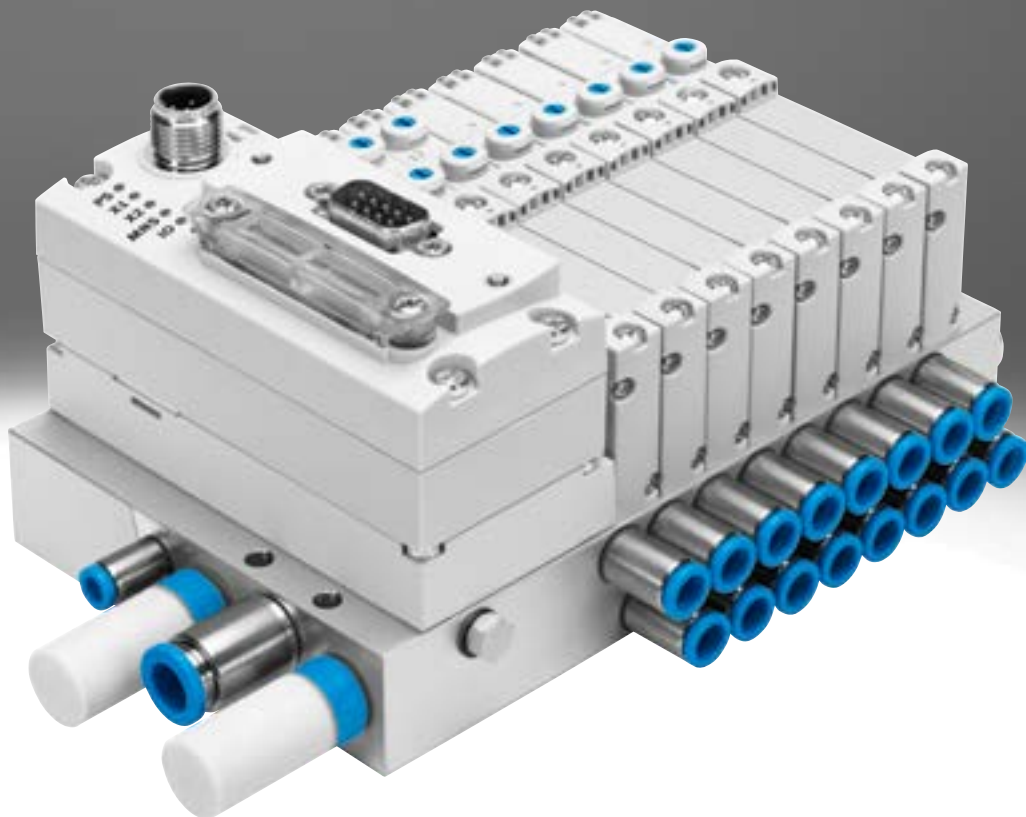


Solenoid valves VUVG/valve terminals VTUG

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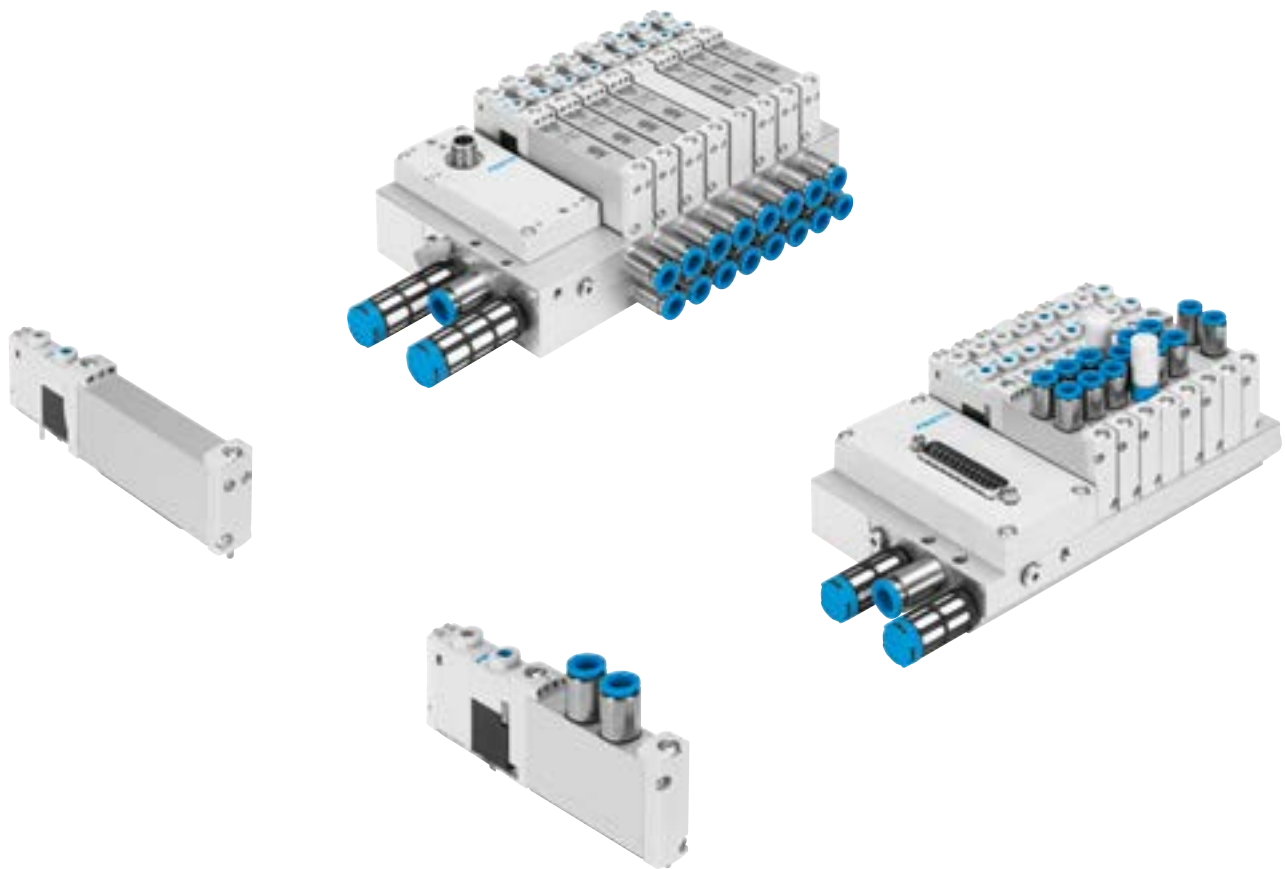
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Key features



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
- Different multi-pin plug connections using Sub-D or ribbon cable
- Reversible piston spool valves, up to 24 valve positions
- Reduced power consumption
- Excellent price/performance ratio

Flexible

- Choice of quick push-in connectors
- Multiple pressure zones possible
- Sub-D variant and fieldbus interface with protection to IP67
- Internal or external pilot air with the same manifold rail possible by using blanking plugs
- Sub-base valves with working ports underneath for installation in control cabinets

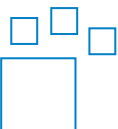
Reliable

- 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 install

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

Ordering data – Product options



Configurable product
This product and all its product options can be ordered using the configurator.

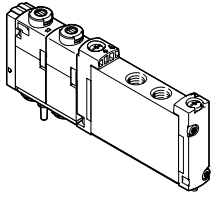
The configurator can be found under Products on the DVD or at
→ www.festo.com/catalogue/...

Part no.	Type
573606	VTUG
8060699	VTUG-VI-EX2E
8143237	VTUG-F1A

Key features

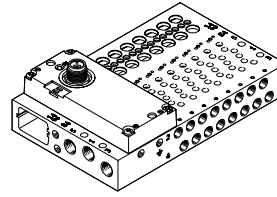
Sub-base and semi in-line valves for valve terminal VTUG

VUVG-S...1T1, semi in-line valve

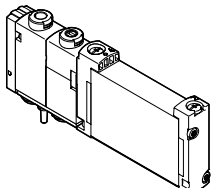


The supply ports (1, 3 and 5) for semi in-line valves are connected to the valve by common pneumatic links (e.g. sub-base). The working ports (2, 4) are on the valve.

Valve terminal VTUG with different electrical connections

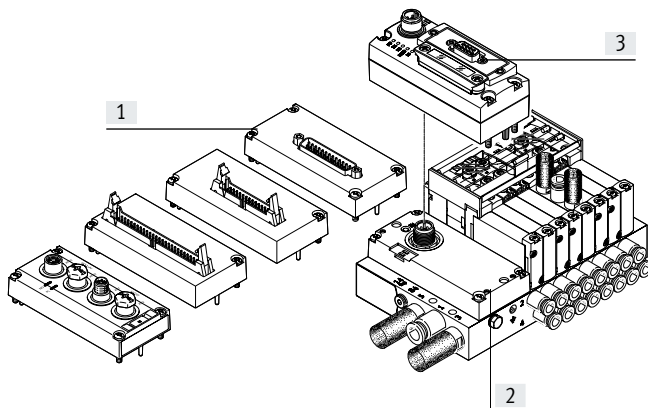


VUVG-B...1T1, sub-base valve



In the case of sub-base valves, the supply ports (1, 3 and 5) and the working ports (2, 4) are connected to the valve via pneumatic links (e.g. sub-base).

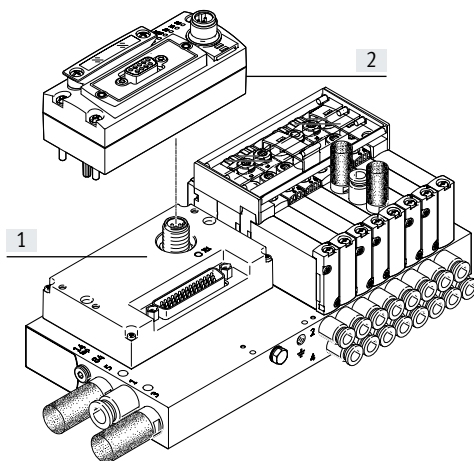
Overview – Valve terminal with multi-pin plug connection and fieldbus interface



Different electrical connections:

- [1] Ribbon cable or Sub-D
- [2] I-Port interface
- [3] Bus node CTEU

Overview – Valve terminal with interlock



Different electrical connections:

- [1] I-Port interface with interlock
- [2] Bus node CTEU

Key features

Equipment options

Valve functions

- 2x 3/2-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)
- Different multi-pin plug connections using Sub-D or ribbon cable
- Festo-specific I-Port interface with interlock (for valves of size 10 mm)

Basic valves VUVG

Size

- 10
- 14
- 18

Variants

- Semi in-line valve
- Sub-base valve

Valve functions

3/2-way valve

- Single solenoid
- Normally open
- Normally closed

2x 3/2-way valve

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

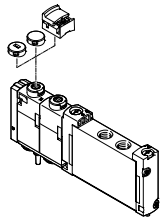
5/2-way valve

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

5/3-way valve

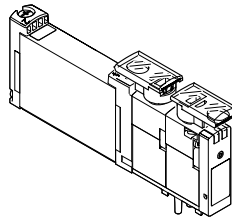
- Mid-position pressurised
- Mid-position exhausted
- Mid-position closed

Cover caps for manual override



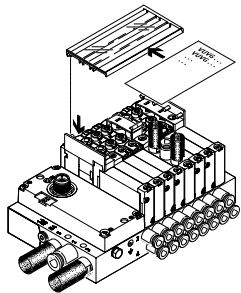
- Closed cover cap, concealed manual override
- Slotted cover cap, non-detenting manual override
- Cover cap for detenting actuation without tools

Identification holder



Identification holder ASLR-D-L1 for identifying the valves and as a covering for the manual override.

Inscription label holders

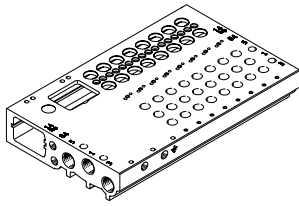


Inscription label holder ASCF-H-L1-... for identifying the valves on the valve terminal VTUG

Key features – Pneumatic components

Manifold rail

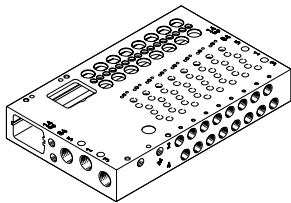
For semi in-line valves



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

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

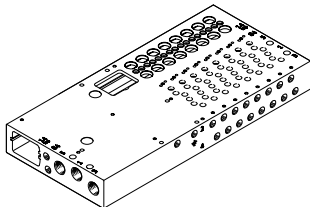
For sub-base valves



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

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

Long version

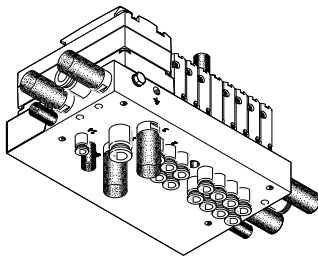


Versions:

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

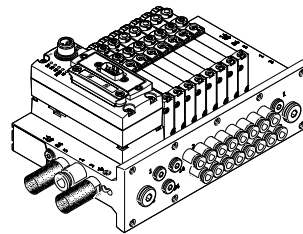
- Interlock:
For sub-base and semi in-line valves M5/M7 (size 10)

For control cabinet installation, outlet orientation underneath (U)



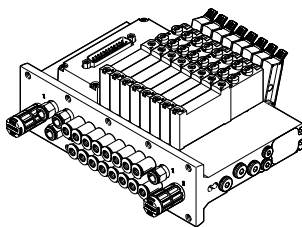
For sub-base valves M7 (size 10), G1/8 (size 14) and G1/4 (size 18).

For control cabinet installation, outlet orientation at the front (FD)



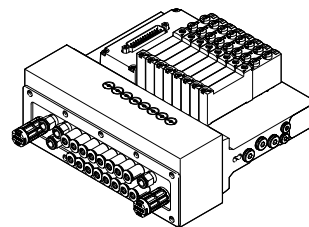
For sub-base valves M7 (size 10) and G1/8 (size 14).

For control cabinet installation with shut-off function (hot swap)



Shut-off function for duct 1, for sub-base valves M7 (size 10) and G1/8 (size 14):

- Internal pilot air supply only
- Vacuum operation not possible



Shut-off function for duct 2 and 4, for sub-base valves M7 (size 10) and G1/8 (size 14):

- Internal/external pilot air supply
- Vacuum operation not possible

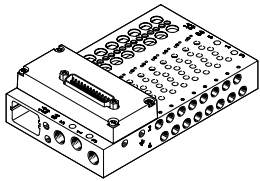
Note

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

Key features

Electrical connection

Multi-pin plug connection



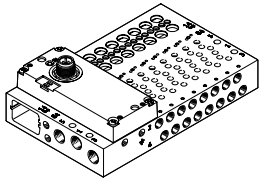
The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection.

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

Versions:

- Sub-D connection
- Ribbon cable

I-Port interface



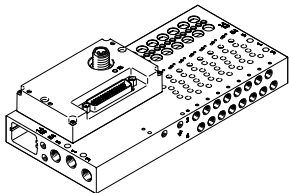
Festo-specific interface as a basis for bus nodes (CTEU) or in IO-Link mode for direct connection to a higher-order IO-Link master.

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.

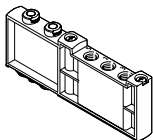
The external supply guarantees the safety-related enabling of these valves.



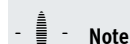
Note

The VTUG variant with multi-pin plug connection and fieldbus interface offers the additional option of individual electrical actuation of the valves (→ page 27).

Supply plate



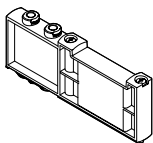
For additional air supply and exhaust via a valve position (ports for duct 1, 3 and 5).



Note

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

Cover plate for vacant position



Vacant position cover

Separator for pressure zones



For creating multiple pressure zones in a valve terminal

Key features – Pneumatic components

Creating pressure zones and separating exhaust air

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

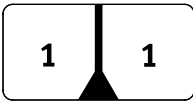
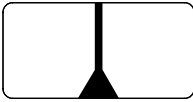
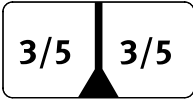
The position of the supply plates and duct separations can be freely selected with the VTUG.

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

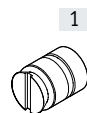
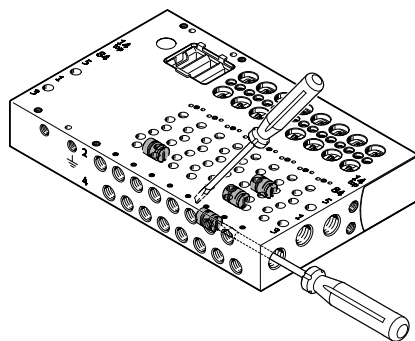
Pressure zone separation can be used for the following ducts:

- Duct 1
- Duct 3
- Duct 5

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

Duct separation	Description
	<p>The pressure zones can be freely configured with the VTUG. The following duct separations are possible:</p> <p>Duct 1 closed </p> <p>Duct 1, 3, 5 closed </p> <p>Duct 3, 5 closed </p>
	<p>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.</p>

Separator VABD



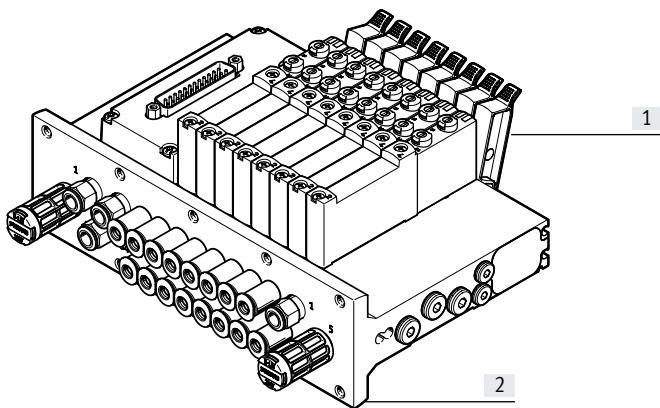
[1] Separator VABD

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

Key features – Pneumatic components

Shut-off function (hot swap)

For duct 1



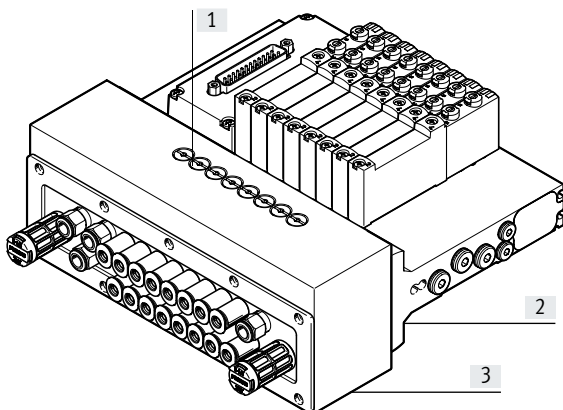
- [1] Actuating lever
- [2] Manifold rail with shut-off plate

The shut-off plate is located below the manifold block. Actuating the lever:

- disconnects the valve position from the compressed air supply (duct 1)
- exhausts the pilot air supply on the valve side (duct 12 and 14)
- Note the user instructions for use in combination with a supply plate

The actuating levers can be individually locked in place, securing them against unwanted actuation.

For duct 2 and 4



- [1] Plunger
- [2] Manifold rail
- [3] Manifold block

To actuate, press in the plunger with a pointed object or screwdriver and then turn clockwise through 90° until the stop is reached:

- Connection from the valve position to ports 2 and 4 is blocked
- No exhausting of components connected at ports 2 and 4

Pilot air supply

Internal pilot air supply

Internal pilot air supply can be chosen with an operating pressure between 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.

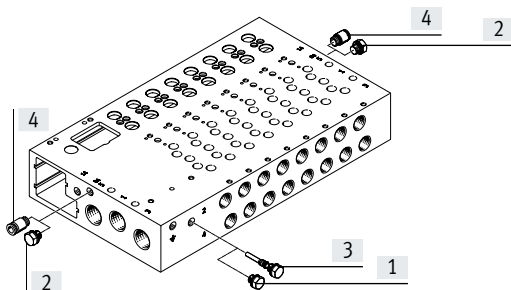
External pilot air supply

External pilot air supply is required for vacuum operation or 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

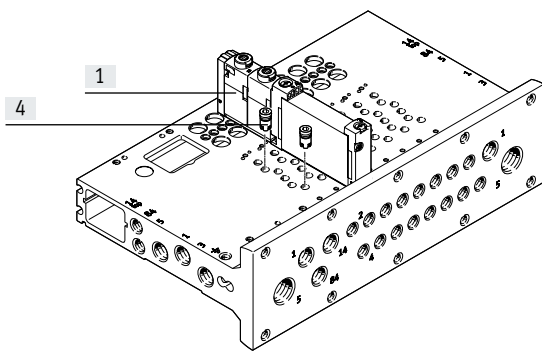
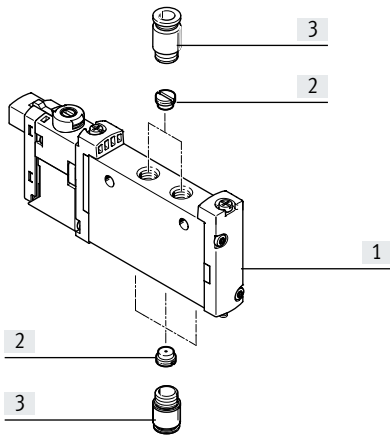


- [1] Blanking plug, short, with internal pilot air
- [2] Blanking plug for duct 12/14 with internal pilot air
- [3] Blanking plug, long, with external pilot air
- [4] Push-in fitting in duct 12/14 with external pilot air

The manifold rails have an internal connection between duct 12/14 and duct 1. By inserting a blanking plug into this connection, it is possible to switch between internal and external pilot air.

Key features – Pneumatic components

Exhaust functions



- [1] Valves VUVG
- [2] Flow control valve for M5 thread
- [3] Fitting
- [4] Fixed flow restrictor, self-tapping/check valve

Flow control valve for M5 thread

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

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

Fixed flow restrictor, self-tapping

The fixed flow restrictor can be used to permanently set the exhaust flow rate in ducts 3 and 5.


The fixed flow restrictors are screwed into ducts 3 and 5 in the manifold rail.

Please see the relevant assembly instructions:
www.festo.com/catalogue/...
 → Support/Downloads

Check valve

Check valves block the flow towards the valves if back pressure develops in ducts 3 and 5 in the case of a high exhaust capacity, thereby preventing actuators from switching unexpectedly. The check valves are screwed into ducts 3 and 5 in the manifold rail.

Please see the relevant assembly instructions:
www.festo.com/catalogue/...
 → Support/Downloads

 **Note**

- It is not possible to use a check valve and a fixed flow restrictor (in the same duct) at the same time.
- When screwing in again, use the threads already present.

Key features – Pneumatic components

Operation with different pressures

Vacuum operation

Points to note with 3/2-way valves with pneumatic spring return:

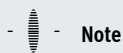
The 3/2-way valves are available in a design with two valves in one valve body and with pneumatic spring return. With these valves, the force for the return movement is obtained from port 1.

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.

Vacuum operation is not possible when using the shut-off function (hot swap).

Reverse operation

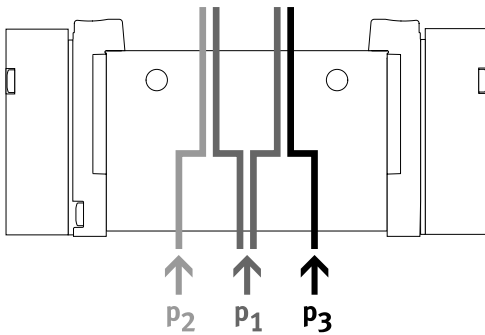
The 3/2-way valves with pneumatic spring are not suitable for reverse operation, since at least the minimum pilot pressure must be present in duct 1.



Note

Pressure must be present at port 1.

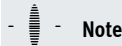
Pressure divider (internal pilot air)



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

Advantages

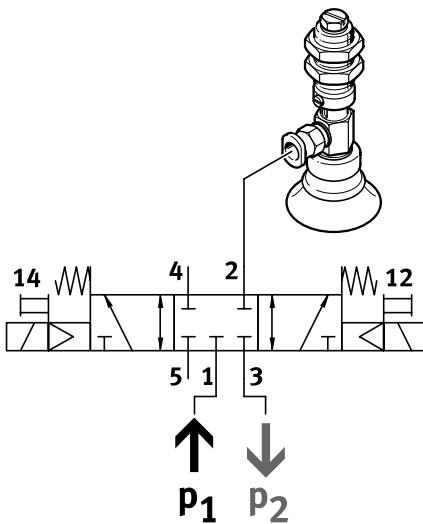
Any pressure or vacuum can be connected at duct 3 and 5 both with external and internal pilot air



Note

- With internal pilot air, adhere to the minimum pilot pressure in duct 1
- With 2x 3/2-way valves without spring return, to the to minimum pilot pressure in duct 1

Vacuum, ejector pulse and normal position

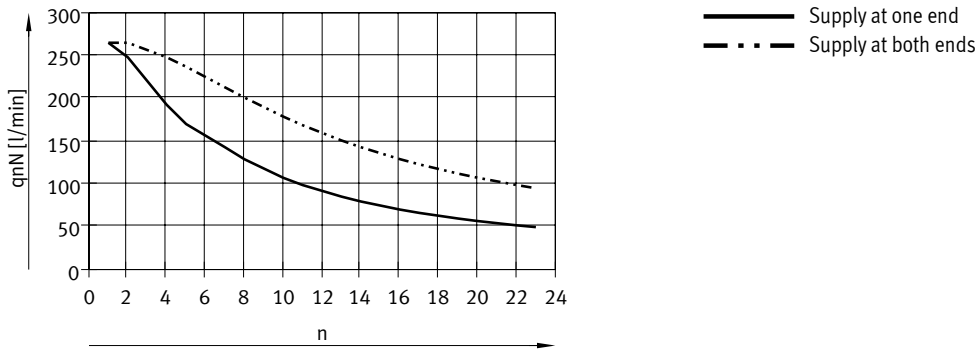


Vacuum, ejector pulse and normal position with internal pilot air can be achieved by connecting vacuum at duct 3 and pressure for the ejector pulse at duct 1.

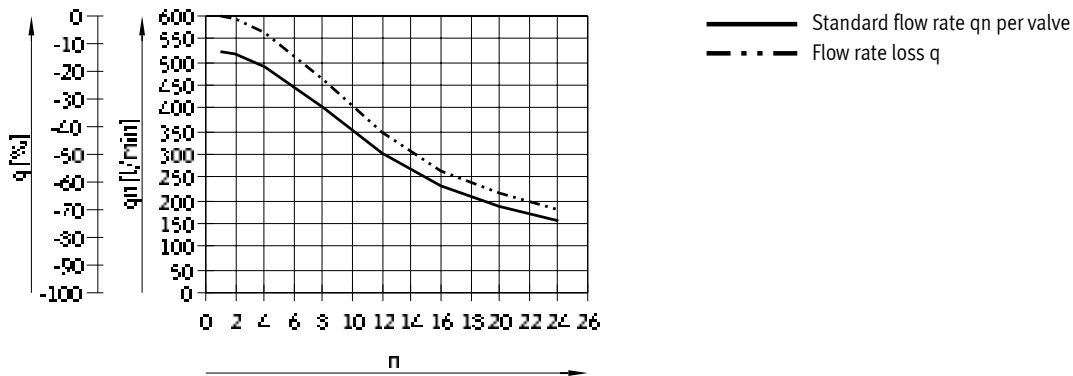
Key features – Pneumatic components

Standard nominal flow rate q_{nN} as a function of the number of switched valves n

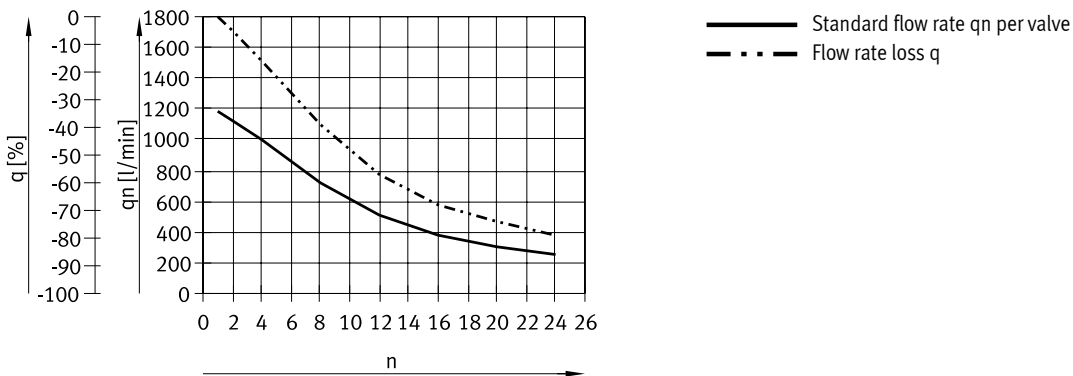
Size 10 mm, 5/2-way valves



Size 14 mm



Size 18 mm

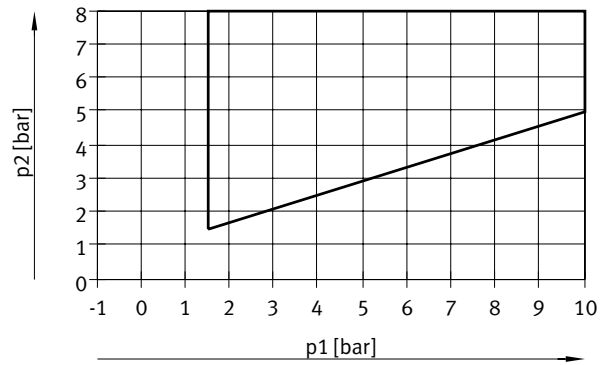
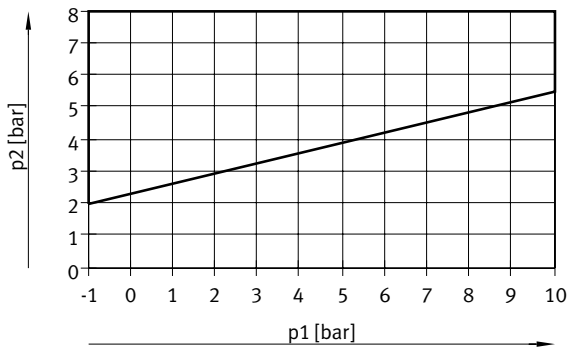


Key features – Pneumatic components

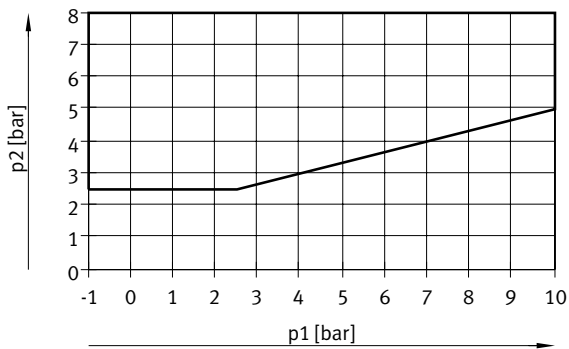
Pilot pressure p_2 as a function of operating pressure p_1

2x 3/2-way valve, mechanical spring return

2x 3/2-way valve, pneumatic spring return



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



Key features – Mounting

Valve terminal mounting

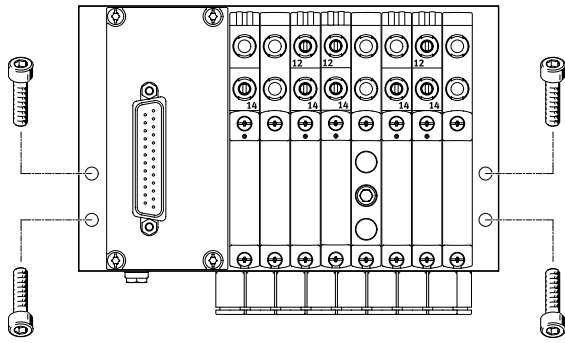
Sturdy terminal mounting via:

- Four through-holes for wall mounting
- H-rail mounting
- Mounting bracket

 **Note**

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

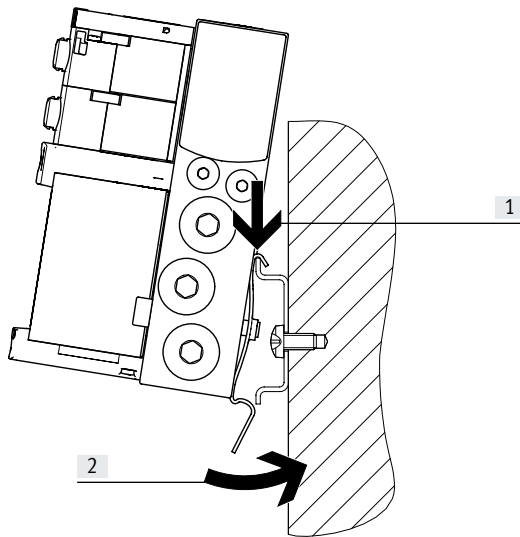
Wall mounting



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




Clip the valve terminal VTUG onto the H-rail (see arrow [1]).

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

Attach the manifold rails to a rail to EN 60715-TH35 using the H-rail mounting VAME-T-M4.

Use the following screws (to DIN 912) for mounting:

- Size 10: M4x30
- Size 14: M4x40
- Size 18: M5x50

 **Note**

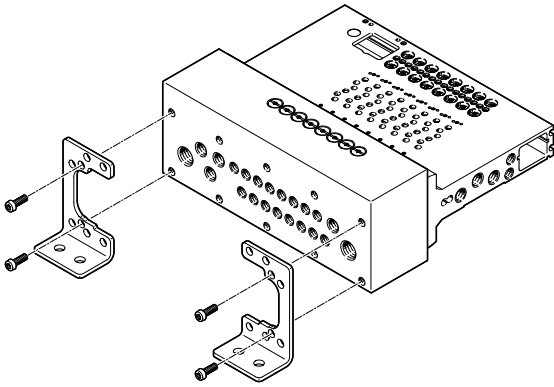
Permissible use of the H-rail:

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

Key features – Mounting

Valve terminal mounting

Mounting with mounting bracket



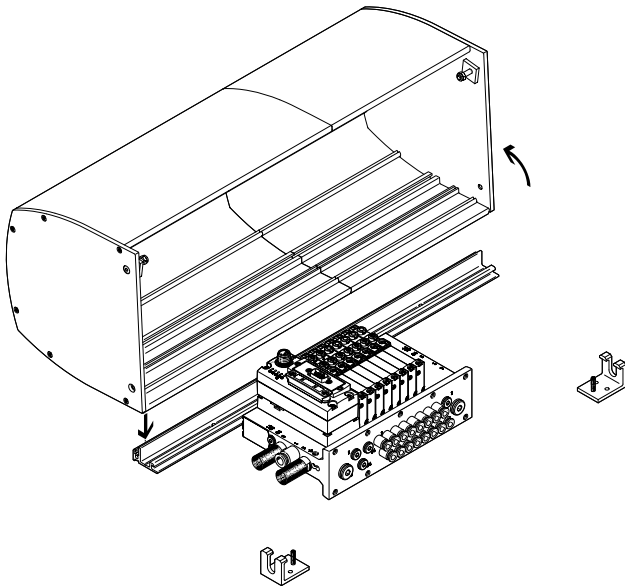
The valve terminal VTUG is screwed onto the mounting bracket using four M4x16 screws. This enables the valve terminal to be mounted horizontally on the mounting surface.

The mounting brackets can be combined with the manifold rail for sub-base valves, for control cabinet installation with outlet orientation at the front.

Key features – Mounting

Hood for VTUG-VI-EX2

Description



The VTUG-VI-EX2 hood CAFC is a space- and cost-saving alternative to a control cabinet.

It is designed as an extruded aluminium profile and is installed on a mounting plate.

The valve terminal is well protected and is quick to install without the need for complex cabinet through-feed for connecting cables and tubing.

The rail and the two mounting brackets are mounted on a base plate. The hood is attached to the retaining rail and secured with two screws. There is also a stand-by position (detent of the hood in the open position).

The hood is locked using two side screws (which meet the requirements for a special fastener in compliance with ATEX).

The VTUG-VI-EX2 hood can be ordered online using the valve terminal configurator.

Advantages of the VTUG-VI-EX2 hood

- Impact protection (min. 7 J) for the modules underneath in combination with a suitable mounting plate provided by the user
- Protection against electrostatic discharge by using electrically conductive materials and the option of connecting an earth wire
- Protection against disconnection of live plugs (by securing the hood with at least one special fastener to EN 60079-0, 9.2 and 20)
- UV protection for the VTUG modules underneath

Points to note when using the VTUG-VI-EX2 hood

- VTUG-VI-EX2 power supply via angled plugs, no T plugs, no push-pull
- Electrical supply plate/additional supply only possible with angled plug
- Use of larger fittings (for tubing O.D. 12 mm and larger) only possible with the angled design
- Ducted exhaust air only with elbow connector
- The permissible ambient temperature range of the valve terminal is reduced by 5°C.

Note

The VTUG-VI-EX2 hood has no influence on the ATEX classification of the valve terminal or of the VTUG-VI-EX2 terminal.

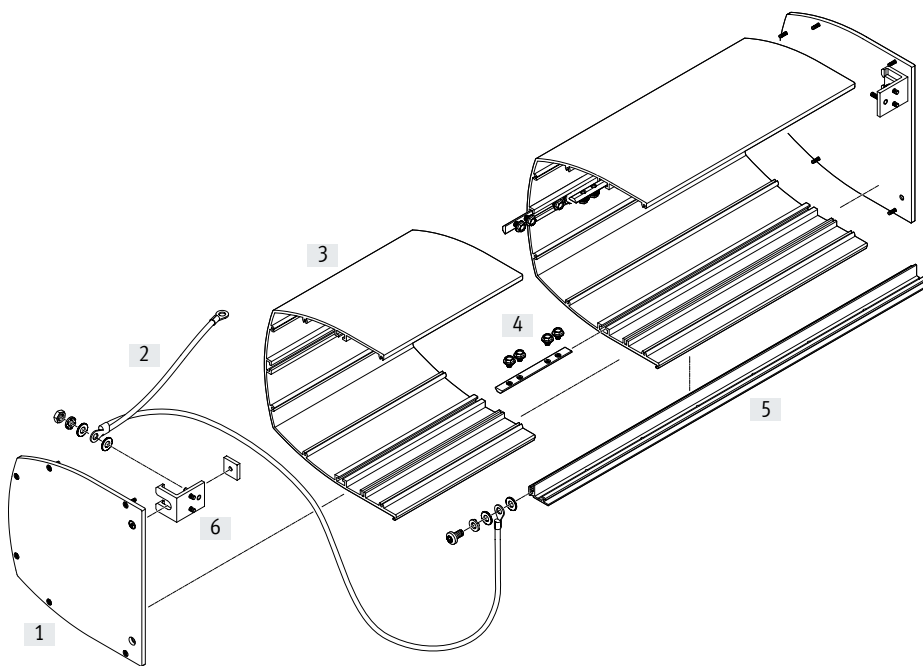
The VTUG-VI-EX2 hood has no influence on the IP degree of protection of the valve terminal or of the VTUG-VI-EX2 terminal.

The VTUG-VI-EX2 hood does not protect against the effects of the weather in installations that are not in enclosed spaces.

Key features – Mounting

Hood for VTUG-VI-EX2

Mounting



Procedure:

- Assemble the rail and mounting bracket included in the mounting kit
- Attach the earthing cable
- Assemble the hood (if applicable, screw together several hood sections and attach the side covers)
- Attach and secure the hood

- [1] Side cover
- [2] Earthing cable
- [3] Hood section
- [4] Slot nut with screws, for joining the hood sections
- [5] Rail
- [6] Mounting bracket

Technical data

Weight:

- Hood: approx. 500 g per 100 mm of length
- Mounting rail: approx. 550 g per 1000 mm of length
- Side pieces: approx. 500 g per side

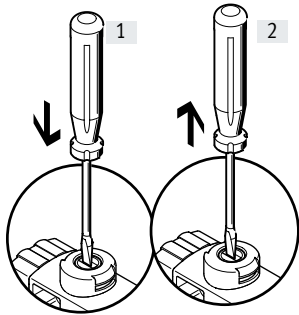
- Ambient temperature $-5 \dots +50^{\circ}\text{C}$

- RoHS-compliant

Key features – Mounting

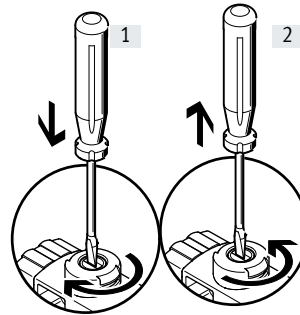
Manual override (MO)

Manual override with automatic return (non-detenting)



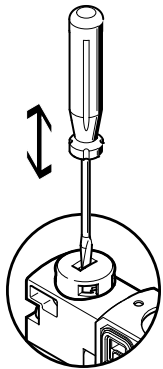
- [1] Press in the plunger of the MO with a pointed object or screwdriver. The pilot valve switches and actuates the main valve.
- [2] Remove the pointed object or screwdriver. The spring force pushes the plunger of the manual override back. The pilot valve returns to its normal position as does the main single solenoid valve (not the case with double solenoid valve code J).

MO with locking (detenting)



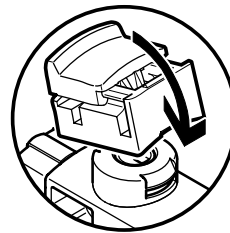
- [1] Press in the plunger of the MO with a pointed object or screwdriver until the valve switches and then turn the plunger clockwise by 90° until the stop is reached. The valve remains actuated
- [2] Turn the plunger anti-clockwise by 90° until the stop is reached and then remove the pointed object or screwdriver. The spring force pushes the plunger of the manual override back. The valve returns to its normal position (not the case with double solenoid valve code J).

MO non-detenting – with coded cover cap



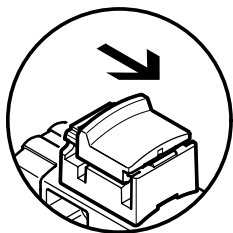
MO is actuated by pushing it with a pointed object or screwdriver and reset by spring force (detenting position prevented by coded cover cap).

MO detenting without tools – mounting



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

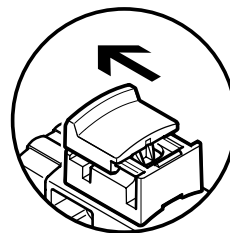
MO detenting without tools – actuation



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

- Cap locks into the end position
- The pilot valve switches and actuates the main valve.

MO detenting without tools – actuation



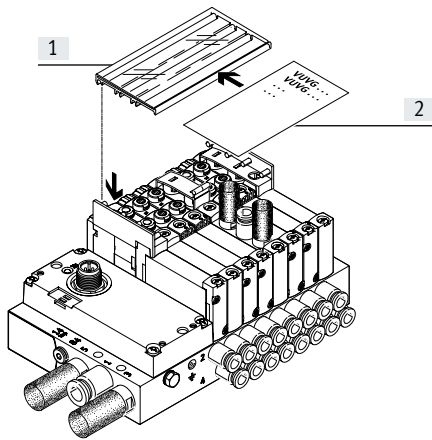
Sliding the cap for the MO in the direction of the arrow causes the following to happen:

- Cap locks into the end position
- The spring force pushes the plunger of the manual override back.
- The pilot valve returns to its normal position as does the main single solenoid valve (not the case with double solenoid valve code J).

Key features – Mounting

Inscription system

Inscription label holders



- [1] Inscription label holder AS-CF-H-L1 (code TT)
- [2] Inscription field

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.



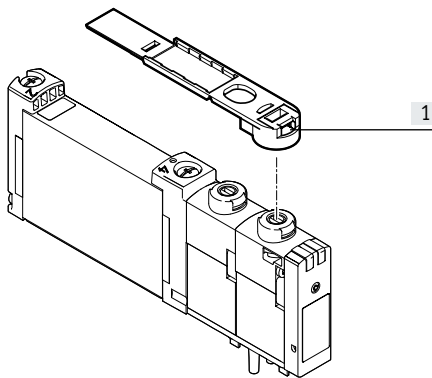
Note

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.

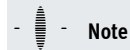
The manual override can then only be operated as non-detenting.

Identification holder



- [1] Identification holder ASLR-D-L1 (code TV)

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

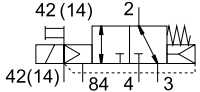
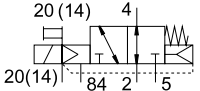
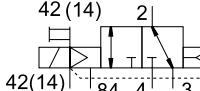
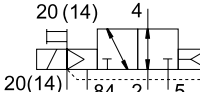
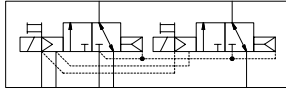
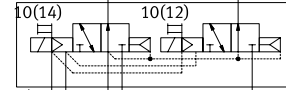
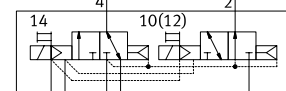
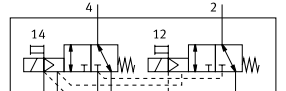
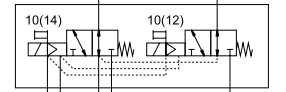
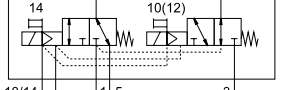


Note

Do not engage the manual override before mounting the identification holder.

After the retaining brackets are fitted, the manual override can only be operated as non-detenting.

Overview of valve functions

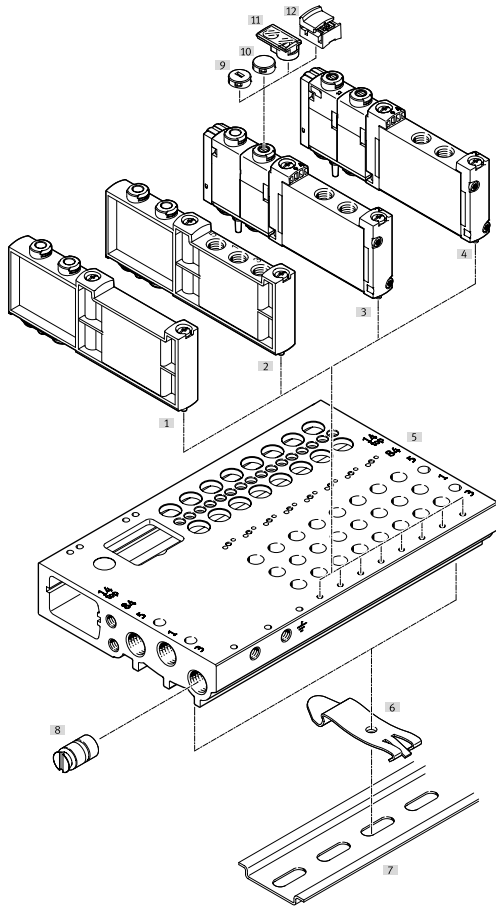
Valve	Valve code	Description	Size		
			M5/M7	G1/8	G1/4
3/2-way valve, pneumatic/mechanical spring					
	M32C-R	Normally closed	■	-	-
	M32U-R	Normally open	■	-	-
3/2-way valve, pneumatic spring					
	M32C-A	Normally closed	-	■	-
	M32U-A	Normally open	-	■	-
2x 3/2-way valve, pneumatic spring					
	T32C-A	Normally closed	■	■	■
	T32U-A	Normally open	■	■	■
	T32H-A	1x normally open, 1x normally closed	■	■	■
2x 3/2-way valve, mechanical spring					
	T32C-M	Normally closed	■	■	■
	T32U-M	Normally open	■	■	■
	T32H-M	1x normally open, 1x normally closed	■	■	■

Overview of valve functions

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

Peripherals overview example – Semi in-line valves

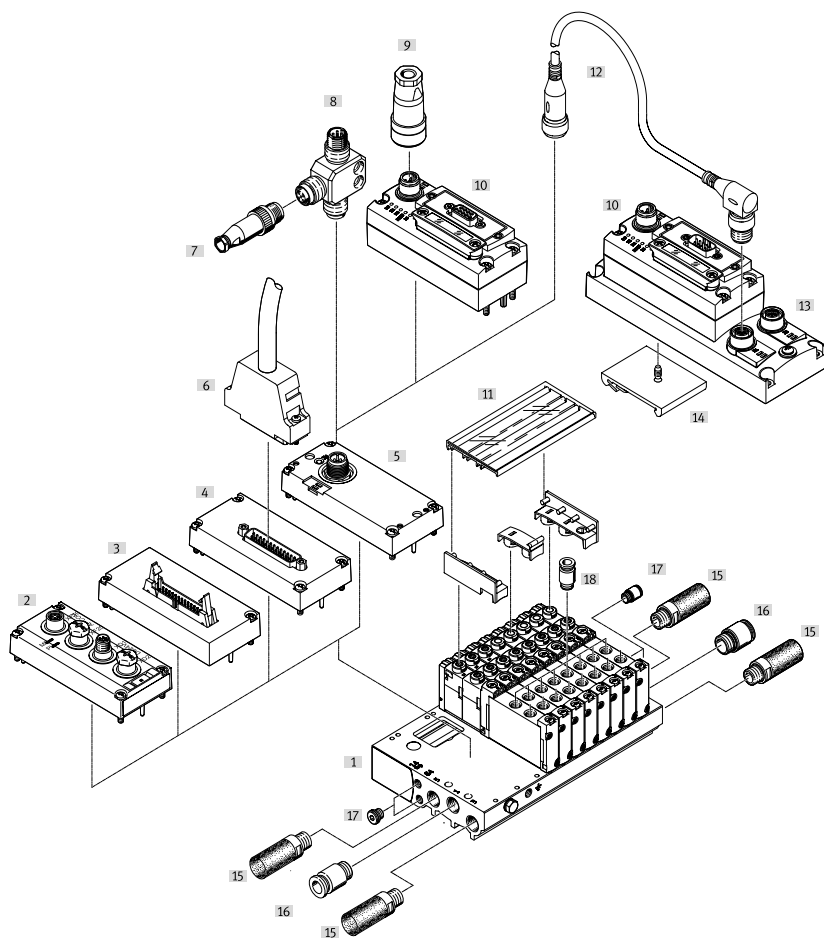
Valve terminal with multi-pin



Accessories		Type	Description	→ Page/Internet
[1]	Cover plate	VABB-L1-...	For covering a vacant position	102
[2]	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	102
[3]	Solenoid valve	VUVG-...	Semi in-line valve M5/M7, G1/8	32, 36, 39
[4]	Solenoid valve	VUVG-...	Semi in-line valve G1/4	32, 36, 39
[5]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	57
[6]	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	105
[7]	H-rail	NRH-35-2000	For mounting the valve terminal	105
[8]	Separator	VABD-...	For creating pressure zones	99
[9]	Cover cap	VMPA-HBT-B	For manual override	99
[10]	Cover cap	VMPA-HBV-B	For manual override	99
[11]	Identification holder	ASLR-D-L1	For inscription label and covering for the retaining screw/manual override	105
[12]	Covering	VAMC-...	For manual override	99

Peripherals overview example – Semi in-line valves

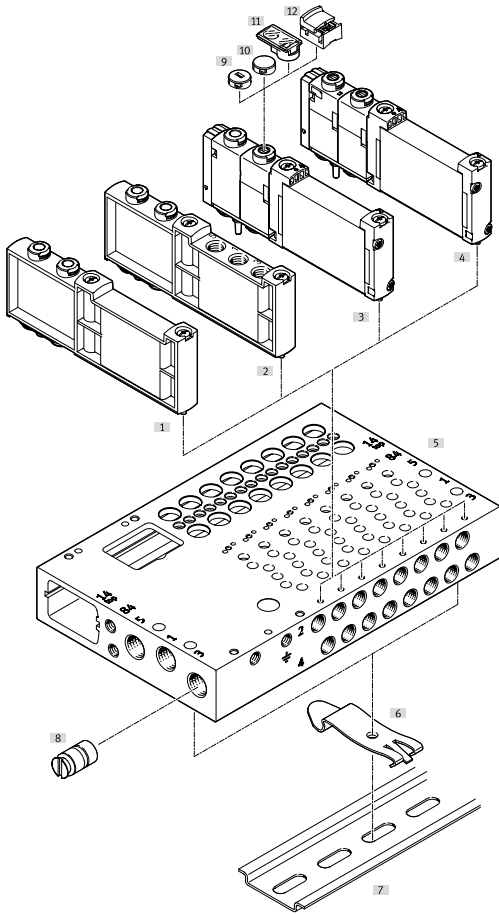
Valve terminal with multi-pin plug and I-Port interface



Accessories		Type	Description	→ Page/Internet
[1]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	57
[2]	Electrical interface	VAEM-L1-S-...-AP	AP interface for CPX-AP-I	97
[3]	Electrical interface	VAEM-L1-S-M3-...	Ribbon cable	88
[4]	Electrical interface	VAEM-L1-S-M1-...	Sub-D	88
[5]	Electrical interface	VAEM-L1-S-...-PT	I-Port interface/IO-Link	91
[6]	Connecting cable	NEBV-...	Sub-D cable	88
[7]	Plug	SEA-M12-5GS-PG7	Straight, for T adapter FB-TA	91
[8]	T adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	91
[9]	Power supply socket	NTSD-.../FBSD-...	Power supply for CTEU bus nodes	98
[10]	CTEU	CTEU-...	Bus node	97
[11]	Inscription label holders	ASCF-H-L1	For identifying valves	105
[12]	Connecting cable	NEBU-...	-	nebu
[13]	Electrical connection box	CAPC-F1-E-M12	For connecting a second device with I-Port interface	93
[14]	H-rail mounting	CAFM-F1-H	For electrical connection block CAPC	93
[15]	Silencer	U-...	For port 3 and 5	102
[16]	Push-in fitting	QS-...	For air supply, port 1	99
[17]	Blanking plug	B-...	For internal/external pilot air	99
[18]	Push-in fitting	QS-...	For port 2 and 4	99

Peripherals overview example – Sub-base valves

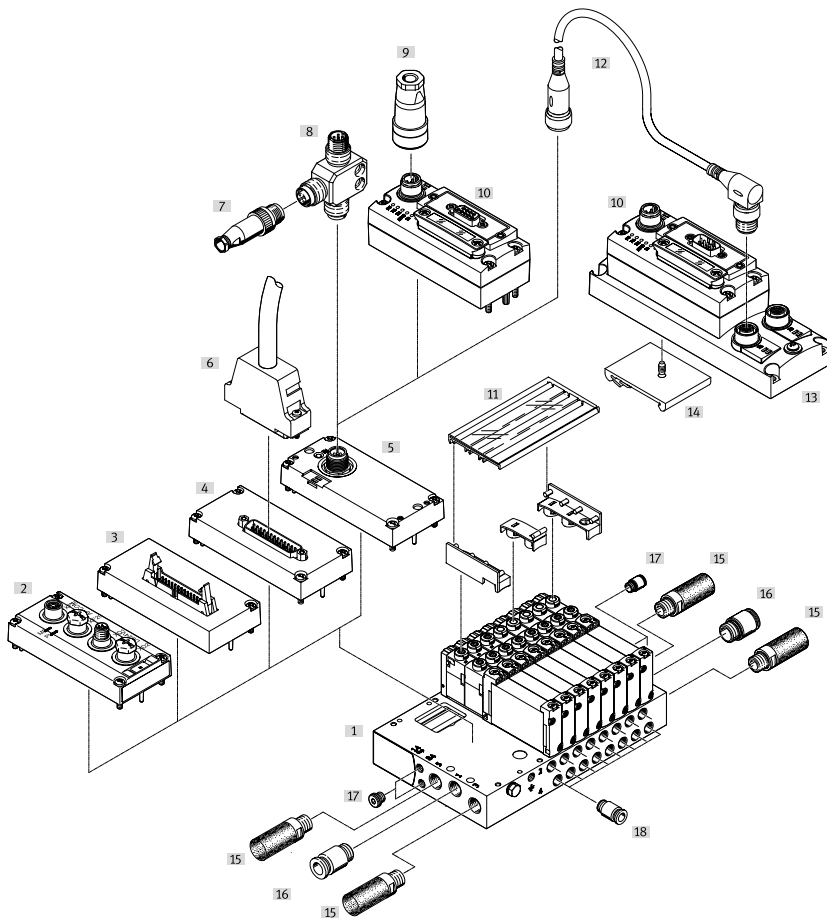
Valve terminal with multi-pin



Accessories		Type	Description	→ Page/Internet
[1]	Cover plate	VABB-L1-...	For covering a vacant position	102
[2]	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	102
[3]	Solenoid valve	VUVG-...	Semi in-line valve M5/M7, G1/8	42, 48, 54
[4]	Solenoid valve	VUVG-...	Semi in-line valve G1/4	42, 48, 54
[5]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	57
[6]	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	105
[7]	H-rail	NRH-35-2000	For mounting the valve terminal	105
[8]	Separator	VABD-...	For creating pressure zones	99
[9]	Cover cap	VMPA-HBT-B	For manual override	99
[10]	Cover cap	VMPA-HBV-B	For manual override	99
[11]	Identification holder	ASLR-D-L1	For inscription label and covering for the retaining screw/manual override	105
[12]	Covering	VAMC-...	For manual override	99

Peripherals overview example – Sub-base valves

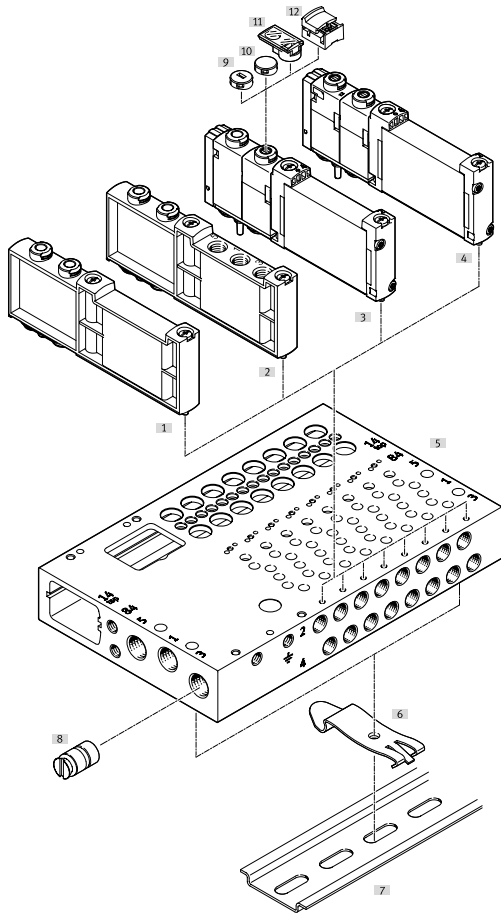
Valve terminal with multi-pin plug and I-Port interface



Accessories		Type	Description	→ Page/Internet
[1]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	57
[2]	Electrical interface	VAEM-L1-S-...-AP	AP interface for CPX-AP-I	97
[3]	Electrical interface	VAEM-L1-S-M3-...	Ribbon cable	88
[4]	Electrical interface	VAEM-L1-S-M1-...	Sub-D	88
[5]	Electrical interface	VAEM-L1-S-...-PT	I-Port interface/IO-Link	91
[6]	Connecting cable	NEBV-...	Sub-D cable	88
[7]	Plug	SEA-M12-5GS-PG7	Straight, for T adapter FB-TA	91
[8]	T adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	91
[9]	Power supply socket	NTSD-.../FBSD-...	Power supply for CTEU bus nodes	98
[10]	CTEU	CTEU-...	Bus node	97
[11]	Inscription label holders	ASCF-H-L1	For identifying valves	105
[12]	Connecting cable	NEBU-...	-	nebu
[13]	Electrical connection box	CAPC-F1-E-M12	For connecting a second device with I-Port interface	93
[14]	H-rail mounting	CAFM-F1-H	For electrical connection block CAPC	93
[15]	Silencer	U-...	For port 3 and 5	102
[16]	Push-in fitting	QS-...	For air supply, port 1	99
[17]	Blanking plug	B-...	For internal/external pilot air	99
[18]	Push-in fitting	QS-...	For port 2 and 4	99

Peripherals overview example – Sub-base valves

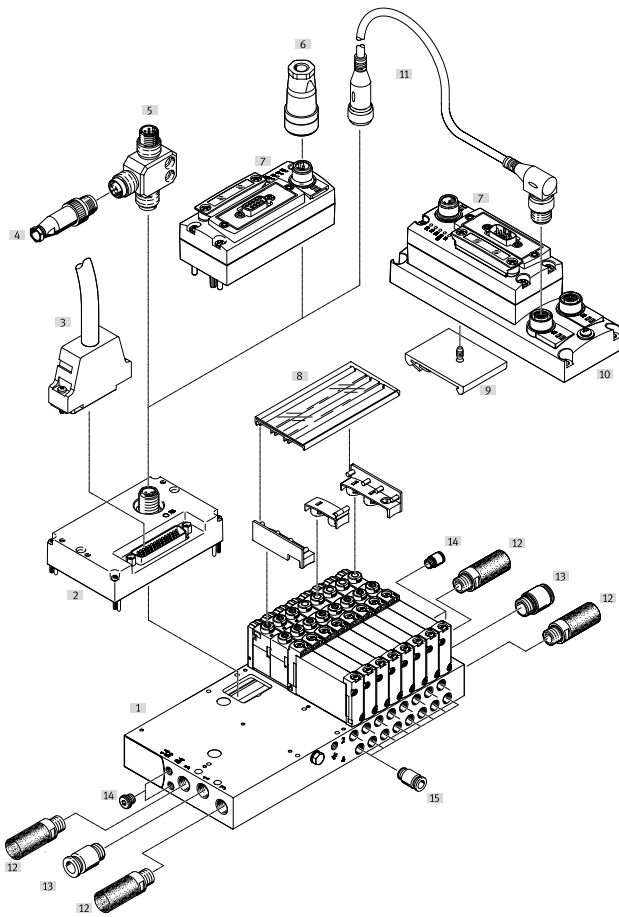
Ventilinsel mit Multipol



Accessories		Type	Description	→ Page/Internet
[1]	Cover plate	VABB-L1-...	For covering a vacant position	102
[2]	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	102
[3]	Solenoid valve	VUVG-...	Semi in-line valve M5/M7, G1/8	42, 48, 54
[4]	Solenoid valve	VUVG-...	Semi in-line valve G1/4	42, 48, 54
[5]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	57
[6]	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	105
[7]	H-rail	NRH-35-2000	For mounting the valve terminal	105
[8]	Separator	VABD-...	For creating pressure zones	99
[9]	Cover cap	VMPA-HBT-B	For manual override	99
[10]	Cover cap	VMPA-HBV-B	For manual override	99
[11]	Identification holder	ASLR-D-L1	For inscription label and covering for the retaining screw/manual override	105
[12]	Covering	VAMC-...	For manual override	99

Peripherals overview example – Sub-base valves

I-Port interface with interlock



Accessories		Type	Description	→ Page/Internet
[1]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	57
[2]	Electrical interface	VAEM-L1-S-24-...	I-Port interface with interlock	94
[3]	Connecting cable	NEBV-...	Sub-D cable	88
[4]	Plug	SEA-M12-5GS-PG7	Straight, for T adapter FB-TA	91
[5]	T adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	91
[6]	Power supply socket	NTSD-.../FBSD-...	Power supply for CTEU bus nodes	98
[7]	CTEU	CTEU-...	Bus node	97
[8]	Inscription label holders	ASCF-H-L1	For identifying valves	105
[9]	H-rail mounting	CAFM-F1-H	For electrical connection block CAPC	93
[10]	Electrical connection box	CAPC-F1-E-M12	For connecting a second device with I-Port interface	93
[11]	Connecting cable	NEBU-...	–	nebu
[12]	Silencer	U-...	For port 3 and 5	102
[13]	Push-in fitting	QS-...	For air supply, port 1	99
[14]	Blanking plug	B-...	For internal/external pilot air	99
[15]	Push-in fitting	QS-...	For port 2 and 4	99

Peripherals overview example – Sub-base valves

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

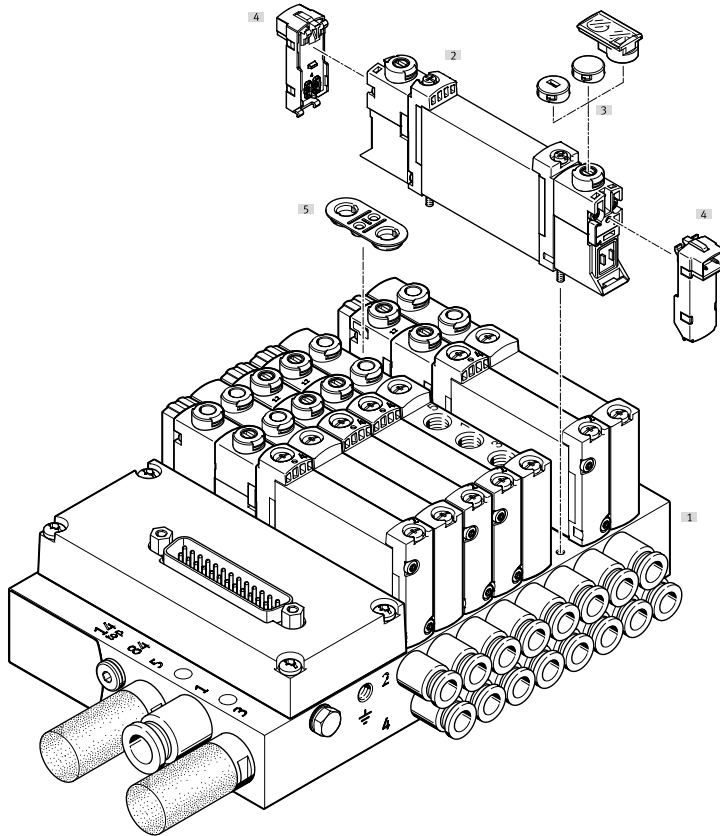
In applications with specific emergency off requirements, it may be necessary to switch one or more valves separately from the valve terminal controller.

Valves VUVG (→ VUVG) with an individual electrical connection are therefore mounted on the valve terminal.

Valves with an 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 to replace a cover plate in a vacant position



Accessories		Type	Description	→ Page/Internet
[1]	Manifold rail	VABM-L1-10	For 2 to 10, 12 and 16 valve positions	57
[2]	Solenoid valve	VUVG	Sub-base valve	28
[3]	Cover cap	VMPA	For manual override	99
[4]	Electrical connection box	VAVE	For individual connection	vave
[5]	Seal	–	Included in the scope of delivery of the cover plate for a vacant position	99

Type codes

001	Series	
VTUG	Valve terminal	

002	Size	
10	Size 10	
14	Size 14	
18	Size 18	

003	Valve control	
M	Multi-pin	
V	Interface for fieldbus module	

004	Multi-pin plug connection type	
	None	
RC	Ribbon cable	
SD	Sub-D plug	

005	Circuitry	
R	Holding current reduction with integrated protective circuit	

006	Bus protocol/activation	
	None	
AP	CPX-AP interface	
LK	IO-Link®	
PT	I-Port interface	

007	Outlet direction of electrical components	
	Top	
L	Left	

008	Degree of protection, electrical system	
	Standard	
S8	IP67	
S5	IP69	

009	Valve type	
B	Sub-base valve	
S	Semi-inline valve	

010	Nominal operating voltage	
1	24 V DC	

011	Manual override	
	None	
H	Non-detenting	
S	Covered	
Y	Detenting	
T	Non-detenting, detenting with accessories	

012	Pilot air	
	Internal	
Z	External	

013	Additional function	
	None	
L	Interlock	

014	Number of pins	
	None	
25	25-pin	
26	26-pin	
44	44-pin	
50	50-pin	

015	Pin allocation	
	Standard	
V20	For 12 double solenoid/bistable or 24 single solenoid/monostable valves	
V21	For 18 double solenoid/bistable and 6 single solenoid/monostable valves	
V22	For 10 double solenoid/bistable valves	
V23	For 8 double solenoid/bistable and 4 single solenoid/monostable valves	
V24	For 4 double solenoid/bistable and 12 single solenoid/monostable valves	
V25	For 20 single solenoid/monostable valves	
V26	For 24 double solenoid/bistable valves	

016	Material of fittings	
	Standard	
B2	Brass, nickel-plated	
V1	Stainless steel	

017	Compressed air supply connection	
Q6	Push-in connector 6 mm	
Q8	Push-in connector 8 mm	
Q10	Push-in connector 10 mm	
Q12	Push-in connector 12 mm	
Q16	Push-in connector 16 mm	
G18	G1/8	
G14	G1/4	
G38	G3/8	
T14	Push-in connector 1/4"	
T516	Push-in connector 5/16"	
T38	Push-in connector 3/8"	
T12	Push-in connector 1/2"	

018	Compressed air supply connection position	
	Both sides	
B	Underneath	
L	Left	
R	Right	
FD	Front, both sides, for control cabinet	
FDL	Front, left, for control cabinet	
FDR	Front, right, for control cabinet	

019	Compressed air supply connection type	
	Straight	
A	Elbow fitting	

020	Exhaust connection	
DQ	Push-in fitting	
DT	Thread	
U	Silencer	
UC	Silencer	

Type codes -EX

001	Series	
VTUG	Valve terminal	
002	Size	
10	Size 10	
14	Size 14	
003	Valve control	
M	Multi-pin	
V	Interface for fieldbus module	
004	Multi-pin plug connection type	
	None	
SD	Sub-D plug	
005	Circuitry	
	None	
R	Holding current reduction with integrated protective circuit	
006	Bus protocol/activation	
	None	
LK	IO-Link®	
PT	I-Port interface	
007	Degree of protection, electrical system	
	Standard	
S8	IP67	
008	Valve type	
B	Sub-base valve	
009	Nominal operating voltage	
1	24 V DC	
010	Manual override	
H	Non-detenting	
S	Covered	
Y	Detenting	
T	Non-detenting, detenting with accessories	
011	Pilot air	
	Internal	
Z	External	
012	Number of pins	
	None	
25	25-pin	
26	26-pin	
44	44-pin	
50	50-pin	

013	Pin allocation	
	Standard	
V20	For 12 double solenoid/bistable or 24 single solenoid/monostable valves	
V21	For 18 double solenoid/bistable and 6 single solenoid/monostable valves	
V22	For 10 double solenoid/bistable valves	
V23	For 8 double solenoid/bistable and 4 single solenoid/monostable valves	
V24	For 4 double solenoid/bistable and 12 single solenoid/monostable valves	
V25	For 20 single solenoid/monostable valves	
V26	For 24 double solenoid/bistable valves	
014	Material of fittings	
	Standard	
B2	Brass, nickel-plated	
V1	Stainless steel	
015	Compressed air supply connection	
Q6	Push-in connector 6 mm	
Q8	Push-in connector 8 mm	
Q10	Push-in connector 10 mm	
G18	G1/8	
G14	G1/4	
016	Compressed air supply connection position	
	Both sides	
B	Underneath	
L	Left	
R	Right	
FD	Front, both sides, for control cabinet	
FDL	Front, left, for control cabinet	
FDR	Front, right, for control cabinet	
017	Compressed air supply connection type	
	Straight	
A	Elbow fitting	
018	Exhaust connection	
DQ	Push-in fitting	
DT	Thread	
U	Silencer	
019	Exhaust connection position	
	Both sides	
B	Underneath	
L	Left	
R	Right	
FD	Front, both sides, for control cabinet	
FDL	Front, left, for control cabinet	
FDR	Front, right, for control cabinet	

Type codes -F1A

001	Series	
VTUG	Valve terminal	
002	Size	
10	Size 10	
14	Size 14	
003	Valve control	
M	Multi-pin	
V	Interface for fieldbus module	
004	Multi-pin plug connection type	
SD	Sub-D plug	
005	Circuitry	
R	Holding current reduction with integrated protective circuit	
006	Bus protocol/activation	
	None	
AP	CPX-AP interface	
LK	IO-Link®	
PT	I-Port interface	
007	Valve type	
B	Sub-base valve	
008	Nominal operating voltage	
1	24 V DC	
009	Manual override	
H	Non-detenting	
S	Covered	
Y	Detenting	
T	Non-detenting, detenting with accessories	
010	Pilot air	
	Internal	
Z	External	
011	Number of pins	
	None	
25	25-pin	
44	44-pin	
012	Pin allocation	
	Standard	
V20	For 12 double solenoid/bistable or 24 single solenoid/monostable valves	
V21	For 18 double solenoid/bistable and 6 single solenoid/monostable valves	
V22	For 10 double solenoid/bistable valves	
V23	For 8 double solenoid/bistable and 4 single solenoid/monostable valves	
V24	For 4 double solenoid/bistable and 12 single solenoid/monostable valves	
V25	For 20 single solenoid/monostable valves	

013	Compressed air supply connection	
Q6	Push-in connector 6 mm	
Q8	Push-in connector 8 mm	
Q10	Push-in connector 10 mm	
Q12	Push-in connector 12 mm	
G18	G1/8	
G14	G1/4	
014	Compressed air supply connection position	
	Both sides	
L	Left	
R	Right	
015	Exhaust connection	
DQ	Push-in fitting	
DT	Thread	
UC	Silencer	
016	Exhaust connection position	
	Both sides	
L	Left	
R	Right	
017	Valve connection	
C	Blanking plug	
G18	G1/8	
M5	M5	
M7	M7	
Q4	Push-in connector 4 mm	
QH4	Push-in connector 4 mm, with connecting thread M7	
Q6	Push-in connector 6 mm	
QH6	Push-in connector 6 mm, with connecting thread M7	
Q8	Push-in connector 8 mm	
018	Push-in connection type	
S	Screwed	
019	Position function	
P	5/2-way valve, single solenoid/monostable, pneumatic/mechanical spring	
M	4/2 or 5/2-way valve, single solenoid/monostable, pneumatic spring	
A	5/2 or 4/2-way valve, single solenoid/monostable, mechanical spring	
J	4/2 or 5/2-way double pilot valve	
N	1x3/2 or 2x3/2-way valve, normally open, pneumatic spring	
VN	2x3/2-way valve, normally open, mechanical spring	
K	1x3/2 or 2x3/2-way valve, normally closed, pneumatic spring	
VK	2x3/2-way valve, normally closed, mechanical spring	
H	2x3/2-way valve, 1x normally closed, 1x normally open, pneumatic spring	
VH	2x3/2-way valve, 1x normally closed, 1x normally open, mechanical spring	
B	5/3- or 4/3-way valve, mid-position pressurised	
G	5/3 or 4/3-way valve, mid-position closed	
E	5/3 or 4/3-way valve, mid-position exhausted	
L	Vacant position	
S	Additional power supply	

Type codes -F1A

020	Working port, duct 2
	As selected
CC	Blanking plug
QG18	G1/8
QM5	M5
QM7	M7
Q4	Push-in connector, 4 mm
QH4	Push-in connector 4 mm, with connecting thread M7
Q6	Push-in connector 6 mm
QH6	Push-in connector 6 mm, with connecting thread M7
Q8	Push-in connector 8 mm

021	Working port, duct 4
	As selected
XCC	Blanking plug
XQG18	G1/8
XQM5	M5
XQM7	M7
XQ4	Push-in connector 4 mm
XQH4	Push-in connector 4 mm, with connecting thread M7
XQ6	Push-in connector 6 mm
XQH6	Push-in connector 6 mm, with connecting thread M7
XQ8	Push-in connector 8 mm

022	Special material properties
F1A	Recommended for production facilities for the manufacture of lithium-ion batteries

023	Accessories for IO-Link®
	None
XM	T-adaptor, M12, 5-pin, for IO-Link® and load supply




024	Accessories for IO-Link®, separate load supply
	None
XN	Straight plug, M12, 5-pin

025	Electrical accessories
	None
M1	Connecting cable, multi-pin, 2.5 m
M2	Connecting cable, multi-pin, 5 m
M3	Connecting cable, multi-pin, 10 m
MA1	Connecting cable, multi-pin, angled, 2.5 m
MA2	Connecting cable, multi-pin, angled, 5 m
MA3	Connecting cable, multi-pin, angled, 10 m

026	Inscription label holder for valves
	None
TV	Transparent, valve
TT	Transparent, valve terminal

Datasheet – Semi in-line valves M5/M7

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

-  - Size 10 mm
-  - Flow rate
130 ... 330 l/min
-  - Voltage
24 V DC



Circuit diagrams → page 19

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	Monostable							Bistable	Monostable			
Pneumatic spring return	Yes			No			Yes ⁵⁾	–	No	–		
Mechanical spring return	No			Yes			Yes ⁵⁾	–	Yes	Yes		
Vacuum operation at port 1	No			With external pilot air								
Design	Piston spool											
Sealing principle	Soft											
Actuation type	Electrical											
Type of control	Piloted											
Pilot air supply	External											
Exhaust function	Can be throttled											
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting	On manifold rail											
Mounting position	Any											
Overlap	Positive overlap										Indeterminate lap	
Signal status indication	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
Size	[mm]	10										
Connection	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		
Certification	c UL us - Recognized (OL)											
	RCM											
CE marking (see declaration of conformity) ⁶⁾	To EU EMC Directive											
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 area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

7) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – Semi in-line valves M5/M7

Operating and environmental conditions			T32-A ¹⁾	T32-M ²⁾	M52-R ³⁾	B52	M52-M ²⁾	P53
Valve function			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.15 ... 0.8	0.3 ... 0.8	0.3 ... 0.8
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[MPa]	0.15 ... 1	-0.09 ... 1	-	-0.09 ... 1	-0.09 ... 0.8	-0.09 ... 1
		[bar]	1.5 ... 10	-0.9 ... 10			-0.9 ... 8	-0.9 ... 10
Pilot pressure ⁴⁾		[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.15 ... 0.8	0.3 ... 0.8	0.3 ... 0.8
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 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) See graphs on page 12

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1/0.4 (after 25 ms)
Duty cycle	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529 ¹⁾	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety characteristics		
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Shock resistance		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			T32-A ¹⁾	T32-M ²⁾	M52-R ³⁾	B52	M52-M ²⁾	P53
Switching time on	[ms]		8	10	9	-	12	12
Switching time off	[ms]		20	20	21	-	30	38
Switching time changeover	[ms]		-	-	-	9	-	16

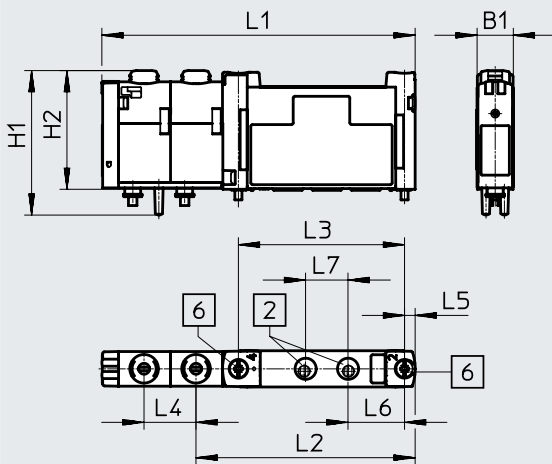
- 1) Pneumatic spring
2) Mechanical spring
3) Mixed, pneumatic/mechanical spring

Datasheet – Semi in-line valves M5/M7

Dimensions

Download CAD data → www.festo.com

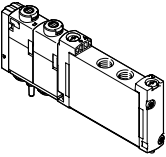
Semi in-line valves M5/M7



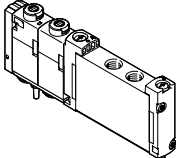
- [2] Ports 2 and 4: M7/M5
- [6] Retaining screw

Type	B1	H1	H2	L1	L2	L3	L4	L5	L6	L7
VUVG-S10-...-M5-1T1L	10.3	40.7	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		
2x 3/2-way valve		
 External pilot air supply	Normally closed, pneumatic spring return	573386 VUVG-S10-T32C-AZT-M5-1T1L
	Normally open, pneumatic spring return	573387 VUVG-S10-T32U-AZT-M5-1T1L
	1x normally open, 1x normally closed, pneumatic spring return	573388 VUVG-S10-T32H-AZT-M5-1T1L
	Normally closed, mechanical spring return	573389 VUVG-S10-T32C-MZT-M5-1T1L
	Normally open, mechanical spring return	573390 VUVG-S10-T32U-MZT-M5-1T1L
	1x normally open, 1x normally closed, mechanical spring return	573391 VUVG-S10-T32H-MZT-M5-1T1L
5/2-way single solenoid valve		
External pilot air supply	Mechanical spring return	573393 VUVG-S10-M52-MZT-M5-1T1L
	Pneumatic/mechanical spring return	573392 VUVG-S10-M52-RZT-M5-1T1L
5/2-way double solenoid valve		
External pilot air supply		573394 VUVG-S10-B52-ZT-M5-1T1L
5/3-way valve		
External pilot air supply	Mid-position closed, mechanical spring return	573395 VUVG-S10-P53C-ZT-M5-1T1L
	Mid-position pressurised, mechanical spring return	573397 VUVG-S10-P53U-ZT-M5-1T1L
	Mid-position exhausted, mechanical spring return	573396 VUVG-S10-P53E-ZT-M5-1T1L

Ordering data

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

Datasheet – Semi in-line valves G1/8

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

-  - Size 14 mm
-  - Flow rate
520 ... 630 l/min
-  - Voltage
24 V DC



Circuit diagrams → page 19

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	Monostable							Bistable	Monostable			
Pneumatic spring return	Yes			No			Yes	–	No	–		
Mechanical spring return	No			Yes			No	–	Yes	Yes		
Vacuum operation at port 1	No			With external pilot air								
Design	Piston spool											
Sealing principle	Soft											
Actuation type	Electrical											
Type of control	Piloted											
Pilot air supply	External											
Exhaust function	Can be throttled											
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting	On manifold rail											
Mounting position	Any											
Overlap	Positive overlap											
Signal status indication	LED											
Flow rate on manifold rail G1/8	[l/min]	610			520			620	630	620	590	
Size	[mm]	14										
Connection	1, 3, 5, 12/14, 82/84			On manifold rail								
	2, 4			G1/8								
Product weight	[g]	102			100			91	98	89	95	
Certification	c UL us - Recognized (OL)											
	RCM											
CE marking (see declaration of conformity) ⁵⁾	To EU EMC Directive											
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 area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

6) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – Semi in-line valves G1/8

Operating and environmental conditions			T32-A ¹⁾	T32-M ²⁾	M52-A ¹⁾	B52	M52-M ²⁾	P53
Valve function			Compressed air to ISO 8573-1:2010 [7:4:4]					
Operating pressure	Internal pilot air supply	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.15 ... 0.8	0.3 ... 0.8	0.3 ... 0.8
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[MPa]	0.15 ... 1	-0.09 ... 1			-0.09 ... 0.8	-0.09 ... 1
		[bar]	1.5 ... 10	-0.9 ... 10			-0.9 ... 8	-0.9 ... 10
Pilot pressure ³⁾		[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.15 ... 0.8	0.3 ... 0.8	0.3 ... 0.8
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 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) See graphs on page 12

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1/0.4 (after 25 ms)
Duty cycle	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529 ¹⁾	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety characteristics		
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Shock resistance		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			T32-A ¹⁾	T32-M ²⁾	M52-A ¹⁾	B52	M52-M ²⁾	P53
Switching time on	[ms]		10	13	13	-	10	15
Switching time off	[ms]		29	21	26	-	38	42
Switching time changeover	[ms]		-	-	-	9	-	25

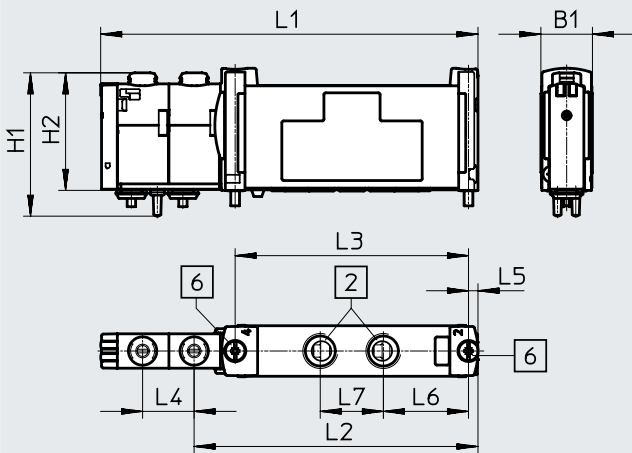
- 1) Pneumatic spring
 2) Mechanical spring

Datasheet – Semi in-line valves G1/8

Dimensions

Download CAD data → www.festo.com

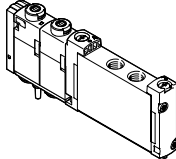
Semi in-line valves G1/8



- [2] Ports 2 and 4: G1/8
- [6] Retaining screw

Type	B1	H1	H2	L1	L2	L3	L4	L5	L6	L7
VUUG-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 G1/8		
 2x 3/2-way valve External pilot air supply	Normally closed, pneumatic spring return	573464 VUUG-S14-T32C-AZT-G18-1T1L
	Normally open, pneumatic spring return	573465 VUUG-S14-T32U-AZT-G18-1T1L
	1x normally open, 1x normally closed, pneumatic spring return	573466 VUUG-S14-T32H-AZT-G18-1T1L
	Normally closed, mechanical spring return	573467 VUUG-S14-T32C-MZT-G18-1T1L
	Normally open, mechanical spring return	573468 VUUG-S14-T32U-MZT-G18-1T1L
	1x normally open, 1x normally closed, mechanical spring return	573469 VUUG-S14-T32H-MZT-G18-1T1L
5/2-way single solenoid valve		
External pilot air supply	Pneumatic spring return	573470 VUUG-S14-M52-AZT-G18-1T1L
	Mechanical spring return	573471 VUUG-S14-M52-MZT-G18-1T1L
5/2-way double solenoid valve		
External pilot air supply		573472 VUUG-S14-B52-ZT-G18-1T1L
5/3-way valve		
External pilot air supply	Mid-position closed, mechanical spring return	573473 VUUG-S14-P53C-ZT-G18-1T1L
	Mid-position pressurised, mechanical spring return	573475 VUUG-S14-P53U-ZT-G18-1T1L
	Mid-position exhausted, mechanical spring return	573474 VUUG-S14-P53E-ZT-G18-1T1L

Datasheet – Semi in-line valves G1/4

Function




2x 3/2C, 2x 3/2U, 2x 3/2H

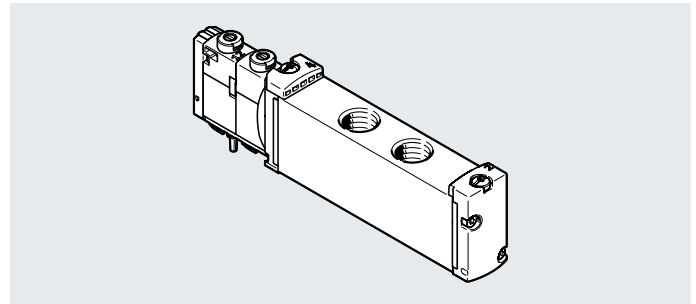
5/2-way, single solenoid

5/2-way, double solenoid

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

Circuit diagrams → page 19

-  - Size 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	Monostable							Bistable	Monostable			
Pneumatic spring return	Yes			No			Yes ⁵⁾	–	No	–		
Mechanical spring return	No			Yes			Yes ⁵⁾	–	Yes	Yes		
Vacuum operation at port 1	No			With external pilot air								
Design	Piston spool											
Sealing principle	Soft											
Actuation type	Electrical											
Type of control	Piloted											
Pilot air supply	External											
Exhaust function	Can be throttled											
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting	On manifold rail											
Mounting position	Any											
Overlap	Positive overlap						Indeterminate overlap	Positive overlap	Indeterminate overlap	Positive overlap	Indeterminate overlap	
Signal status indication	LED											
Flow rate on manifold rail G1/8	[l/min]			950	900	1150	1200	1150	1000			
Size	[mm]			18								
Connection	1, 3, 5, 12/14, 82/84			On manifold rail								
	2, 4			G1/4								
Product weight	[g]			145	147	138	145	138	140			
Certification	c UL us - Recognized (OL)											
	RCM											
CE marking (see declaration of conformity) ⁶⁾	To EU EMC Directive											
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 area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

7) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – Semi in-line valves G1/4

Operating and environmental conditions		T32-A ¹⁾	T32-M ²⁾	M52-R ³⁾	B52	M52-M ²⁾	P53
Valve function							
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 the operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure	Internal pilot air supply	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.3 ... 0.8	
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8	3 ... 8	
	External pilot air supply	[MPa]	0.15 ... 1	-0.09 ... 1		-0.09 ... 0.8	-0.09 ... 1
		[bar]	1.5 ... 10	-0.9 ... 10		-0.9 ... 8	-0.9 ... 10
Pilot pressure ⁴⁾	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.3 ... 0.8		
	[bar]	1.5 ... 8	2 ... 8	1.5 ... 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) See graphs on page 12

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1
Duty cycle	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529 ¹⁾	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety characteristics		
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Shock resistance	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		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]	37	33	35	–	50	68
Switching time changeover	[ms]	–	–	–	15	–	35

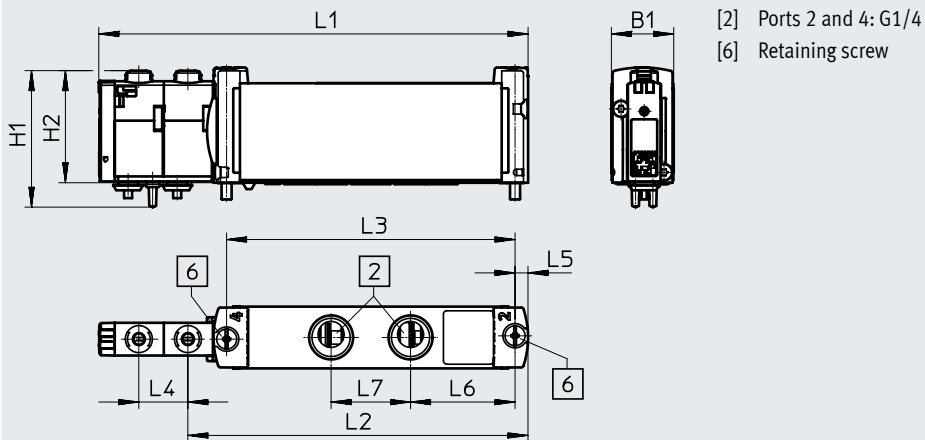
- 1) Pneumatic spring
- 2) Mechanical spring
- 3) Mixed, pneumatic/mechanical spring

Datasheet – Semi in-line valves G1/4

Dimensions

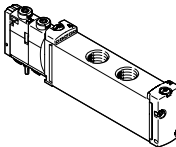
 Download CAD data → www.festo.com

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		
2x 3/2-way valve		
 External pilot air supply	Normally closed	8004873 VUVG-S18-T32C-AZT-G14-1T1L
	Normally open, pneumatic spring return	8004874 VUVG-S18-T32U-AZT-G14-1T1L
	1x normally open, 1x normally closed, pneumatic spring return	8004875 VUVG-S18-T32H-AZT-G14-1T1L
	Normally closed, mechanical spring return	8004876 VUVG-S18-T32C-MZT-G14-1T1L
	Normally open, mechanical spring return	8004877 VUVG-S18-T32U-MZT-G14-1T1L
	1x normally open, 1x normally closed, mechanical spring return	8004878 VUVG-S18-T32H-MZT-G14-1T1L
5/2-way single solenoid valve		
External pilot air supply	Pneumatic/mechanical spring return	8004879 VUVG-S18-M52-RZT-G14-1T1L
	Mechanical spring return	8004880 VUVG-S18-M52-MZT-G14-1T1L
5/2-way double solenoid valve		
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

Datasheet – Sub-base valve M5/M7

- Function
 - 3/2C, 3/2U
 - 2x 3/2C, 2x 3/2U, 2x 3/2H
 - 5/2-way, single solenoid
 - 5/2-way, double solenoid
 - 5/3C, 5/3U, 5/3E
-  - Size 10 mm
 -  - Flow rate
130 ... 300 l/min
 -  - Voltage
24 V DC



Circuit diagrams → page 19

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	Monostable									Bistable	Monostable			
Pneumatic spring return	Yes			No			No		Yes ⁵⁾	–	No	–		
Mechanical spring return	No			Yes			Yes		Yes ⁵⁾	–	Yes	Yes		
Vacuum operation at port 1	No			With external pilot air										
Design	Piston spool													
Sealing principle	Soft													
Actuation type	Electrical													
Type of control	Piloted													
Pilot air supply	External													
Exhaust function	Can be throttled													
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting													
Type of mounting	On manifold rail													
Mounting position	Any													
Overlap	Positive overlap											Indeterminate overlap		
Signal status indication	LED													
Standard nominal flow rate M5/M7	[l/min]	160	140	140	140	300	260	260						
Flow rate on manifold rail M5, front	[l/min]	150	130	130	130	220	220	200						
Flow rate on manifold rail M7, front	[l/min]	160	140	140	140	270	240	250						
Flow rate on manifold rail M7, underneath	[l/min]	160	140	140	140	300	260	260						
Size	[mm]	10												
Connection	1, 3, 5, 12/14, 82/84	On manifold rail												
	2, 4	On manifold rail												
Product weight	[g]	59				53		60	53	58				
Certification	c UL us - Recognized (OL)													
	RCM													
CE marking (see declaration of conformity) ⁶⁾	To EU EMC Directive													
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 area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
 If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
 7) Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – Sub-base valve M5/M7

Operating and environmental conditions			T32-A ¹⁾	T32-M ²⁾	M32-R ³⁾	M52-R ³⁾	B52	M52-M ²⁾	P53
Valve function			Compressed air to ISO 8573-1:2010 [7:4:4]						
Operating pressure	Internal pilot air supply	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8		0.3 ... 0.8		
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8		3 ... 8		
	External pilot air supply	[MPa]	0.15 ... 1	-0.09 ... 1		-0.09 ... 0.8		-0.09 ... 1	
		[bar]	1.5 ... 10	-0.9 ... 10		-0.9 ... 8		-0.9 ... 10	
Pilot pressure ⁴⁾		[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8		0.3 ... 0.8		
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8		3 ... 8		
Ambient temperature		[°C]	-5 ... +60						
Temperature of medium		[°C]	-5 ... +60						
PWIS conformity	Valve terminal VTUG-F1A		VDMA24364 zone III						

- 1) Pneumatic spring
2) Mechanical spring
3) Mixed, pneumatic/mechanical spring
4) See graphs on page 12

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	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529 ¹⁾	Individual valve	IP65, IP67
	Valve terminal VTUG (all variants)	IP40, IP67/IP65, NEMA 4X
	Valve terminal VTUG (for control cabinet installation)	IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65
	Valve terminal VTUG-F1A	IP40

- 1) Depending on the configuration selected

Safety characteristics		
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Shock resistance	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	

Datasheet – Sub-base valve M5/M7

ATEX	
Type	VTUG-VI-EX2
ATEX category for gas	II 3G
Type of (ignition) protection for gas	Ex ec IIC T4 Gc
ATEX category for dust	II 3D
Type of (ignition) protection for dust	Ex tc IIIC T135°C Dc
Explosion protection certification outside the EU	EPL Dc (IECEX)
	EPL Dc (CN)
	EPL Gc (IECEX)
	EPL Gc (CN)
Explosion-proof ambient temperature	[°C] 5°C ≤ Ta ≤ +50°C, -5°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)	In accordance with the EU EMC Directive, the EU ATEX Directive and the EU RoHS Directive
Certificate issuing authority	IBExU16ATEXB021 X
	IECEX IBE 17.0003 X
	IECEX IBE 19.0018 X
	GYJ19.1188X

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-R ³⁾	M52-R ³⁾	B52	M52-M ²⁾	P53
Switching time on	[ms]	8	10	9	9	–	12	12
Switching time off	[ms]	20	20	17	21	–	30	38
Switching time changeover	[ms]	–	–	–	–	9	–	16

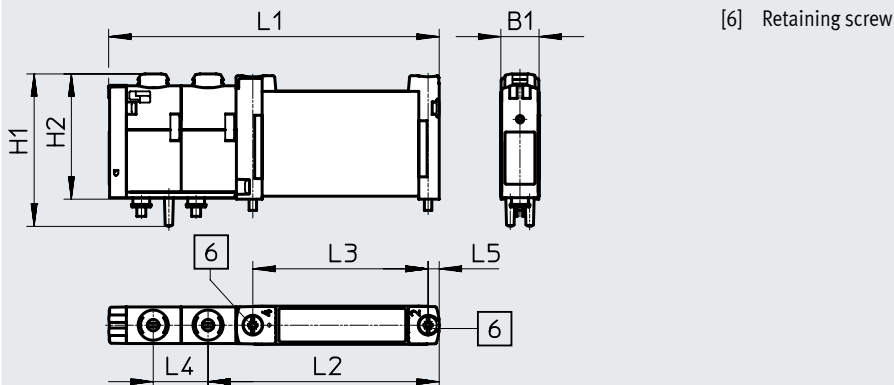
- 1) Pneumatic spring
- 2) Mechanical spring
- 3) Mixed, pneumatic/mechanical spring

Datasheet – Sub-base valve M5/M7

Dimensions

 Download CAD data → www.festo.com

Sub-base valve M5/M7

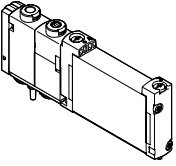


Type	B1	H1	H2	L1	L2	L3	L4	L5
VUVG-B10-...-F-1T1L	10.3	40.7	33	88.6	62	47	14.7	3
VUVG-B10-...-F-1T1L-EX2C								
VUVG-B10-...-F1T1L-F1A								

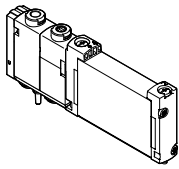
Ordering data

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

Datasheet – Sub-base valve M5/M7

Ordering data		Description	Part no.	Type
Sub-base valve M5/M7				
	3/2-way valve			
	External pilot air supply	Normally closed, pneumatic/mechanical spring return	8041900	VUVG-B10Z-M32C-RZT-F-1T1L-EX2C
		Normally open, pneumatic/mechanical spring return	8041901	VUVG-B10Z-M32U-RZT-F-1T1L-EX2C
	2x 3/2-way valve			
	External pilot air supply	Normally closed, pneumatic spring return	8041895	VUVG-B10-T32C-AZT-F-1T1L-EX2C
		Normally open, pneumatic spring return	8041896	VUVG-B10-T32U-AZT-F-1T1L-EX2C
		1x normally open, 1x normally closed, pneumatic spring return	8041897	VUVG-B10-T32H-AZT-F-1T1L-EX2C
		Normally closed, mechanical spring return	8041891	VUVG-B10-T32C-MZT-F-1T1L-EX2C
		Normally open, mechanical spring return	8041898	VUVG-B10-T32U-MZT-F-1T1L-EX2C
		1x normally open, 1x normally closed, mechanical spring return	8041899	VUVG-B10-T32H-MZT-F-1T1L-EX2C
	5/2-way single solenoid valve			
	External pilot air supply	Mechanical spring return	8041892	VUVG-B10-M52-MZT-F-1T1L-EX2C
		Pneumatic/mechanical spring return	8041889	VUVG-B10-M52-RZT-F-1T1L-EX2C
	5/2-way double solenoid valve			
	External pilot air supply		8041888	VUVG-B10-B52-ZT-F-1T1L-EX2C
5/3-way valve				
External pilot air supply	Mid-position closed, mechanical spring return	8041890	VUVG-B10-P53C-ZT-F-1T1L-EX2C	
	Mid-position pressurised, mechanical spring return	8041893	VUVG-B10-P53U-ZT-F-1T1L-EX2C	
	Mid-position exhausted, mechanical spring return	8041894	VUVG-B10-P53E-ZT-F-1T1L-EX2C	

Datasheet – Sub-base valve M5/M7

Ordering data		Description	Part no.	Type
Sub-base valve M5/M7				
	2x 3/2-way valve			
	External pilot air supply	Normally closed, pneumatic spring return	8150399	VUVG-B10-T32C-AZT-F-1T1L-F1A
		Normally open, pneumatic spring return	8141516	VUVG-B10-T32U-AZT-F-1T1L-F1A
		1x normally open, 1x normally closed, pneumatic spring return	8141517	VUVG-B10-T32H-AZT-F-1T1L-F1A
		Normally closed, mechanical spring return	8141518	VUVG-B10-T32C-MZT-F-1T1L-F1A
		Normally open, mechanical spring return	8141519	VUVG-B10-T32U-MZT-F-1T1L-F1A
		1x normally open, 1x normally closed, mechanical spring return	8141520	VUVG-B10-T32H-MZT-F-1T1L-F1A
	5/2-way single solenoid valve			
	External pilot air supply	Mechanical spring return	8150460	VUVG-B10-M52-MZT-F-1T1L-F1A
		Pneumatic/mechanical spring return	8150397	VUVG-B10-M52-RZT-F-1T1L-F1A
	5/2-way double solenoid valve			
	External pilot air supply		8150398	VUVG-B10-B52-ZT-F-1T1L-F1A
	5/3-way valve			
	External pilot air supply	Mid-position closed, mechanical spring return	8141521	VUVG-B10-P53C-ZT-F-1T1L-F1A
Mid-position pressurised, mechanical spring return		8141523	VUVG-B10-P53U-ZT-F-1T1L-F1A	
Mid-position exhausted, mechanical spring return		8141522	VUVG-B10-P53E-ZT-F-1T1L-F1A	

Datasheet – Sub-base valve G1/8

Function


3/2C, 3/2U


2x 3/2C, 2x 3/2U, 2x 3/2H

5/2-way, single solenoid

5/2-way, double solenoid

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

-  - Size 14 mm

-  - Flow rate
350 ... 560 l/min

-  - Voltage
24 V DC



Circuit diagrams → page 19

General technical data	T32-A		T32-M			M32-A		M52-A	B52	M52-M	P53				
	C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	H ⁴⁾	C ¹⁾	U ²⁾	-	-	-	C ¹⁾	U ²⁾	E ³⁾	
Valve function															
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	Monostable									Bistable		Monostable			
Pneumatic spring return	Yes			No			Yes		Yes		No		-		
Mechanical spring return	No			Yes			No		No		Yes		Yes		
Vacuum operation at port 1	No			With external pilot air											
Design	Piston spool														
Sealing principle	Soft														
Actuation type	Electrical														
Type of control	Piloted														
Pilot air supply	External														
Exhaust function	Can be throttled														
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting														
Type of mounting	On manifold rail														
Overlap	Positive overlap														
Mounting position	Any														
Signal status indication	LED														
Standard nominal flow rate G1/8	[l/min]	530		470			350		550		560		550		510
Flow rate on manifold rail G1/8, front	[l/min]	490		440			320		500		510		500		470
Flow rate on manifold rail G1/8, underneath	[l/min]	530		470			350		550		560		550		510
Size	[mm]	14													
Connection	1, 3, 5, 12/14, 82/84		On manifold rail												
	2, 4		On manifold rail												
Product weight	[g]	102			100			91		98		89		95	
Certification	c UL us - Recognized (OL)														
	RCM														
CE marking (see declaration of conformity) ⁵⁾	To EU EMC Directive														
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 area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

6) Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – Sub-base valve G1/8

Operating and environmental conditions			T32-A ¹⁾	T32-M ²⁾	M32-A ¹⁾	M52-A ¹⁾	B52	M52-M ²⁾	P53
Valve function			Compressed air to ISO 8573-1:2010 [7:4:4]						
Operating pressure	Internal pilot air supply	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8			0.3 ... 0.8	
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8			3 ... 8	
	External pilot air supply	[MPa]	0.15 ... 1	-0.09 ... 1				-0.09 ... 0.8	-0.09 ... 1
		[bar]	1.5 ... 10	-0.9 ... 10				-0.9 ... 8	-0.9 ... 10
Pilot pressure ³⁾		[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8			0.3 ... 0.8	
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8			3 ... 8	
Ambient temperature		[°C]	-5 ... +60						
Temperature of medium		[°C]	-5 ... +60						
PWIS conformity	Valve terminal VTUG-F1A		VDMA24364 zone III						

- 1) Pneumatic spring
 2) Mechanical spring
 3) See graphs on page 12

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1/0.4 (after 25 ms)
Duty cycle	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529 ¹⁾	Individual valve	IP67/IP65
	Valve terminal VTUG (all variants)	IP40, IP67/IP65, NEMA 4X
	Valve terminal VTUG (for control cabinet installation)	IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65
	Valve terminal VTUG-F1A	IP40

- 1) Depending on the configuration selected

Safety characteristics		
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Shock resistance	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	

Datasheet – Sub-base valve G1/8

ATEX	
Type	VTUG-VI-EX2, VTUG-VI-EX3
ATEX category for gas	II 3G
Type of (ignition) protection for gas	Ex ec IIC T4 Gc
ATEX category for dust	II 3D
Type of (ignition) protection for dust	Ex tc IIIC T135°C Dc
Explosion protection certification outside the EU	EPL Dc (IECEX)
	EPL Dc (CN)
	EPL Gc (IECEX)
	EPL Gc (CN)
Explosion-proof ambient temperature	[°C] 5°C ≤ Ta ≤ +50°C, -5°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)	In accordance with the EU EMC Directive, the EU ATEX Directive and the EU RoHS Directive
Certificate issuing authority	IBExU16ATEXB021 X
	IECEX IBE 17.0003 X
	IECEX IBE 19.0018 X
	GYJ19.1188X

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
Switching time changeover	[ms]	–	–	–	–	9	–	25

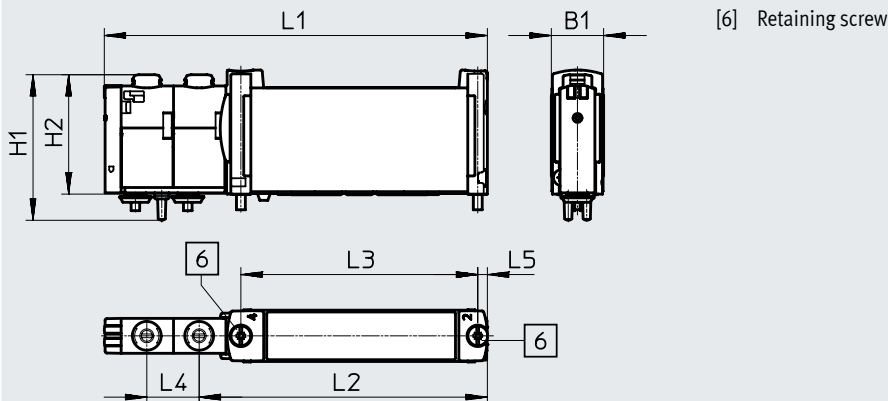
1) Pneumatic spring
2) Mechanical spring

Datasheet – Sub-base valve G1/8

Dimensions

 Download CAD data → www.festo.com

Sub-base valve G1/8

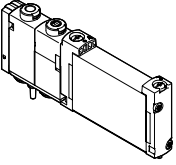


Type	B1	H1	H2	L1	L2	L3	L4	L5
VUVG-B14-...-F-1T1L	14.7	40.9	33.5	107.6	81	66.5	15.1	2.8
VUVG-B14-...-F-1T1L-EX2C								
VUVG-B14-...-F-1T1L-F1A								

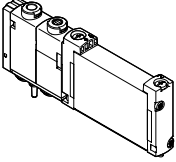
Ordering data

Description	Part no.	Type
Sub-base valve G1/8		
3/2-way valve		
External pilot air supply	Normally closed, pneumatic spring return	8028235 VUVG-B14Z-M32C-AZT-F-1T1L
	Normally open, pneumatic spring return	8028236 VUVG-B14Z-M32U-AZT-F-1T1L
2x 3/2-way valve		
External pilot air supply	Normally closed, pneumatic spring return	573476 VUVG-B14-T32C-AZT-F-1T1L
	Normally open, pneumatic spring return	573477 VUVG-B14-T32U-AZT-F-1T1L
	1x normally open, 1x normally closed, pneumatic spring return	573478 VUVG-B14-T32H-AZT-F-1T1L
	Normally closed, mechanical spring return	573479 VUVG-B14-T32C-MZT-F-1T1L
	Normally open, pneumatic spring return	573480 VUVG-B14-T32U-MZT-F-1T1L
	1x normally open, 1x normally closed, mechanical spring return	573481 VUVG-B14-T32H-MZT-F-1T1L
5/2-way single solenoid valve		
External pilot air supply	Pneumatic spring return	573482 VUVG-B14-M52-AZT-F-1T1L
	Mechanical spring return	573483 VUVG-B14-M52-MZT-F-1T1L
5/2-way double solenoid valve		
External pilot air supply		573484 VUVG-B14-B52-ZT-F-1T1L
5/3-way valve		
External pilot air supply	Mid-position closed, mechanical spring return	573485 VUVG-B14-P53C-ZT-F-1T1L
	Mid-position pressurised, mechanical spring return	573487 VUVG-B14-P53U-ZT-F-1T1L
	Mid-position exhausted, mechanical spring return	573486 VUVG-B14-P53E-ZT-F-1T1L

Datasheet – Sub-base valve G1/8




Ordering data	Description	Part no.	Type	
Sub-base valve G1/8				
	3/2-way valve			
	External pilot air supply	Normally closed, pneumatic spring return	8041970	VUVG-B14Z-M32C-AZT-F-1T1L-EX2C
		Normally open, pneumatic spring return	8041971	VUVG-B14Z-M32U-AZT-F-1T1L-EX2C
	2x 3/2-way valve			
	External pilot air supply	Normally closed, pneumatic spring return	8041958	VUVG-B14-T32C-AZT-F-1T1L-EX2C
		Normally open, pneumatic spring return	8041959	VUVG-B14-T32U-AZT-F-1T1L-EX2C
		1x normally open, 1x normally closed, pneumatic spring return	8041960	VUVG-B14-T32H-AZT-F-1T1L-EX2C
		Normally closed, mechanical spring return	8041961	VUVG-B14-T32C-MZT-F-1T1L-EX2C
		Normally open, mechanical spring return	8041962	VUVG-B14-T32U-MZT-F-1T1L-EX2C
		1x normally open, 1x normally closed, mechanical spring return	8041963	VUVG-B14-T32H-MZT-F-1T1L-EX2C
	5/2-way single solenoid valve			
	External pilot air supply	Pneumatic spring return	8041964	VUVG-B14-M52-AZT-F-1T1L-EX2C
		Mechanical spring return	8041965	VUVG-B14-M52-MZT-F-1T1L-EX2C
	5/2-way double solenoid valve			
	External pilot air supply		8041966	VUVG-B14-B52-ZT-F-1T1L-EX2C
	5/3-way valve			
External pilot air supply	Mid-position closed, mechanical spring return	8041967	VUVG-B14-P53C-ZT-F-1T1L-EX2C	
	Mid-position pressurised, mechanical spring return	8041969	VUVG-B14-P53U-ZT-F-1T1L-EX2C	
	Mid-position exhausted, mechanical spring return	8041968	VUVG-B14-P53E-ZT-F-1T1L-EX2C	

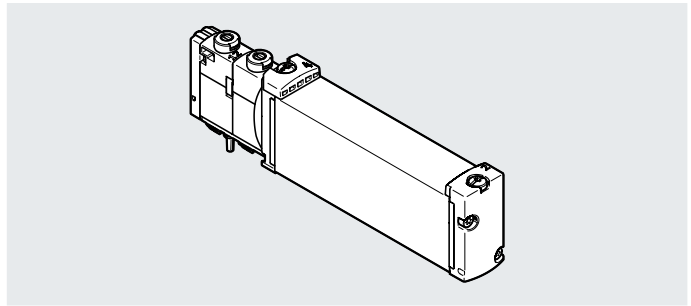
Datasheet – Sub-base valve G1/8

Ordering data		Description	Part no.	Type
Sub-base valve G1/8				
	2x 3/2-way valve			
	External pilot air supply	Normally closed, pneumatic spring return	8150402	VUVG-B14-T32C-AZT-F-1T1L-F1A
		Normally open, pneumatic spring return	8141527	VUVG-B14-T32U-AZT-F-1T1L-F1A
		1x normally open, 1x normally closed, pneumatic spring return	8141528	VUVG-B14-T32H-AZT-F-1T1L-F1A
		Normally closed, mechanical spring return	8141529	VUVG-B14-T32C-MZT-F-1T1L-F1A
		Normally open, mechanical spring return	8141530	VUVG-B14-T32U-MZT-F-1T1L-F1A
		1x normally open, 1x normally closed, mechanical spring return	8141531	VUVG-B14-T32H-MZT-F-1T1L-F1A
	5/2-way single solenoid valve			
	External pilot air supply	Pneumatic spring return	8150400	VUVG-B14-M52-AZT-F-1T1L-F1A
		Mechanical spring return	8150461	VUVG-B14-M52-MZT-F-1T1L-F1A
	5/2-way double solenoid valve			
	External pilot air supply		8150401	VUVG-B14-B52-ZT-F-1T1L-F1A
	5/3-way valve			
	External pilot air supply	Mid-position closed, mechanical spring return	8141532	VUVG-B14-P53C-ZT-F-1T1L-F1A
Mid-position pressurised, mechanical spring return		8141534	VUVG-B14-P53U-ZT-F-1T1L-F1A	
Mid-position exhausted, mechanical spring return		8141533	VUVG-B14-P53E-ZT-F-1T1L-F1A	

Datasheet – Sub-base valve G1/4

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

-  - Size 18 mm
-  - Flow rate
800 ... 1000 l/min
-  - Voltage
24 V DC



Circuit diagrams → page 19

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	Monostable						Bistable		Monostable			
Pneumatic spring return	Yes			No			Yes ⁵⁾	-	No	-		
Mechanical spring return	No			Yes			Yes ⁵⁾	-	Yes	Yes		
Vacuum operation at port 1	No			With external pilot air								
Design	Piston spool											
Sealing principle	Soft											
Actuation type	Electrical											
Type of control	Piloted											
Pilot air supply	External											
Exhaust function	Can be throttled											
Manual override	Choice of non-detenting, covered, non-detenting/detenting or detenting											
Type of mounting	On manifold rail											
Mounting position	Any											
Overlap	Positive overlap						Indeterminate overlap	Positive overlap	Indeterminate overlap	Positive overlap	Indeterminate overlap	
Signal status indication	LED											
Flow rate on manifold rail G1/4, front	[l/min]			800	800	950	1000	950	900			
Size	[mm]			18								
Connection	1, 3, 5, 12/14, 82/84			On manifold rail								
	2, 4			On manifold rail								
Product weight	[g]			145	147	138	145	138	140			
Certification	c UL us - Recognized (OL)											
	RCM											
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 area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.
 If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.
 7) Corrosion resistance class CRC 2 to Festo standard FN 940070
 Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – Sub-base valve G1/4

Operating and environmental conditions			T32-A ¹⁾	T32-M ²⁾	M52-R ³⁾	B52	M52-M ²⁾	P53
Valve function								
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 the operating/pilot medium			Lubricated operation possible (in which case lubricated operation will always be required)					
Operating pressure	Internal pilot air supply	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.3 ... 0.8		
		[bar]	1.5 ... 8	2 ... 8	1.5 ... 8	3 ... 8		
	External pilot air supply	[MPa]	0.15 ... 1	-0.09 ... 1		-0.09 ... 0.8		-0.09 ... 1
		[bar]	1.5 ... 10	-0.9 ... 10		-0.9 ... 8		-0.9 ... 10
Pilot pressure ⁴⁾	[MPa]	0.15 ... 0.8	0.2 ... 0.8	0.15 ... 0.8	0.3 ... 0.8			
	[bar]	1.5 ... 8	2 ... 8	1.5 ... 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) See graphs on page 12

Electrical data		
Electrical connection		Via E-box
Operating voltage	[V DC]	24 ±10%
Power	[W]	1
Duty cycle	[%]	100
Max. switching frequency	[Hz]	3
Degree of protection to EN 60529 ¹⁾	Individual valve	IP65, IP67
	Valve terminal VTUG (all variants)	IP40, IP67/IP65, NEMA 4X
	Valve terminal VTUG (for control cabinet installation)	IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety characteristics		
Max. positive test pulse with 0 signal	[µs]	1600
Max. negative test pulse with 1 signal	[µs]	3000
Shock resistance	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			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]	37	33	35	–	50	68	
Switching time changeover	[ms]	–	–	–	15	–	35	

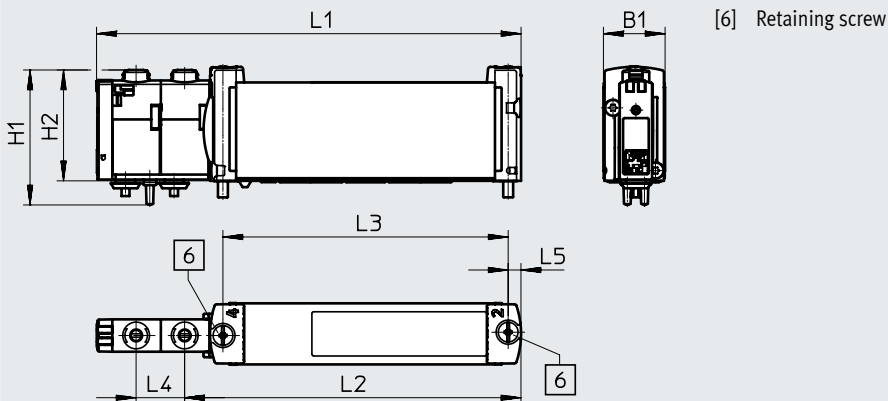
- 1) Pneumatic spring
2) Mechanical spring
3) Mixed, pneumatic/mechanical spring

Datasheet – Sub-base valve G1/4

Dimensions

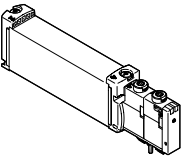
Download CAD data → www.festo.com

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 G1/4		
 2x 3/2-way valve External pilot air supply	Normally closed, pneumatic spring return	8004885 VUVG-B18-T32C-AZT-F-1T1L
	Normally open, pneumatic spring return	8004886 VUVG-B18-T32U-AZT-F-1T1L
	1x normally open, 1x normally closed, pneumatic spring return	8004887 VUVG-B18-T32H-AZT-F-1T1L
	Normally closed, mechanical spring return	8004888 VUVG-B18-T32C-MZT-F-1T1L
	Normally open, pneumatic spring return	8004889 VUVG-B18-T32U-MZT-F-1T1L
	1x normally open, 1x normally closed, mechanical spring return	8004890 VUVG-B18-T32H-MZT-F-1T1L
5/2-way single solenoid valve External pilot air supply	Pneumatic/mechanical spring return	8004891 VUVG-B18-M52-RZT-F-1T1L
	Mechanical spring return	8004892 VUVG-B18-M52-MZT-F-1T1L
5/2-way double solenoid valve External pilot air supply	8004893	VUVG-B18-B52-ZT-F-1T1L
5/3-way valve External pilot air supply	Mid-position closed, mechanical spring return	8004894 VUVG-B18-P53C-ZT-F-1T1L
	Mid-position exhausted, mechanical spring return	8004895 VUVG-B18-P53E-ZT-F-1T1L
	Mid-position pressurised, mechanical spring return	8004896 VUVG-B18-P53U-ZT-F-1T1L

Datasheet – Manifold rail VABM

General technical data		Size 10	Size 14	Size 18
Manifold rail				
Short type code		VABM		
Grid dimension	[mm]	10.5	16	19
Mounting position		Any		
Connection type		Semi in-line/sub-base		
Max. no. of valve positions		24		
Connection	12/14	M5	M5	G1/8
	82/84	M5	M5	G1/8
	2, 4	M5 (VABM-L1-10W-...-GR)	G1/8	G1/4
		M7 (VABM-L1-10HW-...-GR)		
1, 3, 5	G1/8	G1/4	G3/8	
Storage temperature	[°C]	-20 ... 60		
Certification		c UL us - Recognized (OL)		
CE marking (see declaration of conformity) ¹⁾		To EU EMC Directive		
Corrosion resistance class CRC ²⁾		2		

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of 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 can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Weights [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

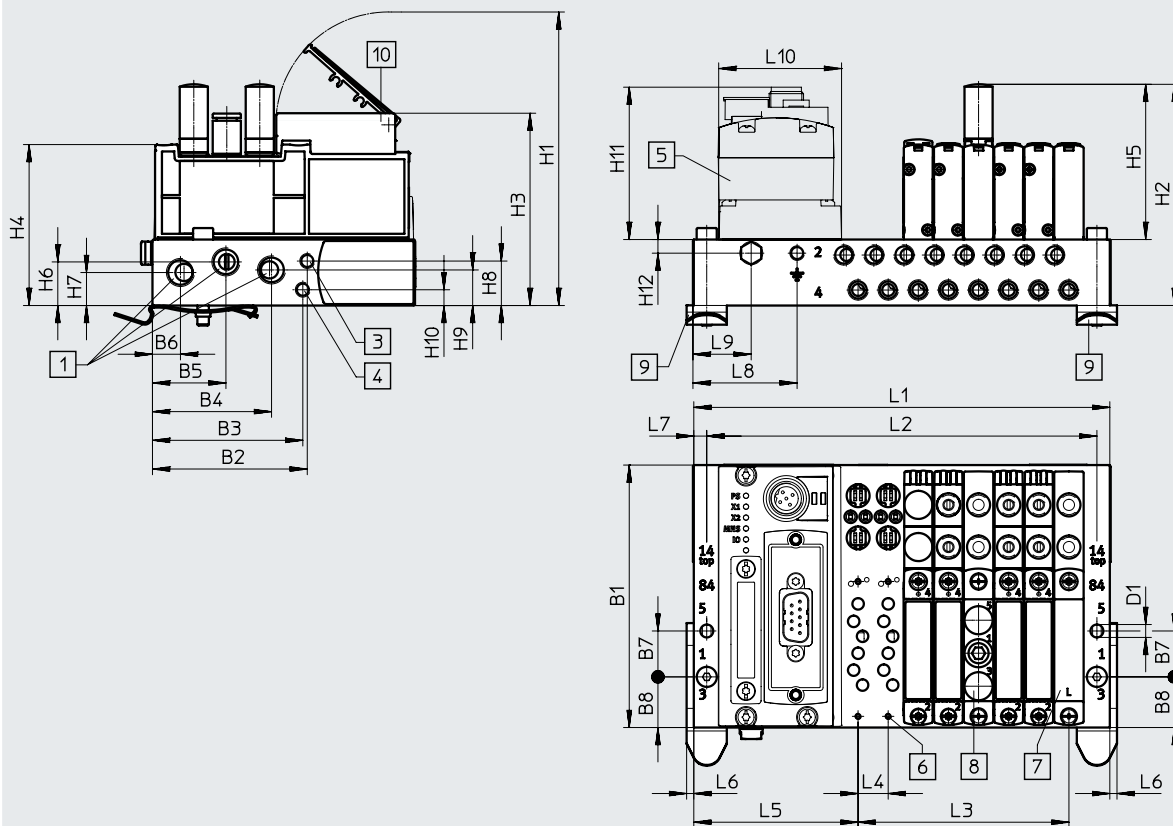
Materials	
Manifold rail	Wrought aluminium alloy
Note on materials	RoHS-compliant

Datasheet – Manifold rail VABM

Dimensions – Example of valve terminal with I-Port interface

Download CAD data → www.festo.com

Outlet orientation of electrical components on top



- [1] Ports 1, 3 and 5: size 10: G1/8 (at both ends), size 14: G1/4 (at both ends), size 18: G3/8 (at both ends)
- [2] Ports 2 and 4: size 10: G1/8 (at both ends), size 14: G1/4 (at both ends), size 18: G3/8 (at both ends)
- [3] Ports 12/14: sizes 10 and 14: M5 (at both ends), size 18: G1/8 (at both ends)
- [4] Ports 82/84: sizes 10 and 14: M5 (at both ends), size 18: G1/8 (at both ends)
- [5] CTEU-CANopen
- [6] Valves/cover plates/supply plates – mounting on manifold block: size 10: M2, size 14: M2.5, size 18: M3
- [7] Cover plate
- [8] Supply plate, ports 1, 3 and 5: size 10: M7, size 14: G1/8, size 18: G1/4
- [9] H-rail mounting
- [10] Inscription label holder

Type	Number of valve positions	Size 10																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ø	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	Number 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	Number of valve positions	Size 14																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ø	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

Datasheet – Manifold rail VABM

Type	Number 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	Number of valve positions	Size 18																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 ø	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	Number 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

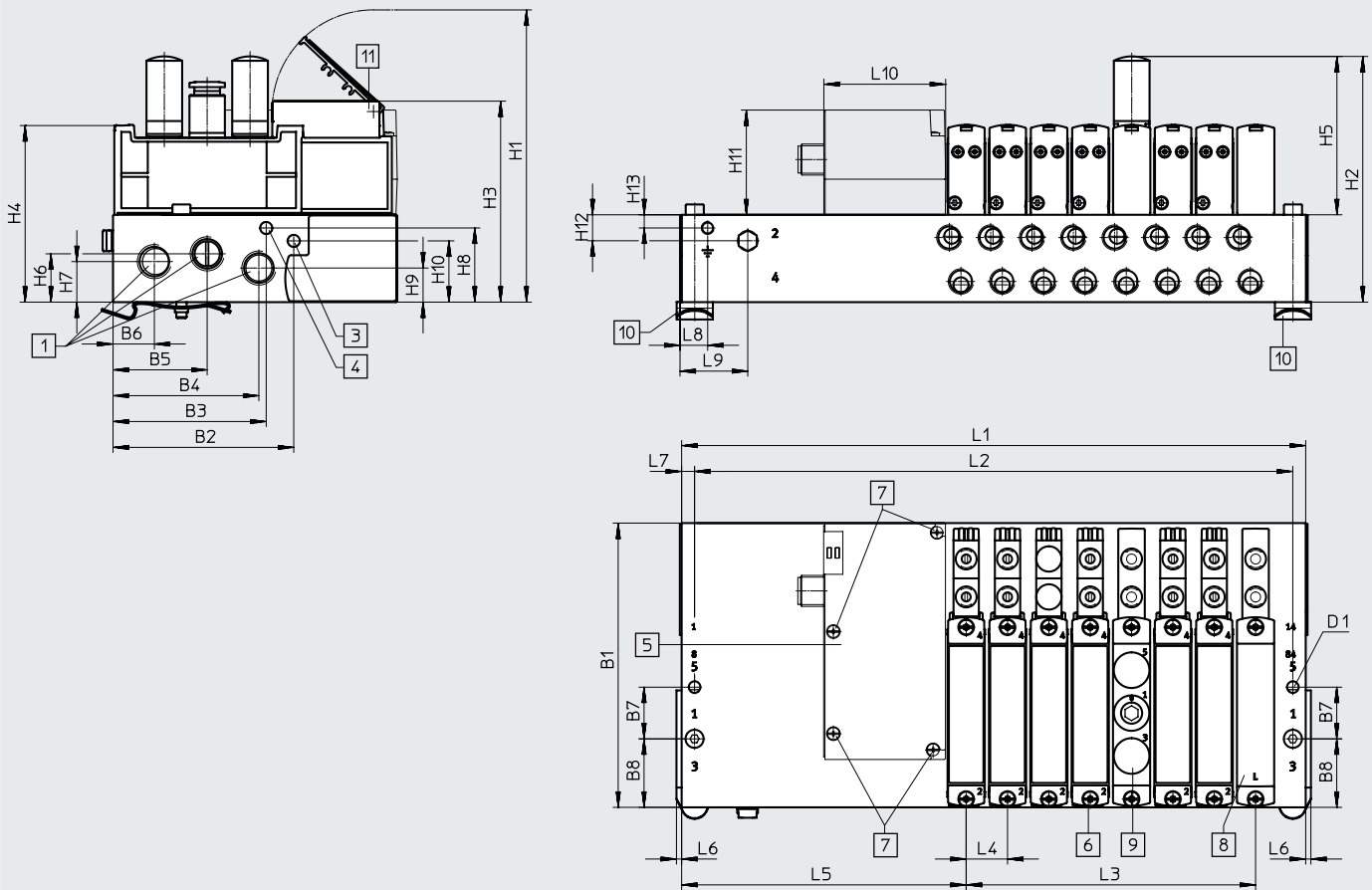
Type	Number of valve positions	Size 10			Size 14			Size 18		
		L1	L2	L3	L1	L2	L3	L1	L2	L3
VABM	4	103	94	31.5	128	118	48	139.5	129.5	57
	5	113.5	104.5	42	144	134	64	158.5	148.5	76
	6	124	115	52.5	160	150	80	177.5	167.5	95
	7	134.5	125.5	63	176	166	96	196.5	186.5	114
	8	145	136	73.5	192	182	112	215.5	205.5	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

Datasheet – Manifold rail VABM

Dimensions – Example of valve terminal with I-Port interface

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Outlet orientation of electrical components to the left



- [1] Ports 1, 3 and 5: size 10: G1/8 (at both ends), size 14: G1/4 (at both ends), size 18: G3/8 (at both ends)
- [2] Ports 12/14: sizes 10 and 14: M5 (at both ends), size 18: G1/8 (at both ends)
- [3] Ports 12/14: sizes 10 and 14: M5 (at both ends), size 18: G1/8 (at both ends)
- [4] Ports 82/84: sizes 10 and 14: M5 (at both ends), size 18: G1/8 (at both ends)
- [5] Electrical connection I-Port interface/IO-Link
- [6] Valves/cover plates/supply plates – mounting on manifold block: size 10: M2, size 14: M2.5, size 18: M3
- [7] Electrical interface
- [8] Cover plate
- [9] Supply plate, ports 1, 3 and 5: size 10: M7, size 14: G1/8, size 18: G1/4
- [10] H-rail mounting
- [11] Inscription label holder

Type	Number 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	Number 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	Number 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	Number 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

Datasheet – Manifold rail VABM

Type	Number 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	Number 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	Number 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

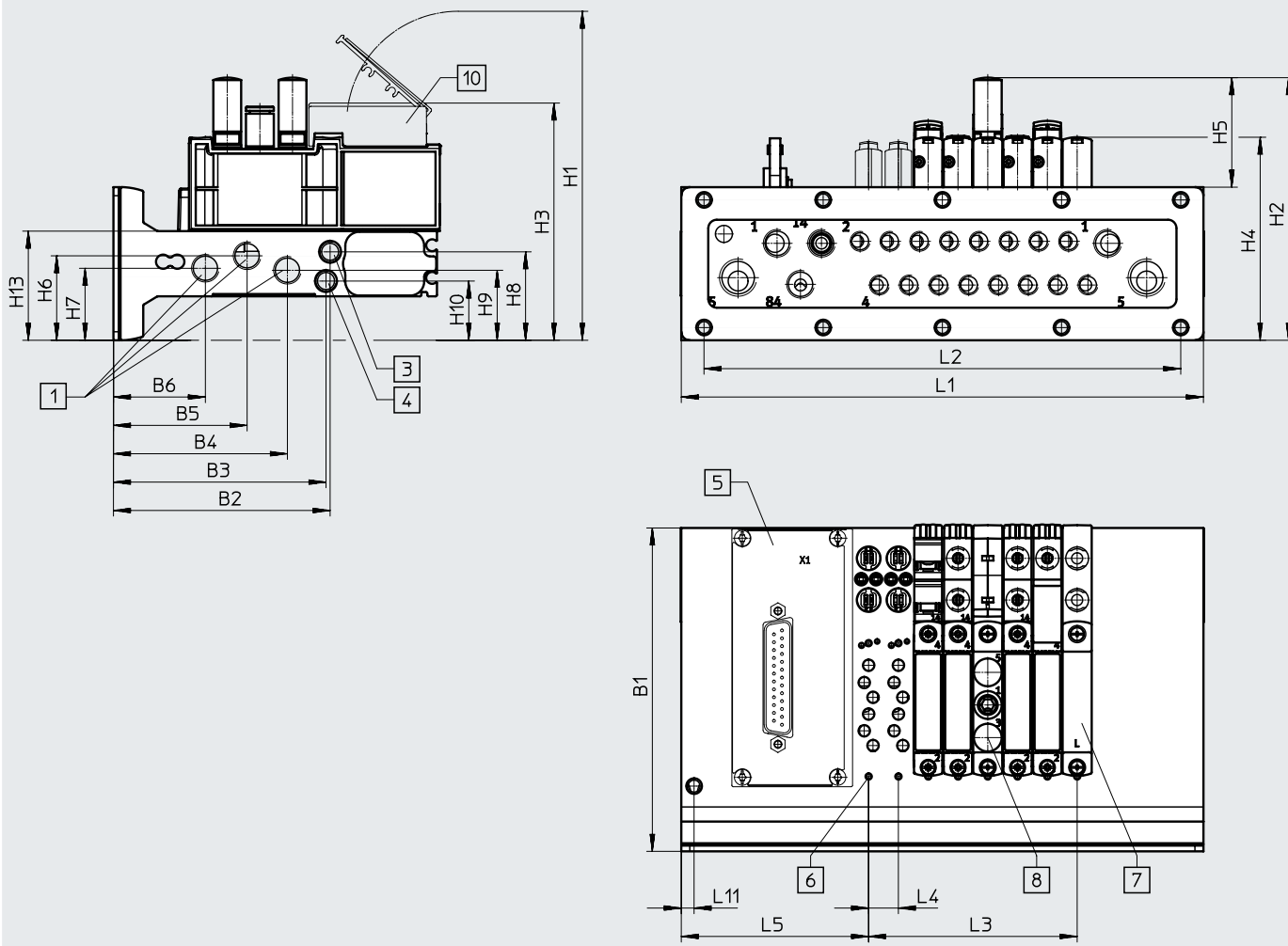
The dimensions for size 10 are the same as the dimensions for the manifold rail with interlock.

Datasheet – Manifold rail VABM

Dimensions – Example of control cabinet installation for valve terminal

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Outlet orientation of electrical components on top



- [1] Ports 1, 3 and 5: size 10: G1/8, G1/4, size 14: G3/8, G1/4
- [2] Ports 2 and 4: size 10: G1/8, G1/4, size 14: G3/8, G1/4
- [3] Ports 12/14: size 10: M5 (at both ends), size 14: M7 (at both ends)
- [4] Ports 82/84: size 10: M5 (at both ends), size 14: M7 (at both ends)
- [5] Electrical connection
- [6] Valves/cover plates/supply plates – mounting on manifold block: M2
- [7] Cover plate
- [8] Supply plate, ports 1, 3 and 5: M7
- [10] Inscription label holder

Type	Number of valve positions	Size 10									
		B1	B2	B3	B4	B5	B6	H1	H2	H3	H4
VABM	4-24	114	76.4	74.9	61.3	47.1	32.4	116	92.6	84	71.6

Type	Number of valve positions	Size 10									
		H5	H6	H7	H8	H9	H10	H13	L4	L5	L11
VABM	4-24	38.6	29.8	25.4	31.2	24.7	20.9	38.5	10.5	66	4.5

Type	Number of valve positions	Size 14									
		B1	B2	B3	B4	B5	B6	H1	H2	H3	H4
VABM	4-24	132	93	80.8	76.5	55.5	36.1	111.3	101.7	77.6	85.1

Type	Number of valve positions	Size 14									
		H5	H6	H7	H8	H9	H10	H13	L4	L5	L11
VABM	4-24	34.9	35.2	30.3	39.3	30.3	45	50.3	16	72.6	4.5

Datasheet – Manifold rail VABM

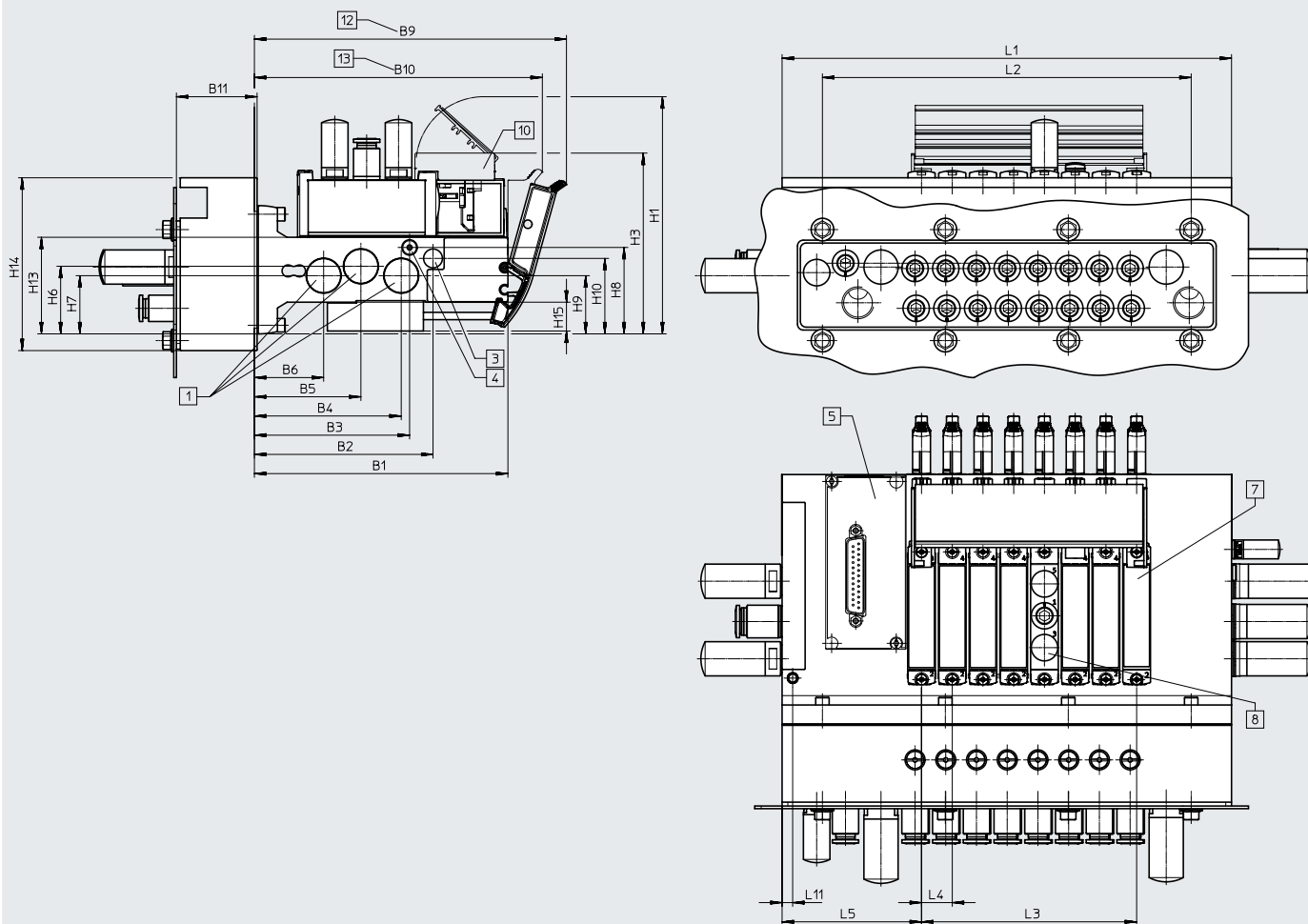
Number of valve positions	L1	L2	L3
VABM-L1-10HWS1-G18-4-GR	116.2	84	31.5
VABM-L1-10HWS1-G18-8-GR	158.2	126	73.5
VABM-L1-10HWS2-G18-8-GR	184	168	73.5
VABM-L1-10HWS2-G18-12-GR	226	210	115.5
VABM-L1-10HWS2-G18-16-GR	268	252	157.5
VABM-L1-10HWS2-G18-24-GR	352	336	241.5
VABM-L1-10HWS2-H-G18-8-GR	184	168	73.5
VABM-L1-10HWS2-H-G18-12-GR	226	210	115.5
VABM-L1-10HWS2-H-G18-16-GR	268	252	157.5
VABM-L1-10HWS2-H-G18-24-GR	352	336	241.5
VABM-L1-14HWS1-G14-4-GR	135	64	48
VABM-L1-14HWS1-G14-8-GR	199	128	112
VABM-L1-14HWS2-G14-8-GR	234	192	112
VABM-L1-14HWS2-G14-12-GR	298	256	176
VABM-L1-14HWS2-G14-16-GR	362	320	240
VABM-L1-14HWS2-G14-24-GR	490	448	368
VABM-L1-14HWS2-H-G14-8-GR	234	192	112
VABM-L1-14HWS2-H-G14-12-GR	298	256	176
VABM-L1-14HWS2-H-G14-16-GR	362	320	240
VABM-L1-14HWS2-H-G14-24-GR	490	448	368

Datasheet – Manifold rail VABM

Dimensions – Example of control cabinet installation for valve terminal

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Outlet orientation of electrical components on top, with shut-off function (hot swap)



- [1] Ports 1, 3 and 5: size 10: G1/8, G1/4, size 14: G3/8, G1/4
- [2] Ports 12/14: size 10: M5 (at both ends), size 14: M7 (at both ends)
- [3] Ports 82/84: size 10: M5 (at both ends), size 14: M7 (at both ends)
- [4] Electrical connection
- [5] Cover plate
- [6] Supply plate, ports 1, 3 and 5: M7
- [7] Inscription label holder
- [8] VTUG 10: with seal and stainless steel plate
- [9] VTUG 14: with seal and stainless steel plate, hot swap 1 and 2/4
- [10] With seal and stainless steel plate

Type	Number of valve positions	Size 10										
		B1	B2	B3	B4	B5	B6	B9	B10	B11	H1	H3
VABM	4-24	114	76.4	74.9	61.3	47.1	32.4	142	132	–	114	82

Type	Number of valve positions	Size 10										
		H6	H7	H8	H9	H10	H13	H14	H15	L4	L5	L11
VABM	4-24	29.8	25.4	20.9	24.7	31.2	38.5	–	15	10.5	66	5.5

Type	Number of valve positions	Size 14										
		B1	B2	B3	B4	B5	B6	B9	B10	B11	H1	H3
VABM	4-24	132	93	80.8	76.5	55.5	36.1	163	150.4	42	123.5	93.9

Type	Number of valve positions	Size 14										
		H6	H7	H8	H9	H10	H13	H14	H15	L4	L5	L11
VABM	4-24	35.2	30.3	45	30.3	39.3	50.3	90	15	16	72.6	5.5

Datasheet – Manifold rail VABM

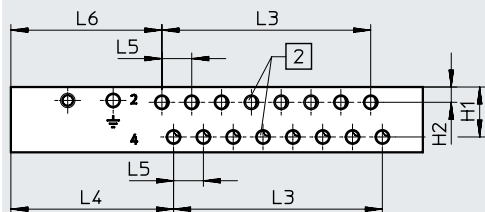
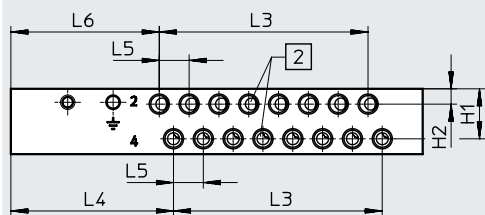
Number of valve positions	L1	L2	L3
VABM-L1-10HWS1-G18-4-GR	116.2	84	31.5
VABM-L1-10HWS1-G18-8-GR	158.2	126	73.5
VABM-L1-10HWS2-G18-8-GR	184	168	73.5
VABM-L1-10HWS2-G18-12-GR	226	210	115.5
VABM-L1-10HWS2-G18-16-GR	268	252	157.5
VABM-L1-10HWS2-G18-24-GR	352	336	241.5
VABM-L1-10HWS2-H-G18-8-GR	184	168	73.5
VABM-L1-10HWS2-H-G18-12-GR	226	210	115.5
VABM-L1-10HWS2-H-G18-16-GR	268	252	157.5
VABM-L1-10HWS2-H-G18-24-GR	352	336	241.5
VABM-L1-14HWS1-G14-4-GR	135	64	48
VABM-L1-14HWS1-G14-8-GR	199	128	112
VABM-L1-14HWS2-G14-8-GR	234	192	112
VABM-L1-14HWS2-G14-12-GR	298	256	176
VABM-L1-14HWS2-G14-16-GR	362	320	240
VABM-L1-14HWS2-G14-24-GR	490	448	368
VABM-L1-14HWS2-H-G14-8-GR	234	192	112
VABM-L1-14HWS2-H-G14-12-GR	298	256	176
VABM-L1-14HWS2-H-G14-16-GR	362	320	240
VABM-L1-14HWS2-H-G14-24-GR	490	448	368

Datasheet – Manifold rail VABM

Dimensions – Manifold rail outlet orientation at the front

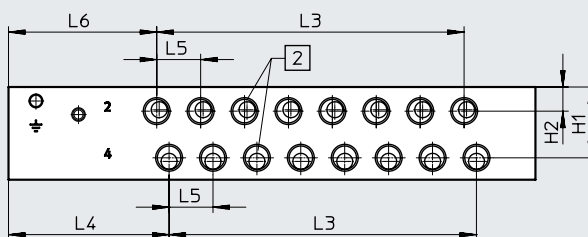
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Size 10, I-Port interface on top



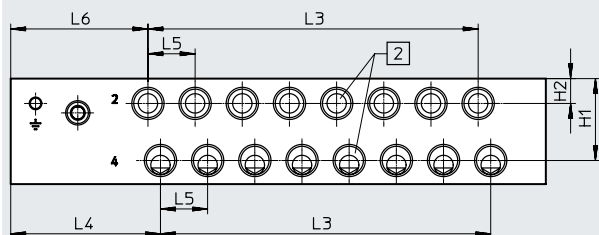
[2] Port 2 and 4

Size 14, I-Port interface on top



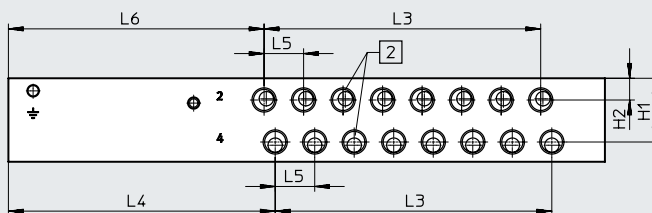
[2] Port 2 and 4

Size 18, I-Port interface on top



[2] Port 2 and 4

Sizes 10, 14, 18, I-Port interface on the side



[2] Port 2 and 4

Size	Port 2 and 4	Manifold rail with I-Port interface 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 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

Datasheet – Manifold rail VABM

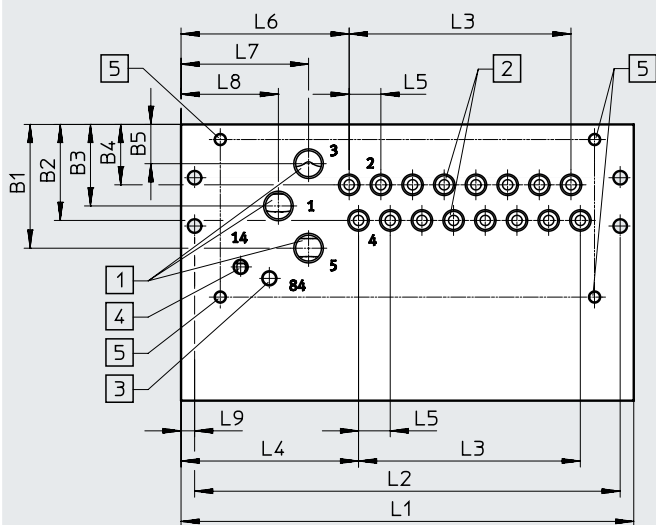
Type	Number of valve positions	Size 10	Size 14	Size 18
		L3	L3	L3
VABM	4	31.5	48	57
	5	42	64	76
	6	52.5	80	95
	7	63	96	114
	8	73.5	112	133
	9	84	128	152
	10	94.5	144	171
	12	115.5	176	209
	16	157.5	240	285
	20	199.5	304	361
	24	241.5	368	437

Datasheet – Manifold rail VABM

Dimensions – Manifold rail outlet orientation underneath

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Control cabinet installation



Note
 Dimensions of the manifold rail with I-Port interface on the side for control cabinet installation → page 69

- [1] Ports 1, 3 and 5: size 10: G1/8, size 14: G1/4, size 18: G3/8
- [2] Ports 2 and 4: size 10: M5/M7, size 14: G1/8, size 18: G1/4
- [3] Ports 82/84: sizes 10 and 14: M5, size 18: G1/8
- [4] Ports 12/14: sizes 10 and 14: M5, size 18: G1/8
- [5] Mounting holes, outlet orientation underneath: M4x8

Type	Manifold rail with I-Port interface on top, 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 on top, 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 on top, 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	Number 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

Datasheet – Manifold rail VABM

Type	Manifold rail with I-Port interface, 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, 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, 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

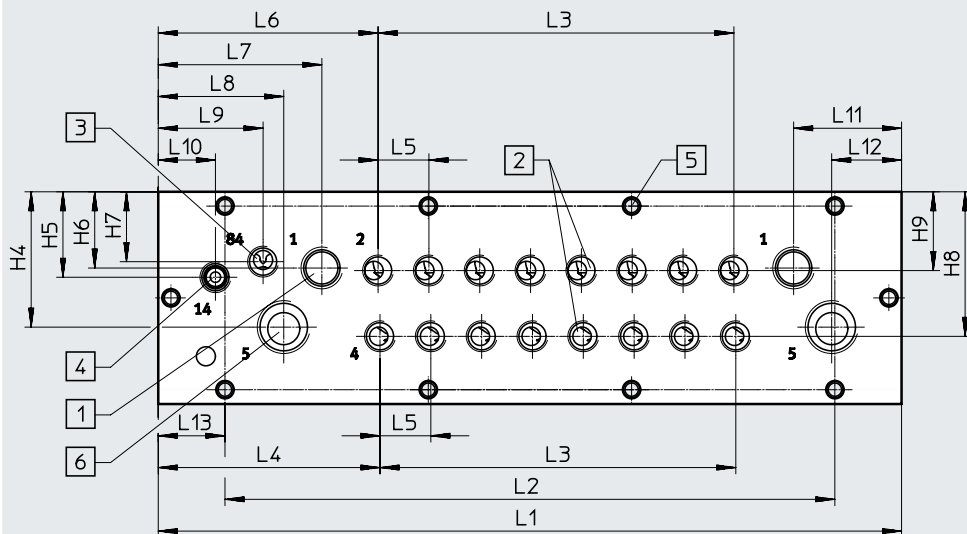
Type	Number of valve positions	Manifold rail with I-Port interface Size 10			Manifold rail with I-Port interface Size 14			Manifold rail with I-Port interface Size 18		
		L1 +5	L2 +5	L3	L1	L2	L3	L1	L2	L3
		VABM	4	152.5	143.5	31.5	177.5	167.5	48	181
	5	163	154	42	193.5	183.5	64	200	190	76
	6	173.5	164.5	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

Datasheet – Manifold rail VABM

Dimensions – Manifold rail outlet orientation at the front

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Control cabinet installation/control cabinet installation with shut-off function (hot swap)



- [1] Ports 1, 3 and 5:
size 10: G1/8,
size 14: G1/4
- [2] Ports 2 and 4:
size 10: M5/M7,
size 14: G1/8
- [3] Ports 8/2/8/4:
sizes 10 and 14: G1/8
- [4] Ports 12/14:
sizes 10 and 14: G1/8
- [5] Mounting holes, outlet
orientation underneath: M5
- [6] Ports 3/5:
size 10: G1/4,
size 14: G3/8

Type	Size 10															
	B1	B2	B3	B4	B5	B6	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
VABM-L1-10HWS1	111.5	73.9	72.4	58.8	44.6	29.9	69.8	10.5	63	33.8	20	42	49.4	33.8	20	16.1
VABM-L1-10HWS2																8

Type	Size 10								
	H1	H2	H3	H4	H5	H6	H7	H8	H9
VABM-L1-10HWS1	54	15.5	23	31.9	19.8	19.8	34.3	34.5	19.1
VABM-L1-10HWS2									

Type	Size 14															
	B1	B2	B3	B4	B5	B6	L4	L5	L6	L7	L8	L9	L10	L11	L12	L13
VABM-L1-14HWS1	130	91	78.8	74.5	53.5	34.1	69.8	16	96.2	51.5	39.5	33	18	34	22	35.5
VABM-L1-14HWS2																21

Type	Size 14								
	H1	H2	H3	H4	H5	H6	H7	H8	H9
VABM-L1-14HWS1	66.8	16.5	33.8	42.6	26.9	24	22	45.5	24.8
VABM-L1-14HWS2									

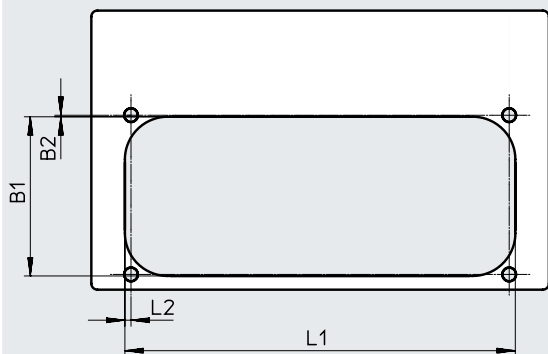
Datasheet – Manifold rail VABM

Number of valve positions	L1	L2	L3	L13
VABM-L1-10HWS1-G18-4-GR	116.2	84	31.5	16.1
VABM-L1-10HWS1-G18-8-GR	158.2	126	73.5	16.1
VABM-L1-10HWS2-G18-8-GR	184	168	73.5	8
VABM-L1-10HWS2-G18-12-GR	226	210	115.5	8
VABM-L1-10HWS2-G18-16-GR	268	252	157.5	8
VABM-L1-10HWS2-G18-24-GR	352	336	241.5	8
VABM-L1-10HWS2-H-G18-8-GR	184	168	73.5	8
VABM-L1-10HWS2-H-G18-8-GR	226	210	115.5	8
VABM-L1-10HWS2-H-G18-8-GR	268	252	157.5	8
VABM-L1-10HWS2-H-G18-8-GR	352	336	241.5	8
VABM-L1-14HWS1-G14-4-GR	135	64	48	35.5
VABM-L1-14HWS1-G14-8-GR	199	128	112	35.5
VABM-L1-14HWS2-G14-8-GR	234	192	112	21
VABM-L1-14HWS2-G14-12-GR	298	256	176	21
VABM-L1-14HWS2-G14-16-GR	362	320	240	21
VABM-L1-14HWS2-G14-24-GR	490	448	368	21
VABM-L1-14HWS2-H-G14-8-GR	234	192	112	21
VABM-L1-14HWS2-H-G14-12-GR	298	256	176	21
VABM-L1-14HWS2-H-G14-16-GR	362	320	240	21
VABM-L1-14HWS2-H-G14-24-GR	490	448	368	21

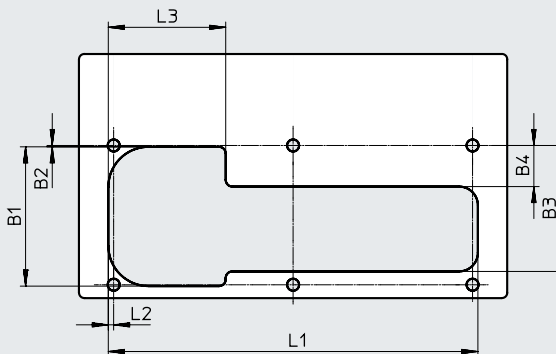
Datasheet – Manifold rail VABM

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

Up to 8 valves



9 or more valves

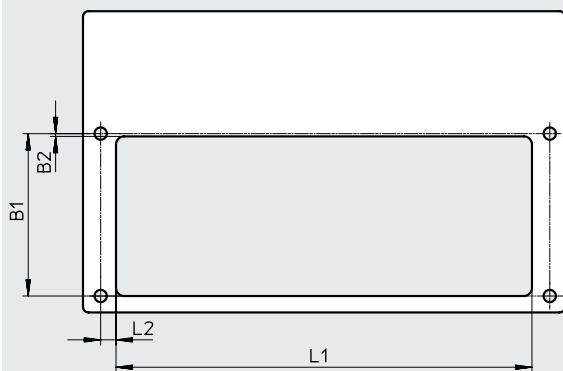


Type	B1	B2	L1	L2
VABM-L1-10...G18-4	52.7	0.5	86	2
VABM-L1-10...G18-5			96.5	
VABM-L1-10...G18-6			107	
VABM-L1-10...G18-7			117.5	
VABM-L1-10...G18-8			128	

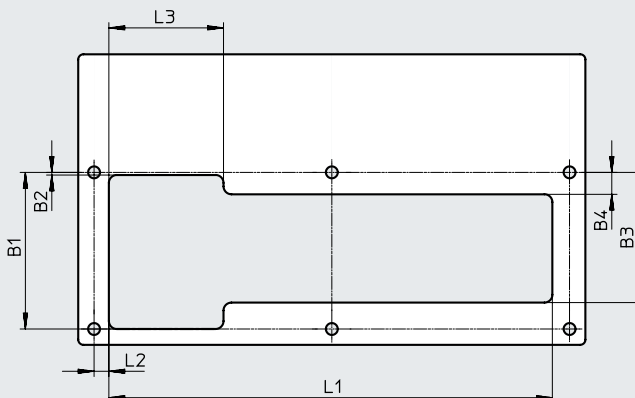
Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-10...G18-9	52.7	0.5	47.2	15.4	138.5	2	44
VABM-L1-10...G18-10					149		
VABM-L1-10...G18-12					170		
VABM-L1-10...G18-16					212		
VABM-L1-10...G18-20					254		
VABM-L1-10...G18-24					296		

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

Up to 7 valves



8 or more valves

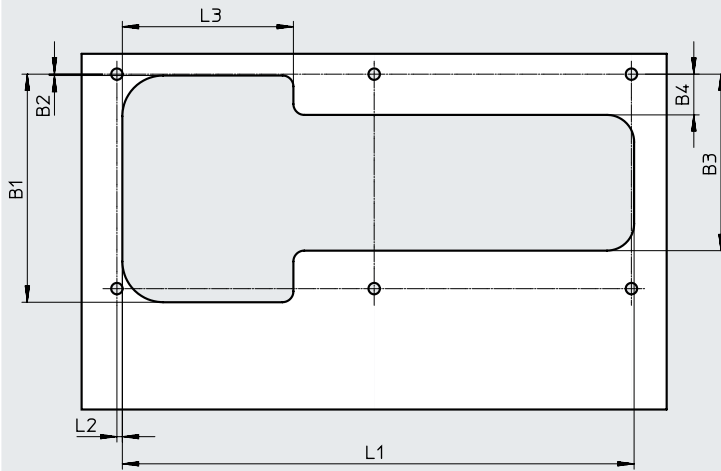


Type	B1	B2	L1	L2
VABM-L1-14...G14-4	59.3	1	103.9	5.6
VABM-L1-14...G14-5			119.9	
VABM-L1-14...G14-6			135.9	
VABM-L1-14...G14-7			151.9	

Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-14...G14-8	59.3	1	49.3	8.3	167.9	5.6	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		

Datasheet – Manifold rail VABM

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

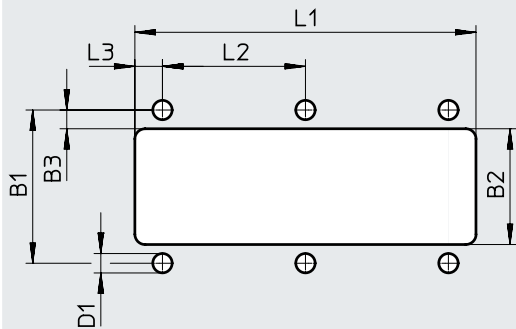


Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-18...G38-4	83.5	0.5	65	15	112.5	2	63
VABM-L1-18...G38-5					131.5		
VABM-L1-18...G38-6					150.5		
VABM-L1-18...G38-7					169.5		
VABM-L1-18...G38-8					188.5		
VABM-L1-18...G38-9					207.5		
VABM-L1-18...G38-10					226.5		
VABM-L1-18...G38-12					264.5		
VABM-L1-18...G38-16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

Datasheet – Manifold rail VABM

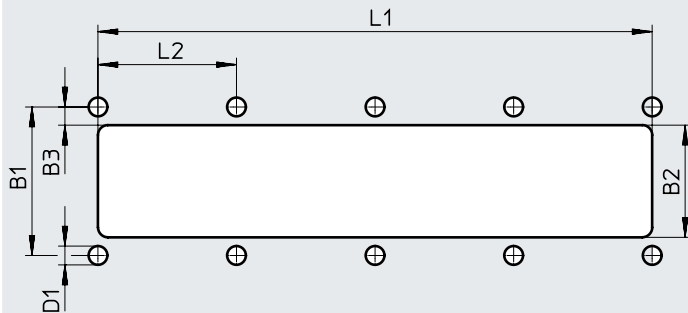
Dimensions – Recess for control cabinet installation, outlet orientation at the front, size 10

Single supply, up to 8 valves



Type	B1	B2	B3	D1	L1	L2	L3
VABM-L1-10HWS1-G18-4-GR	45	34	5.5	5.7	100.2	42	8.1
VABM-L1-10HWS1-G18-8-GR					143.2		

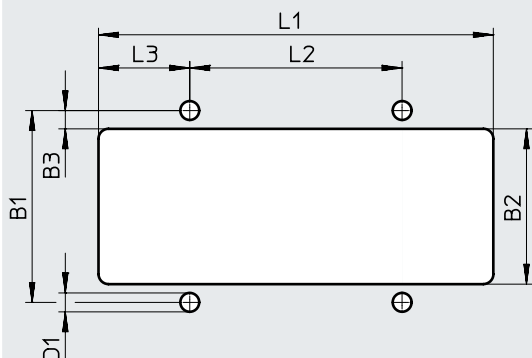
Double supply, 8 or more valves



Type	B1	B2	B3	D1	L1	L2
VABM-L1-10HWS2-...G18-8-GR	45	34	5.5	5.7	168	42
VABM-L1-10HWS2-...G18-12-GR					210	
VABM-L1-10HWS2-...G18-16-GR					252	
VABM-L1-10HWS2-...G18-24-GR					336	

Dimensions – Recess for control cabinet installation, outlet orientation at the front, size 14

Single supply, up to 8 valves

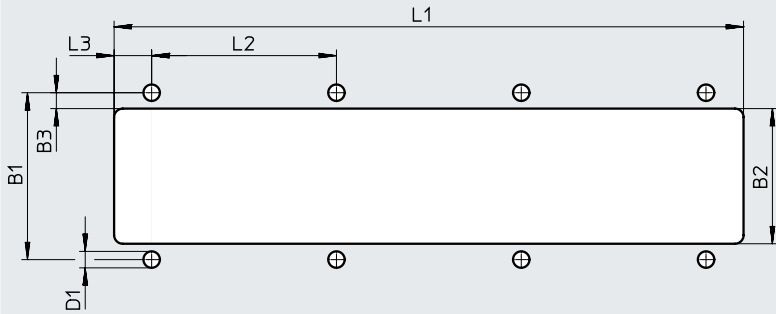


Type	B1	B2	B3	D1	L1	L2	L3
VABM-L1-14HWS1-G14-4-GR	57.8	46.8	5.5	5.7	119	64	27.5
VABM-L1-14HWS1-G14-8-GR					183		

Datasheet – Manifold rail VABM

Dimensions – Recess for control cabinet installation, outlet orientation at the front, size 14

Double supply, 8 or more valves

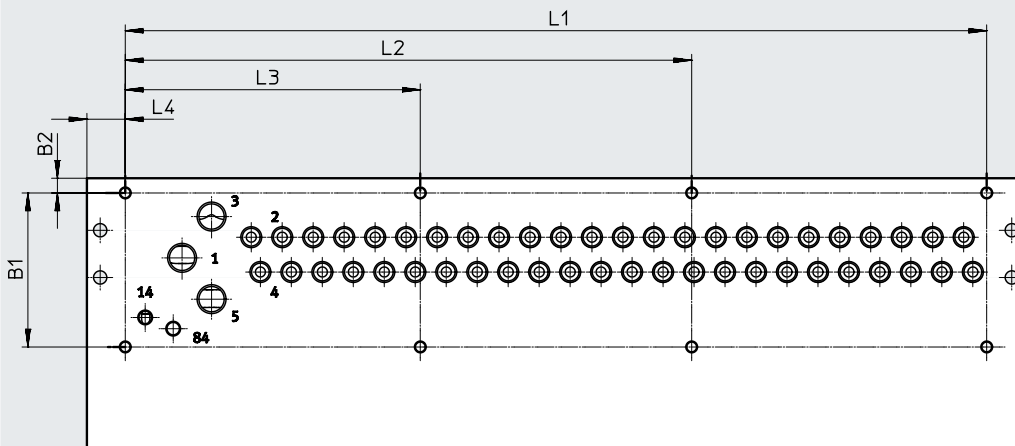


Type	B1	B2	B3	D1	L1	L2	L3
VABM-L1-14HWS2-G14-...-8-GR	57.8	46.8	5.5	5.7	218	64	13
VABM-L1-14HWS2-G14-...-12-GR					282		
VABM-L1-14HWS2-G14-...-16-GR					346		
VABM-L1-14HWS2-G14-...-24-GR					474		

Dimensions – Mounting holes for control cabinet installation, size 10

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Outlet orientation underneath



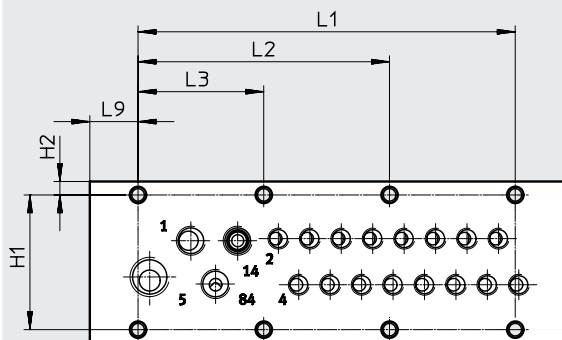
Type		Outlet orientation of electrical components on top						I-Port interface on the side
		B1	B2	L1	L2	L3	L4	L4
VABM-L1-10...-G18-4	Up to 8 valves	52.2	5	82	-	-	13	62.5
VABM-L1-10...-G18-5				92.5	-	-		
VABM-L1-10...-G18-6				103	-	-		
VABM-L1-10...-G18-7				113.5	-	-		
VABM-L1-10...-G18-8				124	-	-		
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

Datasheet – Manifold rail VABM

Dimensions – Mounting holes for control cabinet installation, size 10

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Outlet orientation at the front



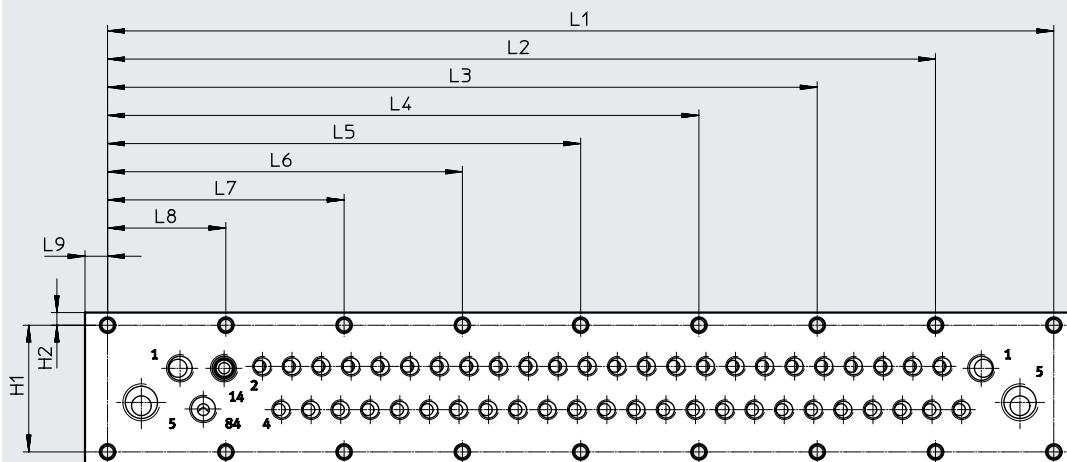
Type	H1	H2	L1	L2	L3	L9
VABM-L1-10HWS1-G18-4-GR	45	4.5	84	–	42	16.1
VABM-L1-10HWS1-G18-8-GR	45	4.5	126	84	42	16.1

Type	No. of valve positions	No. of mounting holes
VABM-L1-10HWS1-G18-4-GR	4	3
VABM-L1-10HWS1-G18-8-GR	8	4

Dimensions – Mounting holes for control cabinet installation, size 10

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Outlet orientation at the front



Type	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8	L9
VABM-L1-10HWS2-...-8-GR	45	4.5	168	–	–	–	–	126	84	42	8
VABM-L1-10HWS2-...-12-GR	45	4.5	210	–	–	–	168	126	84	42	8
VABM-L1-10HWS2-...-16-GR	45	4.5	252	–	–	210	168	126	84	42	8
VABM-L1-10HWS2-...-24-GR	45	4.5	336	294	252	210	168	126	84	42	8

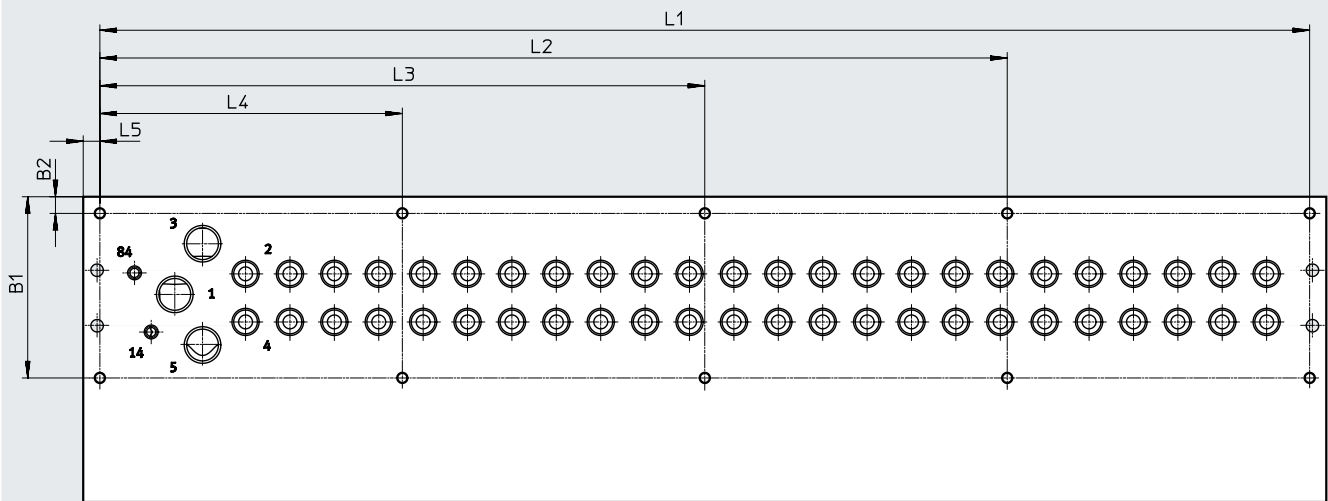
Type	No. of valve positions	No. of mounting holes
VABM-L1-10HWS2-...-8-GR	8	5
VABM-L1-10HWS2-...-12-GR	12	6
VABM-L1-10HWS2-...-16-GR	16	7
VABM-L1-10HWS2-...-24-GR	24	9

Datasheet – Manifold rail VABM

Dimensions – Mounting holes for control cabinet installation, size 14

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Outlet orientation underneath



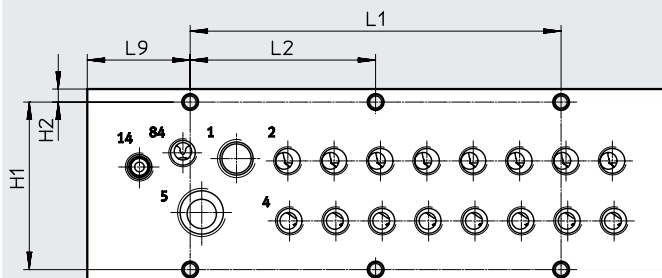
Type		Outlet orientation of electrical components on top							I-Port interface on the side
		B1	B2	L1	L2	L3	L4	L5	L4
VABM-L1-14...-G14-4	Up to 8 valves	59.3	6	116	-	-	-	6	55.5
VABM-L1-14...-G14-5				132	-	-	-		
VABM-L1-14...-G14-6				148	-	-	-		
VABM-L1-14...-G14-7				164	-	-	-		
VABM-L1-14...-G14-8	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		

Datasheet – Manifold rail VABM

Dimensions – Mounting holes for control cabinet installation, size 14

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Outlet orientation at the front



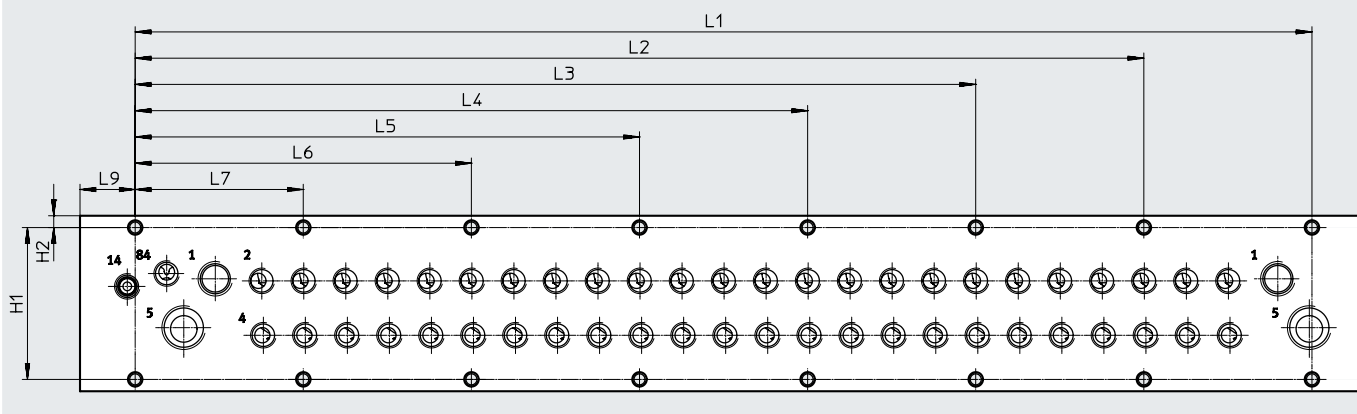
Type	H1	H2	L1	L2	L9
VABM-L1-14HWS1-G14-4-GR	57.8	4.5	64	–	35.5
VABM-L1-14HWS1-G14-8-GR	57.8	4.5	128	64	35.5

Type	No. of valve positions	No. of mounting holes
VABM-L1-14HWS1-G14-4-GR	4	2
VABM-L1-14HWS1-G14-8-GR	8	3

Dimensions – Mounting holes for control cabinet installation, size 14

Download CAD data → www.festo.com

Outlet orientation at the front



Type	H1	H2	L1	L2	L3	L4	L5	L6	L7	L9
VABM-L1-14HWS2-...-8-GR	57.8	4.5	192	–	–	–	–	128	64	21
VABM-L1-14HWS2-...-12-GR	57.8	4.5	256	–	–	–	192	128	64	21
VABM-L1-14HWS2-...-16-GR	57.8	4.5	320	–	–	256	192	128	64	21
VABM-L1-14HWS2-...-24-GR	57.8	4.5	448	384	320	256	192	128	64	21

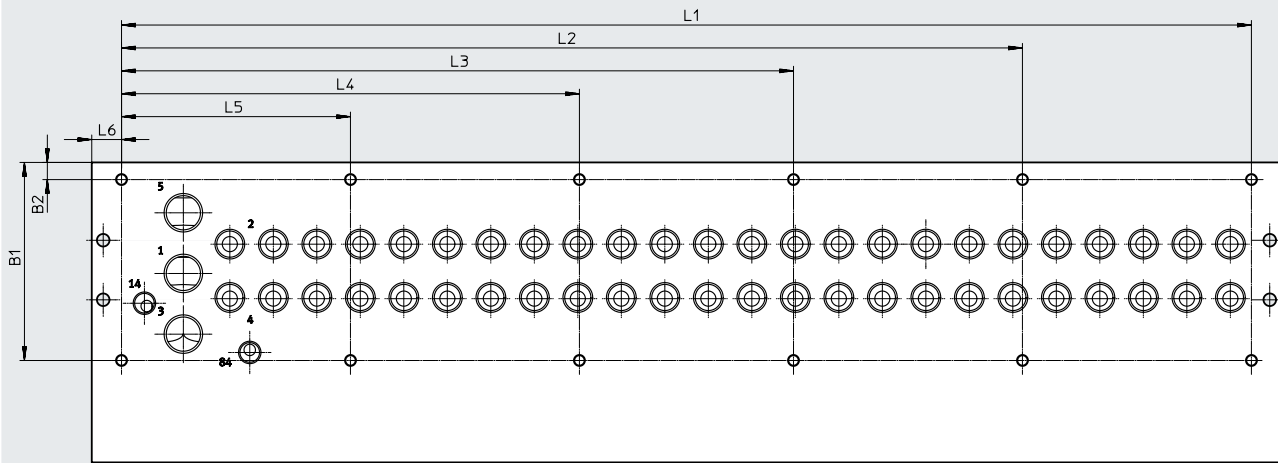
Type	No. of valve positions	No. of mounting holes
VABM-L1-14HWS2-...-8-GR	8	4
VABM-L1-14HWS2-...-12-GR	12	5
VABM-L1-14HWS2-...-16-GR	16	6
VABM-L1-14HWS2-...-24-GR	24	8

Datasheet – Manifold rail VABM

Dimensions – Mounting holes for control cabinet installation, size 18

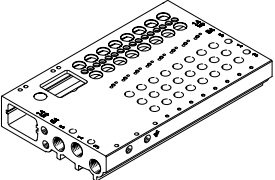
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Outlet orientation underneath

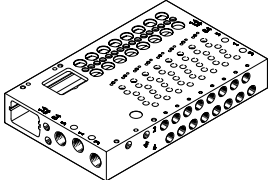


Type		Outlet direction of electrical components							I-Port interface on the side
		B1	B2	L1	L2	L3	L4	L5	L4
VABM-L1-18...-G38-4	4 valves and 5 valves	86.5	7.5	113.5	-	-	-	-	54.5
VABM-L1-18...-G38-5				132.5	-	-	-	-	
VABM-L1-18...-G38-6	6 to 10 valves	86.5	7.5	151.5	-	-	-	75.8	54.5
VABM-L1-18...-G38-7				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 to 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

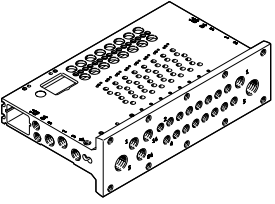
Ordering data

Ordering data	Description	Part no.	Type	
Manifold rail for semi in-line valve				
	Size 10 mm			
	Ports 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
	Size 14 mm			
	Ports 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
	Size 18 mm			
	Ports 2, 4 on the valve	4 valve positions	8004899	VABM-L1-18G-G38-4-G
		5 valve positions	8004900	VABM-L1-18G-G38-5-G
		6 valve positions	8004901	VABM-L1-18G-G38-6-G
		7 valve positions	8004902	VABM-L1-18G-G38-7-G
		8 valve positions	8004903	VABM-L1-18G-G38-8-G
9 valve positions		8004904	VABM-L1-18G-G38-9-G	
10 valve positions		8004905	VABM-L1-18G-G38-10-G	
12 valve positions		8004906	VABM-L1-18G-G38-12-G	
16 valve positions		8004907	VABM-L1-18G-G38-16-G	
20 valve positions		8004908	VABM-L1-18G-G38-20-G	
24 valve positions		8004909	VABM-L1-18G-G38-24-G	
8 double solenoid + 8 single solenoid valves		8004910	VABM-L1-18G-G38-16-M-G	
4 double solenoid + 16 single solenoid valves		8004911	VABM-L1-18G-G38-20-M-G	
24 single solenoid valves		8004912	VABM-L1-18G-G38-24-M-G	

Ordering data

Ordering data	Description	Part no.	Type	
Manifold rail for sub-base valve				
	Size 10 mm			
	Ports 2, 4 at the 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	
	Size 14 mm			
	Ports 2, 4 at the 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	
	Size 18 mm			
	Ports 2, 4 at the front	4 valve positions	8004913	VABM-L1-18W-G38-4-G
		5 valve positions	8004914	VABM-L1-18W-G38-5-G
		6 valve positions	8004915	VABM-L1-18W-G38-6-G
		7 valve positions	8004916	VABM-L1-18W-G38-7-G
		8 valve positions	8004917	VABM-L1-18W-G38-8-G
9 valve positions		8004918	VABM-L1-18W-G38-9-G	
10 valve positions		8004919	VABM-L1-18W-G38-10-G	
12 valve positions		8004920	VABM-L1-18W-G38-12-G	
16 valve positions		8004921	VABM-L1-18W-G38-16-G	
20 valve positions		8004922	VABM-L1-18W-G38-20-G	
24 valve positions		8004923	VABM-L1-18W-G38-24-G	
8 double solenoid + 8 single solenoid valves		8004924	VABM-L1-18W-G38-16-M-G	
4 double solenoid + 16 single solenoid valves		8004925	VABM-L1-18W-G38-20-M-G	
24 single solenoid valves	8004926	VABM-L1-18W-G38-24-M-G		

Ordering data

Ordering data	Description	Part no.	Type	
Manifold rail for sub-base valve, for control cabinet installation, outlet orientation at the front				
	Size 10 mm			
	Ports 2, 4 at the front, single supply	4 valve positions	8058335	VABM-L1-10HWS1-G18-4-GR
		8 valve positions	8058336	VABM-L1-10HWS1-G18-8-GR
	Ports 2, 4 at the front, double supply	8 valve positions	8058338	VABM-L1-10HWS2-G18-8-GR
		12 valve positions	8058339	VABM-L1-10HWS2-G18-12-GR
		16 valve positions	8058340	VABM-L1-10HWS2-G18-16-GR
		24 valve positions	8058341	VABM-L1-10HWS2-G18-24-GR
	Size 14 mm			
	Ports 2, 4 at the front, single supply	4 valve positions	8058342	VABM-L1-14HWS1-G14-4-GR
		8 valve positions	8058343	VABM-L1-14HWS1-G14-8-GR
	Ports 2, 4 at the front, double supply	8 valve positions	8058344	VABM-L1-14HWS2-G14-8-GR
		12 valve positions	8058345	VABM-L1-14HWS2-G14-12-GR
		16 valve positions	8058346	VABM-L1-14HWS2-G14-16-GR
		24 valve positions	8058347	VABM-L1-14HWS2-G14-24-GR

Datasheet – 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)
- Ribbon cable (26-pin)
- Ribbon cable (50-pin)



Electrical multi-pin

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 using 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 84)

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		Ribbon cable plug	
Max. no. of valve positions	24		24	
Degree of protection to EN 60529	IP67		IP40	
Material	PA		PA	
Note on materials	RoHS-compliant		RoHS-compliant	
Certification	c UL us - Recognized (OL)			
CE marking (see declaration of conformity) ¹⁾	To EU EMC Directive			
Corrosion resistance class CRC ²⁾	2			
Weight [g]	53		45	48

1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of 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 can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – 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. Only single solenoid valves can be used for fields with a white background.

Datasheet – Multi-pin plug connection

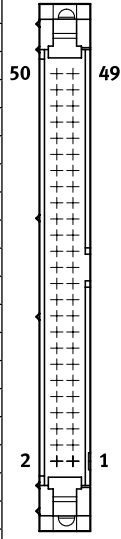
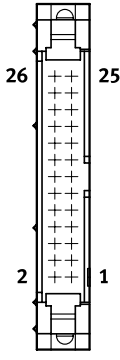
Pin allocation – Sub-D plug, 25-pin					Pin allocation – Sub-D plug, 44-pin				
Pin	Wire colour ¹⁾	M1-25V2 (V23)	M1-25V3 (V24)	M1-25V4 (V25)	Pin	Wire colour ¹⁾	M1-44 (V21)		
							18x double solenoid, 6x single solenoid		
1	WH	VP0	14	VP0	14	VP0	14	VP0	14
2	BN	VP0	12	VP0	12	VP1	14	VP0	12
3	GN	VP1	14	VP1	14	VP2	14	VP1	14
4	YE	VP1	12	VP1	12	VP3	14	VP1	12
5	GY	VP2	14	VP2	14	VP4	14	VP2	14
6	PK	VP2	12	VP2	12	VP5	14	VP2	12
7	BU	VP3	14	VP3	14	VP6	14	VP3	14
8	RD	VP3	12	VP3	12	VP7	14	VP3	12
9	BK	VP4	14	VP4	14	VP8	14	VP4	14
10	VT	VP4	12	VP5	14	VP9	14	VP4	12
11	GY PK	VP5	14	VP6	14	VP10	14	VP5	14
12	RD BU	VP5	12	VP7	14	VP11	14	VP5	12
13	GN WH	VP6	14	VP8	14	VP12	14	VP6	14
14	BN GN	VP6	12	VP9	14	VP13	14	VP6	12
15	YE WH	VP7	14	VP10	14	VP14	14	VP7	14
16	BN YE	VP7	12	VP11	14	VP15	14	VP7	12
17	GY WH	VP8	14	VP12	14	VP16	14	VP8	14
18	BN GY	VP9	14	VP13	14	VP17	14	VP8	12
19	WH PK	VP10	14	VP14	14	VP18	14	VP9	14
20	BN PK	VP11	14	VP15	14	VP19	14	VP9	12
21	BU WH	Com 16 ...19		Com 16 ...19		Com 16 ...19		VP10	14
22	BN BU	Com 12...15		Com 12...15		Com 12...15		VP10	12
23	RD WH	Com 8 ...11		Com 8 ...11		Com 8 ...11		VP11	14
24	BN RD	Com 4 ...7		Com 4 ...7		Com 4 ...7		VP11	12
25	BK WH	Com 0 ...3		Com 0 ...3		Com 0 ...3		VP12	14
-								VP12	12
-								VP13	14
-								VP13	12
-								VP14	14
-								VP14	12
-								VP15	14
-								VP15	12
-								VP16	14
-								VP16	12
-								VP17	14
-								VP17	12
-								VP18	14
-								VP19	14
-								VP20	14
-								VP21	14
-								VP22	14
-								VP23	14
-								com	
-									

1) To IEC 60757
VP Valve position

 **Note**
A grey field means that a double solenoid valve can be used. Only single solenoid valves can be used for fields with a white background.

Datasheet – Multi-pin plug connection

Pin allocation – Flat cable, 26-pin										Pin allocation – Flat cable, 50-pin			
Pin	M3-26 (V20)		8x double solenoid 8x single solenoid		4x double solenoid 16x single solenoid		24x single solenoid		Pin	M3-50 (V26)			
	12x double solenoid												
1	VP0	14	VP0	14	VP0	14	VP0	14	1	VP0	14		
2	VP0	12	VP0	12	VP0	12	VP23	14	2	VP0	12		
3	VP1	14	VP1	14	VP1	14	VP1	14	3	VP1	14		
4	VP1	12	VP1	12	VP1	12	VP22	14	4	VP1	12		
5	VP2	14	VP2	14	VP2	14	VP2	14	5	VP2	14		
6	VP2	12	VP2	12	VP2	12	VP21	14	6	VP2	12		
7	VP3	14	VP3	14	VP3	14	VP3	14	7	VP3	14		
8	VP3	12	VP3	12	VP3	12	VP20	14	8	VP3	12		
9	VP4	14	VP4	14	VP4	14	VP4	14	9	VP4	14		
10	VP4	12	VP4	12	VP19	14	VP19	14	10	VP4	12		
11	VP5	14	VP5	14	VP5	14	VP5	14	11	VP5	14		
12	VP5	12	VP5	12	VP18	14	VP18	14	12	VP5	12		
13	VP6	14	VP6	14	VP6	14	VP6	14	13	VP6	14		
14	VP6	12	VP6	12	VP17	14	VP17	14	14	VP6	12		
15	VP7	14	VP7	14	VP7	14	VP7	14	15	VP7	14		
16	VP7	12	VP7	12	VP16	14	VP16	14	16	VP7	12		
17	VP8	14	VP8	14	VP8	14	VP8	14	17	VP8	14		
18	VP8	12	VP15	14	VP15	14	VP15	14	18	VP8	12		
19	VP9	14	VP9	14	VP9	14	VP9	14	19	VP9	14		
20	VP9	12	VP14	14	VP14	14	VP14	14	20	VP9	12		
21	VP10	14	VP10	14	VP10	14	VP10	14	21	VP10	14		
22	VP10	12	VP13	14	VP13	14	VP13	14	22	VP10	12		
23	VP11	14	VP11	14	VP11	14	VP11	14	23	VP11	14		
24	VP11	12	VP12	14	VP12	14	VP12	14	24	VP11	12		
25	Com		Com		Com	Com	Com		25	VP12	14		
26	Com		Com		Com		Com		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		
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-									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				



Note
 A grey field means that a double solenoid valve can be used. Only single solenoid valves can be used for fields with a white background.

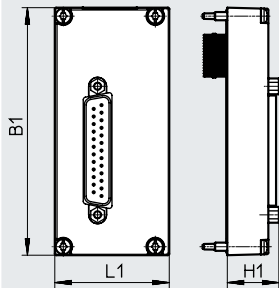
VP Valve position

Datasheet – Multi-pin plug connection

Dimensions

Download CAD data → www.festo.com

Multi-pin plug connection, Sub-D



-  - **Note**

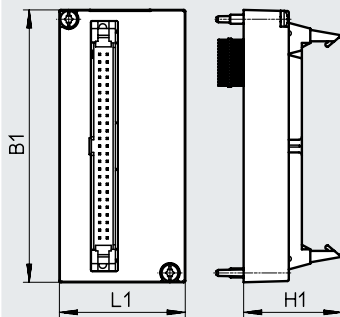
Dimensions of the manifold rail with electrical connection
(→ Page 58)

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, ribbon cable

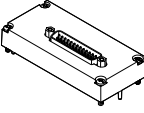
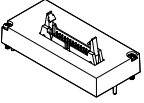
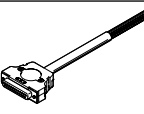
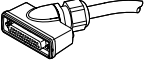


-  - **Note**

Dimensions of the manifold rail with electrical connection
(→ Page 58)

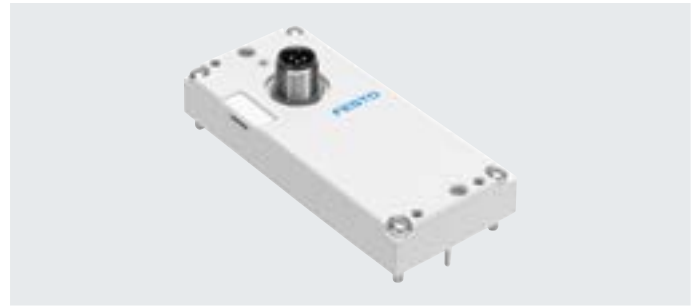
Type	B1	L1	H1
VAEM-L1-S-M3-...	90.5	41.9	32.7

Accessories – Multi-pin plug connection

Ordering data		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, ribbon 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	<ul style="list-style-type: none"> • 25-pin, up to 24 coils, IP40 • Open cable end, 25-wire 	2.5 m	575417	NEBV-S1G25-K-2.5-N-LE25-S6
			5 m	575418	NEBV-S1G25-K-5-N-LE25-S6
			10 m	575419	NEBV-S1G25-K-10-N-LE25-S6
		<ul style="list-style-type: none"> • 44-pin, up to 42 coils, IP40 • Open cable end, 44-wire 	2.5 m	575113	NEBV-S1G44-K-2.5-N-LE44-S6
			5 m	575114	NEBV-S1G44-K-5-N-LE44-S6
			10 m	575115	NEBV-S1G44-K-10-N-LE44-S6
	Sub-D socket, angled	<ul style="list-style-type: none"> • 25-pin, up to 24 coils, IP65 • Open cable end, 25-wire 	2.5 m	575423	NEBV-S1WA25-K-2.5-N-LE25-S9
			5 m	575424	NEBV-S1WA25-K-5-N-LE25-S9
			10 m	575425	NEBV-S1WA25-K-10-N-LE25-S9
		<ul style="list-style-type: none"> • 44-pin, up to 42 coils, IP65 • Open cable end, 44-wire 	2.5 m	575420	NEBV-S1WA44-K-2.5-N-LE44-S9
			5 m	575421	NEBV-S1WA44-K-5-N-LE44-S9
			10 m	575422	NEBV-S1WA44-K-10-N-LE44-S9

Datasheet – 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-level IO-Link master

The following protocols are supported in connection with the associated

CTEU bus node:

- CANopen
- DeviceNet
- PROFIBUS
- CC-Link
- EtherCAT
- AS-Interface
- PROFINET
- EtherNet/IP
- VARAN
- Festo installation system CPI

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

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

General technical data			
Types of communication		IO-Link	
Electrical connection		<ul style="list-style-type: none"> • Plug M12, 5-pin • A-coded • Metal thread for shielding 	
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. no. 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	
Certification		c UL us - Recognized (OL)	
CE marking (see declaration of conformity) ¹⁾		To EU EMC Directive	
Corrosion resistance class CRC ²⁾		2	

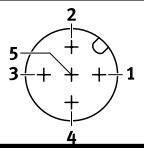
1) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

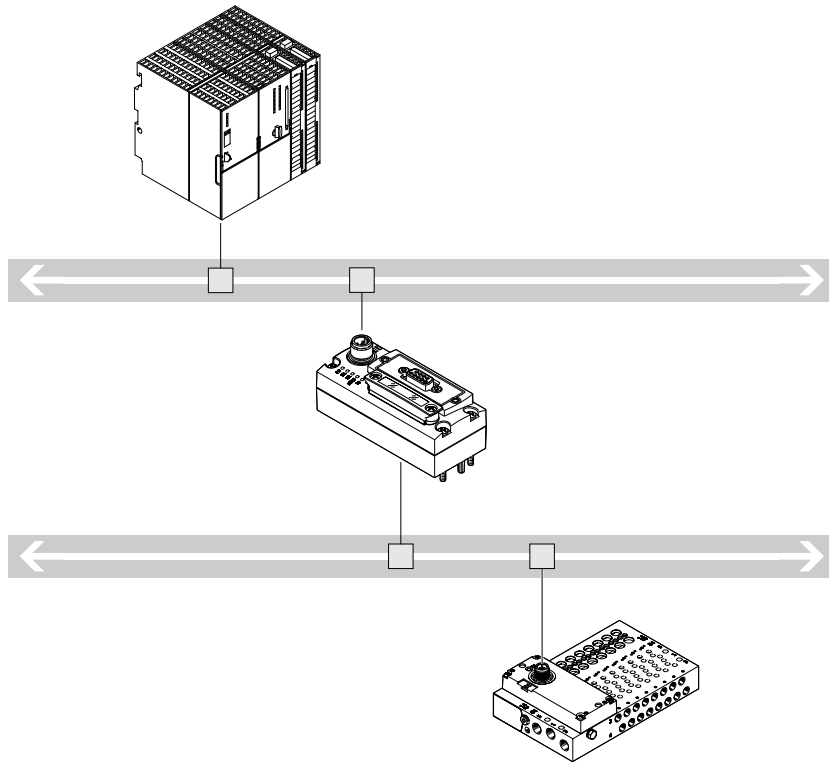
2) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – I-Port interface/IO-Link

Status LED X1	Meaning (up to Rev. 07)	Meaning (from Rev. 08)
Illuminated green	Normal operating status	Data communication faulty
Flashes green	Data communication faulty	Normal operating status
Flashes alternately between red/green	24 V load voltage supply faulty	-
Flashes red	Device error	
Illuminated red	24 V load voltage supply and data communication faulty	24 V load voltage supply faulty. Data communication may be faulty
Off	No 24 V operating voltage supply or undervoltage	

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



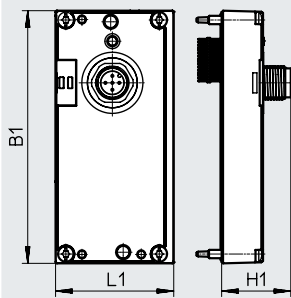
- Communication with the higher-order controller via fieldbus
- Use a bus node CTEU compatible with the fieldbus protocol
- Up to 64 inputs/outputs (solenoid coils), depending on the valve terminal
- No preprocessing

Datasheet – I-Port interface/IO-Link

Dimensions

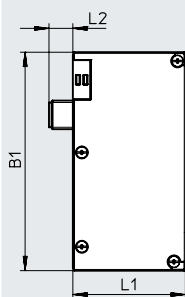
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I-Port interface, outlet on top


Note

Dimensions of the manifold rail with electrical connection → page 58

I-Port interface, outlet on side


Note

Dimensions of the manifold rail with electrical connection → page 58

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, M12, 5-pin, for T adapter FB-TA	175487	SEA-M12-5GS-PG7
	Y-distributor with cable on controller side, M12x1 A-coded, for IO-Link	8091516	NEDU-L1R2-M12G5-M12LE-1R
Inscription label for I-Port interface/IO-Link			
	40 pieces in frame	565306	ASLR-C-E4

Datasheet – CAPC

Function

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

Area of 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 connection block 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	Reinforced PA
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	
CE marking (see declaration of conformity) ²⁾	To EU EMC Directive	

1)

Corrosion resistance class CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

2) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

Pin allocation – 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

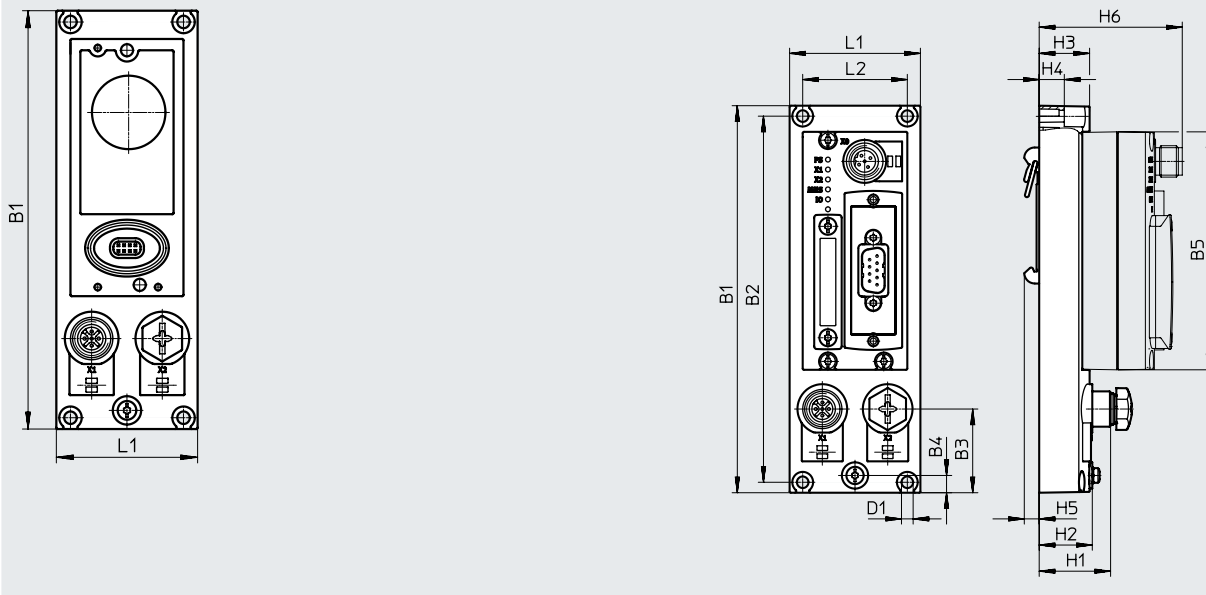
Datasheet – CAPC

Dimensions

Download CAD data → www.festo.com

CAPC

CAPC with mounted bus node CTEU-CO

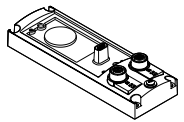


Type	B1	B2	B3	B4	B5	D1 \varnothing	H1	H2	H3	H4	H5	H6	L1	L2
CAPC	148	140	32	6.6	91	4.4	27.3	20.3	19.3	9.6	5.7	54.8	50	40

Ordering data

Part no. Type

Electrical connection box

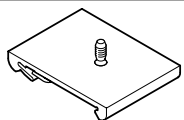


For connecting a second device with I-Port interface

570042

CAPC-F1-E-M12

H-rail mounting

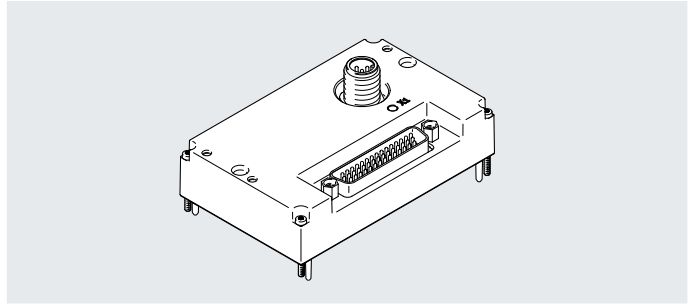


For electrical connection block CAPC

570043

CAF-M-F1-H

Datasheet – Interlock



Interlock

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

This ensures that these valves can be enabled in a safety-oriented way.

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

Types of communication		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 voltage feedback		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
	No. 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 CRC 2 to Festo standard FN 940070

Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Datasheet – Interlock

Interlock interface

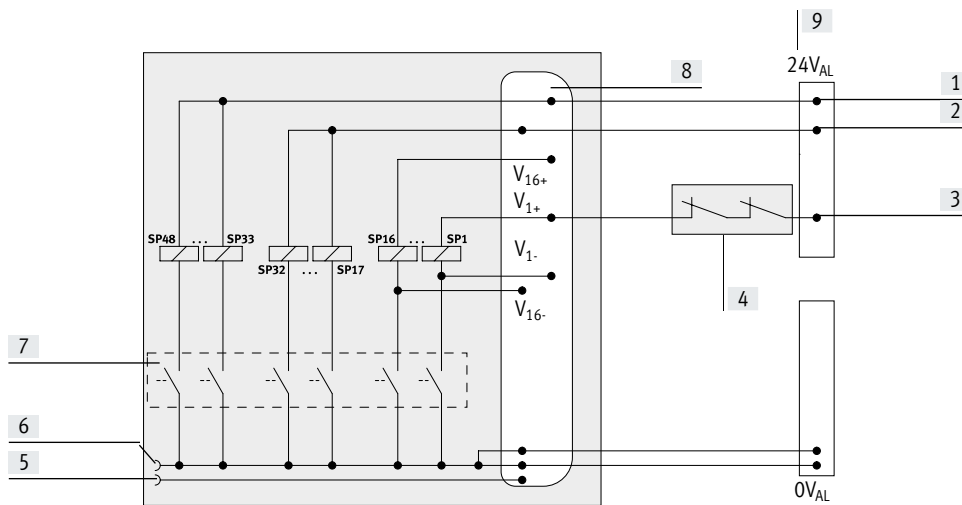
Single-pin interlock interface

- 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 a process image

Double-pin interlock interface

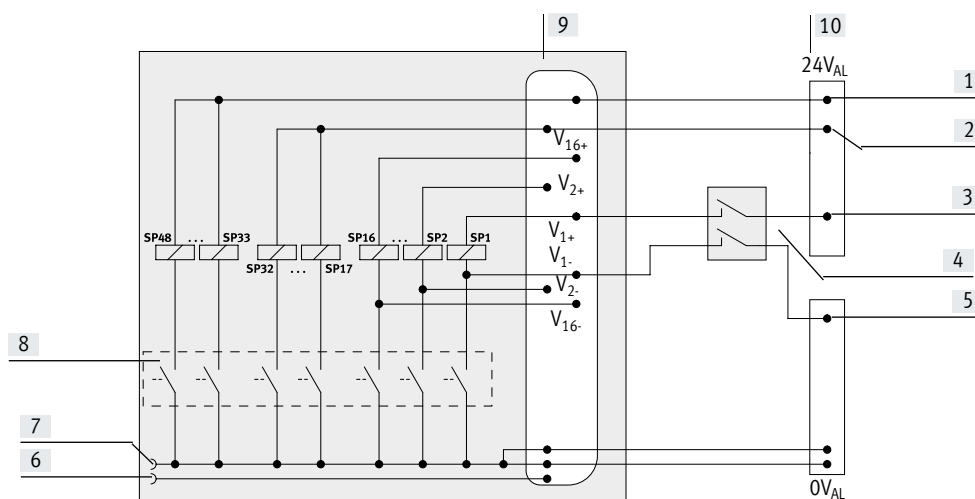
- The interlock interface is established via external positive-negative switching safety terminals
- The solenoid coils of the interlock valves are actuated via the corresponding pins in the sub-D plug (pins 7 ... 38)
- The solenoid coils that do not require interlock actuation can be supplied directly 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 coil 33 ... 48 (no interlock)
- [2] Power supply V+; solenoid coil 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 coil 33 ... 48 (no interlock)
- [2] Power supply V+; solenoid coil 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)

Datasheet – Interlock

Pin allocation – Interlock

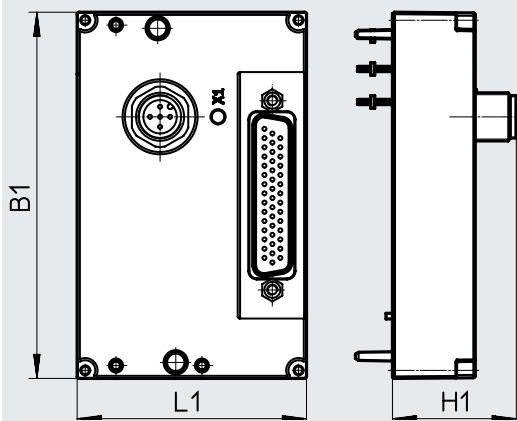
	Pin	Coil	Signal	Pin	Coil	Signal	Pin	Coil	Signal
	1	-	24 V _{VAL/OUT}	16	5	V5-	31	13	V13+
	2	-	24 V _{VAL/OUT}	17	6	V6+	32	13	V13-
	3	-	24 V _{VAL/OUT}	18	6	V6-	33	14	V14+
	4	1 ... 48	0 V _{VAL/OUT}	19	7	V7+	34	14	V14-
	5	1 ... 48	0 V _{VAL/OUT}	20	7	V7-	35	15	V15+
	6	1 ... 48	0 V _{VAL/OUT}	21	8	V8+	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	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

I-Port interface with interlock, outlet on top

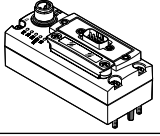
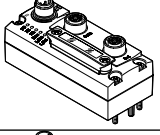
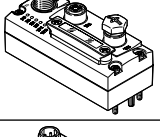
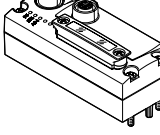
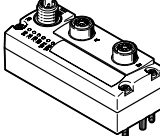
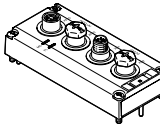
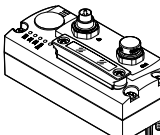


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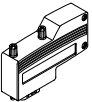
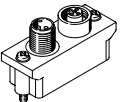
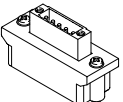
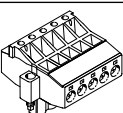
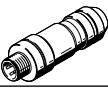
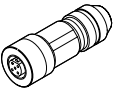
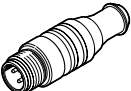
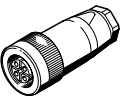
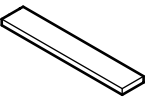
Note
 Dimensions of the manifold rail with electrical connection → page 58

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


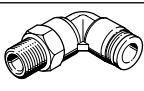
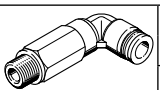


Accessories – Valve terminal

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
	EtherNet/IP bus node	2798071	CTEU-EP
	AS-Interface bus node	572555	CTEU-AS
	PROFINET RT bus node	2201471	CTEU-PN
	VARAN bus node	8087559	CTEU-VN
Electrical interface			
	For direct integration of the valve terminal into the decentralised IO system CPX-API	12 valve positions	8081922 VAEM-L1-S-12-AP
		24 valve positions	8081923 VAEM-L1-S-24-AP
	For direct integration of the valve terminal into the decentralised CPI installation system from Festo	2149714	CTEU-CP

Accessories – Valve terminal






Ordering data – CTEU		Description	Part no.	Type
Bus connection				
	Sub-D plug, 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, 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
	Plug, straight, 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	CACRS-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

Accessories – Valve terminal

Ordering data		Description	Part no.	Type	PJ ¹⁾		
Push-in fitting, straight		Datasheets → 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	
	M5 thread	For tubing Ø 4 mm	–	★ 153315	QSM-M5-4-I	10	
		For tubing Ø 4 mm	Round releasing ring		133004	QSM-M5-4-I-R	10
	M5 thread	For tubing Ø 6 mm	Round releasing ring		133005	QSM-M5-6-I-R	10
		For tubing Ø 4 mm	–	★ 153319	QSM-M7-4-I	10	
	M7 thread	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	
	R1/8 thread	For tubing Ø 10 mm	–	★ 190647	QS-1/8-10-I	10	
	R1/4 thread	For tubing Ø 8 mm	–		132280	QS-B-1/4-8-I	1
			–		★ 153016	QS-1/4-8-I	10
		For tubing Ø 10 mm	–		132842	QS-B-1/4-10-I	1
			–		★ 153018	QS-1/4-10-I	10
		For tubing Ø 12 mm	–		★ 190649	QS-1/4-12-I	10
	R3/8 thread	For tubing Ø 8 mm	–		130681	QS-3/8-8-50	50
		For tubing Ø 10 mm	–		130682	QS-3/8-10-50	50
For tubing Ø 12 mm		–		130683	QS-3/8-12-20	20	
For tubing Ø 16 mm		–		164957	QS-3/8-16	1	
Push-in fitting, angled		Datasheets → 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	–	★ 186117	QSL-G1/8-6	10	
		For tubing Ø 8 mm	–	★ 186119	QSL-G1/8-8	10	
	R1/8 thread	For tubing Ø 10 mm	–	★ 190658	QSL-1/8-10	10	
		For tubing Ø 6 mm	–		130765	QSML-1/8-6-100	100
	R1/4 thread		For tubing Ø 8 mm	–		132220	QSL-B-1/4-8
		For tubing Ø 8 mm	–		130732	QSL-1/4-8-50	50
		For tubing Ø 10 mm	–		132817	QSL-B-1/4-10	1
		For tubing Ø 10 mm	–		130733	QSL-1/4-10-50	50
		For tubing Ø 12 mm	–		130734	QSL-1/4-12-20	20
Push-in fitting, long, angled		Datasheets → Internet: qsl					
	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		Datasheets → 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	
	For G1/8 thread			196720	CDVI5.0-B-G1/8	1	
	For G3/8 thread			196712	CDVI5.0-B-G3/8	1	
	For G1/4 thread			8035644	CDVI5.0-B-G1/4	1	

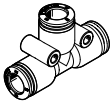
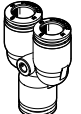

1) Packaging unit.

Accessories – Valve terminal

Ordering data		Description	Part no.	Type	PJ ¹⁾
Push-in fitting, straight		Datasheets → Internet: npqe			
	M3 thread	For tubing Ø 4 mm	8158773	NPQE-DK-M3-Q4-F1A-P10	10
	M5 thread	For tubing Ø 4 mm	8144595	NPQE-DK-M5-Q4-F1A-P10	10
		For tubing Ø 6 mm	8144596	NPQE-DK-M5-Q6-F1A-P10	10
	M7 thread	For tubing Ø 4 mm	8144597	NPQE-DK-M7-Q4-F1A-P10	10
		For tubing Ø 6 mm	8144598	NPQE-DK-M7-Q6-F1A-P10	10
	G1/8 thread	For tubing Ø 4 mm	8144599	NPQE-DK-G18-Q4-F1A-P10	10
		For tubing Ø 6 mm	8144600	NPQE-DK-G18-Q6-F1A-P10	10
		For tubing Ø 8 mm	8144601	NPQE-DK-G18-Q8-F1A-P10	10
		For tubing Ø 10 mm	8144602	NPQE-DK-G18-Q10-F1A-P10	10
	G1/4 thread	For tubing Ø 6 mm	8144603	NPQE-DK-G14-Q6-F1A-P10	10
		For tubing Ø 8 mm	8144604	NPQE-DK-G14-Q8-F1A-P10	10
		For tubing Ø 10 mm	8144605	NPQE-DK-G14-Q10-F1A-P10	10
		For tubing Ø 12 mm	8144606	NPQE-DK-G14-Q12-F1A-P10	10
Push-in fitting, L-shape		Datasheets → Internet: npqe			
	M3 thread	For tubing Ø 4 mm	8158774	NPQE-L-M3-Q4-F1A-P10	10
	M5 thread	For tubing Ø 4 mm	8158775	NPQE-L-M5-Q4-F1A-P10	10
		For tubing Ø 6 mm	8158776	NPQE-L-M5-Q6-F1A-P10	10
	M7 thread	For tubing Ø 4 mm	8158777	NPQE-L-M7-Q4-F1A-P10	10
For tubing Ø 6 mm		8158778	NPQE-L-M7-Q4-F1A-P10	10	
	R1/4 thread	For tubing Ø 6 mm	8158783	NPQE-L-R14-Q6-F1A-P10	10
		For tubing Ø 8 mm	8158784	NPQE-L-R14-Q8-F1A-P10	10
		For tubing Ø 10 mm	8158785	NPQE-L-R14-Q10-F1A-P10	10
		For tubing Ø 12 mm	8158786	NPQE-L-R14-Q12-F1A-P10	10
	R1/8 thread	For tubing Ø 4 mm	8158779	NPQE-L-R18-Q4-F1A-P10	10
		For tubing Ø 6 mm	8158780	NPQE-L-R18-Q6-F1A-P10	10
		For tubing Ø 8 mm	8158781	NPQE-L-R18-Q8-F1A-P10	10
	For tubing Ø 10 mm	8158782	NPQE-L-R18-Q10-F1A-P10	10	
Push-in connector, straight		Datasheets → Internet: npqe			
	Pneumatic connection 1 for tubing Ø 4 mm	Pneumatic connection 2 for tubing Ø 4 mm	8158787	NPQE-D-Q4-E-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 4 mm	Pneumatic connection 2 for tubing Ø 6 mm	8158788	NPQE-D-Q6-Q4-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 6 mm	Pneumatic connection 2 for tubing Ø 6 mm	8158789	NPQE-D-Q6-E-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 8 mm	Pneumatic connection 2 for tubing Ø 6 mm	8158790	NPQE-D-Q8-Q6-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 8 mm	Pneumatic connection 2 for tubing Ø 8 mm	8158791	NPQE-D-Q8-E-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 10 mm	Pneumatic connection 2 for tubing Ø 8 mm	8158792	NPQE-D-Q10-Q8-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 10 mm	Pneumatic connection 2 for tubing Ø 10 mm	8158793	NPQE-D-Q10-E-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 12 mm	Pneumatic connection 2 for tubing Ø 10 mm	8158794	NPQE-D-Q12-Q10-F1A-P10	10
	Pneumatic connection 1 for tubing Ø 12 mm	Pneumatic connection 2 for tubing Ø 12 mm	8158795	NPQE-D-Q12-E-F1A-P10	10
Push-in connector, L-shape		Datasheets → Internet: npqe			
	For tubing Ø 4 mm	8158796	NPQE-L-Q4-E-F1A-P10	10	
	For tubing Ø 6 mm	8158797	NPQE-L-Q6-E-F1A-P10	10	
	For tubing Ø 8 mm	8158798	NPQE-L-Q8-E-F1A-P10	10	
	For tubing Ø 10 mm	8158799	NPQE-L-Q10-E-F1A-P10	10	



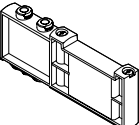
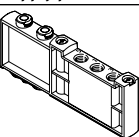

1) Packaging unit.

Accessories – Valve terminal -F1A

Ordering data				
	Description	Part no.	Type	PU ¹⁾
Push-in connector, T-shape		Datasheets → Internet: npqe		
	For tubing Ø 4 mm	8158800	NPQE-T-Q4-E-F1A-P10	10
	For tubing Ø 6 mm	8158801	NPQE-T-Q6-E-F1A-P10	10
	For tubing Ø 8 mm	8158802	NPQE-T-Q8-E-F1A-P10	10
	For tubing Ø 10 mm	8158803	NPQE-T-Q10-E-F1A-P10	10
Push-in connector, Y-Shape		Datasheets → Internet: npqe		
	For tubing Ø 4 mm	8158804	NPQE-Y-Q4-E-F1A-P10	10
	For tubing Ø 6 mm	8158805	NPQE-Y-Q6-E-F1A-P10	10
	For tubing Ø 8 mm	8158806	NPQE-Y-Q8-E-F1A-P10	10
	For tubing Ø 10 mm	8158807	NPQE-Y-Q10-E-F1A-P10	10
Blanking plug		Datasheets → Internet: b		
	M5 thread	8142288	B-M5-F1A	1
	M7 thread	8144525	B-M7-F1A	1
	G1/8 thread	8142289	B-1/8-F1A	1
	G1/4 thread	8142290	B-1/4-F1A	1






1) Packaging unit.

Accessories – Valve terminal








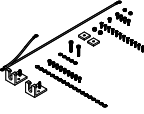
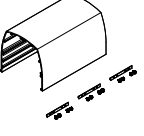
Ordering data		Description	Part no.	Type	PU ¹⁾	
Silencer Datasheets → Internet: amte						
	For M3 thread		1231120	AMTE-M-LH-M3	20	
	For M5 thread		★ 1205858	AMTE-M-LH-M5	20	
	For M7 thread		161418	UC-M7	1	
	For G1/8 thread	High flow rate	★ 2307	U-1/8	1	
		Lower flow rate	161419	UC-1/8	1	
	For G1/4 thread	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		
Cover plate						
	Vacant position width 10 mm	–	573422	VABB-L1-10-T	1	
	Vacant position width 10 mm	Recommended for production facilities for manufacturing lithium-ion batteries	8141537	VABB-L1-10-T-F1A	1	
	Vacant position width 14 mm	–	573488	VABB-L1-14-T	1	
	Vacant position width 14 mm	Recommended for production facilities for manufacturing lithium-ion batteries	8141538	VABB-L1-14-T-F1A	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 10 mm	Recommended for production facilities for manufacturing lithium-ion batteries	8141539	VABF-L1-10-P3A4-M7-T1-F1A	1	
	Supply ports 1, 3, 5, width 14 mm	–	573925	VABF-L1-14-P3A4-G18-T1	1	
	Supply ports 1, 3, 5, width 14 mm	Recommended for production facilities for manufacturing lithium-ion batteries	8141540	VABF-L1-14-P3A4-G18-T1-F1A	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
			Recommended for production facilities for manufacturing lithium-ion batteries	8145478	VABD-6-B-F1A	1
		For semi in-line valves	–	569995	VABD-8-B	1
			Recommended for production facilities for manufacturing lithium-ion batteries	8145479	VABD-8-B-F1A	1
	For all manifold rails, size 14	–	569996	VABD-10-B	1	
		Recommended for production facilities for manufacturing lithium-ion batteries	8145480	VABD-10-B-F1A	1	
	For all manifold rails, size 18	–	569997	VABD-12-B	1	
		Recommended for production facilities for manufacturing lithium-ion batteries	8145481	VABD-12-B-F1A	1	

1) Packaging unit.

Accessories – Valve terminal

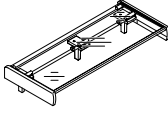
Ordering data				
	Description	Part no.	Type	PU ¹⁾
Cover cap for manual override				
	Concealed	540898	VMPA-HBV-B	10
	Non-detenting	540897	VMPA-HBT-B	10
	Detenting (without accessories)	8002234	VAMC-L1-CD	10
Identification holder Datasheets → Internet: aslr				
	Holder for an inscription label and covering for the retaining screw and manual override	570818	ASLR-D-L12	10
Screw set Datasheets → Internet: vamer				
	Control cabinet retaining screw set for IP67	8092501	VAME-S-M5-16-R1-P10	1

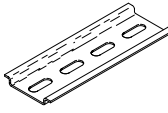
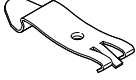
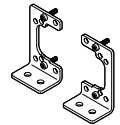
Accessories – Valve terminal

Ordering data		Description	Part no.	Type	PU ¹⁾	
Check valve						
	For manifold rails VA-BM-L1-10...	For blocking the flow in the event of back pressure in duct 3 and 5	8047364	VABF-L1-10H-H2	10	
	For manifold rails VA-BM-L1-14...		8047365	VABF-L1-14-H2	10	
Flow control valve						
	For manifold rails VABM-L1-10...	For setting the flow rate during pressurisation and exhausting (for M5 threaded connection)	Nominal width: 0.5 mm	8025709	VFFG-T-M5-5	10
			Nominal width: 0.6 mm	8025710	VFFG-T-M5-6	10
			Nominal width: 0.7 mm	8025711	VFFG-T-M5-7	10
			Nominal width: 0.85 mm	8025712	VFFG-T-M5-8	10
			Nominal width: 1.05 mm	8025713	VFFG-T-M5-10	10
			Nominal width: 1.2 mm	8025714	VFFG-T-M5-12	10
		For setting the flow rate during pressurisation and exhausting (for Ø 4 mm)	Nominal width: 0.5 mm	8047346	VFFG-T-F4-5	10
			Nominal width: 0.6 mm	8047347	VFFG-T-F4-6	10
			Nominal width: 0.7 mm	8047348	VFFG-T-F4-7	10
			Nominal width: 0.85 mm	8047349	VFFG-T-F4-8	10
			Nominal width: 1.05 mm	8047350	VFFG-T-F4-10	10
			Nominal width: 1.2 mm	8047351	VFFG-T-F4-12	10
	For manifold rails VABM-L1-14...	For setting the flow rate during pressurisation and exhausting (for Ø 5.8 mm)	Nominal width: 0.7 mm	8047353	VFFG-T-F6-7	10
			Nominal width: 0.85 mm	8047354	VFFG-T-F6-8	10
			Nominal width: 1.05 mm	8047355	VFFG-T-F6-10	10
			Nominal width: 1.15 mm	8047356	VFFG-T-F6-11	10
			Nominal width: 1.4 mm	8047357	VFFG-T-F6-14	10
			Nominal width: 1.6 mm	8047358	VFFG-T-F6-16	10
			Nominal width: 1.8 mm	8047359	VFFG-T-F6-18	10
Flow control set						
	For manifold rails VABM-L1-10...	Two of each size, for M5 threaded connection	8025716	VFFG-T-M5-A-V1	14	
		Two of each size, for Ø 4 mm	8062200	VFFG-T-F4-A-V1	14	
	For manifold rails VABM-L1-14...	Two of each size, for Ø 5.8 mm	8062201	VFFG-T-F6-A-V1	14	
Hood Datasheets → Internet: cafm/cafcr						
	Mounting rail for attaching the hood	196 mm	3307385	CAFM-X1-R-200	1	
		296 mm	3307386	CAFM-X1-R-300	1	
		396 mm	3307387	CAFM-X1-R-400	1	
		496 mm	3307388	CAFM-X1-R-500	1	
		596 mm	3307389	CAFM-X1-R-600	1	
	Mounting kit for VTUG hood		572257	CAFC-X1-BE	1	
	Hood section for VTUG terminal including mounting attachments for connecting several hood sections in series	VTUG-10-4 sections	200 mm	8127858	CAFC-X1-GAL-200-Z	1
		VTUG-10-8/12-14-4 sections	300 mm	8127859	CAFC-X1-GAL-300-Z	1
		VTUG-10-16/24-14-8/12-sections	400 mm	8127860	CAFC-X1-GAL-400-Z	1
		VTUG-14-16 sections	600 mm	8127861	CAFC-X1-GAL-600-Z	1
		VTUG-14-24 sections		8127862	CAFC-X1-GAL-600-Z	1
	Kit for any hood section for terminal VTUG		-	CAFC-... → Internet: cafc		

1) Packaging unit.

Accessories – Valve terminal

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
	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
		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	

Ordering data	Description	Part no.	Type
H-rail Datasheets → Internet: nrh			
	To EN 60715, 35 x 7.5 (WxH)	Length: 2 m	35430 NRH-35-2000
H-rail mounting Datasheets → Internet: vame			
	Use the following screws for mounting: Size 10: DIN 912: M4x30 Size 14: DIN 912: M4x40 Size 18: DIN 912: M5x50	– Recommended for production facilities for manufacturing lithium-ion batteries	★ 569998 VAME-T-M4 8142649 VAME-T-M4-F1A
Mounting bracket Datasheets → Internet: vame			
	Mounting bracket, right and left, with screw set for sub-base valve (control cabinet installation). Mounting is possible only with VTUG in size 10 and 14.		8154010 VAME-L1-Q