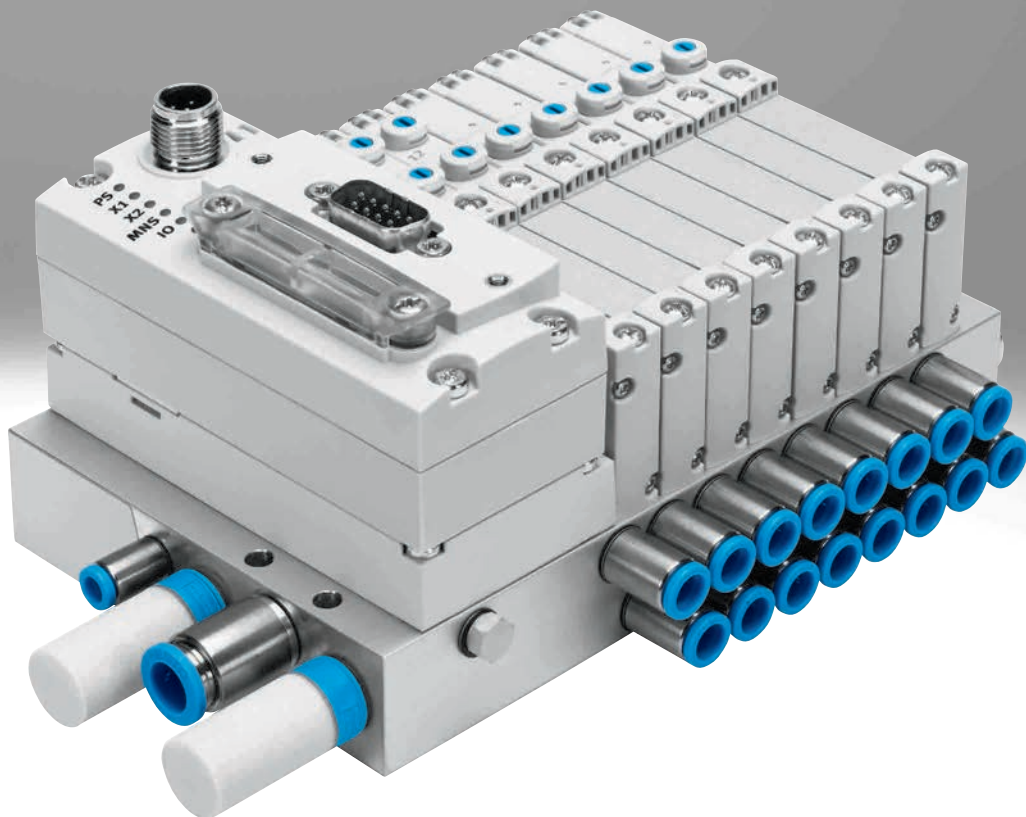


# Solenoid valves VUVG/valve terminals VTUG

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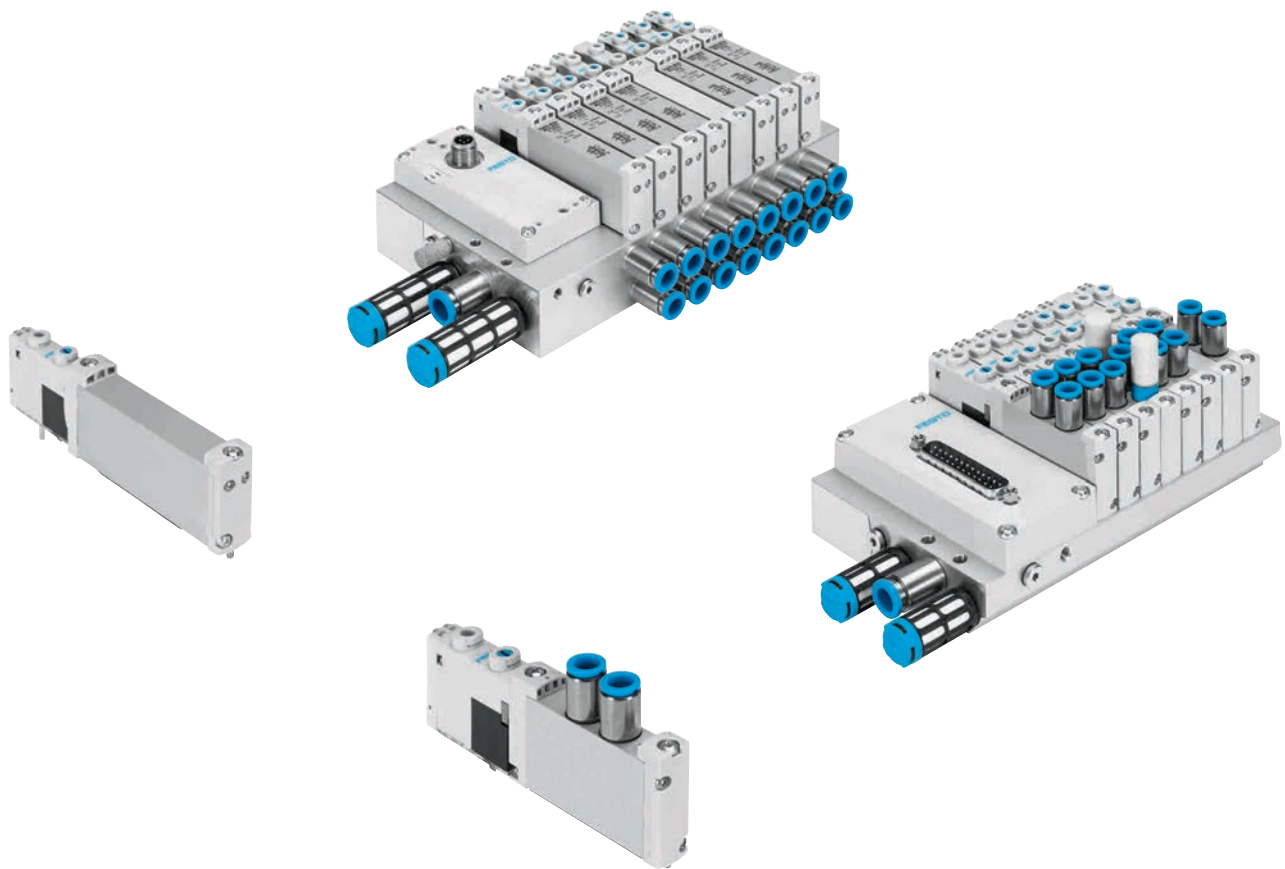
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for the  
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## Key features



### Innovative

- Festo-specific I-Port interface for bus nodes (CTEU)
- IO-Link mode for direct connection to a higher-order IO-Link master
- Festo-specific I-Port interface with interlock
- Variable multi-pin plug connection 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 degree of protection to IP67
- Internal or external pilot air with the same manifold rail possible through the use of blanking plugs
- Sub-base valves with working ports underneath for installation in control cabinets

### Reliable

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

### Easy to install

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

### Valve terminal configurator

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

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

This reduces assembly and installation time to a minimum.

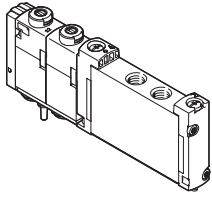
Download CAD data → [www.festo.com](http://www.festo.com)

Ordering system for valve terminal VTUG  
→ Internet: vtug

## Key features

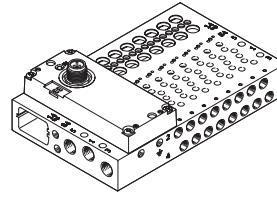
### Sub-base and semi in-line valves for valve terminal VTUG

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

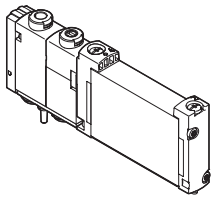


The supply ports (1, 3 and 5) for semi in-line valves are connected to the valve by common pneumatic links (e.g. sub-base). The working ports (2, 4) are on the valve.

Valve terminal VTUG with different electrical connections

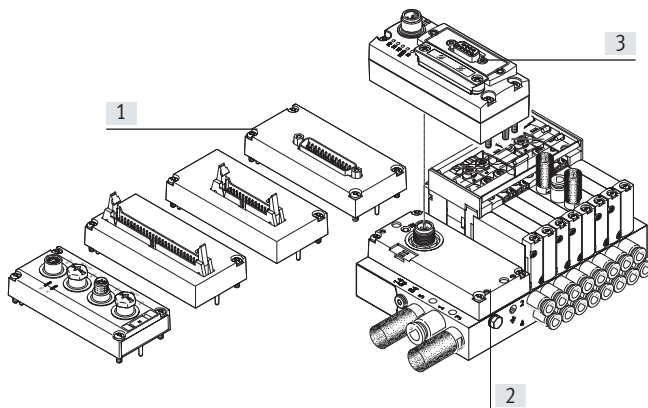


VUVG-B...1T1, sub-base valve



The supply ports (1, 3 and 5) and the working ports (2, 4) of sub-base valves are connected to the valve through the sub-base or manifold.

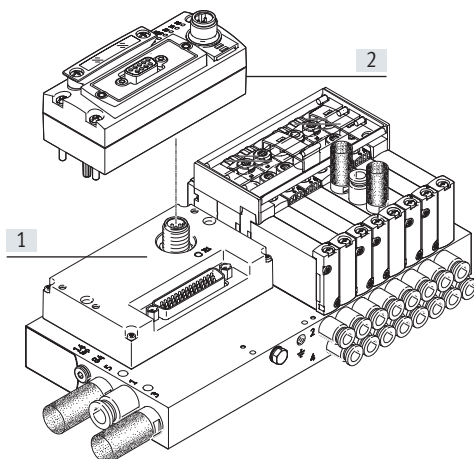
### Overview – Valve terminal with multi-pin plug connection and fieldbus interface



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-order IO-Link master
- Festo-specific I-Port interface for bus nodes (CTEU)
- Variable multi-pin plug connection 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

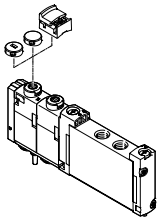
#### 5/2-way valve

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

#### 5/3-way valve

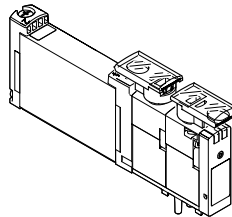
- Mid-position pressurised
- Mid-position exhausted
- Mid-position closed

### Cover caps for manual override



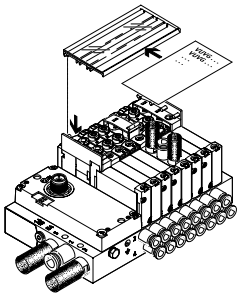
- Closed cover cap, covered manual override
- Slotted cover cap, non-detenting manual override
- Cover cap for detenting actuation without tools

### Identification holder



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

### Inscription label holder



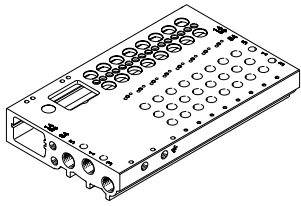
Inscription label holder ASCF-H-L1... for identifying the valves on the valve terminal VTUG



## Key features – Pneumatic components

### Manifold rail

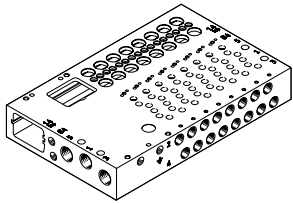
For semi in-line valves



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

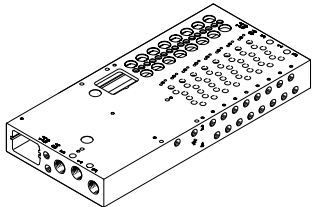
For sub-base valves



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

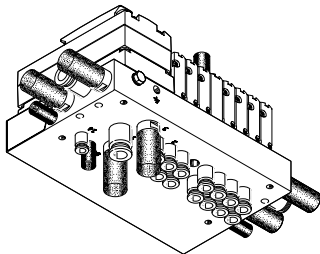
Long version



Versions:

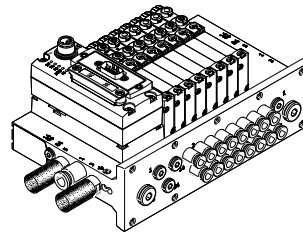
- I-Port interface with lateral outlet orientation: for semi in-line valves and sub-base valves M5/M7 (size 10), G1/8 (size 14) and G1/4 (size 18)
- Interlock: For sub-base and semi in-line valves M5/M7 (size 10)

For control cabinet installation, outlet orientation underneath (U)



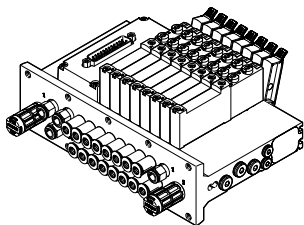
For sub-base valves M7 (size 10), G1/8 (size 14) and G1/4 (size 18).

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



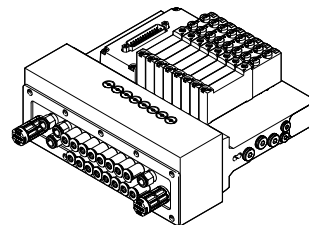
For sub-base valves M7 (size 10) and G1/8 (size 14).

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

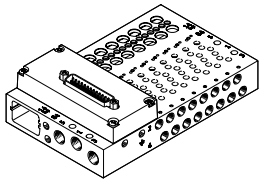
### Note

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



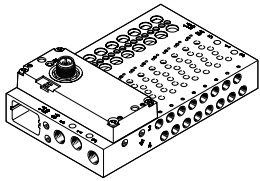
The signals are transmitted from the controller to the valve terminal via a pre-assembled or self-assembled multi-wire cable to the multi-pin plug connection.

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



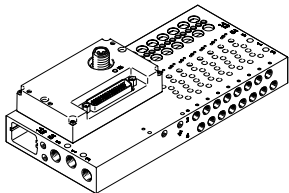
Festo-specific interface as a basis for bus nodes (CTEU) or in IO-Link mode for direct connection to a higher-order IO-Link master.

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

Connection options:

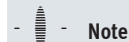
- As I-Port interface for bus nodes (CTEU)
- In IO-Link mode for direct connection to an IO-Link master

#### I-Port interface with interlock



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

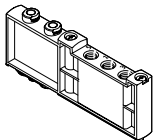
The external supply guarantees the safety-related enabling of these valves.



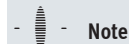
#### Note

The VTUG variant with multi-pin plug connection and fieldbus interface offers the additional option of individual electrical actuation of the valves (→ page 24).

### Supply plate



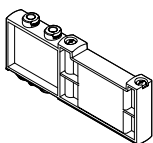
For additional air supply and exhaust via a valve position



#### Note

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

### 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.

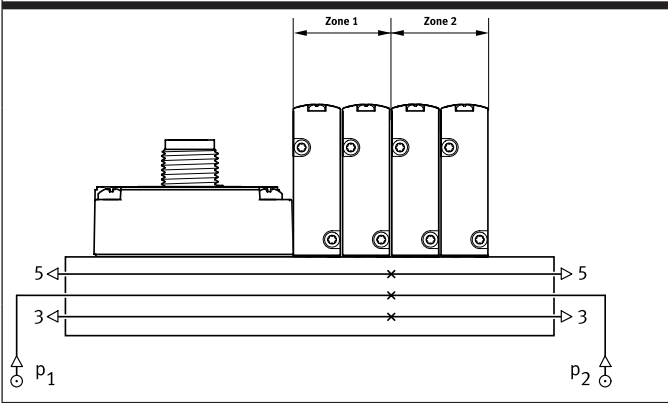









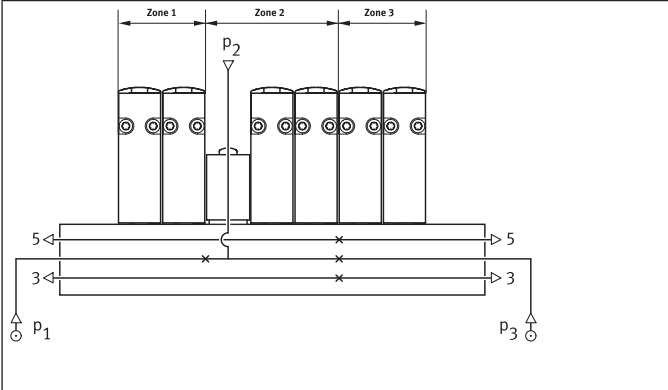
A pressure zone is created by separating the internal supply ducts using a separator.

Pressure zone separation can be used for the following ducts:

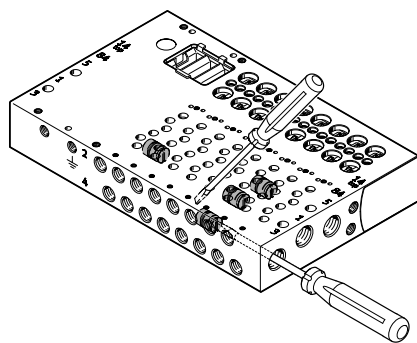
- Duct 1
- Duct 3
- Duct 5

 **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> <table border="1" data-bbox="826 801 1513 1099"> <tr> <td data-bbox="826 801 1166 902">Duct 1 closed</td> <td data-bbox="1166 801 1513 902">  </td> </tr> <tr> <td data-bbox="826 902 1166 1003">Duct 1, 3, 5 closed</td> <td data-bbox="1166 902 1513 1003">  </td> </tr> <tr> <td data-bbox="826 1003 1166 1099">Duct 3, 5 closed</td> <td data-bbox="1166 1003 1513 1099">  </td> </tr> </table>	Duct 1 closed		Duct 1, 3, 5 closed		Duct 3, 5 closed	
Duct 1 closed							
Duct 1, 3, 5 closed							
Duct 3, 5 closed							
	<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

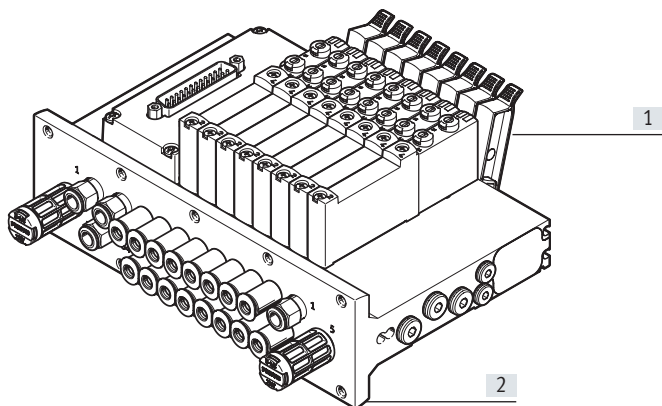
 **Note**

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



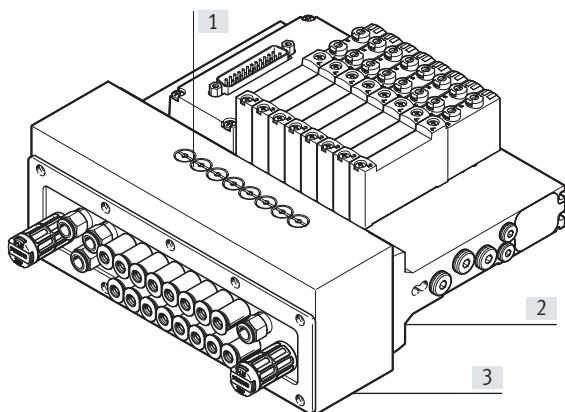
- [1] Actuating lever
- [2] Manifold rail with shut-off plate

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

- disconnects the valve from the compressed air supply (duct 1)
- exhausts the pilot air supply on the valve side (duct 12 and 14)

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 to ports 2 and 4 is blocked
- No exhaust 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.

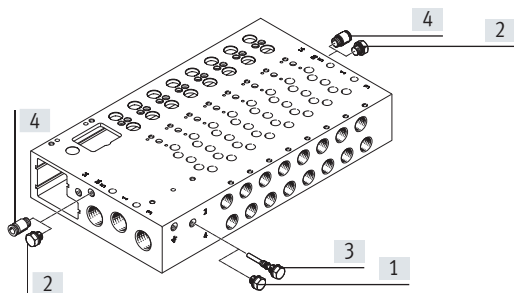
External pilot air supply

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



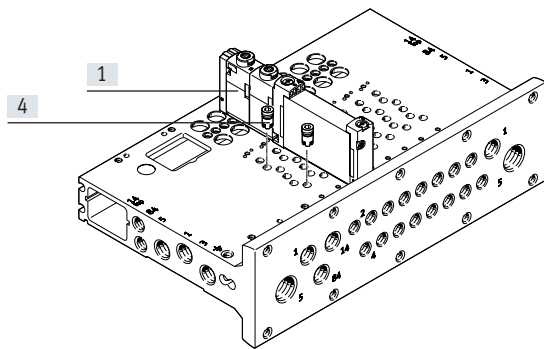
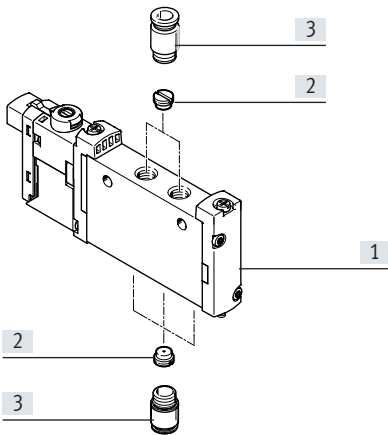
- [1] Blanking plug, short, with internal pilot air
- [2] Blanking plug for duct 12/14 with internal pilot air
- [3] Blanking plug, long, with external pilot air
- [4] Push-in fitting in duct 12/14 with external pilot air

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 restrictor for M5 thread
- [3] Fitting
- [4] Fixed flow restrictor, self-tapping/check valve

#### Flow restrictor for M5 thread

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

Sub-base valve, individual electrical connection: flow restrictor 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/sp](http://www.festo.com/sp)

#### 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/sp](http://www.festo.com/sp)

#### 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:

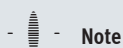
The 3/2-way valves are available in a design with two valves in one valve body and with pneumatic spring return. With these valves, the force for the return movement is obtained from port 1.

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

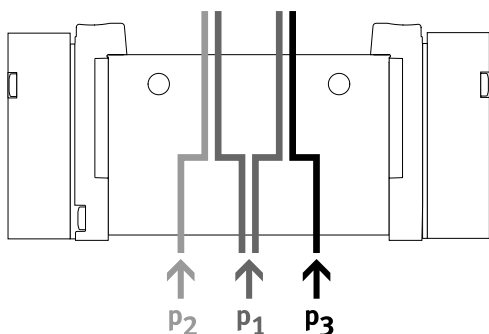
The 3/2-way valves with pneumatic spring are not suitable for reverse operation, since at least the minimum pilot pressure must be present in duct 1.



#### Note

Pressure must be present at port 1.

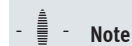
#### Pressure deflector (internal pilot air)



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

#### Advantages

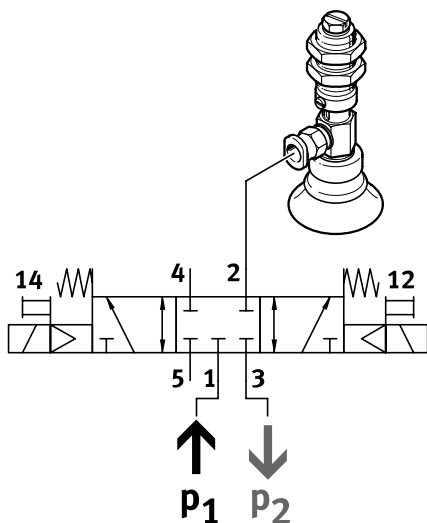
Any pressure or vacuum can be connected at duct 3 and 5 both with external and internal pilot air



#### Note

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

#### Vacuum, ejector pulse and normal position



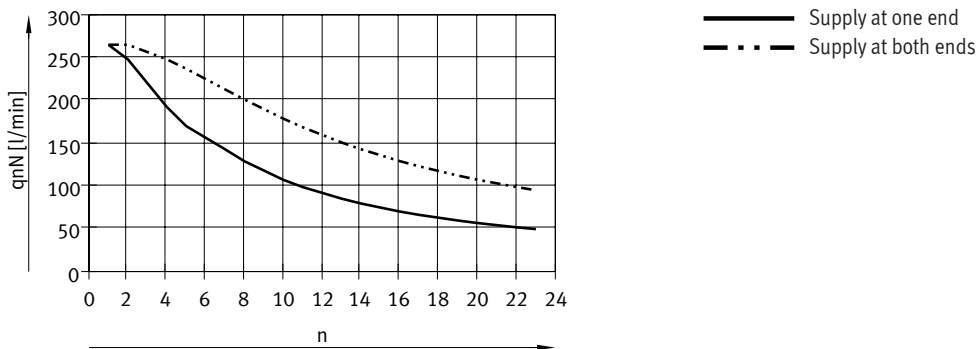
Vacuum, ejector pulse and normal position with internal pilot air can be achieved by connecting vacuum at duct 3 and pressure for the ejector pulse at duct 1.



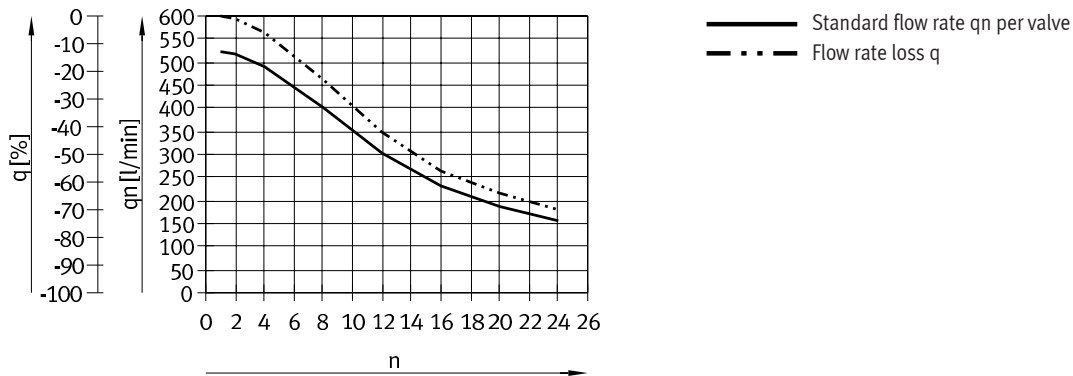
## Key features – Pneumatic components

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

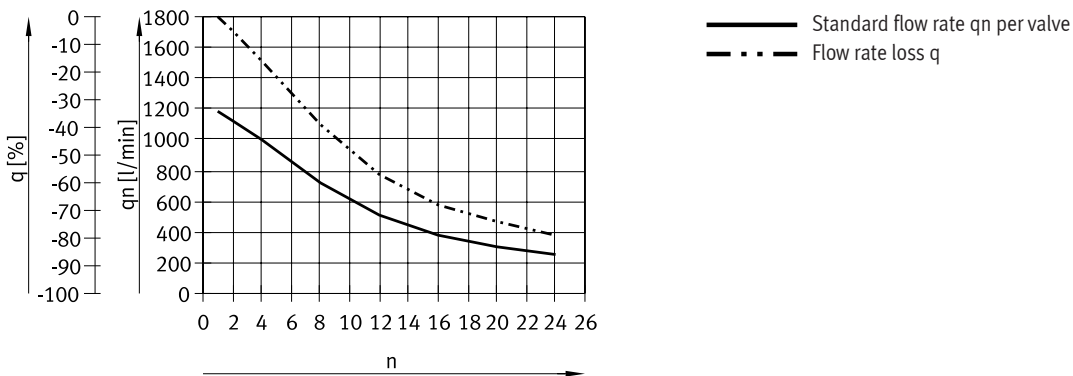
Size 10 mm, 5/2-way valves



Size 14 mm



Size 18 mm

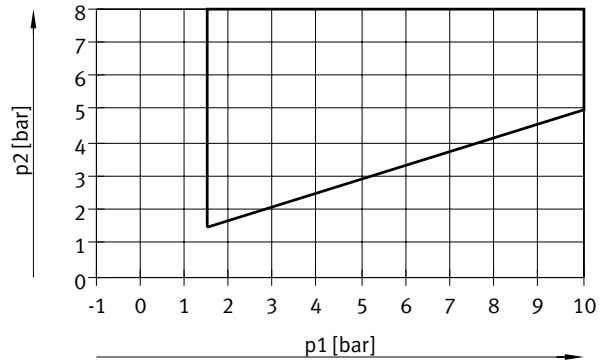
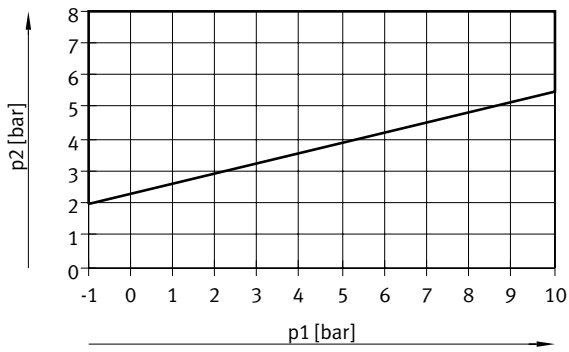


## Key features – Pneumatic components

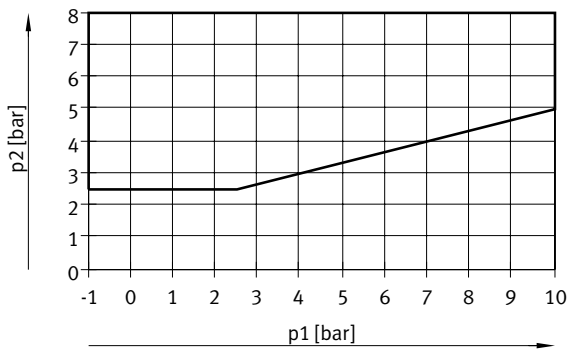
### Pilot pressure $p_2$ as a function of operating pressure $p_1$

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

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



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



## Key features – Mounting

### Valve terminal mounting

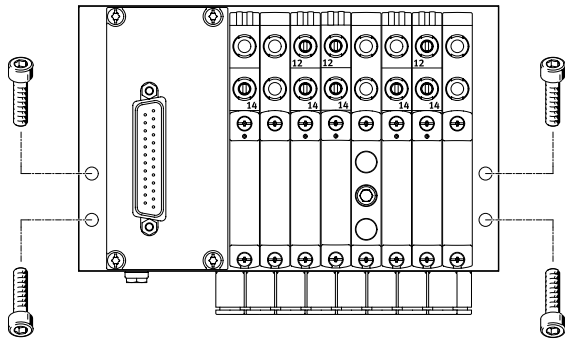
Sturdy terminal mounting via:

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

 **Note**

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

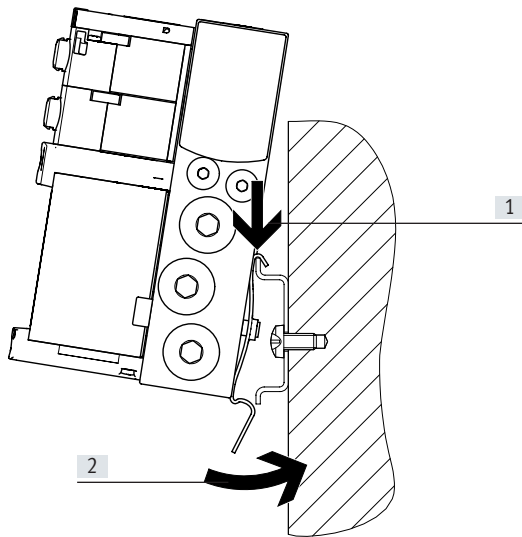
### Wall mounting



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**

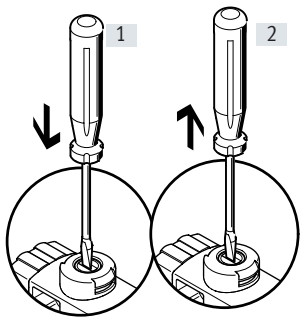
Permissible use of the H-rail:

- 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

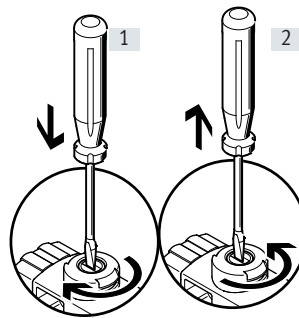
### Manual override (MO)

#### MO with automatic reset (non-detenting)



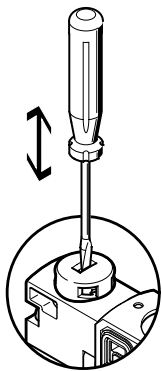
- [1] Press in the stem of the MO with a pointed object or screwdriver. Pilot valve switches and actuates the main valve.
- [2] Remove the pointed object or screwdriver. The spring force pushes the stem of the MO back. The pilot valve returns to its normal position as does the single solenoid main valve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

#### MO with detent (locking)



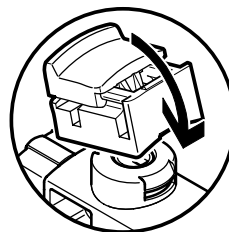
- [1] Press in the stem of the MO with a pointed object or screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached. The valve remains in switching position.
- [2] Turn the plunger anti-clockwise by 90° until the stop is reached and then remove the pointed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

#### MO non-detenting – with coded cover cap



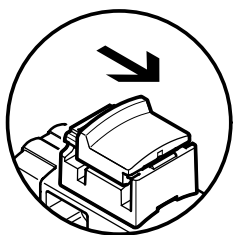
MO is actuated by pushing it with a pointed object or screwdriver and reset by spring force (detenting position prevented by coded cover cap).

#### MO detenting without tools – mounting



Clip MO with detent onto the pilot valve. The MO cap can then be operated (detenting) without tools.

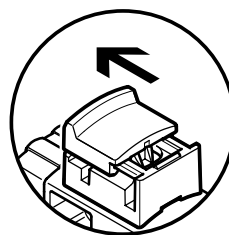
#### MO detenting without tools – actuation



By sliding the cap for the MO with detent in the direction of the arrow:

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

#### MO detenting without tools – actuation



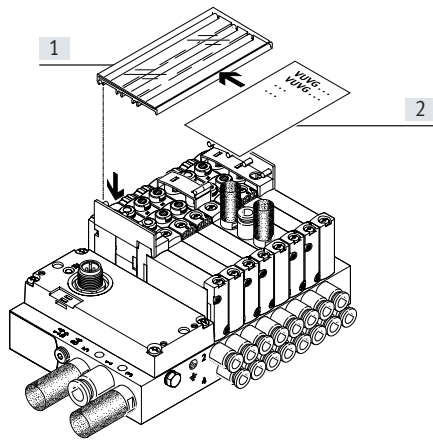
By sliding the cap for the MO with detent in the direction of the arrow:

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

## Key features – Mounting

### Inscription system

#### Inscription label holder



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

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.

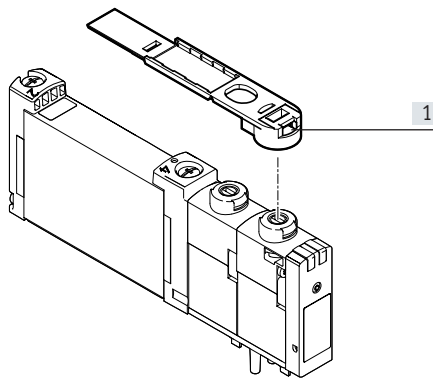
#### Note

Do not engage the manual override before mounting the inscription label holder.

When mounted, the retaining bracket for the inscription label holder covers the manual override of the valves beneath it.

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

#### Identification holder



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

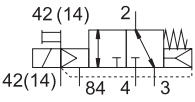
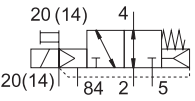
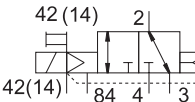
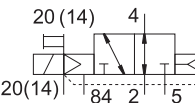
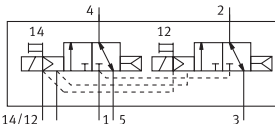
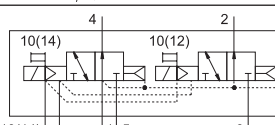
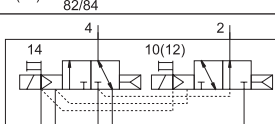
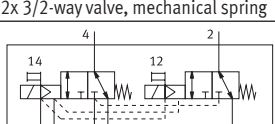
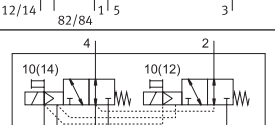
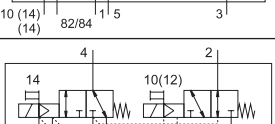
Use identification holders ASLR-D-L1 (code TV) to label individual valves. The identification holder is placed directly on the manual override.

#### 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
<b>3/2-way valve, pneumatic/mechanical spring</b>					
	M32C-R	Normally closed	■	-	-
	M32U-R	Normally open	■	-	-
<b>3/2-way valve, pneumatic spring</b>					
	M32C-A	Normally closed	-	■	-
	M32U-A	Normally open	-	■	-
<b>2x 3/2-way valve, pneumatic spring</b>					
	T32C-A	Normally closed	■	■	■
	T32U-A	Normally open	■	■	■
	T32H-A	1x normally open, 1x normally closed	■	■	■
<b>2x 3/2-way valve, mechanical spring</b>					
	T32C-M	Normally closed	■	■	■
	T32U-M	Normally open	■	■	■
	T32H-M	1x normally open, 1x normally closed	■	■	■

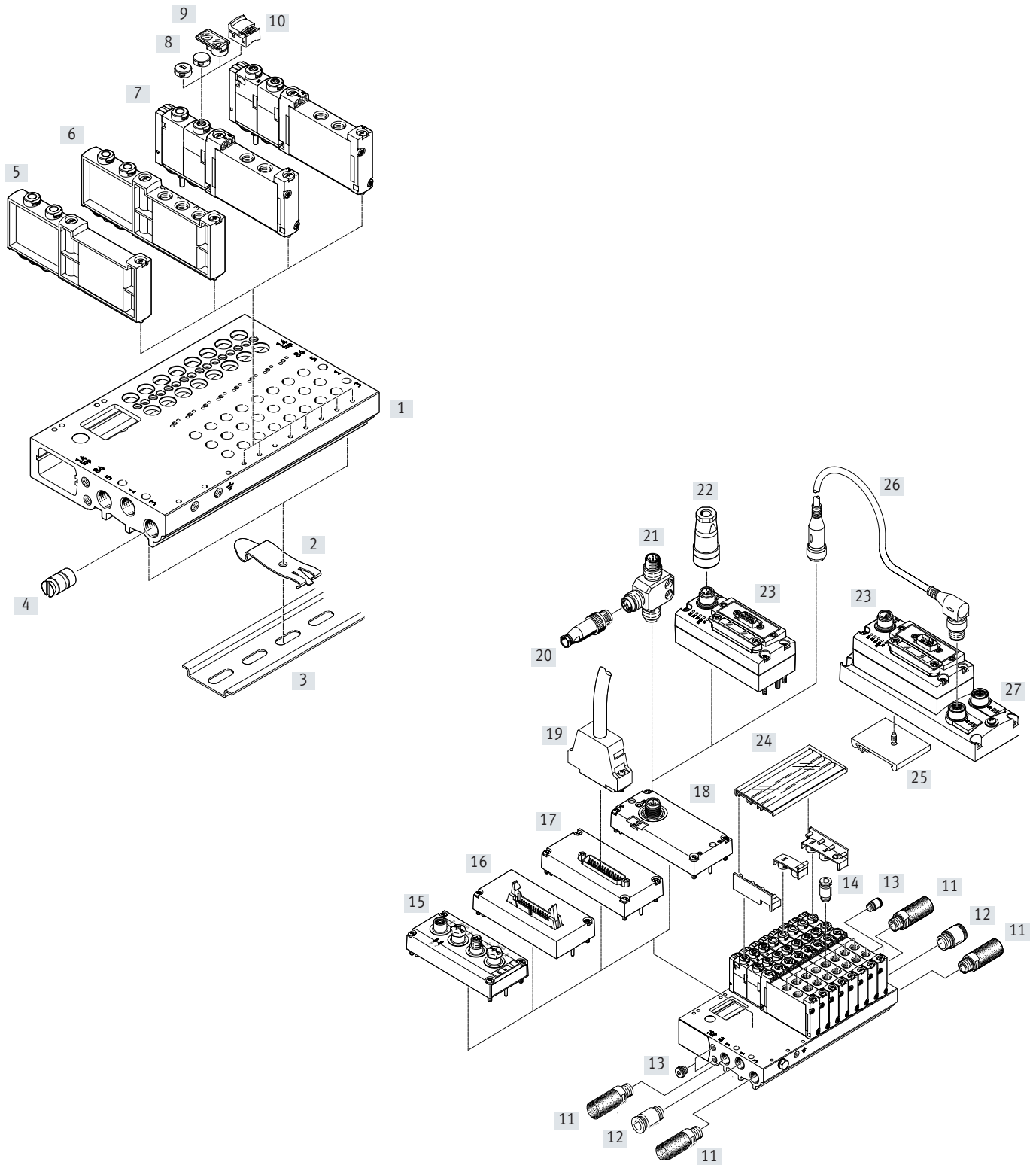


## Overview of valve functions

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 plug and I-Port interface

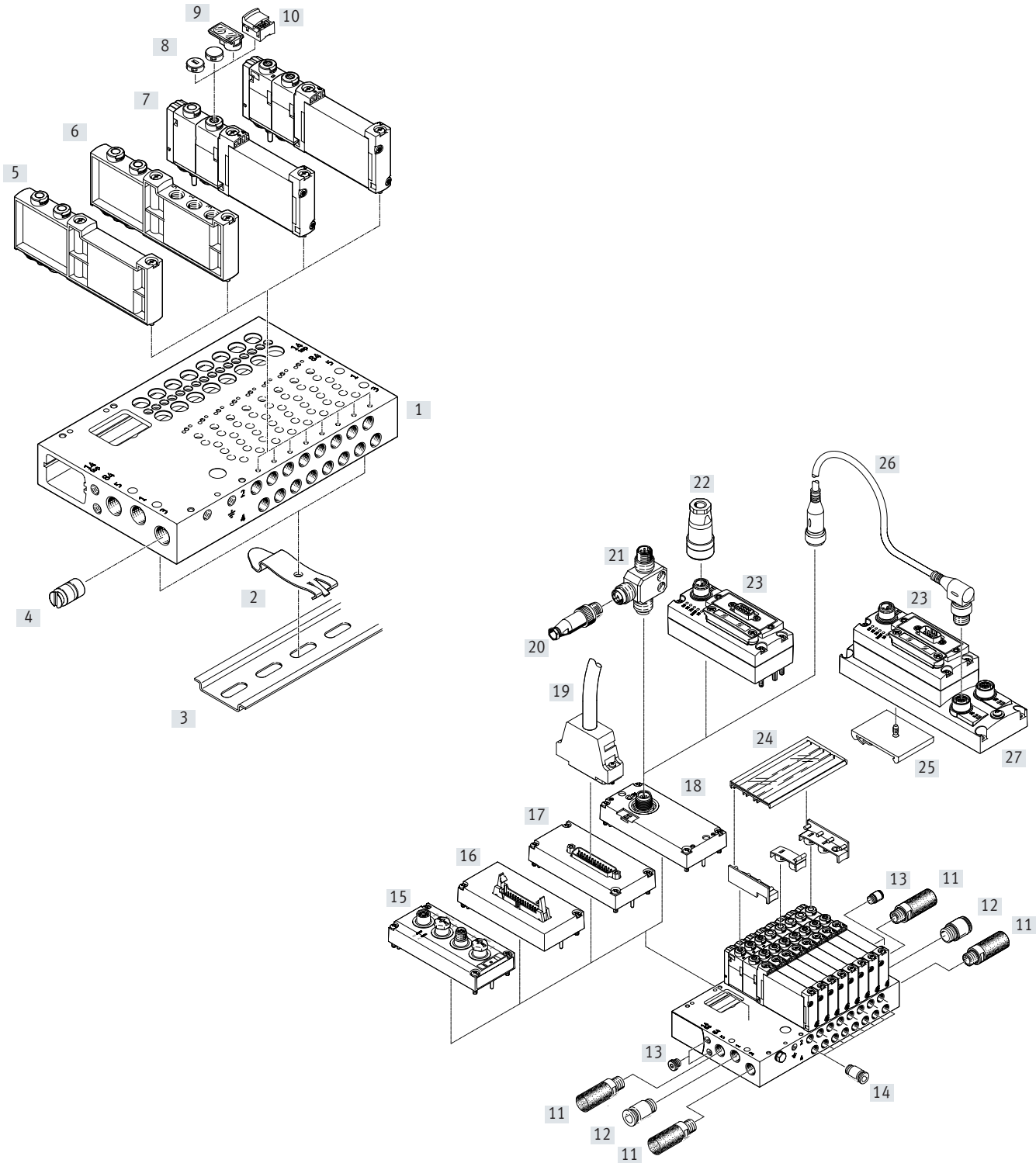


## Peripherals overview example – Semi in-line valves

Accessories		Type	Description	→ Page/Internet
[1]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	47
[2]	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	92
[3]	H-rail	NRH-35-2000	For mounting the valve terminal	92
[4]	Separator	VABD-...	For creating pressure zones	90
[5]	Cover plate	VABB-L1-...	For covering a vacant position	90
[6]	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	90
[7]	Solenoid valve	VUVG-...	Semi in-line valve	26, 30, 33
[8]	Cover cap	VMPA-HB...-B	For manual override	90
[9]	Identification holder	ASLR-D-L1	For inscription label and covering for the retaining screw/manual override	92
[10]	Covering	VAMC-...	For manual override	90
[11]	Silencer	U-...	For ports 3 and 5	90
[12]	Push-in fitting	QS-...	For air supply, port 1	89
[13]	Blanking plug	B-...	For internal/external pilot air	89
[14]	Push-in fitting	QS-...	For ports 2 and 4	89
[15]	Electrical interface	VAEM-L1-S-...-AP	AP interface for CPX-AP-I	87
[16]	Electrical interface	VAEM-L1-S-M3-...	Ribbon cable	78
[17]	Electrical interface	VAEM-L1-S-M1-...	Sub-D	78
[18]	Electrical interface	VAEM-L1-S-...-PT	I-Port interface/IO-Link	81
[19]	Connecting cable	NEBV-...	Sub-D cable	78
[20]	Plug	SEA-M12-5GS-PG7	Straight, for T adapter FB-TA	81
[21]	T adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	81
[22]	Power supply socket	NTSD-.../FBSD-...	Power supply for CTEU bus nodes	88
[23]	CTEU	CTEU-...	Bus node	87
[24]	Inscription label holder	ASCF-H-L1	For identifying valves	92
[25]	H-rail mounting	CAFM-F1-H	For electrical connection block CAPC	83
[26]	Connecting cable	NEBU-...	–	nebu
[27]	Electrical connection block	CAPC-F1-E-M12	For connecting a second device with I-Port interface	83

## Peripherals overview example – Sub-base valves

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

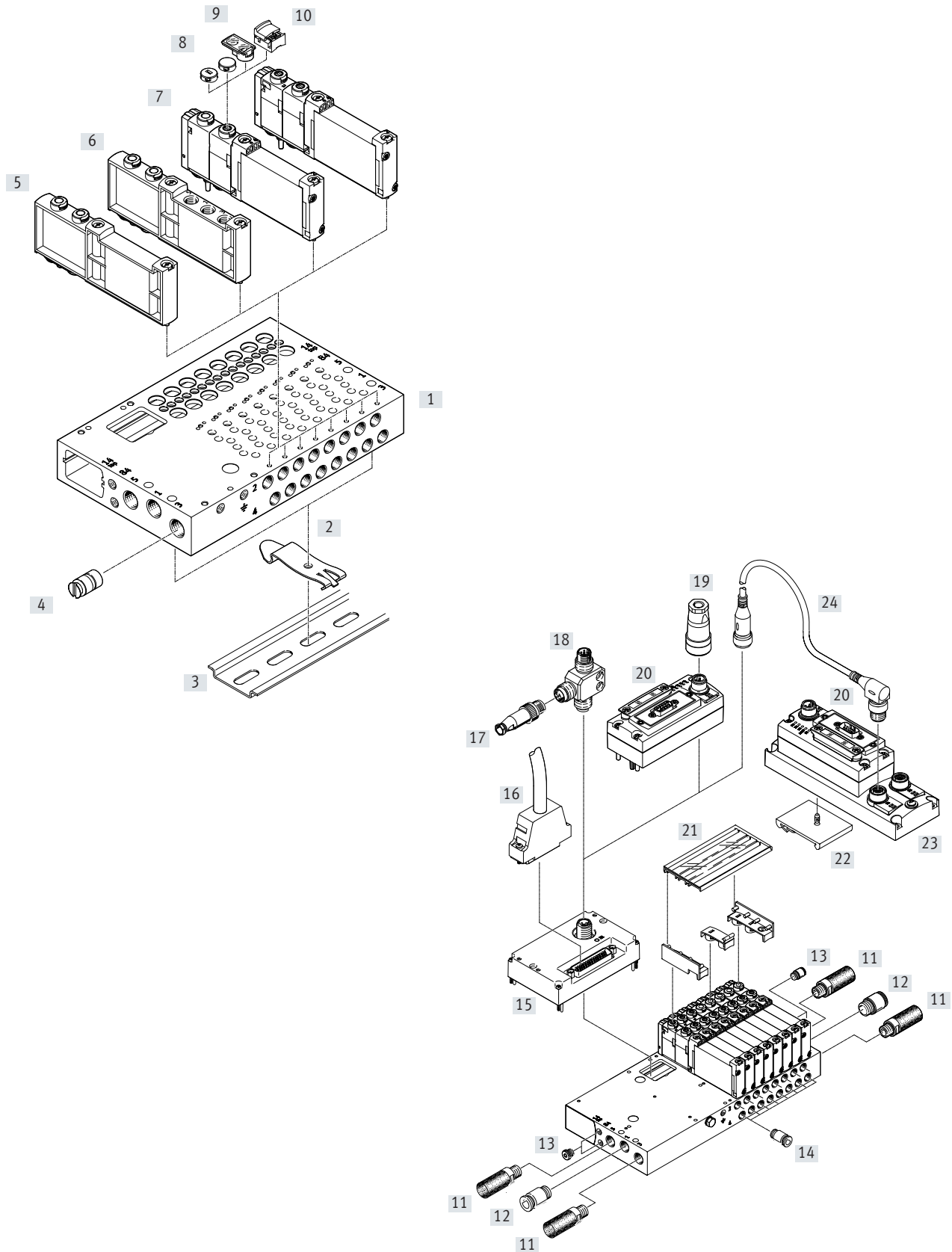


## Peripherals overview example – Sub-base valves

Accessories		Type	Description	→ Page/Internet
[1]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	47
[2]	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	92
[3]	H-rail	NRH-35-2000	For mounting the valve terminal	92
[4]	Separator	VABD-...	For creating pressure zones	90
[5]	Cover plate	VABB-L1-...	For covering a vacant position	90
[6]	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	90
[7]	Solenoid valve	VUVG- ...	Sub-base valve	36, 40, 44
[8]	Cover cap	VMPPA-HB...-B	For manual override	90
[9]	Identification holder	ASLR-D-L1	For inscription label and covering for the retaining screw/manual override	92
[10]	Covering	VAMC...	For manual override	90
[11]	Silencer	U...	For ports 3 and 5	90
[12]	Push-in fitting	QS...	For air supply, port 1	89
[13]	Blanking plug	B-...	For internal/external pilot air	89
[14]	Push-in fitting	QS...	For ports 2 and 4	89
[15]	Electrical interface	VAEM-L1-S-...-AP	AP interface for CPX-AP-I	87
[16]	Electrical interface	VAEM-L1-S-M3-...	Ribbon cable	78
[17]	Electrical interface	VAEM-L1-S-M1-...	Sub-D	78
[18]	Electrical interface	VAEM-L1-S-...-PT	I-Port interface/IO-Link	81
[19]	Connecting cable	NEBV-...	Sub-D cable	78
[20]	Plug	SEA-M12-5GS-PG7	Straight, for T adapter FB-TA	81
[21]	T adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	81
[22]	Power supply socket	FBSD-.../NTSD-...	Power supply for CTEU bus nodes	88
[23]	CTEU	CTEU-...	Bus node	87
[24]	Inscription label holder	ASCF-H-L1	For identifying valves	92
[25]	H-rail mounting	CAFM-F1-H	For electrical connection block CAPC	83
[26]	Connecting cable	NEBU-...	–	nebu
[27]	Electrical connection block	CAPC-F1-E-M12	For connecting a second device with I-Port interface	83

## Peripherals overview example – Sub-base valves

### I-Port interface with interlock





## Peripherals overview example – Sub-base valves

Accessories		Type	Description	→ Page/Internet
[1]	Manifold rail	VABM-L1-...	For 4 to 10, 12, 16, 20 and 24 valve positions	47
[2]	H-rail mounting	VAME-T-M4	2 pieces for fitting the valve terminal on an H-rail	92
[3]	H-rail	NRH-35-2000	For mounting the valve terminal	92
[4]	Separator	VABD-...	For creating pressure zones	90
[5]	Cover plate	VABB-L1-...	For covering a vacant position	90
[6]	Supply plate	VABF-L1-...	For air supply at port 1 and ports 3 and 5	90
[7]	Solenoid valve	VUVG-...	–	36, 40, 44
[8]	Cover cap	VMPA-HB...-B	For manual override	90
[9]	Identification holder	ASLR-D-L1	For inscription label and covering for the retaining screw/manual override	92
[10]	Covering	VAMC-...	For manual override	90
[11]	Silencer	U-...	For ports 3 and 5	90
[12]	Push-in fitting	QS-...	For air supply, port 1	89
[13]	Blanking plug	B-...	For internal/external pilot air	89
[14]	Push-in fitting	QS-...	For ports 2 and 4	89
[15]	Electrical interface	VAEM-L1-S-24-...	I-Port interface with interlock	84
[16]	Connecting cable	NEBV-...	Sub-D cable	78
[17]	Plug	SEA-M12-5GS-PG7	Straight, for T adapter FB-TA	81
[18]	T adapter	FB-TA-M12-5POL	For IO-Link and load voltage supply	81
[19]	Power supply socket	NTSD-.../FBSD-...	Power supply for CTEU bus nodes	88
[20]	CTEU	CTEU-...	Bus node	87
[21]	Inscription label holder	ASCF-H-L1	For identifying valves	92
[22]	H-rail mounting	CAFM-F1-H	For electrical connection block CAPC	83
[23]	Electrical connection block	CAPC-F1-E-M12	For connecting a second device with I-Port interface	83
[24]	Connecting cable	NEBU-...	–	nebu

## Peripherals overview example – Sub-base valves

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

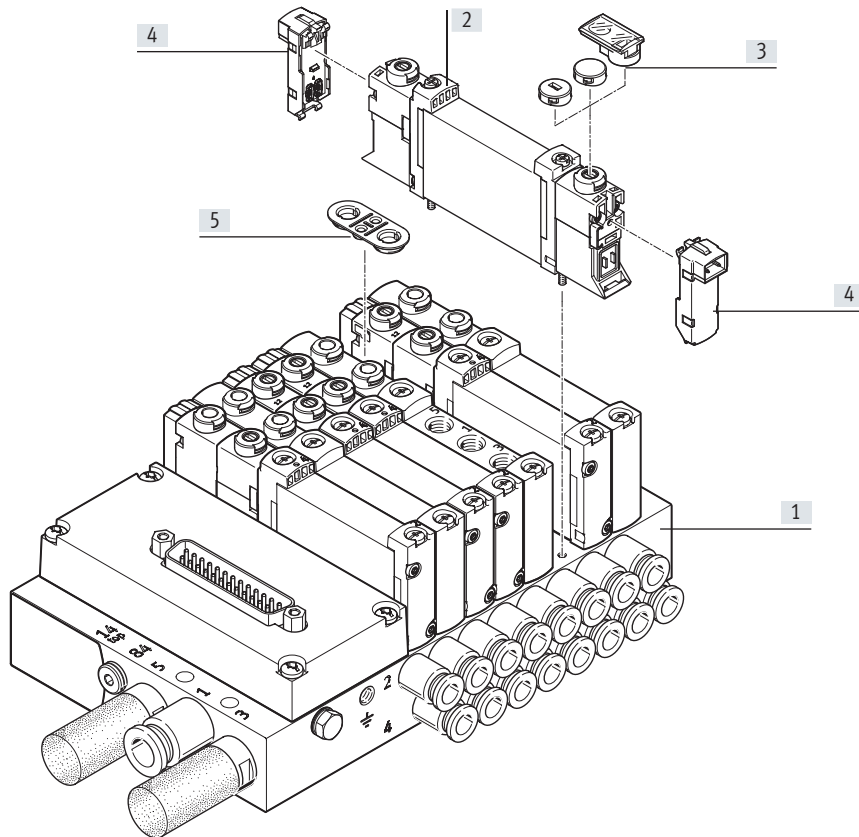
In applications with specific emergency off requirements, it may be necessary to switch one or more valves separately from the valve terminal controller.

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

Valves with 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	47
[2]	Solenoid valve	VUVG	Sub-base valve	25
[3]	Cover cap	VMPA	For manual override	90
[4]	Electrical connection block	VAVE	For individual connection	vave
[5]	Seal	–	Included in the scope of delivery of the cover plate for a vacant position	90

## Type codes

001 Series	
<b>VUVG</b>	Solenoid valve

002 Directional control valve type	
<b>S</b>	Semi-inline valve
<b>B</b>	Sub-base valve

003 Size	
<b>10</b>	Size 10
<b>14</b>	Size 14
<b>18</b>	Size 18

004 Additional function	
<b>Z</b>	External pressure supply
	None

005 Valve function	
<b>M32U</b>	3/2-way valve, normally open
<b>M32C</b>	3/2-way valve, normally closed
<b>T32U</b>	2x3/2-way valve, normally open
<b>T32C</b>	2x3/2-way valve, normally closed
<b>T32H</b>	2x3/2-way valve, 1x normally closed, 1x normally open
<b>M52</b>	5/2-way valve, single solenoid/monostable
<b>B52</b>	5/2-way valve, double solenoid/bistable
<b>P53U</b>	5/3-way valve, mid-position pressurised
<b>P53E</b>	5/3-way valve, mid-position exhausted
<b>P53C</b>	5/3-way valve, mid-position closed

006 Reset method for monostable/single solenoid valves	
	None
<b>A</b>	Pneumatic spring
<b>M</b>	Mechanical spring
<b>R</b>	Mixed, pneumatic/mechanical spring

007 Pilot air	
<b>Z</b>	External

008 Manual override	
<b>H</b>	Non-detenting
<b>T</b>	Non-detenting, detenting with accessories
<b>Y</b>	Detenting
<b>S</b>	Covered

009 Pneumatic connection	
<b>F</b>	Flange/sub-base
<b>M5</b>	M5
<b>M7</b>	M7
<b>G18</b>	G1/8
<b>G14</b>	G1/4
<b>Q3</b>	Push-in connector 3 mm
<b>Q4</b>	Push-in connector 4 mm
<b>Q4H</b>	Push-in connector 4 mm, with connecting thread M7
<b>Q6</b>	Push-in connector 6 mm
<b>Q6H</b>	Push-in connector 6 mm, with connecting thread M7
<b>Q8</b>	Push-in connector 8 mm
<b>Q10</b>	Push-in connector 10 mm
<b>T18</b>	Push-in connector 1/8"
<b>T532</b>	Push-in connector 5/32"
<b>T316</b>	Push-in connector 3/16"
<b>T316H</b>	Push-in connector for 3/16", M7
<b>T14</b>	Push-in connector 1/4"
<b>T14H</b>	Push-in connector for 1/4", M7
<b>T38</b>	Push-in connector 3/8"
<b>T516</b>	Push-in connector 5/16"

010 Nominal operating voltage	
<b>1</b>	24 V DC

011 Electrical connection	
<b>T1</b>	Pin

012 Display	
<b>L</b>	LED




013 Degree of protection, electrical system	
	Standard
<b>S6</b>	IP40

014 EU certification	
	None
<b>EX2</b>	II 3GD

## Data sheet – 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 symbols → page 16

General technical data												
Valve function	T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	–	–	–	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>
Stable position	Monostable							Bistable	Monostable			
Pneumatic spring reset	Yes			No			Yes <sup>5)</sup>	–	No	–		
Mechanical spring reset	No			Yes			Yes <sup>5)</sup>	–	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											
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										
Port	1, 3, 5, 12/14, 82/84	On manifold rail										
	2, 4	M5 (VUVG-S10-...-M5) M7 (VUVG-S10-...-M7)										
Product weight	[g]	59					53	60	53	58		
Certification	c UL us - Recognized (OL)											
	c CSA us (OL)											
	RCM compliance mark											
CE marking (see declaration of conformity) <sup>6)</sup>	To EU EMC Directive											
Corrosion resistance class CRC <sup>7)</sup>	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](http://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.

## Data sheet – Semi in-line valves M5/M7

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

- 1) Pneumatic spring  
 2) Mechanical spring  
 3) Mixed, pneumatic/mechanical spring  
 4) 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 <sup>1)</sup>	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65, IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety data		
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 <sup>1)</sup>	T32-M <sup>2)</sup>	M52-R <sup>3)</sup>	B52	M52-M <sup>2)</sup>	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	

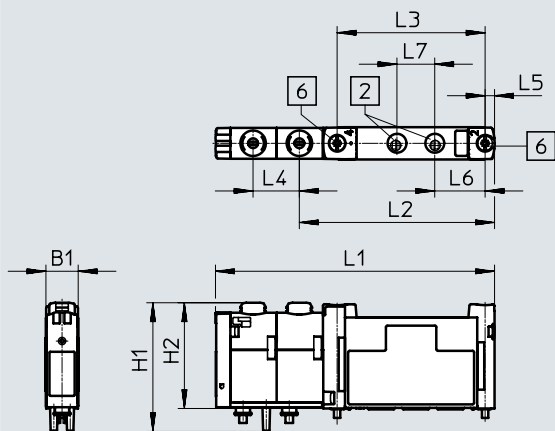
- 1) Pneumatic spring  
 2) Mechanical spring  
 3) Mixed, pneumatic/mechanical spring

## Data sheet – Semi in-line valves M5/M7

### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Semi in-line valves M5/M7

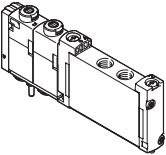


[2] Ports 2 and 4: M7/M5

[6] Retaining screw

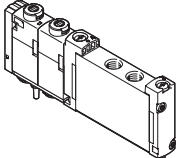
Type	B1	H1	H2	L1	L2	L3	L4	L5	L6	L7
VUVG-S10-...-M5-1T1L	10.3	40.7	33.6	88.6	62	47	14.7	3	16	12
VUVG-S10-...-M7-1T1L										

### Ordering data

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






## Ordering data

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

## Data sheet – 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 symbols → page 16

General technical data												
Valve function	T32-A			T32-M			M52-A	B52	M52-M	P53		
Normal position	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	–	–	–	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>
Stable position	Monostable							Bistable	Monostable			
Pneumatic spring reset	Yes			No			Yes	–	No	–		
Mechanical spring reset	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										
Port	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)											
	c CSA us (OL)											
	RCM compliance mark											
CE marking (see declaration of conformity) <sup>5)</sup>	To EU EMC Directive											
Corrosion resistance class CRC <sup>6)</sup>	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](http://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.

## Data sheet – Semi in-line valves G1/8

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

- 1) Pneumatic spring  
 2) Mechanical spring  
 3) 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 <sup>1)</sup>	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65, IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety data		
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 <sup>1)</sup>	T32-M <sup>2)</sup>	M52-A <sup>1)</sup>	B52	M 52-M <sup>2)</sup>	P53
Valve function							
Switching time on	[ms]	10	13	13	–	10	15
Switching time off	[ms]	29	21	26	–	38	42
Switching time changeover	[ms]	–	–	–	9	–	25

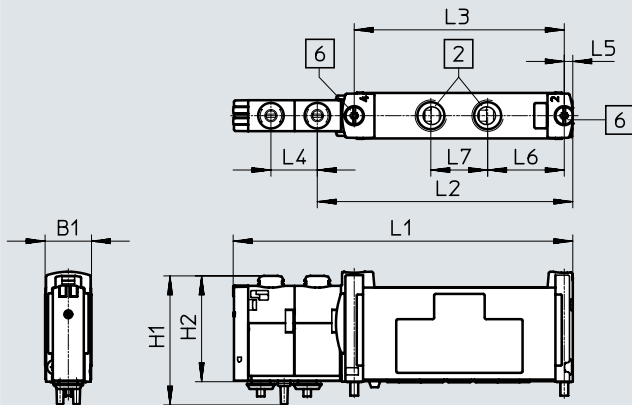
- 1) Pneumatic spring  
 2) Mechanical spring

Data sheet – Semi in-line valves G1/8

**Dimensions**

Download CAD data → [www.festo.com](http://www.festo.com)

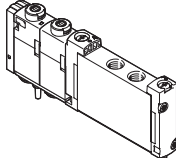
Semi in-line valves G1/8



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

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

**Ordering data**

Description	Part no.	Type
<b>Semi in-line valve G1/8</b>		
 <b>2x 3/2-way valve</b> External pilot air supply	Normally closed, pneumatic spring reset	573464 VUVG-S14-T32C-AZT-G18-1T1L
	Normally open, pneumatic spring reset	573465 VUVG-S14-T32U-AZT-G18-1T1L
	1x normally open, 1x normally closed, pneumatic spring reset	573466 VUVG-S14-T32H-AZT-G18-1T1L
	Normally closed, mechanical spring reset	573467 VUVG-S14-T32C-MZT-G18-1T1L
	Normally open, mechanical spring reset	573468 VUVG-S14-T32U-MZT-G18-1T1L
	1x normally open, 1x normally closed, mechanical spring reset	573469 VUVG-S14-T32H-MZT-G18-1T1L
<b>5/2-way single solenoid valve</b>		
External pilot air supply	Pneumatic spring reset	573470 VUVG-S14-M52-AZT-G18-1T1L
	Mechanical spring reset	573471 VUVG-S14-M52-MZT-G18-1T1L
<b>5/2-way double solenoid valve</b>		
External pilot air supply		573472 VUVG-S14-B52-ZT-G18-1T1L
<b>5/3-way valve</b>		
External pilot air supply	Mid-position closed, mechanical spring reset	573473 VUVG-S14-P53C-ZT-G18-1T1L
	Mid-position pressurised, mechanical spring reset	573475 VUVG-S14-P53U-ZT-G18-1T1L
	Mid-position exhausted, mechanical spring reset	573474 VUVG-S14-P53E-ZT-G18-1T1L

## Data sheet – Semi in-line valves G1/4

## Function




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

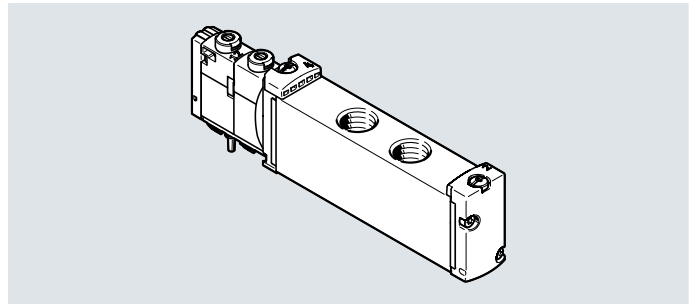
5/2-way, single solenoid

5/2-way, double solenoid

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

Circuit symbols → page 16

-  - Size 18 mm
-  - Flow rate  
900 ... 1200 l/min
-  - Voltage  
24 V DC



General technical data		T32-A			T32-M			M52-R	B52	M52-M	P53		
Valve function		C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	-	-	-	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>
Normal position		Monostable						Bistable	Monostable				
Stable position		Monostable						Bistable	Monostable				
Pneumatic spring reset		Yes			No			Yes <sup>5)</sup>	-	No	-		
Mechanical spring reset		No			Yes			Yes <sup>5)</sup>	-	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]	900		900		1150		1200		1150		1000	
Size	[mm]	18											
Port	1, 3, 5, 12/14, 82/84 2, 4	On manifold rail G1/4											
Product weight	[g]	145		147		138		145		138		140	
Certification		c UL us - Recognized (OL)											
		c CSA us (OL)											
		RCM compliance mark											
CE marking (see declaration of conformity) <sup>6)</sup>		To EU EMC Directive											
Corrosion resistance class CRC <sup>7)</sup>		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](http://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.

## Data sheet – Semi in-line valves G1/4

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

- 1) Pneumatic spring  
 2) Mechanical spring  
 3) Mixed, pneumatic/mechanical spring  
 4) 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 <sup>1)</sup>	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65, IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety data	
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 <sup>1)</sup>	T32-M <sup>2)</sup>	M52-R <sup>3)</sup>	B52	M52-M <sup>2)</sup>	P53
Switching time on	[ms]	15	25	20	–	13	20
Switching time off	[ms]	35	33	35	–	50	57
Switching time changeover	[ms]	–	–	–	15	–	31

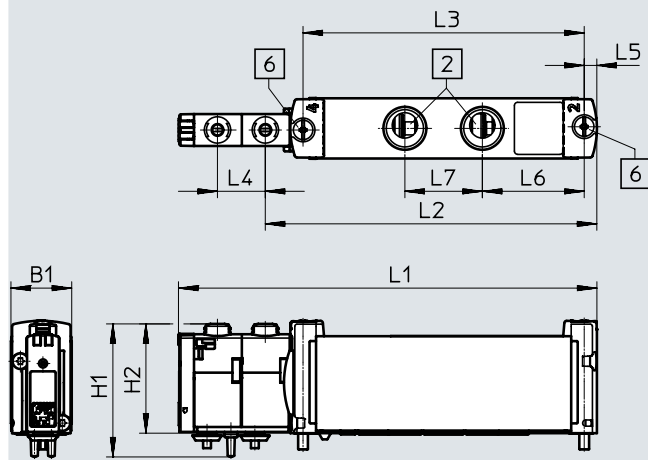
- 1) Pneumatic spring  
 2) Mechanical spring  
 3) Mixed, pneumatic/mechanical spring

Data sheet – Semi in-line valves G1/4

Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

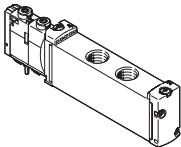
Semi in-line valve G1/4






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

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

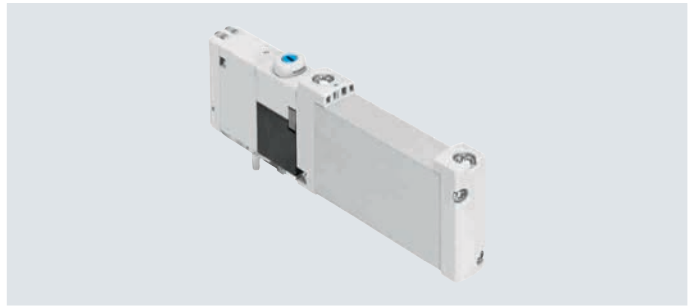
Ordering data

Description		Part no.	Type
<b>Semi in-line valve G1/4</b>			
	<b>2x 3/2-way valve</b>		
	External pilot air supply	Normally closed	8004873 VUVG-S18-T32C-AZT-G14-1T1L
		Normally open, pneumatic spring reset	8004874 VUVG-S18-T32U-AZT-G14-1T1L
		1x normally open, 1x normally closed, pneumatic spring reset	8004875 VUVG-S18-T32H-AZT-G14-1T1L
		Normally closed, mechanical spring reset	8004876 VUVG-S18-T32C-MZT-G14-1T1L
		Normally open, mechanical spring reset	8004877 VUVG-S18-T32U-MZT-G14-1T1L
		1x normally open, 1x normally closed, mechanical spring reset	8004878 VUVG-S18-T32H-MZT-G14-1T1L
	<b>5/2-way single solenoid valve</b>		
External pilot air supply	Pneumatic/mechanical spring reset	8004879 VUVG-S18-M52-RZT-G14-1T1L	
	Mechanical spring reset	8004880 VUVG-S18-M52-MZT-G14-1T1L	
<b>5/2-way double solenoid valve</b>			
External pilot air supply		8004881 VUVG-S18-B52-ZT-G14-1T1L	
<b>5/3-way valve</b>			
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	

## Data sheet – Sub-base valve M5/M7

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

Circuit symbols → page 16



General technical data	T32-A		T32-M			M32-R		M52-R	B52	M52-M	P53				
	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	-	-	-	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>	
Valve function															
Normal position	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	-	-	-	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>	
Stable position	Monostable									Bistable		Monostable			
Pneumatic spring reset	Yes			No			No		Yes <sup>5)</sup>		-		No		-
Mechanical spring reset	No			Yes			Yes		Yes <sup>5)</sup>		-		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		300		260		260		
Flow rate on manifold rail M5, front	[l/min]	150		130			130		220		220		200		
Flow rate on manifold rail M7, front	[l/min]	160		140			140		270		240		250		
Flow rate on manifold rail M7, underneath	[l/min]	160		140			140		300		260		260		
Size	[mm]	10													
Port	1, 3, 5, 12/14, 82/84	On manifold rail													
	2, 4	On manifold rail													
Product weight	[g]	59					53			60	53	58			
Certification	c UL us - Recognized (OL)														
	c CSA us (OL)														
	RCM compliance mark														
CE marking (see declaration of conformity) <sup>6)</sup>	To EU EMC Directive														
Corrosion resistance class CRC <sup>7)</sup>	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](http://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.



## Data sheet – Sub-base valve M5/M7

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

- 1) Pneumatic spring  
 2) Mechanical spring  
 3) 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 <sup>1)</sup>	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65, IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety data		
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

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 Gc (IECEx)
Explosion-proof ambient temperature	[°C]	5°C ≤ Ta ≤ +50°C, -5°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)		To the EU EMC Directive, the EU ATEX Directive and the EU RoHS Directive
Certificate issuing authority		IBExU16ATEXB021 X
		IECEx IBE 17.0003 X

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

Valve switching times			T32-A <sup>1)</sup>	T32-M <sup>2)</sup>	M32-R <sup>3)</sup>	M52-R <sup>3)</sup>	B52	M52-M <sup>2)</sup>	P53
Valve function									
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	

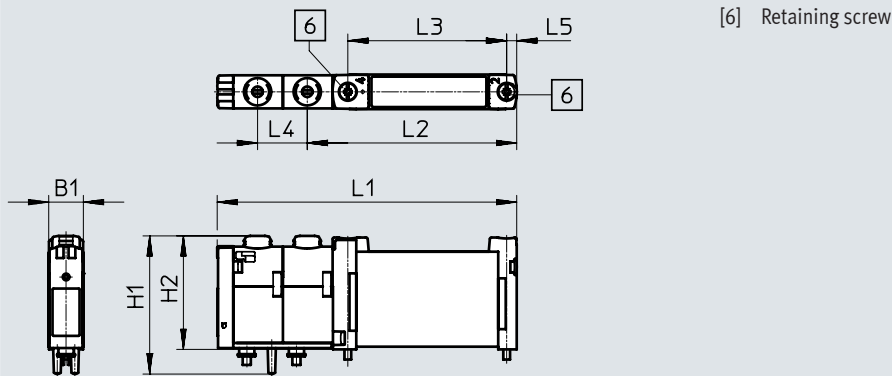
- 1) Pneumatic spring  
 2) Mechanical spring  
 3) Mixed, pneumatic/mechanical spring

Data sheet – Sub-base valve M5/M7

Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Sub-base valve M5/M7

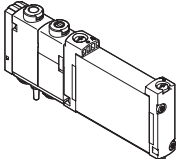


Type	B1	H1	H2	L1	L2	L3	L4	L5
VUUG-B10-...-F-1T1L	10.3	40.7	33	88.6	62	47	14.7	3
VUUG-B10-...-F-1T1L-EX2C								

Ordering data

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

## Data sheet – Sub-base valve M5/M7

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

## Data sheet – 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 symbols → page 16

**General technical data**

Valve function	T32-A			T32-M			M32-A		M52-A	B52	M52-M	P53			
	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	-	-	-	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>	
Normal position	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	-	-	-	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>	
Stable position	Monostable									Bistable		Monostable			
Pneumatic spring reset	Yes			No			Yes		Yes	-	No	-			
Mechanical spring reset	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													
Port	1, 3, 5, 12/14, 82/84	On manifold rail													
	2, 4	On manifold rail													
Product weight	[g]	102			100			91		98	89	95			
Certification	c UL us - Recognized (OL)														
	c CSA us (OL)														
	RCM compliance mark														
CE marking (see declaration of conformity) <sup>5)</sup>	To EU EMC Directive														
Corrosion resistance class CRC <sup>6)</sup>	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](http://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.

## Data sheet – Sub-base valve G1/8

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

- 1) Pneumatic spring  
 2) Mechanical spring  
 3) 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	Individual valve	IP67/IP65
	Valve terminal	IP40, IP67/IP65
	Valve terminal VTUG-VI-EX2	IP40, IP65, IP67, IP69K

- 1) Depending on the configuration selected

Safety data		
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

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 Gc (IECEx)
Explosion-proof ambient temperature	[°C]	5°C ≤ Ta ≤ +50°C, -5°C ≤ Ta ≤ +60°C
CE marking (see declaration of conformity)		To the EU EMC Directive, the EU ATEX Directive and the EU RoHS Directive
Certificate issuing authority		IBExU16ATEXB021 X
		IECEx IBE 17.0003 X

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

Valve switching times			T32-A <sup>1)</sup>	T32-M <sup>2)</sup>	M32-A <sup>1)</sup>	M52-A <sup>1)</sup>	B52	M52-M <sup>2)</sup>	P53
Valve function									
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

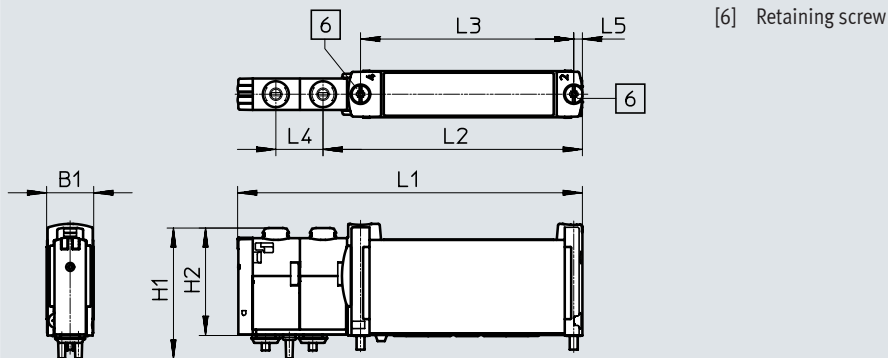
- 1) Pneumatic spring  
 2) Mechanical spring

## Data sheet – Sub-base valve G1/8

### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Sub-base valve G1/8

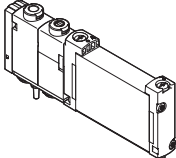


Type	B1	H1	H2	L1	L2	L3	L4	L5
VUUG-B14-...-F-1T1L	14.7	40.9	33.5	107.6	81	66.5	15.1	2.8
VUUG-B14-...-F-1T1L-EX2C								

### Ordering data




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

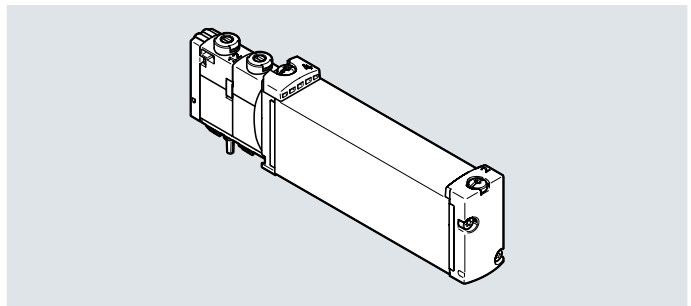
## Data sheet – Sub-base valve G1/8

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

## Data sheet – 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 symbols → page 16

General technical data												
Valve function	T32-A			T32-M			M52-R	B52	M52-M	P53		
Normal position	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	C <sup>1)</sup>	U <sup>2)</sup>	H <sup>4)</sup>	–	–	–	C <sup>1)</sup>	U <sup>2)</sup>	E <sup>3)</sup>
Stable position	Monostable							Bistable	Monostable			
Pneumatic spring reset	Yes			No			Yes <sup>5)</sup>	–	No	–		
Mechanical spring reset	No			Yes			Yes <sup>5)</sup>	–	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								
Port	1, 3, 5, 12/14, 82/84			On manifold rail								
	2, 4			On manifold rail								
Product weight	[g]			145	147	138	145	138	140			
Certification	c UL us - Recognized (OL)											
	c CSA us (OL)											
	RCM compliance mark											
CE marking (see declaration of conformity)	To EU EMC Directive <sup>6)</sup>											
Corrosion resistance class CRC <sup>7)</sup>	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](http://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.



## Data sheet – Sub-base valve G1/4

Operating and environmental conditions			T32-A <sup>1)</sup>	T32-M <sup>2)</sup>	M52-R <sup>3)</sup>	B52	M52-M <sup>2)</sup>	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	[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
	External pilot air supply	[bar]	1.5 ... 10	-0.9 ... 10			-0.9 ... 8	-0.9 ... 10
Pilot pressure <sup>4)</sup>		[bar]	1.5 ... 8	2 ... 8	2.5 ... 8	1.5 ... 8	3 ... 8	3 ... 8
Ambient temperature		[°C]	-5 ... +60					
Temperature of medium		[°C]	-5 ... +60					

- 1) Pneumatic spring  
2) Mechanical spring  
3) Mixed, pneumatic/mechanical spring  
4) 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 <sup>1)</sup>	Individual valve	IP65, IP67
	Valve terminal VTUG	IP40, IP67/IP65, IP69K
	Valve terminal VTUG-VI-EX2	IP20, IP65

- 1) Depending on the configuration selected

Safety data		
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 <sup>1)</sup>	T32-M <sup>2)</sup>	M52-R <sup>3)</sup>	B52	M52-M <sup>2)</sup>	P53
Valve function								
Switching time on	[ms]		15	25	20	–	13	20
Switching time off	[ms]		35	33	35	–	50	57
Switching time changeover	[ms]		–	–	–	15	–	31

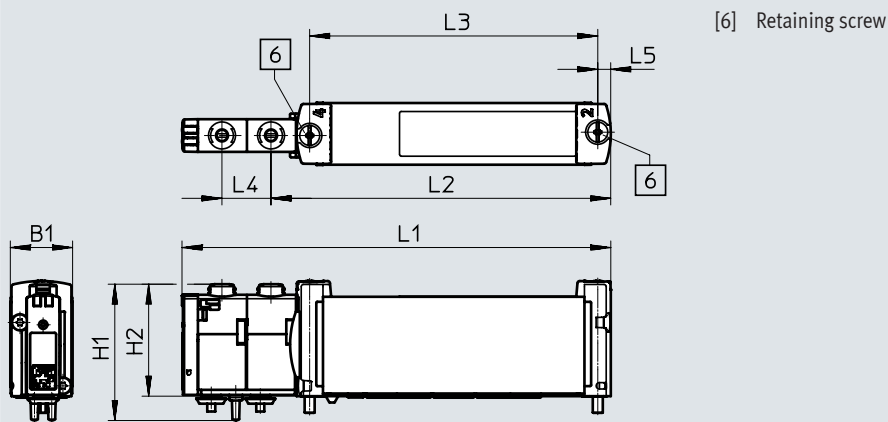
- 1) Pneumatic spring  
2) Mechanical spring  
3) Mixed, pneumatic/mechanical spring

Data sheet – Sub-base valve G1/4

**Dimensions**

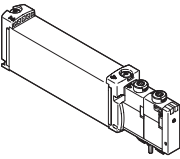
Download CAD data → [www.festo.com](http://www.festo.com)

Sub-base valve G1/4



Type	B1	H1	H2	L1	L2	L3	L4	L5
VUUG-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
<b>Sub-base valve G1/4</b>		
<b>2x 3/2-way valve</b>		
 External pilot air supply	Normally closed, pneumatic spring reset	8004885 VUUG-B18-T32C-AZT-F-1T1L
	Normally open, reset method: pneumatic spring	8004886 VUUG-B18-T32U-AZT-F-1T1L
	1x normally open, 1x normally closed, pneumatic spring reset	8004887 VUUG-B18-T32H-AZT-F-1T1L
	Normally closed, mechanical spring reset	8004888 VUUG-B18-T32C-MZT-F-1T1L
	Normally open, reset method: mechanical spring	8004889 VUUG-B18-T32U-MZT-F-1T1L
	1x normally open, 1x normally closed, mechanical spring reset	8004890 VUUG-B18-T32H-MZT-F-1T1L
<b>5/2-way single solenoid valve</b>		
External pilot air supply	Pneumatic/mechanical spring reset	8004891 VUUG-B18-M52-RZT-F-1T1L
	Mechanical spring reset	8004892 VUUG-B18-M52-MZT-F-1T1L
<b>5/2-way double solenoid valve</b>		
External pilot air supply		8004893 VUUG-B18-B52-ZT-F-1T1L
<b>5/3-way valve</b>		
External pilot air supply	Mid-position closed, mechanical spring reset	8004894 VUUG-B18-P53C-ZT-F-1T1L
	Mid-position exhausted, mechanical spring reset	8004895 VUUG-B18-P53E-ZT-F-1T1L
	Mid-position pressurised, mechanical spring reset	8004896 VUUG-B18-P53U-ZT-F-1T1L

## Data sheet – 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		
Port	12/14	M5	M5	G1/8
	82/84	M5	M5	G1/8
	2, 4	M5 or M7	G1/8	G1/4
	1, 3, 5	G1/8	G1/4	G3/8
Storage temperature	[°C]	-20 ... 60		
Certification		c UL us - Recognized (OL)		
		c CSA us (OL)		
CE marking (see declaration of conformity) <sup>1)</sup>		To EU EMC Directive		
Corrosion resistance class CRC <sup>2)</sup>		2		

1) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://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.

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

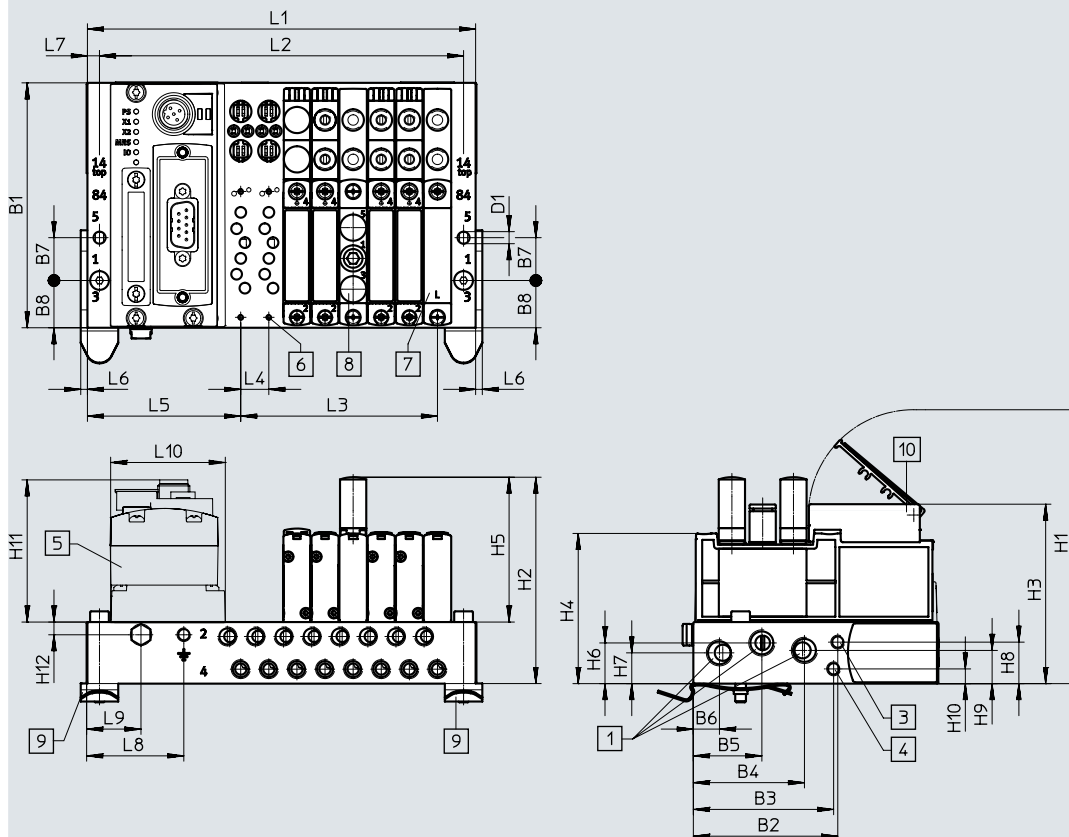
Materials	
Manifold rail	Wrought aluminium alloy
Note on materials	RoHS-compliant

## Data sheet – Manifold rail VABM

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

Download CAD data → [www.festo.com](http://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 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] 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	No. 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	No. of valve positions	Size 10										
		H9	H10	H11	H12	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	12.4	5.5	54.8	4.8	10.5	57.3	2.5	4.5	36	20	42.5

Type	No. of valve positions	Size 14																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 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

## Data sheet – Manifold rail VABM

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

Type	No. of valve positions	Size 18																
		B1	B2	B3	B4	B5	B6	B7	B8	D1 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	No. of valve positions	Size 18										
		H9	H10	H11	H12	L4	L5	L6	L7	L8	L9	L10
VABM	4-24	14.5	27	54.8	13.8	19	63.5	2	5	10	27	42.5

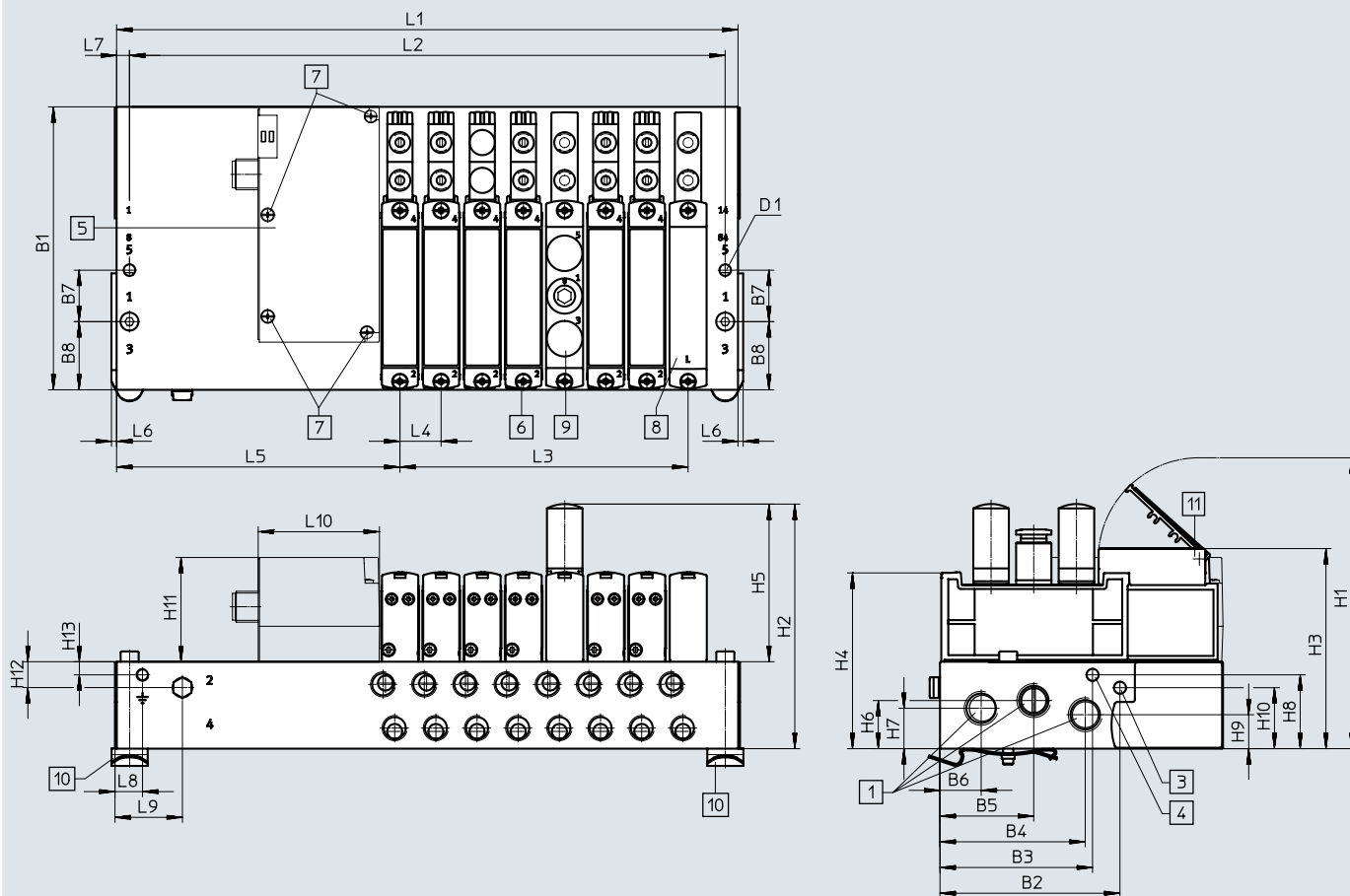
Type	No. of valve positions	Size 10			Size 14			Size 18		
		L1	L2	L3	L1	L2	L3	L1	L2	L3
VABM	4	103	94	31.5	128	118	48	139.5	129.5	57
	5	113.5	104.5	42	144	134	64	158.5	148.5	76
	6	124	115	52.5	160	150	80	177.5	167.5	95
	7	134.5	125.5	63	176	166	96	196.5	186.5	114
	8	145	136	73.5	192	182	112	215.5	205.5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

## Data sheet – Manifold rail VABM

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

Download CAD data → [www.festo.com](http://www.festo.com)

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 8/24: sizes 10 and 14: M5 (at both ends), size 18: G1/8 (at both ends)
- [4] Ports 8/24: 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	No. of valve positions	Size 10																
		B1	B2	B3	B4	B5	B6	B7	B8	D1∅	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	91.5	54	52.4	41.5	25.6	9.8	16	17.7	4.5	102.3	77.1	67	56.1	54.1	15.2	11.5	15.5

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

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

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

## Data sheet – Manifold rail VABM

Type	No. of valve positions	Size 18																
		B1	B2	B3	B4	B5	B6	B7	B8	D1ø	H1	H2	H3	H4	H5	H6	H7	H8
VABM	4-24	131	90.5	77.3	72.3	47.5	21.5	26	34	5.5	121.5	95.2	-	77.4	52.7	23.6	18.7	35.1

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

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


**Note**

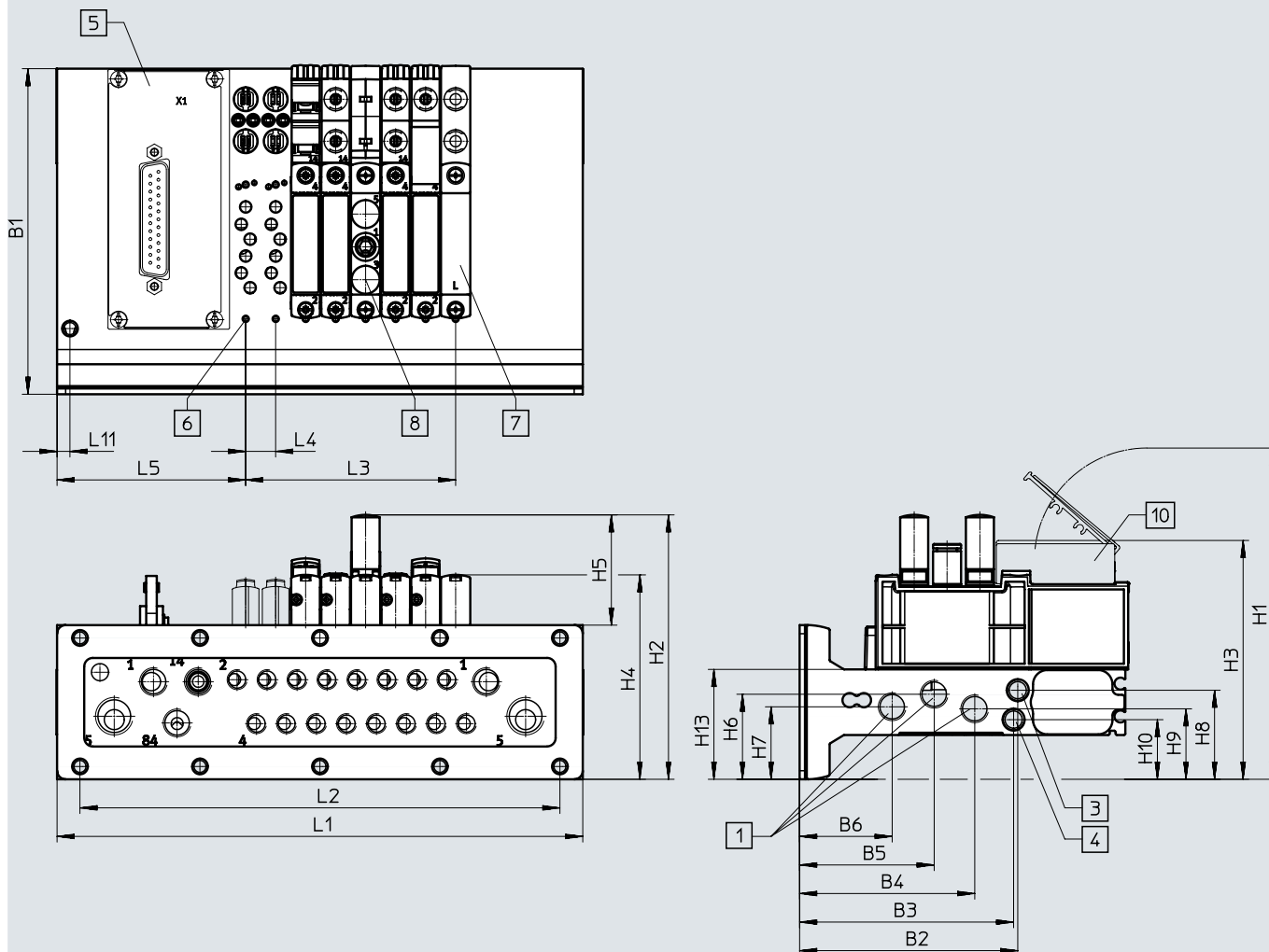
The dimensions for size 10 are the same as the dimensions for the manifold rail with interlock.

## Data sheet – Manifold rail VABM

### Dimensions – Example of control cabinet installation for valve terminal

Download CAD data → [www.festo.com](http://www.festo.com)

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 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] Valves/cover plates/supply plates – mounting on manifold block: M2
- [6] Cover plate
- [7] Supply plate, ports 1, 3 and 5: M7
- [8] Inscription label holder

Type	No. 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	No. 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	No. 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	No. 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



## Data sheet – Manifold rail VABM

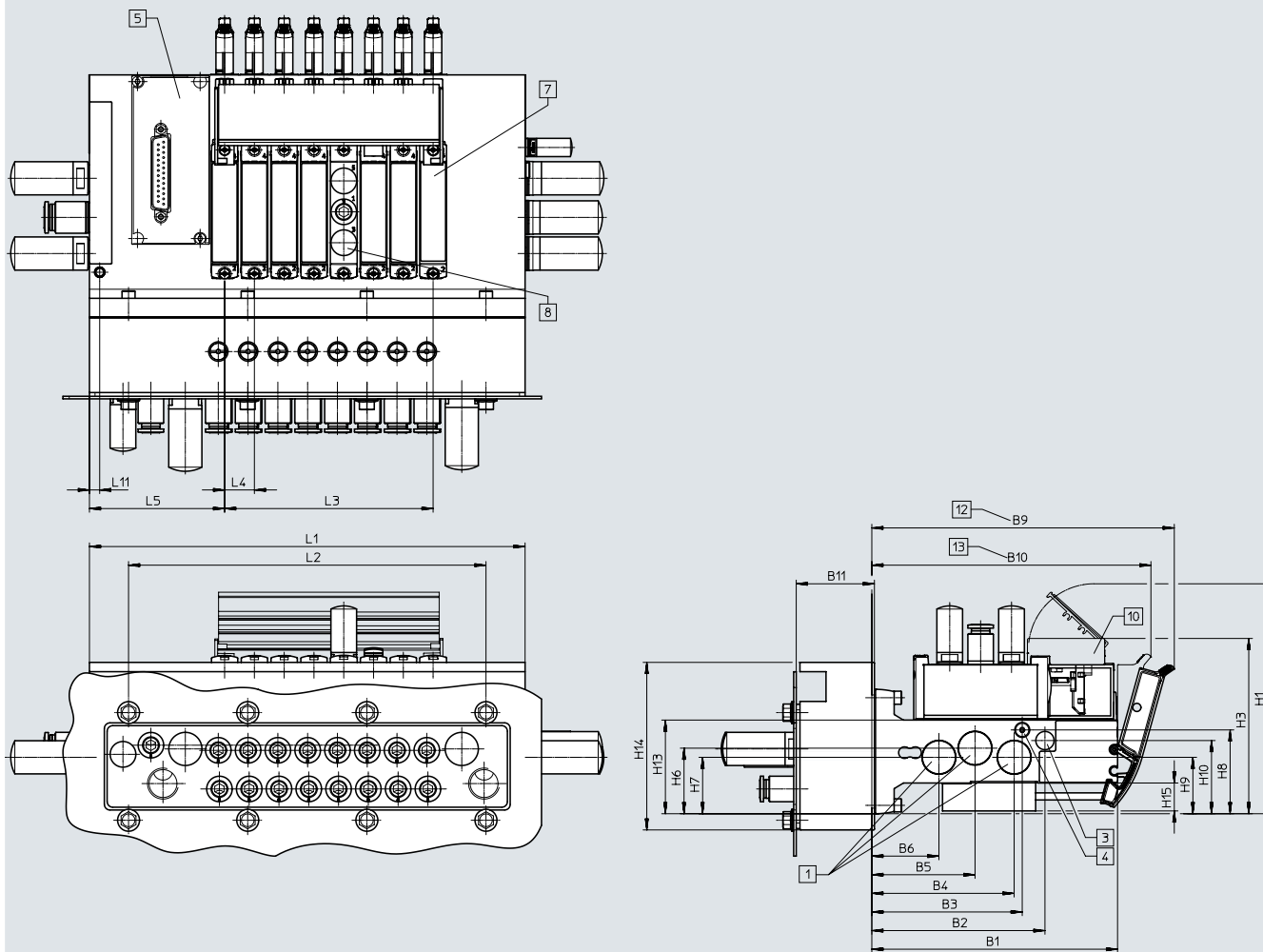
Number of valve positions	L1	L2	L3
VABM-L1-10HWS1-G18-4-GR	116.2	84	31.5
VABM-L1-10HWS1-G18-8-GR	158.2	126	73.5
VABM-L1-10HWS2-G18-8-GR	184	168	73.5
VABM-L1-10HWS2-G18-12-GR	226	210	115.5
VABM-L1-10HWS2-G18-16-GR	268	252	157.5
VABM-L1-10HWS2-G18-24-GR	352	336	241.5
VABM-L1-10HWS2-H-G18-8-GR	184	168	73.5
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

## Data sheet – Manifold rail VABM

### Dimensions – Example of control cabinet installation for valve terminal

Download CAD data → [www.festo.com](http://www.festo.com)

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 82/84: size 10: M5 (at both ends), size 14: M7 (at both ends)
- [3] Ports 12/14: 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	No. 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	No. 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	No. 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	No. 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

## Data sheet – Manifold rail VABM

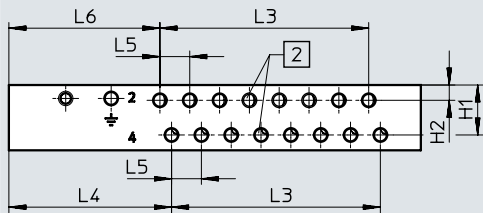
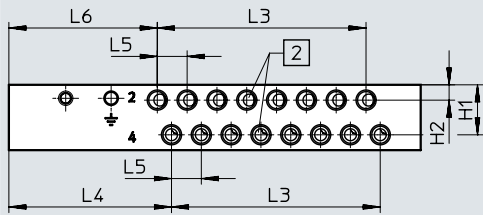
Number of valve positions	L1	L2	L3
VABM-L1-10HWS1-G18-4-GR	116.2	84	31.5
VABM-L1-10HWS1-G18-8-GR	158.2	126	73.5
VABM-L1-10HWS2-G18-8-GR	184	168	73.5
VABM-L1-10HWS2-G18-12-GR	226	210	115.5
VABM-L1-10HWS2-G18-16-GR	268	252	157.5
VABM-L1-10HWS2-G18-24-GR	352	336	241.5
VABM-L1-10HWS2-H-G18-8-GR	184	168	73.5
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

Data sheet – Manifold rail VABM

Dimensions – Manifold rail outlet orientation at the front

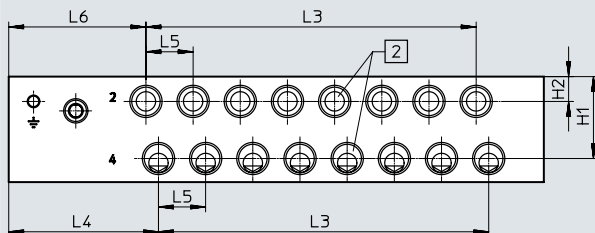
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Size 10, I-Port interface on top



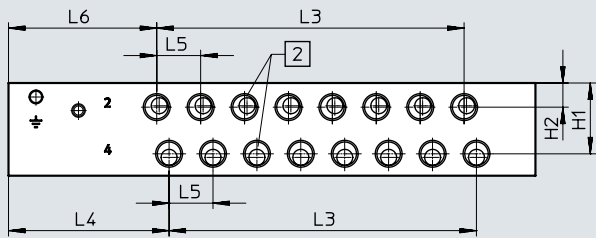
[2] Ports 2 and 4

Size 18, I-Port interface on top



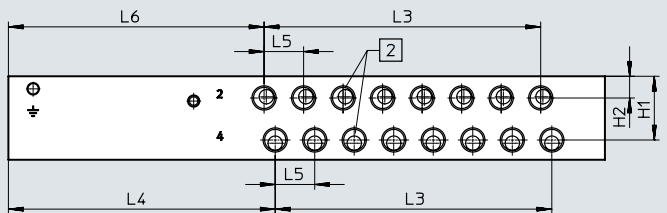
[2] Ports 2 and 4

Size 14, I-Port interface on top



[2] Ports 2 and 4

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



[2] Ports 2 and 4

Size	Ports 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	Ports 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

## Data sheet – Manifold rail VABM

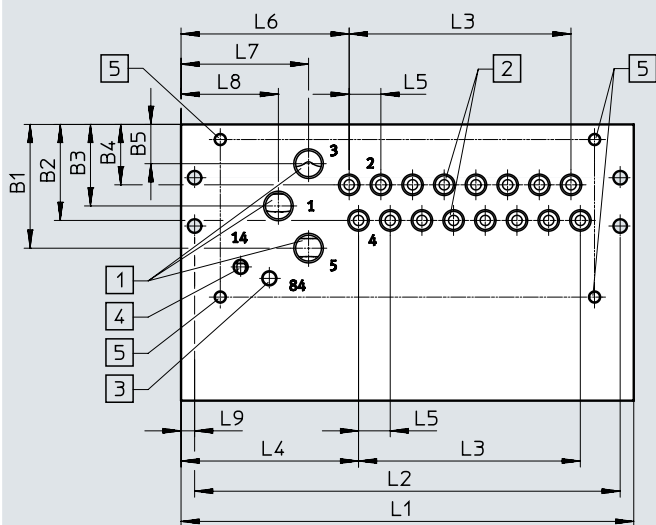
Type	Number of valve positions	Size 10	Size 14	Size 18
		L3	L3	L3
VABM	4	31.5	48	57
	5	42	64	76
	6	52.5	80	95
	7	63	96	114
	8	73.5	112	133
	9	84	128	152
	10	94.5	144	171
	12	115.5	176	209
	16	157.5	240	285
	20	199.5	304	361
	24	241.5	368	437

## Data sheet – 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 59

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

## Data sheet – 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

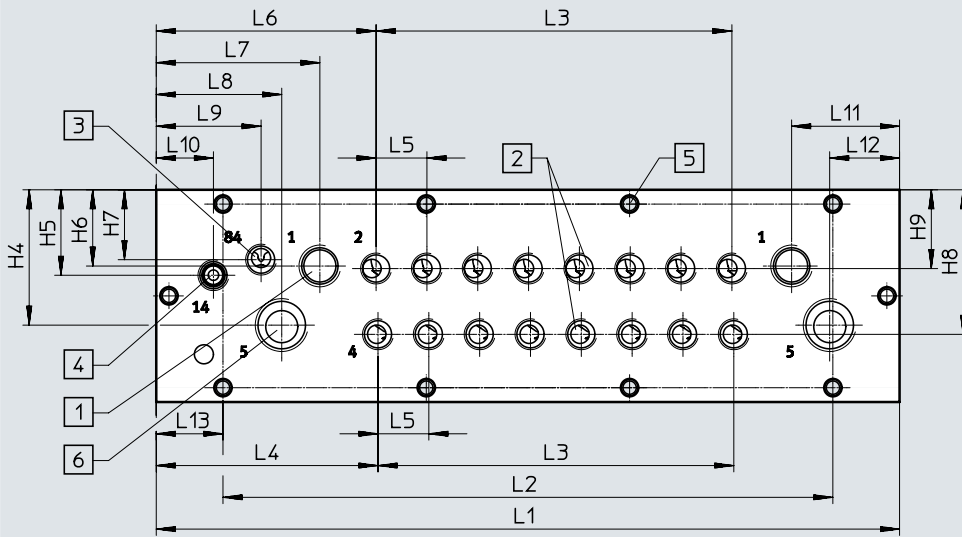
Type	No. of valve positions	Manifold rail with I-Port interface Size 10			Manifold rail with I-Port interface Size 14			Manifold rail with I-Port interface Size 18		
		L1 +5	L2 +5	L3	L1	L2	L3	L1	L2	L3
		VABM	4	152.5	143.5	31.5	177.5	167.5	48	181
	5	163	154	42	193.5	183.5	64	200	190	76
	6	173.5	164.5	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

Data sheet – 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 82/84: sizes 10 and 14: G1/8
- [4] Ports 12/14: sizes 10 and 14: G1/8
- [5] Mounting holes, outlet orientation underneath: M5

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									



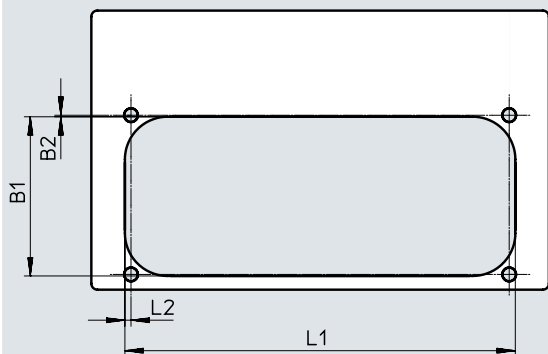
## Data sheet – Manifold rail VABM

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

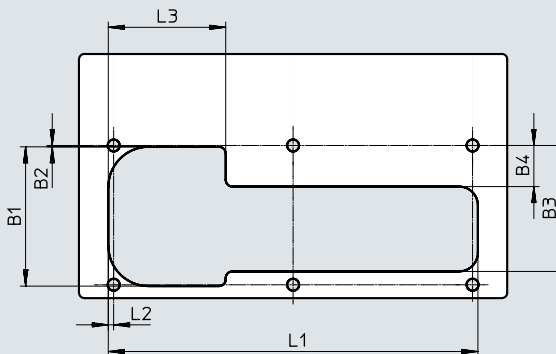
## Data sheet – Manifold rail VABM

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

Up to 8 valves



9 or more valves

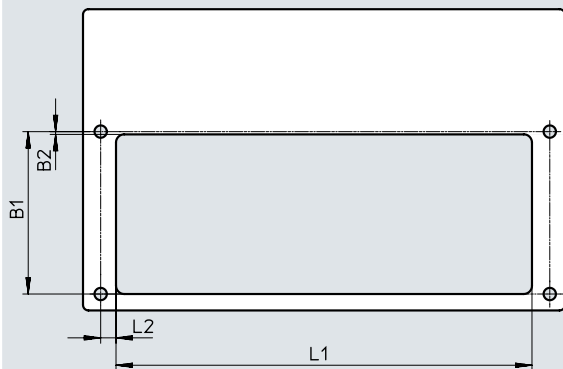


Type	B1	B2	L1	L2
VABM-L1-10...G18-4	52.7	0.5	86	2
VABM-L1-10...G18-5			96.5	
VABM-L1-10...G18-6			107	
VABM-L1-10...G18-7			117.5	
VABM-L1-10...G18-8			128	

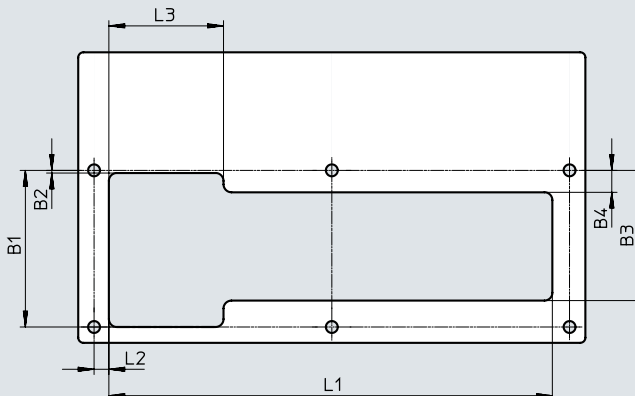
Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-10...G18-9	52.7	0.5	47.2	15.4	138.5	2	44
VABM-L1-10...G18-10					149		
VABM-L1-10...G18-12					170		
VABM-L1-10...G18-16					212		
VABM-L1-10...G18-20					254		
VABM-L1-10...G18-24					296		

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

Up to 7 valves



8 or more valves

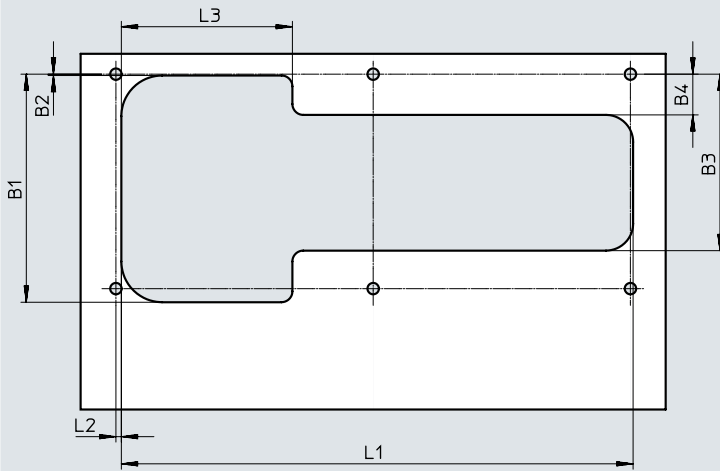


Type	B1	B2	L1	L2
VABM-L1-14...G14-4	59.3	1	103.9	5.6
VABM-L1-14...G14-5			119.9	
VABM-L1-14...G14-6			135.9	
VABM-L1-14...G14-7			151.9	

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		

## Data sheet – Manifold rail VABM

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

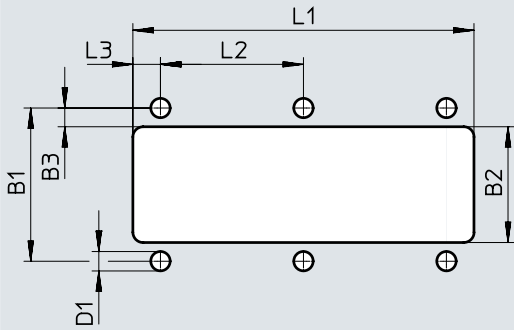


Type	B1	B2	B3	B4	L1	L2	L3
VABM-L1-18...G38-4	83.5	0.5	65	15	112.5	2	63
VABM-L1-18...G38-5					131.5		
VABM-L1-18...G38-6					150.5		
VABM-L1-18...G38-7					169.5		
VABM-L1-18...G38-8					188.5		
VABM-L1-18...G38-9					207.5		
VABM-L1-18...G38-10					226.5		
VABM-L1-18...G38-12					264.5		
VABM-L1-18...G38-16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

## Data sheet – Manifold rail VABM

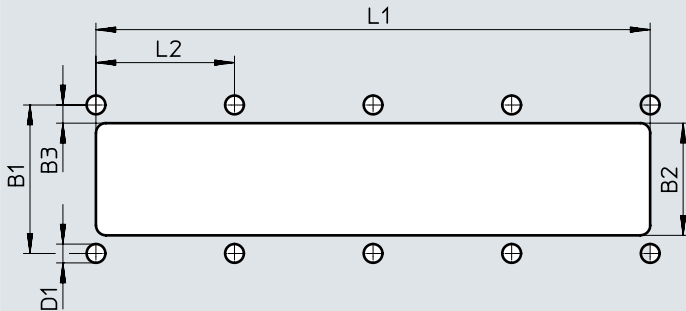
### Dimensions – Recess for control cabinet installation, outlet orientation at the front, size 10

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		

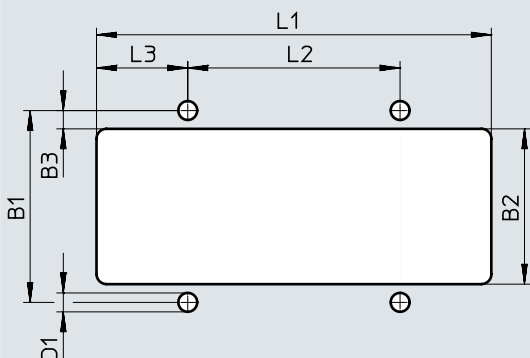
Double supply, 8 or more valves



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

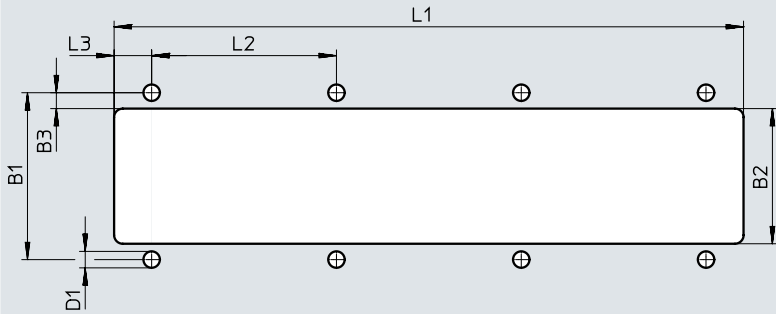


Type	B1	B2	B3	D1	L1	L2	L3
VABM-L1-14HWS1-G14-4-GR	57.8	46.8	5.5	5.7	119	64	27.5
VABM-L1-14HWS1-G14-8-GR					183		

Data sheet – Manifold rail VABM

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

Double supply, 8 or more valves

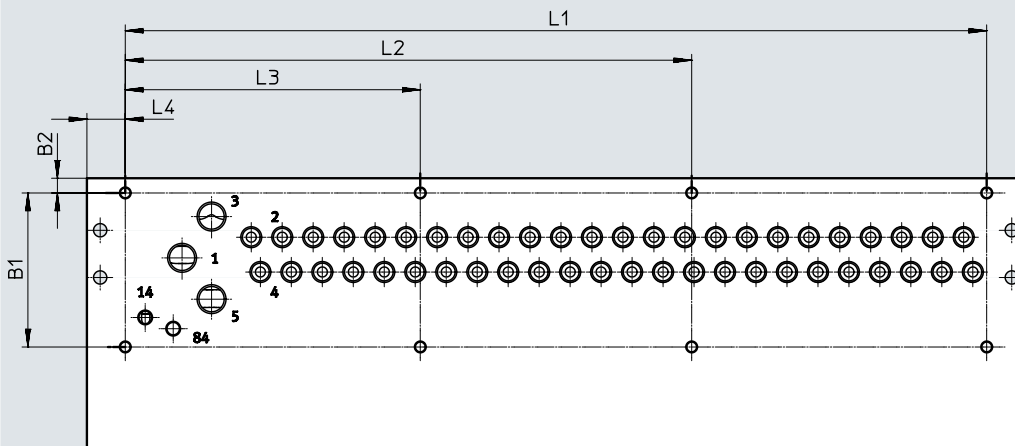


Type	B1	B2	B3	D1	L1	L2	L3
VABM-L1-14HWS2-G14-...-8-GR	57.8	46.8	5.5	5.7	218	64	13
VABM-L1-14HWS2-G14-...-12-GR					282		
VABM-L1-14HWS2-G14-...-16-GR					346		
VABM-L1-14HWS2-G14-...-24-GR					474		

**Dimensions – Mounting holes for control cabinet installation, size 10**

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Outlet orientation underneath



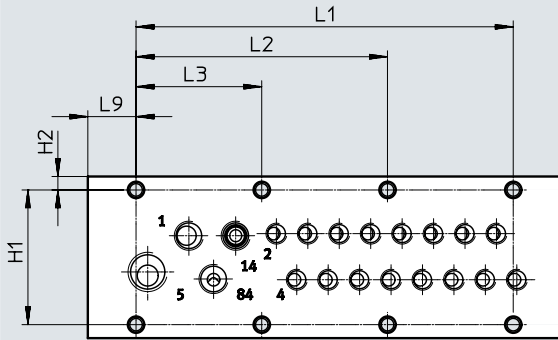
Type		Outlet orientation of electrical components on top						I-Port interface on the side
		B1	B2	L1	L2	L3	L4	L4
VABM-L1-10...-G18-4	Up to 8 valves	52.2	5	82	-	-	13	62.5
VABM-L1-10...-G18-5				92.5	-	-		
VABM-L1-10...-G18-6				103	-	-		
VABM-L1-10...-G18-7				113.5	-	-		
VABM-L1-10...-G18-8				124	-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

## Data sheet – Manifold rail VABM

### Dimensions – Mounting holes for control cabinet installation, size 10

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Outlet orientation at the front



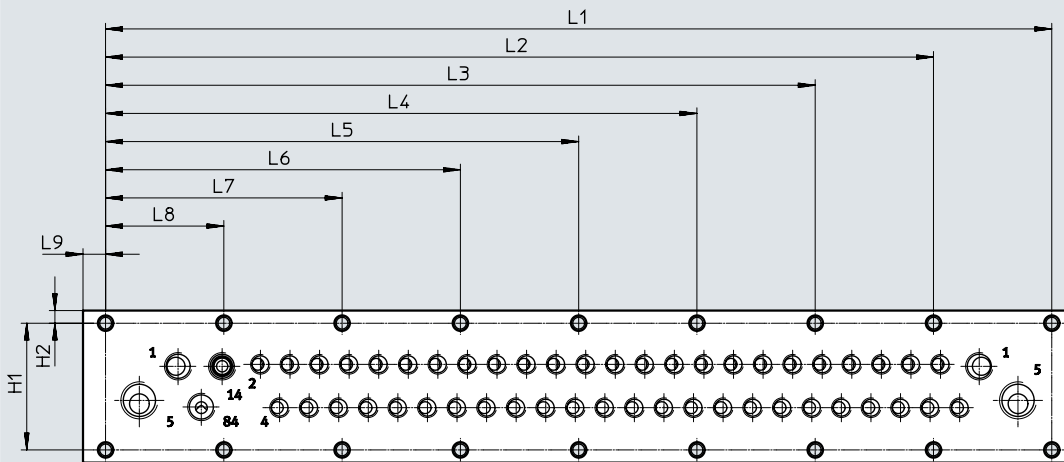
Type	H1	H2	L1	L2	L3	L9
VABM-L1-10HWS1-G18-4-GR	45	4.5	84	–	42	16.1
VABM-L1-10HWS1-G18-8-GR	45	4.5	126	84	42	16.1

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

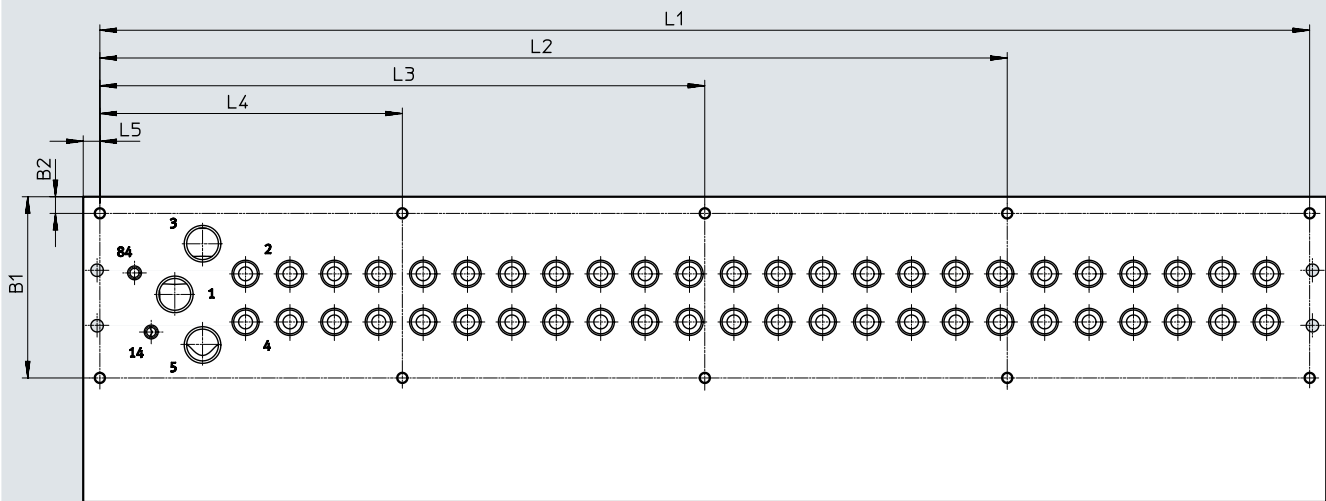
Type	No. of valve positions	No. of mounting holes
VABM-L1-10HWS2-...-8-GR	8	5
VABM-L1-10HWS2-...-12-GR	12	6
VABM-L1-10HWS2-...-16-GR	16	7
VABM-L1-10HWS2-...-24-GR	24	9

Data sheet – Manifold rail VABM

Dimensions – Mounting holes for control cabinet installation, size 14

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Outlet orientation underneath



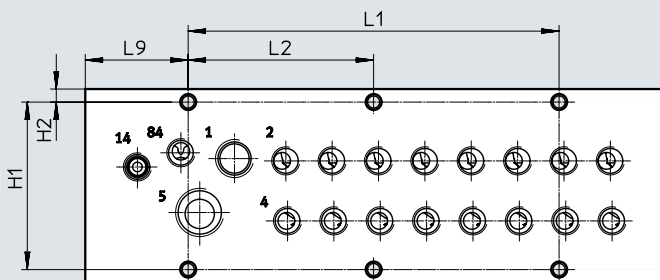
Type		Outlet orientation of electrical components on top							I-Port interface on the side
		B1	B2	L1	L2	L3	L4	L5	L4
VABM-L1-14...-G14-4	Up to 8 valves	59.3	6	116	-	-	-	6	55.5
VABM-L1-14...-G14-5				132	-	-	-		
VABM-L1-14...-G14-6				148	-	-	-		
VABM-L1-14...-G14-7				164	-	-	-		
VABM-L1-14...-G14-8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

### Data sheet – Manifold rail VABM

**Dimensions – Mounting holes for control cabinet installation, size 14**

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Outlet orientation at the front



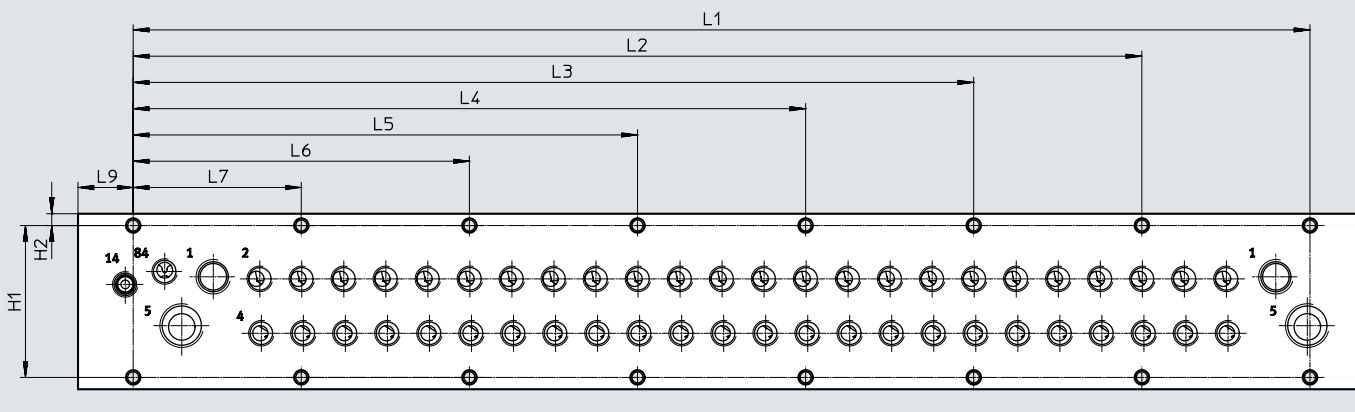
Type	H1	H2	L1	L2	L9
VABM-L1-14HWS1-G14-4-GR	57.8	4.5	64	–	35.5
VABM-L1-14HWS1-G14-8-GR	57.8	4.5	128	64	35.5

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**

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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

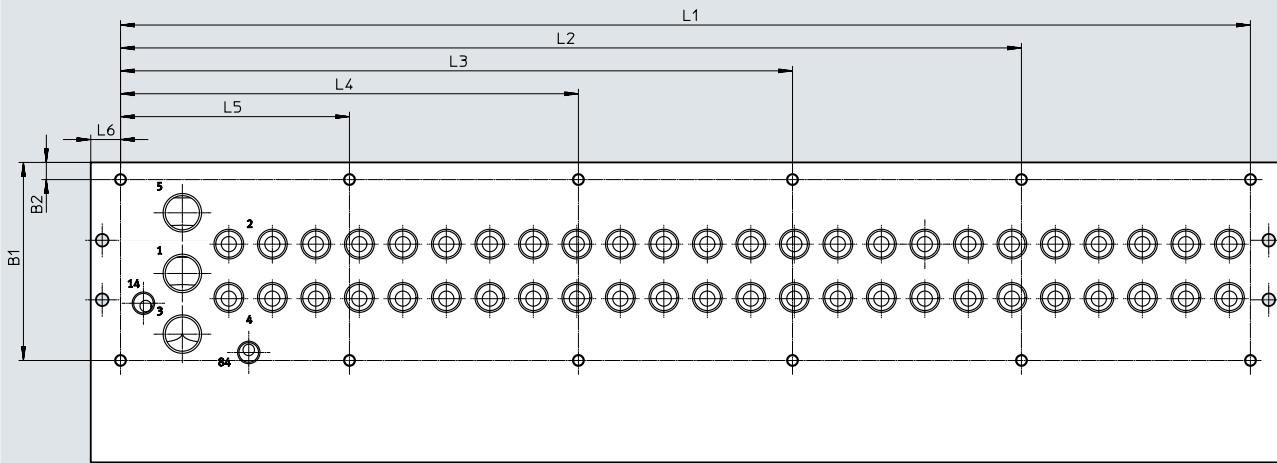


Data sheet – Manifold rail VABM

Dimensions – Mounting holes for control cabinet installation, size 18

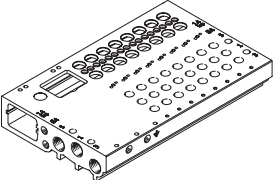
Download CAD data → [www.festo.com](http://www.festo.com)

Outlet orientation underneath

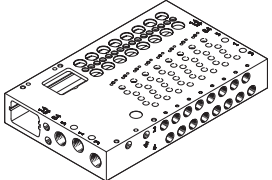


Type		Outlet orientation of electrical components							I-Port interface on the side
		B1	B2	L1	L2	L3	L4	L5	L4
VABM-L1-18...-G38-4	4 valves and 5 valves	86.5	7.5	113.5	-	-	-	-	54.5
VABM-L1-18...-G38-5				132.5	-	-	-	-	
VABM-L1-18...-G38-6	6 to 10 valves	86.5	7.5	151.5	-	-	-	75.8	54.5
VABM-L1-18...-G38-7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

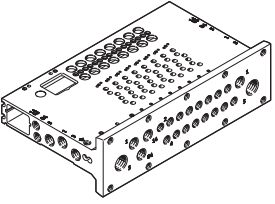
Ordering data

Ordering data	Description	Part no.	Type	
<b>Manifold rail for semi in-line valve</b>				
	<b>Size 10 mm</b>			
	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
	<b>Size 14 mm</b>			
	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
	<b>Size 18 mm</b>			
	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	
<b>Manifold rail for sub-base valve</b>				
	<b>Size 10 mm</b>			
	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	
	<b>Size 14 mm</b>			
	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	
	<b>Size 18 mm</b>			
	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		

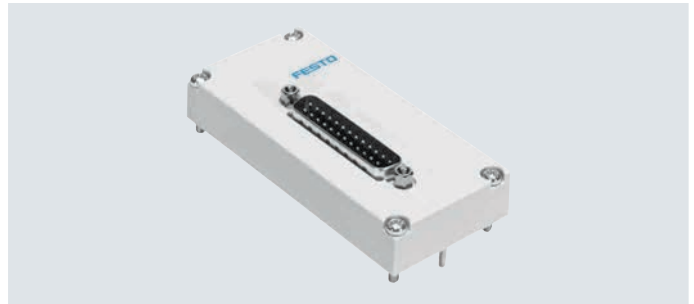
## Ordering data

Ordering data	Description	Part no.	Type	
<b>Manifold rail for sub-base valve, for control cabinet installation, outlet orientation at the front</b>				
	<b>Size 10 mm</b>			
	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
	<b>Size 14 mm</b>			
	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

## Data sheet – 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 74)

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 connector	
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) c CSA us (OL)			
CE marking (see declaration of conformity) <sup>1)</sup>	To EU EMC Directive			
Corrosion resistance class CRC <sup>2)</sup>	2			
Weight [g]	53		45	48

1) For information about the area of use, see the EC declaration of conformity at: [www.festo.com/sp](http://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.

Data sheet – Multi-pin plug connection

Pin allocation – Sub-D plug, 25-pin												
	Pin	Wire colour <sup>1)</sup>	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 0...3	

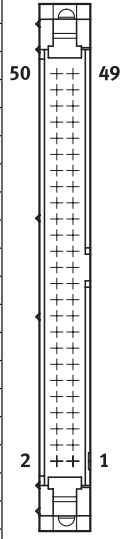
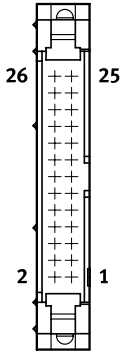
1) To IEC 60757  
VP Valve position

 **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.



Data sheet – Multi-pin plug connection

Pin allocation – Ribbon cable, 26-pin										Pin allocation – Ribbon cable, 50-pin			
Pin	M3-26 (V20)				Pin	M3-50 (V26)							
	12x double solenoid	8x double solenoid 8x single solenoid	4x double solenoid 16x single solenoid	24x single solenoid		Pin	M3-50 (V26)						
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		
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-									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

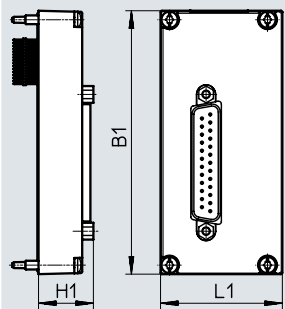



## Data sheet – Multi-pin plug connection

### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Multi-pin plug connection, Sub-D



-  - **Note**

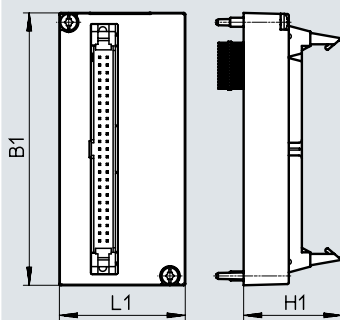
Dimensions of the manifold rail with electrical connection  
(→ Page 48)


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

### Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

Multi-pin plug connection, ribbon cable

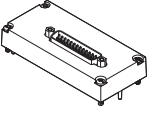
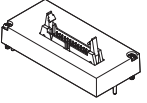
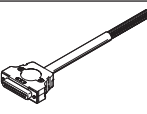
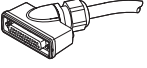


-  - **Note**

Dimensions of the manifold rail with electrical connection  
(→ Page 48)

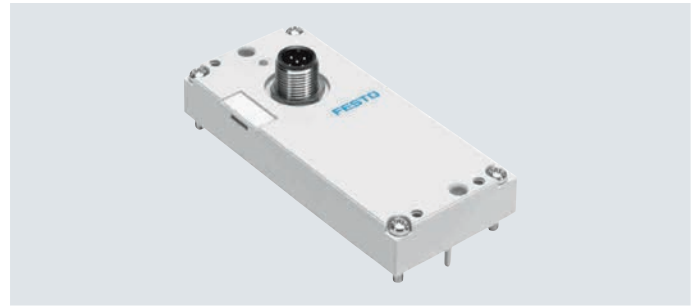
Type	B1	L1	H1
VAEM-L1-S-M3-...	90.5	41.9	32.7

Accessories – Multi-pin plug connection

Ordering data		Description	Part no.	Type	
<b>Electrical interface, Sub-D</b>					
	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	
<b>Electrical interface, ribbon connector</b>					
	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	
<b>Connecting cable for multi-pin plug</b>					
	Sub-D socket, straight	<ul style="list-style-type: none"> <li>• 25-pin, up to 24 coils, IP40</li> <li>• Open cable end, 25-wire</li> </ul>	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
	Sub-D socket, angled	<ul style="list-style-type: none"> <li>• 44-pin, up to 42 coils, IP40</li> <li>• Open cable end, 44-wire</li> </ul>	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, straight	<ul style="list-style-type: none"> <li>• 25-pin, up to 24 coils, IP65</li> <li>• Open cable end, 25-wire</li> </ul>	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
	Sub-D socket, angled	<ul style="list-style-type: none"> <li>• 44-pin, up to 42 coils, IP65</li> <li>• Open cable end, 44-wire</li> </ul>	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

## Data sheet – I-Port interface/IO-Link

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



### I-Port interface/IO-Link

Versions:

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

The following protocols are supported in connection with the associated

CTEU bus node:

- CANopen
- DeviceNet
- PROFIBUS
- CC-Link
- EtherCAT
- AS-Interface
- PROFINET
- EtherNet/IP
- VARAN
- CPI-B

The electrical supply/transmission of communication 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"> <li>• M12 plug, 5-pin</li> <li>• A-coded</li> <li>• Metal thread for shielding</li> </ul>	
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)	
		c CSA us (OL)	
CE marking (see declaration of conformity) <sup>1)</sup>		To EU EMC Directive	
Corrosion resistance class CRC <sup>2)</sup>		2	

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

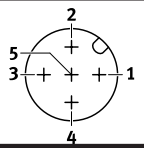
If the devices are subject to usage restrictions in residential, commercial or light-industrial environments, further measures for the reduction of the emitted interference may be necessary.

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

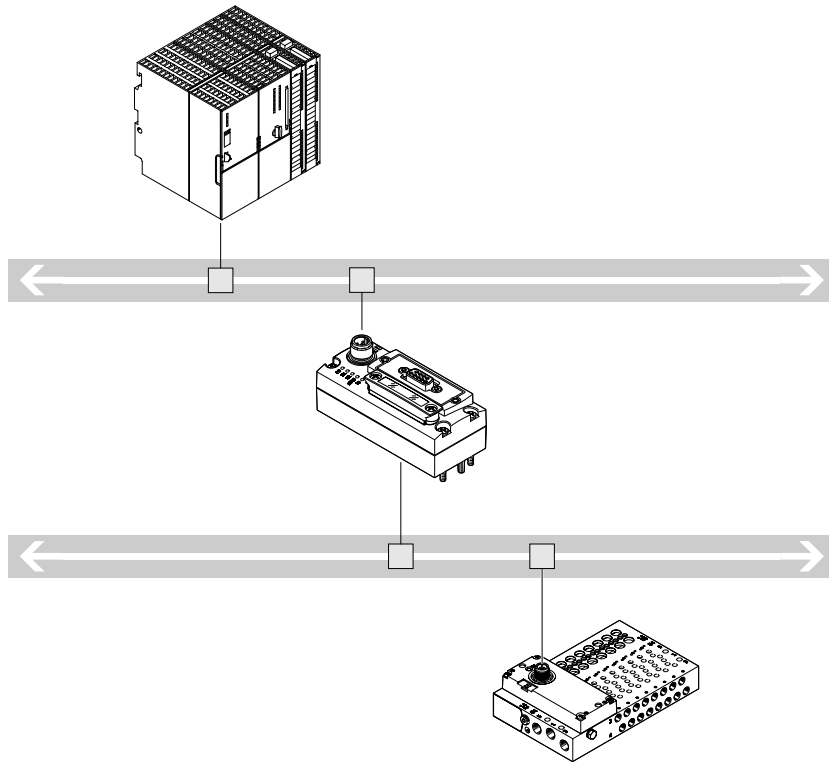
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

## Data sheet – 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 <sub>EL/SEN</sub>	Operating voltage supply (electronics, sensors/inputs)
	2	24V <sub>VAL/OUT</sub>	Load voltage supply (valves/outputs)
	3	0V <sub>EL/SEN</sub>	Operating voltage supply (electronics, sensors/inputs)
	4	C/Q	Data communication
	5	0V <sub>VAL/OUT</sub>	Load voltage supply (valves/outputs)

### System overview – IO-Link



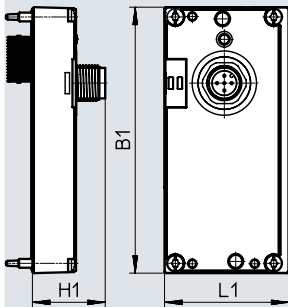
- Communication with the higher-order controller via fieldbus
- Use a bus node CTEU compatible with the fieldbus protocol
- Up to 64 inputs/outputs (solenoid coils), depending on the valve terminal
- No preprocessing

## Data sheet – I-Port interface/IO-Link

## Dimensions

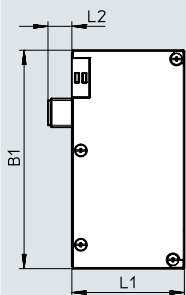

 Download CAD data → [www.festo.com](http://www.festo.com)

I-Port interface, outlet on top


 **Note**

 Dimensions of the manifold rail with electrical connection  
 → page 48

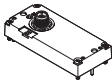





I-Port interface, outlet on the side


 **Note**

 Dimensions of the manifold rail with electrical connection  
 → page 48

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
<b>Electrical interface for I-Port interface/IO-Link, outlet on top</b>		
 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
<b>Electrical interface for I-Port interface/IO-Link, outlet on the side</b>		
 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
<b>Connection technology for IO-Link</b>		
 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
<b>Inscription label for I-Port interface/IO-Link</b>		
 40 pieces in frame	565306	ASLR-C-E4

## Data sheet – 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.

### Areas 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 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 <sup>1)</sup>	2	
CE marking (see declaration of conformity) <sup>2)</sup>	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/sp](http://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.

### Pin allocation – Power supply/IO-Link interfaces

	Pin	Allocation	Description
	1	24V <sub>EL/SEN</sub>	Operating voltage supply (electronics, sensors/inputs)
	2	24V <sub>VAL/OUT</sub>	Load voltage supply (valves/outputs)
	3	0V <sub>EL/SEN</sub>	Operating voltage supply (electronics, sensors/inputs)
	4	C/Q	Data communication
	5	0V <sub>VAL/OUT</sub>	Load voltage supply (valves/outputs)
			Housing, FE

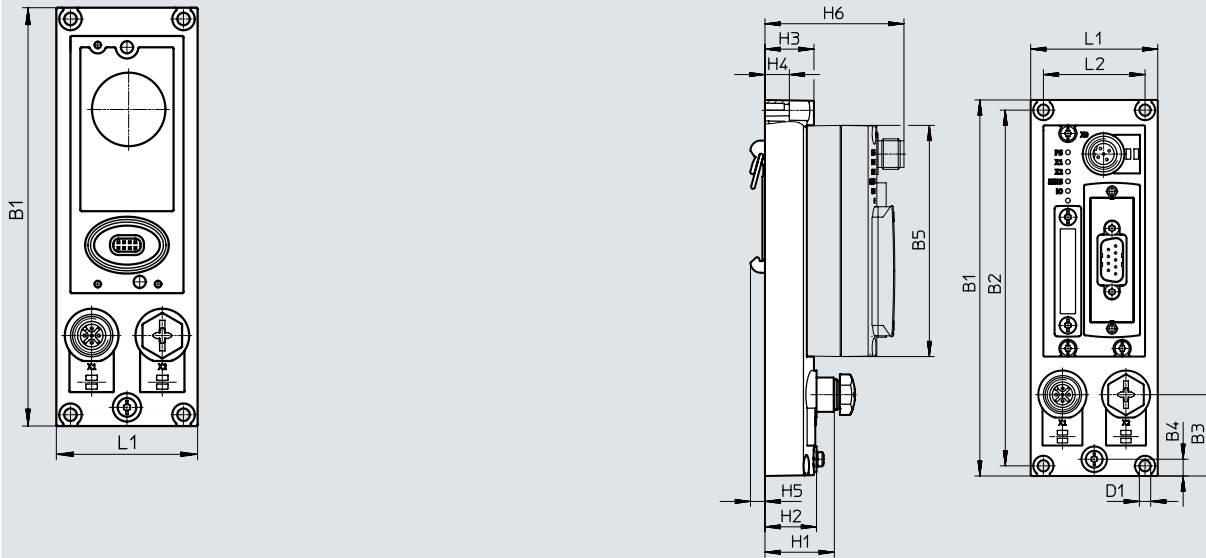
Data sheet – CAPC

Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

CAPC

CAPC with mounted bus node CTEU-CO

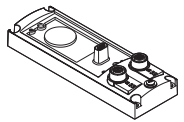


Type	B1	B2	B3	B4	B5	D1 $\varnothing$	H1	H2	H3	H4	H5	H6	L1	L2
CAPC	148	140	32	6.6	91	4.4	27.3	20.3	19.3	9.6	5.7	54.8	50	40

Ordering data

Part no. Type

Electrical connection block

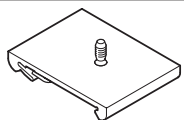


For connecting a second device with I-Port interface

570042

CAPC-F1-E-M12

H-rail mounting

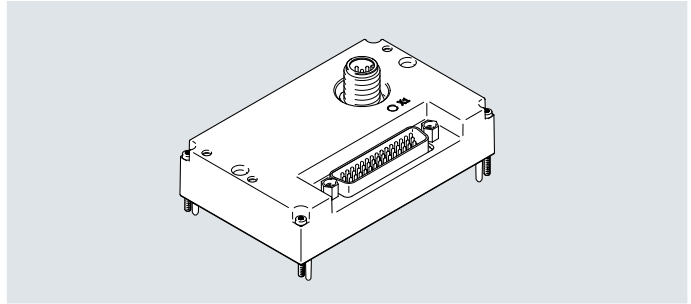


For electrical connection block CAPC

570043

CAFM-F1-H

## Data sheet – Interlock



### Interlock

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

This guarantees the safety-related enabling of these valves.

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

### General technical data

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 <sub>SS</sub> ]		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 <sup>1)</sup>			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.



## Data sheet – Interlock

### Interlock interface

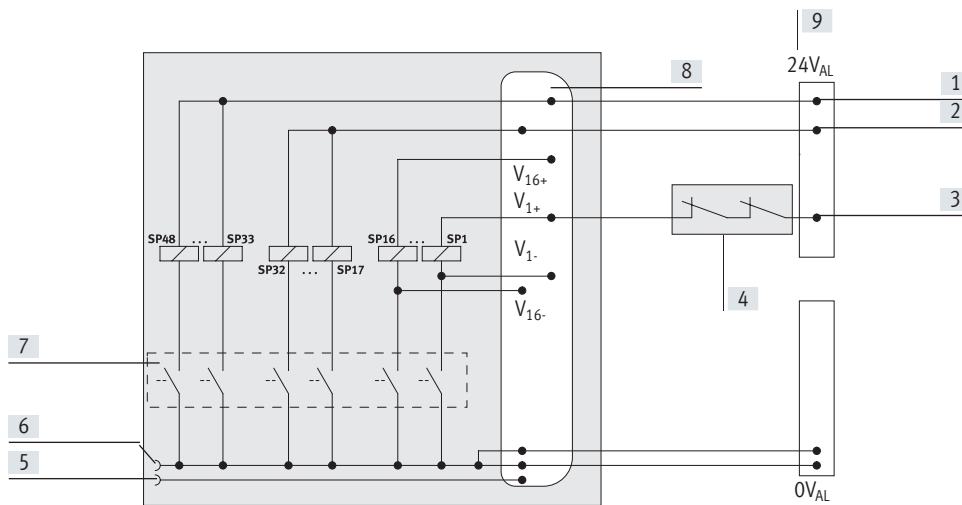
#### Single-pin interlock interface

- 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

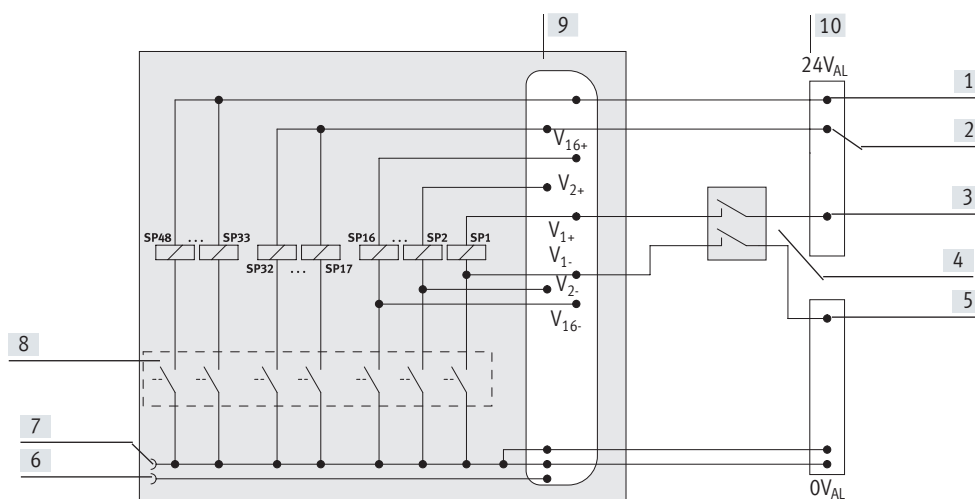
- The interlock interface is established via external positive-negative switching safety terminals
- The solenoid coils of the interlock valves are actuated via the corresponding pins in the sub-D plug (pins 7 ... 38)
- The solenoid coils that do not require interlock actuation can be supplied directly 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)

Data sheet – Interlock

Pin allocation – Interlock

	Pin	Coil	Signal	Pin	Coil	Signal	Pin	Coil	Signal
	1	-	24 V <sub>VAL/OUT</sub>	16	5	V5-	31	13	V13+
	2	-	24 V <sub>VAL/OUT</sub>	17	6	V6+	32	13	V13-
	3	-	24 V <sub>VAL/OUT</sub>	18	6	V6-	33	14	V14+
	4	1 ... 48	0 V <sub>VAL/OUT</sub>	19	7	V7+	34	14	V14-
	5	1 ... 48	0 V <sub>VAL/OUT</sub>	20	7	V7-	35	15	V15+
	6	1 ... 48	0 V <sub>VAL/OUT</sub>	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 <sub>VAL/OUT</sub>
	12	3	V3-	27	11	V11+	42	1 ... 48	0 V <sub>VAL/OUT</sub>
	13	4	V4+	28	11	V11-	43	1 ... 48	0 V <sub>VAL/OUT</sub>
	14	4	V4-	29	12	V12+	44	-	n.c.
	15	5	V5+	30	12	V12-	Housing		FE

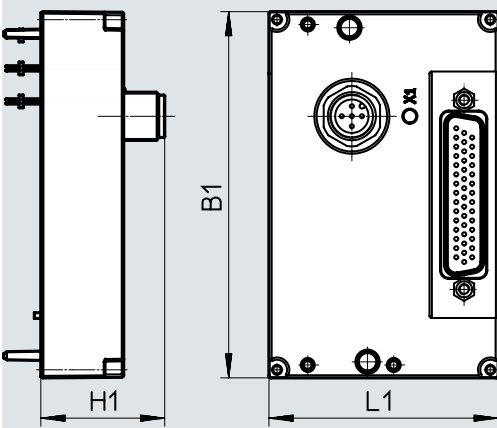
Pin allocation – I-Port interface/IO-Link

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

Dimensions

I-Port interface with interlock, outlet on top

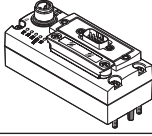
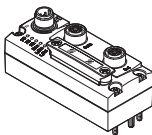
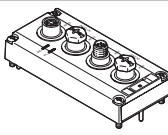
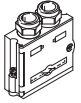
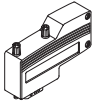
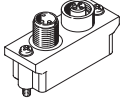
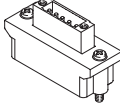
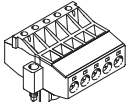
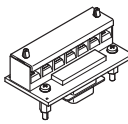
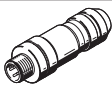
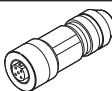
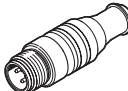
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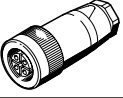

- - **Note**  
 Dimensions of the manifold rail with electrical connection  
 → page 48

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


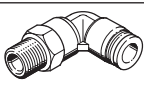
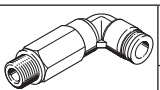


## Accessories – Valve terminal

Ordering data – CTEU		Description	Part no.	Type
<b>Bus node</b>				
	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
<b>Electrical interface</b>				
	For direct integration of the valve terminal into the decentralised IO system CPX-API		8081922	VAEM-L1-S-12-AP
			8081923	VAEM-L1-S-24-AP
<b>Bus connection</b>				
	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
	Screw terminal for CC-Link		197962	FBA-1-KL-5POL
	Straight plug, 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

## Accessories – Valve terminal

Ordering data – CTEU			
	Description	Part no.	Type
<b>Plug socket</b>			
	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
<b>Inscription label</b>			
	For bus node	565306	ASLR-C-E4

## Accessories – Valve terminal

Ordering data		Description	Part no.	Type	PJ <sup>1)</sup>		
		Push-in fitting, straight				Data sheets → Internet: qsm	
		M5 thread	For tubing Ø 3 mm	–	153313	QSM-M5-3-I	10
		M5 thread	Round releasing ring	–	133003	QSM-M5-3-I-R	10
			For tubing Ø 4 mm	–	★ 153315	QSM-M5-4-I	10
		M5 thread	For tubing Ø 4 mm	Round releasing ring	133004	QSM-M5-4-I-R	10
			For tubing Ø 6 mm	Round releasing ring	133005	QSM-M5-6-I-R	10
		M7 thread	For tubing Ø 4 mm	–	★ 153319	QSM-M7-4-I	10
			For tubing Ø 6 mm	Round releasing ring	133007	QSM-M7-6-I-R	10
		G1/8 thread	For tubing Ø 4 mm	–	★ 186106	QS-G1/8-4-I	10
			For tubing Ø 6 mm	–	★ 186107	QS-G1/8-6-I	10
			For tubing Ø 8 mm	–	★ 186109	QS-G1/8-8-I	10
		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		
		R3/8 thread	For tubing Ø 12 mm	–	★ 190649	QS-1/4-12-I	10
			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				Data sheets → Internet: qsl	
		M5 thread	For tubing Ø 3 mm	–	153331	QSML-M5-3	10
		M5 thread	For tubing Ø 4 mm	–	★ 153333	QSML-M5-4	10
			M7 thread	For tubing Ø 4 mm	–	★ 186352	QSML-M7-4
		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	1
			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				Data sheets → Internet: qsl	
		M5 thread	For tubing Ø 3 mm	–	130838	QSMLL-M5-3	10
		M5 thread	For tubing Ø 4 mm	–	153339	QSMLL-M5-4	10
			M7 thread	For tubing Ø 4 mm	–	186354	QSMLL-M7-4
		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				Data sheets → 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.



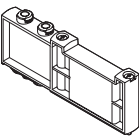
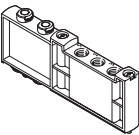

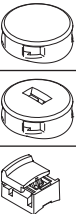


Festo core product range



Generally ready for shipping ex works in 24 hours

Generally ready for shipping ex works in 5 days

## Accessories – Valve terminal

Ordering data		Description	Part no.	Type	PU <sup>1)</sup>
Silencer					Data sheets → 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 14 mm		573488	VABB-L1-14-T	1
	Vacant position width 18 mm		8004897	VABB-L1-18-T	1
Supply plate					
	Supply ports 1, 3, 5, width 10 mm		573924	VABF-L1-10-P3A4-M7-T1	1
	Supply ports 1, 3, 5, width 14 mm		573925	VABF-L1-14-P3A4-G18-T1	1
	Supply ports 1, 3, 5, width 18 mm		8004898	VABF-L1-18-P3A4-G14-T1	1
Separator					
	For manifold rail, size 10, M5/M7	For sub-base valves	569994	VABD-6-B	1
		For semi in-line valves	569995	VABD-8-B	1
	For all manifold rails, size 14		569996	VABD-10-B	1
	For all manifold rails, size 18		569997	VABD-12-B	1
Cover cap for manual override					
	Covered		540898	VMPA-HBV-B	10
	Non-detenting		540897	VMPA-HBT-B	10
	Detenting (without accessories)		8002234	VAMC-L1-CD	10
Identification holder					Data sheets → Internet: aslr
	Holder for an inscription label and covering for the retaining screw and manual override		570818	ASLR-D-L12	10
Screw set					Data sheets → Internet: vamer
	Control cabinet retaining screw set for IP67		8092501	VAME-S-M5-16-R1-P10	

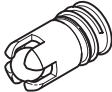




Festo core product range



Generally ready for shipping ex works in 24 hours

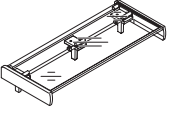
Generally ready for shipping ex works in 5 days

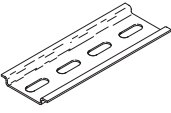
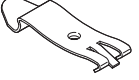
## Accessories – Valve terminal

Ordering data		Description	Part no.	Type	PJ <sup>1)</sup>	
<b>Check valve</b>						
	For manifold rails VABM-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 VABM-L1-14...		8047365	VABF-L1-14-H2	10	
<b>Flow restrictor</b>						
	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: 1.55 mm	8025715	VFFG-T-M5-15	10
			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
<b>Flow control set</b>						
	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	

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	573511 ASCF-H-L1-14-4V
		For 5 valve positions	573512 ASCF-H-L1-14-5V
		For 6 valve positions	573513 ASCF-H-L1-14-6V
		For 7 valve positions	573514 ASCF-H-L1-14-7V
		For 8 valve positions	573515 ASCF-H-L1-14-8V
		For 9 valve positions	573516 ASCF-H-L1-14-9V
		For 10 valve positions	573518 ASCF-H-L1-14-10V
		For 12 valve positions	573519 ASCF-H-L1-14-12V
		For 16 valve positions	573520 ASCF-H-L1-14-16V
	For 20 valve positions	573521 ASCF-H-L1-14-20V	
	For 24 valve positions	573522 ASCF-H-L1-14-24V	
	Size 18	For 4 valve positions	8004928 ASCF-H-L1-18-4V
		For 5 valve positions	8004929 ASCF-H-L1-18-5V
		For 6 valve positions	8004930 ASCF-H-L1-18-6V
		For 7 valve positions	8004931 ASCF-H-L1-18-7V
		For 8 valve positions	8004932 ASCF-H-L1-18-8V
For 9 valve positions		8004933 ASCF-H-L1-18-9V	
For 10 valve positions		8004934 ASCF-H-L1-18-10V	
For 12 valve positions		8004935 ASCF-H-L1-18-12V	
For 16 valve positions		8004936 ASCF-H-L1-18-16V	
For 20 valve positions	8004937 ASCF-H-L1-18-20V		
For 24 valve positions	8004938 ASCF-H-L1-18-24V		

Ordering data	Description	Part no.	Type
H-rail <span style="float: right;">Data sheets → Internet: nrh</span>			
	To EN 60715, 35 x 7.5 (WxH)	2 m long	35430 NRH-35-2000
H-rail mounting <span style="float: right;">Data sheets → Internet: vame</span>			
	Use the following screws for mounting: Size 10: DIN 912: M4x30 Size 14: DIN 912: M4x40 Size 18: DIN 912: M5x50	★ 569998	VAME-T-M4





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