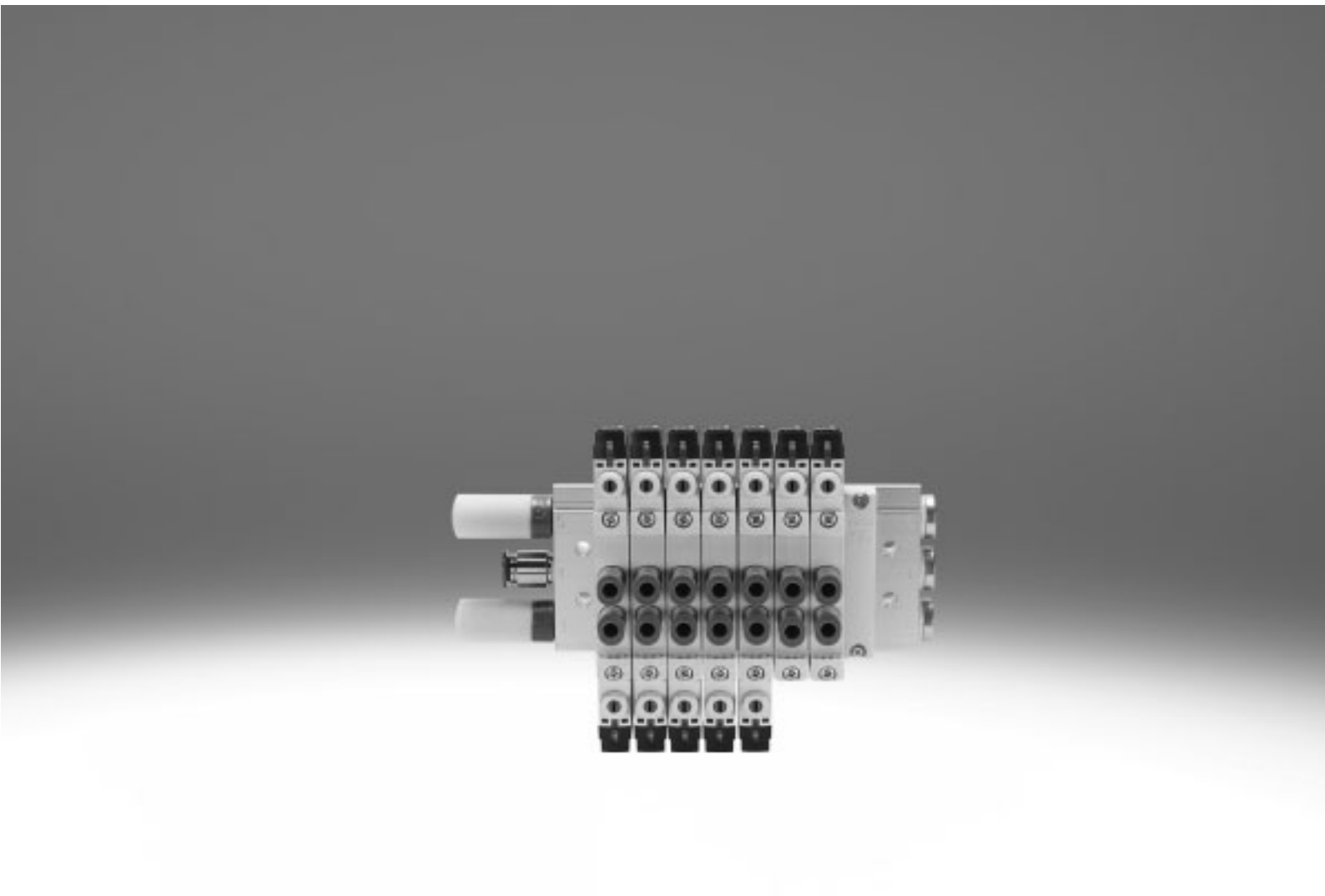
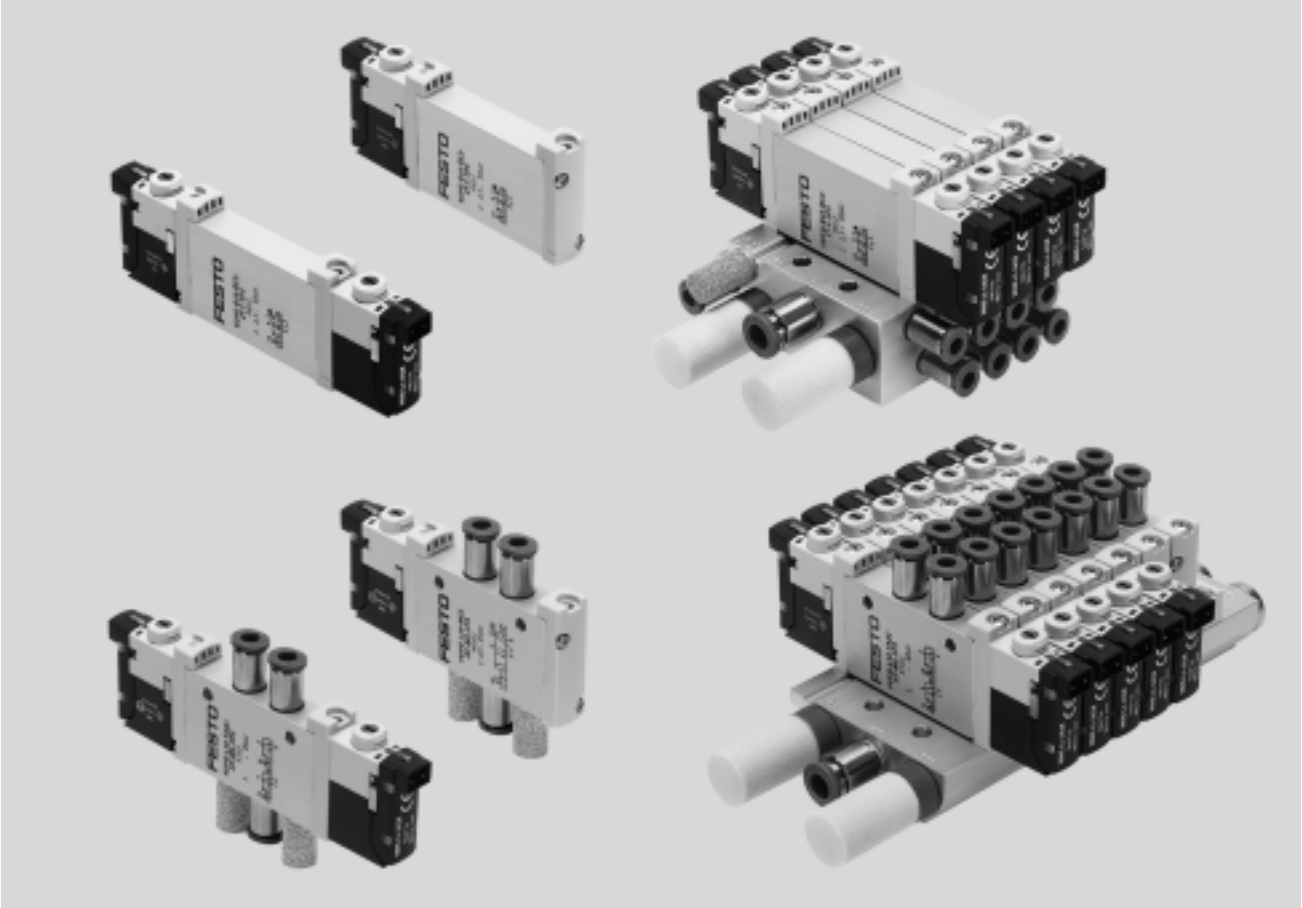
Solenoid valves VUVG/valve terminals VTUG

FESTO



Solenoid valves VUVG

Key features



Innovative

- Can be set to internal or external pilot air supply for manifolds with sub-base valves
- Connection technology easy to change via the connecting plate E-box
- Maximum 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 rail
- 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
- Convenient servicing thanks to valves that can be replaced quickly and easily
- Choice of manual override: non-detenting, covered, non-detenting/detenting or detenting (without accessories)

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 the valves

Valve terminal configurator

Download CAD data ➔ **www.festo.com**

A valve terminal configurator is available to help you select a suitable valve terminal VTUG. This makes it much easier to order the right product. Valve terminals VTUG are ordered via an ident. code.

All valve terminals are supplied fully assembled and individually tested. This reduces assembly and installation time to a minimum.

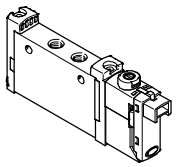
Ordering system for valve terminal VTUG

➔ Internet: vtug

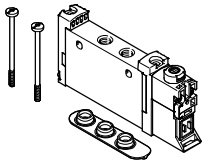
Solenoid valves VUVG

Key features – Pneumatic components

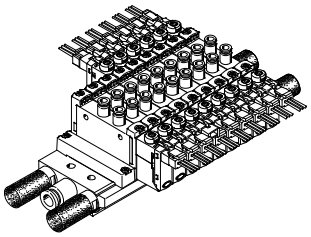
Individual valves and valve manifolds



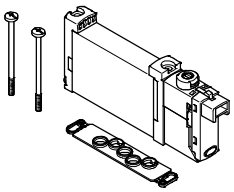
In-line valve VUVG-L as individual valve



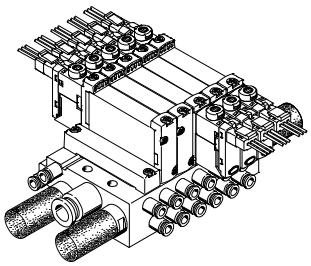
In-line valve VUVG-S for manifold assembly



Valve manifold VTUG consisting of in-line valves VUVG-S

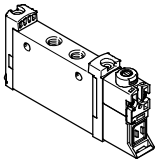


Sub-base valve VUVG-B for manifold assembly



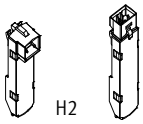
Valve manifold VTUG consisting of sub-base valves VUVG-B

Basic valves VUVG



- Width 10, 14 and 18 mm
- In-line valves
- Sub-base valves
- 2x3/2-way, 5/2-way and 5/3-way valves

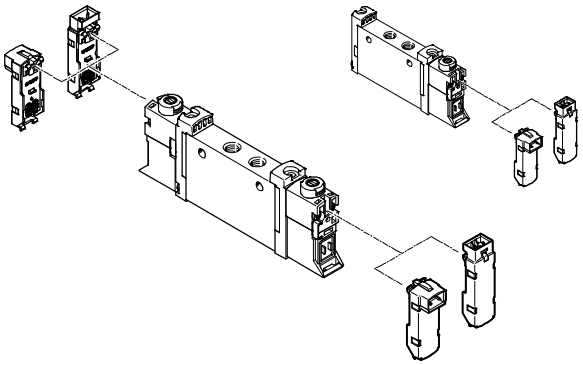
E-boxes

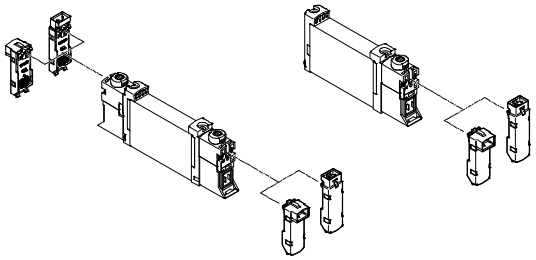


H2 H3

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

Basic valve and E-box combinations

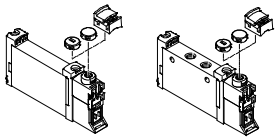




Note

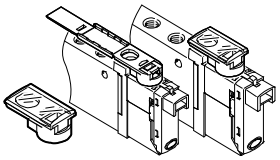
More E-boxes ➔ page 82

Cover caps for manual override



- Closed cover cap, covered manual override
- Slotted cover cap, non-detenting manual override
- Cover, detenting manual override

Inscription label holder



- The inscription label holder is mounted in the same way as a cover cap for manual override
- The hinged inscription label holder covers the mounting screw and the manual override

Valve terminal configurator

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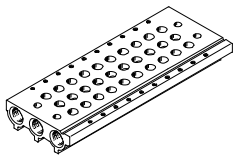
Manifold rail for in-line valves

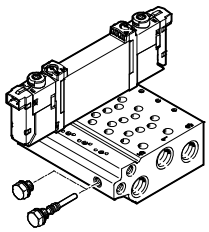


- For in-line valves M3, M5, M7, G⅛ and G¼
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 2 to 10 and 12, 14, 16 valve positions

Note

Pressurisation and exhaust at both ends is recommended for an optimised flow rate in cases where multiple valves switch simultaneously.

Manifold rail for sub-base valves

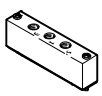


- For sub-base valves 10A, 10, 14 and 18
- Manifold rail with M5, M7, G⅛ and G¼ working ports
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 2 to 10, 12, 14 and 16 valve positions
- The sub-base valves always have external pilot air. The pilot air is set via the manifold rail. A short and a long blanking plug are included with the manifold rail for this purpose.

Blanking plate for vacant position

Vacant position cover

Supply plate



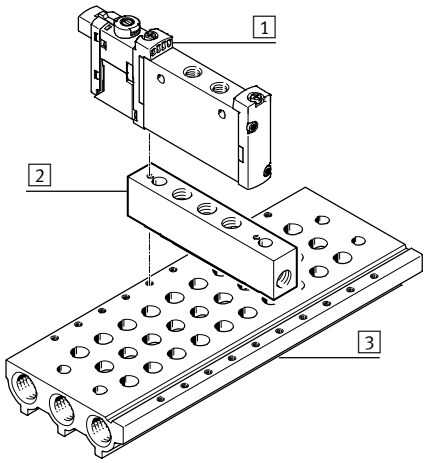
For additional air supply and exhaust via a valve position

Separator for pressure zones

For creating multiple pressure zones in a valve manifold

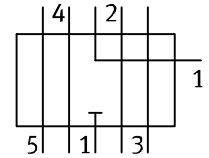
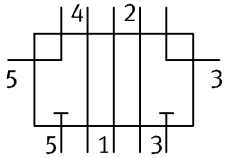
Vertical pressure supply plate

For semi in-line valves M5/M7 and G1/8

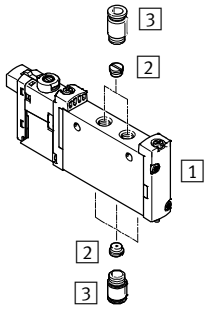


1 Semi in-line valve VUVG
2 Vertical pressure supply plate
3 Manifold rail

The vertical pressure supply plate enables the valve to be pressurised and exhausted separately.
If two vertical pressure supply plates are mounted one on top of the other, the valve can be supplied with compressed air and exhausted completely independently of the valve terminal (terminal code CS).

Code		Type	For semi in-line valves		Description
			M5/M7	G1/8	
ZU		VABF-L1-P3A	■	■	Plate with port 1 for supplying an individual operating pressure or separate exhausting (reverse operation) for a valve position.
ZV		VABF-L1-P7A	■	■	Plate with ports 3 and 5 for exhausting the valve or supplying an individual operating pressure (reverse operation) for a valve position.

Flow control



1 Valves VUVG with individual electrical connection
2 Flow control
3 Fitting

Semi in-line valve, individual electrical connection: flow control can be fitted in port 1, 3, 5 and/or in port 2, 4.

Sub-base valve, individual electrical connection: flow control can be fitted in port 2, 4.

Creating pressure zones and separating exhaust air

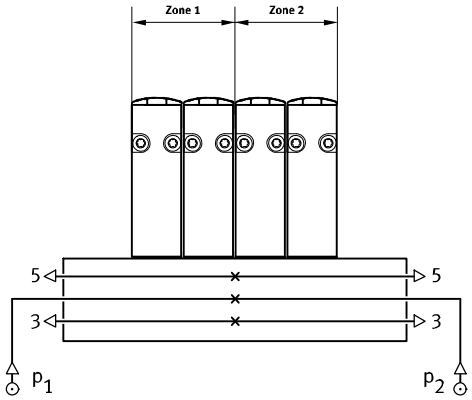
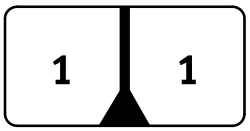
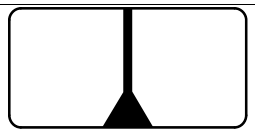
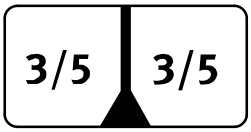
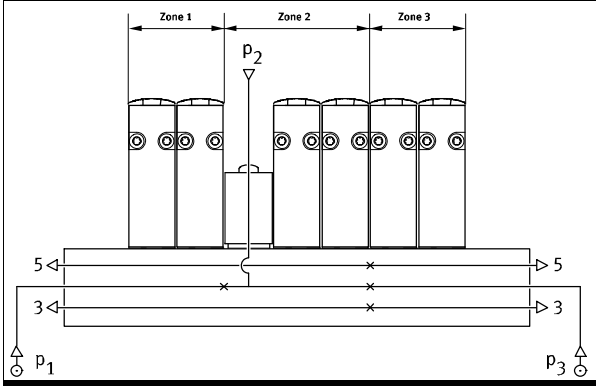
Compressed air is supplied and exhausted via the manifold rail and via supply plates.
The position of the supply plates and duct separations can be freely selected with the VUVG.

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

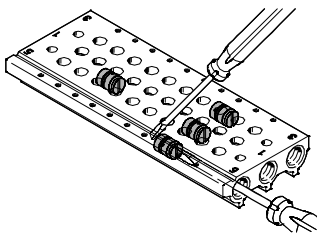
Pressure zone separation can be used for the following ducts:
- Duct 1
- Duct 3
- Duct 5

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 in duct 12/14 (pilot air supply)

Duct separation

	Description
	The pressure zones can be freely configured with the VUVG. The following duct separations are possible: Duct 1 closed  Duct 1, 3, 5 closed  Duct 3, 5 closed 
	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.

Separator VABD



Note

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

Pilot air supply

Internal pilot air supply

Internal pilot air supply can be chosen with an operating pressure in the range 1.5 ... 8 bar, 2.5 ... 8 bar or 3 ... 8 bar (depending on the valve used).

The pilot air supply is branched from duct 1 (compressed air supply) using an internal connection.

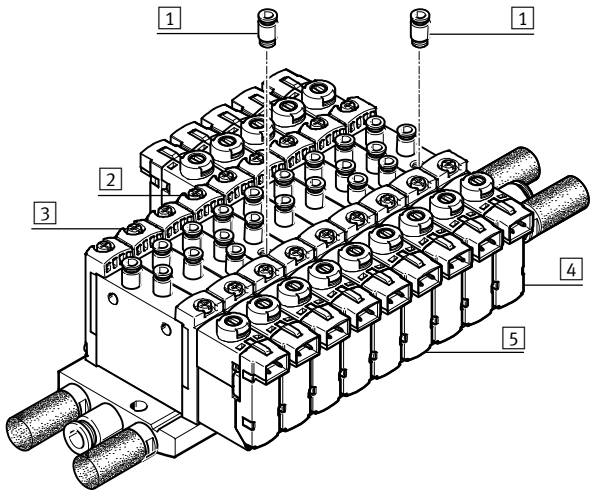
External pilot air supply

External pilot air supply is required for vacuum operation.
The port for external pilot air supply (port 12/14) is located on the valve in the case of in-line valves and on the manifold rail in the case of sub-base valves.

Pilot exhaust air port

With in-line valves, the pilot exhaust air escapes via exhaust holes. With sub-base valves, the pilot air is exhausted via duct 82/84 of the manifold rail.

Pilot air supply with in-line and semi in-line valves



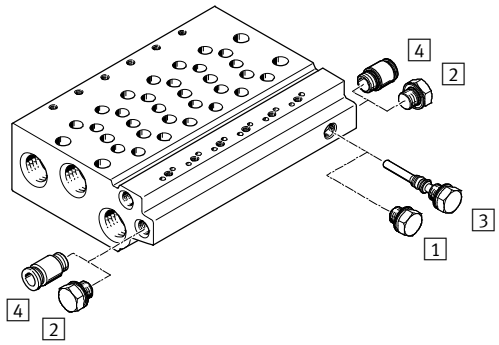
1 Push-in fitting for external pilot air supply at port 12/14
2 Single solenoid valve with external pilot air supply
3 Single solenoid valve with internal pilot air supply
4 Double solenoid valve with external pilot air supply
5 Double solenoid valve with internal pilot air supply

The internal pilot air is branched from port 1 in the valve body. The external pilot air (port 12/14) is supplied individually at each valve housing.

Note

Semi in-line valves cannot be supplied centrally with external pilot air via the manifold rail.

Pilot air supply with sub-base valves



1 Blanking plug, short, with internal pilot air
2 Blanking plug for duct 12/14 with internal pilot air
3 Blanking plug, long, with external pilot air
4 Push-in fitting in 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.

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 force 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 of the 5/2-way and 5/3-way valves.

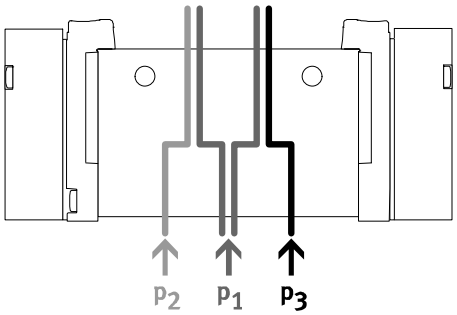
Reverse operation

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.

Note

Pressure must be present at port 1.

Pressure deflector (internal pilot air)



- If two different pressures are required.
- Different pressures can be supplied at duct 1, 3 and 5.

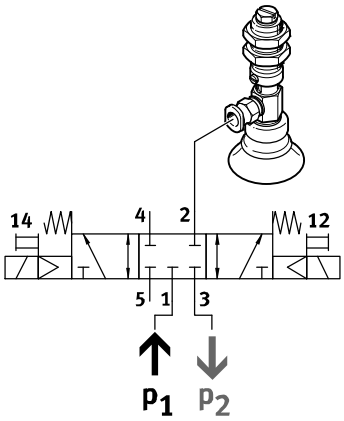
Note

- With internal pilot air supply, 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

Benefits

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

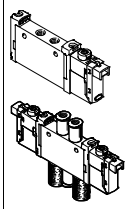
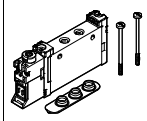


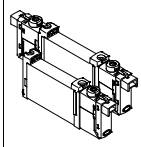
Vacuum, ejector pulse and normal position can be achieved as follows:

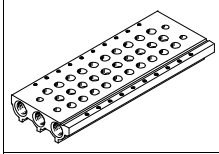
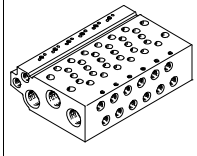
- Internal pilot air supply
- Vacuum in duct 3
- Pressure for the ejector pulse in duct 1

Solenoid valves VUVG

Product range overview

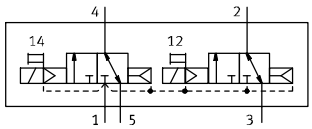
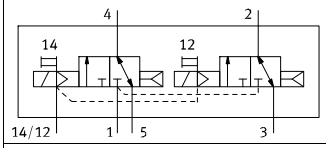
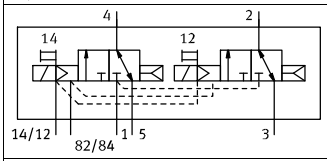
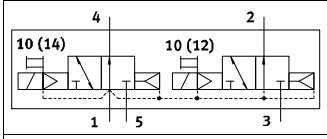
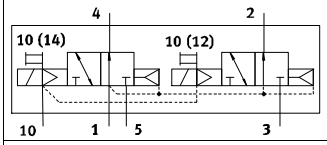
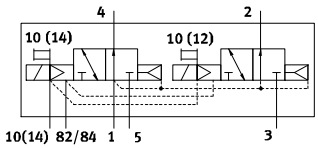
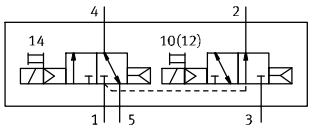
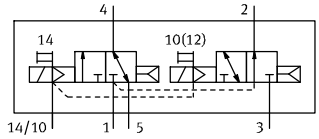
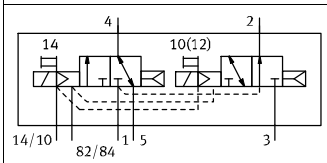
Design	Working port	Type code	Functions and flow rate [l/min]												➔ Page/ Internet
			T32C	T32U	T32H	T32C/M	T32U/M	T32H/M	M52	M52/M	B52	P53C	P53U	P53E	
In-line valve as individual valve, solenoid valve VUVG-L															
	M3	10A	–	–	–	–	–	–	■ 100	■ 80	■ 100	■ 90	■ 90	■ 90	17
	M5	10	■ 150	■ 150	■ 150	■ 135	■ 125	■ 125	■ 220	■ 190	■ 220	■ 210	■ 210	■ 210	25
	M7	10	■ 190	■ 190	■ 190	■ 150	■ 140	■ 140	■ 380	■ 320	■ 380	■ 320	■ 320	■ 320	29
	G1⁄8	14	■ 650	■ 600	■ 650	■ 550	■ 500	■ 500	■ 780	■ 780	■ 780	■ 650	■ 600	■ 600	37
	G1⁄4	18	■ 1000	■ 1000	■ 1000	■ 1000	■ 1000	■ 1000	■ 1300	■ 1300	■ 1380	■ 1200	■ 1000	■ 1000	45
In-line valve for manifold assembly, solenoid valve VUVG-S															
	M3	10A	–	–	–	–	–	–	■ 100	■ 80	■ 100	■ 90	■ 90	■ 90	17
	M5	10	■ 150	■ 150	■ 150	■ 135	■ 125	■ 125	■ 220	■ 190	■ 220	■ 210	■ 210	■ 210	25
	M7	10	■ 170	■ 170	■ 170	■ 140	■ 130	■ 130	■ 340	■ 290	■ 340	■ 300	■ 300	■ 300	29
	G1⁄8	14	■ 620	■ 580	■ 580	■ 520	■ 480	■ 480	■ 730	■ 730	■ 730	■ 620	■ 580	■ 580	37
	G1⁄4	18	■ 1000	■ 1000	■ 1000	■ 1000	■ 1000	■ 1000	■ 1300	■ 1300	■ 1380	■ 1200	■ 1000	■ 1000	45

Design	Working port	Type code	Functions and flow rate [l/min]												➔ Page/ Internet
			T32C	T32U	T32H	T32C/M	T32U/M	T32H/M	M52	M52/M	B52	P53C	P53U	P53E	
Sub-base valve, solenoid valve VUVG-B															
	M5	10A	–	–	–	–	–	–	■ 100	■ 80	■ 100	■ 90	■ 90	■ 90	53
	M5	10	■ 150	■ 150	■ 150	■ 130	■ 120	■ 120	■ 210	■ 180	■ 210	■ 200	■ 200	■ 200	60
	M7	10	■ 160	■ 160	■ 160	■ 140	■ 130	■ 130	■ 270	■ 230	■ 270	■ 250	■ 250	■ 250	60
	G1⁄8	14	■ 540	■ 510	■ 540	■ 430	■ 410	■ 410	■ 580	■ 580	■ 580	■ 540	■ 510	■ 510	67
	G1⁄4	18	■ 800	■ 800	■ 800	■ 800	■ 800	■ 800	■ 1000	■ 1000	■ 1000	■ 950	■ 950	■ 950	74

Design	Type code	Description	➔ Page/ Internet
Manifold rail VABM- ... -S- ..., for in-line valves (manifold assembly)			
	10AS	Valve size M3	vabm
	10S	Valve size M5, M7	
	14S	Valve size G1⁄8	
	18S	Valve size G1⁄4	
Manifold rail VABM, for sub-base valves			
	10AW	Connection size M3	vabm
	10W	Connection size M5	
	10HW	Connection size M7	
	14W	Connection size G1⁄8	
	18W	Connection size G1⁄4	

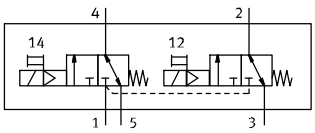
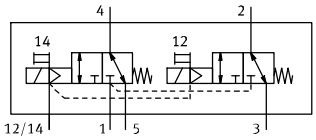
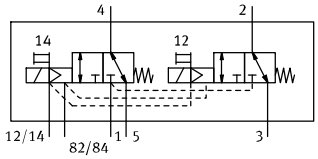
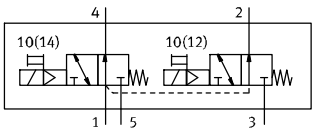
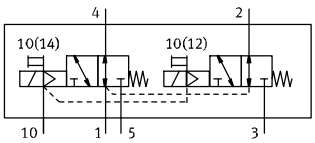
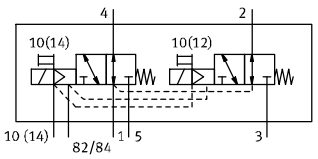
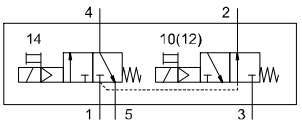
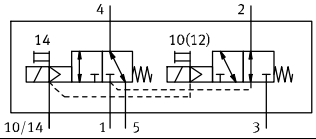
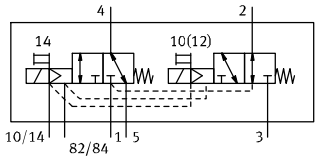
Solenoid valves VUVG

Overview of valve functions

Valve	Valve code	Description	Valve terminal/ position function order code	Size			
				M3	M5/M7	G1/8	G1/4
2x3/2-way valve, normally closed, pneumatic spring							
	T32C-A	In-line valve, internal pilot air supply	C	–	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
2x3/2-way valve, normally open, pneumatic spring							
	T32U-A	In-line valve, internal pilot air supply	N	–	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
2x3/2-way valve, 1x normally open, 1x normally closed, pneumatic spring							
	T32H-A	In-line valve, internal pilot air supply	H	–	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					

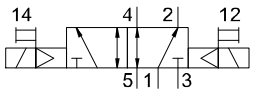
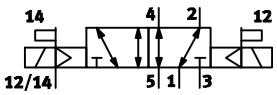
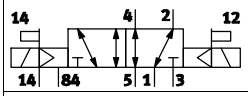
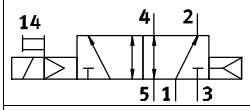
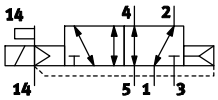
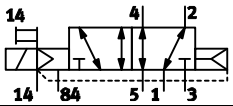
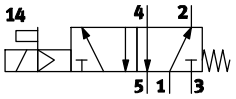
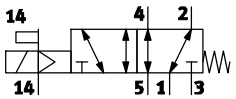
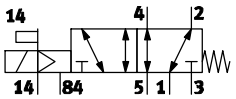
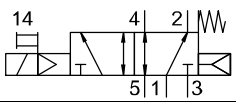
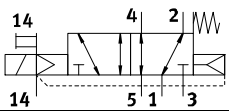
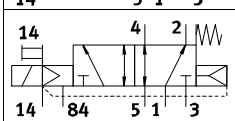
Solenoid valves VUVG

Overview of valve functions

Valve	Valve code	Description	Valve terminal/ position function order code	Size			
				M3	M5/M7	G1/8	G1/4
2x3/2-way valve, normally closed, mechanical spring							
	T32C-M	In-line valve, internal pilot air supply	VK	–	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
2x3/2-way valve, normally open, mechanical spring							
	T32U-M	In-line valve, internal pilot air supply	VN	–	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
2x3/2-way valve, 1x normally open, 1x normally closed, mechanical spring							
	T32H-M	In-line valve, internal pilot air supply	VH	–	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					

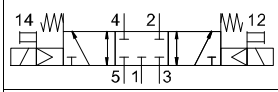
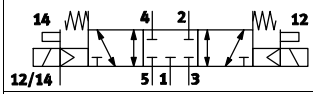
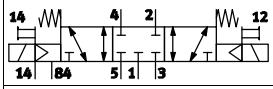
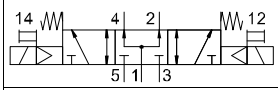
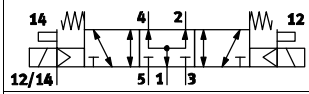
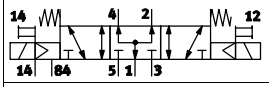
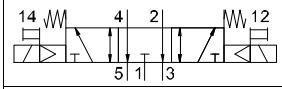
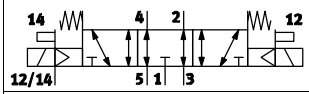
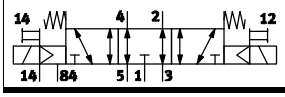
Solenoid valves VUVG

Overview of valve functions

Valve	Valve code	Description	Valve terminal/ position function order code	Size			
				M3	M5/M7	G1/8	G1/4
5/2-way valve, double solenoid							
	B52	In-line valve, internal pilot air supply	J	■	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
5/2-way valve, single solenoid, pneumatic spring							
	M52-A	In-line valve, internal pilot air supply	M	–	–	■	–
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
5/2-way valve, single solenoid, mechanical spring							
	M52-M	In-line valve, internal pilot air supply	A	■	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
5/2-way valve, single solenoid, pneumatic/mechanical spring							
	M52-R	In-line valve, internal pilot air supply	P	■	■	–	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					

Solenoid valves VUVG

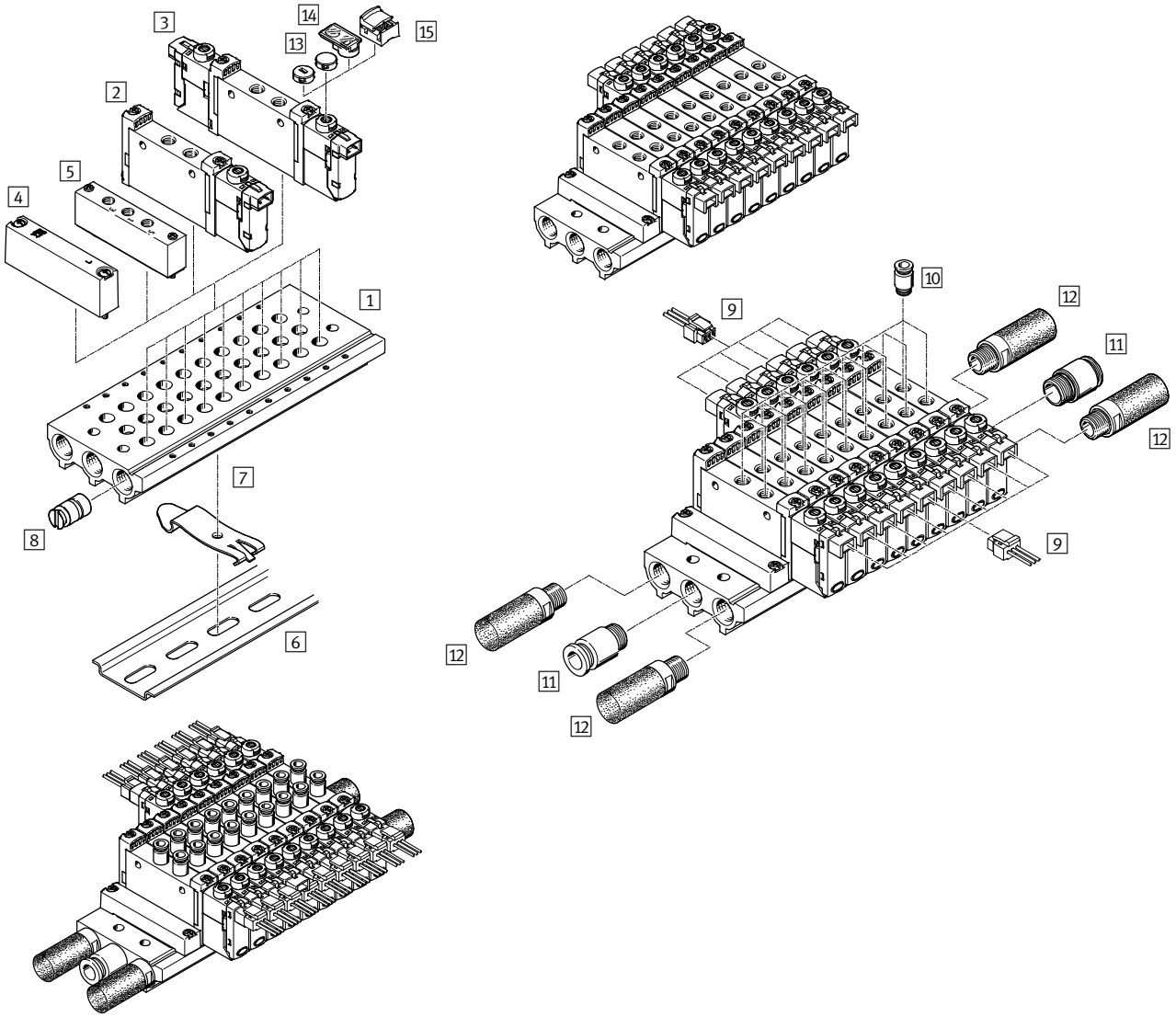
Overview of valve functions

Valve	Valve type code	Description	Valve terminal/ position function order code	Size			
				M3	M5/M7	G1/8	G1/4
5/3-way valve, mid-position closed							
	P53C	In-line valve, internal pilot air supply	G	■	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
5/3-way valve, mid-position pressurised							
	P53U	In-line valve, internal pilot air supply	B	■	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					
5/3-way valve, mid-position exhausted							
	P53E	In-line valve, internal pilot air supply	E	■	■	■	■
		In-line valve, external pilot air supply					
		Sub-base valve, external pilot air supply					

Solenoid valves VUVG

Sample system overview – VUVG-L10 and VUVG-S10, in-line valves M5/M7

Manifold assembly



Manifold assembly and accessories

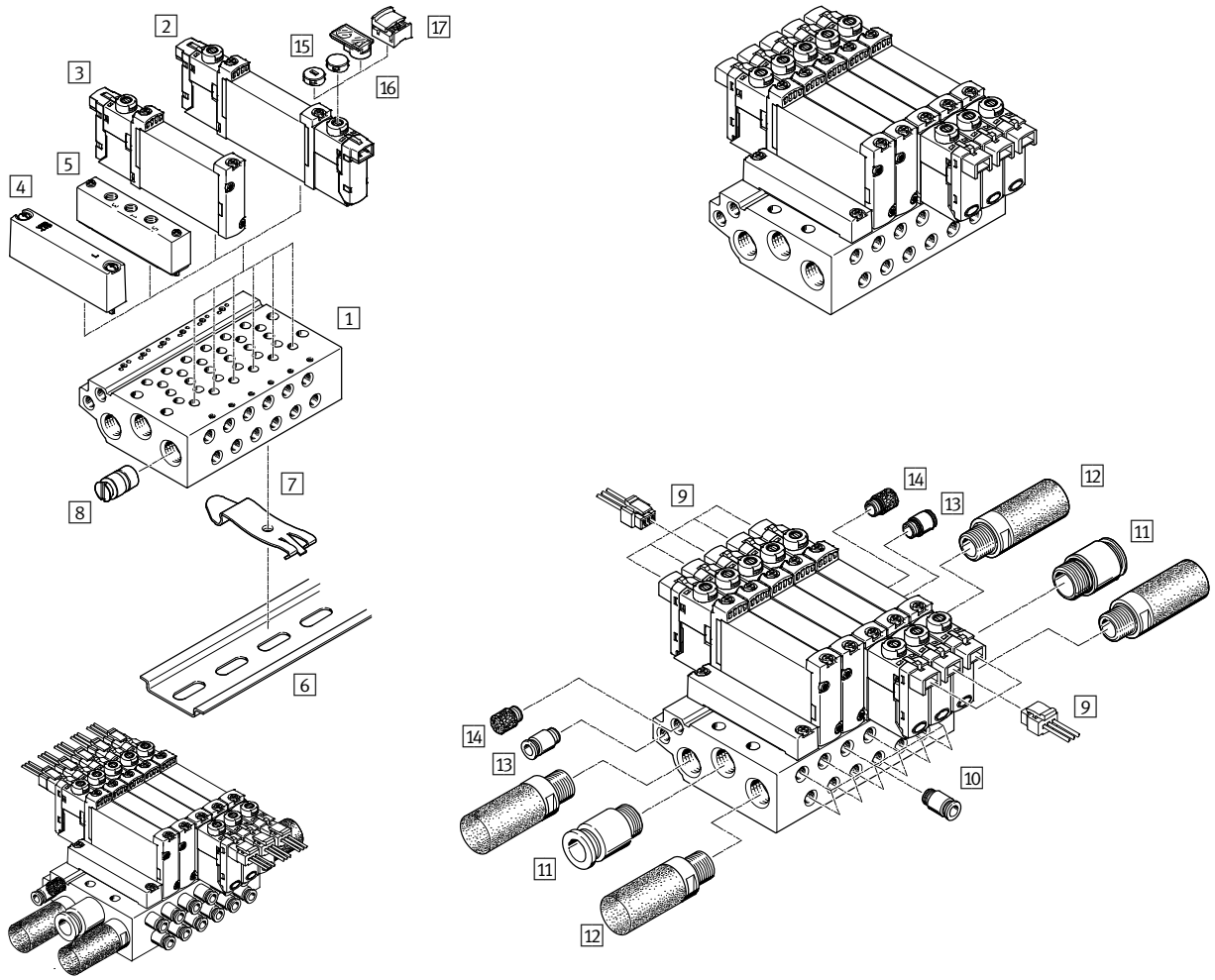
		Type	Brief description	➔ Page/Internet
1	Manifold rail	VABM-L1-10S-G18-...	For 2 to 10, 12, 14 and 16 valve positions	34
2	Solenoid valve	VUVG- ...	In-line valve, 5/2-way single solenoid	25
3	Solenoid valve	VUVG- ...	In-line valve, 2x3/2-way, 5/2-way double solenoid and 5/3-way	25
4	Blanking plate	VABB-L1-10-S	For covering an unused valve position	34
5	Supply plate	VABF-L1-10-P3A4- ...	For air supply at duct 1 and duct 3 and 5	34
6	H-rail	NRH-35-2000	For mounting the valve manifold	86
7	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	86
8	Separator	VABD-...	For creating pressure zones	34
9	Plug socket with cable	NEBV-H1G2-...-LE2	For E-box H2 and H3	84
10	Push-in fitting	QS...	Push-in fitting for duct 2 and 4	85
11	Push-in fitting	QS...	Push-in fitting for air supply at duct 1	85
12	Silencer	U...	For duct 3 and 5	85
13	Cover cap	VMPA-HB...-B	For manual override	86
14	Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	86
15	Cover	VAMC	For manual override	86

Solenoid valves VUVG

Sample system overview – VUVG-B10, sub-base valves

FESTO

Manifold assembly



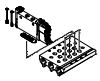
Manifold assembly and accessories			
	Type	**Brief description**	**➔ Page/Internet**
1 Manifold rail	VABM-L1-10 ...-G18- ...	For 2 to 10, 12, 14 and 16 valve positions	64
2 Solenoid valve	VUVG- ...	Sub-base valve, 5/2-way single solenoid	60
3 Solenoid valve	VUVG- ...	Sub-base valve, 2x3/2-way, 5/2-way double solenoid and 5/3-way	60
4 Blanking plate	VABB-L1-10-W	For covering an unused valve position	65
5 Supply plate	VABF-L1-10-P3A4- ...	For air supply at duct 1 and duct 3 and 5	65
6 H-rail	NRH-35-2000	For mounting the valve manifold	86
7 H-rail mounting	VAME-T-M4	2 pieces for fitting the valve manifold on an H-rail	86
8 Separator	VABD- ...	For creating pressure zones	65
9 Plug socket with cable	NEBV-H1G2-KN-...-LE2	For E-box H2 and H3	84
10 Push-in fitting	QS...	Push-in fitting for duct 2 and 4	85
11 Push-in fitting	QS...	Push-in fitting for air supply at duct 1	85
12 Silencer	U...	For duct 3 and 5	85
13 Push-in fitting	QS...	Push-in fitting for pilot air supply at duct 12/14	85
14 Silencer	U...	Silencer for pilot air outlet at duct 82/84	85
15 Cover cap	VMPA-HB...-B	For manual override	86
16 Inscription label holder	ASLR-D	For labelling the valves, covering the mounting screw and the manual override	86
17 Cover	VAMC	For manual override	86

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

Order code – In-line valves M3

VUVG	–		10A	–		–					–		–				L	–	

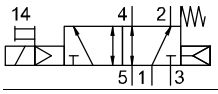
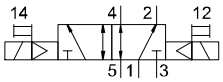
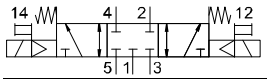
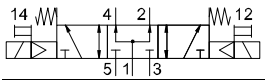
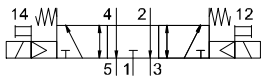
Valve design

 In-line, individual valve	**L**
 In-line, manifold valve incl. seal and screws	**S**

Width

10 mm	**10A**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Reset method

Mechanical spring with M52	**M**
Pneumatic/mechanical spring with M52	**R**
With B52 and P53	–

Pilot air supply

Internal	**–**
External	**Z**

Manual override

Non-detenting	**H**
Covered	**S**
– Non-detenting, detenting	**T**
Detenting, without accessories	**Y**

Connecting cables

W1…4	Not sheathed	for H
C1…4	Sheathed	
WS1…4	Not sheathed	for S
S1…4	Sheathed	
N1…4	M8x1, 3-pin	
N5…8	M8x1, 4-pin	

Display

L	LED

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug connector
H3	Connection pattern H, vertical plug connector
S2	Connection pattern S, horizontal plug connector
K3	Connection pattern S, vertical plug connector
L1…4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m
K6…9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m
R1	Individual plug connector M8, 4-pin
R8	Individual plug connector M8, 3-pin
P3	Without E-box

Operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

Exhausting with VUVG-L

QN	Push-in fitting
U	Silencer
–	M3 thread

Pneumatic connection

M3	M3 thread
T18	Push-in connector 1/8"
T532	Push-in connector 5/32"
Q3	Push-in connector 3 mm/M3
Q4	Push-in connector 4 mm/M3

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

Technical data

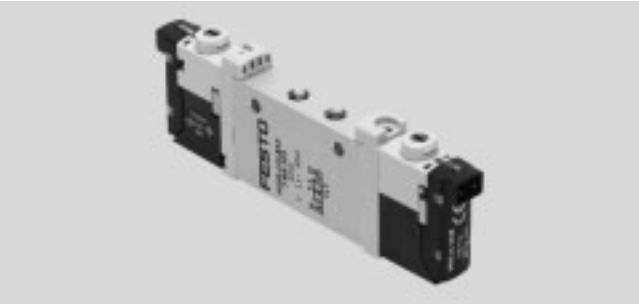
Function
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 10 mm

Flow rate
90 ... 100 l/min

Voltage
5, 12 and 24 V DC



General technical data							
Valve function		M52-R	B52	M52-M	P53		
Normal position		–	–	–	C[1]	U[2]	E[3]
Stable position		Single solenoid	Double solenoid	Single solenoid	Single solenoid		
Reset method: pneumatic spring		Yes[4]	–	No	No		
Reset method: mechanical spring		Yes[4]	–	Yes	Yes		
Vacuum operation at port 1		Only with external pilot air supply					
Design		Piston spool valve					
Sealing principle		Soft					
Actuation type		Electrical					
Type of control		Piloted					
Pilot air supply		Internal or external					
Exhaust function		With flow control					
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting					
Type of mounting		Optionally via through-holes[5] or on manifold rail					
Mounting position		Any					
Nominal size	[mm]	2		1.4	2		
Nominal flow rate	[l/min]	100		80	90		
Flow rate on manifold rail	[l/min]	100		80	90		
Switching time on/off	[ms]	7/15	–	7/21	8/25		
Changeover time	[ms]	–	5	–	14		
Width	[mm]	10					
Port	1, 2, 3, 4, 5; 12/14	M3					
Product weight	[g]	38	49	37			
Approval		c UL us - Recognized (OL)					
		c CSA us (OL)					
CE marking (see declaration of conformity)		To EU EMC Directive[6]					
Corrosion resistance class CRC[7]		2					

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) Combined reset method
5) If several valves are to be screwed together via the through-holes to form a block, a minimum distance of 0.3 mm must be ensured by placing spacer discs between them.
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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-L10A and VUVG-S10A, in-line valves M3

Technical data

Operating and environmental conditions						
Valve function			M52-R[1]	B52	M52-M[2]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]			
Operating pressure	Internal	[bar]	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External	[bar]	–0.9 ... 10			–0.9 ... 8
Pilot pressure[3]		[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) Mixed, pneumatic/mechanical spring
2) Mechanical spring
3) 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 ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)

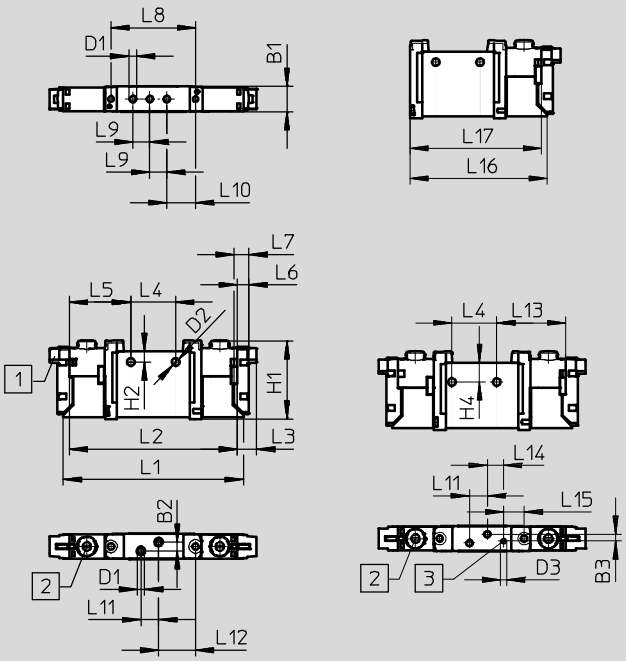
Information on materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS compliant

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

Technical data

Dimensions Download CAD data ➔ **www.festo.com**

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



- Note

More dimensions
E-boxes
➔ page 82

1 Electrical connection for solenoid valve, horizontal

2 Manual override

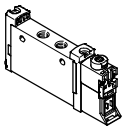
3 Connection for external pilot air supply

Type	B1	B2	B3	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5
VUVG-L-10 -...-M3 ...	10.2	3.6	2.83	M3	3.2	M3	32.5	4.4	74.3	69.3	8	18.5	25.4
VUVG-S-10 -...-M3 ...													

Type	L6	L7	L8	L9	L10	L11	L12	L13	L14	L15	L16	L17
VUVG-L-10 -...-M3 ...	4.85	6.15	34.9	7	11.9	7.3	15.25	28.5	6.7	8.54	57.06	54.56
VUVG-S-10 -...-M3 ...												

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

Ordering data

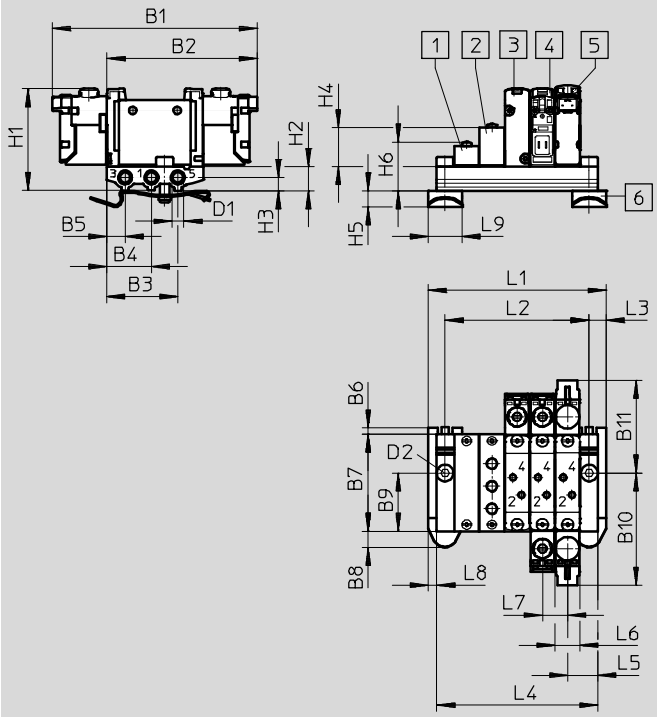
Ordering data				
	Description		Part No.	Type
In-line valve M3, without E-box				
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic/mechanical spring	**566437**	**VUVG-L10A-M52-RT-M3-1P3**
		Reset method: mechanical spring	**574345**	**VUVG-L10A-M52-MT-M3-1P3**
	External pilot air supply	Reset method: pneumatic/mechanical spring	**566443**	**VUVG-L10A-M52-RZT-M3-1P3**
		Reset method: mechanical spring	**574346**	**VUVG-L10A-M52-MZT-M3-1P3**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**566438**	**VUVG-L10A-B52-T-M3-1P3**
	External pilot air supply		**566444**	**VUVG-L10A-B52-ZT-M3-1P3**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**566439**	**VUVG-L10A-P53C-T-M3-1P3**
		Mid-position exhausted	**566440**	**VUVG-L10A-P53E-T-M3-1P3**
		Mid-position pressurised	**566441**	**VUVG-L10A-P53U-T-M3-1P3**
	External pilot air supply	Mid-position closed	**566445**	**VUVG-L10A-P53C-ZT-M3-1P3**
		Mid-position exhausted	**566446**	**VUVG-L10A-P53E-ZT-M3-1P3**
		Mid-position pressurised	**566447**	**VUVG-L10A-P53U-ZT-M3-1P3**

Solenoid valves VUVG-S10A, in-line valves M3

Manifold assembly

In-line valves for manifold assembly

Dimensions Download CAD data ➔ **www.festo.com**



- Note

More dimensions E-boxes
➔page 82

1 Blanking plate
2 Supply plate
3 Single solenoid valve, without E-box
4 Double solenoid valve, without E-box
5 Solenoid valve with E-box, vertical electrical connection
6 H-rail mounting (two M4x16 screws to DIN 912 are required for mounting)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	D1
VUVG-S10A -...-M3 ...	85.3	62.6	29.7	18.7	7.7	3	40.3	6.8	24.2	46.7	38.6	M5

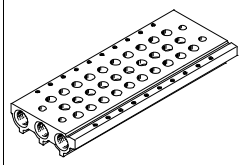
Type	D2	H1	H2	H3	H4	H5	H6	L3	L5	L6	L7	L8	L9
VUVG-S10A -...-M3 ...	Ø 4.5	43.8	10	5.5	16.2	6.8	20.3	7	12.5	10.3	10.5	3.5	14

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

Ordering data

Technical data – Manifold rails

	Port	CRC	Material[2]	Operating pressure	Max. tightening torque for assembly [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 according to Festo standard 940070
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**	–	

Valve manifold parts	
Manifold rail	**VABM**

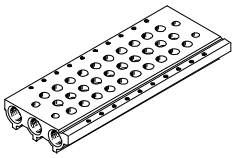
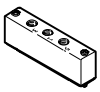
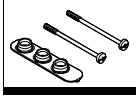
Valve series	
VUVG	**L1**

Valve width	
10 mm	**10A**

Manifold rail with ports 1, 3, 5	
For M3 in-line valves	**S**

Port 1, 3, 5	
M5	M5 thread

Number of valve positions	
	2 to 10, 12, 14 and 16

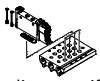
Ordering data – Manifold rail				
	Description		Part No.	Type
Manifold rail for in-line valves (manifold assembly)				
	For valve size M3	2 valve positions	**566522**	**VABM-L1-10AS-M5-2**
		3 valve positions	**566523**	**VABM-L1-10AS-M5-3**
		4 valve positions	**566524**	**VABM-L1-10AS-M5-4**
		5 valve positions	**566525**	**VABM-L1-10AS-M5-5**
		6 valve positions	**566526**	**VABM-L1-10AS-M5-6**
		7 valve positions	**566527**	**VABM-L1-10AS-M5-7**
		8 valve positions	**566528**	**VABM-L1-10AS-M5-8**
		9 valve positions	**566529**	**VABM-L1-10AS-M5-9**
		10 valve positions	**566530**	**VABM-L1-10AS-M5-10**
		12 valve positions	**566531**	**VABM-L1-10AS-M5-12**
		14 valve positions	**566532**	**VABM-L1-10AS-M5-14**
		16 valve positions	**566533**	**VABM-L1-10AS-M5-16**
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail for M3 in-line valves	Incl. screws and seal	**569986**	**VABB-L1-10A**
Separator				Technical data ➔ Internet: vabd
	For manifold rail for M3 in-line valves	Separator for pressure zones	**570872**	**VABD-4.2-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail for M3 in-line valves	Incl. screws and seal	**569990**	**VABF-L1-10A-P3A4-M5**
Seals for in-line valves				Technical data ➔ Internet: vabd
	For M3 in-line valves	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**566670**	**VABD-L1-10AX-S-M3**

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

Order code – In-line valves M5/M7

VUVG	–		10	–		–				–		–				L	–		

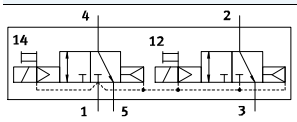
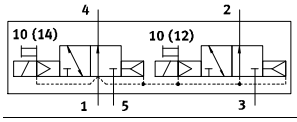
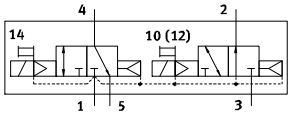
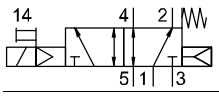
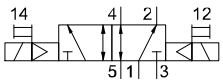
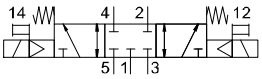
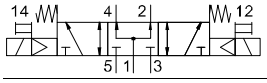
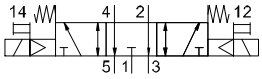
Valve design

 In-line, individual valve	**L**
 In-line, manifold valve incl. seal and screws	**S**

Width

10 mm	**10**

Valve functions

	**T32C**
	**T32U**
	**T32H**
	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Reset method

Pneumatic spring with T32 and M52	**A**
Mechanical spring with T32 and M52	**M**
Pneu./mech. spring with M52	**R**
With B52 and P53	–

Pilot air supply

Internal	–
External	**Z**

Manual override

Non-detenting	**H**
Covered	**S**
– Non-detenting, detenting	**T**
Detenting, without accessories	**Y**

Connecting cables

W1...4	Not sheathed	for H
C1...4	Sheathed	
WS1...4	Not sheathed	for S
S1...4	Sheathed	
N1...4	M8x1, 3-pin	
N5...8	M8x1, 4-pin	

Display

L	LED

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug connector
H3	Connection pattern H, vertical plug connector
S2	Connection pattern S, horizontal plug connector
K3	Connection pattern S, vertical plug connector
L1...4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m
K6...9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m
R1	Individual plug connector M8, 4-pin
R8	Individual plug connector M8, 3-pin
P3	Without E-box

Operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

Exhausting with VUVG-L

QN	Push-in fitting
U	Silencer
–	M5/M7 thread

Pneumatic connection

M5	M5 thread
M7	M7 thread
Q3	Push-in connector 3 mm/M5
Q4	Push-in connector 4 mm/M5
Q4H	Push-in connector 4 mm/M7
Q6	Push-in connector 6 mm/M5
Q6H	Push-in connector 6 mm/M7
T18	Push-in connector 1/8"
T532	Push-in connector 5/32"
T316	Push-in connector 3/16"
T316H	Push-in connector 3/16", M7
T14	Push-in connector 1/4"
T14H	Push-in connector 1/4", M7

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

Technical data

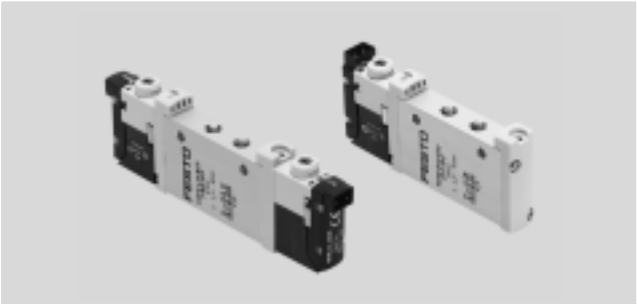
Function
2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 10 mm

Flow rate
125 ... 220 l/min

Voltage
5, 12 and 24 V DC



General technical data																
Valve function			T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid							Double solenoid	Single solenoid	Single solenoid		
Reset method: pneumatic spring			Yes			No			Yes[5]	–	No	No		
Reset method: mechanical spring			No			Yes			Yes[5]	–	Yes	Yes		
Vacuum operation at port 1			No			Only with external pilot air supply								
Design			Piston spool valve											
Sealing principle			Soft											
Actuation type			Electrical											
Type of control			Piloted											
Pilot air supply			Internal or external											
Exhaust function			With flow control											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting			Optionally via through-holes[6] or on manifold rail											
Mounting position			Any											
Nominal size		[mm]	2.7			1.9	1.8		3.2		2.2	3.2		
Nominal flow rate		[l/min]	150			135	125	125	220		190	210		
Flow rate on manifold rail		[l/min]	150			135	125	125	220		190	210		
Switching time on/off		[ms]	6/16			8/11			7/19	–	8/24	10/30		
Changeover time		[ms]	–							7	–	16		
Width		[mm]	10											
Port	1, 2, 3, 4, 5		M5											
	12/14		M3											
Product weight		[g]	55			54			45	55	44	55		
Approval			c UL us - Recognized(OL)											
			c CSA us (OL)											
CE marking (see declaration of conformity)			To EU EMC Directive[7]											
Corrosion resistance class CRC[8]			2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) If several valves are to be screwed together via the through-holes to form a block, a minimum distance of 0.3 mm must be ensured by placing spacer discs between them.
7) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
8) Corrosion resistance class 2 according 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-L10 and VUVG-S10, in-line valves M5

Technical data

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[3]	M52-R[2]	B52	M52-M[3]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]					
Operating pressure	Internal	[bar]	1.5 ... 8	2.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ...8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 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					

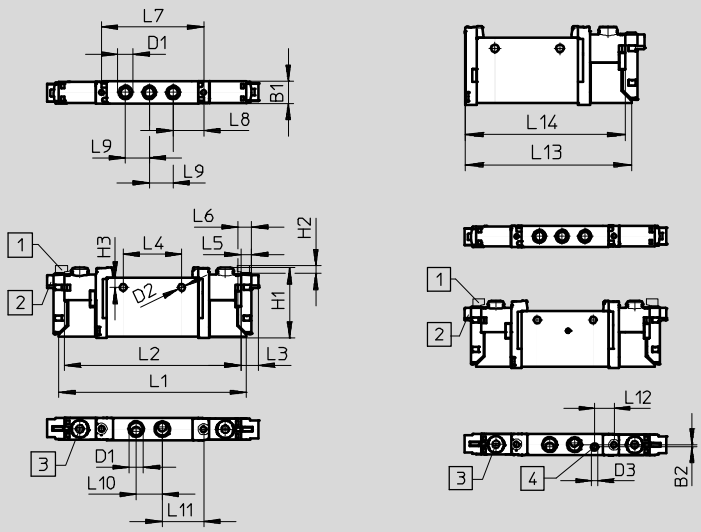
1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring
4) Minimum pilot pressure 50% of operating pressure

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 ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



- Note

More dimensions
E-boxes
➔ page 82

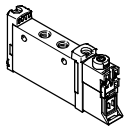
1 Vertical electrical connection
2 Horizontal electrical connection
3 Manual override
4 Port for external pilot air supply

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 ...												

Type	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14
VUVG-L-10 -...-M5 ...	4.85	6.15	47	14	11	12	19	–	69.2	66.7
VUVG-S-10 -...-M5 ...										

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

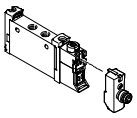
Ordering data

Ordering data				
	Description		Part No.	Type
In-line valve M5, without E-box				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**566454**	**VUVG-L10-T32C-AT-M5-1P3**
		Normally open, reset method: pneumatic spring	**566455**	**VUVG-L10-T32U-AT-M5-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566456**	**VUVG-L10-T32H-AT-M5-1P3**
		Normally closed, reset method: mechanical spring	**574348**	**VUVG-L10-T32C-MT-M5-1P3**
		Normally open, reset method: mechanical spring	**574349**	**VUVG-L10-T32U-MT-M5-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574350**	**VUVG-L10-T32H-MT-M5-1P3**
	External pilot air supply	Normally closed, reset method: pneumatic spring	**566463**	**VUVG-L10-T32C-AZT-M5-1P3**
		Normally open, reset method: pneumatic spring	**566464**	**VUVG-L10-T32U-AZT-M5-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566465**	**VUVG-L10-T32H-AZT-M5-1P3**
		Normally closed, reset method: mechanical spring	**574352**	**VUVG-L10-T32C-MZT-M5-1P3**
		Normally open, reset method: mechanical spring	**574353**	**VUVG-L10-T32U-MZT-M5-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574354**	**VUVG-L10-T32H-MZT-M5-1P3**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic/mechanical spring	**566457**	**VUVG-L10-M52-RT-M5-1P3**
		Reset method: mechanical spring	**574351**	**VUVG-L10-M52-MT-M5-1P3**
	External pilot air supply	Reset method: pneumatic/mechanical spring	**566466**	**VUVG-L10-M52-RZT-M5-1P3**
		Reset method: mechanical spring	**574355**	**VUVG-L10-M52-MZT-M5-1P3**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**566458**	**VUVG-L10-B52-T-M5-1P3**
	External pilot air supply		**566467**	**VUVG-L10-B52-ZT-M5-1P3**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**566459**	**VUVG-L10-P53C-T-M5-1P3**
		Mid-position exhausted	**566460**	**VUVG-L10-P53E-T-M5-1P3**
		Mid-position pressurised	**566461**	**VUVG-L10-P53U-T-M5-1P3**
	External pilot air supply	Mid-position closed	**566468**	**VUVG-L10-P53C-ZT-M5-1P3**
		Mid-position exhausted	**566469**	**VUVG-L10-P53E-ZT-M5-1P3**
		Mid-position pressurised	**566470**	**VUVG-L10-P53U-ZT-M5-1P3**

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

Ordering data

Ordering data

	Description		Part No.	Type
In-line valve M5, with E-box R8				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**577347**	**VUVG-L10-T32C-AT-M5-1R8L**
		Normally open, reset method: pneumatic spring	**8031466**	**VUVG-L10-T32U-AT-M5-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**8031467**	**VUVG-L10-T32H-AT-M5-1R8L**
		Normally closed, reset method: mechanical spring	**8031468**	**VUVG-L10-T32C-MT-M5-1R8L**
		Normally open, reset method: mechanical spring	**8031469**	**VUVG-L10-T32U-MT-M5-1R8L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8031470**	**VUVG-L10-T32H-MT-M5-1R8L**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic/mechanical spring	**572634**	**VUVG-L10-M52-RT-M5-1R8L**
		Reset method: mechanical spring	**8031472**	**VUVG-L10-M52-MT-M5-1R8L**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**576664**	**VUVG-L10-B52-T-M5-1R8L**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**577346**	**VUVG-L10-P53C-T-M5-1R8L**
		Mid-position exhausted	**8031475**	**VUVG-L10-P53E-T-M5-1R8L**
		Mid-position pressurised	**8031476**	**VUVG-L10-P53U-T-M5-1R8L**

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

Technical data

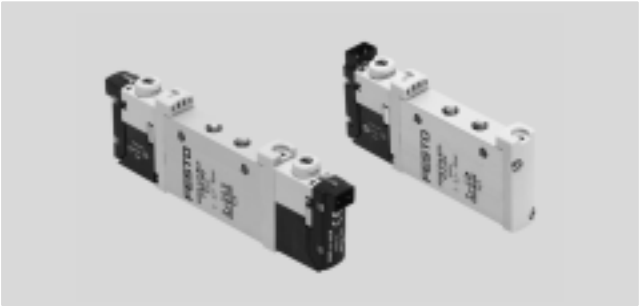
Function
2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 10 mm

Flow rate
170 ... 340 l/min

Voltage
5, 12 and 24 V DC



General technical data													
Valve function		T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position		C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position		Single solenoid							Double solenoid	Single solenoid	Single solenoid		
Reset method: pneumatic spring		Yes			No			Yes[5]	–	No	No		
Reset method: mechanical spring		No			Yes			Yes[5]	–	Yes	Yes		
Vacuum operation at port 1		No			Only with external pilot air supply								
Design		Piston spool valve											
Sealing principle		Soft											
Actuation type		Electrical											
Type of control		Piloted											
Pilot air supply		Internal or external											
Exhaust function		With flow control											
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting		Optionally via through-holes[6] or on manifold rail											
Mounting position		Any											
Nominal size	[mm]	2.7			2.0	1.9	1.9	4.0		2.8	3.5		
Nominal flow rate	[l/min]	190			150	140	140	380		320	320		
Flow rate on manifold rail	[l/min]	170			140	130	130	340		290	300		
Switching time on/off	[ms]	6/16			8/11			7/19	–	8/24	10/30		
Changeover time	[ms]	–							7		16		
Width	[mm]	10											
Port	1, 2, 3, 4, 5	M7											
	12/14	M3											
Product weight	[g]	55			54			45	55	44	55		
Approval		c UL us - Recognized (OL)											
		c CSA us (OL)											
CE marking (see declaration of conformity)		To EU EMC Directive[7]											
Corrosion resistance class CRC[8]		2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) If several valves are to be screwed together via the through-holes to form a block, a minimum distance of 0.3 mm must be ensured by placing spacer discs between them.
7) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
8) Corrosion resistance class 2 according 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-L10 and VUVG-S10, in-line valves M7

Technical data

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[3]	M52-R[2]	B52	M52-M[3]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]					
Operating pressure	Internal	[bar]	1.5 ... 8	2.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5 ... 10	-0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 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					

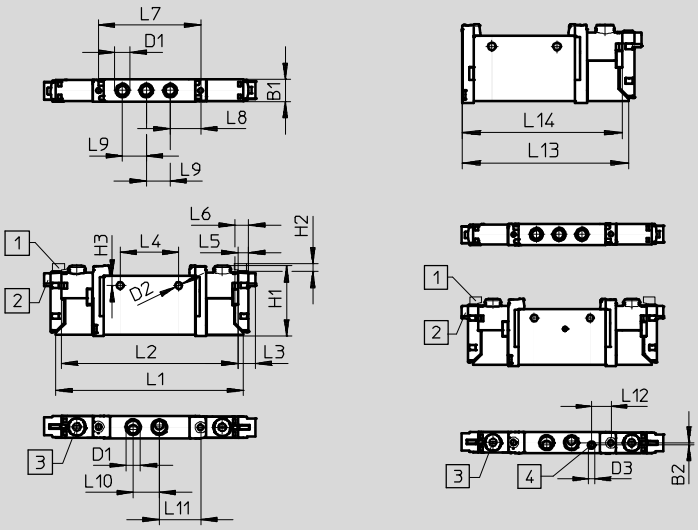
1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring
4) Minimum pilot pressure 50% of operating pressure

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 ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



- Note

More dimensions
E-boxes
➔ page 82

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

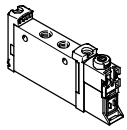
Type	B1	B2	D1	D2	D3	H1	H2	H3	L1	L2	L3	L4
VUVG-L-10 -...-M7 ...	10.2	–	M7	3.2	M3	32.5	3.6	4.4	86.5	81.5	8	27
VUVG-S-10 -...-M7 ...												

Type	L5	L6	L7	L8	L9	L10	L11	L12	L13	L14
VUVG-L-10 -...-M7 ...	4.85	6.15	47	14	11	12	19	–	69.2	66.7
VUVG-S-10 -...-M7 ...										

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

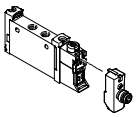
Ordering data

Ordering data

	Description		Part No.	Type
In-line valve M7, without E-box				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**566471**	**VUVG-L10-T32C-AT-M7-1P3**
		Normally open, reset method: pneumatic spring	**566472**	**VUVG-L10-T32U-AT-M7-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566473**	**VUVG-L10-T32H-AT-M7-1P3**
		Normally closed, reset method: mechanical spring	**574356**	**VUVG-L10-T32C-MT-M7-1P3**
		Normally open, reset method: mechanical spring	**574357**	**VUVG-L10-T32U-MT-M7-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574358**	**VUVG-L10-T32H-MT-M7-1P3**
	External pilot air supply	Normally closed, reset method: pneumatic spring	**566479**	**VUVG-L10-T32C-AZT-M7-1P3**
		Normally open, reset method: pneumatic spring	**566480**	**VUVG-L10-T32U-AZT-M7-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566481**	**VUVG-L10-T32H-AZT-M7-1P3**
		Normally closed, reset method: mechanical spring	**574360**	**VUVG-L10-T32C-MZT-M7-1P3**
		Normally open, reset method: mechanical spring	**574361**	**VUVG-L10-T32U-MZT-M7-1P3**
		Normally closed, reset method: mechanical spring	**574362**	**VUVG-L10-T32H-MZT-M7-1P3**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: mechanical spring	**574359**	**VUVG-L10-M52-MT-M7-1P3**
		Reset method: pneumatic/mechanical spring	**566474**	**VUVG-L10-M52-RT-M7-1P3**
	External pilot air supply	Reset method: mechanical spring	**574363**	**VUVG-L10-M52-MZT-M7-1P3**
		Reset method: pneumatic/mechanical spring	**566482**	**VUVG-L10-M52-RZT-M7-1P3**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**566475**	**VUVG-L10-B52-T-M7-1P3**
	External pilot air supply		**566483**	**VUVG-L10-B52-ZT-M7-1P3**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**566476**	**VUVG-L10-P53C-T-M7-1P3**
		Mid-position exhausted	**566477**	**VUVG-L10-P53E-T-M7-1P3**
		Mid-position pressurised	**566478**	**VUVG-L10-P53U-T-M7-1P3**
	External pilot air supply	Mid-position closed	**566484**	**VUVG-L10-P53C-ZT-M7-1P3**
		Mid-position exhausted	**566485**	**VUVG-L10-P53E-ZT-M7-1P3**
		Mid-position pressurised	**566486**	**VUVG-L10-P53U-ZT-M7-1P3**

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

Ordering data

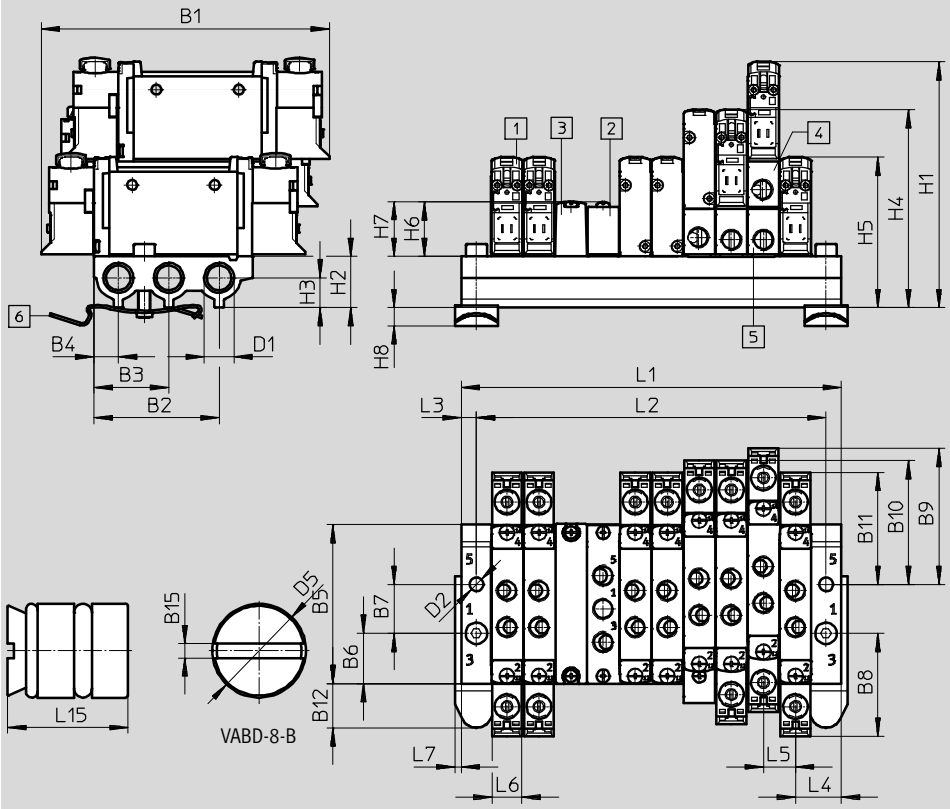
Ordering data				
	Description		Part No.	Type
In-line valve M7, with E-box R8				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**574218**	**VUVG-L10-T32C-AT-M7-1R8L**
		Normally open, reset method: pneumatic spring	**574219**	**VUVG-L10-T32U-AT-M7-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**574220**	**VUVG-L10-T32H-AT-M7-1R8L**
		Normally closed, reset method: mechanical spring	**8031480**	**VUVG-L10-T32C-MT-M7-1R8L**
		Normally open, reset method: mechanical spring	**8031481**	**VUVG-L10-T32U-MT-M7-1R8L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8031482**	**VUVG-L10-T32H-MT-M7-1R8L**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic/mechanical spring	**574221**	**VUVG-L10-M52-RT-M7-1R8L**
		Reset method: mechanical spring	**8031485**	**VUVG-L10-M52-MT-M7-1R8L**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**574222**	**VUVG-L10-B52-T-M7-1R8L**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**574223**	**VUVG-L10-P53C-T-M7-1R8L**
		Mid-position exhausted	**574225**	**VUVG-L10-P53E-T-M7-1R8L**
		Mid-position pressurised	**574224**	**VUVG-L10-P53U-T-M7-1R8L**

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

Manifold assembly

In-line valves for manifold assembly

Dimensions Download CAD data ➔ **www.festo.com**



- Note

More dimensions E-boxes ➔page 82

1 Solenoid valve, vertical electrical connection
2 Supply plate, ports 1, 3 and 5: M5 or M7
3 Blanking plate
4 Vertical pressure supply plate
5 Vertical pressure exhaust plate
6 H-rail mounting (two M4x20 screws to DIN 912 are required)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
VUVG-S10 -...-M5 ...	94.3	41	24.5	8	52.1	16.5	16	33.7	44.6	40.7	36.7	14.4

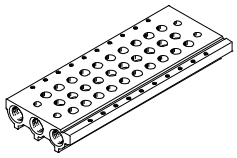
Type	D1	D2	D5	H1	H2	H3	H4	H5	H6	H7	H8	L3	L4	L5	L6	L7
VUVG-S10 -...-M5 ...	G⅛	4.5	8	80.6	16.8	9.8	64.9	49.3	17.8	18	5.9	5	15	10.5	10.3	2

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

Ordering data

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16	22
L1 [mm]	40.5	51	61.5	72	82.5	93	103.5	114	124.5	145.5	166.5	187.5	250.5
L2 [mm]	30.5	41	51.5	62	72.5	83	93.5	104	114.5	135.5	156.5	177.5	240.5
VABM weight [g]	63	78	93	108	123	138	153	168	183	213	243	273	363

Technical data – Manifold rails

	Port	CRC	Material[2]	Operating pressure	Max. tightening torque for assembly [Nm]		
	1, 3, 5			[bar]	Valve	H-rail	Wall
	G1⁄8	2[1]	Wrought aluminium alloy	–0.9 ... 10	0.45	1.5	3

1) Corrosion resistance class 2 according to Festo standard 940070
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	–	

Valve manifold parts
Manifold rail **VABM**

Valve series
VUVG **L1**

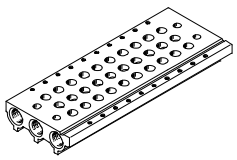
Valve width
10 mm **10**

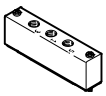
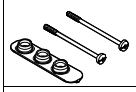
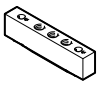
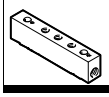
Manifold rail with port 1, 3, 5
For M5 and M7 in-line valves **S**

Number of valve positions
2 to 10, 12, 14 and 16

Port 1, 3, 5
G18 G1⁄8 thread

Ordering data – Manifold rail

	Description		Part No.	Type
Manifold rail for in-line valve (manifold assembly)				
	For valve size M5/M7	2 valve positions	**566558**	**VABM-L1-10S-G18-2**
		3 valve positions	**566559**	**VABM-L1-10S-G18-3**
		4 valve positions	**566560**	**VABM-L1-10S-G18-4**
		5 valve positions	**566561**	**VABM-L1-10S-G18-5**
		6 valve positions	**566562**	**VABM-L1-10S-G18-6**
		7 valve positions	**566563**	**VABM-L1-10S-G18-7**
		8 valve positions	**566564**	**VABM-L1-10S-G18-8**
		9 valve positions	**566565**	**VABM-L1-10S-G18-9**
		10 valve positions	**566566**	**VABM-L1-10S-G18-10**
		12 valve positions	**566567**	**VABM-L1-10S-G18-12**
		14 valve positions	**566568**	**VABM-L1-10S-G18-14**
		16 valve positions	**566569**	**VABM-L1-10S-G18-16**

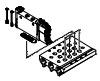
Ordering data – Accessories				
	Description		Part No.	Type
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail for M5/M7 in-line valves	Incl. screws and seal	**566462**	**VABB-L1-10-S**
Separator				Technical data ➔ Internet: vabd
	For manifold rail for M5/M7 in-line valves	Separator for pressure zones	**569995**	**VABD-8-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail for M5 in-line valves	Incl. screws and seal	**569991**	**VABF-L1-10-P3A4-M5**
	For manifold rail for M7 in-line valves		**569992**	**VABF-L1-10-P3A4-M7**
Seals for in-line valves				Technical data ➔ Internet: vabd
	For M5 in-line valves	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**566672**	**VABD-L1-10X-S-M5**
	For M7 in-line valves		**566673**	**VABD-L1-10X-S-M7**
Vertical pressure supply plate				
	Pneumatic connection 1: M7	Terminal code CP	**574592**	**VABF-L1-P3A3-M7**
Vertical exhaust plate				
	Pneumatic connection 3, 5: M7	Terminal code CR	**574594**	**VABF-L1-P7A13-M7**

Solenoid valves VUVG-L14 and VUVG-S14, in-line valves

Order code – In-line valves G1/8

VUVG	–		14	–		–					–		–				L	–	

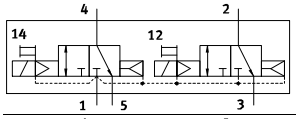
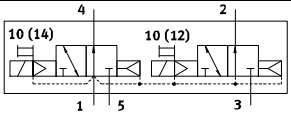
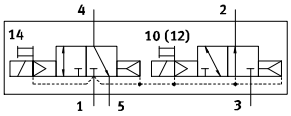
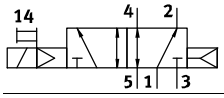
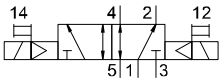
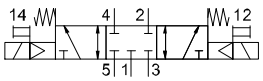
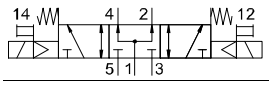
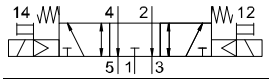
Valve design

 In-line, individual valve	**L**
 In-line, manifold valve incl. seal and screws	**S**

Width

14 mm	**14**

Valve functions

	**T32C**
	**T32U**
	**T32H**
	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Reset method

Pneumatic spring with T32 and M52	**A**
Mechanical spring with T32 and M52	**M**
With B52 and P53	**–**

Pilot air supply

Internal	**–**
External	**Z**

Manual override

Non-detenting	**H**
Covered	**S**
– Non-detenting, detenting	**T**
Detenting, without accessories	**Y**

Pneumatic connection

G18	G1/8 thread
T14	Push-in connector 1/4"
T516	Push-in connector 5/16"
Q4	Push-in connector 4 mm/G1/8
Q6	Push-in connector 6 mm/G1/8
Q8	Push-in connector 8 mm/G1/8

Exhausting with VUVG-L

QN	Push-in fitting
U	Silencer
–	G1/8 thread

Operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

E-box

H2	Connection pattern H, horizontal plug connector
H3	Connection pattern H, vertical plug connector
S2	Connection pattern S, horizontal plug connector
K3	Connection pattern S, vertical plug connector
L1…4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m
K6…9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m
R1	Individual plug connector M8, 4-pin
R8	Individual plug connector M8, 3-pin
P3	Without E-box

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

Display

L	LED

Connecting cables

W1…4	Not sheathed	for H
C1…4	Sheathed	
WS1…4	Not sheathed	for S
S1…4	Sheathed	
N1…4	M8x1, 3-pin	
N5…8	M8x1, 4-pin	

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

Circuit symbol ➔ page 10

Width 14 mm

Flow rate
480 ... 730 l/min

Voltage
5, 12 and 24 V DC

General technical data													
Valve function		T32-A			T32-M			M52-A	B52	M52-M	P53		
Normal position		C[1]	U[2]	H[4]	C[1]	U[2]	C[1]	–	–	–	C[1]	U[2]	E[3]
Stable position		Single solenoid							Double solenoid	Single solenoid			
Reset method: pneumatic spring		Yes			No			Yes	–	No	No		
Reset method: mechanical spring		No			Yes			No	–	Yes	Yes		
Vacuum operation at port 1		No			Only with external pilot air supply								
Design		Piston spool valve											
Sealing principle		Soft											
Actuation type		Electrical											
Type of control		Piloted											
Pilot air supply		Internal or external											
Exhaust function		With flow control											
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting		Optionally via through-holes[5] or on manifold rail											
Mounting position		Any											
Nominal size	[mm]	4.6			4.3			5.6					
Nominal flow rate	[l/min]	650	600	650	550	500	500	730	780		650	600	
Flow rate on manifold rail	[l/min]	620	580		520	480	480	680	730		620	580	
Switching time on/off	[ms]	8/23			11/15			14/22	–	13/35	12/40		
Changeover time	[ms]	–							8	–	20		
Width	[mm]	14											
Port	1, 2, 3, 4, 5	G1/8											
	12/14	M5											
Product weight	[g]	89			80			78	89	70	89		
Approval		c UL us - Recognized (OL)											
		c CSA us (OL)											
CE marking (see declaration of conformity)		To EU EMC Directive[6]											
Corrosion resistance class CRC[7]		2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) If several valves are to be screwed together via the through-holes to form a block, a minimum distance of 0.3 mm must be ensured by placing spacer discs between them.
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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								
Valve function			T32-A[1]	T32-M[2]	M52-A[1]	B52	M52-M[2]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]					
Operating pressure	Internal	[bar]	1.5 ... 8	3.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5... 10	–0.9... 10			–0.9... 8	–0.9... 10
Pilot pressure[3]		[bar]	1.5 ... 8	2 ... 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					

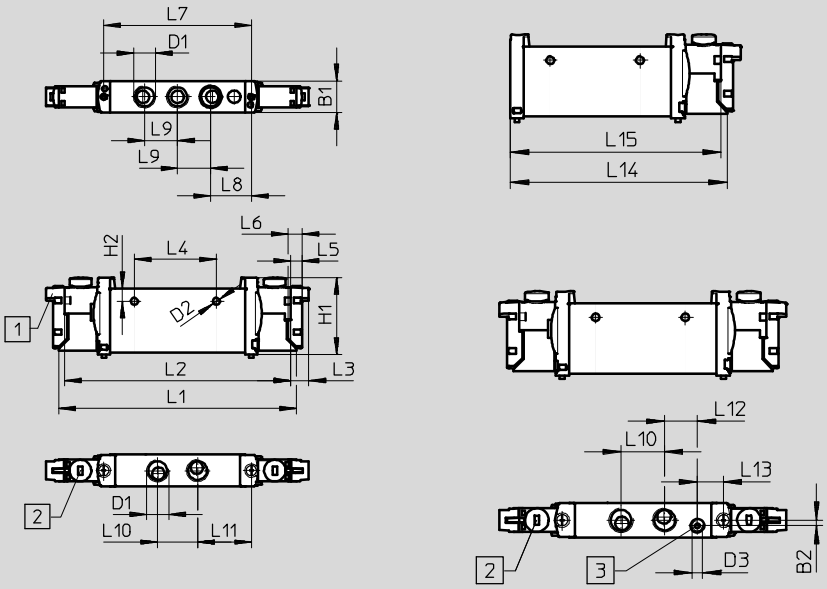
1) Pneumatic spring
2) Mechanical spring
3) Minimum pilot pressure 50% of operating pressure

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 ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



- Note

More dimensions
E-boxes
➔page 82

1 Horizontal electrical connection

2 Manual override

3 Connection for external pilot air supply

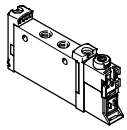
Type	B1	B2	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	L6
VUVG-L-14 -...-G18 ...	14.4	2.3	G1⁄8	Ø 3.2	M5	34.8	5.8	107	102	8	37	4.85	6.15
VUVG-S-14 -...-G18 ...													

Type	L7	L8	L9	L10	L11	L12	L13	L14	L15
VUVG-L-14 -...-G18 ...	66.5	18.35	14.9	18	24.25	13.45	10.8	89.4	86.95
VUVG-S-14 -...-G18 ...									

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

Ordering data

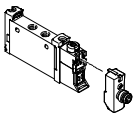
Ordering data

	Description		Part No.	Type
In-line valve G1⁄8, without E-box				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**566496**	**VUVG-L14-T32C-AT-G18-1P3**
		Normally open, reset method: pneumatic spring	**566497**	**VUVG-L14-T32U-AT-G18-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566498**	**VUVG-L14-T32H-AT-G18-1P3**
		Normally closed, reset method: mechanical spring	**574368**	**VUVG-L14-T32C-MT-G18-1P3**
		Normally open, reset method: mechanical spring	**574369**	**VUVG-L14-T32U-MT-G18-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574370**	**VUVG-L14-T32H-MT-G18-1P3**
	External pilot air supply	Normally closed, reset method: pneumatic spring	**566505**	**VUVG-L14-T32C-AZT-G18-1P3**
		Normally open, reset method: pneumatic spring	**566506**	**VUVG-L14-T32U-AZT-G18-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566507**	**VUVG-L14-T32H-AZT-G18-1P3**
		Normally closed, reset method: mechanical spring	**574372**	**VUVG-L14-T32C-MZT-G18-1P3**
		Normally open, reset method: mechanical spring	**574373**	**VUVG-L14-T32U-MZT-G18-1P3**
		Normally closed, reset method: mechanical spring	**574374**	**VUVG-L14-T32H-MZT-G18-1P3**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic spring	**566499**	**VUVG-L14-M52-AT-G18-1P3**
		Reset method: mechanical spring	**574371**	**VUVG-L14-M52-MT-G18-1P3**
	External pilot air supply	Reset via pneumatic spring	**566508**	**VUVG-L14-M52-AZT-G18-1P3**
		Reset method: mechanical spring	**574375**	**VUVG-L14-M52-MZT-G18-1P3**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**566500**	**VUVG-L14-B52-T-G18-1P3**
	External pilot air supply		**566509**	**VUVG-L14-B52-ZT-G18-1P3**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**566501**	**VUVG-L14-P53C-T-G18-1P3**
		Mid-position exhausted	**566502**	**VUVG-L14-P53E-T-G18-1P3**
		Mid-position pressurised	**566503**	**VUVG-L14-P53U-T-G18-1P3**
	External pilot air supply	Mid-position closed	**566510**	**VUVG-L14-P53C-ZT-G18-1P3**
		Mid-position exhausted	**566511**	**VUVG-L14-P53E-ZT-G18-1P3**
		Mid-position pressurised	**566512**	**VUVG-L14-P53U-ZT-G18-1P3**

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

Ordering data

Ordering data

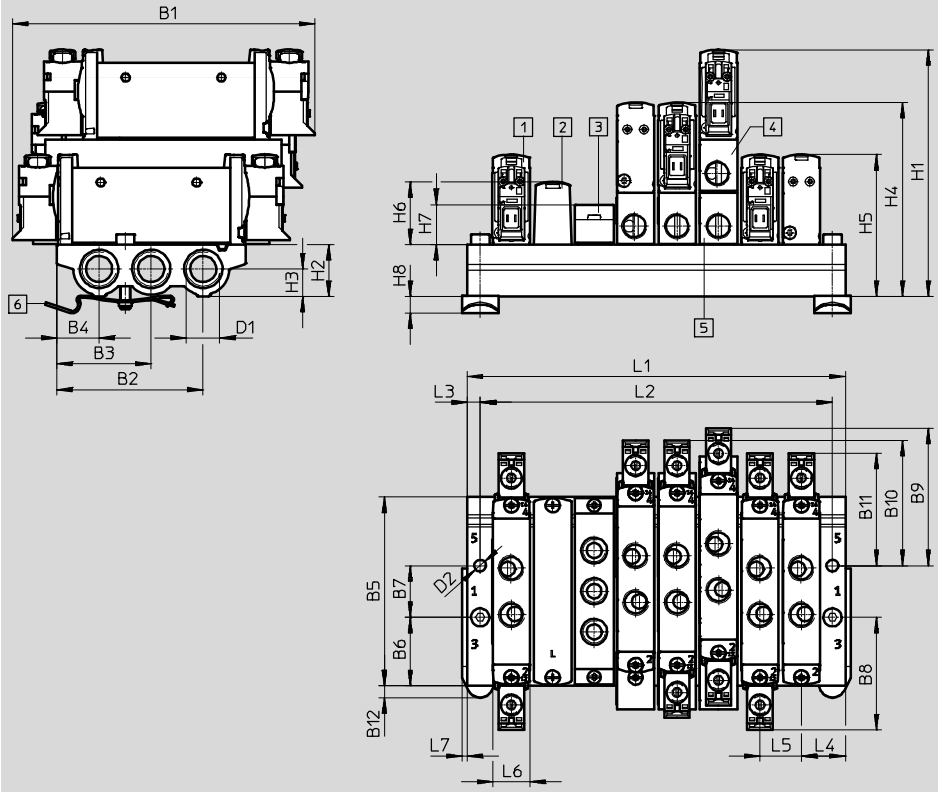
	Description		Part No.	Type
In-line valve G1⁄8, with E-box R8				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**574226**	**VUVG-L14-T32C-AT-G18-1R8L**
		Normally open, reset method: pneumatic spring	**574227**	**VUVG-L14-T32U-AT-G18-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**574228**	**VUVG-L14-T32H-AT-G18-1R8L**
		Normally closed, reset method: pneumatic spring	**8031504**	**VUVG-L14-T32C-MT-G18-1R8L**
		Normally open, reset method: pneumatic spring	**8031505**	**VUVG-L14-T32U-MT-G18-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**8031506**	**VUVG-L14-T32H-MT-G18-1R8L**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic spring	**574229**	**VUVG-L14-M52-AT-G18-1R8L**
		Reset method: mechanical spring	**8031508**	**VUVG-L14-M52-MT-G18-1R8L**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**574230**	**VUVG-L14-B52-T-G18-1R8L**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**574231**	**VUVG-L14-P53C-T-G18-1R8L**
		Mid-position exhausted	**574233**	**VUVG-L14-P53E-T-G18-1R8L**
		Mid-position pressurised	**574232**	**VUVG-L14-P53U-T-G18-1R8L**

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

Manifold assembly

In-line valves for manifold assembly

Dimensions Download CAD data ➔ **www.festo.com**



- - Note

More dimensions E-boxes ➔page 82

1 Solenoid valve, vertical electrical connection
2 Blanking plate
3 Supply plate, ports 1, 3 and 5: G1/8 thread
4 Vertical pressure supply plate
5 Vertical pressure exhaust plate
6 H-rail mounting (two M4x25 screws to DIN 912 are required for mounting)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12	D1	D2
VUVG-S14 -...-G18 ...	116.6	56.6	36.5	16.4	72.9	26.5	20	43.5	53.1	48.3	43.5	4.5	G¼	4.5

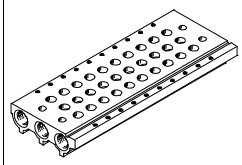
Type	H1	H2	H3	H4	H5	H6	H7	H8	L3	L4	L5	L6	L7
VUVG-S14 -...-G18 ...	95.3	20	10.6	74.9	54.8	23.9	15.4	6.5	5	17	16	14.5	2

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16	22
L1 [mm]	50	66	82	98	114	130	146	162	178	210	242	274	306
L2 [mm]	40	56	72	88	104	120	136	152	168	200	232	264	296
VABM weight [g]	118	159	200	241	282	323	364	405	446	528	610	692	938

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

Ordering data

Technical data – Manifold rails

	Port	CRC	Material[2]	Operating pressure	Max. tightening torque for assembly [Nm]		
	1, 3, 5			[bar]	Valve	H-rail	Wall
	G¼	2[1]	Wrought aluminium alloy	–0.9 ... 10	0.65	1.5	3

1) Corrosion resistance class 2 according to Festo standard 940070
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	–	

Valve manifold parts
Manifold rail **VABM**

Valve series
VUVG **L1**

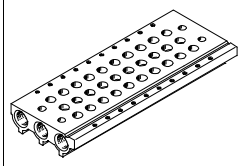
Valve width
14 mm **14**

Manifold rail with ports 1, 3, 5
For G1⁄8 in-line valves **S**

Port 1, 3, 5
G14 G¼ thread

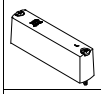
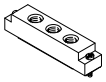
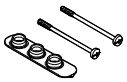
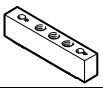
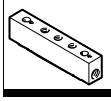
Number of valve positions
2 to 10, 12, 14 and 16

Ordering data – Manifold rail

	Description		Part No.	Type
Manifold rail for in-line valves (manifold assembly)				
	For valve size G1/8	2 valve positions	**566618**	**VABM-L1-14S-G14-2**
		3 valve positions	**566619**	**VABM-L1-14S-G14-3**
		4 valve positions	**566620**	**VABM-L1-14S-G14-4**
		5 valve positions	**566621**	**VABM-L1-14S-G14-5**
		6 valve positions	**566622**	**VABM-L1-14S-G14-6**
		7 valve positions	**566623**	**VABM-L1-14S-G14-7**
		8 valve positions	**566624**	**VABM-L1-14S-G14-8**
		9 valve positions	**566625**	**VABM-L1-14S-G14-9**
		10 valve positions	**566626**	**VABM-L1-14S-G14-10**
		12 valve positions	**566627**	**VABM-L1-14S-G14-12**
		14 valve positions	**566628**	**VABM-L1-14S-G14-14**
		16 valve positions	**566629**	**VABM-L1-14S-G14-16**

Solenoid valves VUVG-S14, in-line valves G⅛

Ordering data

Ordering data – Accessories				
	Description		Part No.	Type
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail for G⅛ in-line valves	Incl. screws and seal	**569989**	**VABB-L1-14**
Separator				Technical data ➔ Internet: vabd
	For manifold rail for G⅛ in-line valves	Separator for pressure zones	**569996**	**VABD-10-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail for G⅛ in-line valves	Incl. screws and seal	**569993**	**VABF-L1-14-P3A4-G18**
Seals for in-line valves				Technical data ➔ Internet: vabd
	For G⅛ in-line valves	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**566675**	**VABD-L1-14X-S-G18**
Vertical pressure supply plate				
	Pneumatic connection 1: G1/8	Terminal code CP	**574593**	**VABF-L1-P3A3-G18**
Vertical exhaust plate				
	Pneumatic connection 3, 5: G1/8	Terminal code CR	**574595**	**VABF-L1-P7A13-G18**

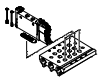
Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G1/4

FESTO

Order code – In-line valves G1/4

VUVG	–		18	–		–					–		–				L	–	

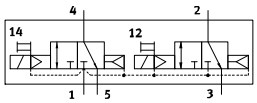
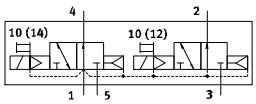
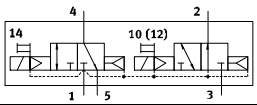
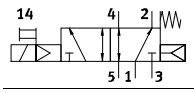
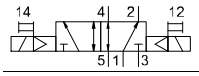
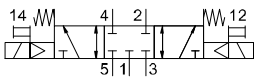
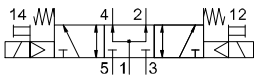
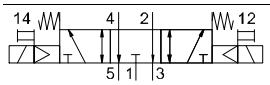
Valve design

 In-line, individual valve	**L**
 In-line, manifold valve incl. seal and screws	**S**

Width

18 mm	**18**

Valve functions

	**T32C**
	**T32U**
	**T32H**
	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Reset method

Pneumatic spring with T32 and M52	**A**
Mechanical spring with T32 and M52	**M**
Pneu./mech. spring with M52	**R**
With B52 and P53	**–**

Pilot air supply

Internal	**–**
External	**Z**

Manual override

Non-detenting	**H**
Covered	**S**
– Non-detenting, detenting	**T**
Detenting, without accessories	**Y**

Connecting cables

W1...4	Not sheathed	 for H
C1...4	Sheathed	
WS1...4	Not sheathed	 for S
S1...4	Sheathed	
N1...4	M8x1, 3-pin	
N5...8	M8x1, 4-pin	

Display

L	LED

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug connector	
H3	Connection pattern H, vertical plug connector	
S2	Connection pattern S, horizontal plug connector	
K3	Connection pattern S, vertical plug connector	
L1...4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
K6...9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m	
R1	Individual plug connector M8, 4-pin	
R8	Individual plug connector M8, 3-pin	
P3	Without E-box	

Operating voltage

1	24 V DC
5	12 V DC
4	5 V DC

Exhausting with VUVG-L

QN	Push-in fitting
U	Silencer
–	G1/4 thread

Pneumatic connection

G14	G1/4 thread
Q6	Push-in connector 6 mm/G1/4
Q8	Push-in connector 8 mm/G1/4
Q10	Push-in connector 10 mm/G1/4
T14	Push-in connector 1/4"
T38	Push-in connector 3/8"
T516	Push-in connector 5/16"

Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G¼

FESTO

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

Circuit symbol ➔ page 10

Width 18 mm

Flow rate
1000 ... 1380 l/min

Voltage
5, 12 and 24 V DC

General technical data													
Valve function			T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	C[1]	–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid							Double solenoid	Single solenoid			
Reset method: pneumatic spring			Yes			No			Yes[5]	–	No	No		
Reset method: mechanical spring			No			Yes			Yes[5]	–	Yes	Yes		
Vacuum operation at port 1			No			Only with external pilot air supply								
Design			Piston spool valve											
Sealing principle			Soft											
Actuation type			Electrical											
Type of control			Piloted											
Pilot air supply			Internal/external											
Exhaust function			With flow control											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting			Optionally via through-holes[6] or on manifold rail											
Mounting position			Any											
Nominal size		[mm]	5.7						6.9	7.3	6.9	6.5	6.3	
Nominal flow rate		[l/min]	1000						1300	1380	1300	1200	1000	
Flow rate on manifold rail			1000						1300	1380	1300	1200	1000	
Switching time on/off		[ms]	13/27			15/22			15/31		10/45	15/48		
Changeover time		[ms]	–							11	–	29		
Width		[mm]	18											
Port	1, 2, 3, 4, 5		G¼											
	12/14		M5											
Product weight		[g]	164						154	164	154	160		
Approval			c UL us - Recognized (OL)											
			c CSA us (OL)											
CE marking (see declaration of conformity)			To EU EMC Directive[7]											
Corrosion resistance class CRC[8]			2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) If several valves are to be screwed together via the through-holes to form a block, a minimum distance of 0.3 mm must be ensured by placing spacer discs between them.
7) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
8) Corrosion resistance class 2 according 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-L18 and VUVG-S18, in-line valves G¼

Technical data

FESTO

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[3]	M52-R[2]	B52	M52-M[3]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]					
Operating pressure	Internal	[bar]	1.5 ... 8	3 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5 ... 10	–0.9 ... 10				
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 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					

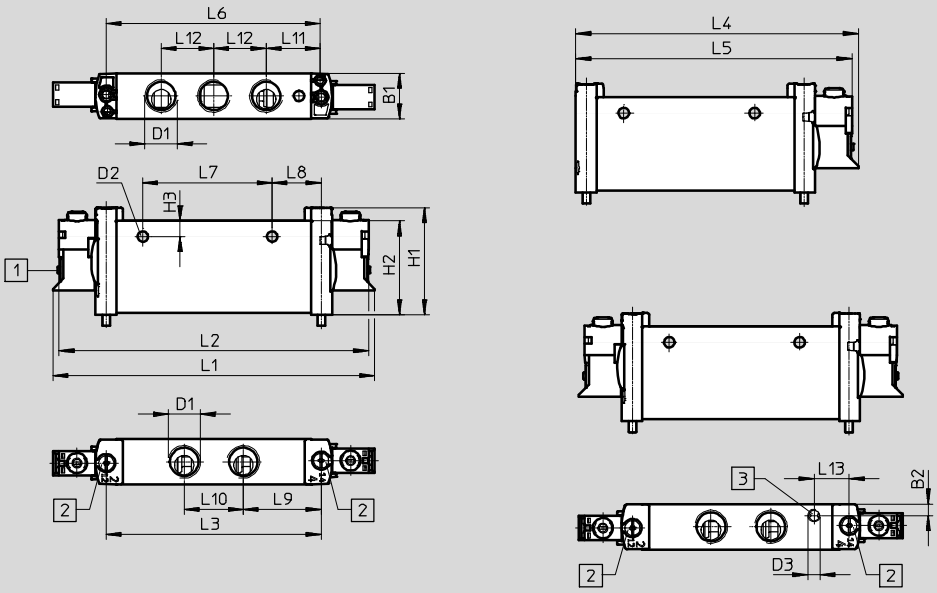
1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring
4) Minimum pilot pressure 50% of operating pressure

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 ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



Note

More dimensions E-boxes
➔ page 82

1 Electrical connection without E-box

2 Mounting screw

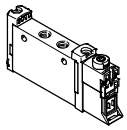
3 Connection for external pilot air supply

Type	B1	B2	D1	D2	D3	H1	H2	H3	L1	L2	L3	L4	L5
VUVG-L-18 -...	18.3	4.5	G¼	Ø 4.2	M5	43.1	37.8	6.4	129.4	124.4	86.4	112.2	109.7
VUVG-S-18 -...													

Type	L6	L7	L8	L9	L10	L11	L12	L13
VUVG-L-18 -...	86	52	19.7	31.3	23.8	21.7	21.1	14
VUVG-S-18 -...								

Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G¼

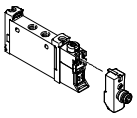
Ordering data

Ordering data				
	Description		Part No.	Type
In-line valve G¼, without E-box				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**574422**	**VUVG-L18-T32C-AT-G14-1P3**
		Normally open, reset method: pneumatic spring	**574423**	**VUVG-L18-T32U-AT-G14-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**574424**	**VUVG-L18-T32H-AT-G14-1P3**
		Normally closed, reset method: mechanical spring	**574425**	**VUVG-L18-T32C-MT-G14-1P3**
		Normally open, reset method: mechanical spring	**574426**	**VUVG-L18-T32U-MT-G14-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574427**	**VUVG-L18-T32H-MT-G14-1P3**
	External pilot air supply	Normally closed, reset method: mechanical spring	**574434**	**VUVG-L18-T32C-MZT-G14-1P3**
		Normally open, reset method: mechanical spring	**574435**	**VUVG-L18-T32U-MZT-G14-1P3**
		Normally closed, reset method: mechanical spring	**574436**	**VUVG-L18-T32H-MZT-G14-1P3**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic/mechanical spring	**574428**	**VUVG-L18-M52-RT-G14-1P3**
		Reset via mechanical spring	**574429**	**VUVG-L18-M52-MT-G14-1P3**
	External pilot air supply	External pilot air supply, reset method: mechanical spring	**574438**	**VUVG-L18-M52-MZT-G14-1P3**
		External pilot air supply, pneumatic/mechanical spring return	**574437**	**VUVG-L18-M52-RZT-G14-1P3**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**574430**	**VUVG-L18-B52-T-G14-1P3**
	External pilot air supply		**574439**	**VUVG-L18-B52-ZT-G14-1P3**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**574431**	**VUVG-L18-P53C-T-G14-1P3**
		Mid-position exhausted	**574432**	**VUVG-L18-P53E-T-G14-1P3**
		Mid-position pressurised	**574433**	**VUVG-L18-P53U-T-G14-1P3**
	External pilot air supply	Mid-position closed	**574440**	**VUVG-L18-P53C-ZT-G14-1P3**
		Mid-position exhausted	**574441**	**VUVG-L18-P53E-ZT-G14-1P3**
		Mid-position pressurised	**574442**	**VUVG-L18-P53U-ZT-G14-1P3**

New

Solenoid valves VUVG-L18 and VUVG-S18, in-line valves G¼

Ordering data

Ordering data				
	Description		Part No.	Type
In-line valve G¼, with E-box R8				
	2x3/2-way valve			
	Internal pilot air supply	Normally closed, reset method: pneumatic spring	**8031525**	**VUVG-L18-T32C-AT-G14-1R8L**
		Normally open, reset method: pneumatic spring	**8031526**	**VUVG-L18-T32U-AT-G14-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**8031527**	**VUVG-L18-T32H-AT-G14-1R8L**
		Normally closed, reset method: mechanical spring	**8031528**	**VUVG-L18-T32C-MT-G14-1R8L**
		Normally open, reset method: mechanical spring	**8031529**	**VUVG-L18-T32U-MT-G14-1R8L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8031530**	**VUVG-L18-T32H-MT-G14-1R8L**
	5/2-way valve, single solenoid			
	Internal pilot air supply	Reset method: pneumatic/mechanical spring	**8031531**	**VUVG-L18-M52-RT-G14-1R8L**
		Reset method: mechanical spring	**8031532**	**VUVG-L18-M52-MT-G14-1R8L**
	5/2-way valve, double solenoid			
	Internal pilot air supply		**8031533**	**VUVG-L18-B52-T-G14-1R8L**
	5/3-way valve			
	Internal pilot air supply	Mid-position closed	**8031534**	**VUVG-L18-P53C-T-G14-1R8L**
		Mid-position exhausted	**8031535**	**VUVG-L18-P53E-T-G14-1R8L**
		Mid-position pressurised	**8031536**	**VUVG-L18-P53U-T-G14-1R8L**

Solenoid valves VUVG-S18, in-line valves G¼

Manifold assembly

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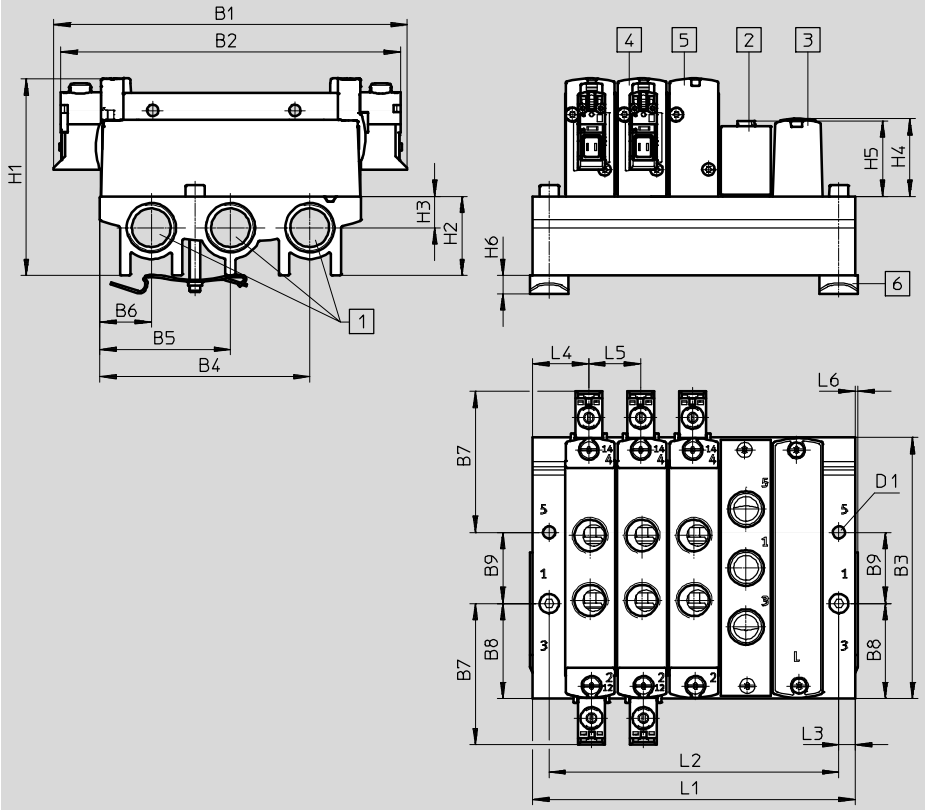
In-line valves for manifold assembly

Dimensions Download CAD data ➔ **www.festo.com**



- Note

More dimensions E-boxes
➔page 82

1 Ports 1, 3 and 5: G⅜ thread (at both ends)
2 Cover plate
3 Supply plate, ports 1, 3 and 5: G¼ thread
4 Double solenoid valve
5 Single solenoid valve
6 H-rail mounting (two M4x35 screws to DIN 912 are required for mounting)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	D1
VUVG-S18 -...-G14 ...	129.4	124.4	95.6	76.8	47.8	18.8	51.7	34.8	26	4.5

Type	H1	H2	H3	H4	H5	H6	L3	L4	L5	L6
VUVG-S18 -...-G14 ...	72.1	29	11.5	28.4	27.6	6.5	6	20.5	19	1

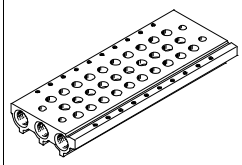
Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	61	80	99	118	137	156	175	194	213	251	289	327
L2 [mm]	49	68	87	106	125	144	163	182	201	239	277	315
VABM weight [g]	118	159	200	241	282	323	364	405	446	528	610	692

New

Solenoid valves VUVG-S18, in-line valves G¼

Ordering data

Technical data – Manifold rails

	Port	CRC	Material[2]	Operating pressure	Max. tightening torque for assembly [Nm]		
	1, 3, 5			[bar]	Valve	H-rail	Wall
	G⅜	2[1]	Wrought aluminium alloy	–0.9 ... 10	1.18	1.5	3

1) Corrosion resistance class 2 according to Festo standard 940070
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	–	18	S	–	G38	–	

Valve manifold parts
Manifold rail **VABM**

Valve series
VUVG **L1**

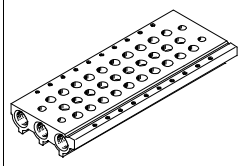
Valve width
18 mm **18**

Manifold rail with port 1, 3, 5
For G¼ in-line valves **S**

Port 1, 3, 5
G38 G⅜ thread

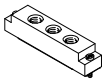
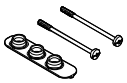
Number of valve positions
2 to 10, 12, 14 and 16

Ordering data – Manifold rail

	Description		Part No.	Type
Manifold rail for in-line valve				
	For valve size G¼	2 valve positions	**574455**	**VABM-L1-18S-G38-2**
		3 valve positions	**574456**	**VABM-L1-18S-G38-3**
		4 valve positions	**574457**	**VABM-L1-18S-G38-4**
		5 valve positions	**574458**	**VABM-L1-18S-G38-5**
		6 valve positions	**574459**	**VABM-L1-18S-G38-6**
		7 valve positions	**574460**	**VABM-L1-18S-G38-7**
		8 valve positions	**574461**	**VABM-L1-18S-G38-8**
		9 valve positions	**574462**	**VABM-L1-18S-G38-9**
		10 valve positions	**574463**	**VABM-L1-18S-G38-10**
		12 valve positions	**574464**	**VABM-L1-18S-G38-12**
		14 valve positions	**574465**	**VABM-L1-18S-G38-14**
		16 valve positions	**574466**	**VABM-L1-18S-G38-16**

Solenoid valves VUVG-S18, in-line valves G¼

Ordering data

Ordering data – Accessories				
	Description		Part No.	Type
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail for G¼ in-line valves	Incl. screws and seal	**574482**	**VABB-L1-18**
Separator				Technical data ➔ Internet: vabd
	For manifold rail for G¼ in-line valves	Separator for pressure zones	**574483**	**VABD-14-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail for G¼ in-line valves	Incl. screws and seal	**574481**	**VABF-L1-18-P3A4-G14**
Seals for in-line valves				Technical data ➔ Internet: vabd
	For G¼ in-line valves	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**574479**	**VABD-L1-18X-S-G14**

Note

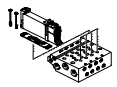
Connect supply plate at port 1 with compressed air. Reverse operation (pressure at port 3, 5) is not permissible.

Solenoid valves VUVG-B10A, sub-base valves

Order code – Sub-base valves M3

VUVG	–	B	10A	–		–		Z	

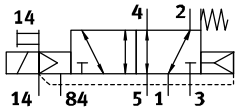
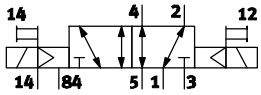
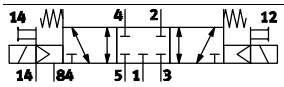
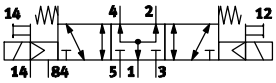
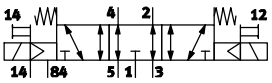
Valve design

 Sub-base, manifold valve incl. seal and screws	**B**

Width

10 mm	**10 A**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Reset method

Mech. spring with M52	**M**
Pneu./mech. spring with M52	**R**
With B52 and P53	**–**

Pilot air supply

External	**Z**

Manual override

Non-detenting	**H**
Covered	**S**
– Non-detenting, detenting	**T**
Detenting, without accessories	**Y**

F	–				L	–	

Connecting cables

W1…4	Not sheathed	 for H
C1…4	Sheathed	
WS1…4	Not sheathed	 for S
S1…4	Sheathed	
N1…4	M8x1, 3-pin	
N5…8	M8x1, 4-pin	

Display

L	LED

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug connector	
H3	Connection pattern H, vertical plug connector	
S2	Connection pattern S, horizontal plug connector	
K3	Connection pattern S, vertical plug connector	
L1…4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
K6…9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m	
R1	Individual plug connector M8, 4-pin	
R8	Individual plug connector M8, 3-pin	
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

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

Circuit symbol ➔ page 10

Width 10 mm

Flow rate
90 ... 100 l/min

Voltage
5, 12 and 24 V DC

General technical data								
Valve function			M52-R	B52	M52-M	P53		
Normal position			–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid	Double solenoid	Single solenoid	Single solenoid		
Reset method: pneumatic spring			Yes[4]	–	No	No		
Reset method: mechanical spring			Yes[4]	–	Yes	Yes		
Vacuum operation at port 1			Only with external pilot air supply					
Design			Piston spool valve					
Sealing principle			Soft					
Actuation type			Electrical					
Type of control			Piloted					
Pilot air supply			External, internal; can be selected via sub-base					
Exhaust function			With flow control					
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting					
Type of mounting			On manifold rail					
Mounting position			Any					
Nominal size		[mm]	2		1.4	2		
Nominal flow rate		[l/min]	100		80	90		
Flow rate on manifold rail M3		[l/min]	100		80	90		
Switching time on/off		[ms]	7/15	–	7/21	8/25		
Changeover time		[ms]	–	5	–	14		
Width		[mm]	10					
Port	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	37	49		
Approval			c UL us - Recognized (OL)					
			c CSA us (OL)					
CE marking (see declaration of conformity)			To EU EMC Directive[5]					
Corrosion resistance class CRC[6]			2					

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) Combined reset method
5) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
6) Corrosion resistance class 2 according 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			M52-R[1]	B52	M52-M[2]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]			
Operating pressure	Internal	[bar]	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	–0.9 ... 10		–0.9 ...8	–0.9 ... 10
Pilot pressure[3]		[bar]	2.5 ... 8	1.5 ... 8	2 ... 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			

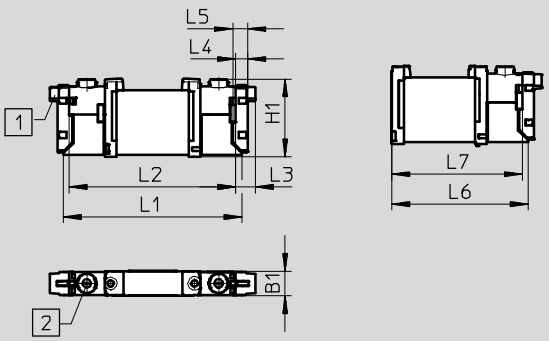
1) Mixed, pneumatic/mechanical spring
2) Mechanical spring
3) Minimum pilot pressure 50% of operating pressure

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 ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket), IP65 (with M8)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



- Note

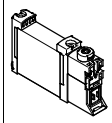
More dimensions
E-boxes
➔page 82

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

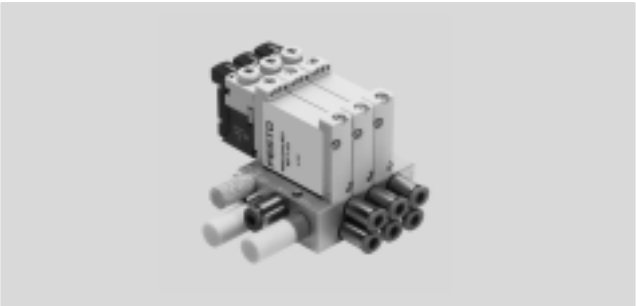
Ordering data

Ordering data				
	Description		Part No.	Type
Sub-base valve M3, without E-box				
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic/mechanical spring	**566448**	**VUVG-B10A-M52-RZT-F-1P3**
		Reset method: mechanical spring	**574347**	**VUVG-B10A-M52-MZT-F-1P3**
	5/2-way valve, double solenoid			
	External pilot air supply		**566449**	**VUVG-B10A-B52-ZT-F-1P3**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**566450**	**VUVG-B10A-P53C-ZT-F-1P3**
		Mid-position exhausted	**566451**	**VUVG-B10A-P53E-ZT-F-1P3**
		Mid-position pressurised	**566452**	**VUVG-B10A-P53U-ZT-F-1P3**

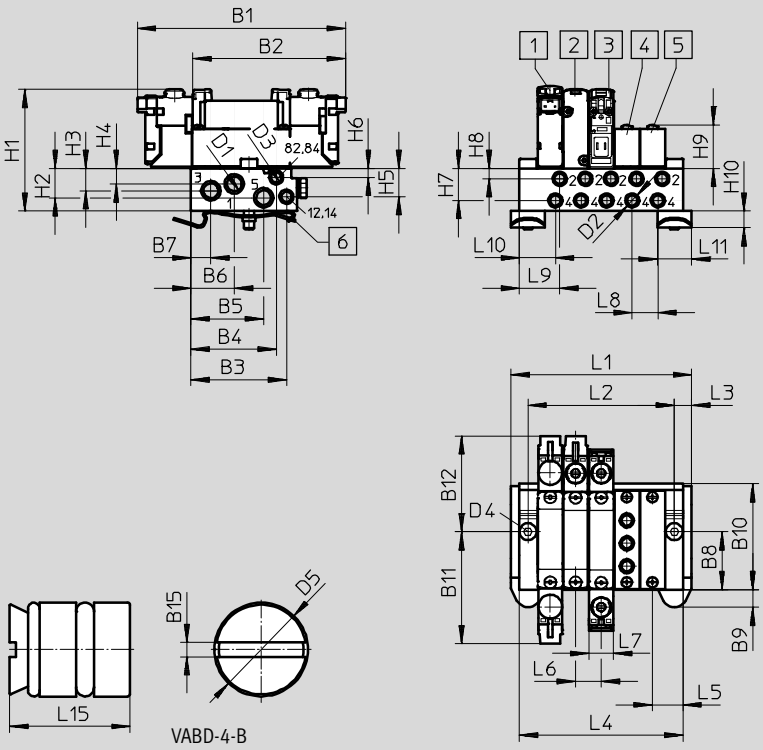
Solenoid valves VUVG-B10A, sub-base valves

Manifold assembly

Sub-base valve for manifold assembly
M5 connection



Dimensions Download CAD data ➔ **www.festo.com**



- Note

More dimensions
E-boxes
➔ page 82

1 Solenoid valve
2 Solenoid valve
3 Solenoid valve
4 Supply plate
5 Blanking plate
6 H-rail mounting (two screws M4x25 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

Type	B15	D1	D2	D3	D4	D5	H1	H2	H3	H4	H5	H6
VUVG-B10A -...-F- ...	0.48	M7	M5	M5	Ø 4.5	Ø 4	53.1	12	9.1	6.3	11.57	3.6

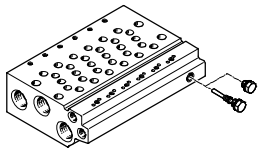
Type	H7	H8	H9	H10	H15	L3	L5	L6	L7	L8	L9	L10	L11	L15
VUVG-B10A -...-F- ...	13.1	4.2	16.2	6.8	1.9	7.5	12.5	10.5	10.2	10.5	16.5	14.7	14	8.5

Solenoid valves VUVG-B10A, sub-base valves

Ordering data

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	43.5	54	64.5	75	85.5	97	107.5	117	127.5	148.5	169.5	190.5
L2 [mm]	28.5	39	49.5	60	70.5	81	91.5	102	112.5	133.5	154.5	175.5
L4 [mm]	36.5	47	57.5	68	78.5	89	99.5	110	120.5	141.5	162.5	183.5
VABM weight [g]	60	78	96	114	132	150	168	186	204	240	276	312

Technical data – Manifold rails[1)]

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

1) Blanking plugs are included with the manifold rail.
2) Corrosion resistance class 2 according 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.
3) Note on materials: RoHS-compliant.

Order code – Manifold rails M3

VABM	–	L1	–	10A	W	–	M7	–	

Valve manifold parts
Manifold rail **VABM**

Valve series
VUVG **L1**

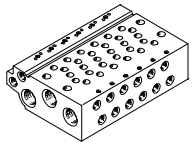
Valve width
10 mm **10A**

Manifold rail with port 1, 2, 3, 4, 5, 12/14, 82/84
Port 2 and 4 with thread M5 thread **W**

Number of valve positions
2 to 10, 12, 14 and 16

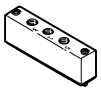
Port 1, 3, 5
M7 M7 thread

Ordering data – Manifold rails

	Description		Part No.	Type
Manifold rail for sub-base valve M3				
	For valve size B10A (M3)	2 valve positions	**566546**	**VABM-L1-10AW-M7-2**
		3 valve positions	**566547**	**VABM-L1-10AW-M7-3**
		4 valve positions	**566548**	**VABM-L1-10AW-M7-4**
		5 valve positions	**566549**	**VABM-L1-10AW-M7-5**
		6 valve positions	**566550**	**VABM-L1-10AW-M7-6**
		7 valve positions	**566551**	**VABM-L1-10AW-M7-7**
		8 valve positions	**566552**	**VABM-L1-10AW-M7-8**
		9 valve positions	**566553**	**VABM-L1-10AW-M7-9**
		10 valve positions	**566554**	**VABM-L1-10AW-M7-10**
		12 valve positions	**566555**	**VABM-L1-10AW-M7-12**
		14 valve positions	**566556**	**VABM-L1-10AW-M7-14**
		16 valve positions	**566557**	**VABM-L1-10AW-M7-16**

Solenoid valves VUVG-B10A, sub-base valves

Ordering data

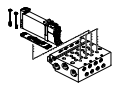
Ordering data – Accessories				
	Description		Part No.	Type
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail 10AW	Incl. screws and seal	**569986**	**VABB-L1-10A**
Separator				Technical data ➔ Internet: vabd
	For manifold rail 10AW	Separator for pressure zones	**570872**	**VABD-4.2-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail 10AW	Incl. screws and seal	**569990**	**VABF-L1-10A-P3A4-M5**
Seals				Technical data ➔ Internet: vabd
	For sub-base valve M3	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**566671**	**VABD-L1-10AB-S-M3**

Solenoid valves VUVG-B10, sub-base valves

Order code – Sub-base valves M5/M7

VUVG	–	B	10	–		–		Z	

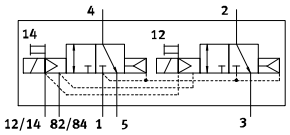
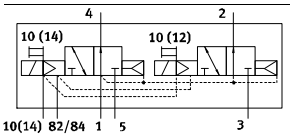
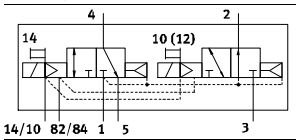
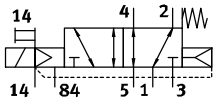
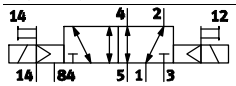
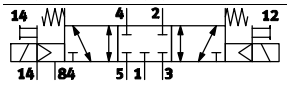
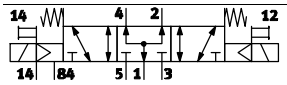
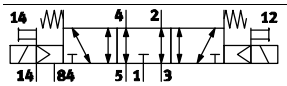
Valve design

 Sub-base, manifold valve incl. seal and screws	**B**

Width

10 mm	**10**

Valve functions

	**T32C**
	**T32U**
	**T32H**
	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Reset method

Pneumatic spring with T32 and M52	**A**
Mechanical spring with T32 and M52	**M**
Pneu./mech. spring with M52	**R**
With B52 and P53	**–**

Pilot air supply

External	**Z**

Manual override

Non-detenting	**H**
Covered	**S**
– Non-detenting, detenting	**T**
Detenting, without accessories	**Y**

F	–				L	–		

Connecting cables

W1…4	Not sheathed	 for H
C1…4	Sheathed	
WS1…4	Not sheathed	 for S
S1…4	Sheathed	
N1…4	M8x1, 3-pin	
N5…8	M8x1, 4-pin	

Display

L	LED

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

Connecting plate

H2	Connection pattern H, horizontal plug connector	
H3	Connection pattern H, vertical plug connector	
S2	Connection pattern S, horizontal plug connector	
K3	Connection pattern S, vertical plug connector	
L1…4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
K6…9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m	
R1	Individual plug connector M8, 4-pin	
R8	Individual plug connector M8, 3-pin	
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

Solenoid valves VUVG-B10, sub-base valves

Technical data

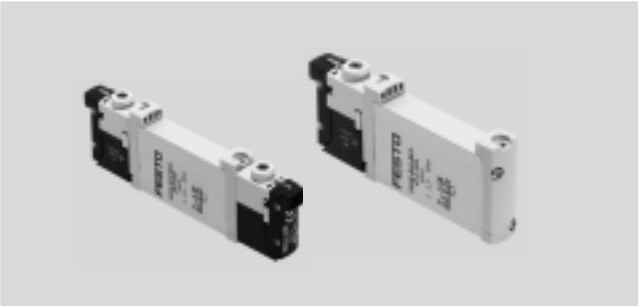
Function
2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 10 mm

Flow rate
120 ... 270 l/min

Voltage
5, 12 and 24 V DC



General technical data														
Valve function			T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid							Double solenoid	Single solenoid	Single solenoid		
Reset method: pneumatic spring			Yes			No			Yes[5]	–	No	No		
Reset method: mechanical spring			No			Yes			Yes[5]	–	Yes	Yes		
Vacuum operation at port 1			No			Only with external pilot air supply								
Design			Piston spool valve											
Sealing principle			Soft											
Actuation type			Electrical											
Type of pilot control			Piloted											
Pilot air supply			External, internal; can be selected via sub-base											
Exhaust function			With flow control											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting			On manifold rail											
Mounting position			Any											
Nominal size		[mm]	2.7			1.8	1.7		4		2.3	3.5		
Nominal flow rate		[l/min]	170			150	140	140	330		285	300		
Flow rate on manifold rail M5		[l/min]	150			130	120	120	210		180	200		
Flow rate on manifold rail M7		[l/min]	160			140	130	130	270		230	250		
Switching time on/off		[ms]	6/16			8/11			7/19	–	8/24	10/30		
Changeover time		[ms]	–							7		16		
Width		[mm]	10											
Port	1, 3, 5		G⅛ in manifold rail											
	2, 4		M5 or M7 in manifold rail											
	12/14, 82/84		M5 in manifold rail											
Product weight		[g]	55			54			45	55	44	55		
Approval			c UL us - Recognized (OL)											
			c CSA us (OL)											
CE marking (see declaration of conformity)			To EU EMC Directive[6]											
Corrosion resistance class CRC[7]			2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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			T32-A[1]	T32-M[3]	M52-R[2]	B52	M52-M[3]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]					
Operating pressure	Internal	[bar]	1.5 ... 8	3 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 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					

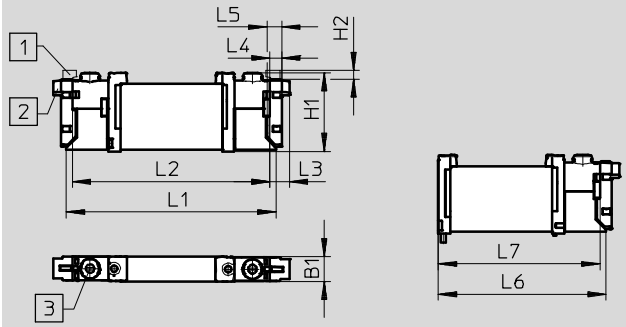
1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring
4) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via connecting plate
Operating voltage	[V DC]	5, 12 and 24 ±10%
Power	[W]	1, reduced to 0.35 with holding current reduction
Duty cycle ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



- Note

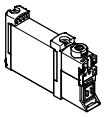
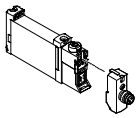
More dimensions
Connecting plates
➔ page 82

1 Vertical electrical connection
2 Horizontal electrical connection
3 Manual override

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

Ordering data

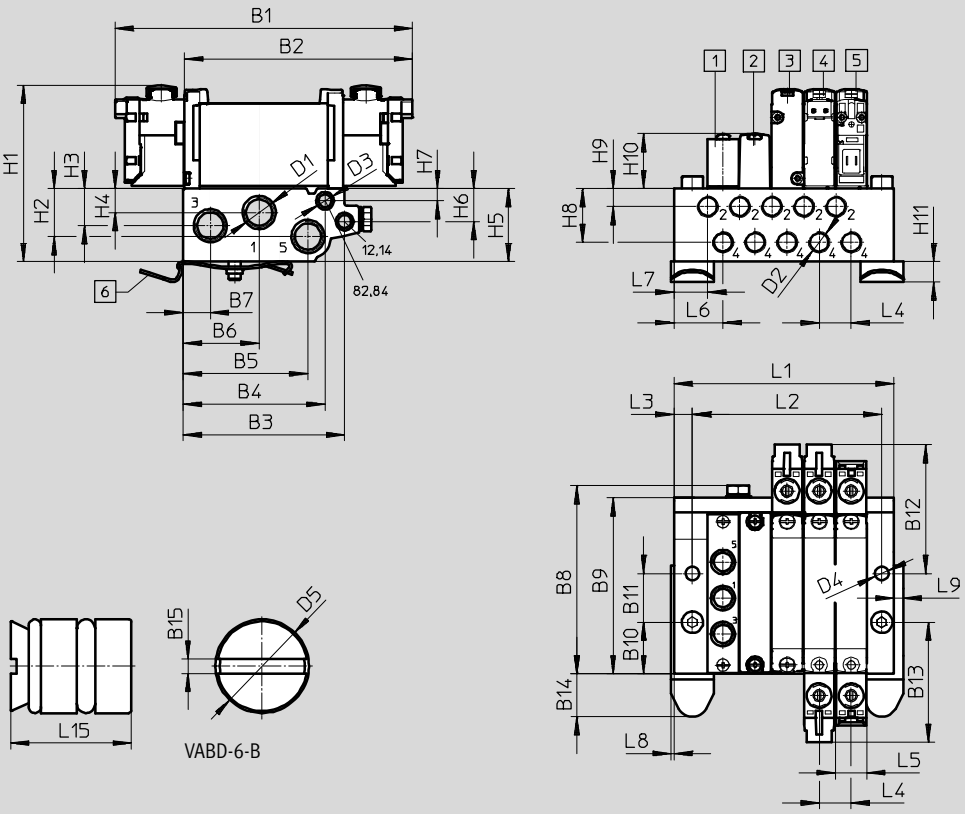
Ordering data				
	Description		Part No.	Type
Sub-base valve M5/M7, without connecting plate				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**566487**	**VUVG-B10-T32C-AZT-F-1P3**
		Normally open, reset method: pneumatic spring	**566488**	**VUVG-B10-T32U-AZT-F-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566489**	**VUVG-B10-T32H-AZT-F-1P3**
		Normally closed, reset method: mechanical spring	**574364**	**VUVG-B10-T32C-MZT-F-1P3**
		Normally open, reset method: mechanical spring	**574365**	**VUVG-B10-T32U-MZT-F-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574366**	**VUVG-B10-T32H-MZT-F-1P3**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic/mechanical spring	**566490**	**VUVG-B10-M52-RZT-F-1P3**
		Reset method: mechanical spring	**574367**	**VUVG-B10-M52-MZT-F-1P3**
	5/2-way valve, double solenoid			
	External pilot air supply		**566491**	**VUVG-B10-B52-ZT-F-1P3**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**566492**	**VUVG-B10-P53C-ZT-F-1P3**
		Mid-position exhausted	**566493**	**VUVG-B10-P53E-ZT-F-1P3**
		Mid-position pressurised	**566494**	**VUVG-B10-P53U-ZT-F-1P3**
Sub-base valve M5/M7, with E-box R8				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**574234**	**VUVG-B10-T32C-AZT-F-1R8L**
		Normally open, reset method: pneumatic spring	**574235**	**VUVG-B10-T32U-AZT-F-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**574236**	**VUVG-B10-T32H-AZT-F-1R8L**
		Normally closed, reset method: mechanical spring	**8031492**	**VUVG-B10-T32C-MZT-F-1R8L**
		Normally open, reset method: mechanical spring	**8031493**	**VUVG-B10-T32U-MZT-F-1R8L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8031494**	**VUVG-B10-T32H-MZT-F-1R8L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic/mechanical spring	**574237**	**VUVG-B10-M52-RZT-F-1R8L**
		Reset method: mechanical spring	**578157**	**VUVG-B10-M52-MZT-F-1R8L**
	5/2-way valve, double solenoid			
	External pilot air supply		**574238**	**VUVG-B10-B52-ZT-F-1R8L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**574239**	**VUVG-B10-P53C-ZT-F-1R8L**
		Mid-position exhausted	**574241**	**VUVG-B10-P53E-ZT-F-1R8L**
		Mid-position pressurised	**574240**	**VUVG-B10-P53U-ZT-F-1R8L**

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**



- - Note
More dimensions
Connecting plates
➔ page 82

1 Supply plate
2 Blanking plate
3 Solenoid valve
4 Solenoid valve
5 Solenoid valve
6 H-rail mounting (two 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

Type	B13	B14	B15	D1	D2	D3	D4	D5	H1	H2	H3	H4
VUVG-B10 -...-F- ...	39.3	14.05	1.2	G⅛	M5/M7	M5	4.5	Ø 6	56.4	15.7	12.17	7.87

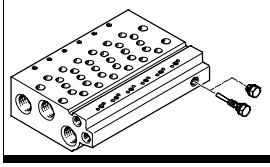
Type	H5	H6	H7	H8	H9	H10	H11	L3	L4	L5	L6	L7	L8	L9	L15
VUVG-B10 -...-F- ...	23.9	10.8	4	17.6	5.9	18	6.8	4	10.5	10.2	16	11	1	3	10

Solenoid valves VUVG-B10, sub-base valves

Manifold assembly

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16	22
L1 [mm]	48.5	59	69.5	80	90.5	101	111.5	122	132.5	153.5	174.5	195.5	258.5
L2 [mm]	30.5	41	51.5	62	72.5	83	93.5	104	114.5	135.5	156.5	177.5	240.5
VABM weight [g]	107	135	163	191	219	247	275	303	331	387	415	471	499

Technical data – Manifold rails[1)]

	Port			CRC	Material[3)]	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	G1⁄8	M5	2[2)]	Wrought aluminium alloy	–0.9 ... 10	0.45	1.5	3

1) Blanking plugs are included with the manifold rail.
2) Corrosion resistance class 2 according 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.
3) Note on materials: RoHS-compliant.

Order code – Manifold rails M5 and M7

VABM	–	L1	–	10		–	G18	–	

Valve manifold parts
- Manifold rail: **VABM**

Valve series
- VUVG: **L1**

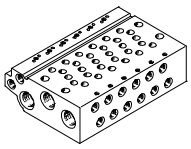
Valve width
- 10 mm: **10**

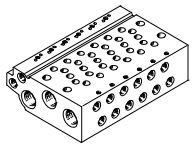
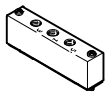
Manifold rail with port 1, 2, 3, 4, 5, 12/14, 82/84
- Port 2 and 4 with M5 thread: **W**
- Port 2 and 4 with M7 thread: **HW**

Port 1, 3, 5
- **G18**: G1⁄8 thread

Number of valve positions
- 2 to 10, 12, 14 and 16

Ordering data – Manifold rails

	Description		Part No.	Type
Manifold rail for sub-base valve M5/M7				
	For valve size B10 (M5)	2 valve positions	**566582**	**VABM-L1-10W-G18-2**
		3 valve positions	**566583**	**VABM-L1-10W-G18-3**
		4 valve positions	**566584**	**VABM-L1-10W-G18-4**
		5 valve positions	**566585**	**VABM-L1-10W-G18-5**
		6 valve positions	**566586**	**VABM-L1-10W-G18-6**
		7 valve positions	**566587**	**VABM-L1-10W-G18-7**
		8 valve positions	**566588**	**VABM-L1-10W-G18-8**
		9 valve positions	**566589**	**VABM-L1-10W-G18-9**
		10 valve positions	**566590**	**VABM-L1-10W-G18-10**
		12 valve positions	**566591**	**VABM-L1-10W-G18-12**
		14 valve positions	**566592**	**VABM-L1-10W-G18-14**
		16 valve positions	**566593**	**VABM-L1-10W-G18-16**

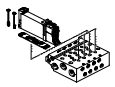
Ordering data – Accessories				
	Description		Part No.	Type
Manifold rail for sub-base valve M5/M7				
	For valve size B10 (M7)	2 valve positions	**566606**	**VABM-L1-10HW-G18-2**
		3 valve positions	**566607**	**VABM-L1-10HW-G18-3**
		4 valve positions	**566608**	**VABM-L1-10HW-G18-4**
		5 valve positions	**566609**	**VABM-L1-10HW-G18-5**
		6 valve positions	**566610**	**VABM-L1-10HW-G18-6**
		7 valve positions	**566611**	**VABM-L1-10HW-G18-7**
		8 valve positions	**566612**	**VABM-L1-10HW-G18-8**
		9 valve positions	**566613**	**VABM-L1-10HW-G18-9**
		10 valve positions	**566614**	**VABM-L1-10HW-G18-10**
		12 valve positions	**566615**	**VABM-L1-10HW-G18-12**
		14 valve positions	**566616**	**VABM-L1-10HW-G18-14**
		16 valve positions	**566617**	**VABM-L1-10HW-G18-16**
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail 10W/10HW, sub-base valves	Incl. screws and seal	**566495**	**VABB-L1-10-W**
Separator				Technical data ➔ Internet: vabd
	For manifold rail 10W and 10HW, sub-base valves	Separator for pressure zones	**569994**	**VABD-6-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail 10W	Incl. screws and seal	**569991**	**VABF-L1-10-P3A4-M5**
	For manifold rail 10HW		**569992**	**VABF-L1-10-P3A4-M7**
Seals				Technical data ➔ Internet: vabd
	For sub-base valves B10	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**566674**	**VABD-L1-10B-S-M7**

Solenoid valves VUVG-B14, sub-base valves

Order code – Sub-base valves G1/8

VUVG	–	B	14	–		–		Z	

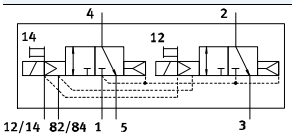
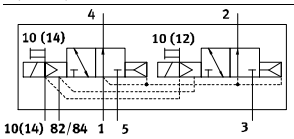
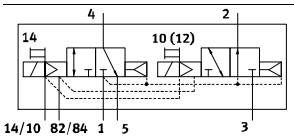
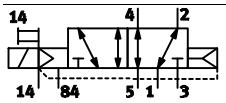
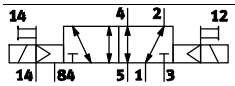
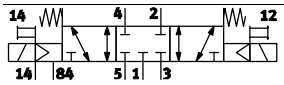
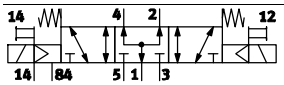
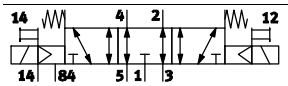
Valve design

 Sub-base, manifold valve incl. seal and screws	**B**

Width

14 mm	**14**

Valve functions

	**T32C**
	**T32U**
	**T32H**
	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**

Reset method

Pneumatic spring with T32 and M52	**A**
Mechanical spring with T32 and M52	**M**
With B52 and P53	**–**

Pilot air supply

External	**Z**

Manual override

	Non-detenting	**H**
	Covered	**S**
–	Non-detenting, detenting	**T**
	Detenting, without accessories	**Y**

F	–				L	–	

Connecting cables

W1…4	Not sheathed	 for H
C1…4	Sheathed	
WS1…4	Not sheathed	 for S
S1…4	Sheathed	
N1…4	M8x1, 3-pin	
N5…8	M8x1, 4-pin	

Display

L	LED

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug connector	
H3	Connection pattern H, vertical plug connector	
S2	Connection pattern S, horizontal plug connector	
K3	Connection pattern S, vertical plug connector	
L1…4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
K6…9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m	
R1	Individual plug connector M8, 4-pin	
R8	Individual plug connector M8, 3-pin	
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

Solenoid valves VUVG-B14, sub-base valves

Technical data

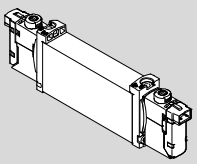
Function
2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 14 mm

Flow rate
410 ... 580 l/min

Voltage
5, 12 and 24 V DC



General technical data														
Valve function			T32-A			T32-M			M52-A	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid							Double solenoid	Single solenoid	Single solenoid		
Reset method: pneumatic spring			Yes			No			Yes	–	No	No		
Reset method: mechanical spring			No			Yes			No	–	Yes	Yes		
Vacuum operation at port 1			No			Only with external pilot air supply								
Design			Piston spool valve											
Sealing principle			Soft											
Actuation type			Electrical											
Type of pilot control			Piloted											
Pilot air supply			External, internal; can be selected via sub-base											
Exhaust function			With flow control											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting			On manifold rail											
Mounting position			Any											
Nominal size		[mm]	4.6			4.3			5.4					
Nominal flow rate		[l/min]	600	580		470	450	450	630	680		600	580	580
Flow rate on manifold rail G1/8		[l/min]	540	510	540	430	410	410	520	580		540	510	510
Switching time on/off		[ms]	8/23			11/15			14/22	–	13/35	12/40		
Changeover time		[ms]	–							8		20		
Width		[mm]	14											
Port	1, 3, 5		G1/4 in manifold rail											
	2, 4		G1/8 in manifold rail											
	12/14, 82/84		M5 in manifold rail											
Product weight		[g]	89			80			78	89	70	89		
Approval			c UL us - Recognized (OL)											
			c CSA us (OL)											
CE marking (see declaration of conformity)			To EU EMC Directive[5]											
Corrosion resistance class CRC[6]			2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
6) Corrosion resistance class 2 according 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			T32-A[1]	T32-M[2]	M52-A[1]	B52	M52-M[2]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]					
Operating pressure	Internal	[bar]	1.5 ... 8	3 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[3]		[bar]	1.5 ... 8	2 ... 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					

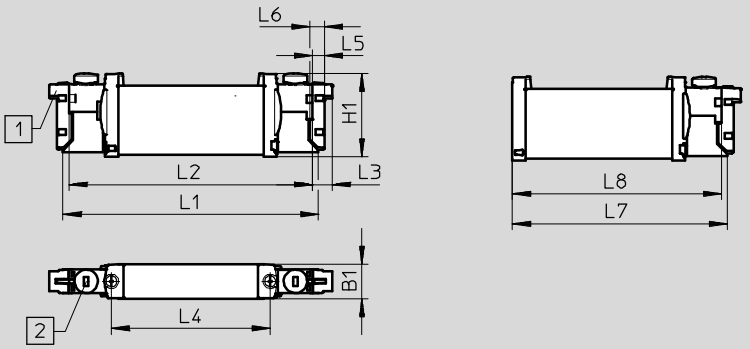
1) Pneumatic spring
2) Mechanical spring
3) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via connecting plate
Operating voltage	[V DC]	5, 12 and 24 ±10%
Power	[W]	1, reduced to 0.35 with holding current reduction
Duty cycle ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



1 Horizontal electrical connection

2 Manual override

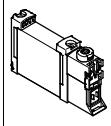
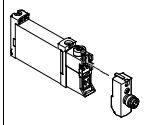
Note

More dimensions
Connecting plates
➔ page 82

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

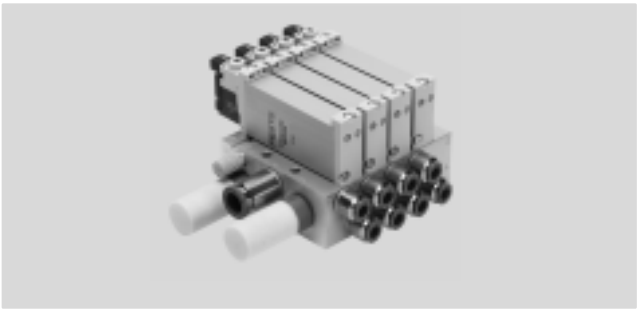
Ordering data

Ordering data				
	Description		Part No.	Type
Sub-base valve G1/8, without connecting plate				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**566513**	**VUVG-B14-T32C-AZT-F-1P3**
		Normally open, reset method: pneumatic spring	**566514**	**VUVG-B14-T32U-AZT-F-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**566515**	**VUVG-B14-T32H-AZT-F-1P3**
		Normally closed, reset method: mechanical spring	**574376**	**VUVG-B14-T32C-MZT-F-1P3**
		Normally open, reset method: mechanical spring	**574377**	**VUVG-B14-T32U-MZT-F-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574378**	**VUVG-B14-T32H-MZT-F-1P3**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic spring	**566516**	**VUVG-B14-M52-AZT-F-1P3**
		Reset method: mechanical spring	**574379**	**VUVG-B14-M52-MZT-F-1P3**
	5/2-way valve, double solenoid			
	External pilot air supply		**566517**	**VUVG-B14-B52-ZT-F-1P3**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**566518**	**VUVG-B14-P53C-ZT-F-1P3**
		Mid-position exhausted	**566519**	**VUVG-B14-P53E-ZT-F-1P3**
		Mid-position pressurised	**566520**	**VUVG-B14-P53U-ZT-F-1P3**
Sub-base valve G1/8, with E-box R8				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**574242**	**VUVG-B14-T32C-AZT-F-1R8L**
		Normally open, reset method: pneumatic spring	**574243**	**VUVG-B14-T32U-AZT-F-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**574244**	**VUVG-B14-T32H-AZT-F-1R8L**
		Normally closed, reset method: mechanical spring	**578248**	**VUVG-B14-T32C-MZT-F-1R8L**
		Normally open, reset method: mechanical spring	**8031517**	**VUVG-B14-T32U-MZT-F-1R8L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8031518**	**VUVG-B14-T32H-MZT-F-1R8L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic spring	**574245**	**VUVG-B14-M52-AZT-F-1R8L**
		Reset method: mechanical spring	**578158**	**VUVG-B14-M52-MZT-F-1R8L**
	5/2-way valve, double solenoid			
	External pilot air supply		**574246**	**VUVG-B14-B52-ZT-F-1R8L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**574247**	**VUVG-B14-P53C-ZT-F-1R8L**
		Mid-position exhausted	**574249**	**VUVG-B14-P53E-ZT-F-1R8L**
		Mid-position pressurised	**574248**	**VUVG-B14-P53U-ZT-F-1R8L**

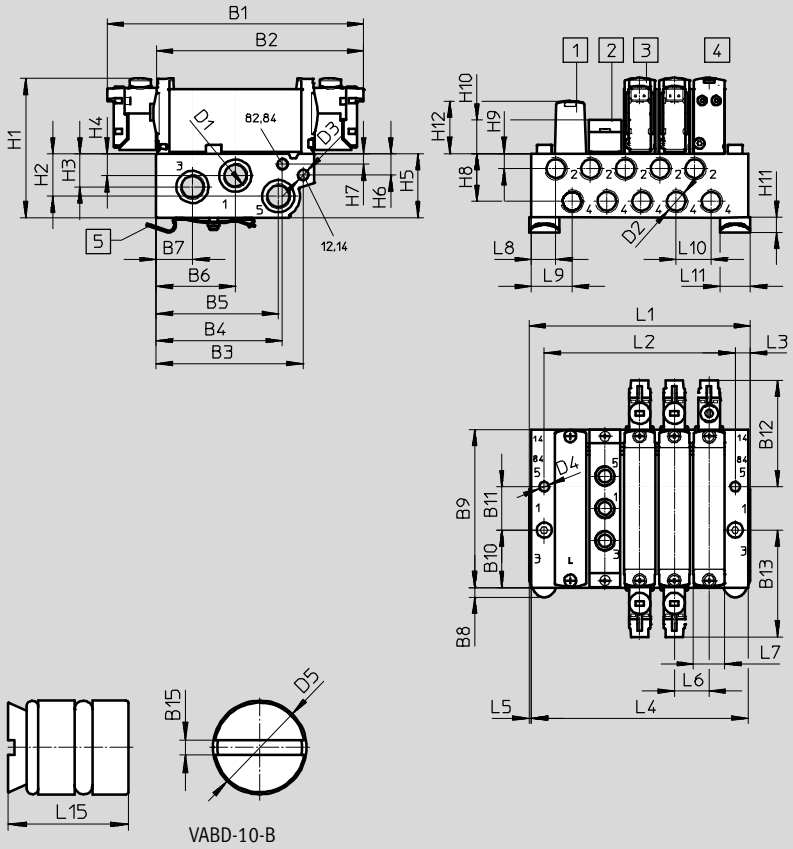
Solenoid valves VUVG-B14, sub-base valves

Manifold assembly

Sub-base valve for manifold assembly
G⅛ connection



Dimensions Download CAD data ➔ **www.festo.com**



- Note

More dimensions
E-boxes
➔ page 82

1 Blanking plate
2 Supply plate
3 Bistable valve
4 Monostable valve
5 H-rail mounting (two M4x25 screws to DIN 912 are required)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	B12
VUVG-B14 -...-F- ...	118.3	95.1	67.7	58.2	56.3	36.6	16.7	4.5	72.9	26.5	20	49.1

Type	B13	B15	D1	D2	D3	D4	D5	H1	H2	H3	H4	H5
VUVG-B14 -...-F- ...	49.1	1.2	G¼	G⅛	M5	Ø 4.5	Ø 9.8	64.3	19.6	15.3	10.1	29.5

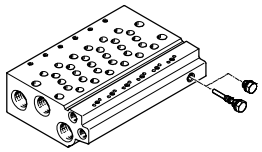
Type	H6	H7	H8	H9	H10	H11	H12	L3	L5	L6	L7	L8	L9	L10	L11
VUVG-B14 -...-F- ...	9.83	4.8	22.1	7	15.4	6.8	23.9	6	1	16	14.4	13.6	21.1	16	14

Solenoid valves VUVG-B14, sub-base valves

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[1)]

	Port			CRC	Material[3)]	Operating pressure [bar]	Max. tightening torque for assembly [Nm]		
	2, 4	1, 3, 5	12/14, 82/84				Valve	H-rail	Wall
	G1/8	G1/4	M5	2[2)]	Wrought aluminium alloy	–0.9 ... 10	0.65	1.5	3

1) Blanking plugs are included with the manifold rail.
2) Corrosion resistance class 2 according 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.
3) Note on materials: RoHS-compliant.

Order code – Manifold rails G1/8

VABM	–	L1	–	14	W	–	G14	–	

Valve manifold parts	
Manifold rail	**VABM**

Valve series	
VUVG	**L1**

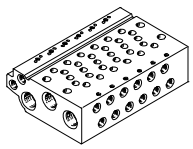
Valve width	
14 mm	**14**

Manifold rail with port 1, 2, 3, 4, 5, 12/14, 82/84	
Port 2 and 4 with thread G1/8	**W**

Number of valve positions	
	2 to 10, 12, 14 and 16

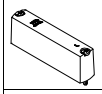
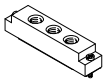
Port 1, 3, 5	
G14	G1/4 thread

Ordering data – Manifold rail

	Description		Part No.	Type
Manifold rail for sub-base valve G1/8				
	For valve size B14 (G1/8)	2 valve positions	**566642**	**VABM-L1-14W-G14-2**
		3 valve positions	**566643**	**VABM-L1-14W-G14-3**
		4 valve positions	**566644**	**VABM-L1-14W-G14-4**
		5 valve positions	**566645**	**VABM-L1-14W-G14-5**
		6 valve positions	**566646**	**VABM-L1-14W-G14-6**
		7 valve positions	**566647**	**VABM-L1-14W-G14-7**
		8 valve positions	**566648**	**VABM-L1-14W-G14-8**
		9 valve positions	**566649**	**VABM-L1-14W-G14-9**
		10 valve positions	**566650**	**VABM-L1-14W-G14-10**
		12 valve positions	**566651**	**VABM-L1-14W-G14-12**
		14 valve positions	**566652**	**VABM-L1-14W-G14-14**
		16 valve positions	**566653**	**VABM-L1-14W-G14-16**

Solenoid valves VUVG-B14, sub-base valves

Ordering data

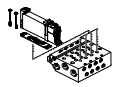
Ordering data – Accessories				
	Description		Part No.	Type
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail 14W, sub-base valves	Incl. screws and seal	**569989**	**VABB-L1-14**
Separator				Technical data ➔ Internet: vabd
	For manifold rail 14W, sub-base valves	Separator for pressure zones	**569996**	**VABD-10-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail 14W	Incl. screws and seal	**569993**	**VABF-L1-14-P3A4-G18**
Seals				Technical data ➔ Internet: vabd
	For sub-base valves B14	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**566676**	**VABD-L1-14B-S-G18**

Solenoid valves VUVG-B18, sub-base valves

Order code – Sub-base valves G¼

VUVG	–	B	18	–		–		Z	

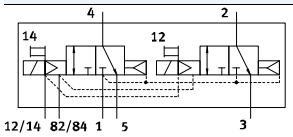
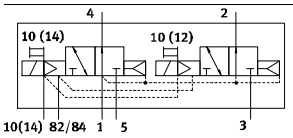
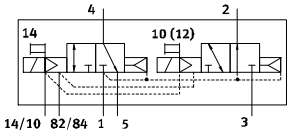
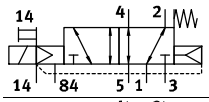
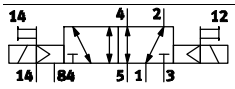
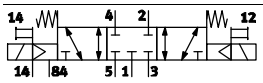
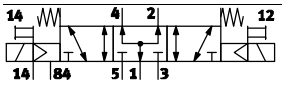
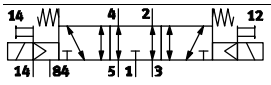
Valve design

 Sub-base, manifold valve incl. seal and screws	B

Width

18 mm	18

Valve functions

	T32C
	T32U
	T32H
	M52
	B52
	P53C
	P53U
	P53E

Reset method

Pneumatic spring with T32 and M52	A
Mechanical spring with T32 and M52	M
Pneu./mech. spring with M52	R
With B52 and P53	–

Pilot air supply

External	Z

Manual override

Non-detenting	H
Covered	S
– Non-detenting, detenting	T
Detenting, without accessories	Y

F	–				L	–	

Connecting cables

W1...4	Not sheathed	 for H
C1...4	Sheathed	
WS1...4	Not sheathed	 for S
S1...4	Sheathed	
N1...4	M8x1, 3-pin	
N5...8	M8x1, 4-pin	

Display

L	LED

Protective circuit

–	Without holding current reduction (HCR)
R	With holding current reduction (HCR)

E-box

H2	Connection pattern H, horizontal plug connector	
H3	Connection pattern H, vertical plug connector	
S2	Connection pattern S, horizontal plug connector	
K3	Connection pattern S, vertical plug connector	
L1...4	With 2x flying leads L: 1 = 0.5 m, 2 = 1 m, 3 = 2.5 m, 4 = 5 m	
K6...9	Cable: K6 = 0.5 m, K7 = 1 m, K8 = 2.5 m, K9 = 5 m	
R1	Individual plug connector M8, 4-pin	
R8	Individual plug connector M8, 3-pin	
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

New

Solenoid valves VUVG-B18, 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

Circuit symbol ➔ page 10

Width 18 mm

Flow rate
800 ... 1080 l/min

Voltage
5, 12 and 24 V DC

General technical data													
Valve function			T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid							Double solenoid	Single solenoid	Single solenoid		
Reset method: pneumatic spring			Yes			No			Yes[5]	–	No	No		
Reset method: mechanical spring			No			Yes			Yes[5]	–	Yes	Yes		
Vacuum operation at port 1			No			Only with external pilot air supply								
Design			Piston spool valve											
Sealing principle			Soft											
Actuation type			Electrical											
Type of control			Piloted											
Pilot air supply			External, internal; can be selected via sub-base											
Exhaust function			With flow control											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting			On manifold rail											
Mounting position			Any											
Nominal size		[mm]	5.7						6.9	7.3	6.9	6.5		
Nominal flow rate		[l/min]	900						1150			1080		
Flow rate on manifold rail			800						1000			950		
Switching time on/off		[ms]	13/27			15/22			15/31	–	10/45	15/48		
Changeover time		[ms]	–							11		29		
Width		[mm]	18											
Port	1, 3, 5		G3/8 in manifold rail											
	2, 4		G1/4 in manifold rail											
	12/14, 82/84		M5 in manifold rail											
Product weight		[g]	164						154	160	154	160		
Approval			c UL us - Recognized (OL)											
			c CSA us (OL)											
CE marking (see declaration of conformity)			To EU EMC Directive[6]											
Corrosion resistance class CRC[7]			2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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-B18, sub-base valves

Technical data

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[3]	M52-R[2]	B52	M52-M[3]	P53
Operating medium			Compressed air in accordance with ISO 8573-2010 [7:4:4]					
Operating pressure	Internal	[bar]	1.5 ... 8	3.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	
	External	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	3 ... 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					

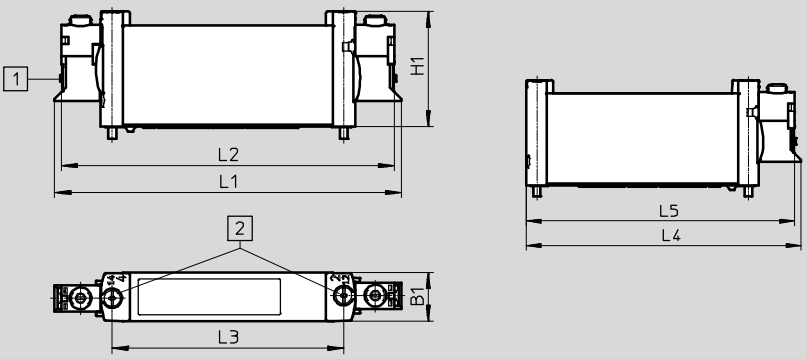
1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring
4) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via connecting plate
Operating voltage	[V DC]	5, 12 and 24 ±10%
Power	[W]	1, reduced to 0.35 with holding current reduction
Duty cycle ED	[%]	100
Degree of protection to EN 60529		IP40 (with plug socket)

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

Dimensions Download CAD data ➔ **www.festo.com**

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



1 Horizontal electrical connection

2 Manual override

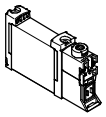
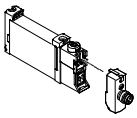
Note

More dimensions
Connecting plates
➔ page 82

Type	B1	H1	L1	L2	L3	L4	L5
VUVG-B18 -...-F ...	18.3	43.1	129.4	124.4	86.4	112.2	109.7

Solenoid valves VUVG-B18, sub-base valves

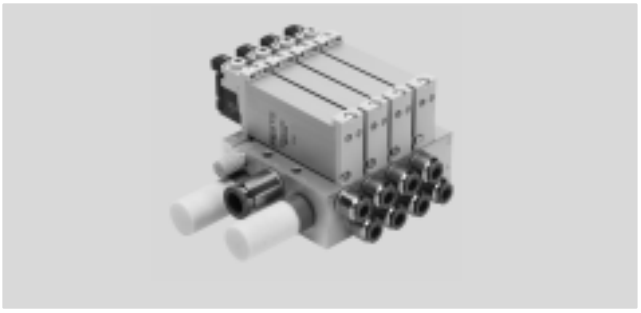
Ordering data

Ordering data				
	Description		Part No.	Type
Sub-base valve G¼, without connecting plate				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**574443**	**VUVG-B18-T32C-AZT-F-1P3**
		Normally open, reset method: pneumatic spring	**574444**	**VUVG-B18-T32U-AZT-F-1P3**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**574445**	**VUVG-B18-T32H-AZT-F-1P3**
		Normally closed, reset method: mechanical spring	**574446**	**VUVG-B18-T32C-MZT-F-1P3**
		Normally open, reset method: mechanical spring	**574447**	**VUVG-B18-T32U-MZT-F-1P3**
		1x normally open, 1x normally closed, reset method: mechanical spring	**574448**	**VUVG-B18-T32H-MZT-F-1P3**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic/mechanical spring	**574449**	**VUVG-B18-M52-RZT-F-1P3**
		Reset method: mechanical spring	**574450**	**VUVG-B18-M52-MZT-F-1P3**
	5/2-way valve, double solenoid			
	External pilot air supply		**574451**	**VUVG-B18-B52-ZT-F-1P3**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**574452**	**VUVG-B18-P53C-ZT-F-1P3**
		Mid-position exhausted	**574453**	**VUVG-B18-P53E-ZT-F-1P3**
		Mid-position pressurised	**574454**	**VUVG-B18-P53U-ZT-F-1P3**
Sub-base valve G¼, with E-box R8				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**8031537**	**VUVG-B18-T32C-AZT-F-1R8L**
		Normally open, reset method: pneumatic spring	**8031538**	**VUVG-B18-T32U-AZT-F-1R8L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**8031539**	**VUVG-B18-T32H-AZT-F-1R8L**
		Normally closed, reset method: mechanical spring	**8031540**	**VUVG-B18-T32C-MZT-F-1R8L**
		Normally open, reset method: mechanical spring	**8031541**	**VUVG-B18-T32U-MZT-F-1R8L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8031542**	**VUVG-B18-T32H-MZT-F-1R8L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic/mechanical spring	**8031543**	**VUVG-B18-M52-RZT-F-1R8L**
		Reset method: mechanical spring	**8031544**	**VUVG-B18-M52-MZT-F-1R8L**
	5/2-way valve, double solenoid			
	External pilot air supply		**8031545**	**VUVG-B18-B52-ZT-F-1R8L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**8031546**	**VUVG-B18-P53C-ZT-F-1R8L**
		Mid-position exhausted	**8031547**	**VUVG-B18-P53E-ZT-F-1R8L**
		Mid-position pressurised	**8031548**	**VUVG-B18-P53U-ZT-F-1R8L**

Solenoid valves VUVG-B18, sub-base valves

Manifold assembly

Sub-base valve for manifold assembly
G¼ connection



Dimensions

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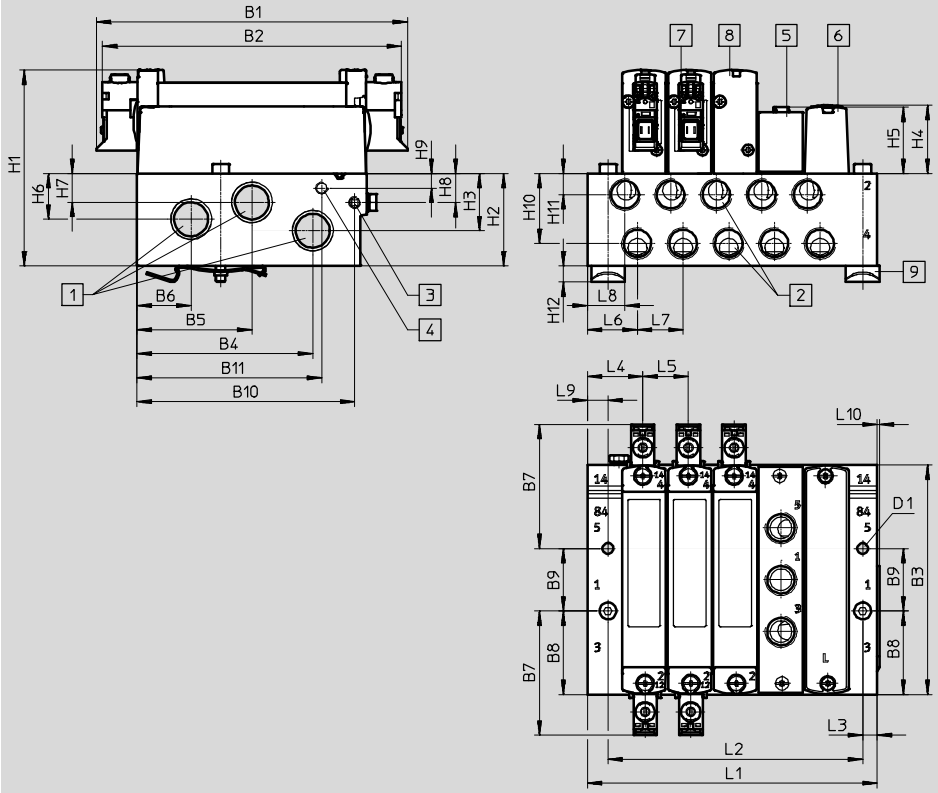


Note

More dimensions E-boxes
➔ page 82

1 Ports 1, 3 and 5: G⅜ (at both ends)
2 Ports 2 and 4: G¼
3 Port 12/14 for external pilot air: M5
4 Port 82/84 for external pilot air: M5
5 Supply plate, ports 1, 3 and 5: G¼
6 Blanking plate
7 Solenoid valve
8 Solenoid valve
9 H-rail mounting (two M4x40 screws to DIN 912 are required)

Type	B1	B2	B3	B4	B5	B6	B7	B8	B9	B10	B11	D1
VUVG-B18 -...-F- ...	129.4	124.41	95.6	73.1	47.8	22.5	51.7	34.8	26	90.6	76.8	4.5

Type	H1	H2	H3	H4	H5	H6	H7	H8	H9	H10	H11	H12
VUVG-B18 -...-F- ...	81.6	38.5	11.5	28.4	27.6	19	12	12.1	6.1	29.1	8.8	6.5

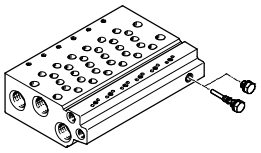
Type	L3	L4	L5	L6	L7	L8	L9	L10
VUVG-B18 -...-F- ...	6	23	19	20.8	19	15.6	8.5	1

Solenoid valves VUVG-B18, sub-base valves

Ordering data

Valve positions	2	3	4	5	6	7	8	9	10	12	14	16
L1 [mm]	63.5	82.5	101.5	120.5	139.5	158.5	177.5	196.5	215.5	253.5	291.5	329.5
L2 [mm]	49	68	87	106	125	144	163	182	201	239	277	315
VABM weight [g]	232	306	380	454	528	602	676	750	824	972	1120	1268

Technical data – Manifold rails[1)]

	Port			CRC	Material[3)]	Operating pressure [bar]	Max. tightening torque for assembly [Nm]		
	2, 4	1, 3, 5	12/14, 82/84				Valve	H-rail	Wall
	G¼	G⅜	M5	2[2)]	Wrought aluminium alloy	–0.9 ... 10	1.18	1.5	3

1) Blanking plugs are included with the manifold rail.
2) Corrosion resistance class 2 according 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.
3) Note on materials: RoHS-compliant.

Order code – Manifold rails G¼

VABM	–	L1	–	18	W	–	G38	–	

Valve manifold parts
Manifold rail **VABM**

Valve series
VUVG **L1**

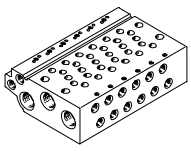
Valve width
18 mm **18**

Manifold rail with port 1, 2, 3, 4, 5, 12/14, 82/84
Port 2 and 4 with G¼ thread **W**

Port 1, 3, 5
G38 Thread G⅜

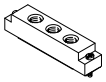
Number of valve positions
2 to 10, 12, 14 and 16

Ordering data – Manifold rails

	Description		Part No.	Type
Manifold rail for sub-base valve G¼				
	For valve size B18 (G¼)	2 valve positions	**574467**	**VABM-L1-18W-G38-2**
		3 valve positions	**574468**	**VABM-L1-18W-G38-3**
		4 valve positions	**574469**	**VABM-L1-18W-G38-4**
		5 valve positions	**574470**	**VABM-L1-18W-G38-5**
		6 valve positions	**574471**	**VABM-L1-18W-G38-6**
		7 valve positions	**574472**	**VABM-L1-18W-G38-7**
		8 valve positions	**574473**	**VABM-L1-18W-G38-8**
		9 valve positions	**574474**	**VABM-L1-18W-G38-9**
		10 valve positions	**574475**	**VABM-L1-18W-G38-10**
		12 valve positions	**574476**	**VABM-L1-18W-G38-12**
		14 valve positions	**574477**	**VABM-L1-18W-G38-14**
		16 valve positions	**574478**	**VABM-L1-18W-G38-16**

Solenoid valves VUVG-B18, sub-base valves

Ordering data

Ordering data – Accessories				
	Description		Part No.	Type
Blanking plate				Technical data ➔ Internet: vabb
	For manifold rail 18W, sub-base valves	Incl. screws and seal	**574482**	**VABB-L1-18**
Separator				Technical data ➔ Internet: vabd
	For manifold rail 18W, sub-base valves	Separator for pressure zones	**574483**	**VABD-14-B**
Supply plate				Technical data ➔ Internet: vabf
	For manifold rail 18W	Incl. screws and seal	**574481**	**VABF-L1-18-P3A4-G14**
Seals				Technical data ➔ Internet: vabd
	For sub-base valves B18	Delivery unit: 10 sets (each with 2 screws and 1 seal)	**574480**	**VABD-L1-18B-S-G14**

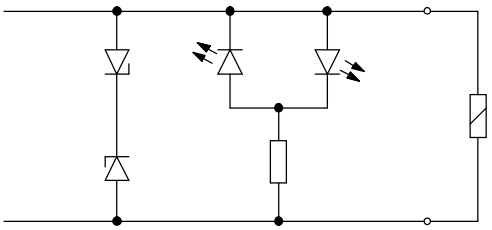
Note

Connect supply plate at port 1 with compressed air. Reverse operation (pressure at port 3, 5) is not permissible.

General technical data							
Variants	H2	H3	S2	K3	L-	R1	R8
Mounting position	Any						
Electrical connection	2-pin, socket				Flying leads	Individual plug connector M8, 4-pin	Individual plug connector M8, 3-pin
Degree of protection	IP40					IP65	
Switching position display	LED						
Type of mounting	Clip					Self-tapping screw	
Note on materials	RoHS compliant						
Housing colour	Black						
Information on housing materials	PA						
Approval	RCM mark						

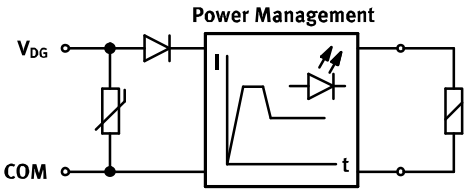
Protective circuit without holding current reduction

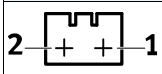
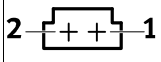
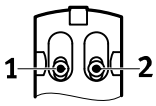
The solenoid coils (P type) of the 5, 12 and 24 V designs are equipped with a protective circuit to arrest sparks and protect against polarity reversal.

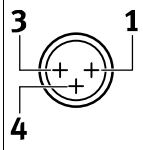
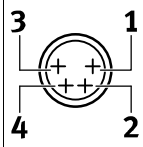


Protective circuit with holding current reduction

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

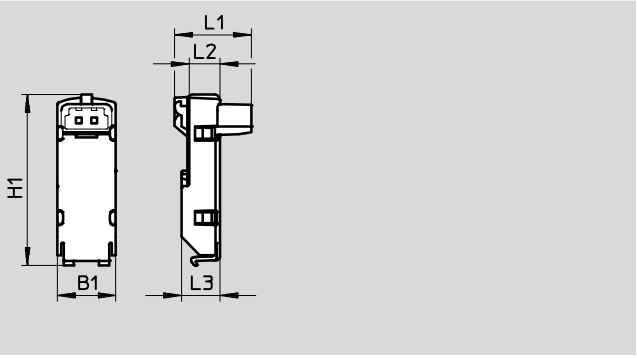


Pin allocation for E-box			
	Pin		Description
Rectangular plug connector, connection pattern H			
	VAVE-L1-1VH2-LP, VAVE-L1-1VH3-LP		
	1	+ or –	Without holding current reduction
	2	+ or –	
	VAVE-L1-1H2-LR, VAVE-L1-1H3-LR		
	1	+	With holding current reduction
	2	–	
Rectangular plug connector, connection pattern S			
	VAVE-L1-1VS2-LP, VAVE-L1-1VS3-LP		
	1	+ or –	Without holding current reduction
	2	+ or –	
	VAVE-L1-1S2-LR, VAVE-L1-1S3-LR		
	1	–	With holding current reduction
	2	+	
Flying leads, 2-pin			
	VAVE-L1-1VL1...4- LP		
	1	+ or –	Without holding current reduction
	2	+ or –	
	VAVE-L1-1L1...4-LR		
	1	–	With holding current reduction
	2	+	

Pin allocation for E-box			
	Pin		Description
Round plug connector, M8, 3-pin			
	VAVE-L1-1VR8-LP		
	1	Not used	Without holding current reduction
	3	+ or –	
	4	+ or –	
	VAVE-L1-1R8-LR		
	1	Not used	With holding current reduction
	3	+ or –	
	4	+ or –	
Round plug connector, M8, 4-pin			
	VAVE-L1-1VR1-LP		
	1	Not used	Without holding current reduction
	2	Not used	
	3	+ or –	
	4	+ or –	
	VAVE-L1-1R1-LR		
	1	Not used	With holding current reduction
	2	Not used	
	3	+ or –	
	4	+ or –	
Open cable end			
	VAVE-L1-1VK...		
	BK	+ or –	Without holding current reduction
	BK	+ or –	
	VAVE-L1-1K...		
	BK	+ or –	With holding current reduction
	BK	+ or –	

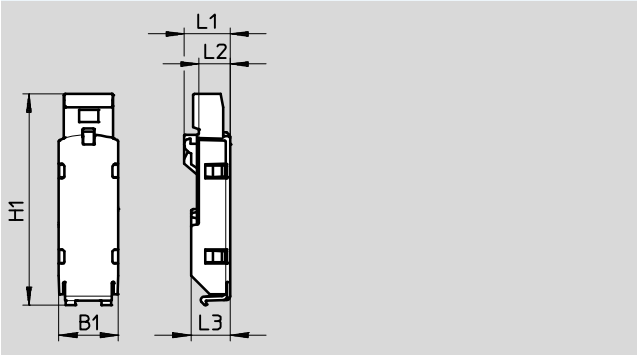
Dimensions Download CAD data ➔ **www.festo.com**

E-boxes, S2/H2



Type	B1	H1 ±0.5	L1	L2	L3
VAVE-L1-1VS2-LP	9.8	28.8	12.9	5.2	6.5
VAVE-L1-1S2-LR					
VAVE-L1-1VH2-LP			10.8		
VAVE-L1-H2-LR					

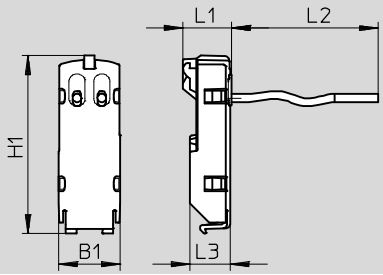
E-boxes, S3/H3



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					
VAVE-L1-1VH3-LP		33.6	7.5		
VAVE-L1-1H3-LR					

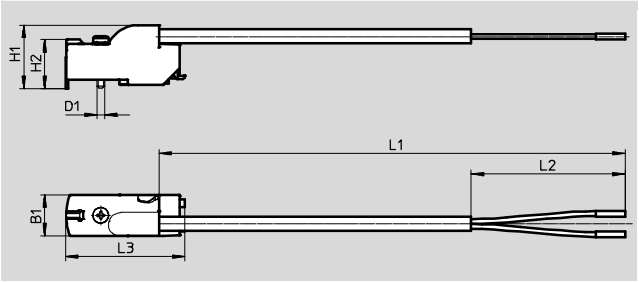
Dimensions Download CAD data ➔ **www.festo.com**

E-boxes, VL11 ...1 4



Type	B1	H1 ±0.5	L1	L2	L3
VAVE-L1-1VL1-LP	9.8	28.8	7.9	0.5	6.5
VAVE-L1-1L1-LR					
VAVE-L1-1VL2-LP				1	
VAVE-L1-1L2-LR					
VAVE-L1-1VL3-LP				2.5	
VAVE-L1-1L3-LR					
VAVE-L1-1VL4-LP				5	
VAVE-L1-1L4-LR					

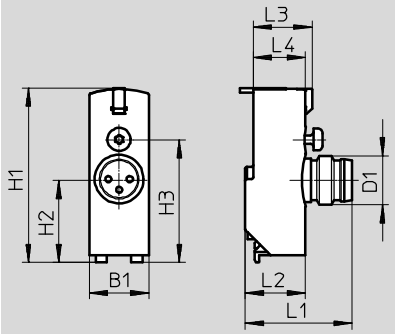
E-boxes, VK6 ... 9



Type	B1	H1	H2 ±0.3	L1	L2 ±5	L3 ±0.5	D1 ∅
VAVE-L1-1VK6-LP	9.8	15.3	11.8	0.5	50	28.7	1.8
VAVE-L1-1VK7-LP				1.0			
VAVE-L1-1VK8-LP				2.5			
VAVE-L1-1VK9-LP				5.0			
VAVE-L1-1K6-LR				0.5			
VAVE-L1-1K7-LR				1.0			
VAVE-L1-1K8-LR				2.5			
VAVE-L1-1K9-LR				5.0			

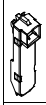
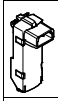
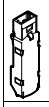
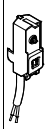
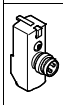
Dimensions Download CAD data ➔ **www.festo.com**

E-boxes, R8/R1

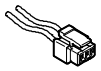
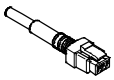
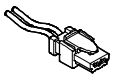
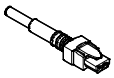
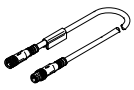


Type	B1	H1	H2	H3	L1	L2	L3	L4	D1 ∅
VAVE-L1-1VR8-LP	9.8	28.7	13.7	20.2	18.4	9.9	9.7	8.6	M8
VAVE-L1-1VR1-LP									

Ordering data – E-boxes

Design	Plug connector	Additional functions	Ambient temperature [°C]	Code	Power [W]	Voltage [V DC]	Cable length [m]	Part No.	Type
	NEBV-H1 ...	Spark arresting, bipolar, IP40	–5 ... +50	H2	1	12/24	–	**566714**	**VAVE-L1-1VH2-LP**
		Spark arresting, holding current reduction, IP40	–5 ... +60	H2R	0.35	24	–	**566716**	**VAVE-L1-1H2-LR**
	NEBV-H1 ...	Spark arresting, bipolar, IP40	–5 ... +50	H3	1	12/24	–	**566715**	**VAVE-L1-1VH3-LP**
		Spark arresting, holding current reduction, IP40	–5 ... +60	H3R	0.35	24	–	**566717**	**VAVE-L1-1H3-LR**
	NEBV-HS ...	Spark arresting, bipolar, IP40	–5 ... +50	S2	1	12/24	–	**566718**	**VAVE-L1-1VS2-LP**
		Spark arresting, holding current reduction, IP40	–5 ... +60	S2R	0.35	24	–	**566720**	**VAVE-L1-1S2-LR**
	NEBV-HS ...	Spark arresting, bipolar, IP40	–5 ... +50	K3	1	12/24	–	**566719**	**VAVE-L1-1VS3-LP**
		Spark arresting, holding current reduction, IP40	–5 ... +60	S3R	0.35	24	–	**566721**	**VAVE-L1-1S3-LR**
	Open cable end	Spark arresting, bipolar, IP40	–5 ... +50	L1	1	12/24	–	**566722**	**VAVE-L1-1VL1-LP**
				L2			–	**566723**	**VAVE-L1-1VL2-LP**
				L3			–	**566724**	**VAVE-L1-1VL3-LP**
				L4			–	**566725**	**VAVE-L1-1VL4-LP**
		Spark arresting, holding current reduction, IP40	–5 ... +60	L1R	0.35	24	–	**566726**	**VAVE-L1-1L1-LR**
				L2R			–	**566727**	**VAVE-L1-1L2-LR**
				L3R			–	**566728**	**VAVE-L1-1L3-LR**
				L4R			–	**566729**	**VAVE-L1-1L4-LR**
	Open cable end	Spark arresting, bipolar, IP65	–5 ... +60	K6	1	12/24	0.5	**573941**	**VAVE-L1-1VK6-LP**
				K7			1	**573942**	**VAVE-L1-1VK7-LP**
				K8			2.5	**573943**	**VAVE-L1-1VK8-LP**
				K9			5	**573944**	**VAVE-L1-1VK9-LP**
		Spark arresting, holding current reduction, IP65	–5 ... +60	K6R	0.35	24	0.5	**573945**	**VAVE-L1-1K6-LR**
				K7R			1	**573946**	**VAVE-L1-1K7-LR**
				K8R			2.5	**573947**	**VAVE-L1-1K8-LR**
				K9R			5	**573948**	**VAVE-L1-1K9-LR**
	NEBU-M8 ...	Spark arresting, bipolar, IP65	–5 ... +60	R8	1	12/24	–	**573919**	**VAVE-L1-1VR8-LP**
		Spark arresting, holding current reduction, IP65		R8R	0.35	24	–	**573920**	**VAVE-L1-1R8-LR**
		Spark arresting, bipolar, IP65		R1	1	12/24	–	**573921**	**VAVE-L1-1VR1-LP**
		Spark arresting, holding current reduction, IP65		R1R	0.35	24	–	**573922**	**VAVE-L1-1R1-LR**

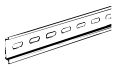
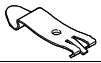
Ordering data

	Description	Cable length [m]	Part No.	Type
Plug socket with cable, not sheathed, open end				Technical data ➔ Internet: nebv
	For E-box code H2, H2R or H3, H3R, 2-pin socket	0.5	**566654**	**NEBV-H1G2-KN-0.5-N-LE2**
		1	**566655**	**NEBV-H1G2-KN-1-N-LE2**
		2.5	**566656**	**NEBV-H1G2-KN-2.5-N-LE2**
		5	**566657**	**NEBV-H1G2-KN-5-N-LE2**
Plug socket with cable, sheathed, open end				Technical data ➔ Internet: nebv
	For E-box code H2, H2R or H3, H3R, 2-pin socket	0.5	**566658**	**NEBV-H1G2-P-0.5-N-LE2**
		1	**566659**	**NEBV-H1G2-P-1-N-LE2**
		2.5	**566660**	**NEBV-H1G2-P-2.5-N-LE2**
		5	**566661**	**NEBV-H1G2-P-5-N-LE2**
Plug socket with cable, not sheathed, open end				Technical data ➔ Internet: nebv
	For E-box code S2, S2R or S3, S3R, 2-pin socket	0.5	**566662**	**NEBV-HSG2-KN-0.5-N-LE2**
		1	**566663**	**NEBV-HSG2-KN-1-N-LE2**
		2.5	**566664**	**NEBV-HSG2-KN-2.5-N-LE2**
		5	**566665**	**NEBV-HSG2-KN-5-N-LE2**
Plug socket with cable, sheathed, open end				Technical data ➔ Internet: nebv
	For E-box code S2, S2R or S3, S3R, 2-pin socket	0.5	**566666**	**NEBV-HSG2-P-0.5-N-LE2**
		1	**566667**	**NEBV-HSG2-P-1-N-LE2**
		2.5	**566668**	**NEBV-HSG2-P-2.5-N-LE2**
		5	**566669**	**NEBV-HSG2-P-5-LE2**
Connecting cable, open end				Technical data ➔ Internet: nebu
	For E-box code R8 3-pin, straight socket, M8x1	2.5	**541333**	**NEBU-M8G3-K-2.5-LE3**
		5	**541334**	**NEBU-M8G3-K-5-LE3**
	For E-box code R1 4-pin, straight socket, M8x1	2.5	**541342**	**NEBU-M8G4-K-2.5-LE4**
		5	**541343**	**NEBU-M8G4-K-5-LE4**
Connecting cable, open end				Technical data ➔ Internet: nebu
	For E-box code R8 3-pin, angled socket, M8x1	2.5	**541338**	**NEBU-M8W3-K-2.5-LE3**
		5	**541341**	**NEBU-M8W3-K-5-LE3**
	For E-box code R1 4-pin, angled socket, M8x1	2.5	**541344**	**NEBU-M8W4-K-2.5-LE4**
		5	**541345**	**NEBU-M8W4-K-5-LE4**
Connecting cable				Technical data ➔ Internet: nebu
	For E-box code R8 3-pin, straight socket, M8x1	0.5	**541346**	**NEBU-M8G3-K-0.5-M8G3**
		1	**541347**	**NEBU-M8G3-K-1-M8G3**
		2.5	**541348**	**NEBU-M8G3-K-2.5-M8G3**
		5	**541349**	**NEBU-M8G3-K-5-M8G3**
		10	**569844**	**NEBU-M8G3-K-10-M8G3**
	For E-box code R1 4-pin, straight socket, M8x1	2.5	**554035**	**NEBU-M8G4-K-2.5-M8G4**

Ordering data

	Description			Part No.	Type	PU[1]
Blanking plug					Technical data ➔ Internet: b	
	For manifold rail and valve	M5 thread		**3843**	**B-M5**	**10**
		M7 thread		**174309**	**B-M7**	**10**
	For manifold rail	G⅛ thread		**3568**	**B-⅛**	**10**
		G¼ thread		**3569**	**B-¼**	**10**
		G⅜ thread		**3570**	**B⅜**	**10**
	For valve	For valve size 14 (G⅛)		**578406**	**NPQH-BK-G18-P10**	**10**
		For valve size 18 (G¼)		**578407**	**NPQH-BK-G14-P10**	**10**
Reducing nipple						
	Male thread M7	Female thread M5		**161359**	**D-M5I-M7A-ISK**	**10**
Fittings					Technical data ➔ Internet: qsm	
	M3 thread	For tubing Ø 3 mm	Round releasing ring	**133001**	**QSM-M3-3-I-R**	**10**
		For tubing Ø 4 mm	Round releasing ring	**133002**	**QSM-M3-4-I-R**	**10**
	M5 thread	For tubing Ø 3 mm	Round releasing ring	**133003**	**QSM-M5-3-I-R**	**10**
			Oval releasing ring	**153313**	**QSM-M5-3-I**	**10**
		For tubing Ø 4 mm	Round releasing ring	**133004**	**QSM-M5-4-I-R**	**10**
			Oval releasing ring	**153315**	**QSM-M5-4-I**	**10**
		For tubing Ø 6 mm	Round releasing ring	**133005**	**QSM-M5-6-I-R**	**10**
			Oval releasing ring	**153317**	**QSM-M5-6-I**	**10**
	M7 thread	For tubing Ø 4 mm	Oval releasing ring	**153319**	**QSM-M7-4-I**	**10**
		For tubing Ø 6 mm	Round releasing ring	**133007**	**QSM-M7-6-I-R**	**10**
			Oval releasing ring	**153321**	**QSM-M7-6-I**	**10**
	G⅛ thread	For tubing Ø 4 mm	Oval releasing ring	**186106**	**QS-G1/8-4-I**	**10**
		For tubing Ø 6 mm	Oval releasing ring	**186107**	**QS-G1/8-6-I**	**10**
		For tubing Ø 8 mm	Oval releasing ring	**186109**	**QS-G1/8-8-I**	**10**
		For tubing Ø 10 mm	Oval releasing ring	**132999**	**QS-G1/8-10-I**	**10**
	G¼ thread	For tubing Ø 6 mm	Oval releasing ring	**186108**	**QS-G1/4-6-I**	**10**
				130918	**QS-B-1/4-6-20**	**20**
		For tubing Ø 8 mm	Oval releasing ring	**186110**	**QS-G1/4-8-I**	**10**
				130995	**QS-B-1/4-8-I-20**	**20**
		For tubing Ø 10 mm	Oval releasing ring	**186112**	**QS-G1/4-10-I**	**10**
				132152	**QS-B-1/4-10-I-20**	**20**
	G⅜ thread	For tubing Ø 8 mm	Oval releasing ring	**130921**	**QS-B-3/8-8-10**	**10**
		For tubing Ø 10 mm	Oval releasing ring	**130922**	**QS-B-3/8-10-10**	**10**
		For tubing Ø 12 mm	Oval releasing ring	**132123**	**QS-B-3/8-12-10**	**10**
		For tubing Ø 16 mm	Oval releasing ring	**132124**	**QS-B-3/8-16-10**	**10**
Silencer					Technical data ➔ Internet: amte	
	For M3 thread			**1231120**	**AMTE-M-LH-M3**	**20**
	For M5 thread			**1205858**	**AMTE-M-LH-M5**	**20**
	For M7 thread			**161418**	**UC-M7**	**1**
	For G⅛ thread	High flow rate		**2307**	**U-1/8**	**1**
		Lower flow rate		**161419**	**UC-1/8**	**1**
	For G¼ thread	High flow rate		**2316**	**U-1/4**	**1**
		Lower flow rate		**165004**	**UC-1/4**	**1**
	For G⅜ thread	High flow rate		**2309**	**U-3/8**	**1**
		Lower flow rate		**1707427**	**UC-3/8**	**1**
		Metal housing		**6843**	**U-3/8-B**	**1**

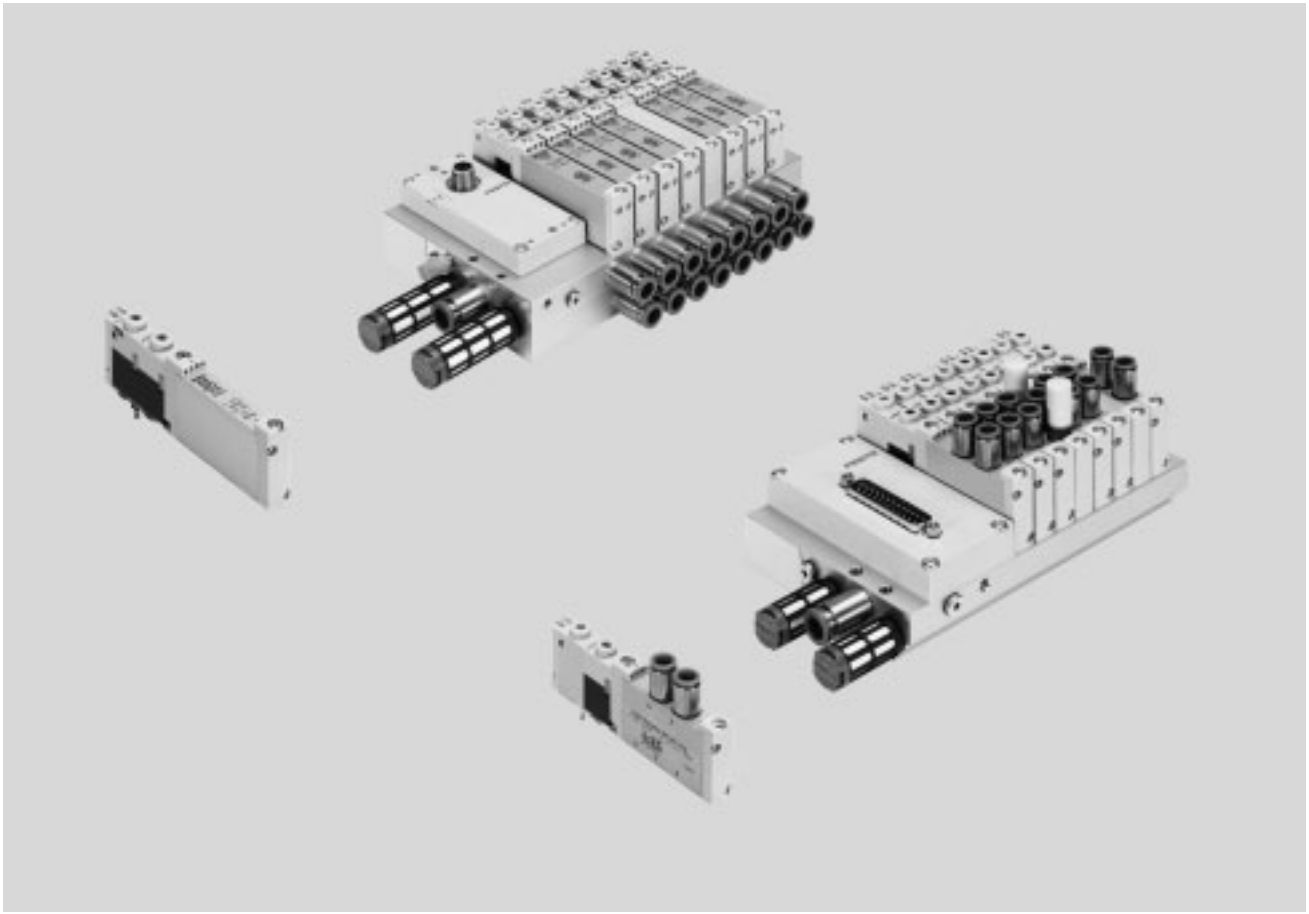
1) Packaging unit.

Ordering data						
	Description			Part No.	Type	PU[1]
H-rail						Technical data ➔ Internet: nrh
	To EN 60715, 35 x 7.5 (WxH)		Length: 2 m	**35430**	**NRH-35-2000**	**1**
H-rail mounting						Technical data ➔ Internet: vame
	–			**569998**	**VAME-T-M4**	**2**
Cover cap for manual override						
	Covered			**540898**	**VMPA-HBV-B**	**10**
	Non-detenting			**540897**	**VMPA-HBT-B**	**10**
	Detenting (without accessories)			**8002234**	**VAMC-L1-CD**	**10**
Inscription label holder						Technical data ➔ Internet: aslr
	Holder for an inscription label and covering the mounting screw and manual override			**570818**	**ASLR-D-L1**	**10**
Flow control						
	For M5 valves, for setting the flow rate during pressurisation and exhausting b value: 0.5	Flow rate: 9.6 l/min	C value: 0.04	**8025709**	**VFFG-T-M5-5**	**10**
		Flow rate: 14.6 l/min	C value: 0.05	**8025710**	**VFFG-T-M5-6**	**10**
		Flow rate: 19.1 l/min	C value: 0.07	**8025711**	**VFFG-T-M5-7**	**10**
		Flow rate: 26.1 l/min	C value: 0.10	**8025712**	**VFFG-T-M5-8**	**10**
		Flow rate: 40.8 l/min	C value: 0.14	**8025713**	**VFFG-T-M5-10**	**10**
		Flow rate: 45.4 l/min	C value: 0.16	**8025714**	**VFFG-T-M5-12**	**10**
		Flow rate: 67.4 l/min	C value: 0.25	**8025715**	**VFFG-T-M5-15**	**10**

1) Packaging unit.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Key features



Innovative

- Festo-specific I-Port interface for bus nodes (CTEU)
- IO-Link mode for direct connection to a higher-level IO-Link master
- Festo-specific I-Port interface with interlock
- Variable multi-pin plug connection using Sub-D or flat cable
- Reversible piston spool valves, up to 24 valve positions
- Reduced power consumption
- Excellent price/performance ratio

Versatile

- Choice of quick plug connectors
- Multiple pressure zones possible
- Sub-D variant and fieldbus connection rated to IP67
- Internal or external pilot air with the same manifold rail possible through the use of blanking plugs
- Sub-base valves with working ports underneath for installation in control cabinets

Reliable

- Sturdy and durable metal components
  - Valves
  - Manifold rails
- Fast troubleshooting thanks to LED display
- Manual override: choose from non-detenting, detenting or covered

Easy to mount

- Easy mounting thanks to captive screws and seal
- Connection technology easy to change
- Inscription label holder for labelling

Valve terminal configurator

Download CAD data ➔ **www.festo.com**

A valve terminal configurator is available to help you select a suitable valve terminal VTUG. This makes it much easier to order the right product.

Valve terminals VTUG are ordered via an ident. code. All valve terminals are supplied fully assembled and individually tested.

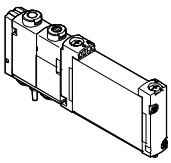
This reduces assembly and installation time to a minimum.

Ordering system for valve terminal VTUG
➔ Internet: vtug

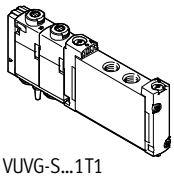
Valve terminals VTUG with multi-pin plug and fieldbus connection

Key features

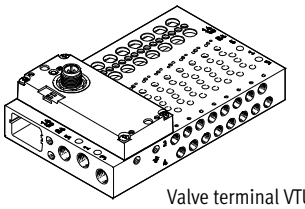
Sub-base and semi in-line valves



VUVG-B...1T1
Sub-base valve

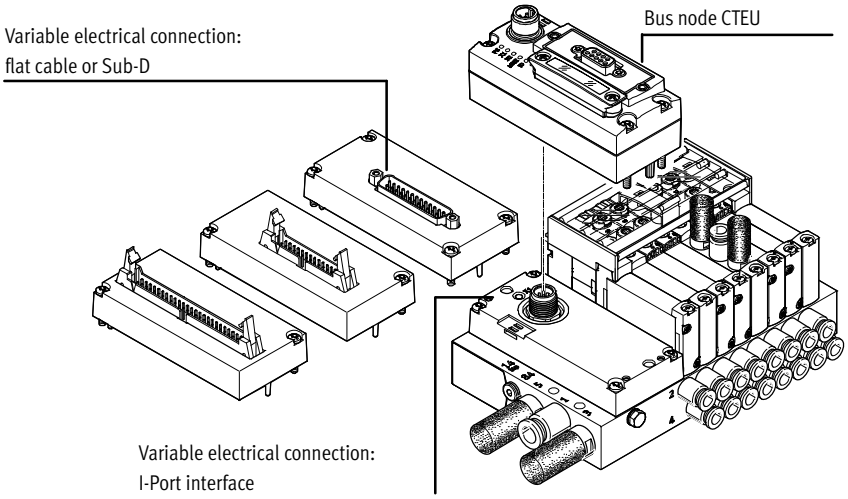


VUVG-S...1T1
Semi in-line valve

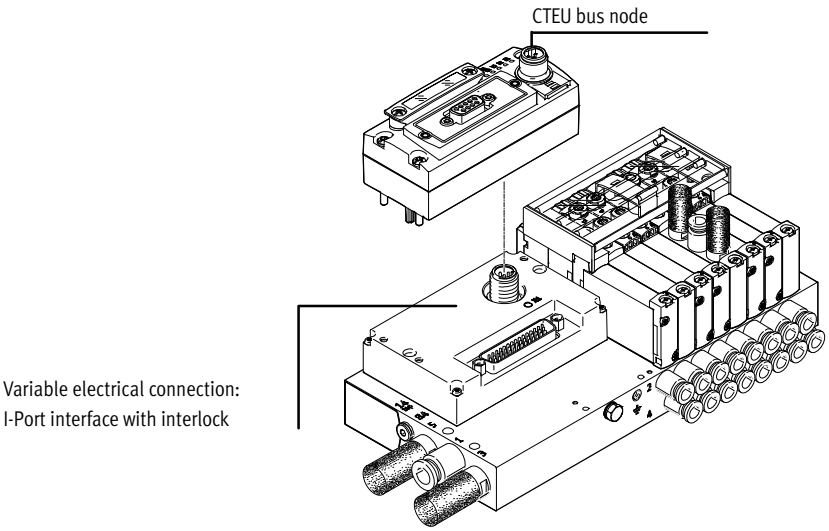


Valve terminal VTUG with variable electrical connection

Overview – Valve terminal with multi-pin plug and fieldbus connection



Overview – Valve terminal with interlock



Valve terminals VTUG with multi-pin plug and fieldbus connection

Key features

Equipment options

Valve functions

- 2x3/2-way, 3/2-way, 5/2-way, 5/3-way valves
- Reversible piston spool valves, up to 24 valve positions

Electrical connection options

- IO-Link mode for direct connection to a higher-level IO-Link master
- Festo-specific I-Port interface for bus nodes (CTEU)
- Variable multi-pin plug connection using Sub-D or flat cable
- Festo-specific I-Port interface with interlock (for valves of width 10 mm)

Basic valves VUVG

Width

- 10 mm
- 14 mm
- 18 mm

Variants

- Semi in-line valve
- Sub-base valve

Valve functions

3/2-way valve

- Single solenoid
- Normally open
- Normally closed

2x3/2-way valve

- Single solenoid
- Normally open
- Normally closed
- 1x normally closed, 1x normally open
- Mechanical spring
- Pneumatic spring

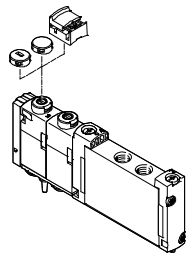
5/2-way valve

- Single solenoid
- Pneumatic/mechanical spring
- Mechanical spring
- Pneumatic spring
- Double solenoid valve

5/3-way valve

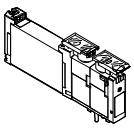
- Mid-position pressurised
- Mid-position exhausted
- Mid-position closed

Cover caps for manual override



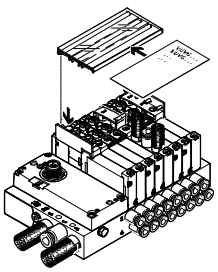
- Closed cover cap, covered manual override
- Slotted cover cap, non-detenting manual override
- Cover cap for detenting actuation without tools

Inscription label holder



Inscription label holder ASLR-D-L1 for identifying the valves and as a cover for the manual override.

Inscription label holder



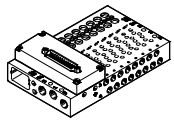
Inscription label holder ASCF-H-L1-... for identifying the valves on the valve terminal VTUG.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Key features

Electrical connection

Multi-pin plug connection

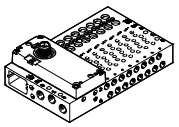


The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection,

which substantially reduces installation time compared to individually connected valves. The valve terminal can be equipped with max. 48 solenoid coils.

Versions:
- Sub-D connection
- Flat cable

I-Port interface

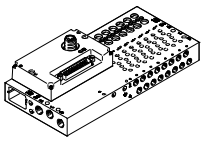


Festo-specific interface as a basis for bus nodes (CTEU) or in IO-Link mode for direct connection to a higher-level IO-Link master.

Communication and power supply take place via a common M12 interface.

Connection options:
- As I-Port interface for bus nodes (CTEU)
- In IO-Link mode for direct connection to an IO-Link master

I-Port interface with interlock



The interlock function enables the first 16 solenoid coils to be individually supplied externally.

The external supply guarantees safety-related release of these valves.

- Note

The VTUG variant with multi-pin plug and fieldbus connection offers the additional option of individual electrical actuation of the valves (see ➔ page 108).

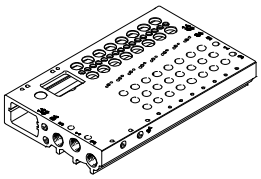
Valve terminals VTUG with multi-pin plug and fieldbus connection

Key features – Pneumatic components

FESTO

Manifold rail

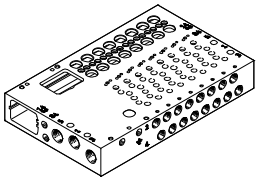
For semi in-line valves



The semi in-line valves are supplied with external pilot air. The pilot air is set via the manifold rail. The manifold rail is delivered with a short and a long blanking plug for setting the pilot air.

- For semi in-line valves M5/M7 (width 10 mm), G1/8 (width 14 mm) and G1/4 (width 18 mm)
- For 2x3/2-way, 5/2-way and 5/3-way valves
- 4 to 24 valve positions with electrical interlinking

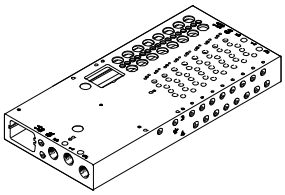
For sub-base valves



The sub-base valves are supplied with external pilot air. The pilot air is set via the manifold rail. The manifold rail is delivered with a short and a long blanking plug for setting the pilot air.

- For sub-base valves M5/M7 (width 10 mm), G1/8 (width 14 mm) and G1/4 (width 18 mm)
- For 2x3/2-way, 3/2-way, 5/2-way and 5/3-way valves
- 4 to 24 valve positions with electrical interlinking

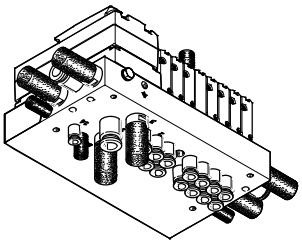
Long version



Versions:

- I-Port interface with lateral outlet direction: for semi in-line valves and sub-base valves M5/M7 (width 10 mm), G1/8 (width 14 mm) and G1/4 (width 18 mm)
- Interlock:
  For sub-base and semi in-line valves M5/M7 (width 10 mm)

For control cabinet installation, outlet underneath

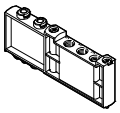


For sub-base valves M5/M7 (width 10 mm)

- Note

Pressurisation and exhaust at both ends is recommended for an optimised flow rate in cases where multiple valves switch simultaneously.

Supply plate

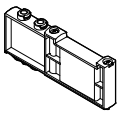


For additional air supply and exhaust via a valve position

- Note

The supply plate VABF-L1-14-P3A4-G18-T1 can only be used with G fittings. R fittings are not permissible.

Blanking plate for unused valve position



Vacant position cover

Separator for pressure zones

For creating multiple pressure zones in a valve terminal

Creating pressure zones and separating exhaust air

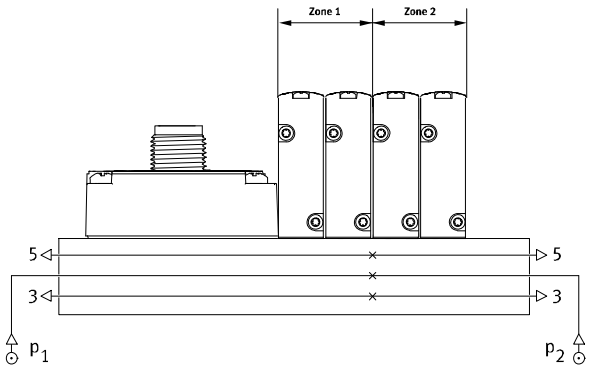
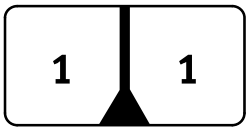
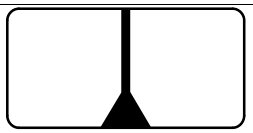
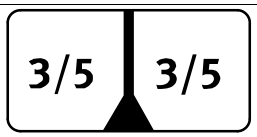
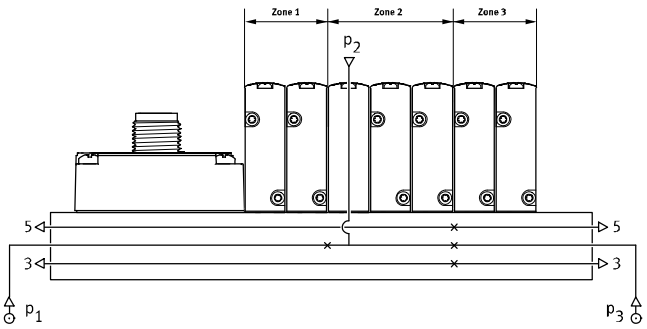
Compressed air is supplied and exhausted via the manifold rail and via supply plates.
The position of the supply plates and duct separations can be freely selected with the VTUG.

A pressure zone is created by separating the internal supply ducts using a separator.

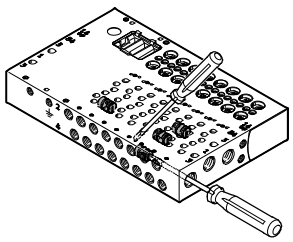
Pressure zone separation can be used for the following ducts:
- Duct 1
- Duct 3
- Duct 5

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 in duct 12/14 (pilot air supply)

Duct separation

	Description
	The pressure zones can be freely configured with the VTUG. The following duct separations are possible: Duct 1 closed  Duct 1, 3, 5 closed  Duct 3, 5 closed 
	The number of pressure zones with the VTUG is limited by the number of valve positions on the manifold rail. Note that each supply plate occupies one valve position.

Separator VABD



1 Separator VABD

Note

With the VTUG, several pressure zones can be created by fitting separators (VABD). The separators are inserted in the manifold rail using a slotted screwdriver.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Key features – Pneumatic components

Pilot air supply

Internal pilot air supply

Internal pilot air supply can be chosen with an operating pressure in the range 1.5 ... 8 bar, 2.5 ... 8 bar or 3 ... 8 bar (depending on the valve used).

The pilot air supply is branched from duct 1 (compressed air supply) using an internal connection.

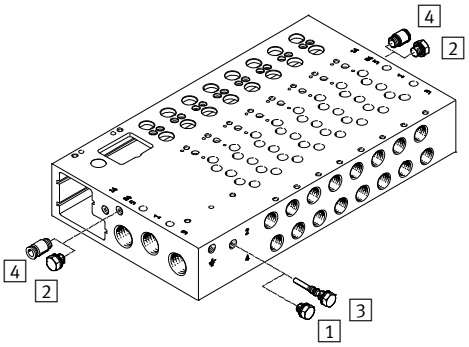
External pilot air supply

External pilot air supply is required for vacuum operation and operating pressures above 8 bar.
The port for external pilot air supply (port 12/14) is located on the manifold rail.

Pilot exhaust air

The pilot air is exhausted via duct 82/84 of the manifold rail.

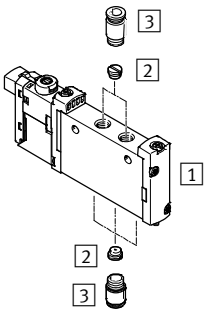
Pilot air supply



1 Blanking plug, short, with internal pilot air
2 Blanking plug for duct 12/14 with internal pilot air
3 Blanking plug, long, with external pilot air
4 Push-in fitting in duct 12/14 with external pilot air

The manifold rails 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.

Flow control



1 Valve VUVG with individual electrical connection
2 Flow control
3 Fitting

Semi in-line valve, individual electrical connection: flow control can be fitted in port 1, 2, 3, 4, 5.

Sub-base valve, individual electrical connection: flow control can be fitted in port 2, 4.

Valve terminal VTUG with electrical multi-pin plug and fieldbus connection: flow control can be fitted in port 2, 4.

Operation with different pressures

Vacuum operation

Points to note with 3/2-way valves with pneumatic spring return:
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 force for the return movement is obtained from port 1.

Note

Pressure must be present at port 1.

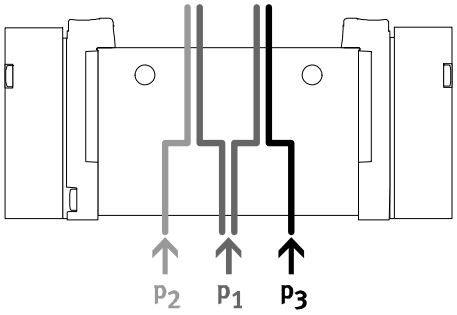
Vacuum operation is only possible at port 3 and 5, not at port 1.

With external pilot air supply, vacuum can be connected at port 1, 3, 5 of 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)



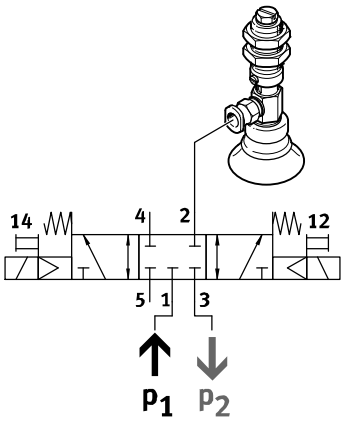
- Two different pressures required.
- Different pressures can be connected at duct 1, 3 and 5.

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

Note

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

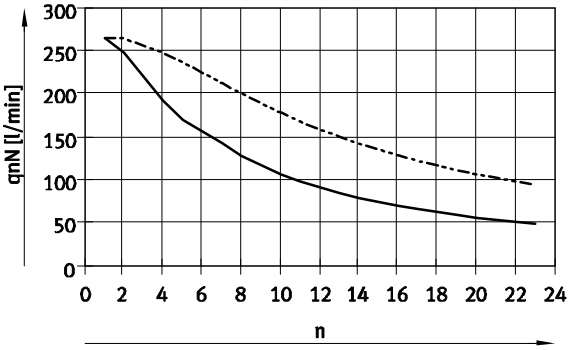
Vacuum, ejector pulse and normal position



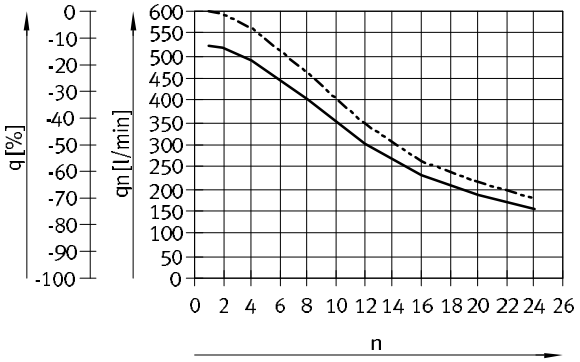
Vacuum, ejector pulse and normal position with internal pilot air can be achieved by connecting vacuum at duct 3 and pressure for the ejector pulse at duct 1.

Standard nominal flow rate qnN as a function of the number of switched valves n

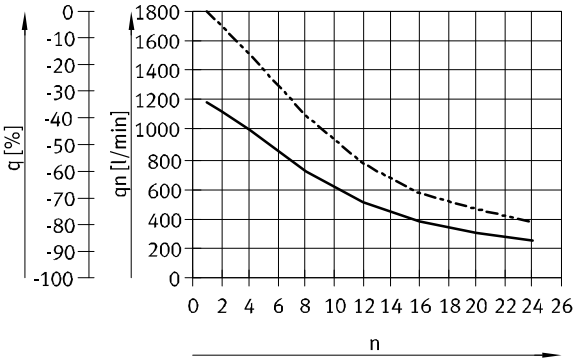
Width 10 mm, 5/2-way valves



Width 14 mm

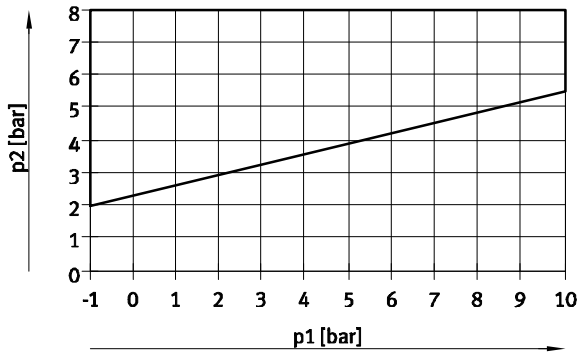


Width 18 mm

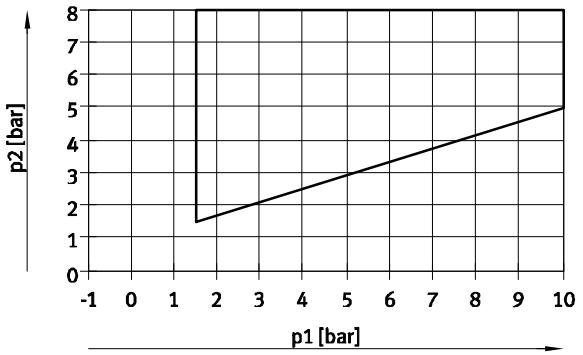


Pilot pressure p2 as a function of operating pressure p1

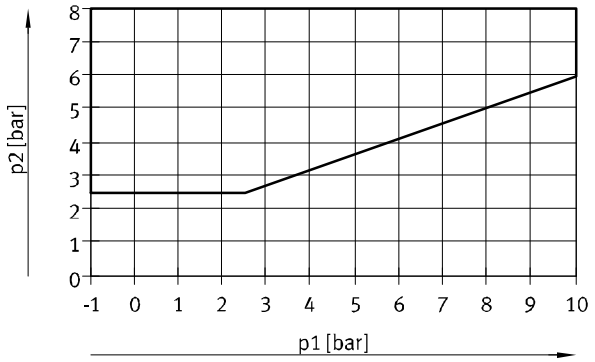
2x3/2-way valve, reset method: mechanical spring



2x3/2-way valve, reset method: pneumatic spring



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



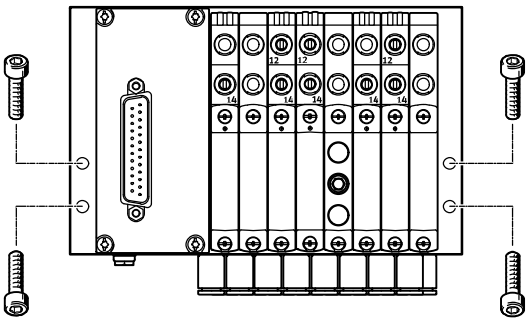
Valve terminal assembly

Sturdy terminal assembly thanks to:
- Four through-holes for wall mounting
- H-rail mounting

- - Note

Use the M5 thread provided on the manifold block for earthing the valve terminal.

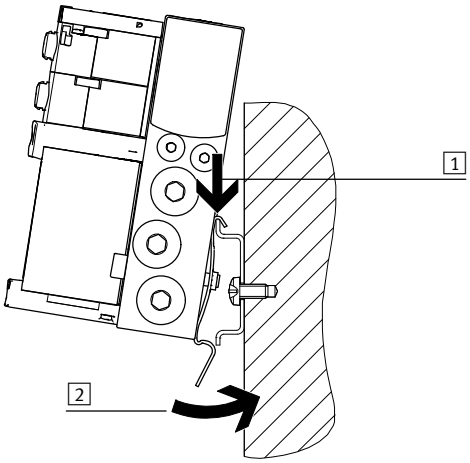
Wall mounting



Screw the valve terminal VTUG onto the mounting surface using four M4 screws.

The mounting holes are on the left and right side of the manifold rail.

H-rail mounting



Attach the valve terminal VTUG to the H-rail (see arrow 1).

Swivel the valve terminal onto the H-rail and secure in place with the clamping component (see arrow 2).

Attach the manifold rails to an H-rail to EN 60715-TH35 using the H-rail mounting kit VAME-T-M4.
Use the following screws (to DIN 912) to attach the manifold rails:
- Size 10: M4x30
- Size 14: M4x40
- Size 18: M5x50

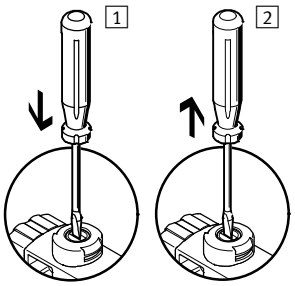
- - Note

Permissible use of the H-rail:
- Manifold rail with outlet on the side or on top.
- H-rail exclusively for horizontal mounting.
- Vibration/shock loads are not permissible for this type of mounting.

Size 14:
- Use H-rail TH35-7.5 for valve terminals with a maximum of 8 valve positions.
- Use H-rail TH35-15 for mounting in accordance with the standard and for more than 8 valve positions.

Manual override (MO)

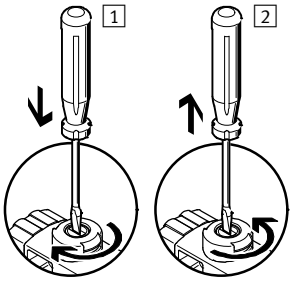
MO with automatic return (non-detenting)



1 Press in the stem of the MO with a pointed object or screwdriver.
Pilot valve switches and actuates the main valve.

2 Remove the pointed object or screwdriver.
Spring force pushes the stem of the MO back.
Pilot valve returns to its initial position as does the single solenoid main valve (not the case with double solenoid valve code J).

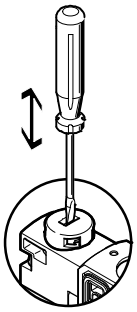
MO with detent (locking)



1 Press in the stem of the MO with a pointed object or screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached.
Valve remains switched.

2 Turn the stem anti-clockwise by 90° until the stop is reached and then remove the pointed object or screwdriver. Spring force pushes the stem of the MO back.
The valve returns to its initial position (not the case with double solenoid valve code J).

MO non-detenting – with coded cover cap

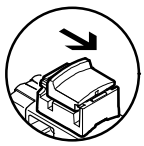


MO is actuated by pushing it with a pointed object or screwdriver and reset by spring force (detenting position prevented due to coded cover cap).

MO detenting without tools – assembly

Turn MO to clip it onto the pilot valve.
The MO cap can then be operated (detenting) without tools.

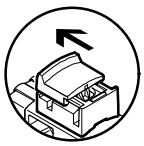
MO detenting without tools – actuation



Sliding the cap for the MO in the direction of the arrow causes the following to happen:

- Cap locks into the stop position.
- Pilot valve switches and actuates the main valve.

MO detenting without tools – actuation

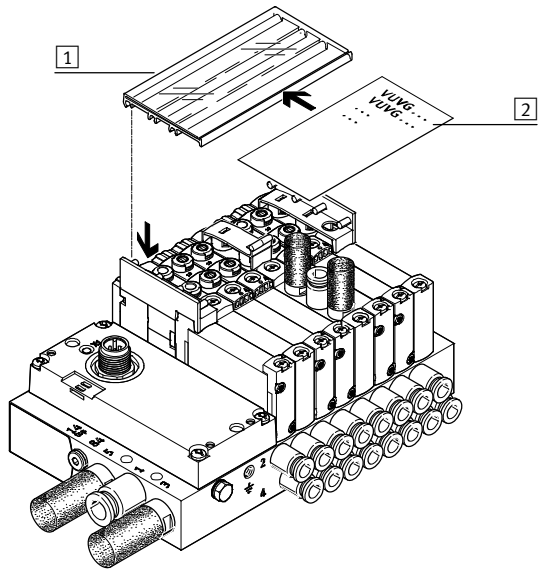


Sliding the cap for the MO in the direction of the arrow causes the following to happen:

- Cap locks into the stop position.
- Spring force pushes the stem of the MO back.
- Pilot valve returns to its initial position as does the single solenoid main valve (not the case with double solenoid valve code J).

Inscription system

Inscription label holder



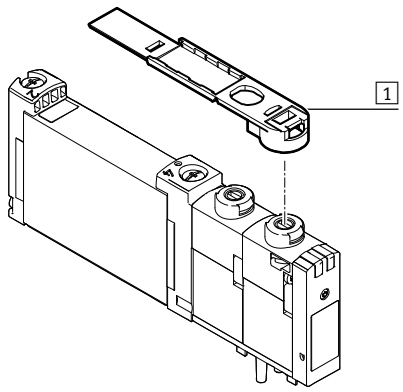
1 Inscription label holder ASCF-H-L1 (code TT)
2 Inscription label

Mount the inscription label holder to label the valves. Open the inscription label holder to insert the inscription label and actuate the manual override.
The inscription label holders are available in different sizes depending on the number of valve positions.

Note

Do not engage the manual override before mounting the inscription label holder.
The retainer for the inscription label holder covers the manual override of the valve beneath it when mounted.
The manual override for the two valves under the inscription label holder retainers can then only be actuated in a non-detenting manner.

Inscription label holder



1 Inscription label holder ASLR-D-L1 (code TV)

Use inscription label holder ASLR-D-L1 (code TV) to label individual valves.
The inscription label holder is placed directly on the manual override.

Note

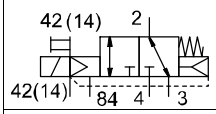
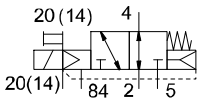
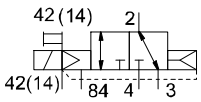
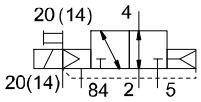
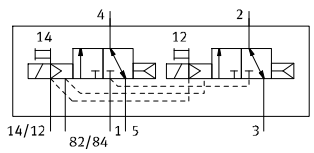
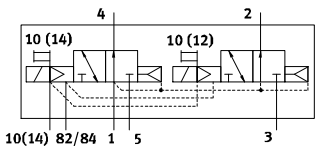
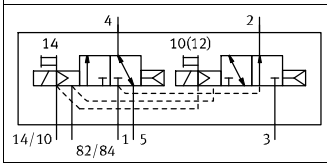
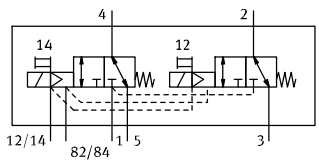
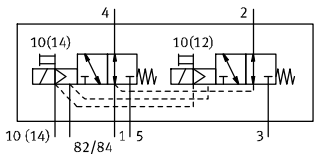
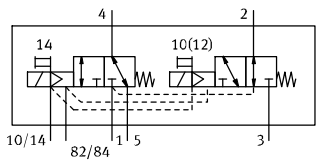
Do not engage the manual override before mounting the inscription label holder.
After the retainers are installed, the manual override can only be actuated in a non-detenting manner.

New
Size G1/4

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

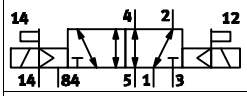
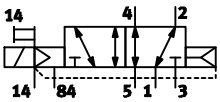
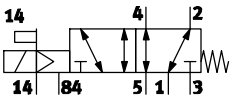
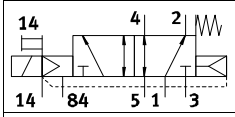
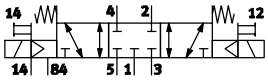
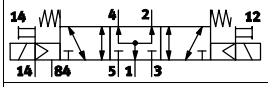
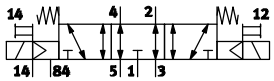
Overview of valve functions

Valve	Valve code	Description	Valve terminal/ position function order code	Size		
				M5/M7	G1/8	G1/4
3/2-way valve, pneumatic/mechanical spring						
	M32C-R	Normally closed	VX	■	–	–
	M32U-R	Normally open	VW	■	–	–
3/2-way valve, pneumatic spring						
	M32C-A	Normally closed	VX	–	■	–
	M32U-A	Normally open	VW	–	■	–
2x3/2-way valve, pneumatic spring						
	T32C-A	Normally closed	C	■	■	■
	T32U-A	Normally open	N	■	■	■
	T32H-A	1x normally open, 1x normally closed	H	■	■	■
2x3/2-way valve, mechanical spring						
	T32C-M	Normally closed	VK	■	■	■
	T32U-M	Normally open	VN	■	■	■
	T32H-M	1x normally open, 1x normally closed	VH	■	■	■

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

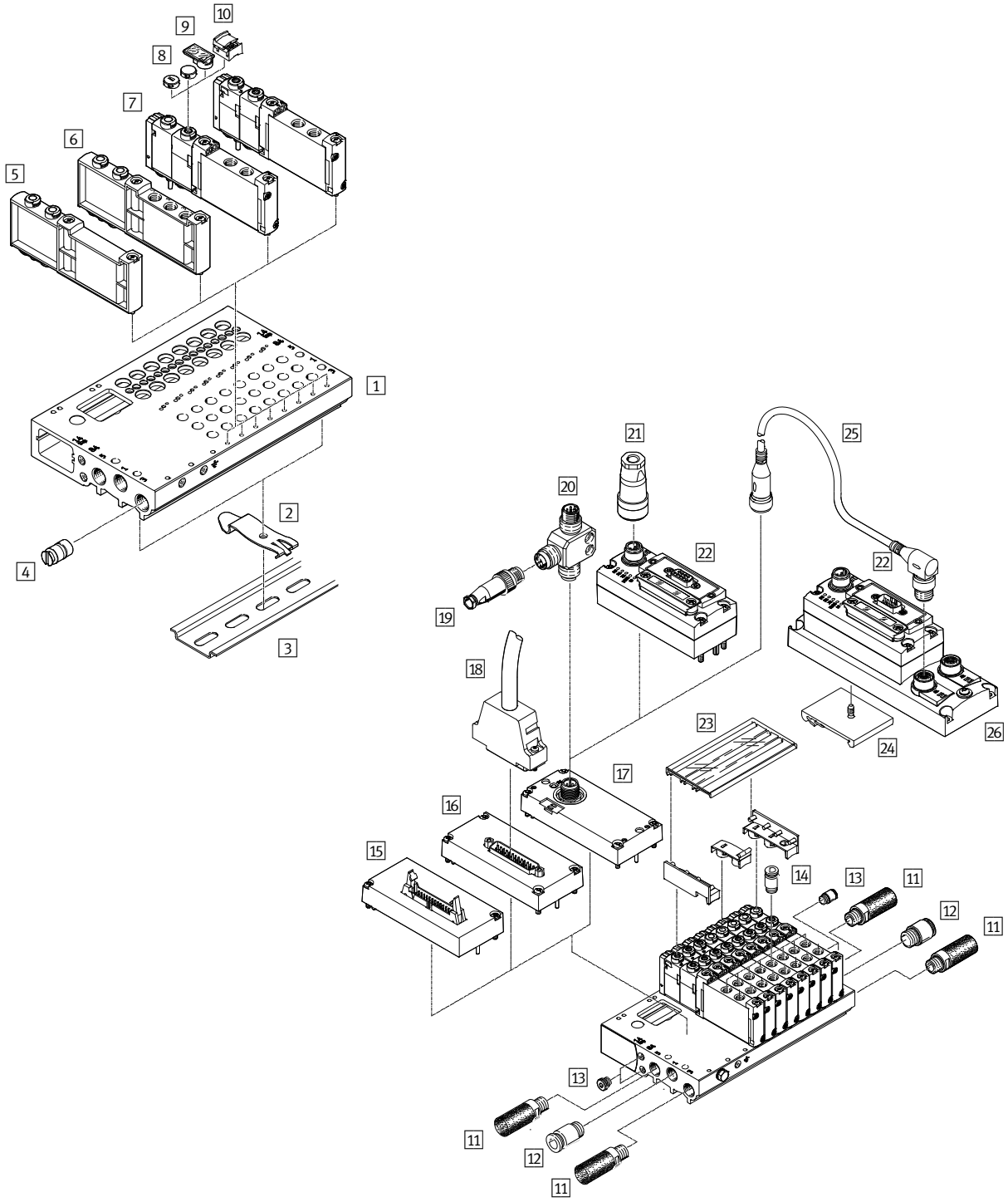
Overview of valve functions

Valve	Valve code	Description	Valve terminal/ position function order code	Size		
				M5/M7	G1/8	G1/4
5/2-way valve, double solenoid						
	B52	External pilot air supply	J	■	■	■
5/2-way valve, single solenoid						
	M52-A	Pneumatic spring	M	–	■	–
	M52-M	Mechanical spring	A	■	■	■
	M52-R	Pneumatic/mechanical spring	P	■	–	■
5/3-way valve						
	P53C	Mid-position closed	G	■	■	■
	P53U	Mid-position pressurised	B	■	■	■
	P53E	Mid-position exhausted	E	■	■	■

Valve terminals VTUG with multi-pin plug and fieldbus connection

Peripherals overview example – Semi in-line valves

Valve terminal overview – Multi-pin plug and I-Port interface



Valve terminals VTUG with multi-pin plug and fieldbus connection

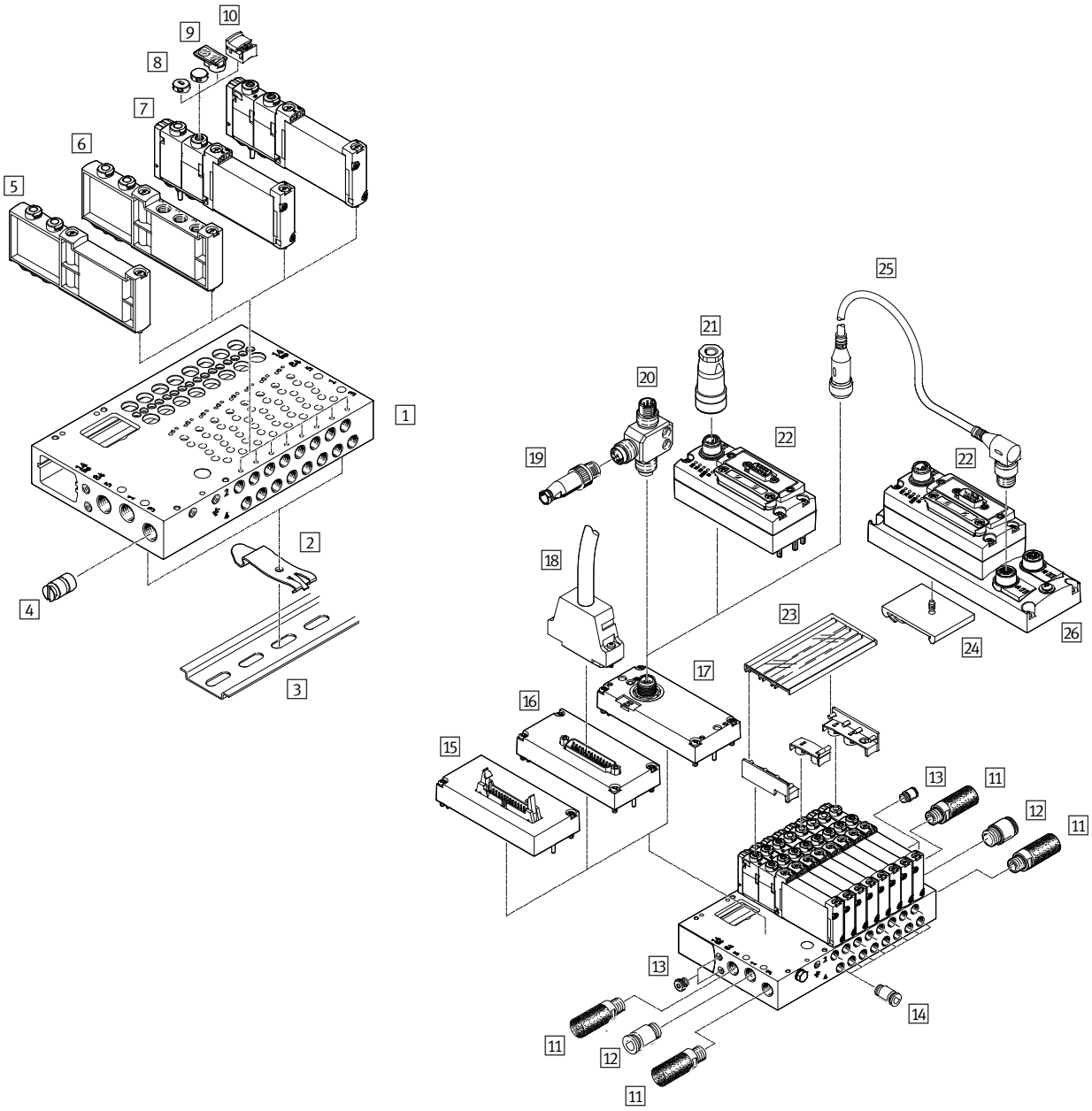
Peripherals overview example – Semi in-line valves

Accessories				
		Type	Brief description	➔ Page/Internet
1	Manifold rail	VABM-L1-...	For 4 to 10, 12, 14, 16, 20 and 24 valve positions	134
2	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	167
3	H-rail	NRH-35-2000	For mounting the valve terminal	167
4	Separator	VABD-...	For creating pressure zones	166
5	Blanking plate	VABB-L1-...	For covering an unused valve position	166
6	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	166
7	Solenoid valve	VUVG-...	Semi in-line valve	110, 115, 119
8	Cover cap	VMPA-HB...-B	For manual override	166
9	Inscription label holder	ASLR-D-L1	For inscription label and covering the mounting screw/manual override	167
10	Cover	VAMC-...	For manual override	166
11	Silencer	U-...	For ports 3 and 5	166
12	Push-in fitting	QS-...	For air supply, port 1	165
13	Blanking plug	B-...	For internal/external pilot air	165
14	Push-in fitting	QS-...	For ports 2 and 4	165
15	Electrical interface	VAEM-L1-S-M3-...	Flat cable	155
16	Electrical interface	VAEM-L1-S-M1-...	Sub-D	155
17	Electrical interface	VAEM-L1-S-...-PT	I-Port interface/IO-Link	158
18	Connecting cable	NEBV-...	Sub-D cable	155
19	Plug connector	SEA-M12-5GS-PG7	Straight, for T-adapter FB-TA	158
20	T-adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	158
21	Power supply socket	NTSD-.../FBSD-...	Power supply for CTEU bus nodes	164
22	CTEU	CTEU-...	Bus node	164
23	Inscription label holder	ASCF-H-L1	For identifying valves	167
24	H-rail mounting	CAFM-F1-H	For connecting block CAPC	160
25	Connecting cable	NEBU-...	–	nebu
26	Connecting block	CAPC-F1-E-M12	For connecting a second device with I-Port interface	160

Valve terminals VTUG with multi-pin plug and fieldbus connection

Peripherals overview example – Sub-base valves

Valve terminal overview – Multi-pin plug and I-Port interface



Valve terminals VTUG with multi-pin plug and fieldbus connection

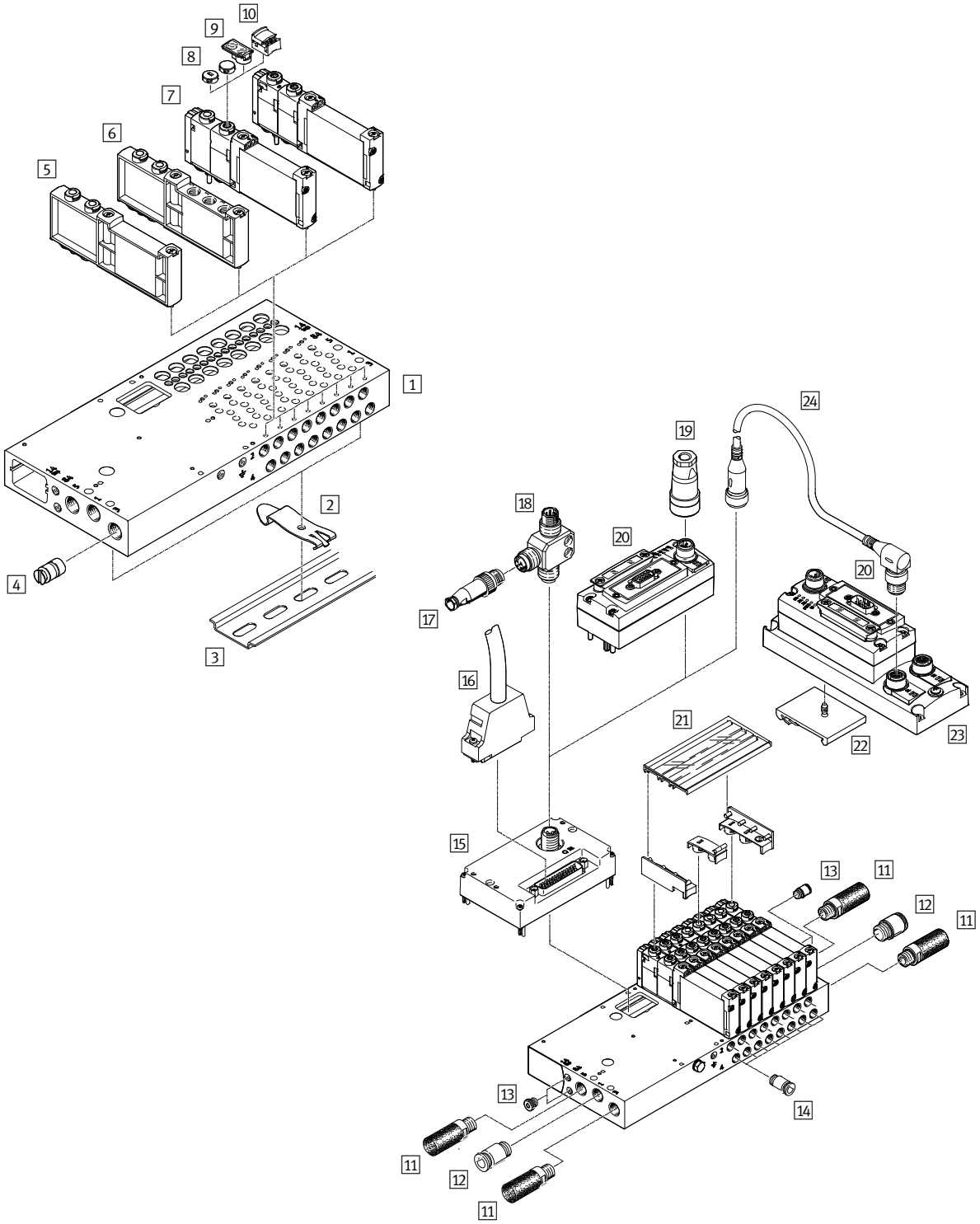
Peripherals overview example – Sub-base valves

Accessories				
		Type	Brief description	➔ Page/Internet
1	Manifold rail	VABM-L1-...	For 4 to 10, 12, 14, 16, 20 and 24 valve positions	134
2	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	167
3	H-rail	NRH-35-2000	For mounting the valve terminal	167
4	Separator	VABD-...	For creating pressure zones	166
5	Blanking plate	VABB-L1-...	For covering an unused valve position	166
6	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	166
7	Solenoid valve	VUVG- ...	Sub-base valve	123, 127, 131
8	Cover cap	VMPA-HB...-B	For manual override	166
9	Inscription label holder	ASLR-D-L1	For inscription label and covering the mounting screw/manual override	167
10	Cover	VAMC...	For manual override	166
11	Silencer	U...	For ports 3 and 5	166
12	Push-in fitting	QS...	For air supply, port 1	165
13	Blanking plug	B-...	For internal/external pilot air	165
14	Push-in fitting	QS...	For ports 2 and 4	165
15	Electrical interface	VAEM-L1-S-M3-...	Flat cable	155
16	Electrical interface	VAEM-L1-S-M1-...	Sub-D	155
17	Electrical interface	VAEM-L1-S-...-PT	I-Port interface/IO-Link	158
18	Connecting cable	NEBV-...	Sub-D cable	155
19	Plug connector	SEA-M12-5GS-PG7	Straight, for T-adapter FB-TA	158
20	T-adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	158
21	Power supply socket	FBSD-.../NTSD-...	Power supply for CTEU bus nodes	164
22	CTEU	CTEU-...	Bus node	164
23	Inscription label holder	ASCF-H-L1	For identifying valves	167
24	H-rail mounting	CAFM-F1-H	For connecting block CAPC	160
25	Connecting cable	NEBU-...	–	nebu
26	Connecting block	CAPC-F1-E-M12	For connecting a second device with I-Port interface	160

Valve terminals VTUG with multi-pin plug and fieldbus connection

Peripherals overview example – Sub-base valves

Valve terminal overview – I-Port interface with interlock



Valve terminals VTUG with multi-pin plug and fieldbus connection

Peripherals overview example – Sub-base valves

Accessories				
		Type	Brief description	➔ Page/Internet
1	Manifold rail	VABM-L1-...	For 4 to 10, 12, 14, 16, 20 and 24 valve positions	134
2	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	167
3	H-rail	NRH-35-2000	For mounting the valve terminal	167
4	Separator	VABD-...	For creating pressure zones	166
5	Blanking plate	VABB-L1-...	For covering an unused valve position	166
6	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	166
7	Solenoid valve	VUVG-...	–	123, 127, 131
8	Cover cap	VMPA-HB...-B	For manual override	166
9	Inscription label holder	ASLR-D-L1	For inscription label and covering the mounting screw/manual override	167
10	Cover	VAMC-...	For manual override	166
11	Silencer	U-...	For ports 3 and 5	166
12	Push-in fitting	QS-...	For air supply, port 1	165
13	Blanking plug	B-...	For internal/external pilot air	165
14	Push-in fitting	QS-...	For ports 2 and 4	165
15	Electrical interface	VAEM-L1-S-24-...	I-Port interface with interlock	vtug, 161
16	Connecting cable	NEBV-...	Sub-D cable	155
17	Plug connector	SEA-M12-5GS-PG7	Straight, for T-adapter FB-TA	158
18	T-adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	158
19	Power supply socket	NTSD-.../FBSD-...	Power supply for CTEU bus nodes	164
20	CTEU	CTEU-...	Bus node	164
21	Inscription label holder	ASCF-H-L1	For identifying valves	167
22	H-rail mounting	CAFM-F1-H	For connecting block CAPC	160
23	Connecting block	CAPC-F1-E-M12	For connecting a second device with I-Port interface	160
24	Connecting cable	NEBU-...	–	nebu

Valve terminals VTUG with multi-pin plug and fieldbus connection

Peripherals overview example – Sub-base valves

Valve terminal with multi-pin plug/fieldbus connection and individually electrically actuated valves

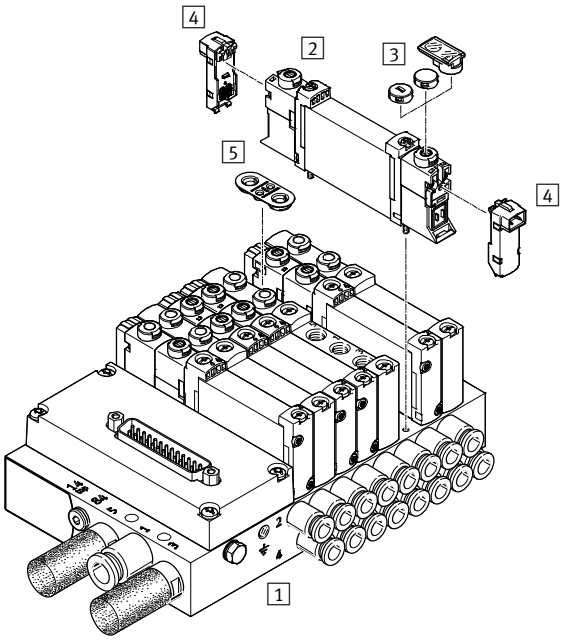
In applications with specific emergency off requirements, it may be necessary to switch one or more valves separately from the valve terminal controller.

Valves VUVG (see ➔page 9) with individual electrical connection are mounted on the valve terminal to this end.

Valves with individual electrical connection require a special seal when mounted within a valve terminal.

They are therefore ordered/fitted as follows:

- together with the valve terminal using the valve terminal configurator
- individually/subsequently as a substitute for a blanking plate in a vacant position



Accessories

		Type	Brief description	➔ Page/Internet
1	Manifold rail	VABM-L1-10	For 2 to 10, 12, 14 and 16 valve positions	134
2	Solenoid valve	VUVG	Sub-base valve	60
3	Cover cap	VMPA	For manual override	86
4	E-box	VAVE	For individual connection	80
5	Seal	–	Included in the scope of delivery of the blanking plate for a vacant position	166

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code – Semi in-line valves M5/M7

VUVG	–	S	10	–		–		Z		–		–	1	T1	L

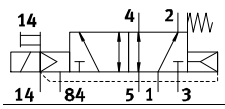
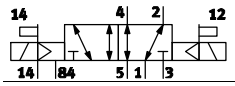
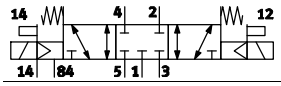
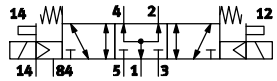
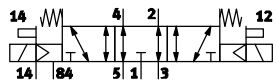
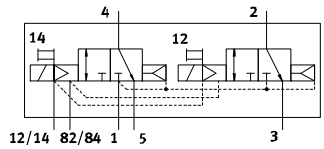
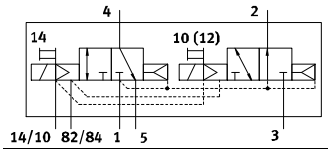
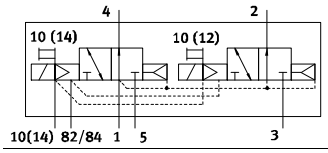
Valve design

Semi in-line valve	**S**

Width

10 mm	**10**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Pilot air

Z	External

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pneumatic connection

M5	M5 thread
M7	M7 thread
Q3	Push-in connector 3 mm
Q4	Push-in connector 4 mm
Q4H	Push-in connector 4 mm, M7
Q6	Push-in connector 6 mm
Q6H	Push-in connector 6 mm, M7
T14	Push-in connector 1/4"
T14H	Push-in connector 1/4", M7
T18	Push-in connector 1/8"
T316	Push-in connector 3/16"
T316H	Push-in connector 3/16", M7
T532	Push-in connector 5/32"

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Reset method

A	Pneumatic spring with T32
M	Mechanical spring with T32 and M52
R	Pneumatic/mechanical spring with M52
–	With B52 and P53

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Semi in-line valves M5/M7

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

Circuit symbol ➔ page 10

Width 10 mm

Flow rate
130 ... 330 l/min

Voltage
24 V DC

General technical data													
Valve function			T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid							Double solenoid	Single solenoid			
Reset method: pneumatic spring			Yes			No			Yes[5]	–	No	–		
Reset method: mechanical spring			No			Yes			Yes[5]	–	Yes	–		
Vacuum operation at port 1			No			With external pilot air								
Design			Piston spool valve											
Sealing principle			Soft											
Actuation type			Electrical											
Type of control			Piloted											
Pilot air supply			External											
Exhaust function			With flow control											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting			On manifold rail											
Mounting position			Any											
Switching position display			LED											
Flow rate on manifold rail M5		[l/min]	150			130			230			210		
Flow rate on manifold rail M7		[l/min]	160			140			330		290	280		
Width		[mm]	10											
Port	1, 3, 5, 12/14, 82/84		On manifold rail											
	2, 4		M5 (VUVG-S10-...-M5)											
			M7 (VUVG-S10-...-M7)											
Product weight		[g]	59						53	60	53	58		
Approval			c UL us - Recognized (OL)											
			c CSA us (OL)											
CE marking (see declaration of conformity)			To EU EMC Directive[6]											
Corrosion resistance class CRC[7]			2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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.

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[3]	M52-R[2]	B52	M52-M[3]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring
4) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power consumption per valve solenoid	[W]	1/0.4 (after 25 ms)
Duty cycle ED	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529		IP40 as standard (optionally IP67 with Sub-D and IO-Link interface with feature "S8"[1])

1) S8= IP67 degree of protection for electrics

Safety characteristics		
Note on forced checking procedure		Min. 1/week
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Resistance to shocks		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6

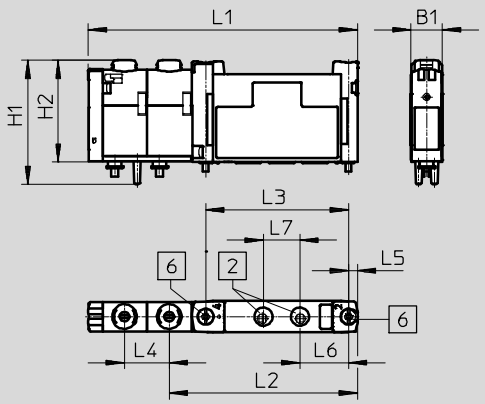
Information on materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS compliant

Valve switching times							
Valve function		T32-A[1]	T32-M[3]	M52-R[2]	B52	M52-M[3]	P53
Switching time on	[ms]	8	10	9	–	12	12
Switching time off	[ms]	20	20	21	–	30	38
Changeover time	[ms]	–	–	–	9	–	16

1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring

Dimensions Download CAD data ➔ **www.festo.com**

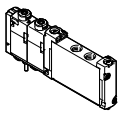
Semi in-line valves M5/M7



2 Ports 2 and 4 M5/M7
6 Mounting screw

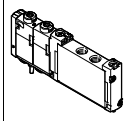
Type	B1	H1	H2	L1	L2	L3	L4	L5	L6	L7
VUVG-S10-...-M5-1T1L	10.3	40.9	33.6	88.6	62	47	14.7	3	16	12
VUVG-S10-...-M7-1T1L										

Ordering data

	Description		Part No.	Type
Semi in-line valve M5				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**573386**	**VUVG-S10-T32C-AZT-M5-1T1L**
		Normally open, reset method: pneumatic spring	**573387**	**VUVG-S10-T32U-AZT-M5-1T1L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**573388**	**VUVG-S10-T32H-AZT-M5-1T1L**
		Normally closed, reset method: mechanical spring	**573389**	**VUVG-S10-T32C-MZT-M5-1T1L**
		Normally open, reset method: mechanical spring	**573390**	**VUVG-S10-T32U-MZT-M5-1T1L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**573391**	**VUVG-S10-T32H-MZT-M5-1T1L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: mechanical spring	**573393**	**VUVG-S10-M52-MZT-M5-1T1L**
		Reset method: pneumatic/mechanical spring	**573392**	**VUVG-S10-M52-RZT-M5-1T1L**
	5/2-way valve, double solenoid			
	External pilot air supply		**573394**	**VUVG-S10-B52-ZT-M5-1T1L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**573395**	**VUVG-S10-P53C-ZT-M5-1T1L**
		Mid-position pressurised	**573397**	**VUVG-S10-P53U-ZT-M5-1T1L**
		Mid-position exhausted	**573396**	**VUVG-S10-P53E-ZT-M5-1T1L**

Valve terminals VTUG with multi-pin plug and fieldbus connection

Ordering data

Ordering data				
	Description		Part No.	Type
Semi in-line valve M7				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**573398**	**VUVG-S10-T32C-AZT-M7-1T1L**
		Normally open, reset method: pneumatic spring	**573399**	**VUVG-S10-T32U-AZT-M7-1T1L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**573400**	**VUVG-S10-T32H-AZT-M7-1T1L**
		Normally closed, reset method: mechanical spring	**573401**	**VUVG-S10-T32C-MZT-M7-1T1L**
		Normally open, reset method: mechanical spring	**573402**	**VUVG-S10-T32U-MZT-M7-1T1L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**573403**	**VUVG-S10-T32H-MZT-M7-1T1L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: mechanical spring	**573405**	**VUVG-S10-M52-MZT-M7-1T1L**
		Reset method: pneumatic/mechanical spring	**573404**	**VUVG-S10-M52-RZT-M7-1T1L**
	5/2-way valve, double solenoid			
	External pilot air supply		**573406**	**VUVG-S10-B52-ZT-M7-1T1L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**573407**	**VUVG-S10-P53C-ZT-M7-1T1L**
		Mid-position pressurised	**573409**	**VUVG-S10-P53U-ZT-M7-1T1L**
		Mid-position exhausted	**573408**	**VUVG-S10-P53E-ZT-M7-1T1L**

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code – Semi in-line valves G1/8

VUVG	–	S	14	–		–		Z		–		–	1	T1	L

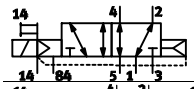
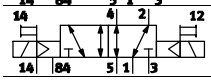
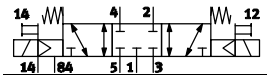
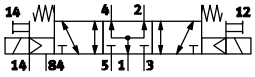
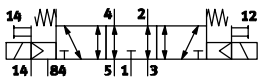
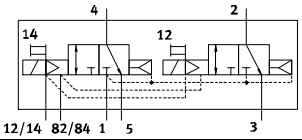
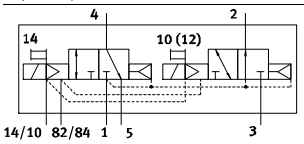
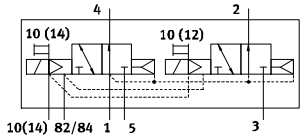
Valve design

Semi in-line valve	**S**

Width

14 mm	**14**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Pilot air

Z	External

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pneumatic connection

G18	G1/8 thread
T18	Push-in connector 1/8"
T14	Push-in connector 1/4"
T516	Push-in connector 5/16"
Q4	Push-in connector 4 mm
Q6	Push-in connector 6 mm
Q8	Push-in connector 8 mm

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Reset method

A	Pneumatic spring with M52 and T32
M	Mechanical spring with M52 and T32
–	With B52 and P53

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Semi in-line valves G1/8

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

Circuit symbol ➔ page 10

Width 14 mm

Flow rate
520 ... 630 l/min

Voltage
24 V DC

General technical data													
Valve function		T32-A			T32-M			M52-A	B52	M52-M	P53		
Normal position		C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position		Single solenoid							Double solenoid	Single solenoid			
Reset method: pneumatic spring		Yes			No			Yes	–	No	–		
Reset method: mechanical spring		No			Yes			No	–	Yes	–		
Vacuum operation at port 1		No			With external pilot air								
Design		Piston spool valve											
Sealing principle		Soft											
Actuation type		Electrical											
Type of pilot control		Piloted											
Pilot air supply		External											
Exhaust function		With flow control											
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting		On manifold rail											
Mounting position		Any											
Switching position display		LED											
Flow rate on manifold rail G1⁄8	[l/min]	610			520			620	630	620	590		
Width	[mm]	14											
Port	1, 3, 5, 12/14, 82/84	On manifold rail											
	2, 4	G1⁄8											
Product weight	[g]	102			100			91	98	89	95		
Approval		c UL us - Recognized (OL)											
		c CSA us (OL)											
CE marking (see declaration of conformity)		To EU EMC Directive[5]											
Corrosion resistance class CRC[6]		2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
6) Corrosion resistance class 2 according 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.

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[2]	M52-A[1]	B52	M 52-M[2]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[3]		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

1) Pneumatic spring
2) Mechanical spring
3) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1/0.4 (after 25 ms)
Duty cycle ED	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529		IP67

Safety characteristics		
Note on forced checking procedure		Min. 1/week
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Resistance to shocks		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6

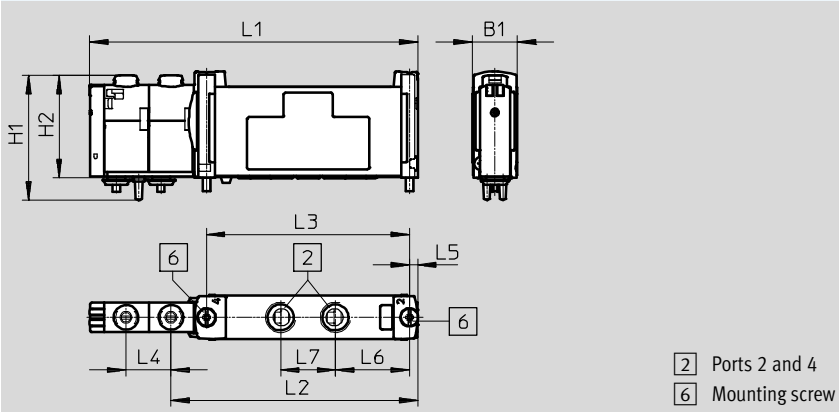
Information on materials	
Housing	Wrought aluminium alloy
Seals	HNBR, NBR
Note on materials	RoHS compliant

Valve switching times							
Valve function		T32-A[1]	T32-M[2]	M52-A[1]	B52	M 52-M[2]	P53
Switching time on	[ms]	10	13	13	–	10	15
Switching time off	[ms]	29	21	26	–	38	42
Changeover time	[ms]	–	–	–	9	–	25

1) Pneumatic spring
2) Mechanical spring

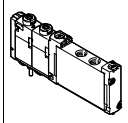
Dimensions Download CAD data ➔ **www.festo.com**

Semi in-line valves G1/8



Type	B1	H1	H2	L1	L2	L3	L4	L5	L6	L7
VUVG-S14-...-G18-1T1L	14.7	40.9	33.5	107.6	81	66.5	14.7	2.8	24.3	18

Ordering data

	Description		Part No.	Type
Semi in-line valve G⅛				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**573464**	**VUVG-S14-T32C-AZT-G18-1T1L**
		Normally open, reset method: pneumatic spring	**573465**	**VUVG-S14-T32U-AZT-G18-1T1L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**573466**	**VUVG-S14-T32H-AZT-G18-1T1L**
		Normally closed, reset method: mechanical spring	**573467**	**VUVG-S14-T32C-MZT-G18-1T1L**
		Normally open, reset method: mechanical spring	**573468**	**VUVG-S14-T32U-MZT-G18-1T1L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**573469**	**VUVG-S14-T32H-MZT-G18-1T1L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic spring	**573470**	**VUVG-S14-M52-AZT-G18-1T1L**
		Reset method: mechanical spring	**573471**	**VUVG-S14-M52-MZT-G18-1T1L**
	5/2-way valve, double solenoid			
	External pilot air supply		**573472**	**VUVG-S14-B52-ZT-G18-1T1L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**573473**	**VUVG-S14-P53C-ZT-G18-1T1L**
		Mid-position pressurised	**573475**	**VUVG-S14-P53U-ZT-G18-1T1L**
		Mid-position exhausted	**573474**	**VUVG-S14-P53E-ZT-G18-1T1**

New

Valve terminals VTUG with multi-pin plug and fieldbus connection

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Order code – Semi in-line valves G1/4

VUVG	–	S	18	–		–		Z		–		–	1	T1	L

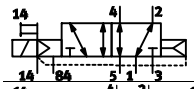
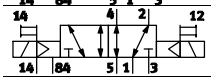
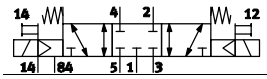
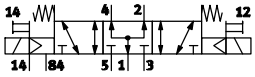
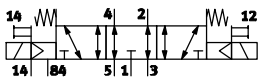
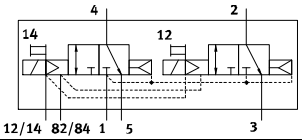
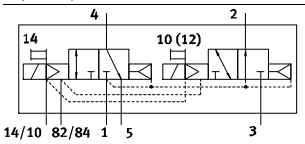
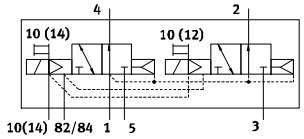
Valve design

Semi in-line valve	**S**

Width

18 mm	**18**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Pilot air

Z	External

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pneumatic connection

G14	G1/4 thread
Q6	Push-in connector 6 mm
Q8	Push-in connector 8 mm
Q10	Push-in connector 10 mm
T14	Push-in connector 1/4"
T516	Push-in connector 5/16"
T38	Push-in connector 3/8"

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Reset method

A	Pneumatic spring with T32
M	Mechanical spring with M52 and T32
R	Pneumatic/mechanical spring with M52
–	With B52 and P53

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Semi in-line valves G1/4

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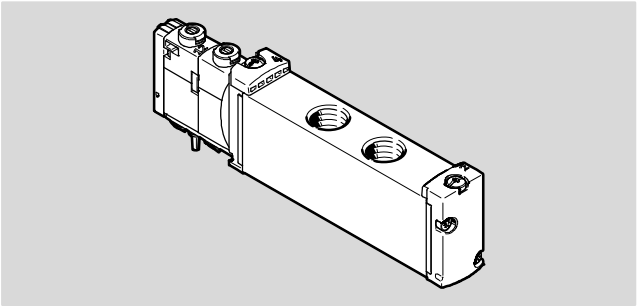
Function
2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 18 mm

Flow rate
900 ... 1200 l/min

Voltage
24 V DC



General technical data													
Valve function			T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position			C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position			Single solenoid							Double solenoid	Single solenoid			
Reset method: pneumatic spring			Yes			No			Yes[5]	–	No	–		
Reset method: mechanical spring			No			Yes			Yes[5]	–	Yes	–		
Vacuum operation at port 1			No			With external pilot air								
Design			Piston spool valve											
Sealing principle			Soft											
Actuation type			Electrical											
Type of control			Piloted											
Pilot air supply			External											
Exhaust function			With flow control											
Manual override			Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting			On manifold rail											
Mounting position			Any											
Switching position display			LED											
Flow rate on manifold rail G⅛		[l/min]	900			900			1150	1200	1150	1000		
Width		[mm]	18											
Port	1, 3, 5, 12/14, 82/84		On manifold rail											
	2, 4		G¼											
Product weight		[g]	145			147			138	145	138	140		
Approval certificate			c UL us - Recognized (OL)											
			c CSA us (OL)											
CE marking (see declaration of conformity)			To EU EMC Directive[6]											
Corrosion resistance class CRC[7]			2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Semi in-line valves G1/4

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[2]	M52-R[3]	B52	M52-M[2]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Pilot medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Note on operating/pilot medium			Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

1) Pneumatic spring
2) Mechanical spring
3) Mixed, pneumatic/mechanical spring
4) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1
Duty cycle ED	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529		IP67

Safety characteristics		
Note on forced checking procedure		Min. 1/week
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Resistance to shocks		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6

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

Valve switching times							
Valve function		T32-A[1]	T32-M[2]	M52-R[3]	B52	M52-M[2]	P53
Switching time on	[ms]	15	25	20	–	13	20
Switching time off	[ms]	35	33	35	–	50	57
Changeover time	[ms]	–	–	–	15	–	31

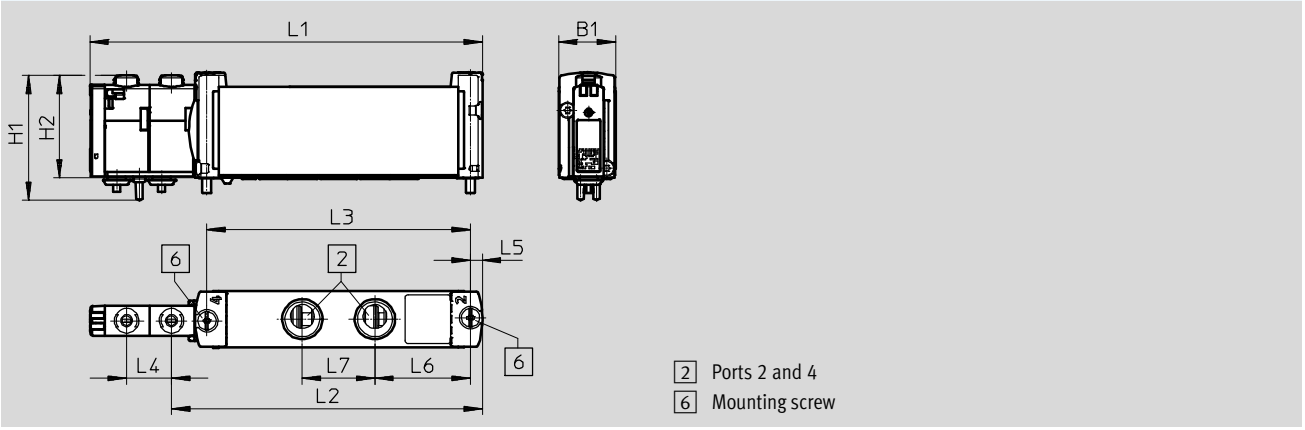
1) Pneumatic spring
2) Mechanical spring
3) Mixed, pneumatic/mechanical spring

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Semi in-line valves G1/4

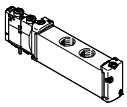
Dimensions Download CAD data ➔ **www.festo.com**

Semi in-line valve G1/4



Type	B1	H1	H2	L1	L2	L3	L4	L5	L6	L7
VUVG-S18-...-G14-1T1L	18.7	40.9	33.6	128.6	101.9	86.4	14.7	3.9	31.3	23.8

Ordering data

	Description		Part No.	Type
Semi in-line valve G1/4				
	2x3/2-way valve			
	External pilot air supply	Normally closed	**8004873**	**VUVG-S18-T32C-AZT-G14-1T1L**
		Normally open, reset method: pneumatic spring	**8004874**	**VUVG-S18-T32U-AZT-G14-1T1L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**8004875**	**VUVG-S18-T32H-AZT-G14-1T1L**
		Normally closed, reset method: mechanical spring	**8004876**	**VUVG-S18-T32C-MZT-G14-1T1L**
		Normally open, reset method: mechanical spring	**8004877**	**VUVG-S18-T32U-MZT-G14-1T1L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8004878**	**VUVG-S18-T32H-MZT-G14-1T1L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic/mechanical spring	**8004879**	**VUVG-S18-M52-RZT-G14-1T1L**
		Reset method: mechanical spring	**8004880**	**VUVG-S18-M52-MZT-G14-1T1L**
	5/2-way valve, double solenoid			
	External pilot air supply		**8004881**	**VUVG-S18-B52-ZT-G14-1T1L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**8004882**	**VUVG-S18-P53C-ZT-G14-1T1L**
		Mid-position pressurised	**8004883**	**VUVG-S18-P53E-ZT-G14-1T1L**
		Mid-position exhausted	**8004884**	**VUVG-S18-P53U-ZT-G14-1T1L**

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code – Sub-base valves M5/M7

VUVG	–	B	10	–		–		Z		–	F	–	1	T1	L

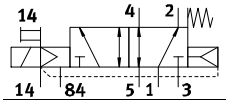
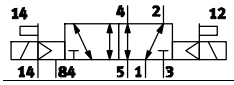
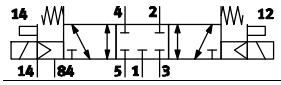
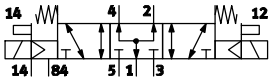
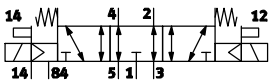
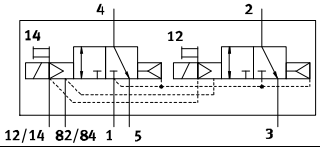
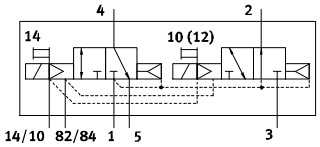
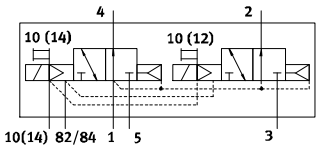
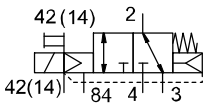
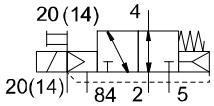
Valve design

Sub-base valves	**B**

Width

10 mm	**10**
10 mm, 3/2-way valve (M32)	**10Z**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**
	**M32C**
	**M32U**

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pilot air

Z	External

Reset method

A	Pneumatic spring with T32
M	Mechanical spring with M52 and T32
R	Pneumatic/mechanical spring with M52 and M32
–	With B52 and P53

Pneumatic connection

F	Flange/sub-base

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Sub-base valves M5/M7

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

Circuit symbol ➔ page 10

Width 10 mm

Flow rate
130 ... 300 l/min

Voltage
24 V DC

General technical data															
Valve function		T32-A			T32-M			M32-R		M52-R	B52	M52-M	P53		
Normal position		C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	C[1]	U[2]	–	–	–	C[1]	U[2]	E[3]
Stable position		Single solenoid									Double solenoid	Single solenoid			
Reset method: pneumatic spring		Yes			No			No		Yes[5]	–	No	–		
Reset method: mechanical spring		No			Yes			Yes		Yes[5]	–	Yes	–		
Vacuum operation at port 1		No			With external pilot air										
Design		Piston spool valve													
Sealing principle		Soft													
Actuation type		Electrical													
Type of control		Piloted													
Pilot air supply		External													
Exhaust function		With flow control													
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting													
Type of mounting		On manifold rail													
Mounting position		Any													
Switching position display		LED													
Standard nominal flow rate M5/M7	[l/min]	160			140			140		300		260	260		
Flow rate on manifold rail M5, front	[l/min]	150			130			130		220		220	200		
Flow rate on manifold rail M7, front	[l/min]	160			140			140		270		240	250		
Flow rate on manifold rail M7, underneath	[l/min]	160			140			140		300		260	260		
Width	[mm]	10													
Port	1, 3, 5, 12/14, 82/84	On manifold rail													
	2, 4	On manifold rail													
Product weight	[g]	59						53			60	53	58		
Approval		c UL us - Recognized (OL)													
		c CSA us (OL)													
CE marking (see declaration of conformity)		To EU EMC Directive[6]													
Corrosion resistance class CRC[7]		2													

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Sub-base valves M5/M7

Operating and environmental conditions									
Valve function			T32-A[1]	T32-M[3]	M32-R[2]	M52-R[2]	B52	M52-M[3]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]						
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2.5 ... 8	2.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ...10				–0.9 ... 8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60						
Temperature of medium		[°C]	–5 ... +60						

1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring
4) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power consumption per valve solenoid	[W]	1/0.4 (after 25 ms)
Duty cycle ED	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529		IP40 as standard (optionally IP67 with Sub-D and IO-Link interface with feature "S8"[1])

1) S8= IP67 degree of protection for electrics

Safety characteristics		
Note on forced checking procedure		Min. 1/week
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Resistance to shocks		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6

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

Valve switching times								
Valve function		T32-A[1]	T32-M[3]	M32-R[2]	M52-R[2]	B52	M52-M[3]	P53
Switching time on	[ms]	8	10	9	9	–	12	12
Switching time off	[ms]	20	20	17	21	–	30	38
Changeover time	[ms]	–	–	–	–	9	–	16

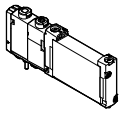
1) Pneumatic spring
2) Mixed, pneumatic/mechanical spring
3) Mechanical spring

Dimensions Download CAD data ➔ **www.festo.com**

Sub-base valve M5/M7

Type	B1	H1	H2	L1	L2	L3	L4	L5
VUVG-B10-...-F-1T1L	10.3	40.9	33.6	88.6	62	47	14.7	3

Ordering data

	Description		Part No.	Type
Sub-base valve M5/M7				
	3/2-way valve			
	External pilot air supply	Normally closed, reset method: mechanical spring	**8028231**	**VUVG-B10Z-M32C-RZT-F-1T1L**
		Normally open, reset method: mechanical spring	**8028232**	**VUVG-B10Z-M32U-RZT-F-1T1L**
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**573410**	**VUVG-B10-T32C-AZT-F-1T1L**
		Normally open, reset method: pneumatic spring	**573411**	**VUVG-B10-T32U-AZT-F-1T1L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**573412**	**VUVG-B10-T32H-AZT-F-1T1L**
		Normally closed, reset method: mechanical spring	**573413**	**VUVG-B10-T32C-MZT-F-1T1L**
		Normally open, reset method: mechanical spring	**573414**	**VUVG-B10-T32U-MZT-F-1T1L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**573415**	**VUVG-B10-T32H-MZT-F-1T1L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: mechanical spring	**573417**	**VUVG-B10-M52-MZT-F-1T1L**
		Reset method: pneumatic/mechanical spring	**573416**	**VUVG-B10-M52-RZT-F-1T1L**
	5/2-way valve, double solenoid			
	External pilot air supply		**573418**	**VUVG-B10-B52-ZT-F-1T1L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**573419**	**VUVG-B10-P53C-ZT-F-1T1L**
		Mid-position pressurised	**573421**	**VUVG-B10-P53U-ZT-F-1T1L**
		Mid-position exhausted	**573420**	**VUVG-B10-P53E-ZT-F-1T1L**

Valve terminals VTUG with multi-pin plug and fieldbus connection

Order code – Sub-base valves G1/8

VUVG	–	B	14	–		–		Z		–	F	–	1	T1	L

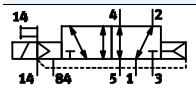
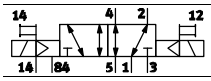
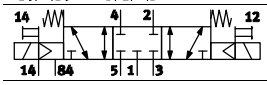
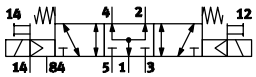
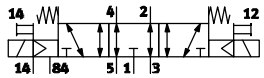
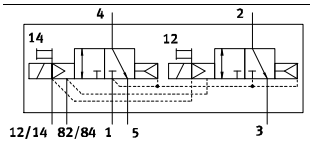
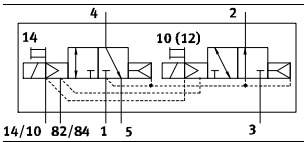
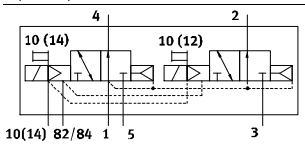
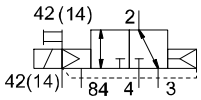
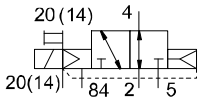
Valve design

Sub-base valves	**B**

Width

14 mm	**14**
14 mm, 3/2-way valve (M32)	**14Z**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**
	**M32C**
	**M32U**

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pilot air

Z	External

Reset method

A	Pneumatic spring with M52, M32 and T32
M	Mechanical spring with M52 and T32
–	With B52 and P53

Pneumatic connection

F	Flange/sub-base

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Sub-base valves G1/8

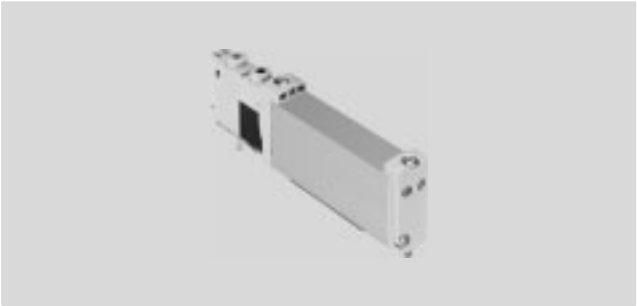
Function
3/2C, 3/2U
2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 14 mm

Flow rate
350 ... 560 l/min

Voltage
24 V DC



General technical data																
Valve function		T32-A			T32-M			M32-A		M52-A	B52	M52-M	P53		
Normal position		C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	C[1]	U[2]	–	–	–	C[1]	U[2]	E[3]
Stable position		Single solenoid									Double solenoid	Single solenoid			
Reset method: pneumatic spring		Yes			No			Yes		Yes	–	No	–		
Reset method: mechanical spring		No			Yes			No		No	–	Yes	–		
Vacuum operation at port 1		No			With external pilot air										
Design		Piston spool valve													
Sealing principle		Soft													
Actuation type		Electrical													
Type of control		Piloted													
Pilot air supply		External													
Exhaust function		With flow control													
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting													
Type of mounting		On manifold rail													
Mounting position		Any													
Switching position display		LED													
Standard nominal flow rate G18	[l/min]	530			470			350		550	560	550	510		
Flow rate on manifold rail G18, front	[l/min]	490			440			320		500	510	500	470		
Flow rate on manifold rail G18, underneath	[l/min]	530			470			350		550	560	550	510		
Width	[mm]	14													
Port	1, 3, 5, 12/14, 82/84	On manifold rail													
	2, 4	On manifold rail													
Product weight	[g]	102			100			91			98	89	95		
Approval		c UL us - Recognized(OL)													
		c CSA us (OL)													
CE marking (see declaration of conformity)		To EU EMC Directive[5]													
Corrosion resistance class CRC[6]		2													

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
6) Corrosion resistance class 2 according 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.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Sub-base valves G1/8

Operating and environmental conditions									
Valve function			T32-A[1]	T32-M[2]	M32-A[1]	M52-A[1]	B52	M52-M[2]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]						
Operating pressure	Internal pilot air supply	[bar]	1.5 ...8	3.5 ... 8	2.5 ... 8	2.5 ... 8	1.5 ...8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ...10				–0.9 ...8	–0.9 ...10
Pilot pressure[3]		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60						
Temperature of medium		[°C]	–5 ... +60						

1) Pneumatic spring
2) Mechanical spring
3) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1/0.4 (after 25 ms)
Duty cycle ED	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529		IP67

Safety characteristics		
Note on forced checking procedure		Min. 1/week
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Resistance to shocks		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6

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

Valve switching times								
Valve function		T32-A[1]	T32-M[2]	M32-A[1]	M52-A[1]	B52	M52-M[2]	P53
Switching time on	[ms]	10	13	13	13	–	10	15
Switching time off	[ms]	29	21	20	26	–	38	42
Changeover time	[ms]	–	–	–	–	9	–	25

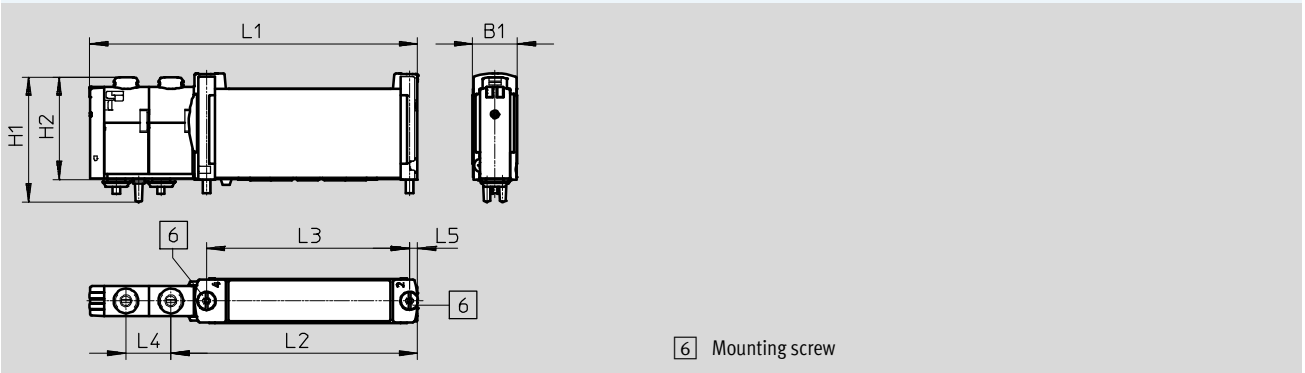
1) Pneumatic spring
2) Mechanical spring

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Sub-base valves G1/8

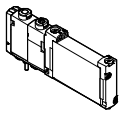
Dimensions Download CAD data ➔ **www.festo.com**

Sub-base valve G1/8



Type	B1	H1	H2	L1	L2	L3	L4	L5
VUVG-B14-...-F-1T1L	14.7	40.9	33.5	107.6	81	66.5	14.7	2.8

Ordering data

	Description		Part No.	Type
Sub-base valve G⅛				
	3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**8028235**	**VUVG-B14Z-M32C-AZT-F-1T1L**
		Normally open, reset method: pneumatic spring	**8028236**	**VUVG-B14Z-M32U-AZT-F-1T1L**
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**573476**	**VUVG-B14-T32C-AZT-F-1T1L**
		Normally open, reset method: pneumatic spring	**573477**	**VUVG-B14-T32U-AZT-F-1T1L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**573478**	**VUVG-B14-T32H-AZT-F-1T1L**
		Normally closed, reset method: mechanical spring	**573479**	**VUVG-B14-T32C-MZT-F-1T1L**
		Normally open, reset method: mechanical spring	**573480**	**VUVG-B14-T32U-MZT-F-1T1L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**573481**	**VUVG-B14-T32H-MZT-F-1T1L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic spring	**573482**	**VUVG-B14-M52-AZT-F-1T1L**
		Reset method: mechanical spring	**573483**	**VUVG-B14-M52-MZT-F-1T1L**
	5/2-way valve, double solenoid			
	External pilot air supply		**573484**	**VUVG-B14-B52-ZT-F-1T1L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**573485**	**VUVG-B14-P53C-ZT-F-1T1L**
		Mid-position pressurised	**573487**	**VUVG-B14-P53U-ZT-F-1T1L**
		Mid-position exhausted	**573486**	**VUVG-B14-P53E-ZT-F-1T1L**

New

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Order code – Sub-base valves G1/4

VUVG	–	B	18	–		–		Z		–	F	–	1	T1	L

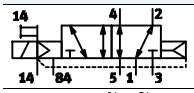
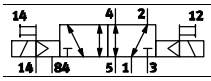
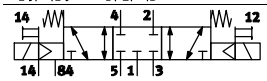
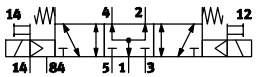
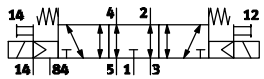
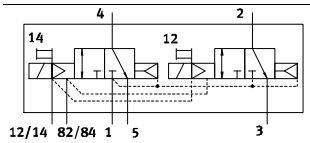
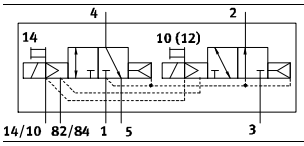
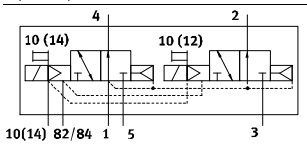
Valve design

Sub-base valves	**B**

Width

18 mm	**18**

Valve functions

	**M52**
	**B52**
	**P53C**
	**P53U**
	**P53E**
	**T32C**
	**T32H**
	**T32U**

Reset method

A	Pneumatic spring with T32
M	Mechanical spring with M52 and T32
R	Pneumatic/mechanical spring with M52
–	With B52 and P53

Pilot air

Z	External

Manual override

H	Non-detenting
S	Covered
T	Non-detenting, detenting
Y	Detenting, without accessories

Pneumatic connection

F	Flange/sub-base

Nominal operating voltage

1	24 V DC

Electrical connection

T1	Plug-in

Display

L	LED

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Technical data – Sub-base valves G1/4

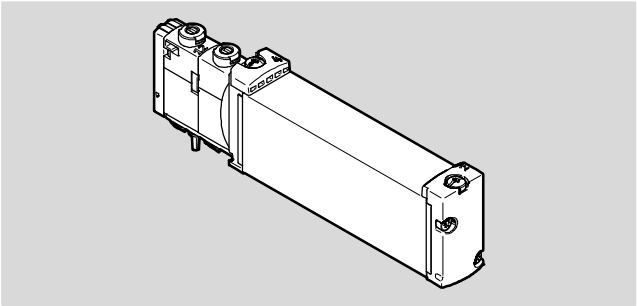
Function
2x3/2C, 2x3/2U, 2x3/2H
5/2-way, single solenoid
5/2-way, double solenoid
5/3C, 5/3U, 5/3E

Circuit symbol ➔ page 10

Width 18 mm

Flow rate
800 ... 1000 l/min

Voltage
24 V DC



General technical data													
Valve function		T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position		C[1]	U[2]	H[4]	C[1]	U[2]	H[4]	–	–	–	C[1]	U[2]	E[3]
Stable position		Single solenoid							Double solenoid	Single solenoid			
Reset method: pneumatic spring		Yes			No			Yes[5]	–	No	–		
Reset method: mechanical spring		No			Yes			Yes[5]	–	Yes	–		
Vacuum operation at port 1		No			With external pilot air								
Design		Piston spool valve											
Sealing principle		Soft											
Actuation type		Electrical											
Type of control		Piloted											
Pilot air supply		External											
Exhaust function		With flow control											
Manual override		Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting		On manifold rail											
Mounting position		Any											
Switching position display		LED											
Flow rate on manifold rail G14, front	[l/min]	800			800			950	1000	950	900		
Width	[mm]	18											
Port	1, 3, 5, 12/14, 82/84	On manifold rail											
	2, 4	On manifold rail											
Product weight	[g]	145			147			138	145	138	140		
Approval		c UL us - Recognized (OL)											
		c CSA us (OL)											
CE marking (see declaration of conformity)		To EU EMC Directive[6]											
Corrosion resistance class CRC[7]		2											

1) C=Normally closed/mid-position closed
2) U=Normally open/mid-position pressurised
3) E=Mid-position exhausted
4) H=2x 3/2-way valve in one housing with 1x normally closed and 1x normally open
5) Combined reset method
6) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.
7) Corrosion resistance class 2 according 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.

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Sub-base valves G1/4

Operating and environmental conditions								
Valve function			T32-A[1]	T32-M[2]	M52-R[3]	B52	M52-M[2]	P53
Operating medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Pilot medium			Compressed air to ISO 8573-1:2010 [7:4:4]					
Note on operating/pilot medium			Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure	Internal pilot air supply	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	–0.9 ... 10			–0.9 ... 8	–0.9 ... 10
Pilot pressure[4]		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	–5 ... +60					
Temperature of medium		[°C]	–5 ... +60					

1) Pneumatic spring
2) Mechanical spring
3) Mixed, pneumatic/mechanical spring
4) Minimum pilot pressure 50% of operating pressure

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1
Duty cycle ED	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529		IP67

Safety characteristics		
Note on forced checking procedure		Min. 1/week
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Resistance to shocks		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27
Vibration resistance		Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6

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

Valve switching times							
Valve function		T32-A[1]	T32-M[2]	M52-R[3]	B52	M52-M[2]	P53
Switching time on	[ms]	15	25	20	–	13	20
Switching time off	[ms]	35	33	35	–	50	57
Changeover time	[ms]	–	–	–	15	–	31

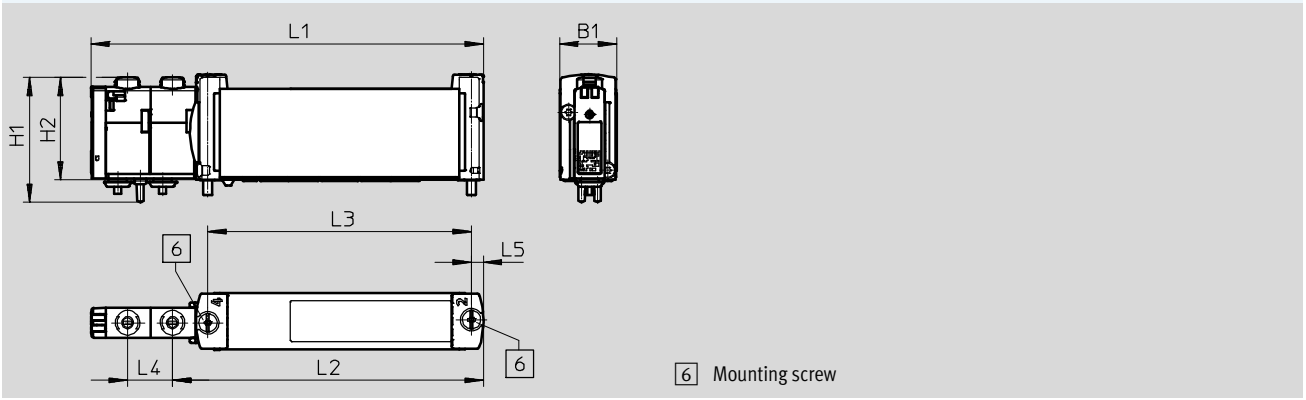
1) Pneumatic spring
2) Mechanical spring
3) Mixed, pneumatic/mechanical spring

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Sub-base valves G1/4

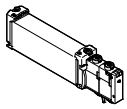
Dimensions Download CAD data ➔ **www.festo.com**

Sub-base valve G1/4



Type	B1	H1	H2	L1	L2	L3	L4	L5
VUVG-B18-...-F-1T1L	18.7	40.9	33.6	128.6	101.9	86.4	14.7	3.9

Ordering data

	Description		Part No.	Type
Sub-base valve G¼				
	2x3/2-way valve			
	External pilot air supply	Normally closed, reset method: pneumatic spring	**8004885**	**VUVG-B18-T32C-AZT-F-1T1L**
		Normally open, reset method: pneumatic spring	**8004886**	**VUVG-B18-T32U-AZT-F-1T1L**
		1x normally open, 1x normally closed, reset method: pneumatic spring	**8004887**	**VUVG-B18-T32H-AZT-F-1T1L**
		Normally closed, reset method: mechanical spring	**8004888**	**VUVG-B18-T32C-MZT-F-1T1L**
		Normally open, reset method: mechanical spring	**8004889**	**VUVG-B18-T32U-MZT-F-1T1L**
		1x normally open, 1x normally closed, reset method: mechanical spring	**8004890**	**VUVG-B18-T32H-MZT-F-1T1L**
	5/2-way valve, single solenoid			
	External pilot air supply	Reset method: pneumatic/mechanical spring	**8004891**	**VUVG-B18-M52-RZT-F-1T1L**
		Reset method: mechanical spring	**8004892**	**VUVG-B18-M52-MZT-F-1T1L**
	5/2-way valve, double solenoid			
	External pilot air supply		**8004893**	**VUVG-B18-B52-ZT-F-1T1L**
	5/3-way valve			
	External pilot air supply	Mid-position closed	**8004894**	**VUVG-B18-P53C-ZT-F-1T1L**
		Mid-position pressurised	**8004895**	**VUVG-B18-P53E-ZT-F-1T1L**
		Mid-position exhausted	**8004896**	**VUVG-B14-P53E-ZT-F-1T1L**

New
Valve width 18 mm

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Order code – Manifold rail

VABM	–	L1	–					–	

Allocation	
Manifold rail	**L1**

Size	
For valves with a width of 10 mm	**10**
For valves with a width of 14 mm	**14**
For valves with a width of 18 mm	**18**

Version	
Standard	**–**
High flow rate	**H**

Connection type	
Semi in-line	**G**
E-box	**W**

Connection direction	
At the side	**–**
Underneath	**B**

Pneumatic connection 1, 3 and 5	
G1/8 thread	**G18**
G1/4 thread	**G14**
G3/8 thread	**G38**

	–		–			

Outlet direction of electrical components	
–	Top

Circuitry	
–	None
R	Holding current reduction with protective circuit

Electrical connection	
–	None
G	Preparation for electrical connection

Connection for valve function	
–	All valve positions can be fitted with 2 valve coils
M	Not all valve positions can be fitted with 2 valve coils

Valve positions	
4	4 valve positions
5	5 valve positions
6	6 valve positions
7	7 valve positions
8	8 valve positions
9	9 valve positions
10	10 valve positions
12	12 valve positions
16	16 valve positions
20	20 valve positions
24	24 valve positions

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Manifold rail VABM

General technical data					
Manifold rail			Size 10	Size 14	Size 18
Type code			VABM		
Grid dimension		[mm]	10.5	16	19
Mounting position			Any		
Connection type			Semi in-line/sub-base		
Max. number of valve positions			24		
Port	12/14		M5	M5	G⅛
	82/84		M5	M5	G⅛
	2, 4		M5 or M7	G⅛	G¼
	1, 3, 5		G⅛	G¼	G⅜
Storage temperature		[°C]	–20 ... 60		
Approval			c UL us - Recognized (OL)		
			c CSA us (OL)		
CE marking (see declaration of conformity)			To EU EMC Directive[1)]		
Corrosion resistance class CRC[2)]			2		

1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

2) Corrosion resistance class 2 according 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.

Weight [g]											
Valve positions	4	5	6	7	8	9	10	12	16	20	24
VABM-L1-10G-G18-...	329	363	397	431	465	499	533	601	737	873	1009
VABM-L1-10HW-G18-...	388	426	464	502	540	578	616	692	844	996	1148
VABM-L1-14G-G14-...	879	990	1101	1212	1323	1434	1545	1767	2211	2655	3099
VABM-L1-14W-G14-...	839	940	1041	1142	1243	1344	1445	1647	2051	2455	2859
VABM-L1-18G-G38-...	1461	1661	1861	2061	2261	2461	2661	3061	3861	4661	5461
VABM-L1-18W-G38-...	1369	1546	1723	1900	2077	2254	2431	2785	3493	4201	4909

Materials	
Manifold rail	Wrought aluminium alloy
Note on materials	RoHS compliant

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Manifold rail VABM

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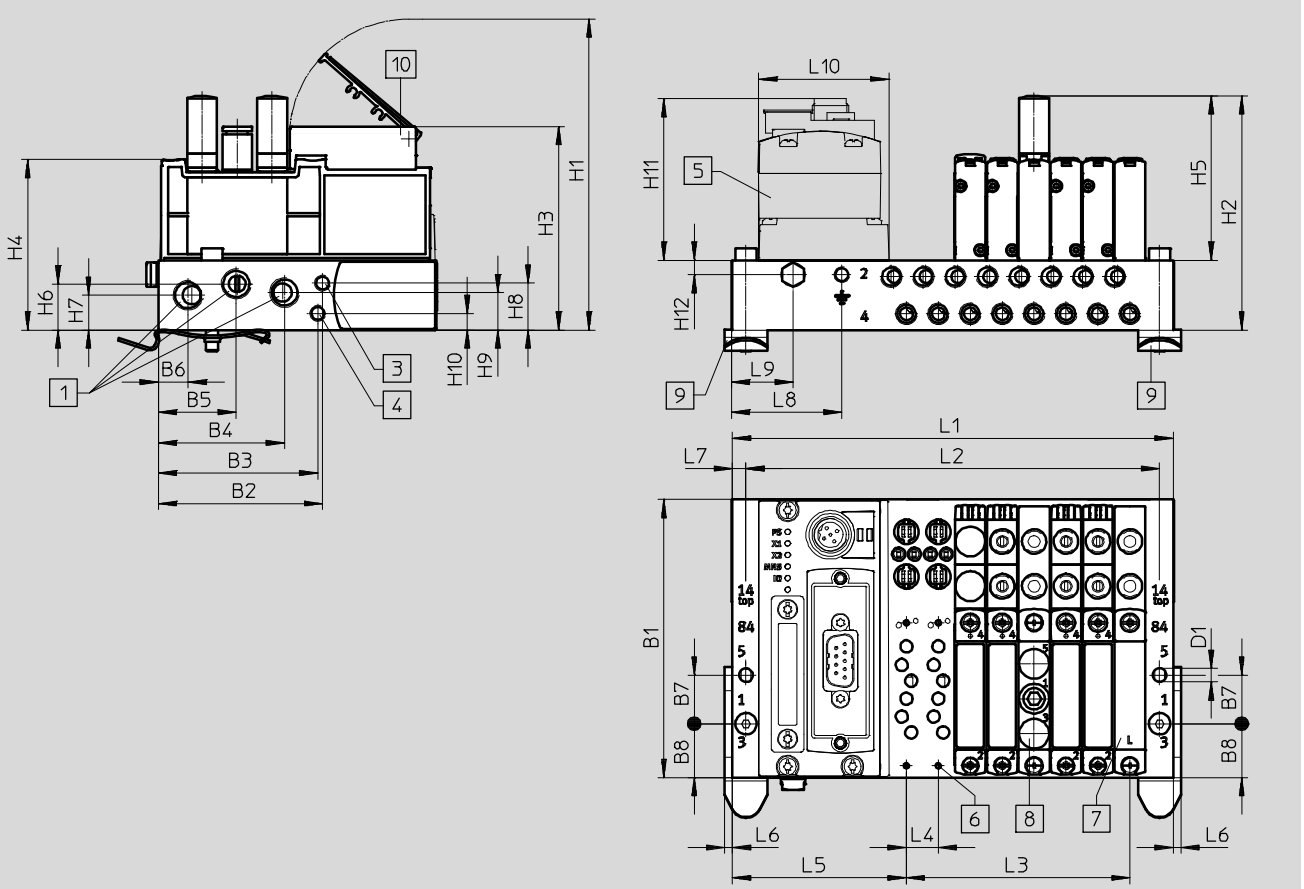
Dimensions – Example of a valve terminal with I-Port interface Download CAD data ➔ **www.festo.com**

Outlet on top



1 Port 1, 3 and 5
3 Port 12/14
4 Port 82/84
5 CTEU CANopen

6 Valves/blanking plates/supply plates – mounting on manifold block:
M2 for size 10
M2.5 for size 14
M3 for size 18

7 Blanking plate
8 Supply plate
9 H-rail mounting

10 Inscription label holder

Type	No. of valve positions	Size 10																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	91.5	54	52.4	41.5	25.6	9.8	16	17.7	4.5	102.3	77.1	67	56.1	54.1	15.2	11.5	15.5

Type	No. of valve positions	Size 10									
		H9	H10	H11	H12	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	12.4	5.5	54.8	4.8	10.5	57.3	2.5	4.5	36	20	42.5

Type	No. of valve positions	Size 14																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	110	70	59.3	56.5	36.5	16	20	26.5	4.5	113.1	95.1	77.7	68.6	61.3	18.7	15.7	28.7

Valve terminals VTUG with multi-pin plug and fieldbus connection

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Technical data – Manifold rail VABM

Type	No. of valve positions	Size 14										
		H9	H10	H11	H12	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	13.2	23.7	54.8	5.1	16	60.6	2	5	10	25.5	42.5

Type	No. of valve positions	Size 18															
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	131	90.5	77.3	72.3	47.5	21.5	26	34	5.5	121.5	95.2	–	77.4	52.7	23.6	18.7	35.1

Type	No. of valve positions	Size 18									
		H9	H10	H11	H12	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	14.5	27	54.8	13.8	19	63.5	2	5	10	27	42.5

Type	No. of valve positions	Size 10			Size 14			Size 18		
		L1	L2	L3	L1	L2	L3	L1	L2	L3
VABM	4	103	94	31.5	128	118	48	139.5	129.5	57
	5	113.5	104.5	42	144	134	64	158.5	148.5	76
	6	124	115	52.5	160	150	80	177.5	167.5	95
	7	134.5	125.5	63	176	166	96	196.5	186.5	114
	8	145	136	73.5	192	182	112	215.5	205.5	133
	9	155.5	146.5	84	208	198	128	234.5	224.5	152
	10	166	157	94.5	224	214	144	253.5	243.5	171
	12	187	178	115.5	256	246	176	291.5	281.5	209
	16	229	220	157.5	320	310	240	367.5	357.5	285
	20	271	262	199.5	384	374	304	443.5	433.5	361
	24	313	304	241.5	448	438	368	519.5	509.5	437

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Manifold rail VABM

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Dimensions – Example of a valve terminal with I-Port interface

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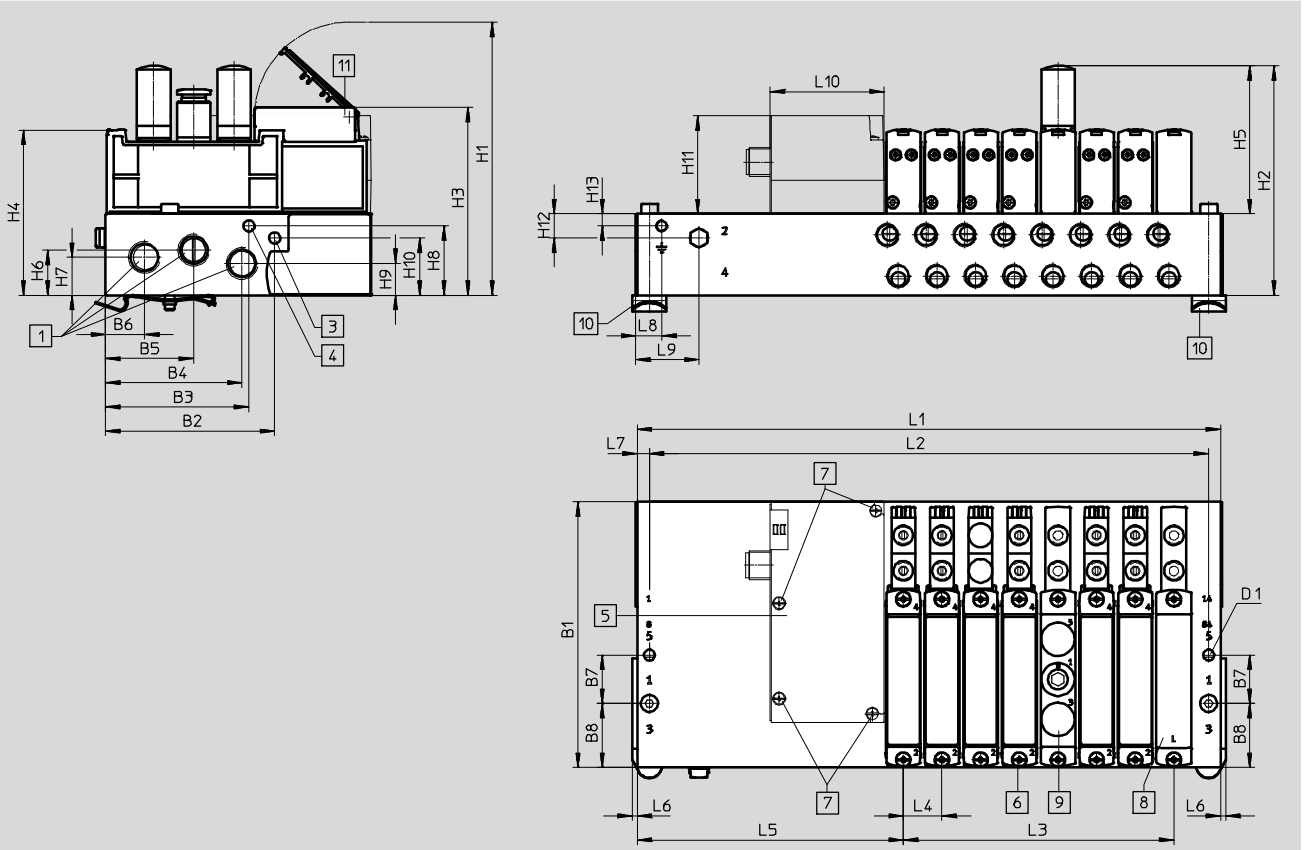
Outlet on the side



1 Port 1, 3 and 5
3 Port 12/14
4 Port 82/84
5 Electrical connection, I-Port interface/IO-Link
6 Valves/blanking plates/supply plates – mounting on manifold block:
M2 for size 10
M2.5 for size 14
M3 for size 18
7 Electrical interface – mounting on manifold block: M3
8 Blanking plate
9 Supply plate
10 H-rail mounting
11 Inscription label holder

Type	No. of valve positions	Size 10																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	91.5	54	52.4	41.5	25.6	9.8	16	17.7	4.5	102.3	77.1	67	56.1	54.1	15.2	11.5	15.5

Type	No. of valve positions	Size 10										
		H9	H10	H11	H12	H13	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	12.4	5.5	40.8	10.1	5.1	10.5	106.8	2.5	4.5	36	75	47.1

Type	No. of valve positions	Size 14																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	110	70	59.3	56.5	36.5	16	20	26.5	4.5	113.1	95.1	77.7	68.6	61.3	18.7	15.7	28.7

Type	No. of valve positions	Size 14										
		H9	H10	H11	H12	H13	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	13.2	23.7	40.8	10.1	5.1	16	110.1	2	5	10	75	47.1

Valve terminals VTUG with multi-pin plug and fieldbus connection

Technical data – Manifold rail VABM

Type	No. of valve positions	Size 18																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ∅	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	131	90.5	77.3	72.3	47.5	21.5	26	34	5.5	121.5	95.2	–	77.4	52.7	23.6	18.7	35.1

Type	No. of valve positions	Size 18											
		H9	H10	H11	H12	H13	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	14.5	27	40.8	13.8	10	19	105	2	5	10	27	47.1

Type	No. of valve positions	Size 10			Size 14			Size 18		
		L1	L2	L3	L1	L2	L3	L1	L2	L3
VABM	4	152.5	143.5	31.5	177.5	167.5	48	181	171	57
	5	163	154	42	193.5	183.5	64	200	190	76
	6	173.5	164.5	52.5	209.5	199.5	80	219	209	95
	7	184	175	63	225.5	215.5	96	238	228	114
	8	194.5	185.5	73.5	241.5	231.5	112	257	247	133
	9	205	196	84	257.5	247.5	128	276	266	152
	10	215.5	206.5	94.5	273.5	263.5	144	295	285	171
	12	236.5	227.5	115.5	305.5	295.5	176	333	323	209
	16	278.5	269.5	157.5	369.5	359.5	240	409	399	285
	20	321	311.5	199.5	433.5	423.5	304	485	475	361
	24	362.5	353.5	241.5	497.5	487.5	368	561	551	437

Note

The dimensions for size 10 are the same as the dimensions for the manifold rail with interlock.

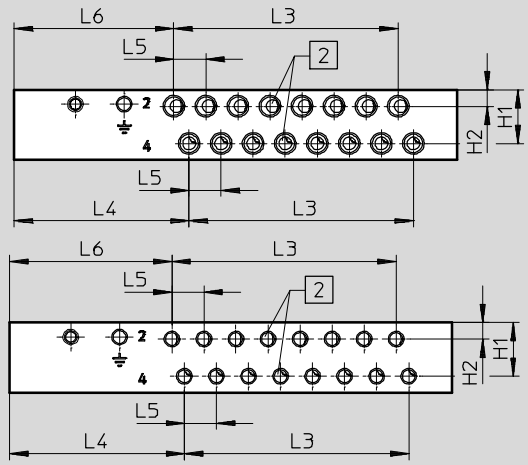
New
Size 18

Valve terminals VTUG with multi-pin plug and fieldbus connection

Dimensions – Example of a valve terminal

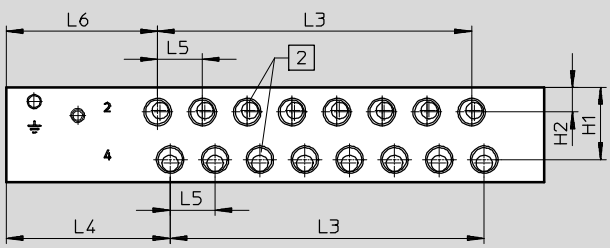
Dimensions – Front manifold rail Download CAD data ➔ **www.festo.com**

Size 10, I-Port interface, outlet on top



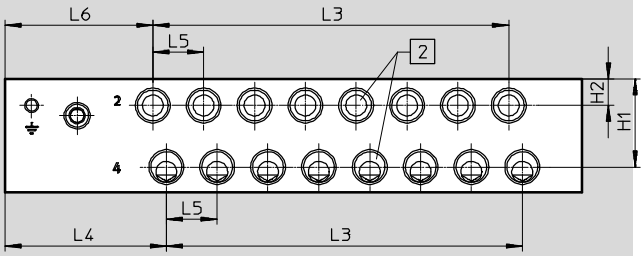
2 Ports 2 and 4

Size 14, I-Port interface, outlet on top



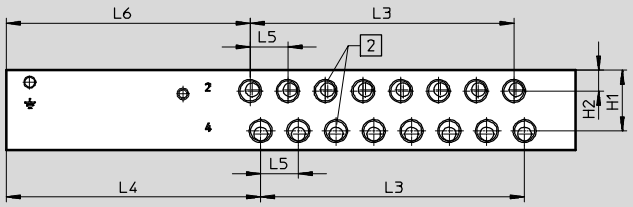
2 Ports 2 and 4

Size 18, I-Port interface, outlet on top



2 Ports 2 and 4

Size 10, 14, 18, I-Port interface, outlet on the side



2 Ports 2 and 4

Size	Port 2 and 4	Manifold rail with I-Port interface, outlet on top				
		H1	H2	L4	L5	L6
10	M7 thread	17.6	5.4	57.3	10.5	52.3
	M5 thread					53.2
14	G1/8 thread	25.8	8.8	58.5	16	54
18	G1/4 thread	33	10	60.3	19	55.3

Size	Port 2 and 4	Manifold rail with I-Port interface, outlet on the side				
		H1	H2	L4	L5	L6
10	M7 thread	17.6	5.4	106.8	10.5	101.8
	M5 thread					102.7
14	G1/8 thread	25.8	8.8	108	16	103.5
18	G1/4 thread	33	10	101.8	19	96.8

Valve terminals VTUG with multi-pin plug and fieldbus connection

Dimensions – Example of a valve terminal

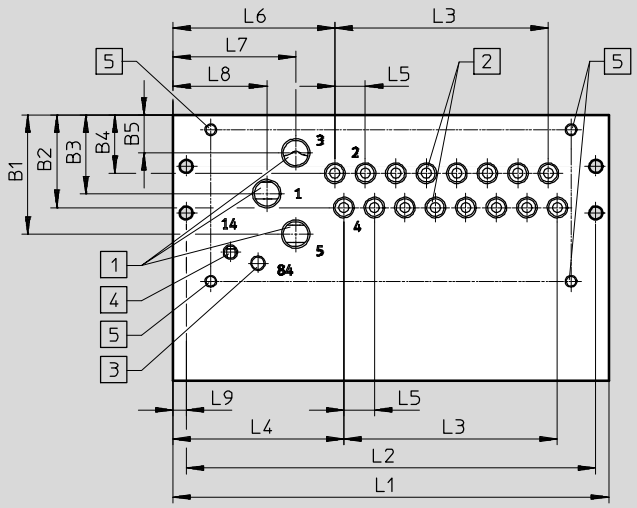
Type	Number of valve positions	Size 10	Size 14	Size 18
		L3	L3	L3
VABM	4	31.5	48	57
	5	42	64	76
	6	52.5	80	95
	7	63	96	114
	8	73.5	112	133
	9	84	128	152
	10	94.5	144	171
	12	115.5	176	209
	16	157.5	240	285
	20	199.5	304	361
	24	241.5	368	437

Valve terminals VTUG with multi-pin plug and fieldbus connection

Dimensions – Example of control cabinet installation

Dimensions – Manifold rail, outlet underneath Download CAD data ➔ **www.festo.com**

Control cabinet installation



1 Port 1, 3 and 5
2 Ports 2 and 4
3 Port 82/84
4 Port 12/14
5 Mounting holes, outlet direction underneath: M4x8 for size 10 and 14, M5x8 for size 18

Note

Dimensions of the manifold rail with I-Port interface, outlet on the side for control cabinet installation (➔143)

Type	Manifold rail with I-Port interface, outlet underneath, size 10										
	B1	B2	B3	B4	B5	L4	L5	L6	L7	L8	L9
VABM	41	31.8	27	20	13	58.8	10.5	55.7	42.3	32.3	4.5

Type	Manifold rail with I-Port interface, outlet underneath, size 14										
	B1	B2	B3	B4	B5	L4	L5	L6	L7	L8	L9
VABM	53.5	45.1	35.2	27.8	17	58.5	16	58.5	43	33	5

Type	Manifold rail with I-Port interface, outlet underneath, size 18										
	B1	B2	B3	B4	B5	L4	L5	L6	L7	L8	L9
VABM	75	59.5	48.5	35.7	22	60.3	19	60.3	40	40	5

Type	No. of valve positions	Size 10			Size 14			Size 18		
		L1 +5	L2 +5	L3	L1	L2	L3	L1	L2	L3
VABM	4	103	94	31.5	128	118	48	139.5	129.5	57
	5	113.5	104.5	42	144	134	64	158.5	148.5	76
	6	124	115	52.5	160	150	80	177.5	167.5	95
	7	134.5	125.5	63	176	166	96	196.5	186.5	114
	8	145	136	73.5	192	182	112	215.5	205.5	133
	9	155.5	146.5	84	208	198	128	234.5	224.5	152
	10	166	157	94.5	224	214	144	253.5	243.5	171
	12	187	178	115.5	256	246	176	291.5	281.5	209
	16	229	220	157.5	320	310	240	367.5	357.5	285
	20	271	262	199.5	384	374	304	443.5	433.5	361
	24	313	304	241.5	448	438	368	519.5	509.5	437

Valve terminals VTUG with multi-pin plug and fieldbus connection

FESTO

Dimensions

Type	Manifold rail with I-Port interface, outlet on the side, size 10										
	B1	B2	B3	B4	B5	L4	L5	L6	L7	L8	L9
VABM	41	31.8	27	20	13	108.3	10.5	105.2	91.8	81.8	4.5

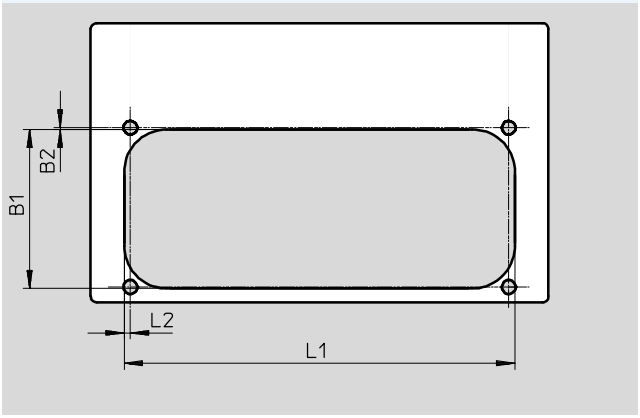
Type	Manifold rail with I-Port interface, outlet on the side, size 14										
	B1	B2	B3	B4	B5	L4	L5	L6	L7	L8	L9
VABM	53.5	45.1	35.2	27.8	17	108	16	108	92.5	82.5	5

Type	Manifold rail with I-Port interface, outlet on the side, size 18										
	B1	B2	B3	B4	B5	L4	L5	L6	L7	L8	L9
VABM	75	59.5	48.5	35.7	22	101.8	19	101.8	81.5	81.5	5

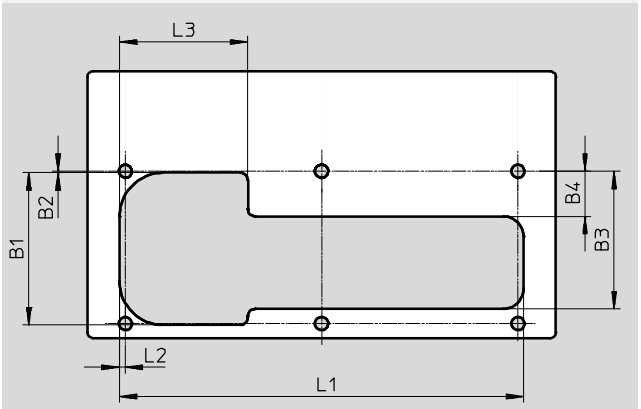
Type	No. of valve positions	Manifold rail with I-Port interface, outlet on the side, size 10			Manifold rail with I-Port interface, outlet on the side, size 14			Manifold rail with I-Port interface, outlet on the side, size 18		
		L1 +5	L2 +5	L3	L1	L2	L3	L1	L2	L3
VABM	4	152.5	143.5	31.5	177.5	167.5	48	181	171	57
	5	163	154	42	193.5	183.5	64	200	190	76
	6	173.5	164.5	52.5	209.5	199.5	80	219	209	95
	7	184	175	63	225.5	215.5	96	238	228	114
	8	194.5	185.5	73.5	241.5	231.5	112	257	247	133
	9	205	196	84	257.5	247.5	128	276	266	152
	10	215.5	206.5	94.5	273.5	263.5	144	295	285	171
	12	236.5	227.5	115.5	305.5	295.5	176	333	323	209
	16	278.5	269.5	157.5	369.5	359.5	240	409	399	285
	20	320.5	311.5	199.5	433.5	423.5	304	485	475	361
	24	362.5	353.5	241.5	497.5	487.5	368	561	551	437

Dimensions – Recess for control cabinet installation, outlet underneath, size 10

Up to 8 valves



9 or more valves



Type	B1	B2	L1	L2
VABM-L1-10...G18-4	52.7	0.5	86	2
VABM-L1-10...G18-5			96.5	
VABM-L1-10...G18-6			107	
VABM-L1-10...G18-7			117.5	
VABM-L1-10...G18-8			128	

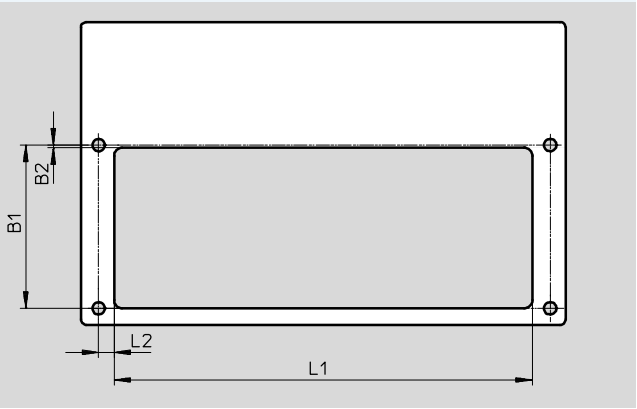
Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-10...G18-9	52.7	0.5	47.2	15.4	138.5	2	44
VABM-L1-10...G18-10					149		
VABM-L1-10...G18-12					170		
VABM-L1-10...G18-16					212		
VABM-L1-10...G18-20					254		
VABM-L1-10...G18-24					296		

Valve terminals VTUG with multi-pin plug and fieldbus connection

Dimensions

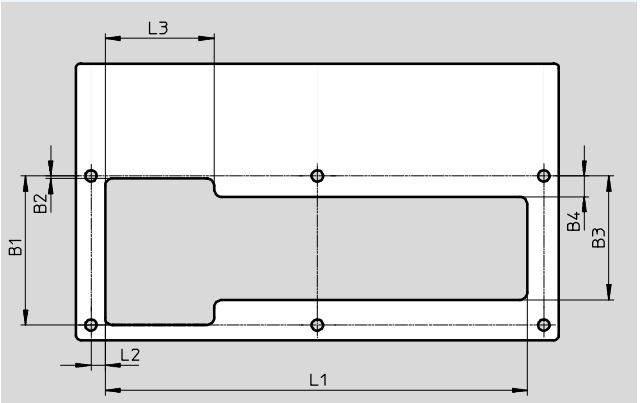
Dimensions – Recess for control cabinet installation, outlet underneath, size 14

Up to 7 valves



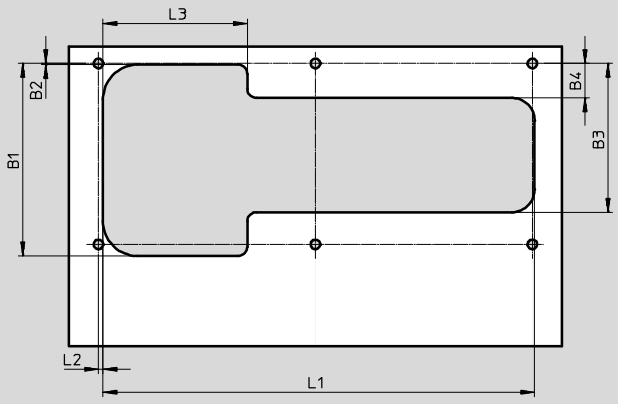
Type	B1	B2	L1	L2
VABM-L1-14...G14-4	59.3	1	103.9	5.6
VABM-L1-14...G14-5			119.9	
VABM-L1-14...G14-6			135.9	
VABM-L1-14...G14-7			151.9	

8 or more valves



Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-14...G14-8	59.3	1	49.3	8.3	167.9	56	43.4
VABM-L1-14...G14-9					183.9		
VABM-L1-14...G14-10					199.9		
VABM-L1-14...G14-12					231.9		
VABM-L1-14...G14-16					295.9		
VABM-L1-14...G14-20					359.9		
VABM-L1-14...G14-24					423.9		

Dimensions – Recess for control cabinet installation, outlet underneath, size 18

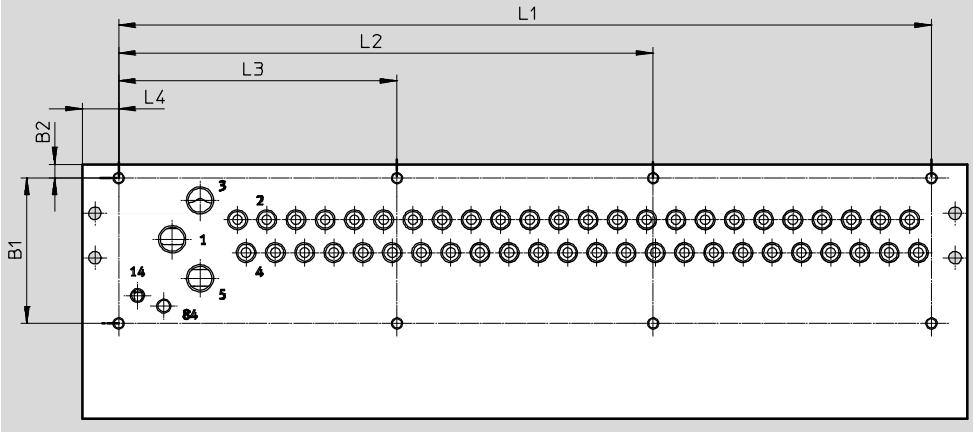


Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-18...G38-4	83.5	0.5	65	15	112.5	2	63
VABM-L1-18...G38-5					131.5		
VABM-L1-18...G38-6					150.5		
VABM-L1-18...G38-7					169.5		
VABM-L1-18...G38-8					188.5		
VABM-L1-18...G38-9					207.5		
VABM-L1-18...G38-10					226.5		
VABM-L1-18...G38-12					264.5		
VABM-L1-18...G38-16					340.5		
VABM-L1-18...G38-20					416.5		
VABM-L1-18...G38-24					492.5		

Valve terminals VTUG with multi-pin plug and fieldbus connection

Dimensions

Dimensions – Mounting holes, size 10 Download CAD data ➔ **www.festo.com**

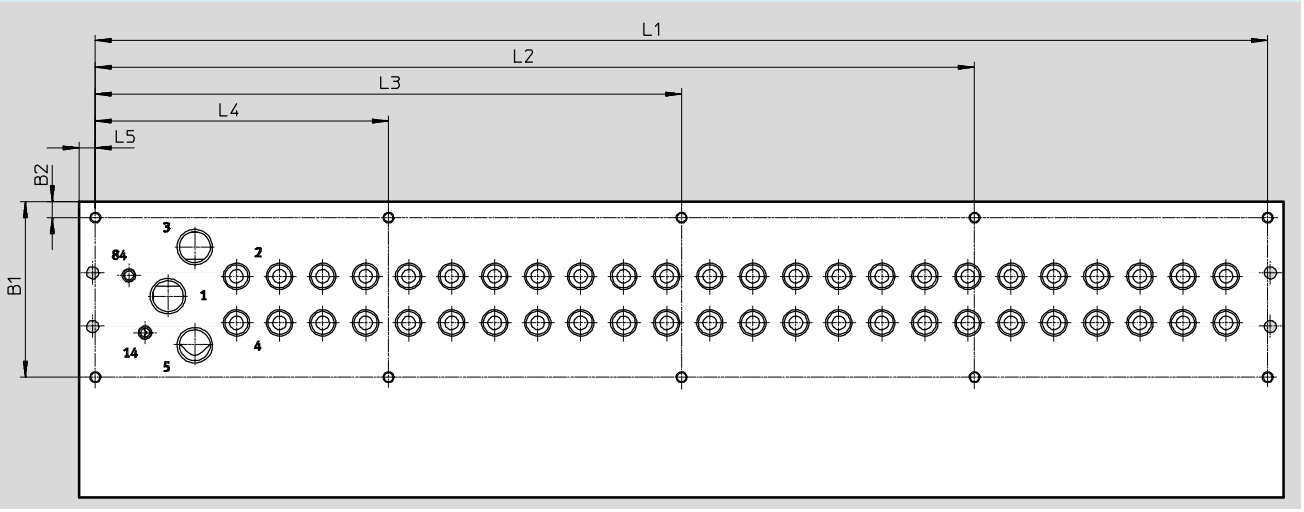


Type		B1	B2	L1	L2	L3	L4	I-Port interface, outlet on the side L4
VABM-L1-10...-G18-4	Up to 8 valves	52.2	5	82	–	–	13	62.5
VABM-L1-10...-G18-5				92.5	–	–		
VABM-L1-10...-G18-6				103	–	–		
VABM-L1-10...-G18-7				113.5	–	–		
VABM-L1-10...-G18-8				124	–	–		
VABM-L1-10...-G18-9	Up to 20 valves	52.2	5	134.5	–	67.25	13	62.5
VABM-L1-10...-G18-10				145	–	72.5		
VABM-L1-10...-G18-12				166	–	83		
VABM-L1-10...-G18-16				208	–	104		
VABM-L1-10...-G18-20				250	–	125		
VABM-L1-10...-G18-24	24 valves	52.2	5	292	192	100	13	62.5

Valve terminals VTUG with multi-pin plug and fieldbus connection

Dimensions

Dimensions – Mounting holes, size 14 Download CAD data ➔ **www.festo.com**

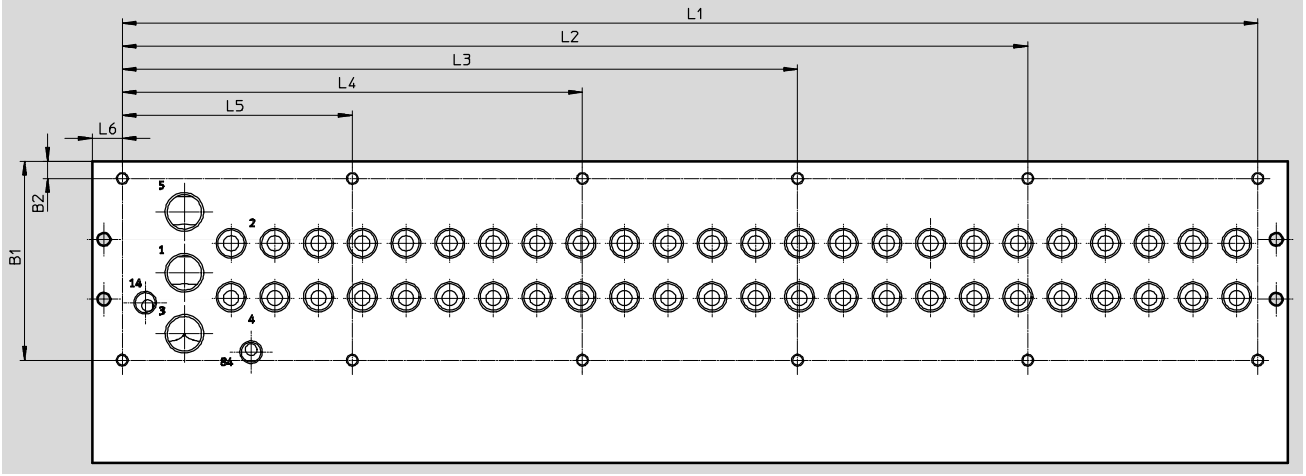


Type		B1	B2	L1	L2	L3	L4	L5	I-Port interface, outlet on the side L4
VABM-L1-14...-G14-4	Up to 8 valves	59.3	6	116	–	–	–	6	55.5
VABM-L1-14...-G14-5				132	–	–	–		
VABM-L1-14...-G14-6				148	–	–	–		
VABM-L1-14...-G14-7				164	–	–	–		
VABM-L1-14...-G14-8	8 to 10 valves	59.3	6	180	–	–	90	6	55.5
VABM-L1-14...-G14-9				196	–	–	98		
VABM-L1-14...-G14-10				212	–	–	106		
VABM-L1-14...-G14-12	12 valves and 16 valves	59.3	6	244	–	162	82	6	55.5
VABM-L1-14...-G14-16				308	–	204	104		
VABM-L1-14...-G14-20	20 valves and 24 valves	59.3	6	372	279	186	93	6	55.5
VABM-L1-14...-G14-24				436	327	218	109		

Valve terminals VTUG with multi-pin plug and fieldbus connection

Dimensions

Dimensions – Mounting holes, size 18 Download CAD data ➔ **www.festo.com**



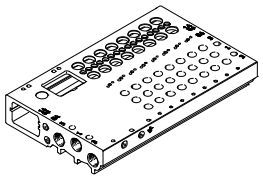
Type		B1	B2	L1	L2	L3	L4	L5	I-Port interface, outlet on the side L4
VABM-L1-18...-G38-4	4 valves and 5 valves	86.5	7.5	113.5	–	–	–	–	54.5
VABM-L1-18...-G38-5				132.5	–	–	–	–	
VABM-L1-18...-G38-6	6 to 10 valves	86.5	7.5	151.5	–	–	–	75.8	54.5
VABM-L1-18...-G38-7				170.5	–	–	–	85.3	
VABM-L1-18...-G38-8				189.5	–	–	–	94.8	
VABM-L1-18...-G38-9				208.5	–	–	–	104.3	
VABM-L1-18...-G38-10				227.5	–	–	–	113.8	
VABM-L1-18...-G38-12	12 valves	86.5	7.5	265.5	–	–	165.5	100	54.5
VABM-L1-18...-G38-16	16 valves and 20 valves	86.5	7.5	341.5	–	–	170.8	100	54.5
VABM-L1-18...-G38-20				417.5	–	317.5	208.8	100	
VABM-L1-18...-G38-24	24 valves	86.5	7.5	493.5	393.5	293.5	200	100	54.5

Valve terminals VTUG with multi-pin plug and fieldbus connection

Ordering data

FESTO

Ordering data

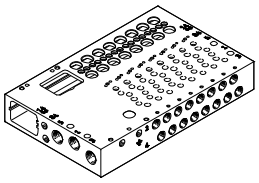
	Description		Part No.	Type
Manifold rail for semi in-line valve				
	For valve size M5/M7			
	Port 2, 4 on the valve	4 valve positions	**573423**	**VABM-L1-10G-G18-4-GR**
		5 valve positions	**573424**	**VABM-L1-10G-G18-5-GR**
		6 valve positions	**573425**	**VABM-L1-10G-G18-6-GR**
		7 valve positions	**573426**	**VABM-L1-10G-G18-7-GR**
		8 valve positions	**573427**	**VABM-L1-10G-G18-8-GR**
		9 valve positions	**573428**	**VABM-L1-10G-G18-9-GR**
		10 valve positions	**573429**	**VABM-L1-10G-G18-10-GR**
		12 valve positions	**573430**	**VABM-L1-10G-G18-12-GR**
		16 valve positions	**573431**	**VABM-L1-10G-G18-16-GR**
		20 valve positions	**573432**	**VABM-L1-10G-G18-20-GR**
		24 valve positions	**573433**	**VABM-L1-10G-G18-24-GR**
		8 double solenoid + 8 single solenoid valves	**573927**	**VABM-L1-10G-G18-16-M-GR**
		4 double solenoid + 16 single solenoid valves	**573928**	**VABM-L1-10G-G18-20-M-GR**
		24 single solenoid valves	**573929**	**VABM-L1-10G-G18-24-M-GR**
	For valve size G1⁄8			
	Port 2, 4 on the valve	4 valve positions	**573489**	**VABM-L1-14G-G14-4-GR**
		5 valve positions	**573490**	**VABM-L1-14G-G14-5-GR**
		6 valve positions	**573491**	**VABM-L1-14G-G14-6-GR**
		7 valve positions	**573492**	**VABM-L1-14G-G14-7-GR**
		8 valve positions	**573493**	**VABM-L1-14G-G14-8-GR**
		9 valve positions	**573494**	**VABM-L1-14G-G14-9-GR**
		10 valve positions	**573495**	**VABM-L1-14G-G14-10-GR**
		12 valve positions	**573496**	**VABM-L1-14G-G14-12-GR**
		16 valve positions	**573497**	**VABM-L1-14G-G14-16-GR**
		20 valve positions	**573498**	**VABM-L1-14G-G14-20-GR**
		24 valve positions	**573499**	**VABM-L1-14G-G14-24-GR**
		8 double solenoid + 8 single solenoid valves	**573933**	**VABM-L1-14G-G14-16-M-GR**
		4 double solenoid + 16 single solenoid valves	**573934**	**VABM-L1-14G-G14-20-M-GR**
		24 single solenoid valves	**573935**	**VABM-L1-14G-G14-24-M-GR**
	For valve size G1⁄4			
	Port 2, 4 on the valve	4 valve positions	**8004899**	**VABM-L1-18G-G38-4-GR**
		5 valve positions	**8004900**	**VABM-L1-18G-G38-5-GR**
		6 valve positions	**8004901**	**VABM-L1-18G-G38-6-GR**
		7 valve positions	**8004902**	**VABM-L1-18G-G38-7-GR**
		8 valve positions	**8004903**	**VABM-L1-18G-G38-8-GR**
		9 valve positions	**8004904**	**VABM-L1-18G-G38-9-GR**
		10 valve positions	**8004905**	**VABM-L1-18G-G38-10-GR**
		12 valve positions	**8004906**	**VABM-L1-18G-G38-12-GR**
		16 valve positions	**8004907**	**VABM-L1-18G-G38-16-GR**
		20 valve positions	**8004908**	**VABM-L1-18G-G38-20-GR**
		24 valve positions	**8004909**	**VABM-L1-18G-G38-24-GR**
		8 double solenoid + 8 single solenoid valves	**8004910**	**VABM-L1-18G-G38-16-M-GR**
		4 double solenoid + 16 single solenoid valves	**8004911**	**VABM-L1-18G-G38-20-M-GR**
		24 single solenoid valves	**8004912**	**VABM-L1-18G-G38-24-M-GR**

Valve terminals VTUG with multi-pin plug and fieldbus connection

Ordering data

FESTO

Ordering data

	Description		Part No.	Type
Manifold rail for sub-base valve				
	For valve size M5/M7			
	Port 2, 4 at front	4 valve positions	**573434**	**VABM-L1-10HW-G18-4-GR**
		5 valve positions	**573435**	**VABM-L1-10HW-G18-5-GR**
		6 valve positions	**573436**	**VABM-L1-10HW-G18-6-GR**
		7 valve positions	**573437**	**VABM-L1-10HW-G18-7-GR**
		8 valve positions	**573438**	**VABM-L1-10HW-G18-8-GR**
		9 valve positions	**573439**	**VABM-L1-10HW-G18-9-GR**
		10 valve positions	**573440**	**VABM-L1-10HW-G18-10-GR**
		12 valve positions	**573441**	**VABM-L1-10HW-G18-12-GR**
		16 valve positions	**573442**	**VABM-L1-10HW-G18-16-GR**
		20 valve positions	**573443**	**VABM-L1-10HW-G18-20-GR**
		24 valve positions	**573444**	**VABM-L1-10HW-G18-24-GR**
		8 double solenoid + 8 single solenoid valves	**573930**	**VABM-L1-10HW-G18-16-M-GR**
		4 double solenoid + 16 single solenoid valves	**573931**	**VABM-L1-10HW-G18-20-M-GR**
		24 single solenoid valves	**573932**	**VABM-L1-10HW-G18-24-M-GR**
	For valve size G1⁄8			
	Port 2, 4 at front	4 valve positions	**573500**	**VABM-L1-14W-G14-4-GR**
		5 valve positions	**573501**	**VABM-L1-14W-G14-5-GR**
		6 valve positions	**573502**	**VABM-L1-14W-G14-6-GR**
		7 valve positions	**573503**	**VABM-L1-14W-G14-7-GR**
		8 valve positions	**573504**	**VABM-L1-14W-G14-8-GR**
		9 valve positions	**573505**	**VABM-L1-14W-G14-9-GR**
		10 valve positions	**573506**	**VABM-L1-14W-G14-10-GR**
		12 valve positions	**573507**	**VABM-L1-14W-G14-12-GR**
		16 valve positions	**573508**	**VABM-L1-14W-G14-16-GR**
		20 valve positions	**573509**	**VABM-L1-14W-G14-20-GR**
		24 valve positions	**573510**	**VABM-L1-14W-G14-24-GR**
		8 double solenoid + 8 single solenoid valves	**573936**	**VABM-L1-14W-G14-16-M-GR**
		4 double solenoid + 16 single solenoid valves	**573937**	**VABM-L1-14W-G14-20-M-GR**
		24 single solenoid valves	**573938**	**VABM-L1-14W-G14-24-M-GR**
	For valve size G1⁄4			
	Port 2, 4 at front	4 valve positions	**8004913**	**VABM-L1-18W-G38-4-GR**
		5 valve positions	**8004914**	**VABM-L1-18W-G38-5-GR**
		6 valve positions	**8004915**	**VABM-L1-18W-G38-6-GR**
		7 valve positions	**8004916**	**VABM-L1-18W-G38-7-GR**
		8 valve positions	**8004917**	**VABM-L1-18W-G38-8-GR**
		9 valve positions	**8004918**	**VABM-L1-18W-G38-9-GR**
		10 valve positions	**8004919**	**VABM-L1-18W-G38-10-GR**
		12 valve positions	**8004920**	**VABM-L1-18W-G38-12-GR**
		16 valve positions	**8004921**	**VABM-L1-18W-G38-16-GR**
		20 valve positions	**8004922**	**VABM-L1-18W-G38-20-GR**
		24 valve positions	**8004923**	**VABM-L1-18W-G38-24-GR**
		8 double solenoid + 8 single solenoid valves	**8004924**	**VABM-L1-18W-G38-16-M-GR**
		4 double solenoid + 16 single solenoid valves	**8004925**	**VABM-L1-18W-G38-20-M-GR**
		24 single solenoid valves	**8004926**	**VABM-L1-18W-G38-24-M-GR**

Valve terminals VTUG with multi-pin plug connection

Technical data – Multi-pin plug connection

The following multi-pin plug connections are available for the valve terminal VTUG:

- Sub-D (25-pin)
- Sub-D (44-pin)
- Flat cable (26-pin)
- Flat cable (50-pin)

Electrical multi-pin plug

Each pin on the multi-pin plug can actuate exactly one solenoid coil.

If the maximum configurable number of valve positions is 24, this means that 48 valve functions can be addressed.
The valves can be switched by means of positive or negative logic (positive switching or negative switching).

Mixed operation is generally not possible; however, an exception is made for the V22 ... V25 variants with 25-pin Sub-D. With these variants, a specific range of valve positions (e.g. Com 16...19) is supplied with common voltage.

This allows these ranges to be switched with positive or negative logic and valve groups to be switched off independently of the other ranges. Mixed operation within a range is not permitted.

Note

A double solenoid valve occupies one valve position and two pins on the multi-pin plug. This means that the number of double solenoid valves per manifold rail is limited. (➔ pin allocation page 151).

General technical data				
Type	VAEM-L1-S-M1-25	VAEM-L1-S-M1-44	VAEM-L1-S-M3-26	VAEM-L1-S-M3-50
Number of pins	25-pin	44-pin	26-pin	50-pin
Electrical connection	Sub-D plug		Flat cable plug	
Max. number of valve positions	24		24	
Degree of protection to EN 60529	IP67		IP40	
Material	PA		PA	
Note on materials	RoHS compliant		RoHS compliant	
Approval	c UL us - Recognized (OL)			
	c CSA us (OL)			
CE marking (see declaration of conformity)	To EU EMC Directive[1)]			
Corrosion resistance class CRC[2)]	2			
Weight [g]	53		45	48

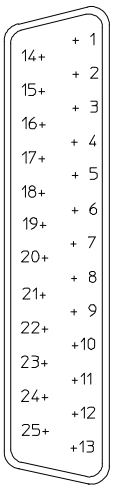
1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

2) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. External visible parts with primarily decorative surface requirements which are in direct contact with the surrounding industrial environment or media such as coolants or lubricating agents.

Valve terminals VTUG with multi-pin plug connection

Technical data – Multi-pin plug connection

Pin allocation – Sub-D plug, 25-pin

	Pin	Wire colour[1]	M1-25 (V20)								M1-25V1 (V22)	
			12x double solenoid		8x double solenoid 8x single solenoid		4x double solenoid 16x single solenoid		24x single solenoid			
	1	WH	VP0	14	VP0	14	VP0	14	VP0	14	VP0	14
	2	BN	VP0	12	VP0	12	VP0	12	VP23	14	VP0	12
	3	GN	VP1	14	VP1	14	VP1	14	VP1	14	VP1	14
	4	YE	VP1	12	VP1	12	VP1	12	VP22	14	VP1	12
	5	GY	VP2	14	VP2	14	VP2	14	VP2	14	VP2	14
	6	PK	VP2	12	VP2	12	VP2	12	VP21	14	VP2	12
	7	BU	VP3	14	VP3	14	VP3	14	VP3	14	VP3	14
	8	RD	VP3	12	VP3	12	VP3	12	VP20	14	VP3	12
	9	BK	VP4	14	VP4	14	VP4	14	VP4	14	VP4	14
	10	VT	VP4	12	VP4	12	VP19	14	VP19	14	VP4	12
	11	GY PK	VP5	14	VP5	14	VP5	14	VP5	14	VP5	14
	12	RD BU	VP5	12	VP5	12	VP18	14	VP18	14	VP5	12
	13	GN WH	VP6	14	VP6	14	VP6	14	VP6	14	VP6	14
	14	BN GN	VP6	12	VP6	12	VP17	14	VP17	14	VP6	12
	15	YE WH	VP7	14	VP7	14	VP7	14	VP7	14	VP7	14
	16	BN YE	VP7	12	VP7	12	VP16	14	VP16	14	VP7	12
	17	GY WH	VP8	14	VP8	14	VP8	14	VP8	14	VP8	14
	18	BN GY	VP8	12	VP15	14	VP15	14	VP15	14	VP8	12
	19	WH PK	VP9	14	VP9	14	VP9	14	VP9	14	VP9	14
	20	BN PK	VP9	12	VP14	14	VP14	14	VP14	14	VP9	12
	21	BU WH	VP10	14	VP10	14	VP10	14	VP10	14	Com 16 … 19	
	22	BN BU	VP10	12	VP13	14	VP13	14	VP13	14	Com 12 … 15	
	23	RD WH	VP11	14	VP11	14	VP11	14	VP11	14	Com 8 … 11	
	24	BN RD	VP11	12	VP12	14	VP12	14	VP12	14	Com 4 … 7	
	25	BK WH	Com		Com		Com	Com	Com		Com 0 … 3	

1) To IEC 60757
VP Valve position

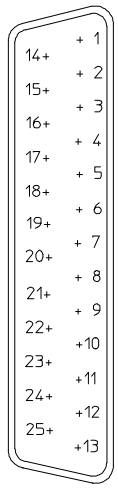
Note

A grey field means that a double solenoid valve can be used, while a white field means that only single solenoid valves can be used.

Valve terminals VTUG with multi-pin plug connection

Technical data – Multi-pin plug connection

Pin allocation – Sub-D plug, 25-pin



Pin	Wire colour[1]	M1-25V2 (V23)		M1-25V3 (V24)		M1-25V4 (V25)	
1	WH	VP0	14	VP0	14	VP0	14
2	BN	VP0	12	VP0	12	VP1	14
3	GN	VP1	14	VP1	14	VP2	14
4	YE	VP1	12	VP1	12	VP3	14
5	GY	VP2	14	VP2	14	VP4	14
6	PK	VP2	12	VP2	12	VP5	14
7	BU	VP3	14	VP3	14	VP6	14
8	RD	VP3	12	VP3	12	VP7	14
9	BK	VP4	14	VP4	14	VP8	14
10	VT	VP4	12	VP5	14	VP9	14
11	GY PK	VP5	14	VP6	14	VP10	14
12	RD BU	VP5	12	VP7	14	VP11	14
13	GN WH	VP6	14	VP8	14	VP12	14
14	BN GN	VP6	12	VP9	14	VP13	14
15	YE WH	VP7	14	VP10	14	VP14	14
16	BN YE	VP7	12	VP11	14	VP15	14
17	GY WH	VP8	14	VP12	14	VP16	14
18	BN GY	VP9	14	VP13	14	VP17	14
19	WH PK	VP10	14	VP14	14	VP18	14
20	BN PK	VP11	14	VP15	14	VP19	14
21	BU WH	Com 16 … 19		Com 16 … 19		Com 16 … 19	
22	BN BU	Com 12 … 15		Com 12 … 15		Com 12 … 15	
23	RD WH	Com 8 … 11		Com 8 … 11		Com 8 … 11	
24	BN RD	Com 4 … 7		Com 4 … 7		Com 4 … 7	
25	BK WH	Com 0 … 3		Com 0 … 3		Com 0 … 3	
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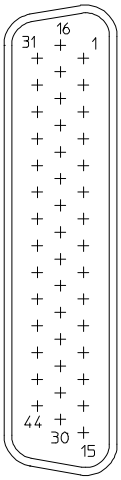
Pin allocation – Sub-D plug, 44-pin



Pin	Wire colour[1]	M1-44 (V21) 18x double solenoid, 6x single solenoid	
1	WH	VP0	14
2	BN	VP0	12
3	GN	VP1	14
4	YE	VP1	12
5	GY	VP2	14
6	PK	VP2	12
7	BU	VP3	14
8	RD	VP3	12
9	BK	VP4	14
10	VT	VP4	12
11	GY PK	VP5	14
12	RD BU	VP5	12
13	GN WH	VP6	14
14	BN GN	VP6	12
15	YE WH	VP7	14
16	BN YE	VP7	12
17	GY WH	VP8	14
18	BN GY	VP8	12
19	WH PK	VP9	14
20	BN PK	VP9	12
21	BU WH	VP10	14
22	BN BU	VP10	12
23	RD WH	VP11	14
24	BN RD	VP11	12
25	BK WH	VP12	14
26	BK BN	VP12	12
27	GN GY	VP13	14
28	YE GY	VP13	12
29	GN PK	VP14	14
30	YE PK	VP14	12
31	GN BU	VP15	14
32	YE BU	VP15	12
33	RD GN	VP16	14
34	RD YE	VP16	12
35	BK GN	VP17	14
36	BK YE	VP17	12
37	BU GY	VP18	14
38	BU PK	VP19	14
39	RD GY	VP20	14
40	RD PK	VP21	14
41	BK GY	VP22	14
42	BK PK	VP23	14
43	BK BU	Com	
44	BK RD		

1) To IEC 60757

VP Valve position

Note

A grey field means that a double solenoid valve can be used, while a white field means that only single solenoid valves can be used.

Valve terminals VTUG with multi-pin plug connection

Technical data – Multi-pin plug connection

FESTO

Pin allocation – Flat cable, 26-pin

Pin	M3-26 (V20)							
	12x double solenoid		8x double solenoid 8x single solenoid		4x double solenoid 16x single solenoid		24x single solenoid	
1	VP0	14	VP0	14	VP0	14	VP0	14
2	VP0	12	VP0	12	VP0	12	VP23	14
3	VP1	14	VP1	14	VP1	14	VP1	14
4	VP1	12	VP1	12	VP1	12	VP22	14
5	VP2	14	VP2	14	VP2	14	VP2	14
6	VP2	12	VP2	12	VP2	12	VP21	14
7	VP3	14	VP3	14	VP3	14	VP3	14
8	VP3	12	VP3	12	VP3	12	VP20	14
9	VP4	14	VP4	14	VP4	14	VP4	14
10	VP4	12	VP4	12	VP19	14	VP19	14
11	VP5	14	VP5	14	VP5	14	VP5	14
12	VP5	12	VP5	12	VP18	14	VP18	14
13	VP6	14	VP6	14	VP6	14	VP6	14
14	VP6	12	VP6	12	VP17	14	VP17	14
15	VP7	14	VP7	14	VP7	14	VP7	14
16	VP7	12	VP7	12	VP16	14	VP16	14
17	VP8	14	VP8	14	VP8	14	VP8	14
18	VP8	12	VP15	14	VP15	14	VP15	14
19	VP9	14	VP9	14	VP9	14	VP9	14
20	VP9	12	VP14	14	VP14	14	VP14	14
21	VP10	14	VP10	14	VP10	14	VP10	14
22	VP10	12	VP13	14	VP13	14	VP13	14
23	VP11	14	VP11	14	VP11	14	VP11	14
24	VP11	12	VP12	14	VP12	14	VP12	14
25	Com		Com		Com	Com	Com	
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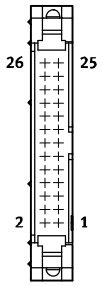
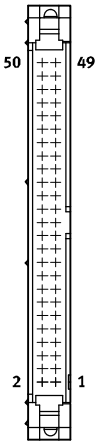


- Note

A grey field means that a double solenoid valve can be used, while a white field means that only single solenoid valves can be used.

Pin allocation – Flat cable, 50-pin

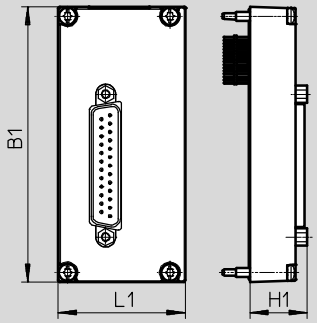
Pin	M3-50 (V26)	
1	VP0	14
2	VP0	12
3	VP1	14
4	VP1	12
5	VP2	14
6	VP2	12
7	VP3	14
8	VP3	12
9	VP4	14
10	VP4	12
11	VP5	14
12	VP5	12
13	VP6	14
14	VP6	12
15	VP7	14
16	VP7	12
17	VP8	14
18	VP8	12
19	VP9	14
20	VP9	12
21	VP10	14
22	VP10	12
23	VP11	14
24	VP11	12
25	VP12	14
26	VP12	12
27	VP13	14
28	VP13	12
29	VP14	14
30	VP14	12
31	VP15	14
32	VP15	12
33	VP16	14
34	VP16	12
35	VP17	14
36	VP17	12
37	VP18	14
38	VP18	12
39	VP19	14
40	VP19	12
41	VP20	14
42	VP20	12
43	VP21	14
44	VP21	12
45	VP22	14
46	VP22	12
47	VP23	14
48	VP23	12
49	Com	
50		



VP Valve position

Dimensions Download CAD data ➔ **www.festo.com**

Multi-pin plug connection, Sub-D



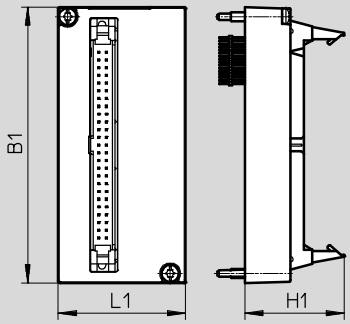
- Note

Dimensions of the manifold rail with electrical connection (➔ page 136)

Type	B1	L1	H1
VAEM-L1-S-M1-...	90.5	41.9	18.9

Dimensions Download CAD data ➔ **www.festo.com**

Multi-pin plug connection, flat cable

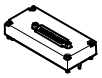
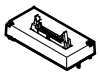
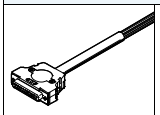
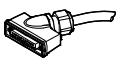


- Note

Dimensions of the manifold rail with electrical connection (➔ page 136)

Type	B1	L1	H1
VAEM-L1-S-M3-...	90.5	41.9	32.7

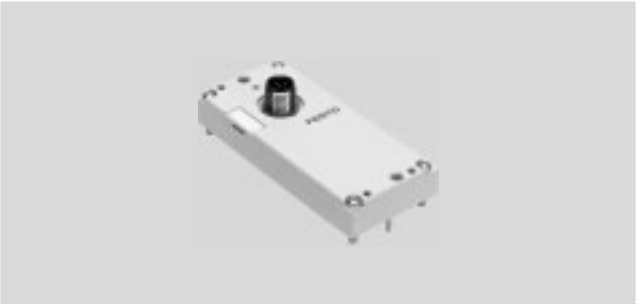
Ordering data – Multi-pin plug connection

	Description			Part No.	Type
Electrical interface, Sub-D					
	25-pin		For variant M1-25 (V20)	**573445**	**VAEM-L1-S-M1-25**
			For variant M1-25V1 (V22)	**573447**	**VAEM-L1-S-M1-25V1**
			For variant M1-25V2 (V23)	**573448**	**VAEM-L1-S-M1-25V2**
			For variant M1-25V3 (V24)	**573449**	**VAEM-L1-S-M1-25V3**
			For variant M1-25V4 (V25)	**573450**	**VAEM-L1-S-M1-25V4**
	44-pin		For variant M1-44 (V21)	**573446**	**VAEM-L1-S-M1-44**
Electrical interface, flat cable plug					
	26-pin		For variant M3-26 (V20)	**573452**	**VAEM-L1-S-M3-26**
	50-pin		For variant M3-50 (V26)	**573451**	**VAEM-L1-S-M3-50**
Connecting cable for multi-pin plug					
	Sub-D socket, straight	• 25-pin, up to 24 coils, IP40 • Open cable end, 25-wire	Cable length 2.5 m	**575417**	**NEBV-S1G25-K-2.5-N-LE25-S6**
			Cable length 5 m	**575418**	**NEBV-S1G25-K-5-N-LE25-S6**
			Cable length 10 m	**575419**	**NEBV-S1G25-K-10-N-LE25-S6**
		• 44-pin, up to 42 coils, IP40 • Open cable end, 44-wire	Cable length 2.5 m	**575113**	**NEBV-S1G44-K-2.5-N-LE44-S6**
			Cable length 5 m	**575114**	**NEBV-S1G44-K-5-N-LE44-S6**
			Cable length 10 m	**575115**	**NEBV-S1G44-K-10-N-LE44-S6**
	Sub-D socket, angled	• 25-pin, up to 24 coils, IP65 • Open cable end, 25-wire	Cable length 2.5 m	**575423**	**NEBV-S1WA25-K-2.5-N-LE25-S9**
			Cable length 5 m	**575424**	**NEBV-S1WA25-K-5-N-LE25-S9**
			Cable length 10 m	**575425**	**NEBV-S1WA25-K-10-N-LE25-S9**
		• 44-pin, up to 42 coils, IP65 • Open cable end, 44-wire	Cable length 2.5 m	**575420**	**NEBV-S1WA44-K-2.5-N-LE44-S9**
			Cable length 5 m	**575421**	**NEBV-S1WA44-K-5-N-LE44-S9**
			Cable length 10 m	**575422**	**NEBV-S1WA44-K-10-N-LE44-S9**

Valve terminals VTUG, I-Port interface/IO-Link

Technical data – I-Port interface/IO-Link

Festo-specific, standardised interface for direct connection to the fieldbus by mounting the bus node CTEU or to an IO-Link master via a cable (in IO-Link mode).



I-Port interface/IO-Link

Versions:
- I-Port interface for bus nodes (CTEU)
- IO-Link mode for direct connection to a higher-order IO-Link master

The following protocols are supported in connection with the associated CTEU bus node:
- CANopen
- DeviceNet
- PROFIBUS
- CC-LINK
- EtherCAT

The electrical supply/transmission of communication data takes place via an M12 plug connector.

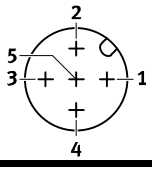
The valve terminal can be equipped with 4 ... 24 (double solenoid) valves.

General technical data			
Communication types			IO-Link
Electrical connection			• Plug connector M12, 5-pin • A-coded • Metal thread for screening
Baud rates	COM3	[kbps]	230.4
	COM2	[kbps]	38.4
Intrinsic current consumption, logic supply PS		[mA]	30
Intrinsic current consumption, valve supply PL		[mA]	30
Max. number of solenoid coils	VAEM-L1-S-8-PT		16
	VAEM-L1-S-16-PT		32
	VAEM-L1-S-24-PT		48
Max. number of valve positions	VAEM-L1-S-8-PT		8
	VAEM-L1-S-16-PT		16
	VAEM-L1-S-24-PT		24
Ambient temperature		[°C]	–5 ... +50
Product weight	Outlet on top	[g]	49
	Outlet on the side	[g]	100
Degree of protection to EN 60529			IP67
Approval certificate			c UL us - Recognised (OL)
			c CSA us (OL)
CE marking (see declaration of conformity)			To EU EMC Directive[1)]
Corrosion resistance class CRC[2)]			2

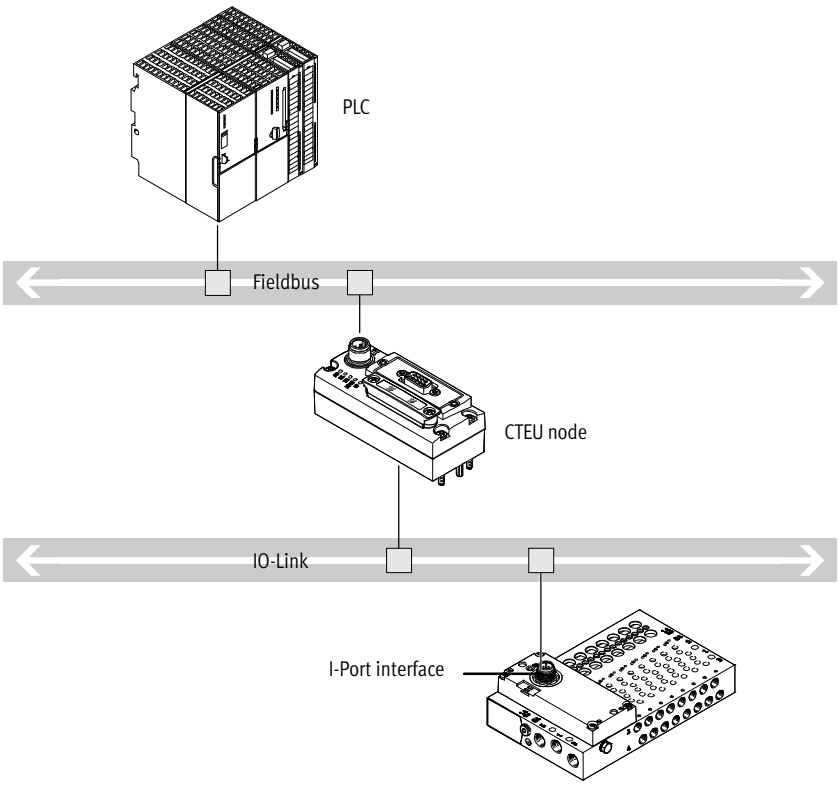
1) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation may occur. External visible parts with primarily decorative requirements for the surface and which are in direct contact with the ambient atmosphere typical for industrial applications.

LED display			
	Colour	Status	Function
Status LED X1	Red/ green	Off	No 24 V logic
		Static green	Everything OK
		Flashing green	Communication error (in the I-Port or IO-Link protocol)
		Flashing red/green	Load supply error (undervoltage or no load supply)
		Static red	Load supply error and communication error

Pin allocation – I-Port interface/IO-Link			
	Pin	Allocation	Description
	1	$24V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
	2	$24V_{VAL/OUT}$	Load voltage supply (valves/outputs)
	3	$0V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
	4	C/Q	Data communication
	5	$0V_{VAL/OUT}$	Load voltage supply (valves/outputs)

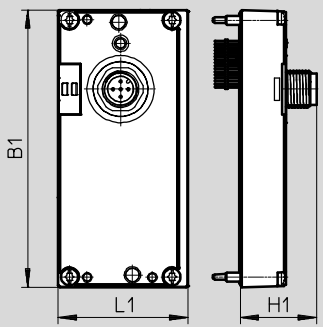
System overview – IO-Link



- Communication with the higher-order controller via fieldbus
- Use a bus node CTEU compatible with the fieldbus protocol
- Up to 64 inputs/outputs (solenoid coils), depending on the valve terminal
- No preprocessing

Dimensions Download CAD data ➔ **www.festo.com**

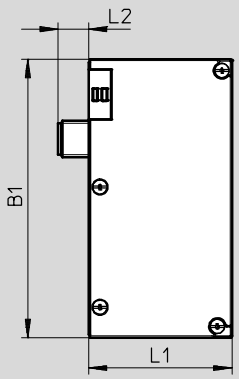
I-Port interface, outlet on top



Note

Dimensions of the manifold rail with electrical connection (➔ page 136)

I-Port interface, outlet on the side

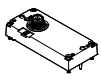


Note

Dimensions of the manifold rail with electrical connection (➔ page 136)

Type	Outlet on top			Outlet on the side		
	B1	L1	H1	B1	L1	L2
VAEM-L1-S-...	91	42.5	25	91.5	47.1	10

Ordering data

	Description	Part No.	Type
Electrical interface for I-Port interface/IO-Link, outlet on top			
	Actuation of up to 8 double solenoid valve positions	**573384**	**VAEM-L1-S-8-PT**
	Actuation of up to 16 double solenoid valve positions	**573939**	**VAEM-L1-S-16-PT**
	Actuation of up to 24 double solenoid valve positions	**573940**	**VAEM-L1-S-24-PT**
Electrical interface for I-Port interface/IO-Link, outlet on the side			
	Actuation of up to 8 double solenoid valve positions	**574207**	**VAEM-L1-S-8-PTL**
	Actuation of up to 16 double solenoid valve positions	**574208**	**VAEM-L1-S-16-PTL**
	Actuation of up to 24 double solenoid valve positions	**574209**	**VAEM-L1-S-24-PTL**
Connection technology for IO-Link			
	T-adapter M12, 5-pin for IO-Link and load supply	**171175**	**FB-TA-M12-5POL**
	Straight plug connector, M12, 5-pin, for T-adapter FB-TA	**175487**	**SEA-M12-5GS-PG7**
Inscription label for I-Port interface/IO-Link			
	40 pieces in frame	**565306**	**ASLR-C-E4**

Valve terminals VTUG, connecting blocks CAPC

Technical data – CAPC

Function

The connecting block CAPC enables decentralised installation of bus nodes CTEU on a valve terminal or input modules with I-Port interface.

Application

- M12 connection technology (two interfaces)
- Enables the installation of valve terminals or other devices over a distance of 20 metres
- Accessory CAFM enables the sub-base to be installed on an H-rail

General technical data		
Type		CAPC-F1-E-M12
Dimensions W x L x H	[mm]	50 x 148 x 28
Fieldbus interface		2x M12 socket, 5-pin
Operating voltage range	[V DC]	18 ... 30
Max. power supply	[A]	2
Nominal operating voltage	[V DC]	24
Product weight	[g]	85
Cable length	[m]	20

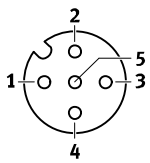
Materials	
Housing	PA reinforced
Note on materials	RoHS compliant

Operating and environmental conditions		
Degree of protection to EN 60529		IP65, IP67
Ambient temperature	[°C]	–5 ... +50
Storage temperature	[°C]	–20 ... +70
Corrosion resistance class CRC[1)]		2[1)]
CE marking (see declaration of conformity)		To EU EMC Directive[2)]

1) Corrosion resistance class 2 according to Festo standard 940 070
Components subject to moderate corrosion stress. External visible parts with primarily decorative surface requirements which are in direct contact with the surrounding industrial environment or media such as coolants or lubricating agents.

2) For information about the applicability of the component see the manufacturer's EC declaration of conformity at: www.festo.com/sp ➔ User documentation.
If the component is subject to restrictions on usage in residential, office or commercial environments or small businesses, further measures to reduce the emitted interference may be necessary.

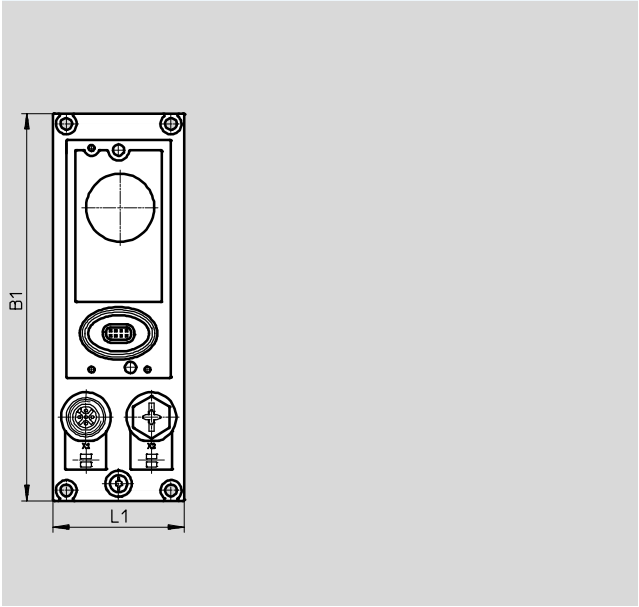
Pin allocation for power supply/IO-Link interfaces



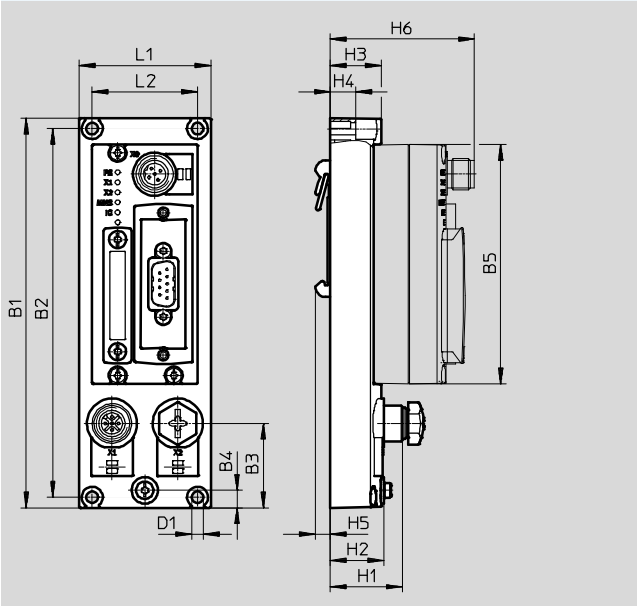
Pin	Allocation	Description
1	$24V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
2	$24V_{VAL/OUT}$	Load voltage supply (valves/outputs)
3	$0V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
4	C/Q	Data communication
5	$0V_{VAL/OUT}$	Load voltage supply (valves/outputs)
	Housing, FE	Functional earth

Dimensions Download CAD data ➔ **www.festo.com**

CAPC

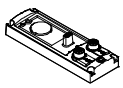
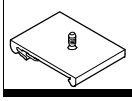


CAPC with mounted bus node CTEU-CO



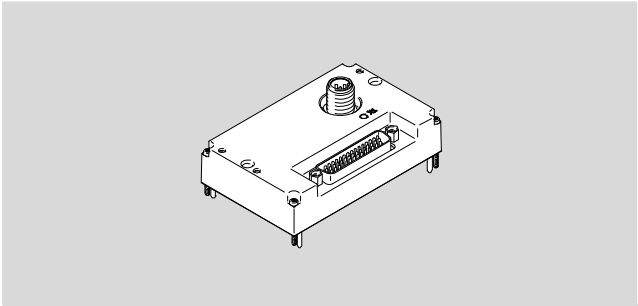
Type	B1	B2	B3	B4	B5	D1-Ø-	H1	H2	H3	H4	H5	H6	L1	L2
CAPC	148	140	32	6.6	91	4.4	27.3	20.3	19.3	9.6	5.7	54.8	50	40

Ordering data

		Part No.	Type
Connecting block			
	For connecting a second device with I-Port interface	**570042**	**CAPC-F1-E-M12**
H-rail mounting			
	For connecting block CAPC	**570043**	**CAFM-F1-H**

Valve terminals VTUG with interlock

Technical data – Interlock



Interlock

The interlock function enables the first 16 solenoid coils to be individually supplied externally.

This guarantees the safety-related release of these valves.

The interlock interface is established via external contacts for a single-pin connection or via safety output terminals for a double-pin connection.

General technical data

Communication types			I-Port/IO-Link
Number of valve positions			4...24
Max. number of solenoid coils			48
Number of interlock solenoid coils			16
Number of inputs for reading back voltage			18 (16x interlock + 2 group supply)
Mounting position			Any
Nominal flow rate		[l/min]	330
Product weight		[g]	80
Residual ripple		[V_{SS}]	4
Baud rate	COM3	[kbps]	230.4
	COM2	[kbps]	38.4
IO-Link	Protocol		V1.0
	Connection technology		M12, A-coded
	Port type		Type B
	Number of ports		1
	Process data width OUT		6 bytes
	Process data width IN		4 bytes
	Minimum cycle time		11.5 ms (2.3 ms per frame = 2 bytes of user data)
Corrosion resistance class CRC[1)]			2

1) Corrosion resistance class 2 according to Festo standard 940070
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.

Interlock interface

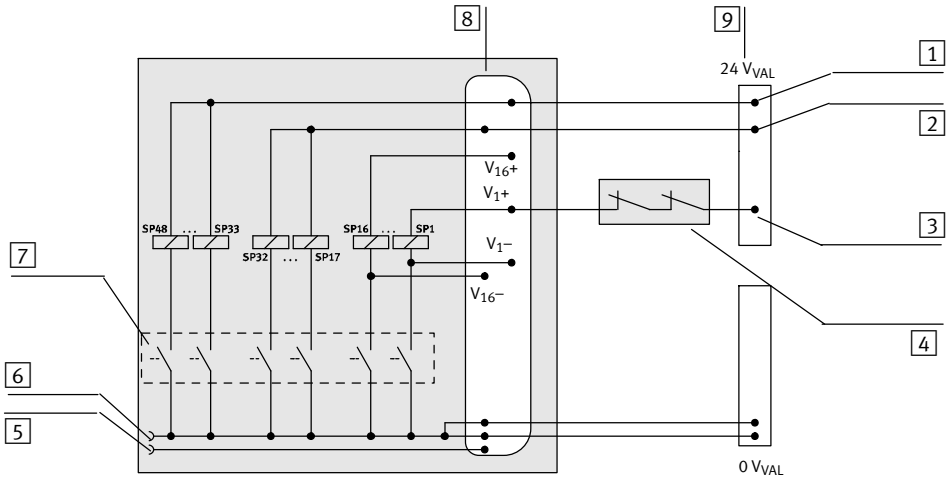
Single-pin interlock interface

- The interlock interface is established via external positive switching contacts or single-pin switching safety terminals
- 16 solenoid coils can be actuated via the interlock (Vn+)
- Solenoid coils that do not require interlock actuation can be supplied directly with 24 V from pins 1 ... 3
- Application of the respective input voltage is reported via the fieldbus as an image table

Double-pin interlock interface

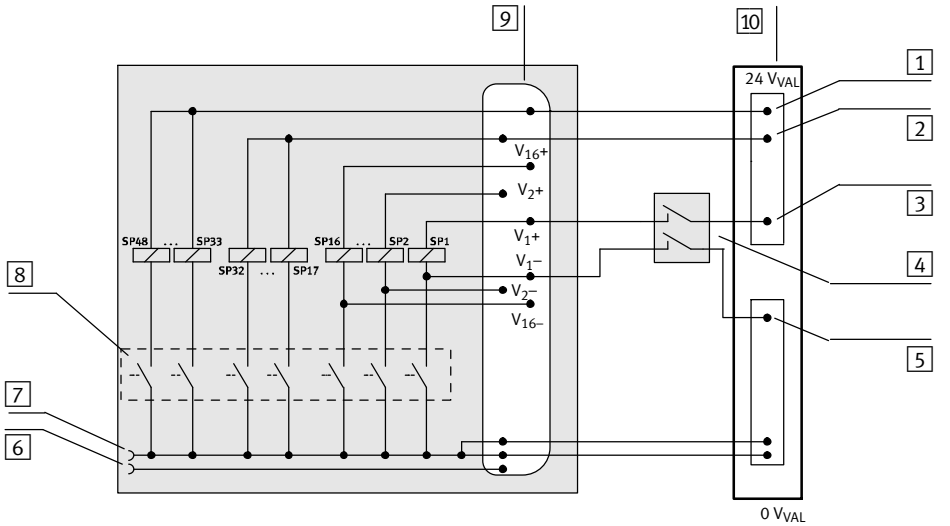
- The interlock interface is established via external positive-negative switching safety terminals
- The solenoid coils of the interlock valves are actuated via the corresponding pins in the sub-D plug connector (pins 7 ... 38)
- The solenoid coils that do not require interlock actuation can be supplied directly with 24 V (e.g. from pins 1 ... 3)
- Any difference in potential between Vn– and 0 VVAL/OUT must be below 5 V

Sample circuit diagram for a single-pin interlock interface



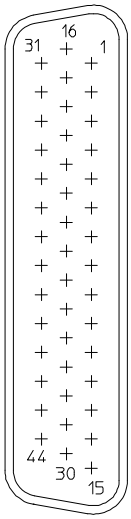
1 Power supply V+, solenoid coils 33 ... 48 (no interlock)
2 Power supply V+, solenoid coils 17 ... 32 (no interlock)
3 Actuation Vn+ (via interlock)
4 Interlock contacts of the output terminal
5 I-Port connection pin 2, 24 VVAL/OUT (PL), load voltage supply
6 I-Port connection pin 5, 0 VVAL/OUT (PL), load voltage supply
7 Driver, actuated via fieldbus/I-Port
8 Interlock Sub-D connection
9 Power supply (interlock)

Sample circuit diagram for a double-pin interlock interface



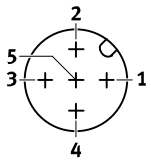
1 Power supply V+, solenoid coils 33 ... 48 (no interlock)
2 Power supply V+, solenoid coils 17 ... 32 (no interlock)
3 Actuation Vn+ (via interlock)
4 Interlock contacts of the output terminal
5 Actuation Vn– (via interlock)
6 I-Port connection pin 2, 24 VVAL/OUT (PL), load voltage supply
7 I-Port connection pin 5, 0 VVAL/OUT (PL), load voltage supply
8 Driver, actuated via fieldbus/I-Port
9 Interlock Sub-D connection
10 Power supply (interlock)

Pin allocation – Interlock



Pin	Coil	Signal	Pin	Coil	Signal	Pin	Coil	Signal
1	–	24 $V_{VAL/OUT}$	16	5	V5-	31	13	V13+
2	–	24 $V_{VAL/OUT}$	17	6	V6+	32	13	V13-
3	–	24 $V_{VAL/OUT}$	18	6	V6-	33	14	V14+
4	1 … 48	0 $V_{VAL/OUT}$	19	7	V7+	34	14	V14-
5	1 … 48	0 $V_{VAL/OUT}$	20	7	V7-	35	15	V15+
6	1 … 48	0 $V_{VAL/OUT}$	21	8	V8+	36	15	V15-
7	1	V1+	22	8	V8-	37	16	V16+
8	1	V1-	23	9	V9+	38	16	V16-
9	2	V2+	24	9	V9-	39	17 … 32	V17 … 32+
10	2	V2-	25	10	V10+	40	33 … 48	V33 … 48+
11	3	V3+	26	10	V10-	41	1 … 48	0 $V_{VAL/OUT}$
12	3	V3-	27	11	V11+	42	1 … 48	0 $V_{VAL/OUT}$
13	4	V4+	28	11	V11-	43	1 … 48	0 $V_{VAL/OUT}$
14	4	V4-	29	12	V12+	44	–	n.c.
15	5	V5+	30	12	V12-	Housing		FE

Pin allocation – I-Port interface/IO-Link

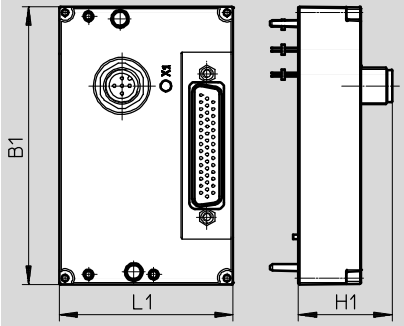


Pin	Allocation	Description
1	24$V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
2	24$V_{VAL/OUT}$	Load voltage supply (valves/outputs)
3	0$V_{EL/SEN}$	Operating voltage supply (electronics, sensors/inputs)
4	C/Q	Data communication
5	0$V_{VAL/OUT}$	Load voltage supply (valves/outputs)
Housing, FE		Functional earth

Dimensions

Download CAD data ➔ **www.festo.com**

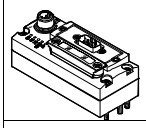
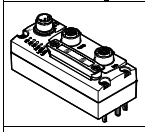
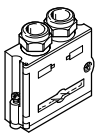
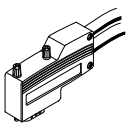
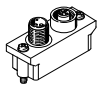
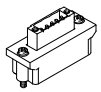
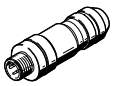
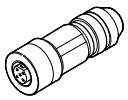
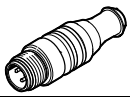
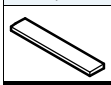
I-Port interface with interlock, outlet on top



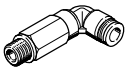
- Note

Dimensions of the manifold rail with electrical connection (➔ page 136)

Type	Outlet on top		
	B1	L1	H1
VAEM-L1-S-24-PTK	91	57	30.8

Ordering data – CTEU				
	Description		Part No.	Type
Bus node				
	CANopen bus node		**570038**	**CTEU-CO**
	CC-Link bus node		**1544198**	**CTEU-CC**
	PROFIBUS bus node		**570040**	**CTEU-PB**
	DeviceNet bus node		**570039**	**CTEU-DN**
	EtherCAT bus node		**572556**	**CTEU-EC**
Bus connection				
	Sub-D plug connector, straight	For CANopen	**532219**	**FBS-SUB-9-BU-2x5POL-B**
		For CC-Link	**532220**	**FBS-SUB-9-GS-2x4POL-B**
		For PROFIBUS	**532216**	**FBS-SUB-9-GS-DP-B**
	Sub-D plug connector, angled, 9-pin	For CANopen	**533783**	**FBS-SUB-9-WS-CO-K**
		For PROFIBUS	**533780**	**FBS-SUB-9-WS-PB-K**
	M12x1, 5-pin	A-coded, for CANopen	**525632**	**FBA-2-M12-5POL**
		B-coded, for PROFIBUS	**533118**	**FBA-2-M12-5POL-RK**
	For 5-pin terminal strip for CANopen		**525634**	**FBA-1-SL-5POL**
	Terminal strip, 5-pin, for DeviceNet/CANopen		**525635**	**FBSD-KL-2x5POL**
	Screw terminal for CC-Link		**197962**	**FBA-1-KL-5POL**
	Straight plug connector, M12x1	5-pin, for CANopen	**175380**	**FBS-M12-5GS-PG9**
		4-pin, D-coded for EtherCAT	**543109**	**NECU-M-S-D12G4-C2-ET**
		5-pin, compatible with FBA-2-M12-5POL-RK for PROFIBUS	**1066354**	**NECU-M-S-B12G5-C2-PB**
	Straight socket, M12x1, 5-pin, for assembling a connecting cable compatible with FBA-2-M12-5POL-RK for PROFIBUS		**1067905**	**NECU-M-B12G5-C2-PB**
	Terminating resistor, M12, B-coded for PROFIBUS		**1072128**	**CACR-S-B12G5-220-PB**
Plug socket				
	For power supply, M12x1, 5-pin, B-coded for CANopen/DeviceNet		**538999**	**NTSD-GD-9-M12-5POL-RK**
	For power supply, M12x1, 5-pin for CC-Link, PROFIBUS, EtherCAT		**18324**	**FBSD-GD-9-5POL**
Inscription label				
	For bus node		**565306**	**ASLR-C-E4**

Ordering data

	Description			Part No.	Type	PU[1]
Push-in fitting, straight						Technical data ➔ Internet: qsm
	M5 thread	For tubing Ø 3 mm	–	**153313**	**QSM-M5-3-I**	**10**
			Round releasing ring	**133003**	**QSM-M5-3-I-R**	**10**
		For tubing Ø 4 mm	–	**153315**	**QSM-M5-4-I**	**10**
	M5 thread	For tubing Ø 4 mm	Round releasing ring	**133004**	**QSM-M5-4-I-R**	**10**
		For tubing Ø 6 mm	Round releasing ring	**133005**	**QSM-M5-6-I-R**	**10**
	M7 thread	For tubing Ø 4 mm	–	**153319**	**QSM-M7-4-I**	**10**
		For tubing Ø 6 mm	Round releasing ring	**133007**	**QSM-M7-6-I-R**	**10**
	G1/8 thread	For tubing Ø 4 mm	–	**186106**	**QS-G1/8-4-I**	**10**
		For tubing Ø 6 mm	–	**186107**	**QS-G1/8-6-I**	**10**
		For tubing Ø 8 mm	–	**186109**	**QS-G1/8-8-I**	**10**
		For tubing Ø 10 mm	–	**132151**	**QS-B-1/8-10-I-20**	**20**
	G1/4 thread	For tubing Ø 8 mm	–	**132280**	**QS-B-1/4-8-I**	**1**
			–	**130995**	**QS-B-1/4-8-I-20**	**20**
		For tubing Ø 10 mm	–	**132842**	**QS-B-1/4-10-I**	**1**
			–	**132152**	**QS-B-1/4-10-I-20**	**20**
		For tubing Ø 12 mm	–	**132153**	**QS-B-1/4-12-I-20**	**20**
	G3/8 thread	For tubing Ø 8 mm	–	**130921**	**QS-B-3/8-8-10**	**10**
		For tubing Ø 10 mm	–	**130922**	**QS-B-3/8-10-10**	**10**
		For tubing Ø 12 mm	–	**132123**	**QS-B-3/8-12-10**	**10**
		For tubing Ø 16 mm	–	**132124**	**QS-B-3/8-16-10**	**10**
Push-in fitting, angled						Technical data ➔ Internet: qsl
	M5 thread	For tubing Ø 3 mm	–	**153331**	**QSML-M5-3**	**10**
		For tubing Ø 4 mm	–	**153333**	**QSML-M5-4**	**10**
	M7 thread	For tubing Ø 4 mm	–	**186352**	**QSML-M7-4**	**10**
	G1/8 thread	For tubing Ø 6 mm	–	**132111**	**QSML-B-1/8-6-20**	**20**
		For tubing Ø 6 mm	–	**186117**	**QSL-G1/8-6**	**10**
		For tubing Ø 8 mm	–	**186119**	**QSL-G1/8-8**	**10**
		For tubing Ø 10 mm	–	**132126**	**QSL-B-1/8-10-20**	**20**
	G1/4 thread	For tubing Ø 8 mm	–	**132220**	**QSL-B-1/4-8**	**1**
		For tubing Ø 8 mm	–	**130931**	**QSL-B-1/4-8-20**	**20**
		For tubing Ø 10 mm	–	**132817**	**QSL-B-1/4-10**	**1**
		For tubing Ø 10 mm	–	**132127**	**QSL-B-1/4-10-20**	**20**
		For tubing Ø 12 mm	–	**132128**	**QSL-B-1/4-12-20**	**20**
Push-in fitting, long, angled						Technical data ➔ Internet: qsll
	M5 thread	For tubing Ø 3 mm	–	**130838**	**QSMLL-M5-3**	**10**
		For tubing Ø 4 mm	–	**153339**	**QSMLL-M5-4**	**10**
	M7 thread	For tubing Ø 4 mm	–	**186354**	**QSMLL-M7-4**	**10**
	G1/8 thread	For tubing Ø 6 mm	–	**186128**	**QSLL-G1/8-6**	**10**
		For tubing Ø 8 mm	–	**186130**	**QSLL-G1/8-8**	**10**
Blanking plug						Technical data ➔ Internet: b
	For M5 thread			**174308**	**B-M5-B**	**10**
	For M7 thread			**174309**	**B-M7**	**10**
	For G1/8 thread			**3568**	**B-1/8**	**10**
	For G1/4 thread			**3569**	**B-1/4**	**10**

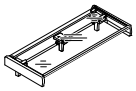
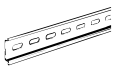
1) Packaging unit.

Ordering data

	Description			Part No.	Type	PU[1]
Silencer					Technical data ➔ Internet: amte	
	For M5 thread			**165003**	**UC-M5**	**1**
	For M7 thread			**161418**	**UC-M7**	**1**
	For G⅛ thread			**161419**	**UC-1/8**	**1**
				534222	**U-1/8-50**	**50**
	For G¼ thread	High flow rate		**2316**	**U-1/4**	**1**
				534223	**U-1/4-20**	**20**
		Lower flow rate		**165004**	**UC-1/4**	**1**
				534220	**UC-1/4-20**	**20**
Blanking plate						
	Vacant position width 10 mm			**573422**	**VABB-L1-10-T**	**1**
	Vacant position width 14 mm			**573488**	**VABB-L1-14-T**	**1**
	Vacant position width 18 mm			**8004897**	**VABB-L1-18-T**	**1**
Supply plate						
	Supply ports 1, 3, 5, width 10 mm			**573924**	**VABF-L1-10-P3A4-M7-T1**	**1**
	Supply ports 1, 3, 5, width 14 mm			**573925**	**VABF-L1-14-P3A4-G18-T1**	**1**
	Supply ports 1, 3, 5, width 18 mm			**8004898**	**VABF-L1-18-P3A4-G14-T1**	**1**
Separator						
	For manifold rail, size 10, M5/M7	For sub-base valves		**569994**	**VABD-6-B**	**1**
		For semi in-line valves		**569995**	**VABD-8-B**	**1**
	For all manifold rails, size 14, G1/8			**569996**	**VABD-10-B**	**1**
	For all manifold rails, size 18, G1/4			**569997**	**VABD-12-B**	**1**
Cover cap for manual override						
	Covered			**540898**	**VMPA-HBV-B**	**10**
	Non-detenting			**540897**	**VMPA-HBT-B**	**10**
	Detenting (without accessories)			**8002234**	**VAMC-L1-CD**	**10**
Inscription label holder					Technical data ➔ Internet: aslr	
	Holder for an inscription label and covering the mounting screw and manual override			**570818**	**ASLR-D-L1**	**10**
Flow control						
	For M5 valves, for setting the flow rate during pressurisation and exhausting b value: 0.5	Flow rate: 9.6 l/min	C value: 0.04	**8025709**	**VFFG-T-M5-5**	**10**
		Flow rate: 14.6 l/min	C value: 0.05	**8025710**	**VFFG-T-M5-6**	**10**
		Flow rate: 19.1 l/min	C value: 0.07	**8025711**	**VFFG-T-M5-7**	**10**
		Flow rate: 26.1 l/min	C value: 0.10	**8025712**	**VFFG-T-M5-8**	**10**
		Flow rate: 40.8 l/min	C value: 0.14	**8025713**	**VFFG-T-M5-10**	**10**
		Flow rate: 45.4 l/min	C value: 0.16	**8025714**	**VFFG-T-M5-12**	**10**
		Flow rate: 67.4 l/min	C value: 0.25	**8025715**	**VFFG-T-M5-15**	**10**

1) Packaging unit.

Ordering data

	Description		Part No.	Type
Inscription label holder for valve terminal				
	Size 10	For 4 valve positions	**573453**	**ASCF-H-L1-10-4V**
		For 5 valve positions	**573454**	**ASCF-H-L1-10-5V**
		For 6 valve positions	**573455**	**ASCF-H-L1-10-6V**
		For 7 valve positions	**573456**	**ASCF-H-L1-10-7V**
		For 8 valve positions	**573457**	**ASCF-H-L1-10-8V**
		For 9 valve positions	**573458**	**ASCF-H-L1-10-9V**
		For 10 valve positions	**573459**	**ASCF-H-L1-10-10V**
		For 12 valve positions	**573460**	**ASCF-H-L1-10-12V**
		For 16 valve positions	**573461**	**ASCF-H-L1-10-16V**
		For 20 valve positions	**573462**	**ASCF-H-L1-10-20V**
		For 24 valve positions	**573463**	**ASCF-H-L1-10-24V**
	Size 14	For 4 valve positions	**573511**	**ASCF-H-L1-14-4V**
		For 5 valve positions	**573512**	**ASCF-H-L1-14-5V**
		For 6 valve positions	**573513**	**ASCF-H-L1-14-6V**
		For 7 valve positions	**573514**	**ASCF-H-L1-14-7V**
		For 8 valve positions	**573515**	**ASCF-H-L1-14-8V**
		For 9 valve positions	**573516**	**ASCF-H-L1-14-9V**
		For 10 valve positions	**573518**	**ASCF-H-L1-14-10V**
		For 12 valve positions	**573519**	**ASCF-H-L1-14-12V**
		For 16 valve positions	**573520**	**ASCF-H-L1-14-16V**
		For 20 valve positions	**573521**	**ASCF-H-L1-14-20V**
		For 24 valve positions	**573522**	**ASCF-H-L1-14-24V**
	Size 18	For 4 valve positions	**8004928**	**ASCF-H-L1-18-4V**
		For 5 valve positions	**8004929**	**ASCF-H-L1-18-5V**
		For 6 valve positions	**8004930**	**ASCF-H-L1-18-6V**
		For 7 valve positions	**8004931**	**ASCF-H-L1-18-7V**
		For 8 valve positions	**8004932**	**ASCF-H-L1-18-8V**
		For 9 valve positions	**8004933**	**ASCF-H-L1-18-9V**
		For 10 valve positions	**8004934**	**ASCF-H-L1-18-10V**
		For 12 valve positions	**8004935**	**ASCF-H-L1-18-12V**
		For 16 valve positions	**8004936**	**ASCF-H-L1-18-16V**
		For 20 valve positions	**8004937**	**ASCF-H-L1-18-20V**
		For 24 valve positions	**8004938**	**ASCF-H-L1-18-24V**
H-rail				Technical data ➔ Internet: nrh
	To EN 60715, 35 x 7.5 (WxH)	Length: 2 m	**35430**	**NRH-35-2000**
H-rail mounting				Technical data ➔ Internet: vame
	Use the following screws for mounting: Size 10: M4x30 to DIN 912 Size 14: M4x40 to DIN 912 Size 18: DIN 912: M5x50		**569998**	**VAME-T-M4**