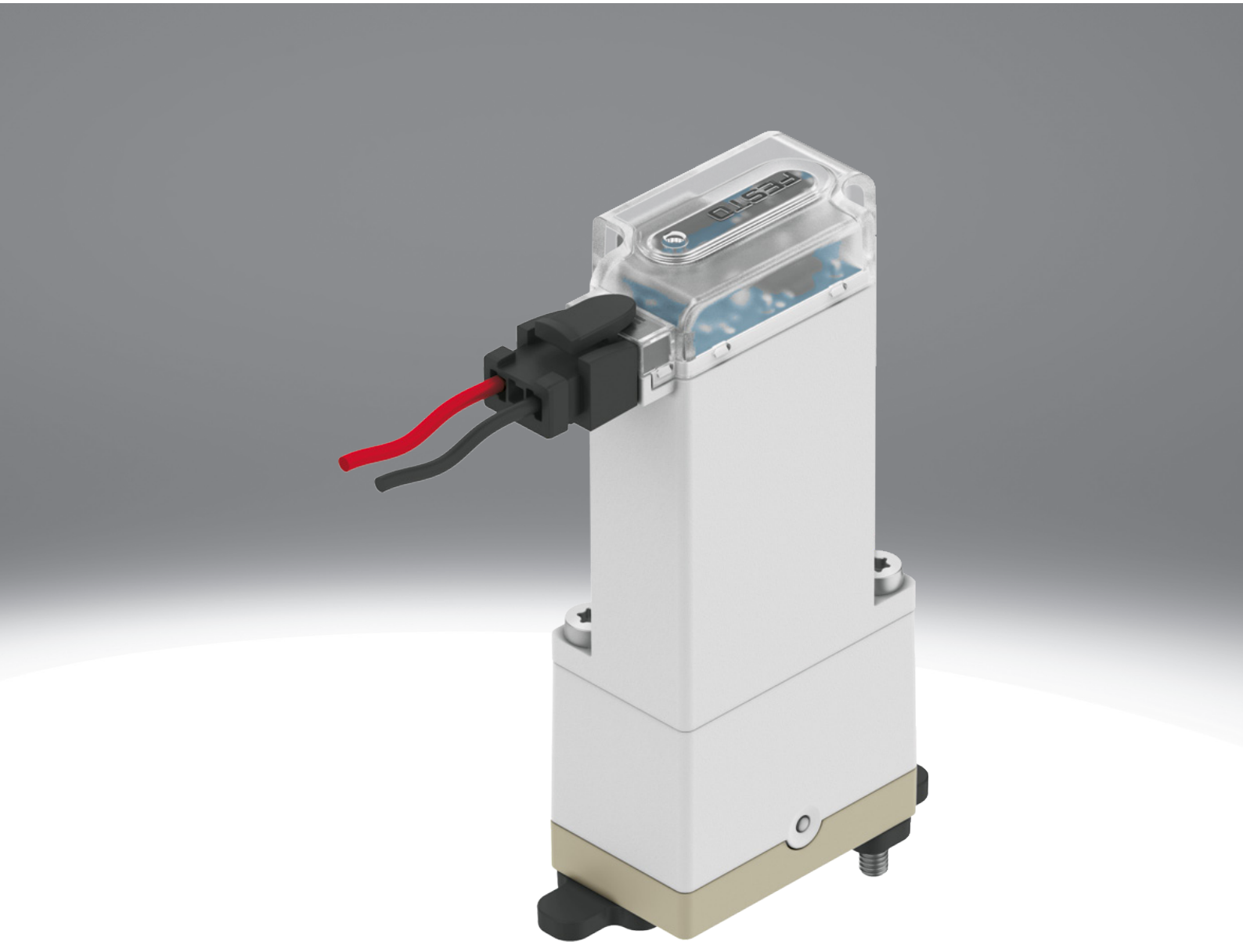
Media separated solenoid valve VYKC

FESTO



Characteristics

At a glance Link vykc

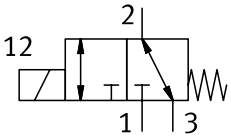
General information:
- Media-separated diaphragm valve for switching different gases and liquids
- Large pressure/vacuum range and high reversible flow rate at different nominal widths
- Extremely versatile thanks to 2/2-way and 3/2-way variants, ideal for controlling and mixing media
- Low power consumption and reduced heat loss through actuation using holding current reduction
- Extensive range of accessories for electrical and fluidic connection options for customised integration of components
- Performance data can be customised on request, for example extending the pressure/vacuum range or individual interfaces

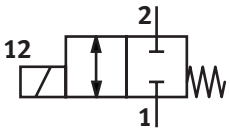
Special characteristics:
- High-quality FDA-listed materials are also suitable for aggressive biological and chemical media
- Low media consumption and easy to clean thanks to small internal volume
- Conforms to oxygen compatibility according to ISO15001 and the limit values for particle emissions and outgassing according to ISO18562
- Development and production according to ISO13485
- Production in cleanroom class 7 according to ISO14664

Function:
- The valve VYKC is a directly actuated valve with solenoid coil. When de-energised, the valve automatically returns to its normal position. A closed or an open normal position (3/2-way solenoid valve only) are available as variants.

Valve function

[32]	3/2-way valve
[M22C]	2/2-way valve, normally closed



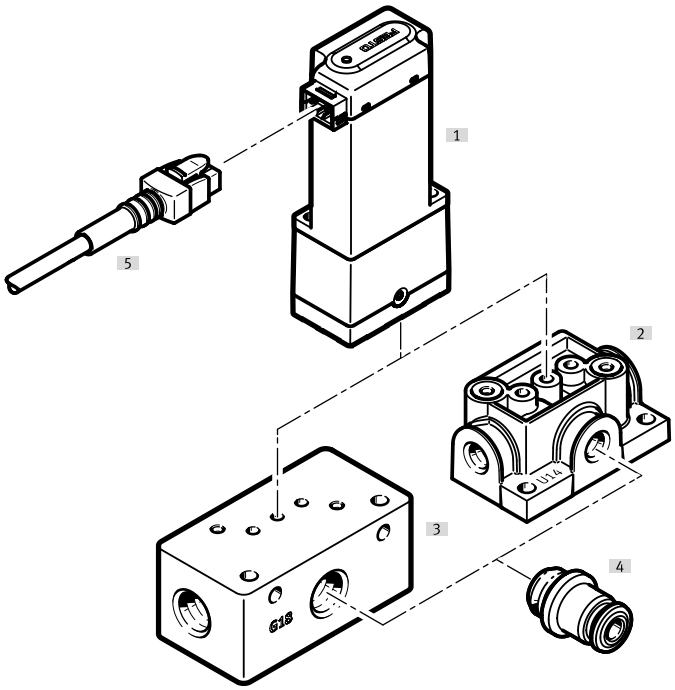


Nominal width

[16]	1.6 mm
[20]	2 mm

Characteristics

Series	
[VYKC]	Solenoid valve VYKC



[1] Solenoid valve VYKC
[2] Manifold rail VABS-K3-16S-20-...
[3] Manifold rail VABS-K3-16-S-20-...18-P
[4] Fitting
[5] Connecting cable

Type code

001	Series	
VYKC	Solenoid valve VYKC	

002	Directional control valve type	
F	Flanged valve	

003	Size	
16	Size 16	

004	Valve function	
M22C	2/2-way valve, normally closed	
M32	3/2-way valve, normally closed or open	

005	Nominal width	
16	1.6 mm	
20	2 mm	

006	Housing material	
P	PEEK	

007	Diaphragm and sealing material	
E	EPDM	
V	FPM	

008	Electrical connection	
H2	Connection pattern H, horizontal plug	

009	Circuitry	
	None	
R	Holding current reduction with integrated protective circuit	

Datasheet

General technical data				
Valve function	2/2-way, closed, monostable		3/2-way, monostable, open/closed	
Nominal size	1.6 mm	2 mm	1.6 mm	2 mm
Design	Electrical connection at the side Rocker valve with diaphragm seal			
Type of reset	Mechanical spring			
Size	16			
Grid dimension	17 mm			
Fluid connection	Flange			
Internal volume	108 µl valve with fluid connections 89 µl fluid chamber valve	110 µl valve with fl. conn. 89 µl fluid chamber valve	59 µl fluid chamber valve 94 µl valve with fl. conn.	
Sealing principle	Soft			
Flow direction	Reversible			
Type of actuation	Electric			
Type of piloting	Direct			
Manual override	None			
Type of mounting	With through-hole for M2.5 screw			
Mounting position	optional			
Degree of protection	IP40			
Product weight	50 g			

Operating and environmental conditions						
Valve function	2/2-way, closed, monostable			3/2-way, monostable, open/closed		
Nominal size	1.6 mm	2 mm		1.6 mm	2 mm	
Material membrane	EPDM		FPM	EPDM		FPM
Medium	Liquid media Gaseous media					
Note on the medium	Observe resistance of materials that come into contact with the media Maximum particle size 5 µm					
Standard nominal flow rate (standardised to DIN 1343)	53 l/min	65 l/min	55 l/min	46 l/min	62 l/min	50 l/min
Water flow rate at max. operating pressure	0.08 m³/h 1.3 l/min	0.07 m³/h 1.2 l/min	1.1 l/min	0.066 m³/h 1.1 l/min	0.07 m³/h 1.2 l/min	–
Flow rate Kv	0.046 m³/h	0.048 m³/h	0.043 m³/h	0.026 m³/h	0.046 m³/h	0.041 m³/h
Flow rate Kv	0.77 l/min	0.8 l/min	0.72 l/min	0.44 l/min	0.77 l/min	0.67 l/min
Note on flow rate Kv	For medium water, Pressure difference 1 bar					
Ambient temperature	10 ... 50°C	0 ... 50°C	15 ... 50°C	10 ... 50°C	0 ... 50°C	
Media temperature	10 ... 50°C	0 ... 50°C	15 ... 50°C	10 ... 50°C	0 ... 50°C	
Storage temperature	-20 ... 70°C					
Corrosion resistance class CRC	0 - No corrosion stress					
Medium pressure	-0.075 ... 0.3 MPa	-0.075 ... 0.2 MPa		-0.075 ... 0.3 MPa	-0.075 ... 0.2 MPa	
Medium pressure	-0.75 ... 3 bar	-0.75 ... 2 bar		-0.75 ... 3 bar	-0.75 ... 2 bar	
Medium pressure	-10.875 ... 43.5 psi	-10.875 ... 29 psi		-10.875 ... 43.5 psi	-10.875 ... 29 psi	
Burst pressure	2 MPa					
Burst pressure	20 bar					
Burst pressure	290 psi					

Electrical data	
Operational voltage range DC	12 ... 24 V
Insulation material class	B
Duty cycle	100% in conjunction with holding current reduction Observe the notes on operating the solenoid valves.
Permissible voltage fluctuations	+/- 10%
Characteristic coil data	12 - 24 V DC: low-current phase 1.4 W, high-current phase 5.5 W
Electrical connection 1, connection type	Cable with plug
Electrical connection 1, connector system	Connection pattern H

Datasheet

Switching time						
Valve function	2/2-way, closed, monostable			3/2-way, monostable, open/closed		
Nominal size	1.6 mm	2 mm		1.6 mm	2 mm	
Material membrane	EPDM		FPM	EPDM		FPM
Switching time on gaseous media	12 ms		10 ms	11 ms	13 ms	9 ms
Switching time off gaseous media	–			3 ms		5 ms
Switch-on time for fluids	14 ms	16 ms	13 ms	20 ms	17 ms	15 ms
Switch-off time for fluids	–			15 ms	12 ms	7 ms

Switching frequency	
Max. switching frequency [1]	4 Hz
Note on switching frequency [2]	Dependent on the ambient temperature and installation state

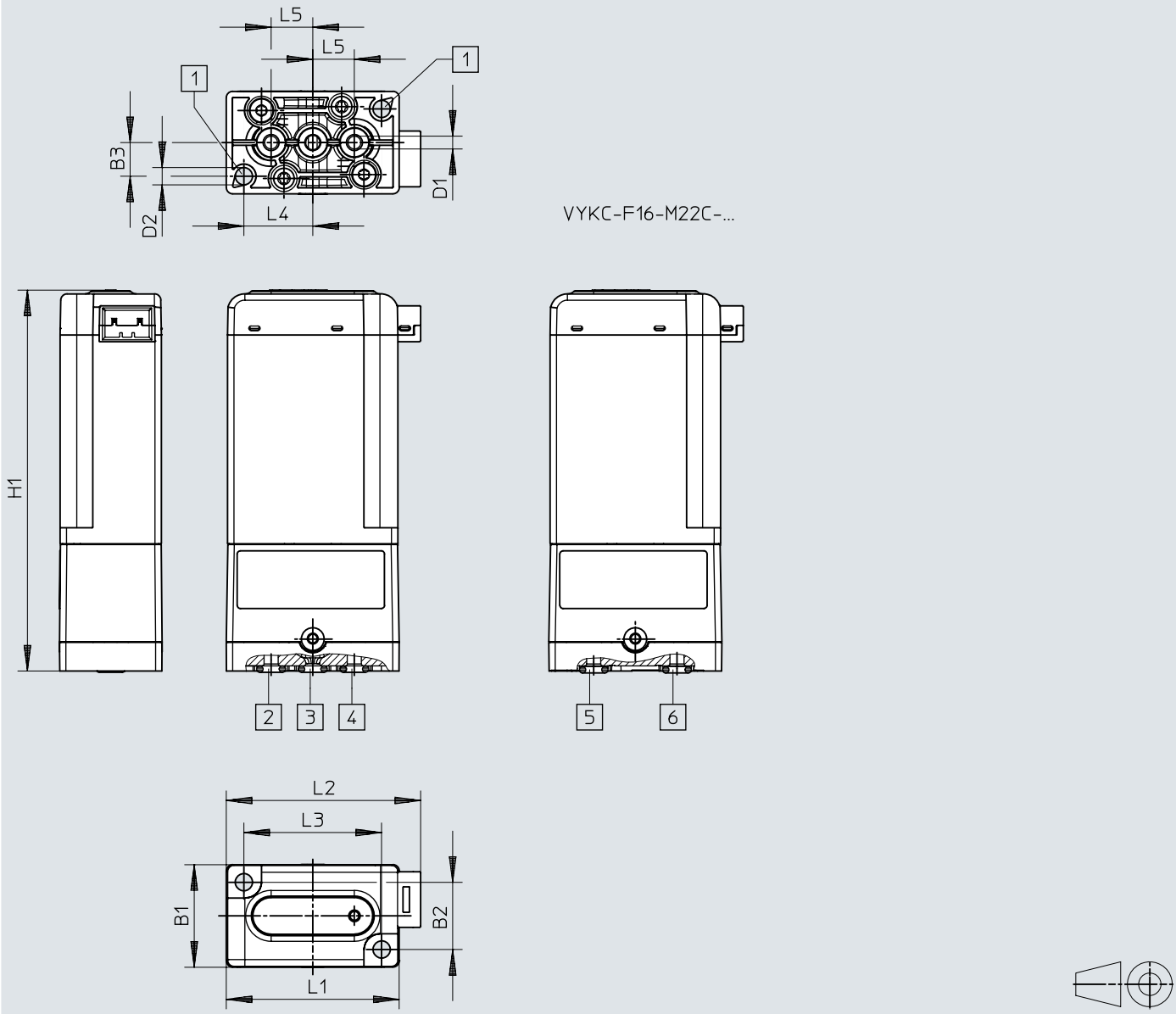
1) With 100% duty cycle

2) With a 100% duty cycle, higher switching frequencies are possible

Materials	
Material housing	PEEK
Material membrane	EPDM FPM
Material seals	EPDM FPM
Note on materials	RoHS-compliant

Dimensions

Dimensions – Solenoid valve VYKC Download CAD data www.festo.com

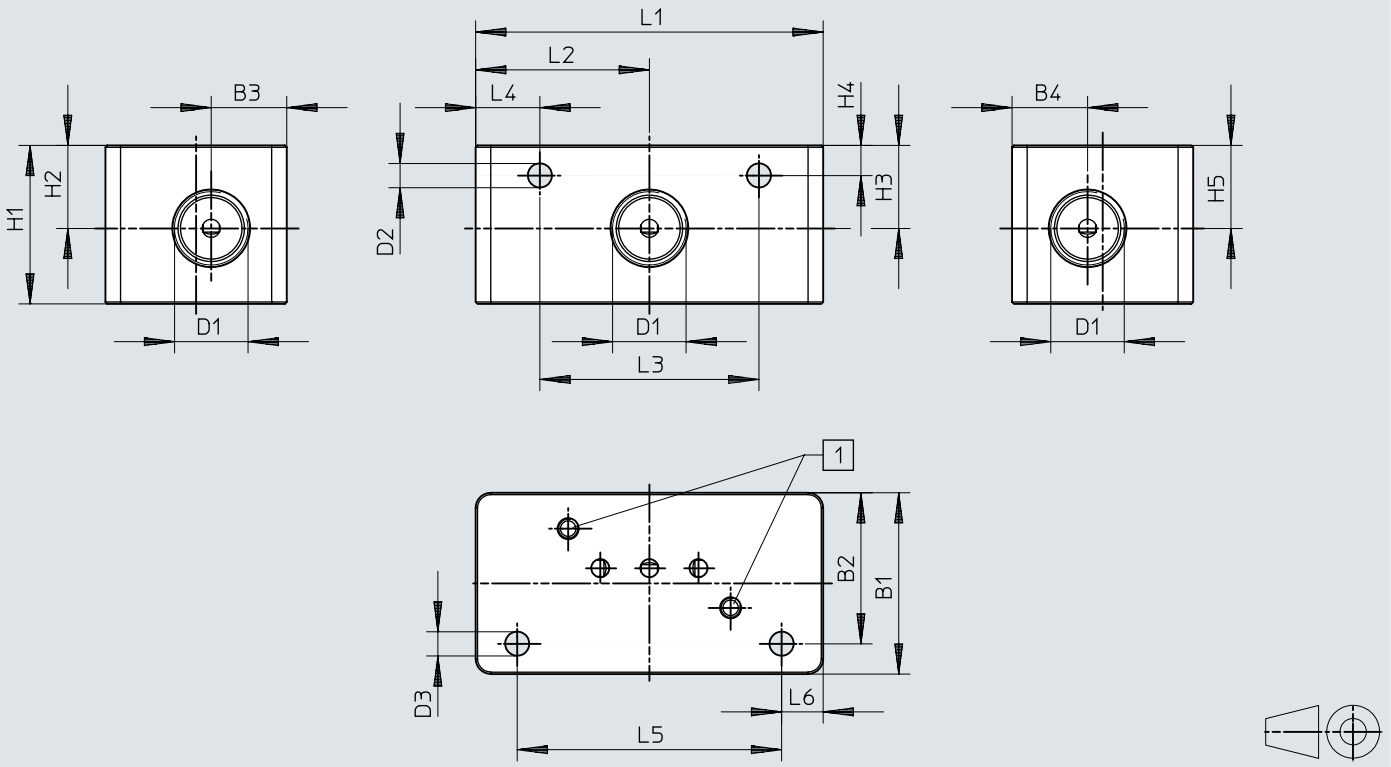


[1] Mounting holes. Screws enclosed for M2.5 thread
[2] Connection NO
[3] Connection COM
[4] Connection NC
[5] Connection IN
[6] Connection OUT

	B1 ±0,3	B2	B3	D1 ø	D2 ø	H1 ±0,4	L1 ±0,3	L2 ±0,4	L3	L4	L5
VYKC-F16-...	16	10,5	5,3	2,2	2,7	59,5	27	30,3	21,5	10,8	6,5

Dimensions

Dimensions – Manifold rail VABS-K2-16S Download CAD data www.festo.com



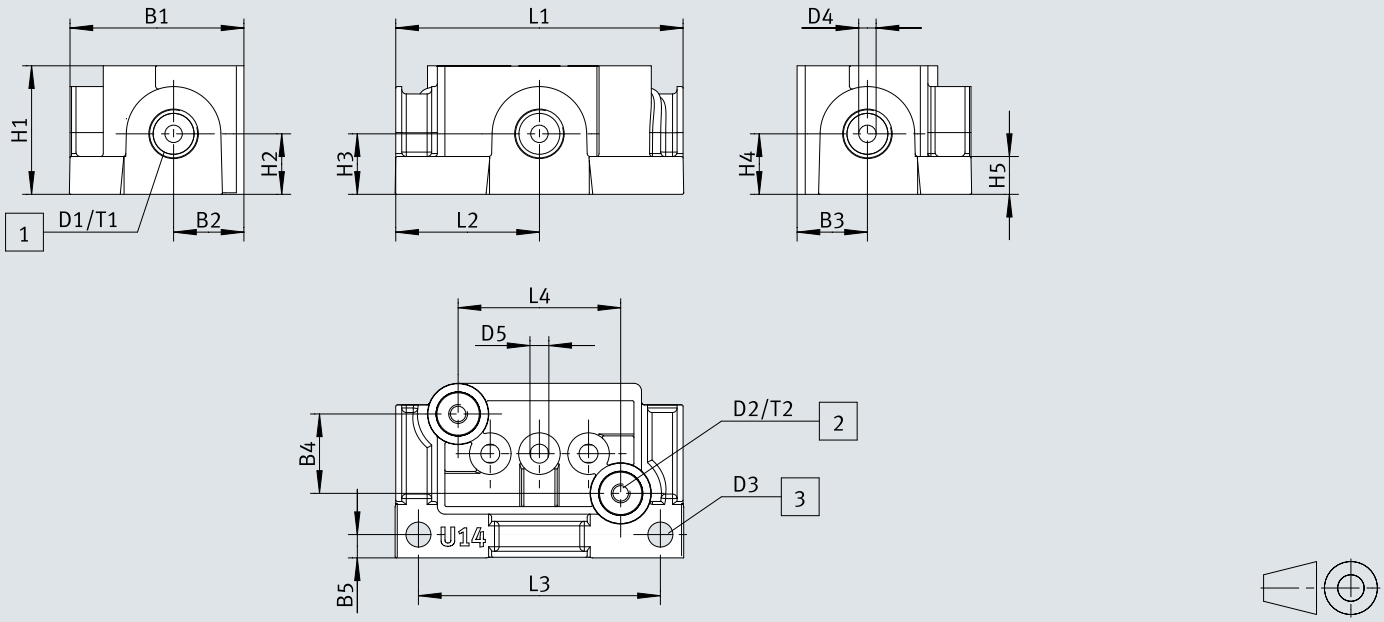
[1] Mounting holes: M2.5 thread (depth 6.5 mm)

	B1	B2	B3	B4	D1 ø	D2 ø	D3 ø	H1	H2
VABS-K3-16S-20-G18-P	24	20	10	10	G1/8	3,2	3,2	21	11
VABS-K3-16S-20-N18-P					NPT1/8-27				

	H3	H4	H5	L1	L2	L3	L4	L5	L6
VABS-K3-16S-20-G18-P	11	4	11	46	23	29	8,5	35	5,5
VABS-K3-16S-20-N18-P									

Dimensions

Dimensions – Manifold rail VABS-K2-16S-20-... Download CAD data www.festo.com



[1] Fluid connection
[2] Valve mounting
[3] Base plate mounting

	B1 ±0,5	B2	B3	B4	B5 ±0,5	D1 ±0,5	D2 ±0,2	D3 Ø ±0,1	D4 Ø	D5 Ø
VABS-K3-16S-20-M5-P	23	9,3	9,3	10,5	3,1	M5	M2,5	3,3	2,3	2,5
VABS-K3-16S-20-U14-P						UNF 1/4-28				

	H1 ±0,5	H2	H3	H4	H5 ±0,5	L1 ±0,5	L2	L3 ±0,5	L4	T1	T2 ±0,2
VABS-K3-16S-20-M5-P	17	8	8	8	5	38	19	32	21,5	7,5 ±0,5	7,5
VABS-K3-16S-20-U14-P										8,9 ±0,1	

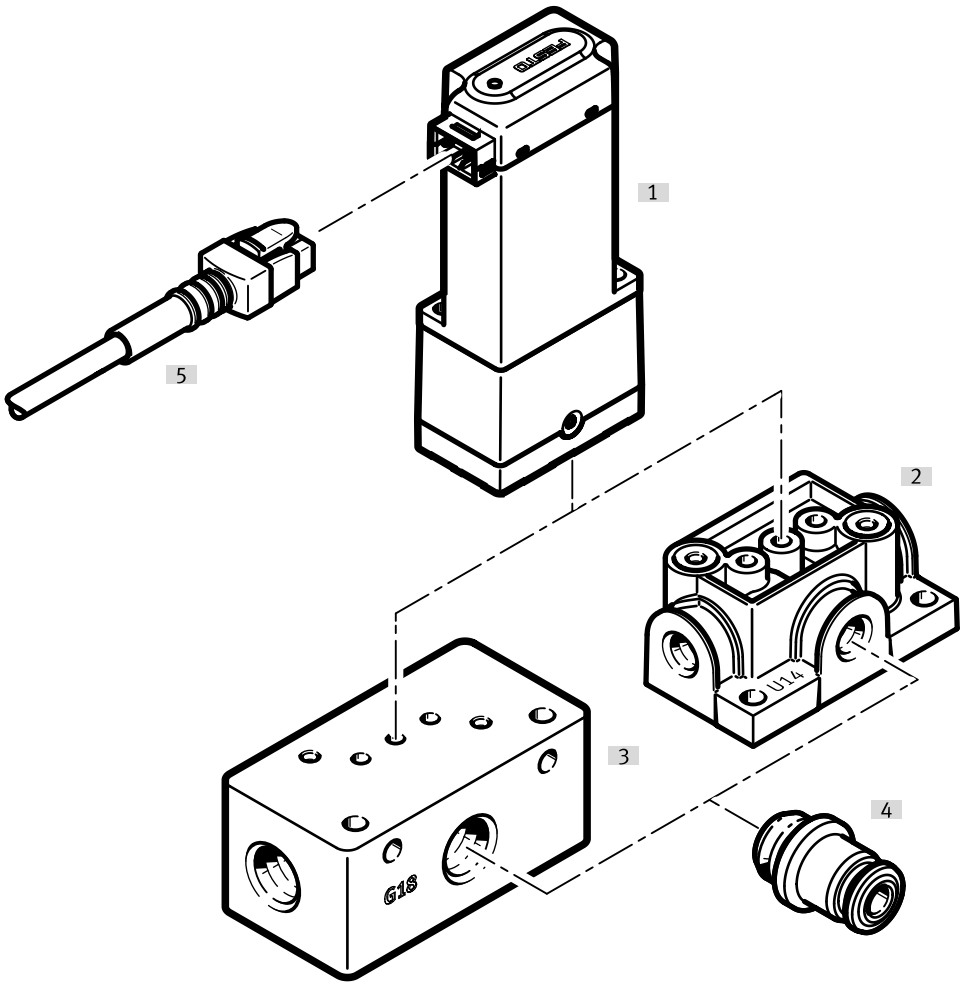
Ordering data

Solenoid valve VYKC

	Valve function	Nominal size	Standard nominal flow rate (standardised to DIN 1343)	Flow rate Kv	Water flow rate at max. operating pressure	Part no.	Type
	2/2-way, closed, monostable	1.6 mm	53 l/min	0.77 l/min	0.08 m³/h, 1.3 l/min	**8172729**	**VYKC-F16-M22C-16-PE-H2**
						8172715	**VYKC-F16-M22C-16-PE-H2R**
		2 mm	55 l/min	0.72 l/min	1.1 l/min	**8172720**	**VYKC-F16-M22C-20-PV-H2R**
						8172735	**VYKC-F16-M22C-20-PV-H2**
			65 l/min	0.8 l/min	0.07 m³/h, 1.2 l/min	**8172734**	**VYKC-F16-M22C-20-PE-H2**
						8172719	**VYKC-F16-M22C-20-PE-H2R**
	3/2-way, monostable, open/closed	1.6 mm	46 l/min	0.44 l/min	0.066 m³/h, 1.1 l/min	**8172704**	**VYKC-F16-M32-16-PE-H2**
						8172695	**VYKC-F16-M32-16-PE-H2R**
		2 mm	50 l/min	0.67 l/min		**8172708**	**VYKC-F16-M32-20-PV-H2**
						8172699	**VYKC-F16-M32-20-PV-H2R**
			62 l/min	0.77 l/min	0.07 m³/h, 1.2 l/min	**8172698**	**VYKC-F16-M32-20-PE-H2R**
						8172707	**VYKC-F16-M32-20-PE-H2**

Peripherals

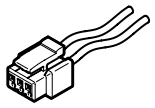
Peripherals overview



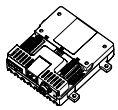
Accessories			→ Link
	Type/order code	Description	
[1]	Solenoid valve	VYKC	vykc
[2]	Manifold rail	VABS-K3-16S-20-...	12
[3]	Manifold rail	VABS-K316S-20-...18-P	12
[4]	Fitting	NPQR-DK-... NLFA-D-U14-...	12
[5]	Connecting cable	NEBV-H1G2-KN-...	12

Accessories

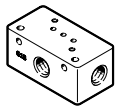
Connecting cable

	Electrical connection 1, connection type	Electrical connection 1, cable outlet	Electrical connection 1, connector system	Cable length	Part no.	Type
	Socket	Straight	Connection pattern H	0.5 m	**566654**	**NEBV-H1G2-KN-0.5-N-LE2**
					566658	**NEBV-H1G2-P-0.5-N-LE2**
				1 m	**566659**	**NEBV-H1G2-P-1-N-LE2**
					566655	**NEBV-H1G2-KN-1-N-LE2**
				2.5 m	**566660**	**NEBV-H1G2-P-2.5-N-LE2**
				5 m	**566657**	**NEBV-H1G2-KN-5-N-LE2**
					566661	**NEBV-H1G2-P-5-N-LE2**

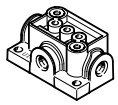
Valve control module

	Max. number of outputs	Part no.	Type
	8	**8088772**	**VAEM-V-S8EPRS2**

Manifold rail

	Fluid connection	Part no.	Type
	Female thread 1/8 NPT	**8186872**	**VABS-K3-16S-20-N18-P**
	Female thread G1/8	**8186873**	**VABS-K3-16S-20-G18-P**

Manifold rail VABS-K3-16S-20-..

	Fluid connection	Part no.	Type
	Female thread 1/4-28 UNF-2B	**8187600**	**VABS-K3-16S-20-U14-P**
	Female thread M5	**8187601**	**VABS-K3-16S-20-M5-P**

Push-in fitting

	Nominal size	Pneumatic connection, port 1	Pneumatic connection, port 2	Design	Part no.	Type
	2.1 mm	Male thread M5	For tubing outside diameter of 4 mm	Straight design	**8085657**	**NPQR-DK-M5-Q4**
	2.5 mm			L-shape	**8203302**	**NPQO-L-M5-Q4-P10**
				Straight design	**8203292**	**NPQO-D-M5-Q4-P10**
			For tubing outside diameter of 6 mm		**8203293**	**NPQO-D-M5-Q6-P10**
	2.6 mm			L-shape	**8203303**	**NPQO-L-M5-Q6-P10**
				Straight design	**8085659**	**NPQR-DK-M5-Q6**
		Male thread G1/8	For tubing outside diameter of 4 mm		**8085661**	**NPQR-DK-G18-Q4**
	4.2 mm		For tubing outside diameter of 6 mm		**8085662**	**NPQR-DK-G18-Q6**
	5.3 mm		For tubing outside diameter of 8 mm		**8085663**	**NPQR-DK-G18-Q8**
			For tubing outside diameter of 10 mm		**8087695**	**NPQR-DK-G18-Q10**

Accessories

Fitting

	Fluid connection 2	Part no.	Type
	For tubing O.D. 3 mm	**8104286**	**NLFA-D-U14-K3-PP-P10**
	For tubing I.D. 1.2 mm	**8104288**	**NLFA-D-U14-B1.2-PP-P10**
	For tubing I.D. 2.1 mm	**8104289**	**NLFA-D-U14-B2.1-PP-P10**
	For tubing O.D. 1.6 mm (1/16“)	**8104285**	**NLFA-D-U14-K1.6-PP-P10**
	For tubing O.D. 3.2 mm (1/8“)	**8104287**	**NLFA-D-U14-K3.2-PP-P10**