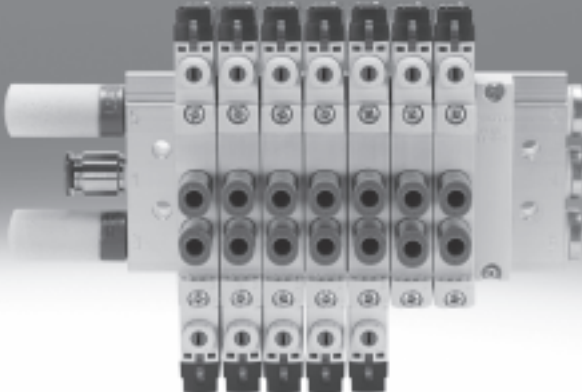


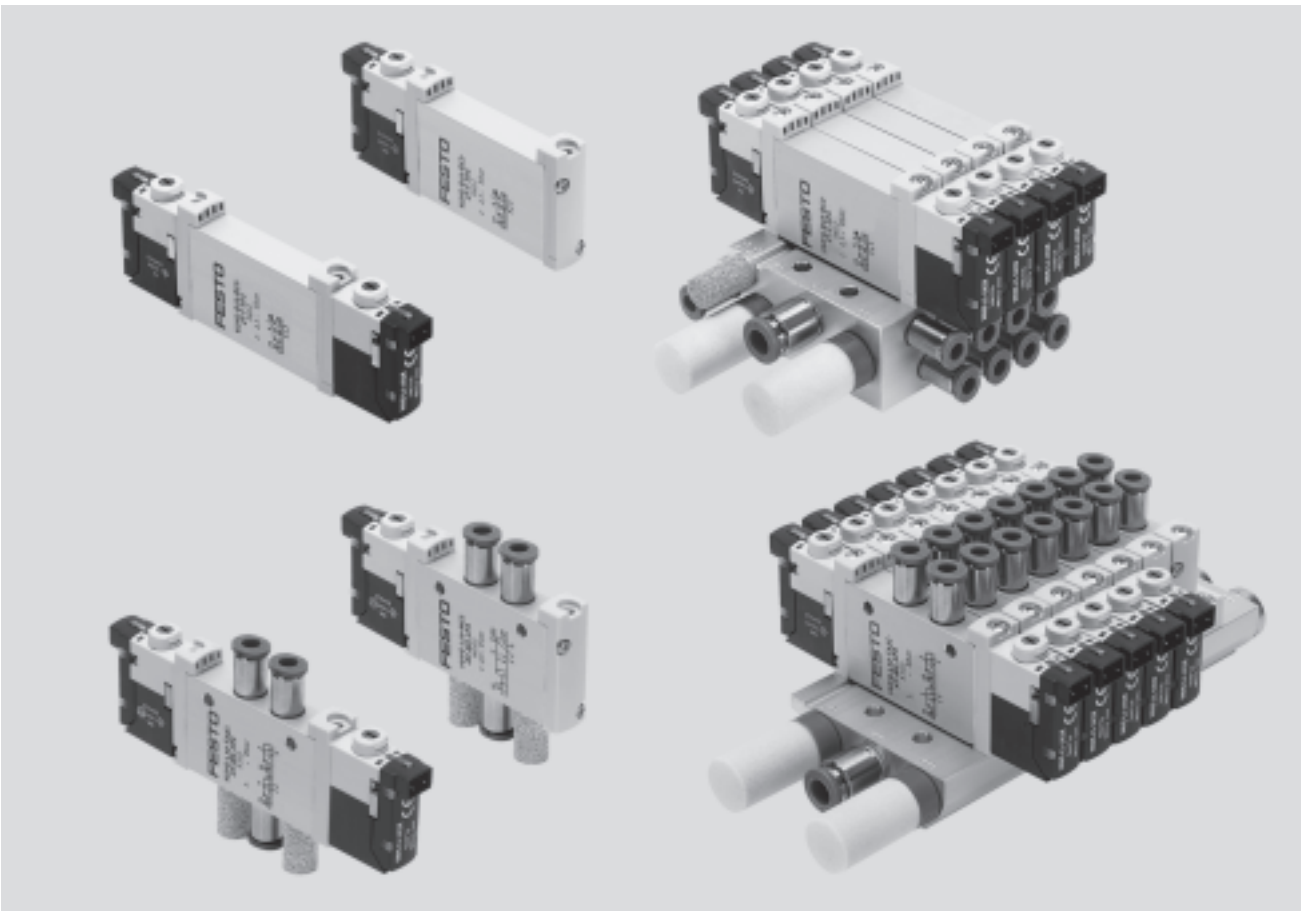
Solenoid valves VUVG



Solenoid valves VUVG

Key features

FESTO



Innovative

- Both internal and external pilot air supply can be used for manifolds with sub-base valves
- Connection technology easy to change via the E-box
- Max. pressure 10 bar

Versatile

- Wide range of valve functions
- Choice of quick plug connectors
- In-line valves can be used as individual valves or manifold valves
- M5 and M7 in-line valves can be combined on one manifold
- Identical sub-base valves for M5 or M7 manifold rail
- Manifolds with pressure zones
- IP40, IP65

Reliable

- Sturdy and durable metal components
 - Valves
 - Manifold rails
- Fast troubleshooting thanks to 360° LED display
- Reliability of service thanks to valves that can be replaced easily and quickly
- Choice of manual override: non-detenting, detenting or covered

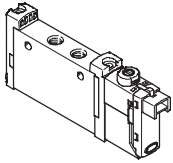
Easy to mount

- Secure mounting on wall or H-rail
- Easy mounting thanks to captive screws and seal
- Connection technology easy to change via the E-box
- Inscription label holder for labelling

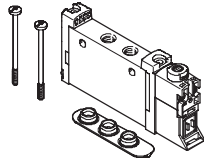
Solenoid valves VUVG

Key features – Pneumatic components

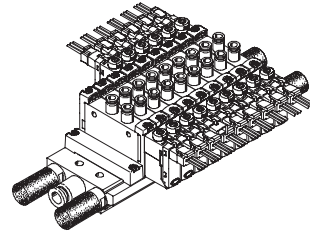
Individual valves and valve manifolds



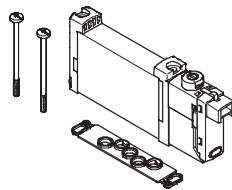
VUVG-L in-line valve
as individual valve



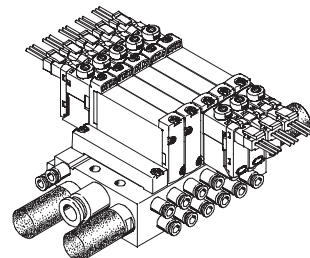
VUVG-S in-line valve
for manifold assembly



VUVG-S valve manifold consisting
of in-line valves

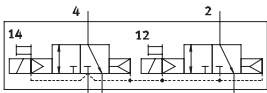


VUVG-B sub-base valve
for manifold assembly

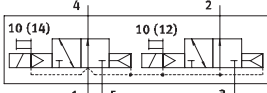


VUVG-B valve manifold consisting
of sub-base valves

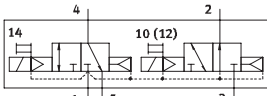
In-line valve functions



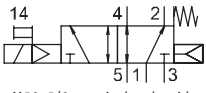
T32C: 2x3/2-way valve with internal pilot air
supply, 2x normally closed



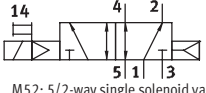
T32U: 2x3/2-way valve with internal pilot air
supply, 2x normally open



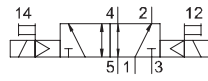
T32H: 2x3/2-way valve with internal pilot air
supply, 1x normally closed, 1x normally
open



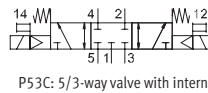
M52: 5/2-way single solenoid valve with
internal pilot air supply, width 10



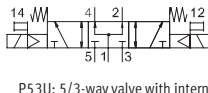
M52: 5/2-way single solenoid valve with
internal pilot air supply, width 14



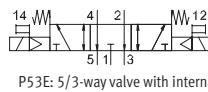
B52: 5/2-way double solenoid valve with
internal pilot air supply



P53C: 5/3-way valve with internal pilot air
supply, mid-position closed

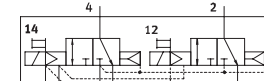


P53U: 5/3-way valve with internal pilot air
supply, mid-position pressurised

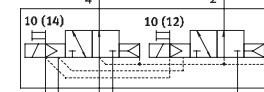


P53E: 5/3-way valve with internal pilot air
supply, mid-position exhausted

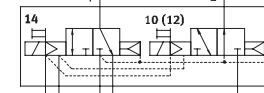
Sub-base valve functions



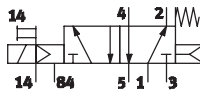
T32C: 2x3/2-way valve with external pilot air
supply, 2x normally closed



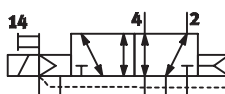
T32U: 2x3/2-way valve with external pilot air
supply, 2x normally open



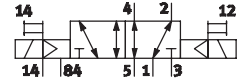
T32H: 2x3/2-way valve with external pilot air
supply, 1x normally closed, 1x normally
open



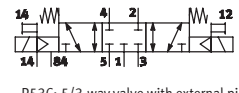
M52: 5/2-way single solenoid valve with
external pilot air supply, width 10



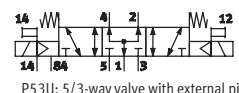
M52: 5/2-way single solenoid valve with
external pilot air supply, width 14



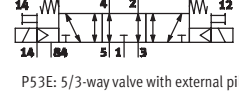
B52: 5/2-way double solenoid valve with
external pilot air supply



P53C: 5/3-way valve with external pilot air
supply, mid-position closed



P53U: 5/3-way valve with external pilot air
supply, mid-position pressurised

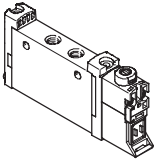


P53E: 5/3-way valve with external pilot air
supply, mid-position exhausted

Solenoid valves VUVG

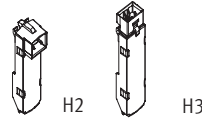
Key features – Pneumatic components

VUVG basic valves



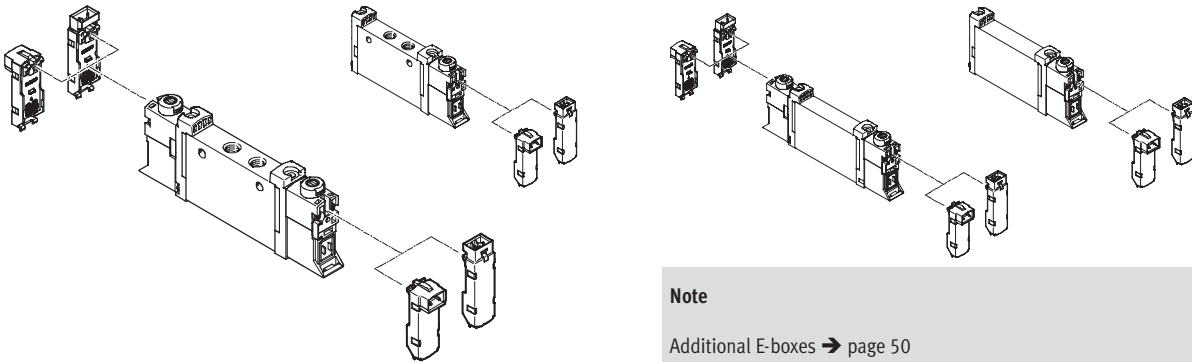
- Width 10 mm and 14 mm
- In-line valves
- Sub-base valves
- 2x3/2-way, 5/2-way and 5/3-way valves

E-boxes



- 5, 12 and 24 V DC
- With or without holding current reduction
- LED

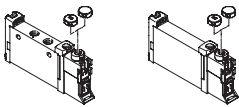
Basic valve and E-box combinations



Note

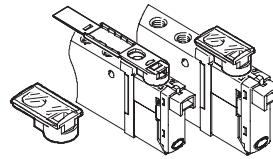
Additional E-boxes → page 50

Cover caps for manual override



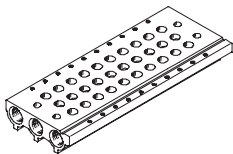
- Closed cover cap for covering the manual override
- Slotted cover cap for enabling only non-detenting operation of the manual override

Inscription label holder



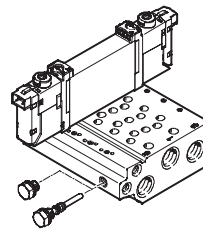
- The inscription label holder can be used in place of the slotted cover cap
- The hinged inscription label holder covers the mounting screw and the manual override

Manifold rail for in-line valves



- For in-line valves M3, M5, M7 and G 1/8, width 10
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 2 to 10 and 12, 14, 16 valve positions

Manifold rail for sub-base valves



- For sub-base valves 10, 10A and 14, width 10
- Manifold rail with M5 or M7 working lines
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 2 to 10, 12, 14 and 16 valve positions
- The sub-base valves are supplied with pilot air via the manifold rail
- The manifold can optionally be operated with internal or external pilot air supply by inserting different blanking plugs

Blanking plate for vacant position



- Vacant position cover

Supply plate



- For additional air supply and exhaust via a valve position

Separator for pressure zones



- For creating multiple pressure zones in a valve manifold

Solenoid valves VUVG

Key features – Pneumatic components

Creating pressure zones and separating exhaust air

Compressed air is supplied and exhausted via the manifold rail and via supply plates.

The position of the supply plates and duct separations can be freely selected with the VUVG.

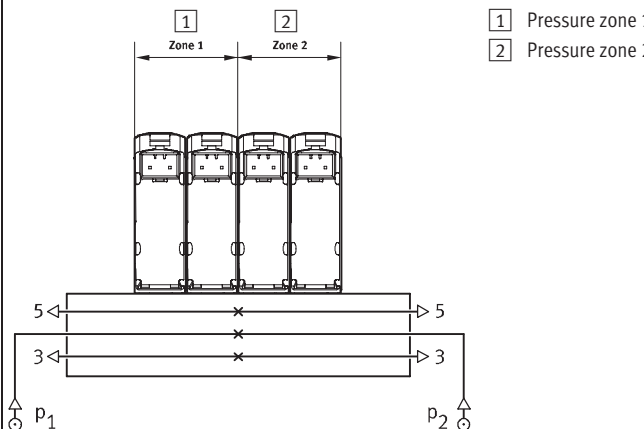
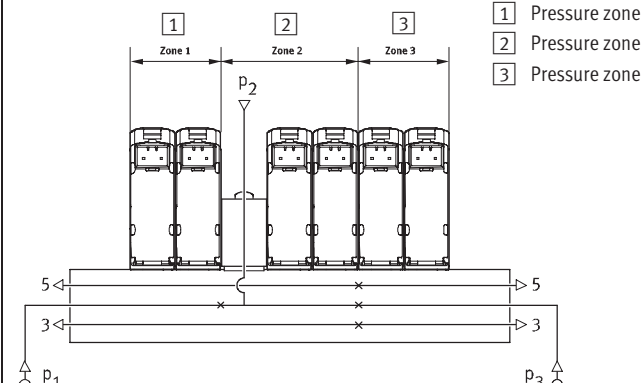
Pressure zones are created by isolating the internal supply ducts between the manifold sub-bases by means of appropriate duct separation.

Pressure zone separation can be used for the following ducts:

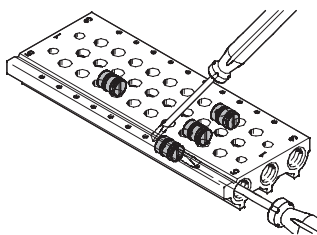
- Duct 1
- Duct 3
- Duct 5

Note

- Use a separator if the exhaust air pressures are high
- Use at least one supply plate/supply for each pressure zone
- Pressure zone separation is not possible with pilot air supply (duct 12/14)

Duct separation	Description
	<p>The pressure zones can be freely configured with the VUVG. The following duct separations are possible:</p> <ul style="list-style-type: none"> • Duct 1 closed • Duct 3 closed • Duct 5 closed • Duct 1/3 closed • Duct 1/3/5 closed • Duct 3/5 closed
	<p>The number of pressure zones with the VUVG is only limited by the number of valve positions on the manifold rail. Note that each supply plate occupies one valve position.</p>

Separator VABD



Note

As the separators are mounted from only one side using a slotted screwdriver, several pressure zones can be created in one profile.

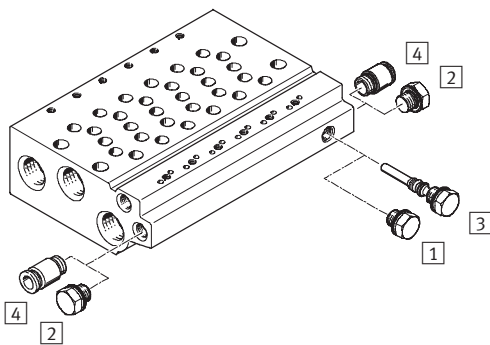
Solenoid valves VUVG

Key features – Pneumatic components

Pilot air supply

	Internal pilot air supply	External pilot air supply	Pilot exhaust air
When using sub-base valves, pilot air supply can be set via the manifold rail (see below). Both in-line and semi in-line valves are available with internal and external pilot air supply.	Internal pilot air supply can be selected if the working pressure is between 1.5-3 (depending on the valve) and 8 bar. The pilot air supply is branched from the compressed air supply 1 using an internal connection.	External pilot air supply is required for vacuum operation. The port for external pilot air supply is located on the valve in the case of in-line valves and on the manifold rail in the case of sub-base valves.	With sub-base valves, the pilot air is exhausted via duct 82/84 of the manifold rail. With in-line valves, the pilot exhaust air is discharged via exhaust holes.

Pilot air supply with sub-base valves



- 1 Short blanking plug with internal pilot air
- 2 Blanking plug for duct 12/14 with internal pilot air
- 3 Long blanking plug with external pilot air
- 4 QS fitting for duct 12/14 with external pilot air

The manifold rails for sub-base valves have an internal conduit between duct 12/14 and duct 1. Internal or external pilot air supply is selected by inserting a blanking plug into this conduit.

Solenoid valves VUVG

Key features – Pneumatic components

Operation with different pressures

Vacuum operation

Points to note with 3/2-way valves

The 3/2-way valves are available in a design with two valves in one valve body and with pneumatic spring return. With these valves, the energy for the return movement is obtained from port 1.

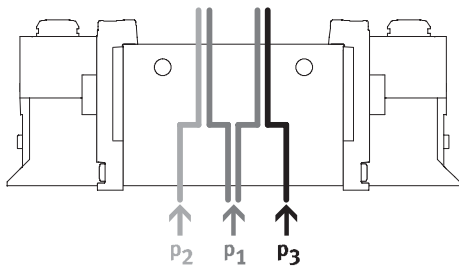
Vacuum operation is therefore only possible at port 3 and 5, not at port 1.

With external pilot air supply, vacuum can be connected at port 1, 3, 5 with the 5/2-way and 5/3-way valves.

Reverse operation

The 3/2-way valves with pneumatic spring are not suitable for reverse operation, since at least the minimum pilot pressure must be present in duct 1.

Pressure deflector (internal pilot air)



- If two different pressures are required.

- Different pressures can be supplied at duct 1, 3 and 5.

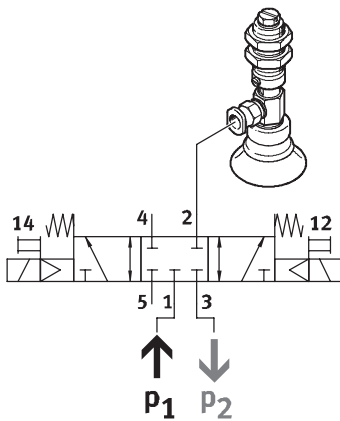
Note

- With internal pilot air, the minimum pilot pressure must be adhered to in duct 1
- With 2x3/2-way valves without spring return, the minimum pilot pressure must always be adhered to in duct 1

Advantages

- Any pressure or vacuum can be connected at duct 3 and 5 both with external and internal pilot air

Vacuum, ejector pulse and normal position



Vacuum, ejector pulse and normal position with internal pilot air can be achieved

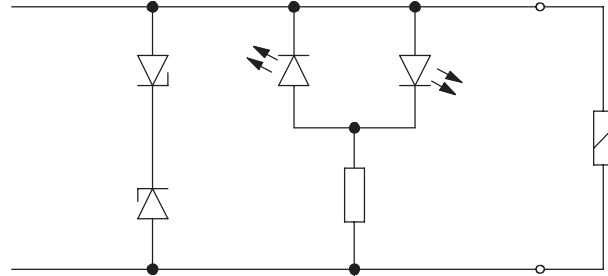
by connecting vacuum at duct 3 and pressure for the ejector pulse at duct 1.

Solenoid valves VUVG

Key features – Electrical components

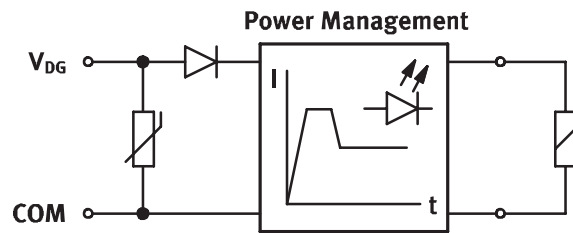
Protective circuit without holding current reduction

The solenoid coils (P type) of the 5, 12 and 24 V designs are equipped with a protective circuit to arrest sparks and protect against polarity reversal.



Protective circuit with holding current reduction

The 24 V DC design (R type) additionally features holding current reduction. This reduces the power from 1 W to 0.35 W.

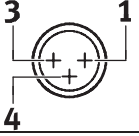
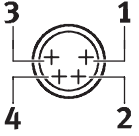


Pin allocation for E-box

		Pin	
Rectangular plug, pin spacing 4 mm, connection pattern H			
	VAVE-L1-1VH2-LP/VAVE-L1-1VH3-LP		Without holding current reduction
	1	+ or -	
	2	+ or -	
	VAVE-L1-1H2-LR/VAVE-L1-1H3-LR		With holding current reduction
1	-		
2	+		
Rectangular plug, pin spacing 2.5 mm, connection pattern S			
	VAVE-L1-1VS2-LP/VAVE-L1-1VS3-LP		Without holding current reduction
	1	+ or -	
	2	+ or -	
	VAVE-L1-1S2-LR/VAVE-L1-1S3-LR		With holding current reduction
1	-		
2	+		
Flying leads, 2-pin			
	VAVE-L1-1VL1...4-LP		Without holding current reduction
	1	+ or -	
	2	+ or -	
	VAVE-L1-1L1...4-LR		With holding current reduction
1	-		
2	+		

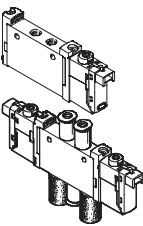
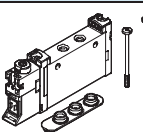
Solenoid valves VUVG

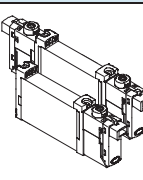
Key features – Electrical components

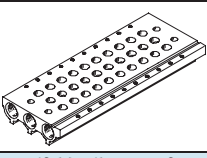
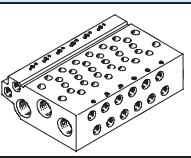
Pin allocation for E-box			
	Pin		
Round plug, M8, 3-pin			
	VAVE-L1-1VR8-LP		
	1	Not used	Without holding current reduction
	3	+ or -	
	4	+ or -	
Round plug, M8, 4-pin			
	VAVE-L1-1VR1-LP		
	1	Not used	Without holding current reduction
	2	Not used	
	3	+ or -	
	4	+ or -	

Solenoid valves VUVG

Product range overview

Design	Working line	Type code	Functions and flow rate [l/min]									→ Page/ Internet
			T32C	T32U	T32H	M52	B52	P53C	P53U	P53E		
In-line valve as individual valve 	Solenoid valve VUVG-L											
	M3	10A	–	–	–	■	■	■	■	■	■	13
	M5	10	■	■	■	■	■	■	■	■	■	20
	M7	10	■	■	■	■	■	■	■	■	■	22
	G1/8	14	■	■	■	■	■	■	■	■	■	28
In-line valve for manifold assembly 	Solenoid valve VUVG-S											
	M3	10A	–	–	–	■	■	■	■	■	■	13
	M5	10	■	■	■	■	■	■	■	■	■	20
	M7	10	■	■	■	■	■	■	■	■	■	22
	G1/8	14	■	■	■	■	■	■	■	■	■	28

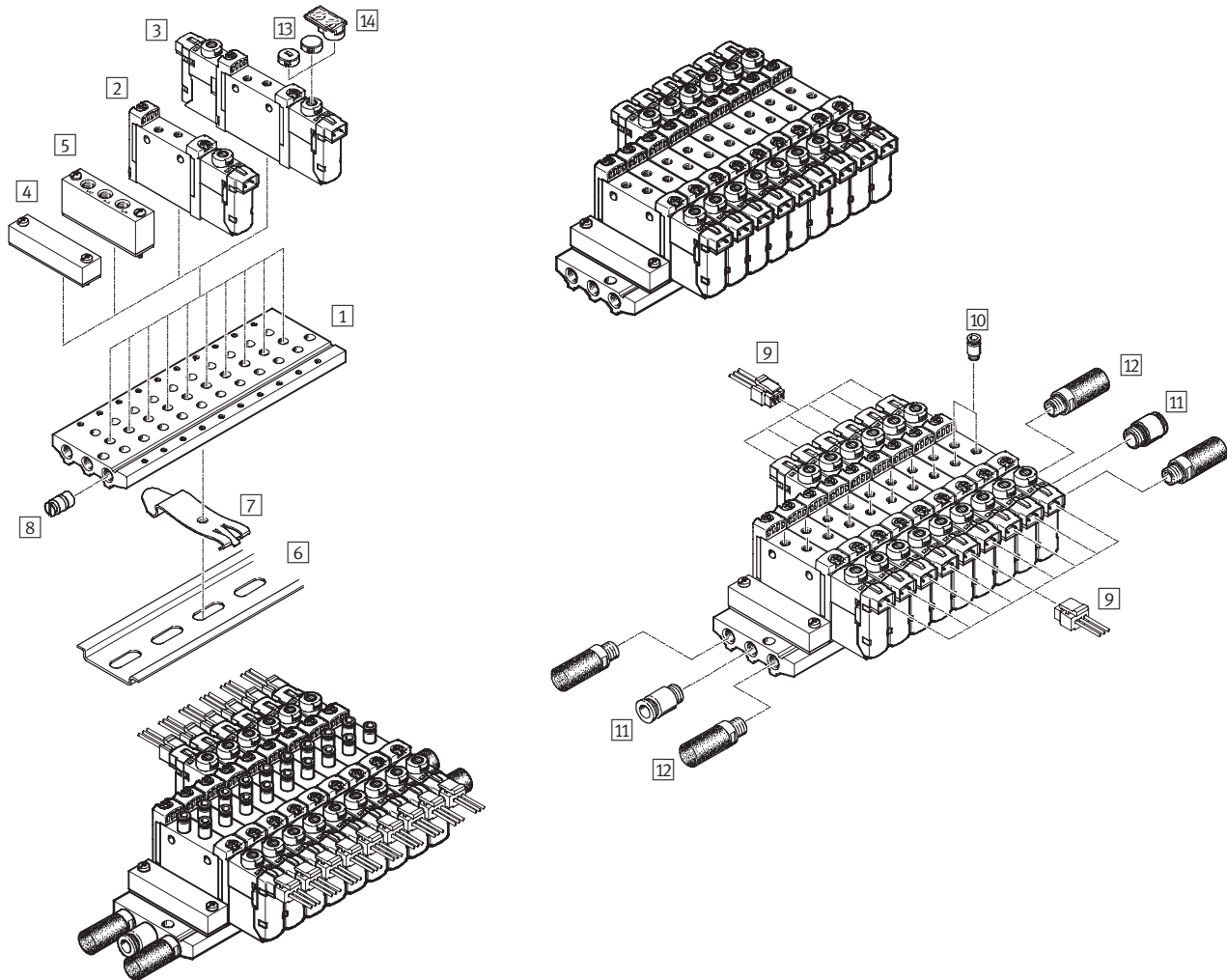
Design	Working line	Type code	Functions and flow rate [l/min]									→ Page/ Internet
			T32C	T32U	T32H	M52	B52	P53C	P53U	P53E		
Sub-base valve 	Solenoid valve VUVG-B											
	–	10A	–	–	–	■	■	■	■	■	■	33
	–	10	■	■	■	■	■	■	■	■	■	40
	–	10	■	■	■	■	■	■	■	■	■	40
	–	14	■	■	■	■	■	■	■	■	■	46

Design	Working line	Type code	Description	→ Page/ Internet
Manifold rail 	Manifold rail VABM- ... -S- ... , for in-line valves (manifold assembly)			vabm
	–	–	Valve size M3, M5, M7, G1/8	
Manifold rail 	Manifold rail VABM, for sub-base valves			vabm
	–	10AW	Connection size M3	
	–	10W	Connection size M5	
	–	10HW	Connection size M7	
	–	14W	Connection size G1/8	

Solenoid valves VUVG-L10A and VUVG-S10A, in-line valves M3

System overview

Manifold assembly



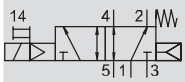
Manifold assembly and accessories				
	Type	Brief description	→ Page/Internet	
1	Manifold rail	VABM-L1-10AS-M5-...	For 2 to 10, 12, 14 and 16 valve positions	17
2	Solenoid valve	VUVG- ...	In-line valve, 5/2-way single solenoid	12
3	Solenoid valve	VUVG-B ...	In-line valve, 5/2-way double solenoid and 5/3-way single solenoid	12
4	Blanking plate	VABB-L1-10-S	For covering an unused valve position	17
5	Supply plate	VABF-L1-10-P3A4- ...	For air supply port 1 and outlet port 3 and 5	17
6	H-rail	NRH-35-2000	For mounting the valve manifold	53
7	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	53
8	Blanking plug	VABD-8-B	For creating pressure zones	17
9	Plug socket with cable	NEBV-H1G2-KN-...-LE2	For E-box H2 and H3	53
10	Push-in fitting	QS...	Push-in fitting for outlet port 2 and 4	53
11	Push-in fitting	QS...	Push-in fitting for air supply port 1	quick star
12	Silencer	U...	For outlet port 3 and 5	53
13	Cover cap	VMPA-HB...-B	For manual override	53
14	Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	55

Solenoid valves VUVG-L10A and VUVG-S10A, in-line valves M3

Technical data

Function

5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

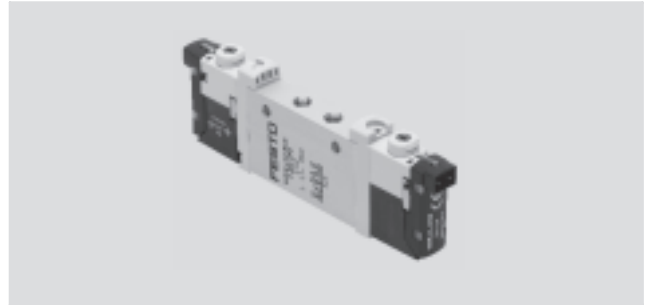


E.g. 5/2-way valve with internal pilot air supply and combined mechanical plus pneumatic spring return

 Width 10 mm

Flow rate
90 ... 100 l/min

Voltage
5, 12 and 24 V DC



General technical data					
Valve function	5/2-way		5/3-way		
Normal position	–	–	C ¹⁾	U ²⁾	E ³⁾
Memory stability	Single solenoid	Double solenoid	Single solenoid		
Pneumatic spring reset method	Yes ⁵⁾	–	No		
Mechanical spring reset method	Yes ⁵⁾	–	Yes		
Vacuum operation at port 1	Only with external pilot air supply				
Design	Piston spool valve				
Sealing principle	Soft				
Actuation type	Electric				
Type of control	Piloted				
Pilot air supply	Internal or external				
Exhaust function	Flow control				
Manual override	Choice of non-detenting, detenting or covered				
Type of mounting	Optionally via through-holes ⁷⁾ or on manifold rail				
Mounting position	Any				
Nominal size	[mm]	2			
Standard nominal flow rate	[l/min]	100		90	
Flow rate on manifold rail	[l/min]	100		90	
Switching time on/off	[ms]	7/15	–	8/25	
Changeover time	[ms]	–	5	14	
Width	[mm]	10			
Connection	1, 2, 3, 4, 5, 14	M3			
Product weight	[g]	38	49		
Corrosion resistance class	CRC	2 ⁶⁾			

1) C = Normally closed

2) U = Normally open

3) E = Normally exhausted

5) Combined reset method

6) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

7) If several valves are to be screwed together via the through-holes to form a block, a minimum gap of 0.3 mm must be ensured by placing spacer discs between them.

Solenoid valves VUVG-L10A and VUVG-S10A, in-line valves M3

FESTO

Technical data

Operating and environmental conditions			
Valve function			5/2-way, single solenoid 5/2-way, double solenoid 5/3-way
Operating medium			Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated
Operating pressure at port 1 with pilot air supply	Internal	[bar]	2.5 ... 8
	External	[bar]	-0.9 ... 10
Operating pressure at port 3 or 5 with pilot air supply	Internal or external	[bar]	-0.9 ... 10
Pilot pressure		[bar]	2.5 ... 8 1.5 ... 8 3 ... 8
Ambient temperature		[°C]	-5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium		[°C]	-5 ... +50, -5 ... +60 with holding current reduction

Electrical data	
Electrical connection	Via E-box
Operating voltage	[V DC] 5, 12 and 24 ±10%
Power	[W] 1, reduced to 0.35 with holding current reduction
Duty cycle	[%] 100
Protection class to EN 60529	IP40 (with plug socket), IP65 (with M8)

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS-compliant

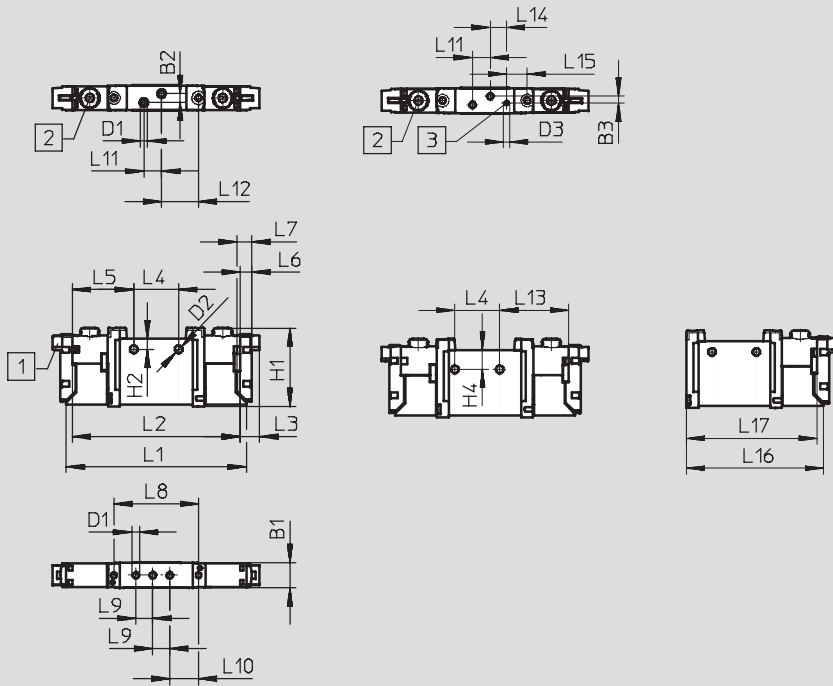
Solenoid valves VUVG-L10A and VUVG-S10A, in-line valves M3

Technical data

Dimensions

Download CAD Data → www.festo.com/us/cad

5/2-way and 5/3-way valve



Note

Additional dimensions
E-boxes
→ page 51

- 1 Horizontal electrical connection
- 2 Manual override
- 3 Port for external pilot air supply

Type	B1	B2	B3	D1	D2	H1	H2	L1	L2	L3	L4	L5
VUVG-L-10 -...-M3 ...	10.2	3.6	2.83	M3	3.2	32.5	4.4	74.3	69.3	8	18.5	25.4
VUVG-S-10 -...-M3 ...	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17
	4.85	6.15	34.9	7	11.9	7.3	15.25	28.5	6.7	8.54	57.06	54.56

Solenoid valves VUVG-L10A and VUVG-S10A, in-line valves M3

Order code

VUVG - 10A		L	Connecting cable W1...4¹⁾ Not sheathed for H C1...4¹⁾ Sheathed for H WS1...4¹⁾ Not sheathed for S S1...4¹⁾ Sheathed for S N1...4⁶⁾ M8x1, 3-pin N5...8⁶⁾ M8x1, 4-pin
Valve design L In-line, individual valve S In-line, manifold valve incl. seal and screws		Display L LED	Protective circuit Power [W] - Without holding current reduction (HCR) 1 R²⁾ With holding current reduction (HCR) 1 to 0.35
Width 10 mm 10A		E-box H2 Pin allocation H, horizontal plug H3 Pin allocation H, vertical plug S2 Pin allocation S, horizontal plug S3 Pin allocation S, vertical plug L1...4 With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m R1 Individual plug M8, 4-pin, only without HCR R8 Individual plug M8, 3-pin, only without HCR P3 Without E-box	Operating voltage 1 24 V DC 5 12 V DC 4 5 V DC
Valve functions⁵⁾ M52 B52 P53C P53U P53E			Exhausting with VUVG-L QN QS if QS ³⁾ U Silencer - M3
Reset method Pneumatic/mechanical spring for M52 R With B52 and P53 -			Pneumatic connection Flow rate [l/min]⁴⁾ M3 Thread M3 100 Q3 Push-in connector 3 mm/M3 80 Q4 Push-in connector 4 mm/M3 100
Pilot air supply Internal - External Z			
Manual override Non-detenting H Covered S - Non-detenting, detenting T			

1) W1/C1/S1/WS1 = 0.5 m, W2/C2/S2/WS2 = 1 m, W3/C3/S3/WS3 = 2.5 m, W4/C4/S4/WS4 = 5 m
 2) At 24 V DC

3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5
 4) Flow rate applies to 5/2-way individual valve

5) Circuit symbol for internal pilot air supply
 6) Straight: N1/N5 = 2.5 m, N2/N6 = 5 m Angled: N3/N7 = 2.5 m, N4/N8 = 5 m

Solenoid valves VUVG-S10A, in-line valves M3

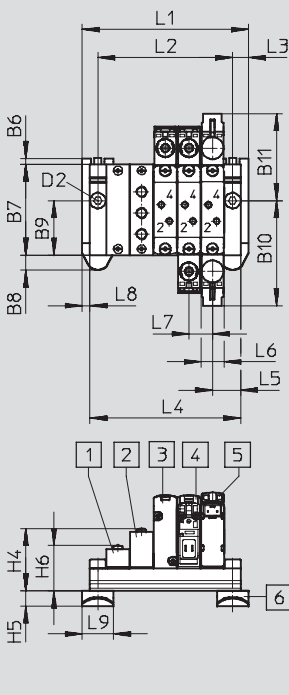
Manifold assembly

In-line valves for
manifold assembly



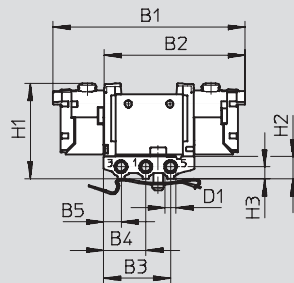
Dimensions

Download CAD Data → www.festo.com/us/cad



Note

Additional dimensions
E-boxes
→ page 51



- 1 Blanking plate VABB-L1-10A-S
- 2 Supply plate VABF-L1-10A-P3A4-M3
- 3 Single solenoid valve, without E-box
- 4 Double solenoid valve, without E-box
- 5 Solenoid valve, vertical electrical connection
- 6 H-rail mounting (2x M4x16 screws to DIN 912 are required for mounting)

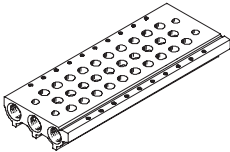
Type												
VUVG-S10A-...-M3 ...	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	D1
	85.3	62.6	29.7	18.7	7.7	2.95	40.3	6.75	24.2	46.7	38.6	M5
	D2	H1	H2	H3	H4	H5	H6	L3	L5	L6	L7	L8
	ø4.5	43.8	10	5.5	27.8	6.8	20.3	7	12.5	10.2	10.5	3.5
	L9											
	14											

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	42.5	53	63.5	74	84.5	95	105.5	116	126.5	147.5	168.5	189.5
L2 [mm]	28.5	39	49.5	60	70.5	81	91.5	102	112.5	133.5	154.5	175.5
L4 [mm]	35.5	46	56.5	67	77.5	88	98.5	109	119.5	140.5	161.5	182.5
VABM weight [g]	26	34	42	50	58	66	74	82	90	106	122	138

Solenoid valves VUVG-S10A, in-line valves M3

FESTO

Ordering data





Technical data – Manifold rails							
	Connection	CRC	Material ²⁾	Operating pressure	Max. tightening torque for mounting [Nm]		
	1, 3, 5			[bar]	Valve	H-rail	Wall
	M5	2 ¹⁾	Wrought aluminium alloy	-0.9 ... 10	0.45	1.5	3

- 1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- 2) Note on materials: RoHS-compliant

Order code – Manifold rails

VABM	-	L1	-	10A	S	-	M5	-	
Manifold assembly parts								Number of valve positions	
Manifold rail		VABM						2 to 10, 12, 14 and 16	
Valve series								Ports 1, 3 and 5	
VUVG		L1						M5 M5	
Valve width									
10 mm				10A					
Manifold rail with ports 1, 3, 5									
For M3 in-line valves				S					

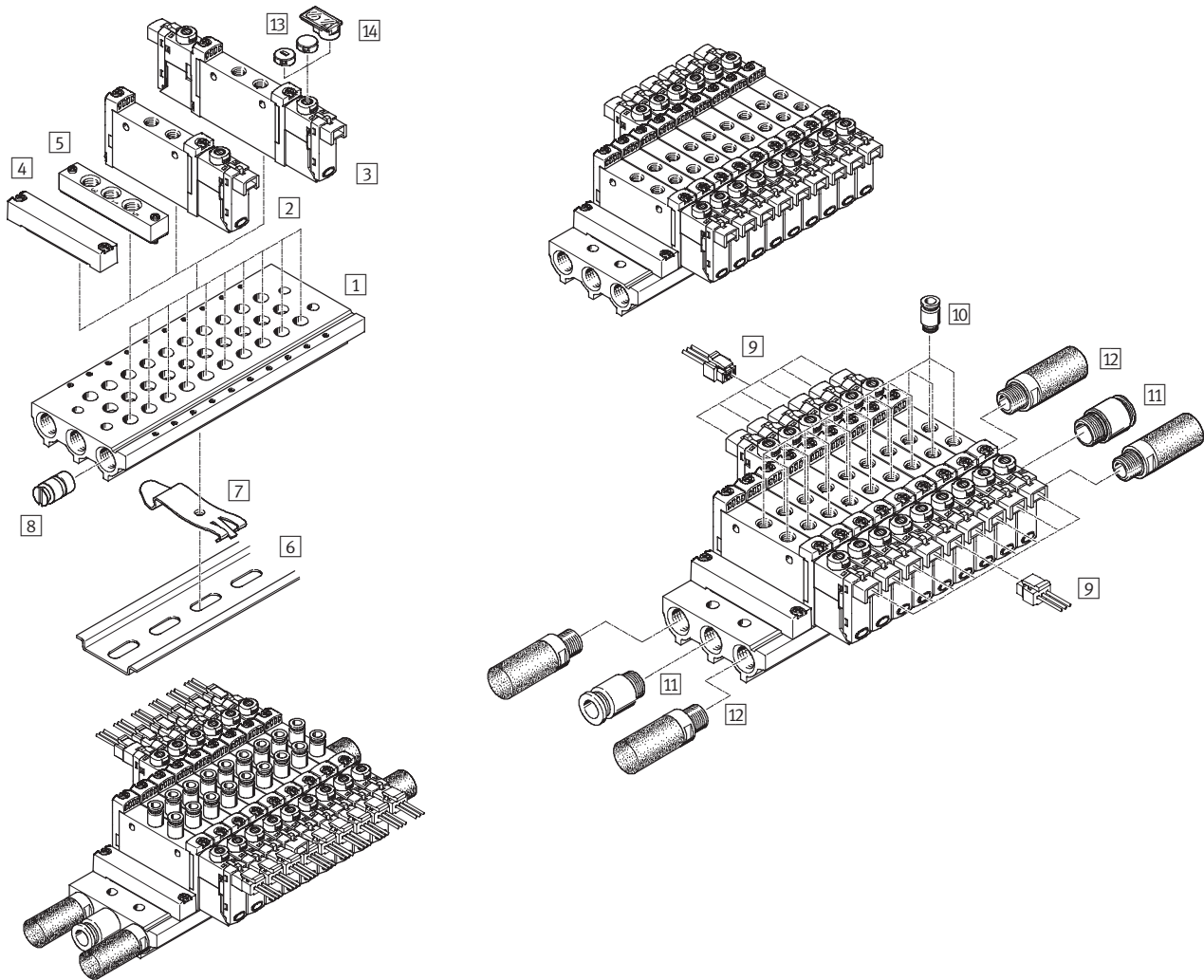
Ordering data – Accessories

			Type
Blanking plate Technical data → Internet: vabb			
	For manifold rail for M3 in-line valves	Incl. screws and seal	VABB-L1-10A
Blanking plug Technical data → Internet: vabd			
	For manifold rail for M3 in-line valves	Separator for pressure zones	VABD-4.2-B
Supply plate Technical data → Internet: vabf			
	For manifold rail for M3 in-line valves	Incl. screws and seal	VABF-L1-10A-P3A4-M5
Seals for in-line valves Technical data → Internet: vabd			
	M3	10 seals and 20 screws	VABD-L1-10AX-S-M3

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M5/M7

System overview

Manifold assembly



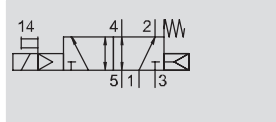
Manifold assembly and accessories				
	Type	Brief description	→ Page/Internet	
1	Manifold rail	VABM-L1-10S-G18-...	For 2 to 10, 12, 14 and 16 valve positions	25
2	Solenoid valve	VUVG- ...	In-line valve, 5/2-way single solenoid	19
3	Solenoid valve	VUVG- ...	In-line valve, 2x3/2-way, 5/2-way double solenoid and 5/3-way single solenoid	19
4	Blanking plate	VABB-L1-10-S	For covering an unused valve position	25
5	Supply plate	VABF-L1-10-P3A4- ...	For air supply port 1 and outlet port 3 and 5	25
6	H-rail	NRH-35-2000	For mounting the valve manifold	53
7	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	53
8	Blanking plug	VABD-8-B	For creating pressure zones	25
9	Plug socket with cable	NEBV-H1G2-KN-...-LE2	For E-box H2 and H3	53
10	Push-in fitting	QS...	Push-in fitting for outlet port 2 and 4	53
11	Push-in fitting	QS...	Push-in fitting for air supply port 1	quick star
12	Silencer	U...	For outlet port 3 and 5	53
13	Cover cap	VMPA-HB...-B	For manual override	53
14	Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	55

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M5

Technical data

Function

2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

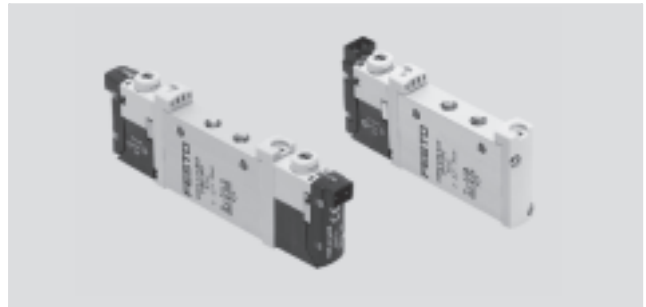


E.g. 5/2-way valve with internal pilot air supply and combined mechanical plus pneumatic spring return

 Width 10 mm

Flow rate
150 ... 220 l/min

Voltage
5, 12 and 24 V DC



General technical data						
Valve function	2x3/2-way			5/2-way		5/3-way
Normal position	C ¹⁾	U ²⁾	H ⁴⁾	–	–	C ¹⁾ U ²⁾ E ³⁾
Memory stability	Single solenoid			Double solenoid		Single solenoid
Pneumatic spring reset method	Yes			Yes ⁵⁾	–	No
Mechanical spring reset method	No			Yes ⁵⁾	–	Yes
Vacuum operation at port 1	No			Only with external pilot air supply		
Design	Piston spool valve					
Sealing principle	Soft					
Actuation type	Electric					
Type of control	Piloted					
Pilot air supply	Internal or external					
Exhaust function	Flow control					
Manual override	Choice of non-detenting, detenting or covered					
Type of mounting	Optionally via through-holes ⁷⁾ or on manifold rail					
Mounting position	Any					
Nominal size	[mm]	2.7		3.2		
Standard nominal flow rate	[l/min]	150		220		210
Flow rate on manifold rail	[l/min]	150		220		210
Switching time on/off	[ms]	6/16		7/19	–	10/30
Changeover time	[ms]	–		7		16
Width	[mm]	10				
Connection	1, 2, 3, 4, 5	M5				
	12, 14	M3				
Product weight	[g]	55		45	55	
Corrosion resistance class	CRC	2 ⁶⁾				

1) C = Normally closed

2) U = Normally open

3) E = Normally exhausted

4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open

5) Combined reset method

6) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

7) If several valves are to be screwed together via the through-holes to form a block, a minimum gap of 0.3 mm must be ensured by placing spacer discs between them.

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M5

Technical data

Operating and environmental conditions			
Valve function			2x3/2-way 5/2-way, single solenoid 5/2-way, double solenoid 5/3-way
Operating medium			Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated
Operating pressure at port 1 with pilot air supply	Internal	[bar]	1.5 ... 8
	External	[bar]	1.5 ... 10
Operating pressure at port 3 or 5 with pilot air supply	Internal or external	[bar]	-0.9 ... 10
Ambient temperature		[°C]	-5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium		[°C]	-5 ... +50, -5 ... +60 with holding current reduction

Electrical data			
Electrical connection			Via E-box
Operating voltage	[V DC]		5, 12 and 24 ±10%
Power	[W]		1, reduced to 0.35 with holding current reduction
Duty cycle	[%]		100
Protection class to EN 60529			IP40 (with plug socket), IP65 (with M8)

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS-compliant

Dimensions Download CAD Data → www.festo.com/us/cad

2x3/2-way, 5/2-way and 5/3-way valve

Note
Additional dimensions
E-boxes
→ page 51

1 Vertical electrical connection 2 Horizontal electrical connection 3 Manual override 4 Port for external pilot air supply

Type	B1	B2	D1	D2	D3	H1	H2	H3	L1	L2	L3	L4
VUVG-L-10 -...- M5 ...	10.2	-	M5	3.2	M3	32.5	3.6	4.4	86.5	81.5	8	27
VUVG-S-10 -...- M5 ...	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14		
	4.85	6.15	47	14	11	12	19	-	69.2	66.7		

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M7

Technical data

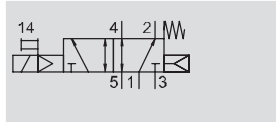
Function

2x3/2C, 2x3/2U, 2x3/2H

5/2-way, single solenoid

5/2-way, double solenoid

5/3C, 5/3U, 5/3E



E.g. 5/2-way valve with internal pilot air supply and combined mechanical plus pneumatic spring return

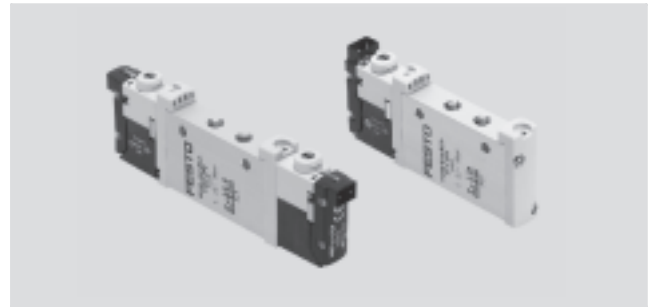
 Width 10 mm

Flow rate

190 ... 380 l/min

Voltage

5, 12 and 24 V DC



General technical data						
Valve function	2x3/2-way			5/2-way		5/3-way
Normal position	C ¹⁾	U ²⁾	H ⁴⁾	–	–	C ¹⁾ U ²⁾ E ³⁾
Memory stability	Single solenoid			Double solenoid		Single solenoid
Pneumatic spring reset method	Yes			Yes ⁵⁾	–	No
Mechanical spring reset method	No			Yes ⁵⁾	–	Yes
Vacuum operation at port 1	No			Only with external pilot air supply		
Design	Piston spool valve					
Sealing principle	Soft					
Actuation type	Electric					
Type of control	Piloted					
Pilot air supply	Internal or external					
Exhaust function	Flow control					
Manual override	Choice of non-detenting, detenting or covered					
Type of mounting	Optionally via through-holes ⁷⁾ or on manifold rail					
Mounting position	Any					
Nominal size	[mm]	2.7		4.0		3.5
Standard nominal flow rate	[l/min]	190		380		320
Flow rate on manifold rail	[l/min]	170		340		300
Switching time on/off	[ms]	6/16		7/19	–	10/30
Changeover time	[ms]	–		7		16
Width	[mm]	10				
Connection	1, 2, 3, 4, 5 12, 14	M7		M3		
Product weight	[g]	55		45	55	
Corrosion resistance class	CRC	2 ⁶⁾				

1) C = Normally closed

2) U = Normally open

3) E = Normally exhausted

4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open

5) Combined reset method

6) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

7) If several valves are to be screwed together via the through-holes to form a block, a minimum gap of 0.3 mm must be ensured by placing spacer discs between them.

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M7

Technical data

Operating and environmental conditions				2x3/2-way	5/2-way, single solenoid	5/2-way, double solenoid	5/3-way
Valve function							
Operating medium				Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated			
Operating pressure at port 1 with pilot air supply	Internal	[bar]	1.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5 ... 10	-0.9 ... 10			
Operating pressure at port 3 or 5 with pilot air supply	Internal or external	[bar]	-0.9 ... 10				
Ambient temperature		[°C]	-5 ... +50, -5 ... +60 with holding current reduction				
Temperature of medium		[°C]	-5 ... +50, -5 ... +60 with holding current reduction				

Electrical data			
Electrical connection		Via E-box	
Operating voltage	[V DC]	5, 12, 24 ±10%	
Power	[W]	1, reduced to 0.35 with holding current reduction	
Duty cycle	[%]	100	
Protection class to EN 60529		IP40 (with plug socket), IP65 (with M8)	

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS-compliant

Dimensions Download CAD Data → www.festo.com/us/cad

2x3/2-way, 5/2-way and 5/3-way valve

Note
Additional dimensions
E-boxes
→ page 51



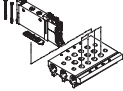

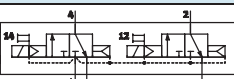
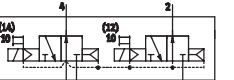
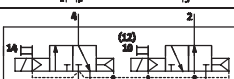
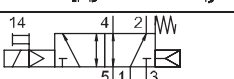
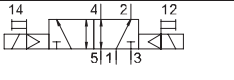
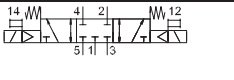

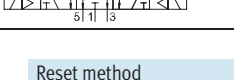










1 Vertical electrical connection
2 Horizontal electrical connection
3 Manual override
4 Port for external pilot air supply

Type	B1	B2	D1	D2	D3	H1	H2	H3	L1	L2	L3	L4
VUVG-L-10 ...-M7 ...	10.2	-	M7	3.2	M3	32.5	3.6	4.4	86.5	81.5	8	27
VUVG-S-10 ...-M7 ...	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14		
	4.85	6.15	47	14	11	12	19	-	69.2	66.7		

Solenoid valves VUVG-L10 and VUVG-S10, in-line valves M5/M7

FESTO

Order code

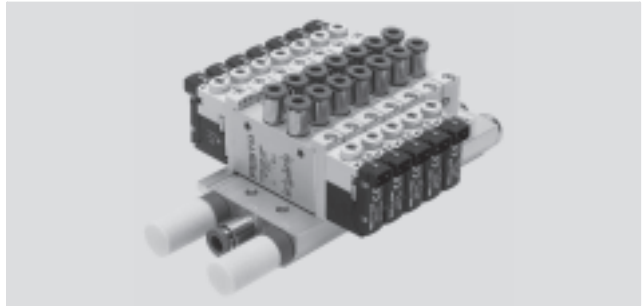
VUVG	-	10	-	-	-	-	-	-	-	L	-
Valve design											Connecting cable
 In-line, individual valve		L									W1...4¹⁾ Not sheathed for H 
 In-line, manifold valve incl. seal and screws		S									C1...4¹⁾ Sheathed for S 
Width											Display
10 mm			10								L LED
Valve functions⁵⁾											
											T32C
											T32U
											T32H
											M52
											B52
											P53C
											P53U
											P53E
Reset method											
Pneumatic spring for T32										A	
Pneumatic/mechanical spring for M52										R	
With B52 and P53										-	
Pilot air supply											
Internal										-	
External										Z	
Manual override											
 Non-detenting										H	
 Covered										S	
- Non-detenting, detenting										T	
Protective circuit											
-										Without holding current reduction (HCR)	1
R²⁾										With holding current reduction (HCR)	1 to 0.35
E-box											
H2		Pin allocation H, horizontal plug									
H3		Pin allocation H, vertical plug									
S2		Pin allocation S, horizontal plug									
S3		Pin allocation S, vertical plug									
L1...4		With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m									
R1		Individual plug M8, 4-pin, only without HCR									
R8		Individual plug M8, 3-pin, only without HCR									
P3		Without E-box									
Operating voltage											
1		24 V DC									
5		12 V DC									
4		5 V DC									
Exhausting with VUVG-L											
QN		QS if QS ³⁾									
U		Silencer									
-		M5 or M7									
Pneumatic connection						Flow rate [l/min]⁴⁾					
M5		Thread M5				220					
Q3		Push-in connector 3 mm/M5				100					
Q4		Push-in connector 4 mm/M5				200					
Q6		Push-in connector 6 mm/M5				220					
M7		Thread M7				380					
Q4H		Push-in connector 4 mm/M7				220					
Q6H		Push-in connector 6 mm/M7				330					

1) W1/C1/S1/WS1 = 0.5 m, W2/C2/S2/WS2 = 1 m, W3/C3/S3/WS3 = 2.5 m, W4/C4/S4/WS4 = 5 m
 2) At 24 V DC
 3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5
 4) Flow rate applies to 5/2-way individual valve
 5) Circuit symbol for internal pilot air supply
 6) Straight: N1/N5 = 2.5 m, N2/N6 = 5 m Angled: N3/N7 = 2.5 m, N4/N8 = 5 m

Solenoid valves VUVG-S10, in-line valves M5/M7

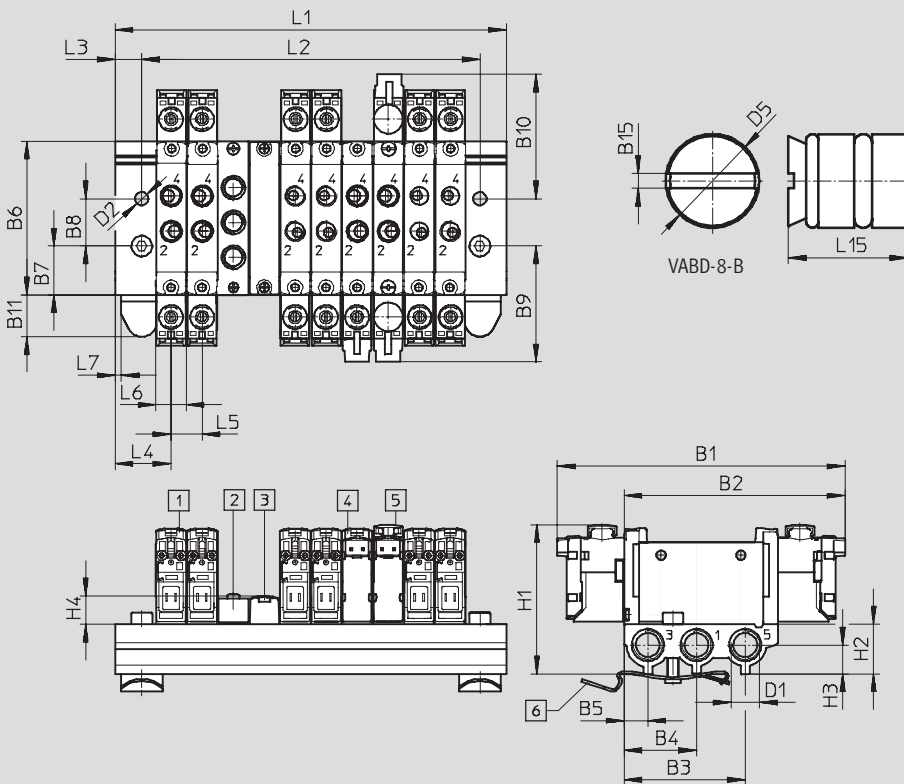
Manifold assembly

In-line valves for
manifold assembly



Dimensions

Download CAD Data → www.festo.com/us/cad



Note

Additional dimensions
E-boxes
→ page 51

- 1 Solenoid valve, vertical electrical connection
- 2 Supply plate M5 or M7 for 1, 3, 5
- 3 Blanking plate VABB-L1-10-S
- 4 Solenoid valve, horizontal electrical connection
- 5 Cover cap for manual override
- 6 H-rail mounting (2x M4x20 screws to DIN 912 are required)

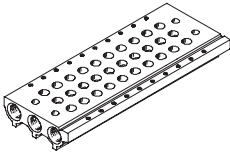
Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B15
VUVG-S10 -...-M5 ...	97.5	74.8	41	24.5	8	52	16.5	16	39.2	42.3	14.45	1
	D1	D2	D5	H1	H2	H3	H4	L3	L4	L5	L6	L7
	G $\frac{1}{8}$	4.5	Ø8	50.6	16.8	7	9.6	9	19	10.5	10.2	2
	L15											
	10											

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	48.5	59	69.5	80	90.5	101	111.5	122	132.5	153.5	174.5	195.5
L2 [mm]	30.5	41	51.5	62	72.5	83	93.5	104	114.5	135.5	156.5	177.5
VABM weight [g]	66	81	96	111	126	141	156	171	186	216	246	276

Solenoid valves VUVG-S10, in-line valves M5/M7

FESTO

Ordering data





Technical data – Manifold rails							
	Connection	CRC	Material ²⁾	Operating pressure	Max. tightening torque for mounting [Nm]		
	1, 3, 5			[bar]	Valve	H-rail	Wall
	G $\frac{1}{8}$	2 ¹⁾	Wrought aluminium alloy	-0.9 ... 10	0.45	1.5	3

- 1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- 2) Note on materials: RoHS-compliant

Order code – Manifold rails

VABM	-	L1	-	10	S	-	G18	-	
Manifold assembly parts								Number of valve positions	
Manifold rail		VABM						2 to 10, 12, 14 and 16	
Valve series								Ports 1, 3 and 5	
VUVG		L1						G18 G $\frac{1}{8}$	
Valve width									
10 mm				10					
Manifold rail with ports 1, 3, 5									
For M5 and M7 in-line valves				S					

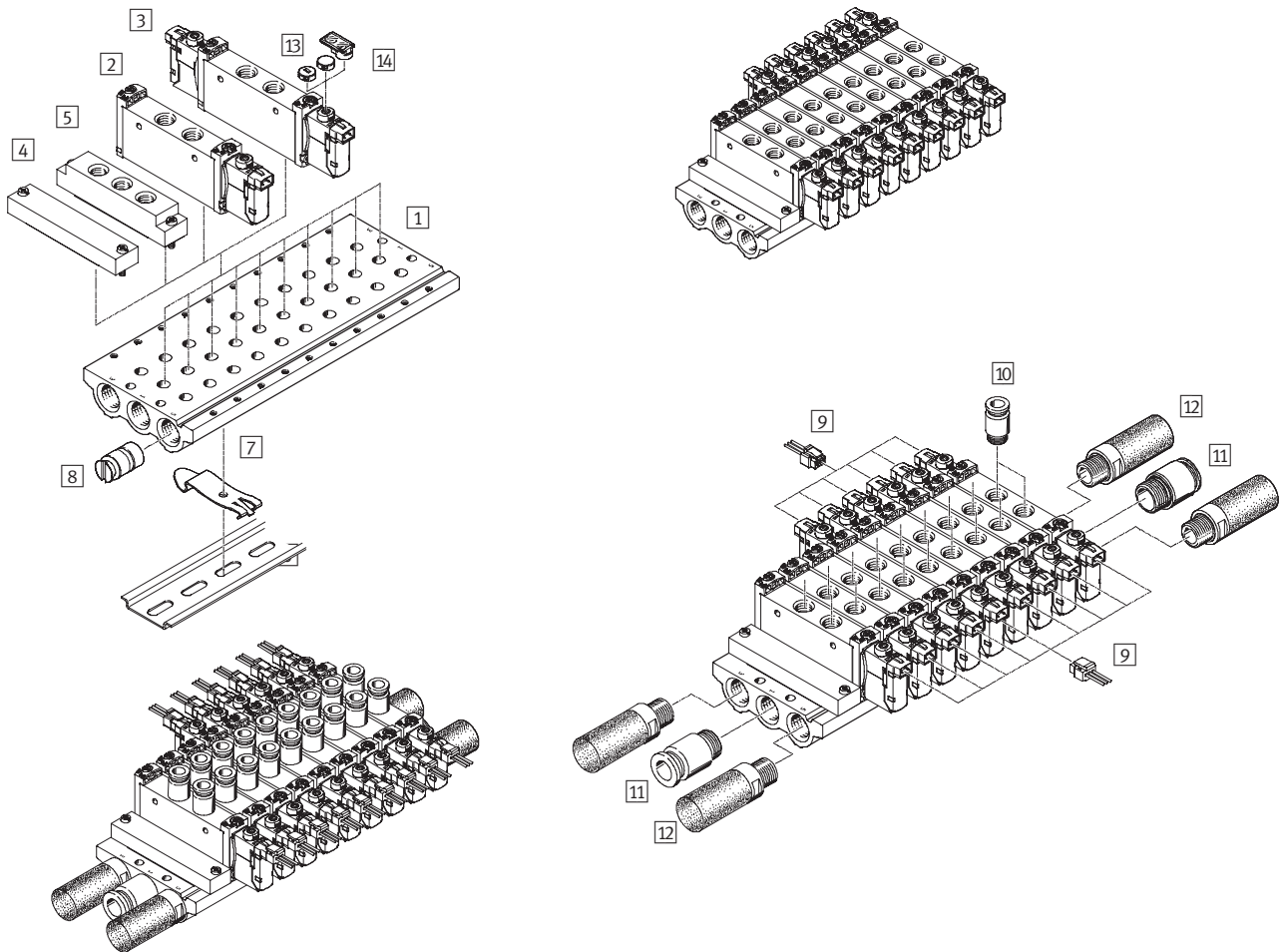
Ordering data – Accessories

			Type
Blanking plate Technical data → Internet: vabb			
	For manifold rail for M5/M7 in-line valves	Incl. screws and seal	VABB-L1-10-S
Blanking plug Technical data → Internet: vabd			
	For manifold rail for M5/M7 in-line valves	Separator for pressure zones	VABD-8-B
Supply plate Technical data → Internet: vabf			
	For manifold rail for M5 in-line valves	Incl. screws and seal	VABF-L1-10-P3A4-M5
	For manifold rail for M7 in-line valves		VABF-L1-10-P3A4-M7
Seals for in-line valves Technical data → Internet: vabd			
	M5	10 seals and 20 screws	VABD-L1-10X-S-M5
	M7		VABD-L1-10X-S-M7

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G1/8

System overview

Manifold assembly



Manifold assembly and accessories				
	Type	Brief description	→ Page/Internet	
1	Manifold rail	VABM-L1-14S-G14- ...	For 2 to 10, 12, 14 and 16 valve positions	31
2	Solenoid valve	VUVG- ...	In-line valve, 5/2-way single solenoid	27
3	Solenoid valve	VUVG- ...14	In-line valve, 2x3/2-way, 5/2-way double solenoid and 5/3-way single solenoid	27
4	Blanking plate	VABB-L1-14-S	For covering an unused valve position	31
5	Supply plate	VABF-L1-14-P3A4- ...	For air supply port 1 and outlet port 3 and 5	31
6	H-rail	NRH-35-2000	For mounting the valve manifold	54
7	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	54
8	Blanking plug	VABD-10-B	For creating pressure zones	31
9	Plug socket with cable	NEBV-H1G2-KN-...-LE2	For E-box H2 and H3	53
10	Push-in fitting	QS...	Push-in fitting for outlet port 2 and 4	53
11	Push-in fitting	QS...	Push-in fitting for air supply port 1	quick star
12	Silencer	U...	For outlet port 3 and 5	53
13	Cover cap	VMPPA-HB...-B	For manual override	53
14	Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	55

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G1/8

Technical data

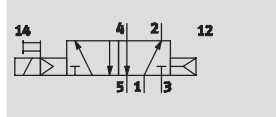
Function

2x3/2C, 2x3/2U, 2x3/2H

5/2-way, single solenoid

5/2-way, double solenoid

5/3C, 5/3U, 5/3E



E.g. 5/2-way valve with internal pilot air supply and pneumatic spring return

 Width 14 mm

Flow rate

580 ... 780 l/min

Voltage

5, 12 and 24 V DC



General technical data							
Valve function	2x3/2-way			5/2-way		5/3-way	
Normal position	C ¹⁾	U ²⁾	H ⁴⁾	–	–	C ¹⁾	U ²⁾ E ³⁾
Memory stability	Single solenoid				Double solenoid	Single solenoid	
Pneumatic spring reset method	Yes				–	No	
Mechanical spring reset method	No				–	Yes	
Vacuum operation at port 1	No			Only with external pilot air supply			
Design	Piston spool valve						
Sealing principle	Soft						
Actuation type	Electric						
Type of control	Piloted						
Pilot air supply	Internal or external						
Exhaust function	Flow control						
Manual override	Choice of non-detenting, detenting or covered						
Type of mounting	Optionally via through-holes ⁷⁾ or on manifold rail						
Mounting position	Any						
Nominal size [mm]	4.6			5.6			
Standard nominal flow rate [l/min]	650	600	650	780		650	600
Flow rate on manifold rail [l/min]	580			700		600	
Switching time on/off [ms]	8/23			14/28	–	12/40	
Changeover time [ms]	–			8		20	
Width [mm]	14						
Connection	1, 2, 3, 4, 5			G1/8			
	14			M5			
Product weight [g]	89			78	89		
Corrosion resistance class	CRC			2 ⁶⁾			

1) C = Normally closed

2) U = Normally open

3) E = Normally exhausted

4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open

6) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G1/8

Technical data

Operating and environmental conditions				2x3/2-way	5/2-way, single solenoid	5/2-way, double solenoid	5/3-way
Valve function							
Operating medium				Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated			
Operating pressure at port 1 with pilot air supply	Internal	[bar]	1.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5... 10	-0.9... 10			
Operating pressure at port 3 or 5 with pilot air supply	Internal or external	[bar]	-0.9... 10				
Pilot pressure		[bar]	1.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
Ambient temperature		[°C]	-5 ... +50, -5 ... +60 with holding current reduction				
Temperature of medium		[°C]	-5 ... +50, -5 ... +60 with holding current reduction				

Electrical data			
Electrical connection		Via E-box	
Operating voltage	[V DC]	5, 12 and 24 ±10%	
Power	[W]	1, reduced to 0.35 with holding current reduction	
Duty cycle	[%]	100	
Protection class to EN 60529		IP40 (with plug socket), IP65 (with M8)	

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS-compliant

Dimensions Download CAD Data → www.festo.com/us/cad

2x3/2-way, 5/2-way and 5/3-way valve

Note
Additional dimensions
E-boxes
→ page 51

1 Horizontal electrical connection 2 Manual override 3 Port for external pilot air supply

Type	B1	B2	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	L6
VUVG-L-14 -...-G18 ...	14.4	2.3	G1/8	Ø3.2	M5	34.8	5.8	107	102	8	37	4.85	6.15
VUVG-S-14 -...-G18 ...	L7	L8	L9	L10	L11	L12	L13	L14	L15				
	66.5	18.35	14.9	18	24.25	13.45	10.8	89.4	86.95				

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves G1/8

Order code

VUVG		14																				L	
Valve design		L																		Connecting cable			
		In-line, individual valve																		W1...4 ¹⁾		Not sheathed for H	
		In-line, manifold valve incl. seal and screws																		C1...4 ¹⁾		Sheathed for S	
Width		14 mm		14																WS1...4 ¹⁾		Not sheathed for S	
Valve functions ⁵⁾																				S1...4 ¹⁾		Sheathed	
																				N1...4 ⁶⁾		M8x1, 3-pin	
																				N5...8 ⁶⁾		M8x1, 4-pin	
Reset method																							
		Pneumatic spring for T32 and M52																				A	
		With B52 and P53																				-	
Pilot air supply																							
		Internal																				-	
		External																				Z	
Manual override																							
		Non-detenting																				H	
		Covered																				S	
-		Non-detenting, detenting																				T	
Display																						L LED	
Protective circuit																						Power [W]	
-		Without holding current reduction (HCR)																				1	
R ²⁾		With holding current reduction (HCR)																				1 to 0.35	
E-box																							
H2		Pin allocation H, horizontal plug																					
H3		Pin allocation H, vertical plug																					
S2		Pin allocation S, horizontal plug																					
S3		Pin allocation S, vertical plug																					
L1...4		With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m																					
R1		Individual plug M8, 4-pin, only without HCR																					
R8		Individual plug M8, 3-pin, only without HCR																					
P3		Without E-box																					
Operating voltage																							
1		24 V DC																					
5		12 V DC																					
4		5 V DC																					
Exhausting with VUVG-L																							
QN		QS if QS ³⁾																					
U		Silencer																					
-		G1/8																					
Pneumatic connection																						Flow rate [l/min] ⁴⁾	
G1/8		Thread G1/8																				780	
Q4		Push-in connector 4 mm/G1/8																				250	
Q6		Push-in connector 6 mm/G1/8																				500	
Q8		Push-in connector 8 mm/G1/8																				700	
Q10		Push-in connector 10 mm/G1/8																				750	

1) W1/C1/S1/WS1 = 0.5 m, W2/C2/S2/WS2 = 1 m, W3/C3/S3/WS3 = 2.5 m, W4/C4/S4/WS4 = 5 m
2) At 24 V DC

3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5
4) Flow rate applies to 5/2-way individual valve

5) Circuit symbol for internal pilot air supply
6) Straight: N1/N5 = 2.5 m, N2/N6 = 5 m Angled: N3/N7 = 2.5 m, N4/N8 = 5 m

Solenoid valves VUVG-S14, in-line valves G1/8

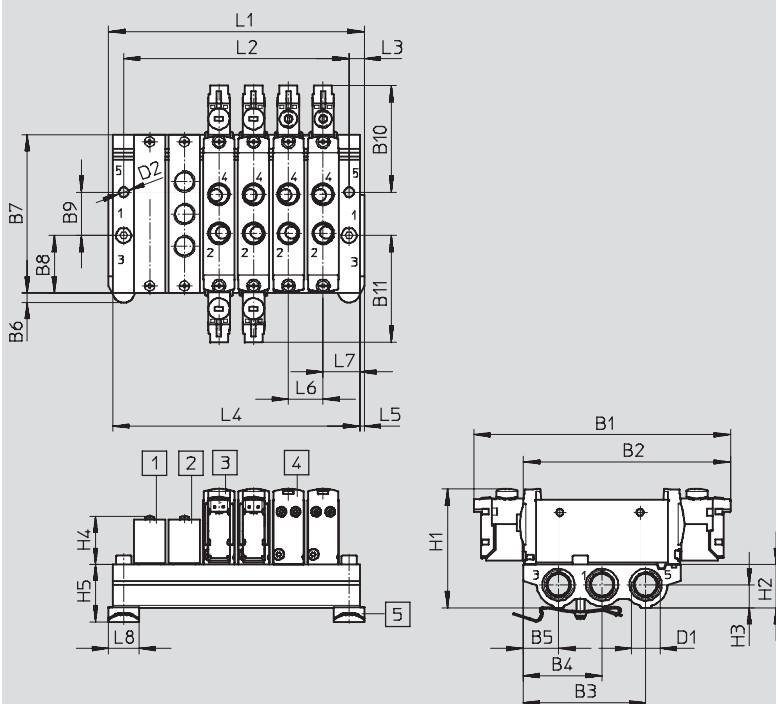
Manifold assembly

In-line valves for
manifold assembly



Dimensions

Download CAD Data → www.festo.com/us/cad



Note

Additional dimensions
E-boxes
→ page 51

1 Blanking plate
VABB-L1-14

2 Supply plate
VABF-L1-14-P3A4-G18

3 Double solenoid valve

4 Single solenoid valve

5 H-rail mounting (2x M4x25
screws to DIN 912 are required
for mounting)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	D1
VUVG-S14 -...-G18 ...	118.3	95.1	56.55	36.45	16.35	4.5	72.9	26.45	20	49.15	49.15	G1/4
	D2	H1	H2	H3	H4	H5	L3	L5	L6 ¹⁾	L7		
	Ø4.5	54.8	20	10.6	22.3	26.4	7	2	16	17		

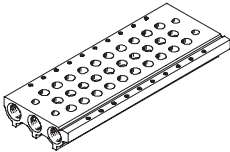
Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	54	70	86	98	118	134	150	166	182	214	246	278
L2 [mm]	40	56	72	88	104	120	136	152	168	200	232	264
L4 [mm]	50	66	82	98	114	130	146	162	178	210	242	274
VABM weight [g]	118	159	200	241	282	323	364	405	446	528	610	692

1) Grid dimension

Solenoid valves VUVG-S14, in-line valves G1/8

FESTO

Ordering data





Technical data – Manifold rails							
	Connection	CRC	Material ²⁾	Operating pressure	Max. tightening torque for mounting [Nm]		
	1, 3, 5			[bar]	Valve	H-rail	Wall
	G1/4	2 ¹⁾	Wrought aluminium alloy	-0.9 ... 10	0.65	1.5	3

- 1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- 2) Note on materials: RoHS-compliant

Order code – Manifold rails

VABM	-	L1	-	14	S	-	G14	-	
Manifold assembly parts								Number of valve positions	
Manifold rail		VABM						2 to 10, 12, 14 and 16	
Valve series								Ports 1, 3 and 5	
VUVG		L1						G14 G1/4	
Valve width									
14 mm				14					
Manifold rail with ports 1, 3, 5									
For G1/8 in-line valves				S					

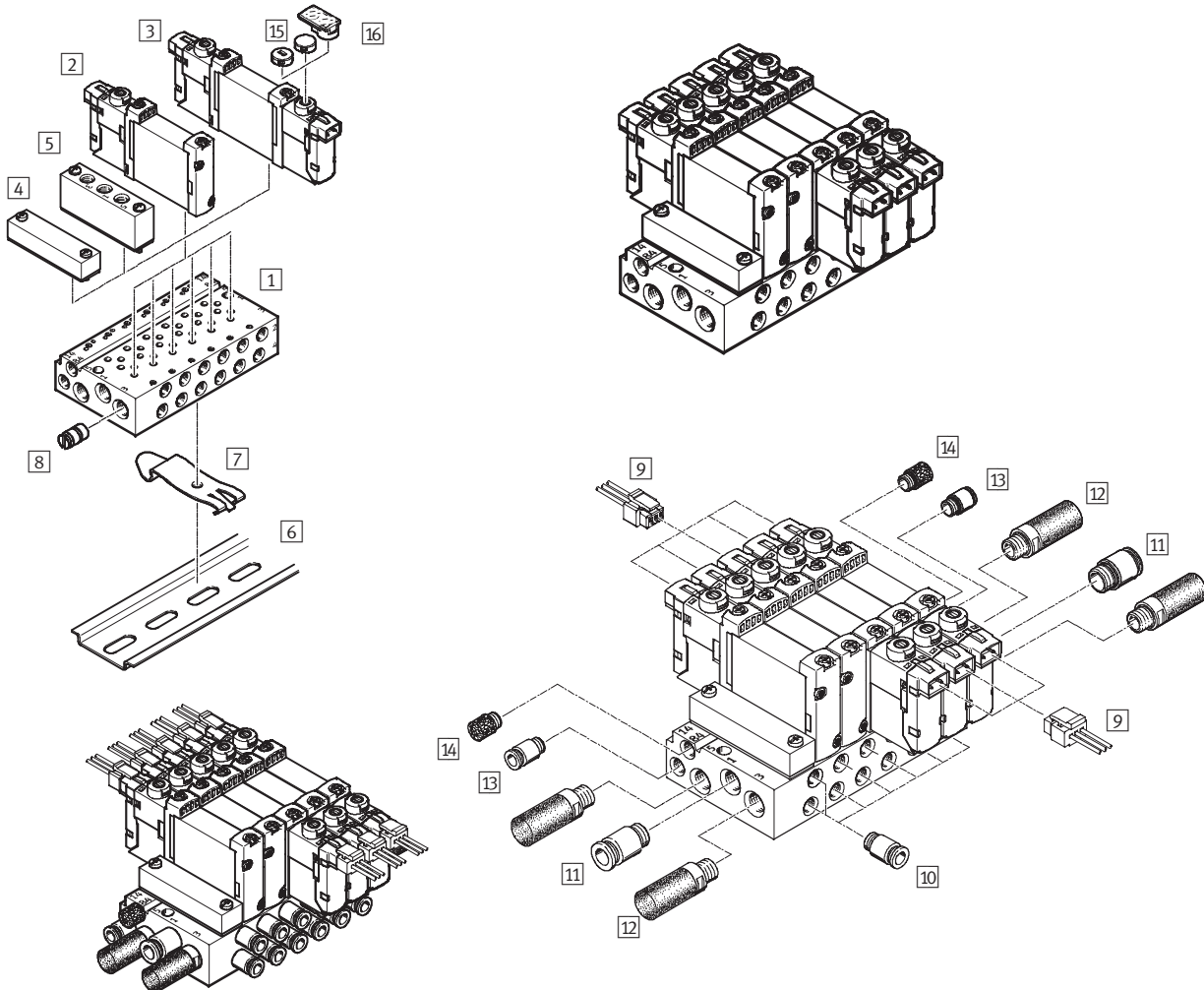
Ordering data – Accessories

			Type
Blanking plate Technical data → Internet: vabb			
	For manifold rail for M5/M7 in-line valves	Incl. screws and seal	VABB-L1-14
Blanking plug Technical data → Internet: vabd			
	For manifold rail for G 1/8 in-line valves	Separator for pressure zones	VABD-10-B
Supply plate Technical data → Internet: vabf			
	For manifold rail for G 1/8 in-line valves	Incl. screws and seal	VABF-L1-14-P3A4-G18
Seals for in-line valves Technical data → Internet: vabd			
	G 1/8	10 seals and 20 screws	VABD-L1-14X-S-G18

Solenoid valves VUVG-B10A, sub-base valves

System overview

Manifold assembly



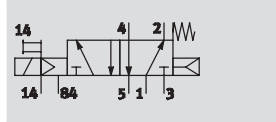
Manifold assembly and accessories				
	Type	Brief description	→ Page/Internet	
1	Manifold rail	VABM-L1-10 ...-M7- ...	For 2 to 10, 12, 14 and 16 valve positions	37
2	Solenoid valve	VUVG- ...	Sub-base valve, 5/2-way single solenoid	33
3	Solenoid valve	VUVG- ...	Sub-base valve, 5/2-way double solenoid and 5/3-way single solenoid	33
4	Blanking plate	VABB-L1-10-S	For covering an unused valve position	37
5	Supply plate	VABF-L1-10-P3A4- ...	For air supply port 1 and outlet port 3 and 5	37
6	H-rail	NRH-35-2000	For mounting the valve manifold	53
7	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	54
8	Blanking plug	VABD- ...	For creating pressure zones	31
9	Plug socket with cable	NEBV-H1G2-KN-...-LE2	For E-box H2 and H3	53
10	Push-in fitting	QS...	Push-in fitting for outlet port 2 and 4	quick star
11	Push-in fitting	QS...	Push-in fitting for air supply port 1	quick star
12	Silencer	U...	For outlet port 3 and 5	53
13	Push-in fitting	QS...	Push-in fitting for pilot air supply port 12/14	quick star
14	Silencer	U...	Silencer for pilot air outlet 82/84	quick star
15	Cover cap	VMPA-HB...-B	For manual override	53
16	Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	55

Solenoid valves VUVG-B10A, sub-base valves

Technical data

Function

5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E



E.g. 5/2-way valve with internal pilot air supply and combined mechanical plus pneumatic spring return

 Width 10 mm

Flow rate
90 ... 100 l/min

Voltage
5, 12 and 24 V DC



General technical data					
Valve function	5/2-way		5/3-way		
Normal position	–	–	C ¹⁾	U ²⁾	E ³⁾
Memory stability	Single solenoid	Double solenoid	Single solenoid		
Pneumatic spring reset method	Yes ⁵⁾	–	No		
Mechanical spring reset method	Yes ⁵⁾	–	Yes		
Vacuum operation at port 1	Only with external pilot air supply				
Design	Piston spool valve				
Sealing principle	Soft				
Actuation type	Electric				
Type of control	Pilot				
Pilot air supply	External, internal; can be selected via sub-base				
Exhaust function	Flow control				
Manual override	Choice of non-detenting, detenting or covered				
Type of mounting	On manifold rail				
Mounting position	Any				
Nominal size	[mm]	2			
Standard nominal flow rate	[l/min]	100		90	
Flow rate on manifold rail M3	[l/min]	100		90	
Switching time on/off	[ms]	7/15	–	8/25	
Changeover time	[ms]	–	5	14	
Width	[mm]	10			
Connection	1, 3, 5	M7 in manifold rail			
	2, 4	M5 in manifold rail			
	12/14, 82/84	M5 in manifold rail			
Product weight	[g]	38	49		
Corrosion resistance class	CRC	2 ⁶⁾			

1) C = Normally closed

2) U = Normally open

3) E = Normally exhausted

5) Combined reset method

6) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Solenoid valves VUVG-B10A, sub-base valves

Technical data

Operating and environmental conditions			
Valve function			5/2-way, single solenoid 5/2-way, double solenoid 5/3-way
Operating medium			Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated
Operating pressure at port 1 with pilot air supply	Internal	[bar]	2.5 ... 8
	External	[bar]	-0.9 ... 10
Operating pressure at port 3 or 5 with pilot air supply	Internal or external	[bar]	-0.9 ... 10
Pilot pressure ¹⁾		[bar]	2.5 ... 8 1.5 ... 8 3 ... 8
Ambient temperature		[°C]	-5 ... +50, -5 ... +60 with holding current reduction
Temperature of medium		[°C]	-5 ... +50, -5 ... +60 with holding current reduction

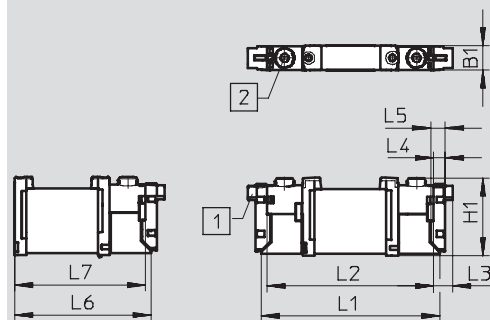
1) Minimum pilot pressure 50% of operating pressure

Electrical data	
Electrical connection	Via E-box
Operating voltage	[V DC] 5, 12 and 24 ±10%
Power	[W] 1, reduced to 0.35 with holding current reduction
Duty cycle	[%] 100
Protection class to EN 60529	IP40 (with plug socket), IP65 (with M8)

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS-compliant

Dimensions Download CAD Data → www.festo.com/us/cad

5/2-way and 5/3-way valve



Note

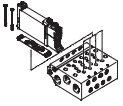
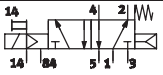
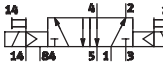
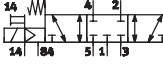

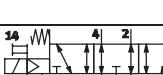

















Additional dimensions
E-boxes
→ page 51

- 1) Vertical electrical connection 2) Manual override

Type	B1	H1	L1	L2	L3	L4	L5	L6	L7
VUVG-B10A -...-F ...	10.2	32.5	73.9	68.9	8	4.85	6.15	56.9	54.4

Solenoid valves VUVG-B10A, sub-base valves

Order code

VUVG	-	B	10A	-	-	Z	-	F	-	-	-	L	-
Valve design													
 <p>Sub-base, manifold valve incl. seal and screws</p>													
Width													
10 mm 10A													
Valve functions													
										M52			
										B52			
										P53C			
										P53U			
										P53E			
Reset method													
Pneumatic/mechanical spring for M52 R													
With B52 and P53 -													
Pilot air supply													
External Z													
Manual override													
 Non-detenting H													
 Covered S													
 Non-detenting, detenting T													
Connecting cable													
W1...4 ¹⁾ Not sheathed for H 													
C1...4 ¹⁾ Sheathed for H 													
WS1...4 ¹⁾ Not sheathed for S 													
S1...4 ¹⁾ Sheathed for S 													
N1...4 ⁶⁾ M8x1, 3-pin 													
N5...8 ⁶⁾ M8x1, 4-pin 													
Display													
L LED													
Protective circuit													
- Without holding current reduction (HCR) 1													
R ²⁾ With holding current reduction (HCR) 1 to 0.35													
E-box													
H2 Pin allocation H, horizontal plug 													
H3 Pin allocation H, vertical plug 													
S2 Pin allocation S, horizontal plug 													
S3 Pin allocation S, vertical plug 													
L1...4 With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m 													
R1 Individual plug M8, 4-pin, only without HCR 													
R8 Individual plug M8, 3-pin, only without HCR 													
P3 Without E-box 													
Operating voltage													
1 24 V DC													
5 12 V DC													
4 5 V DC													
Pneumatic connection													
F In the manifold rail													

1) W1/C1/S1/WS1 = 0.5 m, W2/C2/S2/WS2 = 1 m, W3/C3/S3/WS3 = 2.5 m, W4/C4/S4/WS4 = 5 m
2) At 24 V DC

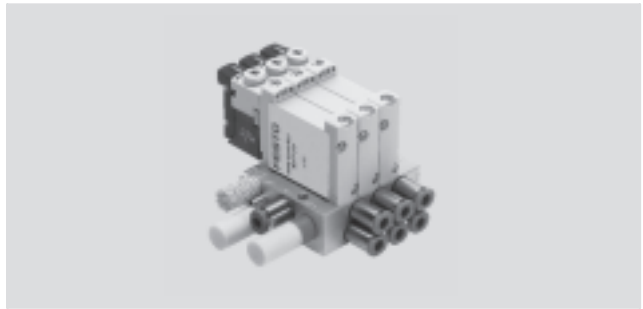
3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5

6) Straight: N1/N5 = 2.5 m, N2/N6 = 5 m
Angled: N3/N7 = 2.5 m, N4/N8 = 5 m

Solenoid valves VUVG-B10A, sub-base valves

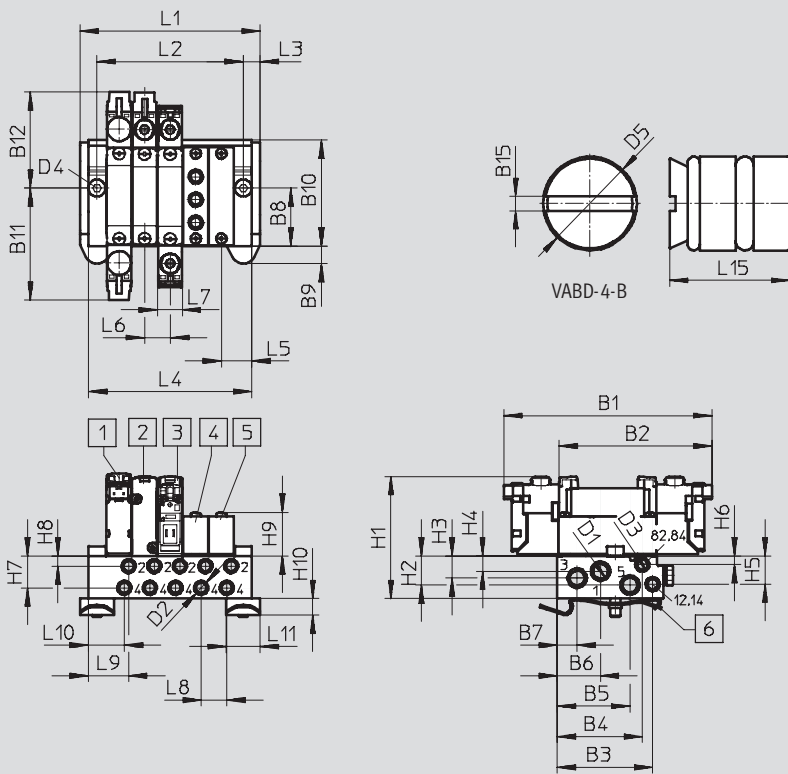
Manifold assembly

Sub-base valve for manifold assembly
M5 connection



Dimensions

Download CAD Data → www.festo.com/us/cad



Note

Additional dimensions
E-boxes
→ page 51

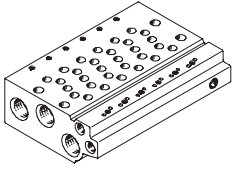
- 1 Solenoid valve
- 2 Solenoid valve
- 3 Solenoid valve
- 4 Supply plate
- 5 Blanking plate
- 6 H-rail mounting (2x M4x25 screws to DIN 912 are required)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
VUVG-B10A -...-F ...	84.9	62.4	39.12	34.95	29.83	17.75	8.15	24	7.15	43.5	45.75	39.15
	B15	D1	D2	D3	D4	D5	H1	H2	H3	H4	H5	H6
	0.48	M7	M5	M5	Ø4.5	Ø4	53.1	12	9.1	6.3	11.57	3.6
	H7	H8	H9	H10	H15	L3	L5	L6	L7	L8	L9	L10
	13.1	4.2	17.8	6.8	1.9	7	12.5	10.5	10.2	10.5	16.5	14.7
	L11	L15										
	14	8.5										

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	42.5	53	63.5	74	84.5	96	106.5	116	126.5	147.5	168.5	189.5
L2 [mm]	28.5	39	49.5	60	70.5	81	91.5	102	112.5	133.5	154.5	175.5
L4 [mm]	35.5	46	56.5	67	77.5	89	99.5	109	119.5	140.5	161.5	182.5
VABM weight [g]	60	78	96	114	132	150	168	186	204	240	276	312

Solenoid valves VUVG-B10A, sub-base valves

Ordering data





Technical data – Manifold rails									
	Connection			CRC	Material ²⁾	Operating pressure [bar]	Max. tightening torque for mounting [Nm]		
	2, 4	1, 3, 5	12/14, 82/84				Valve	H-rail	Wall
	M5	M7	M5	2 ¹⁾	Wrought aluminium alloy	-0.9 ... 10	0.45	1.5	1.5

- 1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- 2) Note on materials: RoHS-compliant

Order code – Manifold rails M5/M7

VABM	-	L1	-	10A	-	M7	-	
Manifold assembly parts								Number of valve positions
Manifold rail		VABM						2 to 10, 12, 14 and 16
Valve series								Ports 1, 3 and 5
VUVG		L1				M7	M7	
Valve width								
10 mm				10A				
Rail with ports 1, 2, 3, 4, 5, 12/14, 82/84								
Port 2 and 4 in M5								W

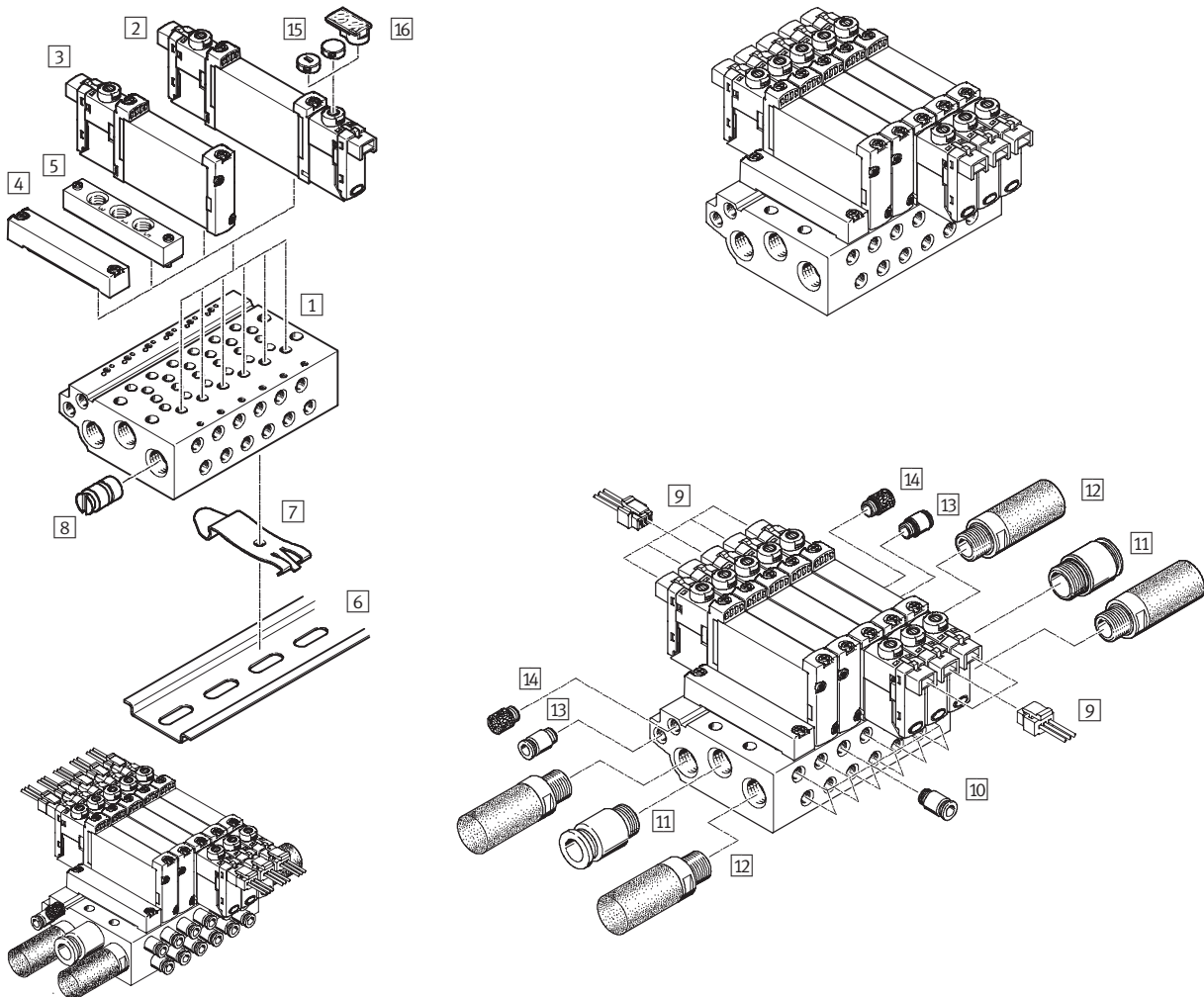
Ordering data – Accessories

				Type
Blanking plate				Technical data → Internet: vabb
	For manifold rail 10AW	Incl. screws and seal		VABB-L1-10A
Blanking plug				Technical data → Internet: vabd
	For manifold rail 10AW	Separator for pressure zones		VABD-4.2-B
Supply plate				Technical data → Internet: vabf
	For manifold rail 10AW	Incl. screws and seal		VABF-L1-10A-P3A4-M5
Seals				Technical data → Internet: vabd
	For sub-base valves B10A	10 seals and 20 screws		VABD-L1-10AB-S-M3

Solenoid valves VUVG-B10, sub-base valves

System overview

Manifold assembly



Manifold assembly and accessories				
	Type	Brief description	→ Page/Internet	
1	Manifold rail	VABM-L1-10 ...-G18- ...	For 2 to 10, 12, 14 and 16 valve positions	43
2	Solenoid valve	VUVG- ...	Sub-base valve, 5/2-way single solenoid	39
3	Solenoid valve	VUVG- ...	Sub-base valve, 2x3/2-way, 5/2-way double solenoid and 5/3-way single solenoid	39
4	Blanking plate	VABB-L1-10-S	For covering an unused valve position	43
5	Supply plate	VABF-L1-10-P3A4- ...	For air supply port 1 and outlet port 3 and 5	43
6	H-rail	NRH-35-2000	For mounting the valve manifold	53
7	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	53
8	Blanking plug	VABD- ...	For creating pressure zones	43
9	Plug socket with cable	NEBV-H1G2-KN-...-LE2	For E-box H2 and H3	53
10	Push-in fitting	QS...	Push-in fitting for outlet port 2 and 4	quick star
11	Push-in fitting	QS...	Push-in fitting for air supply port 1	quick star
12	Silencer	U...	For outlet port 3 and 5	53
13	Push-in fitting	QS...	Push-in fitting for pilot air supply port 12/14	quick star
14	Silencer	U...	Silencer for pilot air outlet 82/84	quick star
15	Cover cap	VMPA-HB...-B	For manual override	53
16	Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	55

Solenoid valves VUVG-B10, sub-base valves

Technical data

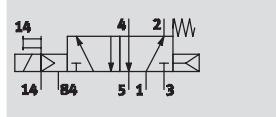
Function

2x3/2C, 2x3/2U, 2x3/2H

5/2-way, single solenoid

5/2-way, double solenoid

5/3C, 5/3U, 5/3E

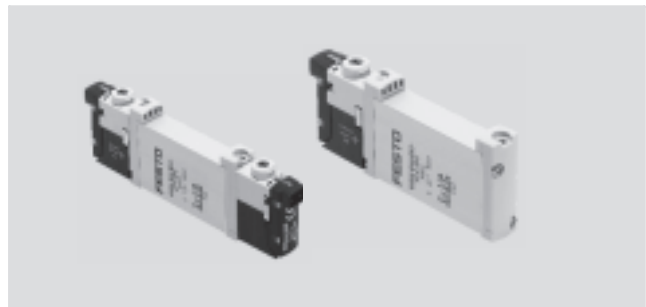


E.g. 5/2-way valve with internal pilot air supply and combined mechanical plus pneumatic spring return

-  - Width 10 mm

Flow rate
160 ... 270 l/min

Voltage
5, 12 and 24 V DC



General technical data									
Valve function	2x3/2-way			5/2-way		5/3-way			
Normal position	C ¹⁾	U ²⁾	H ⁴⁾	-	-	C ¹⁾	U ²⁾	E ³⁾	
Memory stability	Single solenoid				Double solenoid	Single solenoid			
Pneumatic spring reset method	Yes			Yes ⁵⁾	-	No			
Mechanical spring reset method	No			Yes ⁵⁾	-	Yes			
Vacuum operation at port 1	No			Only with external pilot air supply					
Design	Piston spool valve								
Sealing principle	Soft								
Actuation type	Electric								
Type of control	Piloted								
Pilot air supply	External, internal; can be selected via sub-base								
Exhaust function	Flow control								
Manual override	Choice of non-detenting, detenting or covered								
Type of mounting	On manifold rail								
Mounting position	Any								
Nominal size	[mm]	2.7			3.2				
Standard nominal flow rate	[l/min]	160			270		250		
Flow rate on manifold rail M5	[l/min]	150			210		200		
Flow rate on manifold rail M7	[l/min]	160			270		250		
Switching time on/off	[ms]	6/16			7/19	-	10/30		
Changeover time	[ms]	-			7		16		
Width	[mm]	10							
Connection	1, 3, 5	G $\frac{1}{8}$ in manifold rail							
	2, 4	M5 or M7 in manifold rail							
	12/14, 82/84	M5 in manifold rail							
Product weight	[g]	55			45	55			
Corrosion resistance class	CRC	2 ⁶⁾							

1) C = Normally closed

2) U = Normally open

3) E = Normally exhausted

4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open

5) Combined reset method

6) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Solenoid valves VUVG-B10, sub-base valves

Technical data

Operating and environmental conditions						
Valve function			2x3/2-way	5/2-way, single solenoid	5/2-way, double solenoid	5/3-way
Operating medium	Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated					
Operating pressure at port 1 with pilot air supply	Internal	[bar]	1.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8
	External	[bar]	1.5 ... 10	-0.9 ... 10		
Operating pressure at port 3 or 5 with pilot air supply	Internal or external	[bar]	-0.9 ... 10			
Pilot pressure ¹⁾		[bar]	1.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8
Ambient temperature		[°C]	-5 ... +50, -5 ... +60 with holding current reduction			
Temperature of medium		[°C]	-5 ... +50, -5 ... +60 with holding current reduction			

1) Minimum pilot pressure 50% of operating pressure

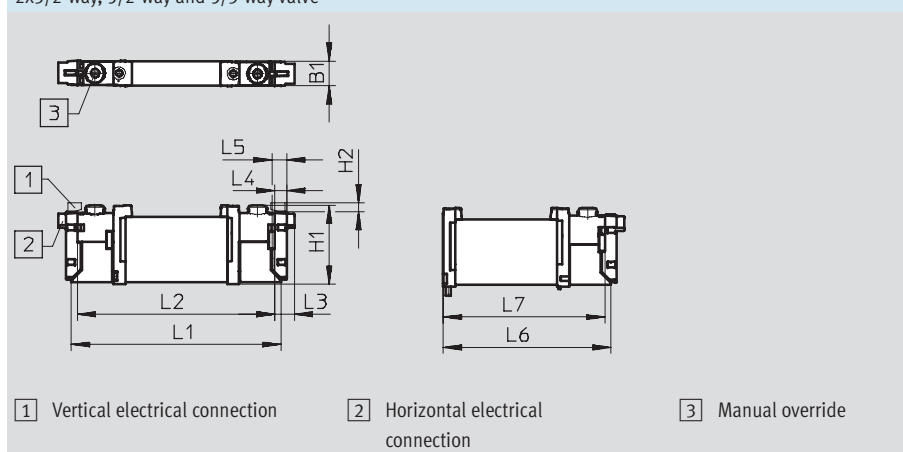
Electrical data	
Electrical connection	Via E-box
Operating voltage	[V DC] 5, 12 and 24 ±10%
Power	[W] 1, reduced to 0.35 with holding current reduction
Duty cycle	[%] 100
Protection class to EN 60529	IP40 (with plug socket)

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS-compliant

Dimensions

2x3/2-way, 5/2-way and 5/3-way valve

Download CAD Data → www.festo.com/us/cad



1 Vertical electrical connection 2 Horizontal electrical connection 3 Manual override

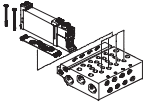
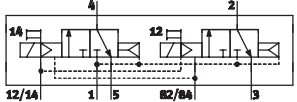
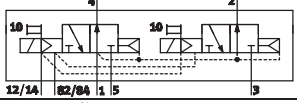
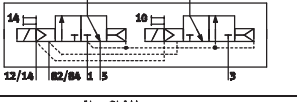
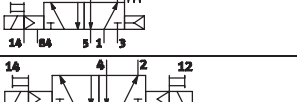
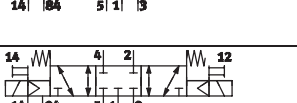
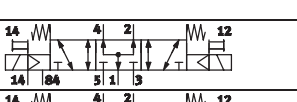
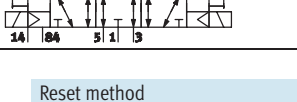
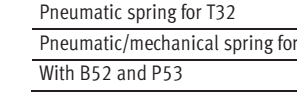

















Note

Additional dimensions
E-boxes
→ page 51

Type	B1	H1	H2	L1	L2	L3	L4	L5	L6	L7
VUVG-B10 -...-F ...	10.2	32.5	3.6	86.5	81.5	8	4.85	6.15	69.2	66.7

Solenoid valves VUVG-B10, sub-base valves

Order code

VUVG	-	B	10	-	-	Z	-	F	-	-	-	-	-	L	-
Valve design															
 <p>Sub-base, manifold valve incl. seal and screws</p>															
Width															
10 mm 10															
Valve functions															
										T32C					
										T32U					
										T32H					
										M52					
										B52					
										P53C					
										P53U					
										P53E					
Reset method															
Pneumatic spring for T32 A															
Pneumatic/mechanical spring for M52 R															
With B52 and P53 -															
Pilot air supply															
External Z															
Manual override															
 Non-detenting H															
 Covered S															
 Non-detenting, detenting T															
Connecting cable															
W1...4¹⁾ Not sheathed for H 															
C1...4¹⁾ Sheathed for H 															
WS1...4¹⁾ Not sheathed for S 															
S1...4¹⁾ Sheathed for S 															
N1...4⁶⁾ M8x1, 3-pin 															
N5...8⁶⁾ M8x1, 4-pin 															
Display															
L LED															
Protective circuit															
- Without holding current reduction (HCR) 1															
R²⁾ With holding current reduction (HCR) 1 to 0.35															
E-box															
H2 Pin allocation H, horizontal plug 															
H3 Pin allocation H, vertical plug 															
S2 Pin allocation S, horizontal plug 															
S3 Pin allocation S, vertical plug 															
L1...4 With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m 															
R1 Individual plug M8, 4-pin, only without HCR 															
R8 Individual plug M8, 3-pin, only without HCR 															
P3 Without E-box 															
Operating voltage															
1 24 V DC															
5 12 V DC															
4 5 V DC															
Pneumatic connection															
F In the manifold rail															

1) W1/C1/S1/WS1 = 0.5 m, W2/C2/S2/WS2 = 1 m, W3/C3/S3/WS3 = 2.5 m, W4/C4/S4/WS4 = 5 m
2) At 24 V DC

3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5

6) Straight: N1/N5 = 2.5 m, N2/N6 = 5 m
Angled: N3/N7 = 2.5 m, N4/N8 = 5 m

Solenoid valves VUVG-B10, sub-base valves

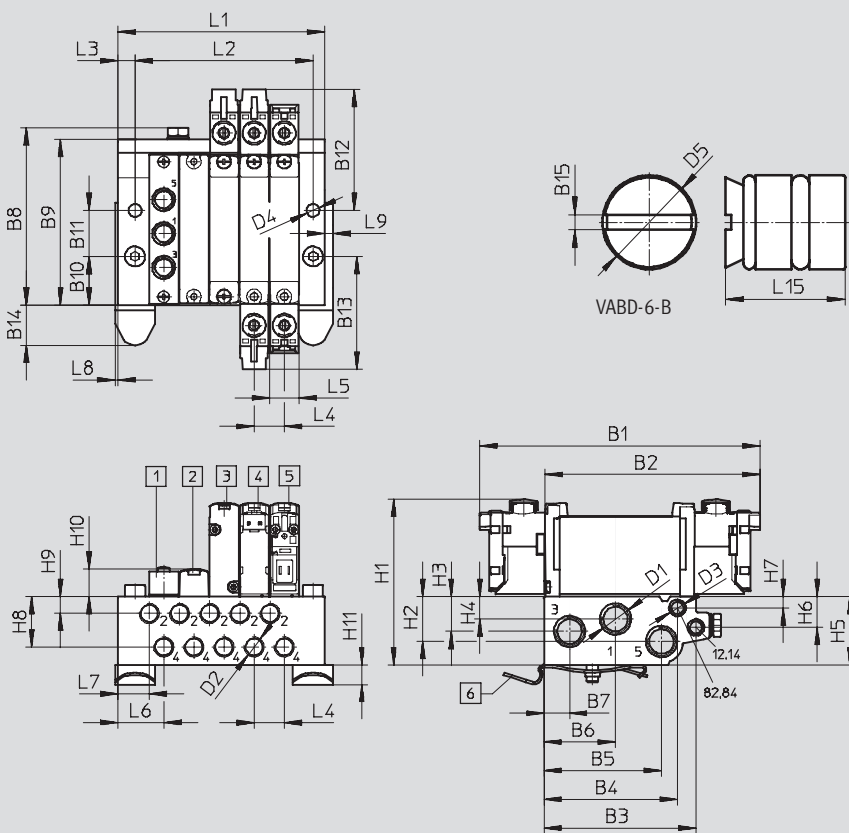
Manifold assembly

Sub-base valve for
manifold assembly
M5 or M7 connection



Dimensions

Download CAD Data → www.festo.com/us/cad



Note

Additional dimensions
E-boxes
→ page 51

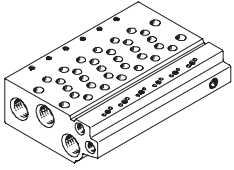
- 1 Supply plate
- 2 Blanking plate
- 3 Solenoid valve
- 4 Solenoid valve
- 5 Solenoid valve
- 6 H-rail mounting (2x M4x30 screws to DIN 912 are required)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
VUVG-B10 -...-F- ...	97.5	74.8	52.9	46.5	40.9	24.9	8.9	62	57.7	16.9	16	42.2
	B13	B14	B15	D1	D2	D3	D4	D5	H1	H2	H3	H4
	39.3	14.05	1.2	G1/8	M5/M7	M5	4.5	∅6	56.4	15.7	12.17	7.87
	H5	H6	H7	H8	H9	H10	H11	L3	L4	L5	L6	L7
	23.9	10.8	4	17.6	5.9	10	6.8	4	10.5	10.2	16	11
	L8	L9	L15									
	1	3	10									

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	40.5	51	61.5	72	82.5	93	103.5	114	122.5	145.5	166.5	187.5
L2 [mm]	30.5	41	51.5	62	72.5	83	93.5	104	114.5	135.5	156.5	177.5
VABM weight [g]	107	135	163	191	219	247	275	303	331	387	415	471

Solenoid valves VUVG-B10, sub-base valves

Ordering data




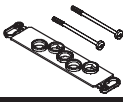
Technical data – Manifold rails									
	Connection			CRC	Material ²⁾	Operating pressure [bar]	Max. tightening torque for assembly [Nm]		
	2, 4	1, 3, 5	12/14, 82/84				Valve	H-rail	Wall
	M5 or M7	G $\frac{1}{8}$	M5	2 ¹⁾	Wrought aluminium alloy	-0.9 ... 10	0.45	1.5	3

- 1) Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- 2) Note on materials: RoHS-compliant

Order code – Manifold rails M5 and M7

VABM	-	L1	-	10	-	G18	-	
Manifold assembly parts								Number of valve positions
Manifold rail		VABM						2 to 10, 12, 14 and 16
Valve series								Ports 1, 3 and 5
VUVG		L1				G18	G $\frac{1}{8}$	
Valve width								
10 mm				10				
Manifold rail with ports 1, 2, 3, 4, 5, 12/14, 82/84								
Port 2 and 4 in M5								W
Port 2 and 4 in M7								HW

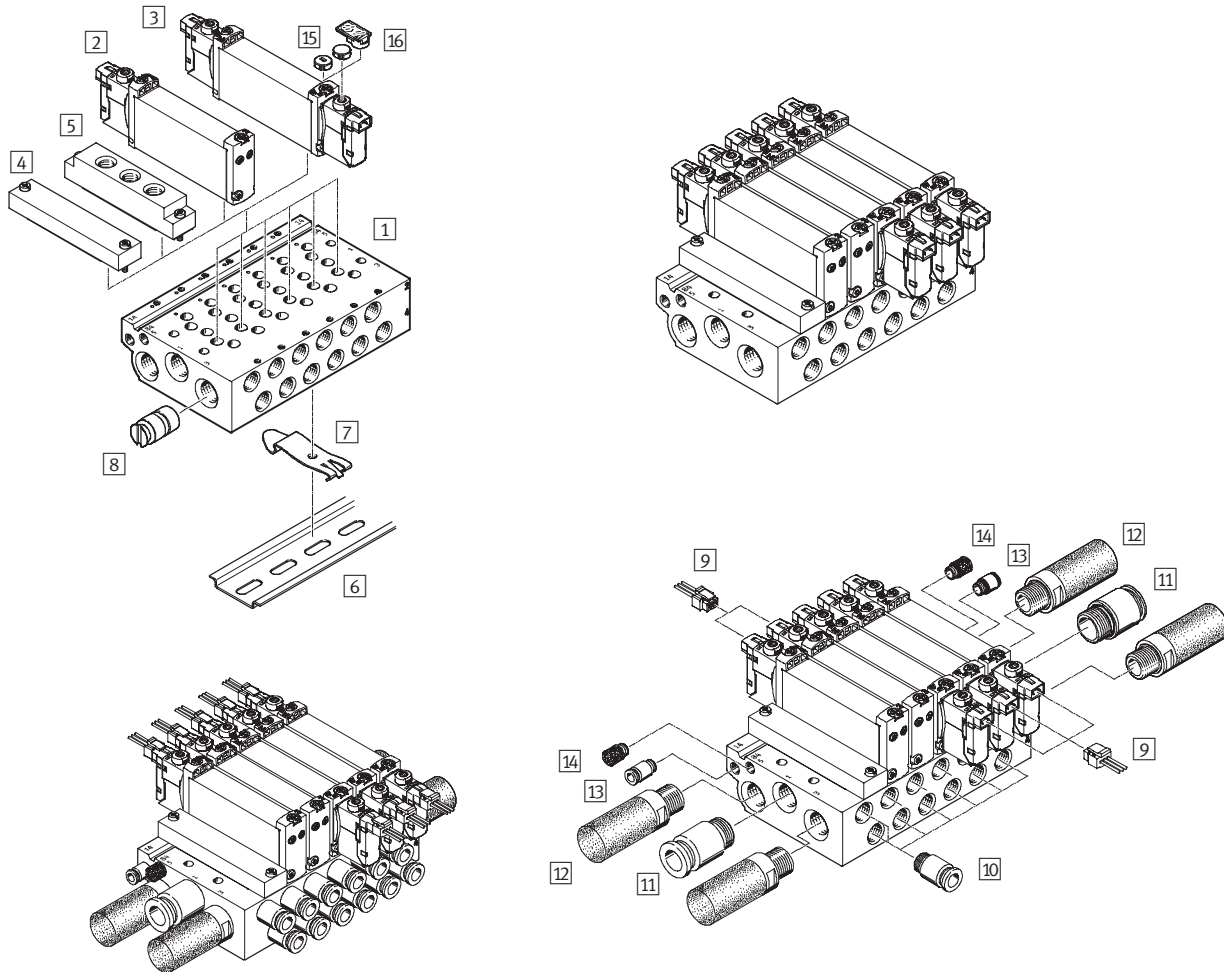
Ordering data – Accessories

			Type
Blanking plate Technical data → Internet: vabb			
	For manifold rail 10W/10HW, sub-base valves	Incl. screws and seal	VABB-L1-10-W
Blanking plug Technical data → Internet: vabd			
	For manifold rail 10W and 10HW, sub-base valves	Separator for pressure zones	VABD-6-B
Supply plate Technical data → Internet: vabf			
	For manifold rail 10W	Incl. screws and seal	VABF-L1-10-P3A4-M5
	For manifold rail 10HW		VABF-L1-10-P3A4-M7
Seals Technical data → Internet: vabd			
	For sub-base valves B10	10 seals and 20 screws	VABD-L1-10B-S-M7

Solenoid valves VUVG-B14, sub-base valves

System overview

Manifold assembly



Manifold assembly and accessories				
	Type	Brief description	→ Page/Internet	
1	Manifold rail	VABM-L1-10 ...-G18- ...	For 2 to 10, 12, 14 and 16 valve positions	49
2	Solenoid valve	VUVG- ...	Sub-base valve, 5/2-way single solenoid	45
3	Solenoid valve	VUVG- ...	Sub-base valve, 2x3/2-way, 5/2-way double solenoid and 5/3-way single solenoid	45
4	Blanking plate	VABB-L1-10-S	For covering an unused valve position	49
5	Supply plate	VABF-L1-10-P3A4- ...	For air supply port 1 and outlet port 3 and 5	49
6	H-rail	NRH-35-2000	For mounting the valve manifold	53
7	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	53
8	Blanking plug	VABD- ...	For creating pressure zones	49
9	Plug socket with cable	NEBV-H1G2-KN-...-LE2	For E-box H2 and H3	53
10	Push-in fitting	QS...	Push-in fitting for outlet port 2 and 4	quick star
11	Push-in fitting	QS...	Push-in fitting for air supply port 1	quick star
12	Silencer	U...	For outlet port 3 and 5	53
13	Push-in fitting	QS...	Push-in fitting for pilot air supply port 12/14	quick star
14	Silencer	U...	Silencer for pilot air outlet 82/84	quick star
15	Cover cap	VMPA-HB...-B	For manual override	53
16	Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	55

Solenoid valves VUVG-B14, sub-base valves

Technical data

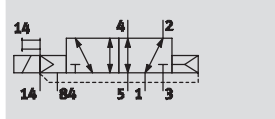
Function

2x3/2C, 2x3/2U, 2x3/2H

5/2-way, single solenoid

5/2-way, double solenoid

5/3C, 5/3U, 5/3E



E.g. 5/2-way valve with internal pilot air supply and pneumatic spring return

 Width 14 mm

Flow rate

510 ... 700 l/min

Voltage

5, 12 and 24 V DC

General technical data						
Valve function	2x3/2-way			5/2-way		5/3-way
Normal position	C ¹⁾	U ²⁾	H ⁴⁾	–	–	C ¹⁾ U ²⁾ E ³⁾
Memory stability	Single solenoid			Double solenoid		Single solenoid
Pneumatic spring reset method	Yes			–		No
Mechanical spring reset method	No			–		Yes
Vacuum operation at port 1	No			Only with external pilot air supply		
Design	Piston spool valve					
Sealing principle	Soft					
Actuation type	Electric					
Type of control	Piloted					
Pilot air supply	External, internal; can be selected via sub-base					
Exhaust function	Flow control					
Manual override	Choice of non-detenting, detenting or covered					
Type of mounting	On manifold rail					
Mounting position	Any					
Nominal size	[mm]	4.6		5.6		
Standard nominal flow rate	[l/min]	580		700		600
Flow rate on manifold rail G $\frac{1}{8}$	[l/min]	510		580		540
Switching time on/off	[ms]	8/23		14/28		– 12/40
Changeover time	[ms]	–		8		20
Width	[mm]	14				
Connection	1, 3, 5	G $\frac{1}{4}$ in manifold rail				
	2, 4	G $\frac{1}{8}$ in manifold rail				
	12/14, 82/84	M5 in manifold rail				
Product weight	[g]	89		78	89	
Corrosion resistance class	CRC	2 ⁶⁾				

1) C = Normally closed

2) U = Normally open

3) E = Normally exhausted

4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open

6) Corrosion resistance class 2 to Festo standard 940 070

Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.

Solenoid valves VUVG-B14, sub-base valves

Technical data

Operating and environmental conditions					
Valve function	2x3/2-way		5/2-way, single solenoid	5/2-way, double solenoid	5/3-way
Operating medium	Filtered compressed air, grade of filtration 40 µm, lubricated or unlubricated				
Operating pressure at port 1 with pilot air supply	Internal	[bar]	1.5 ... 8	2.5 ... 8	1.5 ... 8
	External	[bar]	1.5 ... 10	-0.9 ... 10	
Operating pressure at port 3 or 5 with pilot air supply	Internal or external	[bar]	-0.9 ... 10		
Pilot pressure ¹⁾		[bar]	1.5 ... 8	2.5 ... 8	1.5 ... 8
Ambient temperature		[°C]	-5 ... +50, -5 ... +60 with holding current reduction		
Temperature of medium		[°C]	-5 ... +50, -5 ... +60 with holding current reduction		

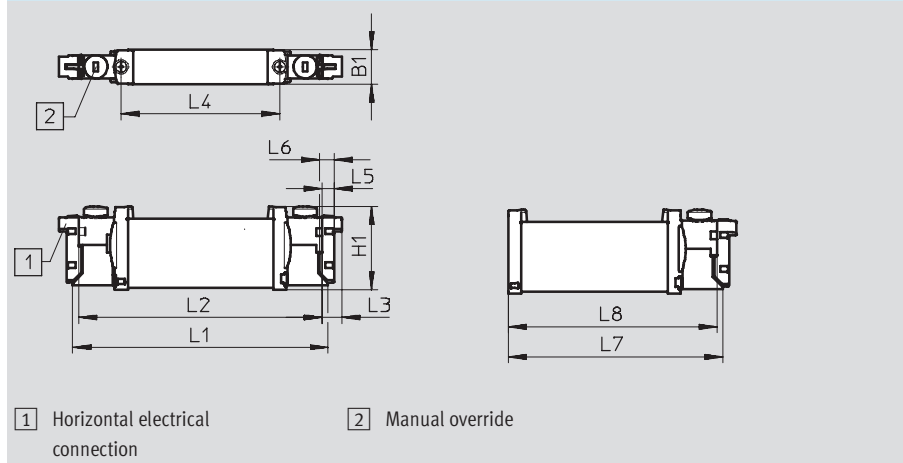
1) Minimum pilot pressure 50% of operating pressure

Electrical data	
Electrical connection	Via E-box
Operating voltage	[V DC] 5, 12 and 24 ±10%
Power	[W] 1, reduced to 0.35 with holding current reduction
Duty cycle	[%] 100
Protection class to EN 60529	IP40 (with plug socket)

Materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS-compliant

Dimensions
2x3/2-way, 5/2-way and 5/3-way valve

Download CAD Data → www.festo.com/us/cad



1 Horizontal electrical connection 2 Manual override

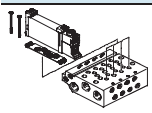
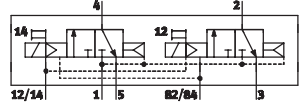
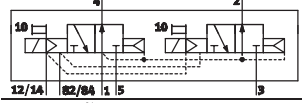
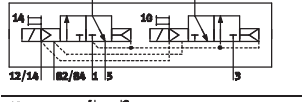
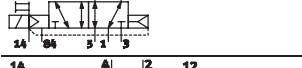
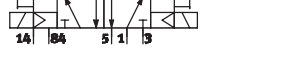
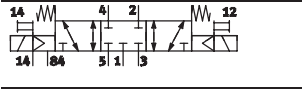
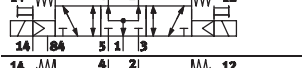
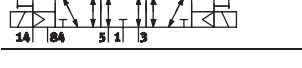














Note

Additional dimensions
E-boxes
→ page 51

Type	B1	H1	L1	L2	L3	L4	L5	L6	L7	L8
VUVG-B14 -...-F ...	14.4	34.8	107	102	8	66.5	4.85	6.15	89.45	86.95

Solenoid valves VUVG-B14, sub-base valves

Order code

VUVG	-	B	14	-	Z	-	F	-	L	-
Valve design			B							
 <p>Sub-base, manifold valve incl. seal and screws</p>										
Width			14 mm	14						
Valve functions										
			T32C							
			T32U							
			T32H							
			M52							
			B52							
			P53C							
			P53U							
			P53E							
Reset method										
Pneumatic spring for T32 and M52				A						
With B52 and P53				-						
Pilot air supply										
External				Z						
Manual override										
			Non-detenting	H						
			Covered	S						
-			Non-detenting, detenting	T						
Connecting cable										
W1...4 ¹⁾			Not sheathed	for H						
C1...4 ¹⁾			Sheathed							
WS1...4 ¹⁾			Not sheathed	for S						
S1...4 ¹⁾			Sheathed							
N1...4 ⁶⁾			M8x1, 3-pin							
N5...8 ⁶⁾			M8x1, 4-pin							
Display										
L			LED							
Protective circuit										
-		Without holding current reduction (HCR)		Power [W]		1				
R ²⁾		With holding current reduction (HCR)		Power [W]		1 to 0.35				
E-box										
H2			Pin allocation H, horizontal plug							
H3			Pin allocation H, vertical plug							
S2			Pin allocation S, horizontal plug							
S3			Pin allocation S, vertical plug							
L1...4			With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m							
R1			Individual plug M8, 4-pin, only without HCR							
R8			Individual plug M8, 3-pin, only without HCR							
P3			Without E-box							
Operating voltage										
1			24 V DC							
5			12 V DC							
4			5 V DC							
Pneumatic connection										
F			In the manifold rail							

1) W1/C1/S1/WS1 = 0.5 m, W2/C2/S2/WS2 = 1 m, W3/C3/S3/WS3 = 2.5 m, W4/C4/S4/WS4 = 5 m
2) At 24 V DC

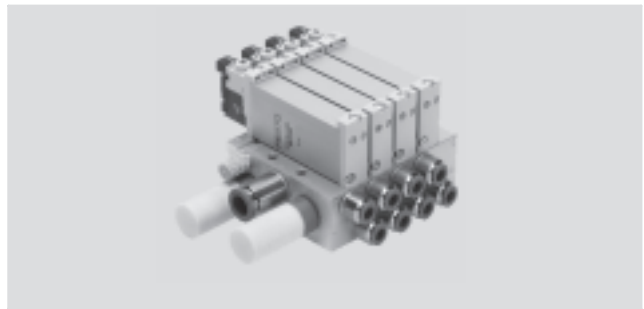
3) If Q... is chosen for the pneumatic connection, this also applies to the exhaust ports 3 and 5

6) Straight: N1/N5 = 2.5 m, N2/N6 = 5 m Angled: N3/N7 = 2.5 m, N4/N8 = 5 m

Solenoid valves VUVG-B14, sub-base valves

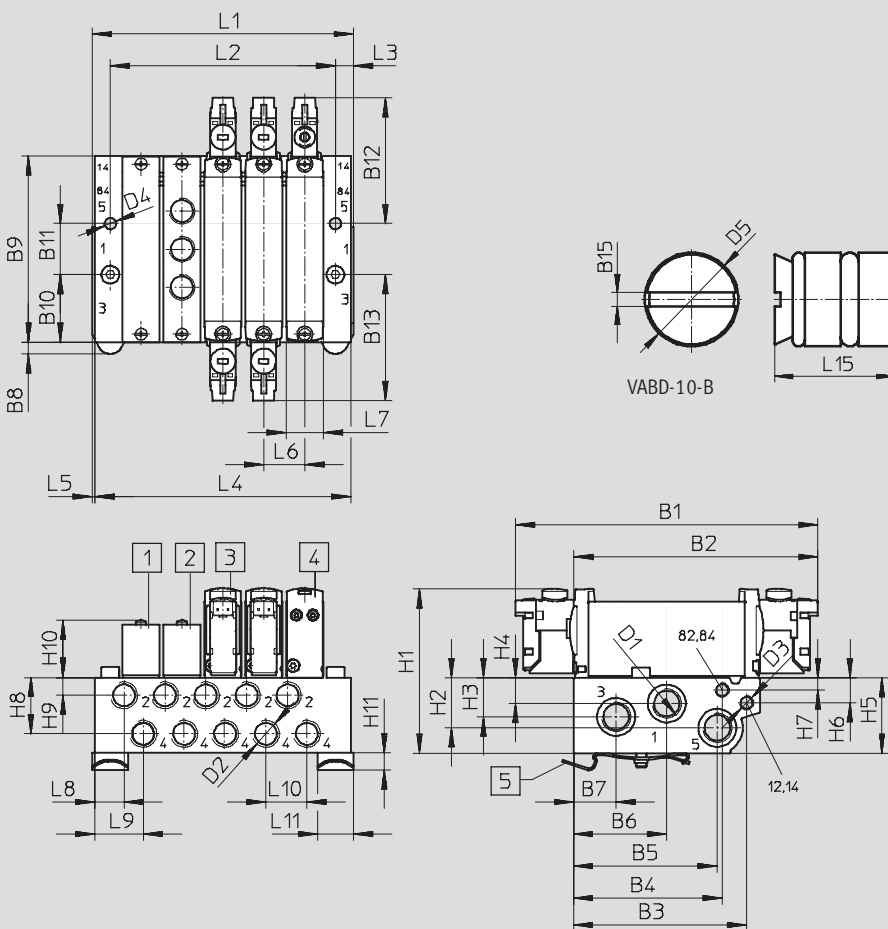
Manifold assembly

Sub-base valve for
manifold assembly
G $\frac{1}{8}$ connection



Dimensions

Download CAD Data → www.festo.com/us/cad



Note

Additional dimensions
E-boxes
→ page 51

- | | | | |
|--|--------------------------------|--------------------------------|---|
| 1 Blanking plate VABB-L1-14 | 3 Double solenoid valve | 4 Single solenoid valve | 5 H-rail mounting
(2x M4x25 screws to DIN 912 are required) |
| 2 Supply plate
VABF-L1-14-P3A4-G18 | | | |

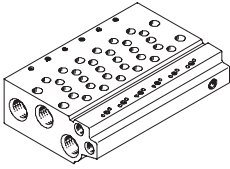
Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
VUVG-B14 -...-F- ...	118.3	95.1	67.7	58.15	56.25	36.6	16.7	4.5	72.9	26.5	20	49.1
	B13	B15	D1	D2	D3	D4	D5	H1	H2	H3	H4	H5
	49.1	1.2	G $\frac{1}{4}$	G $\frac{1}{8}$	M5	Ø4.5	Ø9.8	64.3	19.6	15.3	10.1	29.5
	H6	H7	H8	H9	H10	H11	L3	L5	L6	L7	L8	L9
	9.83	4.8	22.1	7	22.3	6.8	6	1	16	14.4	11.3	18.5
	L10	L11	L15									
	16	14	11									

Solenoid valves VUVG-B14, sub-base valves for G $\frac{1}{8}$

FESTO

Ordering data

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	56.3	72.3	88.3	104.3	120.3	136.3	152.3	168.3	184.3	216.3	248.3	280.3
L2 [mm]	40	56	72	88	104	120	136	152	168	200	232	264
L4 [mm]	54.3	70.3	86.3	102.3	118.3	134.3	150.3	166.3	182.3	214.3	246.6	278.3
VABM weight [g]	232	306	380	454	528	602	676	750	824	972	1120	1268





Technical data – Manifold rails									
	Connection			CRC	Material ²⁾	Operating pressure [bar]	Max. tightening torque for assembly [Nm]		
	2, 4	1, 3, 5	12/14, 82/84				Valve	H-rail	Wall
	G $\frac{1}{8}$	G $\frac{1}{4}$	M5	2 ¹⁾	Wrought aluminium alloy	-0.9 ... 10	0.65	1.5	3

- Corrosion resistance class 2 to Festo standard 940 070
Components subject to moderate corrosion stress. Externally visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment or media such as coolants or lubricating agents.
- Note on materials: RoHS-compliant

Order code – Manifold rails G $\frac{1}{8}$

VABM	-	L1	-	14	W	-	G14	-	
Manifold assembly parts									Number of valve positions
Manifold rail		VABM							2 to 10, 12, 14 and 16
Valve series									Ports 1, 3 and 5
VUVG		L1					G14	G $\frac{1}{4}$	
Valve width									
14 mm					14				
Manifold rail with ports 1, 2, 3, 4, 5, 12/14, 82/84									
Port 2 and 4 in G $\frac{1}{8}$					W				







Ordering data – Accessories

			Type
Blanking plate			Technical data → Internet: vabb
	For manifold rail 14W, sub-base valves	Incl. screws and seal	VABB-L1-14
Blanking plug			Technical data → Internet: vabd
	For manifold rail 14W, sub-base valves	Separator for pressure zones	VABD-10-B
Supply plate			Technical data → Internet: vabf
	For manifold rail 14W	Incl. screws and seal	VABF-L1-14-P3A4-G18
Seals			Technical data → Internet: vabd
	For sub-base valves B14	10 seals and 20 screws	VABD-L1-14B-S-G18

Solenoid valves VUVG

Ordering data – E-boxes

General technical data							
Variants	H2	H3	S2	S3	L-	R1	R8
Mounting position	Any						
Electrical connection	2-pin, socket				Flying leads	Individual plug M8, 4-pin	Individual plug M8, 3-pin
Protection class	IP40					IP65	
Switching position display	LED						
Type of mounting	Clip					Self-tapping screw	
Note on materials	RoHS-compliant						
Housing colour	Black						
Housing material	PA						

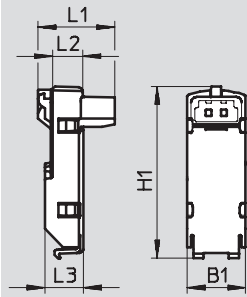
Ordering data – E-boxes							
Design	Plug	Additional functions	Ambient temperature [°C]	Code	Power	Voltage	Type
					[W]	[V DC]	
	NEBV-H1 ...	Spark arresting, bipolar	-5 ... +50	H2	1	12/24	VAVE-L1-1VH2-LP
		Spark arresting, holding current reduction	-5 ... +60	H2R	1/0.35	24	VAVE-L1-1H2-LR
	NEBV-H1 ...	Spark arresting, bipolar	-5 ... +50	H3	1	12/24	VAVE-L1-1VH3-LP
		Spark arresting, holding current reduction	-5 ... +60	H3R	1/0.35	24	VAVE-L1-1H3-LR
	NEBV-HS ...	Spark arresting, bipolar	-5 ... +50	S2	1	12/24	VAVE-L1-1VS2-LP
		Spark arresting, holding current reduction	-5 ... +60	S2R	1/0.35	24	VAVE-L1-1S2-LR
	NEBV-HS ...	Spark arresting, bipolar	-5 ... +50	S3	1	12/24	VAVE-L1-1VS3-LP
		Spark arresting, holding current reduction	-5 ... +60	S3R	1/0.35	24	VAVE-L1-1S3-LR
	Open cable end	Spark arresting, bipolar	-5 ... +50	L	1	12/24	VAVE-L1-1VL1-LP
		Spark arresting, bipolar	-5 ... +50	L	1	12/24	VAVE-L1-1VL2-LP
		Spark arresting, bipolar	-5 ... +50	L	1	12/24	VAVE-L1-1VL3-LP
		Spark arresting, bipolar	-5 ... +50	L	1	12/24	VAVE-L1-1VL4-LP
		Spark arresting, holding current reduction	-5 ... +60	LR	1/0.35	24	VAVE-L1-1L1-LR
		Spark arresting, holding current reduction	-5 ... +60	LR	1/0.35	24	VAVE-L1-1L2-LR
		Spark arresting, holding current reduction	-5 ... +60	LR	1/0.35	24	VAVE-L1-1L3-LR
		Spark arresting, holding current reduction	-5 ... +60	LR	1/0.35	24	VAVE-L1-1L4-LR
	NEBU-M8 ...	Spark arresting, bipolar	-5 ... +50	R8	1	12/24	VAVE-L1-1VR8-LP
		Spark arresting, bipolar	-5 ... +50	R1	1	12/24	VAVE-L1-1VR1-LP

Solenoid valves VUVG

Ordering data – E-boxes

Dimensions

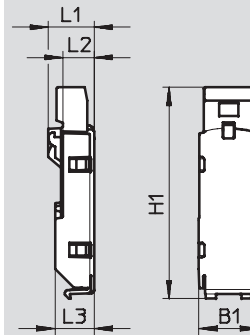
E-boxes, S2/H2



Type	B1	H1	L1	L2	L3
VAVE-L1-1VS2-LP	9.8	28.8	12.9	5.2	6.5
VAVE-L1-1S2-LR			10.75		
VAVE-L1-1VH2-LP	9.8	28.8	10.75	5.2	6.5
VAVE-L1-H2-LR					

Download CAD Data → www.festo.com/us/cad

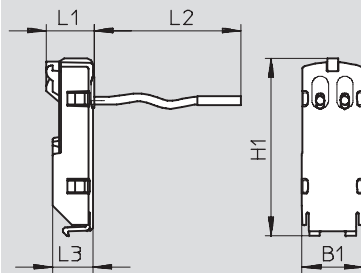
E-boxes, S3/H3



Type	B1	H1 ± 0.5	L1	L2	L3
VAVE-L1-1VS3-LP	9.8	35	7.6	5.2	6.5
VAVE-L1-1S3-LR			7.5		
VAVE-L1-1VH3-LP	9.8	35	7.5	5.2	6.5
VAVE-L1-1H3-LR					

Dimensions

E-boxes, VL1...4



Download CAD Data → www.festo.com/us/cad

Type	B1	H1	L1	L2	L3
VAVE-L1-1VL1-LP	9.8	28.8	7.85	0.5	6.5
VAVE-L1-1L1-LR				1	
VAVE-L1-1VL2-LP				2.5	
VAVE-L1-1L2-LR				5	
VAVE-L1-1VL3-LP	9.8	28.8	7.85	0.5	6.5
VAVE-L1-1L3-LR					
VAVE-L1-1VL4-LP	9.8	28.8	7.85	0.5	6.5
VAVE-L1-1L4-LR					

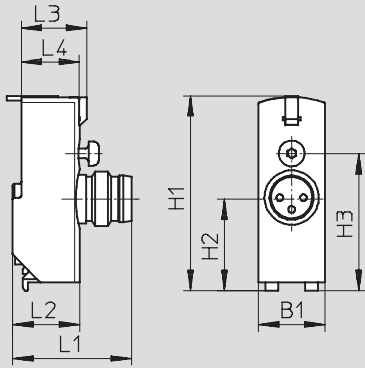
Solenoid valves VUVG

Ordering data – E-boxes

Dimensions

Download CAD Data → www.festo.com/us/cad


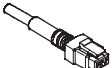
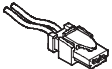
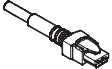

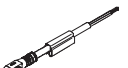
E-boxes, R8/R1



Type	B1	H1	H2	H3	L1	L2	L3	L4
VAVE-L1-1VR8-LP	9.8	28.7	13.5	20.2	17.55	9.9	9.65	8.6
VAVE-L1-1VR1-LP								







Solenoid valves VUVG

Accessories

Ordering data				
	Voltage	Cable length [m]	Description	Type
Plug socket with cable, not sheathed, open end				
	5, 12 and 24 V DC	0.5	Socket, 2-pin, H2/H3	Technical data → Internet: nebv NEBV-H1G2-KN-0.5-N-LE2
		1		NEBV-H1G2-KN-1-N-LE2
		2.5		NEBV-H1G2-KN-2.5-N-LE2
		5		NEBV-H1G2-KN-5-N-LE2
Plug socket with cable, sheathed, open end				
	5, 12 and 24 V DC	0.5	Socket, 2-pin, H2/H3	Technical data → Internet: nebv NEBV-H1G2-P-0.5-N-LE2
		1		NEBV-H1G2-P-1-N-LE2
		2.5		NEBV-H1G2-P-2.5-N-LE2
		5		NEBV-H1G2-P-5-N-LE2
Plug socket with cable, not sheathed, open end				
	5, 12 and 24 V DC	0.5	Socket, 2-pin, S2/S3	Technical data → Internet: nebv NEBV-HSG2-KN-0.5-N-LE2
		1		NEBV-HSG2-KN-1-N-LE2
		2.5		NEBV-HSG2-KN-2.5-N-LE2
		5		NEBV-HSG2-KN-5-N-LE2
Plug socket with cable, sheathed, open end				
	5, 12 and 24 V DC	0.5	Socket, 2-pin, S2/S3	Technical data → Internet: nebv NEBV-HSG2-P-0.5-N-LE2
		1		NEBV-HSG2-P-1-N-LE2
		2.5		NEBV-HSG2-P-2.5-N-LE2
		5		NEBV-HSG2-P-5-N-LE2
Connecting cable, open end				
	5, 12 and 24 V DC	2.5	3-pin, straight socket, M8x1	Technical data → Internet: nebu NEBU-M8G3-K-2.5-LE3
		5		NEBU-M8G3-K-5-LE3
		2.5	4-pin, straight socket, M8x1	NEBU-M8G4-K-2.5-LE4
		5		NEBU-M8G4-K-5-LE4
Connecting cable, open end				
	5, 12 and 24 V DC	2.5	3-pin, angled socket, M8x1	Technical data → Internet: nebu NEBU-M8W3-K-2.5-LE3
		5		NEBU-M8W3-K-5-LE3
		2.5	4-pin, angled socket, M8x1	NEBU-M8W4-K-2.5-LE4
		5		NEBU-M8W4-K-5-LE4

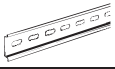




Solenoid valves VUVG

Accessories

Ordering data			
	Description		Type
Blanking plug Technical data → Internet: b			
	For manifold rail		B-M5 B-M7 B-1/8
Blanking plug Technical data → Internet: qsm			
	M thread with sealing ring		QSC-F-M5-I QSC-F-M7-I
	M5		QSC-F-M5-I
	M7		QSC-F-M7-I
	G thread with sealing ring		QSC-F-G1/8-I QSC-F-G1/4-I
	G1/8		QSC-F-G1/8-I
	G1/4		QSC-F-G1/4-I
Reducing nipple			
			D-M5I-M7A-ISK
Fittings Technical data → Internet: qsm			
	For tubing Ø 3 mm	100 pieces	QSM-M3-3-I-R-100
	For tubing Ø 4 mm		QSM-M3-4-I-R-100
	For tubing Ø 3 mm		QSM-M5-3-I-R100
	For tubing Ø 4 mm		QSM-M5-4-I-R100
	For tubing Ø 6 mm		QSM-M5-6-I-R100
	For tubing Ø 6 mm		QSM-M7-6-I-R100
	For tubing Ø 3 mm	10 pieces	QSM-M5-3-I
	For tubing Ø 4 mm		QSM-M5-4-I
	For tubing Ø 6 mm		QSM-M5-6-I
	For tubing Ø 4 mm		QSM-M7-4-I
	For tubing Ø 6 mm		QSM-M7-6-I
	For tubing Ø 4 mm	10 pieces	QS-G1/8-4-I
	For tubing Ø 6 mm		QS-G1/8-6-I
	For tubing Ø 8 mm		QS-G1/8-8-I
	For tubing Ø 10 mm		QS-G1/8-10-I
	For tubing Ø 6 mm	10 pieces	QS-G1/4-6-I
	For tubing Ø 8 mm		QS-G1/4-8-I
	For tubing Ø 10 mm		QS-G1/4-10-I
Silencer Technical data → Internet: uc			
	For thread M5		U-M5
	For thread M7		UC-M7
	For thread G1/8		UC-1/8
	For thread G1/4		UC-1/4

Solenoid valves VUVG

Accessories

Ordering data			
	Description		Type
H-rail Technical data → Internet: nrh			
	To EN 60715, 35 x 7.5 (WxH)	2 m	NRH-35-2000
H-rail mounting Technical data → Internet: vame			
	-	2 pieces	VAME-T-M4
Covers for manual override Technical data → Internet: vmpa			
	Covered	10 pieces	VMPA-HBV-B
	Non-detenting		VMPA-HBT-B
Inscription label holder Technical data → Internet: aslr			
	Holder for an inscription label and cover for mounting screw and manual override	10 pieces	ASLR-D-L1

Product Range and Company Overview

A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.



Custom Automation Components
Complete custom engineered solutions



Custom Control Cabinets
Comprehensive engineering support and on-site services



Complete Systems
Shipment, stocking and storage services

The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.



Electromechanical
Electromechanical actuators, motors, controllers & drives



Pneumatics
Pneumatic linear and rotary actuators, valves, and air supply



PLCs and I/O Devices
PLC's, operator interfaces, sensors and I/O devices

Supporting Advanced Automation... As No One Else Can!

Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

Quality Assurance, ISO 9001 and ISO 14001 Certifications

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.



© Copyright 2008, Festo Corporation. While every effort is made to ensure that all dimensions and specifications are correct, Festo cannot guarantee that publications are completely free of any error, in particular typing or printing errors. Accordingly, Festo cannot be held responsible for the same. For Liability and Warranty conditions, refer to our "Terms and Conditions of Sale", available from your local Festo office. All rights reserved. No part of this publication may be reproduced, distributed, or transmitted in any form or by any means, electronic, mechanical, photocopying or otherwise, without the prior written permission of Festo. All technical data subject to change according to technical update.



Printed on recycled paper at New Horizon Graphic, Inc., FSC certified as an environmentally friendly printing plant.

Festo North America

Festo Regional Contact Center

5300 Explorer Drive
Mississauga, Ontario L4W 5G4
Canada

USA Customers:

For ordering assistance,

Call: 1.800.99.FESTO (1.800.993.3786)

Fax: 1.800.96.FESTO (1.800.963.3786)

Email: customer.service@us.festo.com

For technical support,

Call: 1.866.GO.FESTO (1.866.463.3786)

Fax: 1.800.96.FESTO (1.800.963.3786)

Email: product.support@us.festo.com

Canadian Customers:

Call: 1.877.GO.FESTO (1.877.463.3786)

Fax: 1.877.FX.FESTO (1.877.393.3786)

Email: festo.canada@ca.festo.com

USA Headquarters

Festo Corporation
395 Moreland Road
P.O. Box 18023
Hauppauge, NY 11788, USA
www.festo.com/us

USA Sales Offices

Appleton

North 922 Tower View Drive, Suite N
Greenville, WI 54942, USA

Boston

120 Presidential Way, Suite 330
Woburn, MA 01801, USA

Chicago

1441 East Business Center Drive
Mt. Prospect, IL 60056, USA

Dallas

1825 Lakeway Drive, Suite 600
Lewisville, TX 75057, USA

Detroit – Automotive Engineering Center

2601 Cambridge Court, Suite 320
Auburn Hills, MI 48326, USA

New York

395 Moreland Road
Hauppauge, NY 11788, USA

Silicon Valley

4935 Southfront Road, Suite F
Livermore, CA 94550, USA

United States



USA Headquarters, East: Festo Corp., 395 Moreland Road, Hauppauge, NY 11788

Phone: 1.631.435.0800; Fax: 1.631.435.8026;

Email: info@festo-usa.com

www.festo.com/us

Canada



Headquarters: Festo Inc., 5300 Explorer Drive, Mississauga, Ontario L4W 5G4

Phone: 1.905.624.9000; Fax: 1.905.624.9001;

Email: festo.canada@ca.festo.com

www.festo.ca

Mexico



Headquarters: Festo Pneumatic, S.A., Av. Ceylán 3, Col. Tequesquahuac,
54020 Tlalneantla, Edo. de México

Phone: 011 52 [55] 53 21 66 00; Fax: 011 52 [55] 53 21 66 65;

Email: festo.mexico@mx.festo.com

www.festo.com/mx

Central USA

Festo Corporation
1441 East Business
Center Drive
Mt. Prospect, IL 60056, USA
Phone: 1.847.759.2600
Fax: 1.847.768.9480



Western USA

Festo Corporation
4935 Southfront Road,
Suite F
Livermore, CA 94550, USA
Phone: 1.925.371.1099
Fax: 1.925.245.1286



Festo Worldwide

Argentina Australia Austria Belarus Belgium Brazil Bulgaria Canada Chile China Colombia Croatia Czech Republic Denmark
Estonia Finland France Germany Great Britain Greece Hong Kong Hungary India Indonesia Iran Ireland Israel Italy Japan Latvia
Lithuania Malaysia Mexico Netherlands New Zealand Norway Peru Philippines Poland Romania Russia Serbia Singapore
Slovakia Slovenia South Africa South Korea Spain Sweden Switzerland Taiwan Thailand Turkey Ukraine United States Venezuela

www.festo.com