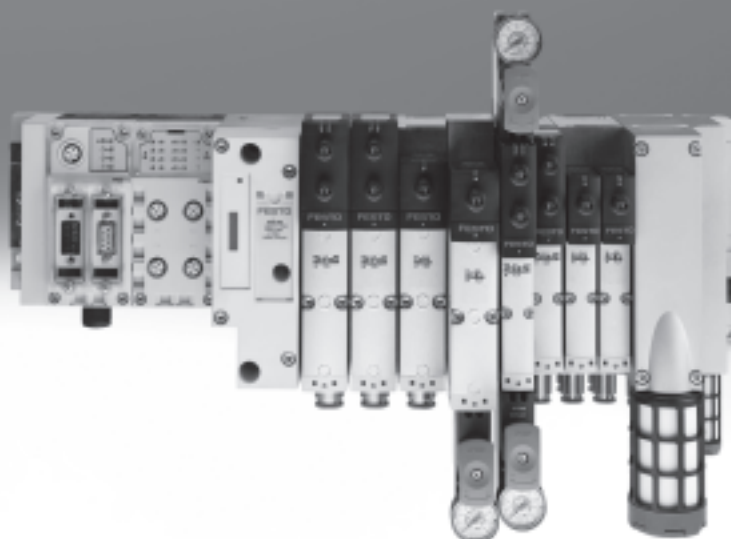


Valve terminals type 45 VTSA-F

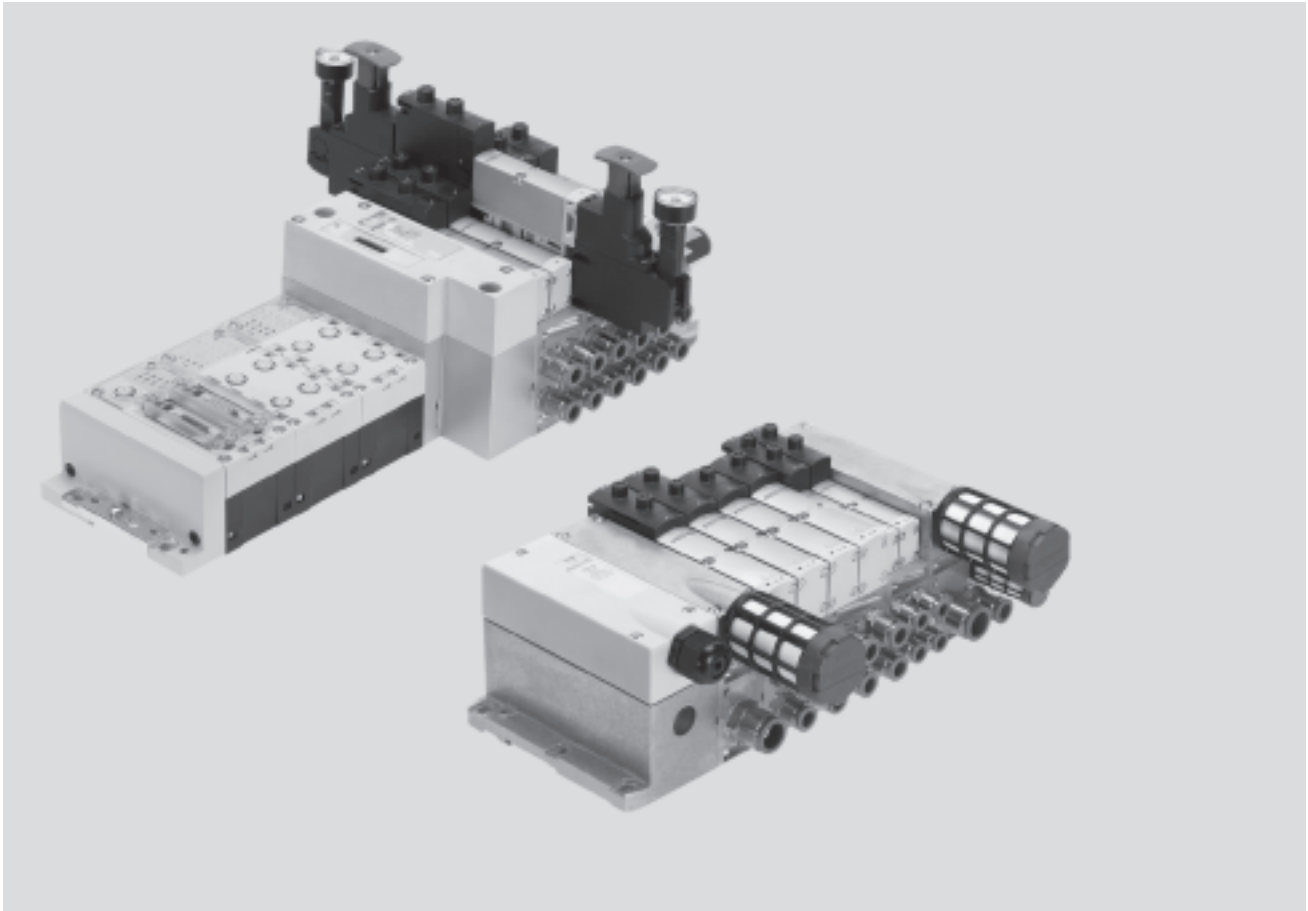
FESTO



Valve terminals type 45 VTSA-F

Key features

FESTO



Innovative

- High-performance valves in sturdy metal housing
- With the VTSA-F the full performance of the Festo valves with a flow rate of up to 1,400 l/min is available
- Standardised from the multi-pin plug to the fieldbus connection and control block
- Dream team: fieldbus valve terminal suitable for CPX electrical peripherals. This means:
 - Forward-looking internal communication system for actuating the valves and CPX modules
- Valve functions for integration in control architectures of higher categories to DIN EN 13849-1

Versatile

- Modular system offering a range of configuration options
- Expandable with up to 32 solenoid coils
- Conversions and extensions are possible at any time
- Manifold sub-bases can be extended using four screws, sturdy duct separation on metal substrate
- Integration of innovative function modules possible
- Supply plates enable a flexible air supply and variable pressure zones
- Reverse operation
- High pressure range
–0.9 ... 10 bar
- Wide range of valve functions
- Valve supply: 24 V DC or 110 V AC

Reliable

- Sturdy and durable metal components
 - Valves
 - Manifold sub-bases
 - Seals
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Reliability of service thanks to valves that can be replaced quickly and easily
- Manual override either non-detenting, non-detenting/detenting or covered
- Durable thanks to tried-and-tested piston spool valves
- Large and durable labelling system
- 100% duty cycle

Easy to mount

- Ready-to-install and tested unit
- Lower selection, ordering, installation and commissioning costs
- Secure mounting on wall or H-rail

Valve terminals type 45 VTSA-F

Key features

Reduced downtimes:
On-the-spot diagnostics via LEDs

Width 18 mm and 26 mm can be combined on a single terminal without adapter

Pneumatic interface to CPX

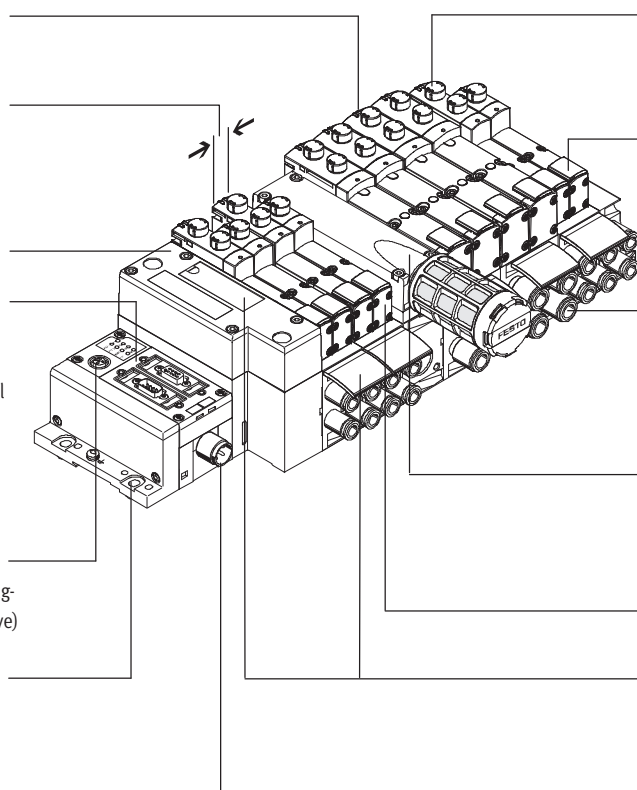
Simple electrical connections

- Fieldbus connection via CPX
- Multi-pin plug connection with pre-assembled cable or terminal strip (Cage Clamp®)
- Control block via CPX
- AS-interface
- Individual connection

CPX diagnostic interface for handheld devices (channel-oriented diagnostics down to the individual valve)

Quick mounting:
Direct mounting using screws or H-rail

Safe:
Valves, outputs and logic voltage can be switched off separately



Reliable operation:
Manual override, non-detenting/detenting or covered

Flexible:

- 32 valve positions/32 solenoid coils
- One valve series for a wide range of flow rates

Functional:
Large ports, flow-optimised ducts, sturdy metal thread or pre-assembled QS connectors

Modular:
Supply plates facilitate the creation of multiple pressure zones as well as numerous additional exhaust and supply ports

Comprehensive range of valve functions

Practical:
Large inscription labels

Equipment options

Valve functions

- 2x 2/2-way valve, single solenoid, pneumatic spring, normally closed
- 2x 3/2-way valve, single solenoid
 - Normally open
 - Normally open, reversible
 - Normally closed
 - Normally closed, reversible
- 2x 3/2-way valve, single solenoid
 - 1x normally open, 1x normally closed
 - 1x normally open, 1x normally closed, reversible
- 5/2-way valve
 - Single solenoid, pneumatic spring/mechanical spring
 - Double solenoid
 - Double solenoid with dominant signal
- 5/2-way valve for special functions, single solenoid
 - Mechanical spring
 - Switching position sensing via inductive sensors with PNP or NPN output
 - Protection against unexpected start-up to DIN EN 1037
 - Reversing
- 5/3-way valve
 - Mid-position pressurised
 - Mid-position closed
 - Mid-position exhausted
- 5/3-way valve for special functions
 - Switching position 14 with memory function (switching position 14 is retained in the event of an emergency-stop application/power failure) since there is no spring return on side 12
 - Only for valve terminal (plug-in)
 - Mid-position exhausted or mid-position 1→2, 4→5
 - Switching position 14 with memory function
 - Pneumatic spring return
- Soft-start valve for slow and safe pressure build-up
 - High degree of safety
 - Safe pressurisation by means of sensor function

Valve terminals type 45 VTSA-F

Key features

FESTO

Special features

Valve terminal with individual connection

- Max. 32 valve positions/
max. 32 solenoid coils
- Any compressed air supply
- Any number of pressure zones

Valve terminal with individual connection

- Max. 32 valve positions/
max. 32 solenoid coils
- Any compressed air supply
- Any number of pressure zones

Multi-pin terminal

- Max. 32 valve positions/
max. 32 solenoid coils
- Parallel modular valve linking
- Any compressed air supply
- Any number of pressure zones

AS-interface

- 1 to 8 valve positions/
max. 8 solenoid coils
- Soft-start valve for slow and safe pressure build-up
 - High degree of safety
 - Safe pressurisation by means of sensor function

Valve terminal with fieldbus connection and electrical peripherals type CPX

- Max. 32 valve positions/
max. 32 solenoid coils
- Any compressed air supply
- Any number of pressure zones

Combinable

- Width 18 mm: valve flow rate up to 700 l/min
- Width 26 mm: valve flow rate up to 1,400 l/min
- Width 26 mm and 18 mm can be combined on a single valve terminal

Valve terminal configurator

Online via: → www.festo.com

The appropriate VTSA-F valve terminal can be chosen quickly and easily using the online catalogue. This includes an easy-to-use valve terminal configurator, which makes it much easier to find the right product.

The valve terminals are fully assembled according to your order specification and are individually tested. This reduces assembly and installation time to a minimum.

You order a valve terminal type 45 using the order code.

Ordering system for type 45

→ Internet: type 45

Ordering system for CPX

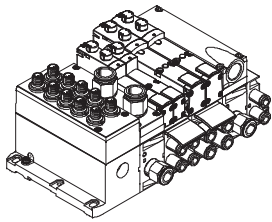
→ Internet: cpx

Valve terminals type 45 VTSA-F

Key features

FESTO

Valve terminal with individual connection

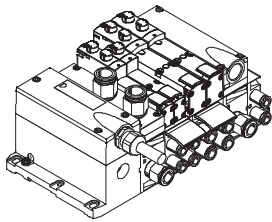


Control signals from the controller to the valve terminal are transmitted via an individual connecting cable.

The valve terminal can be equipped with max. 20 valves and max. 20 solenoid coils.

The electrical connection is established via a 5-pin M12 plug 24 V DC.

Valve terminal with multi-pin plug connection



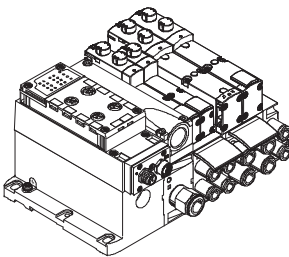
Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire cable or a self-assembled multi-pin plug connection (spring-loaded terminal), which substantially reduces installation time.

The valve terminal can be equipped with max. 32 valves and max. 32 solenoid coils.

Versions

- Multi-pin plug connection with terminal strip (spring-loaded terminal) 24 V DC or 110 V AC
- Pre-assembled connecting cable 24 V DC
- Sub-D plug connector for assembly by the user, 37-pin
- Round plug connector M23, 19-pin, 24 V DC

AS-interface connection



A special feature of the AS-interface is the simultaneous transmission of data and supply power via a two-wire cable. The encoded cable profile prevents connection with incorrect polarity. The valve terminal with AS-interface is available in the following versions:

- With one to eight modular valve positions (max. 8 solenoid coils). This corresponds to one to eight VTSA valves.
- With all available valve functions. The connection technology used for the inputs can be selected as with

CPX: M8, M12, quick connection, Sub-D, spring-loaded terminal (terminals to IP20).

Additional information

➔ Internet: as-interface

 Note

The valve terminal VTSA with AS-interface connection is based on the same electrical manifold module as the valve terminal with multi-pin plug connection. This means it is possible to convert a valve terminal

with multi-pin plug connection using an AS-interface module (➔ 81). The technical specifications of the AS-interface system must be observed in this case.

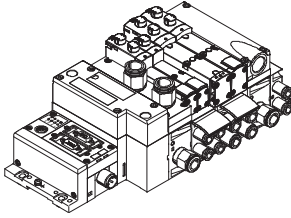
➔ Internet: as-interface

Valve terminals type 45 VTSA-F

Key features

FESTO

Valve terminal with fieldbus connection from the CPX system



An integrated fieldbus node manages the communication connection with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

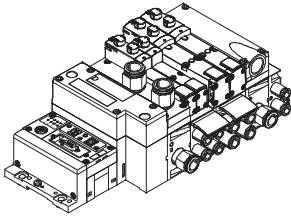
Valve terminals with fieldbus interfaces can be configured with up to 16 manifold sub-bases. With 2 solenoid coils per connection, up to 32 solenoid coils can thus be actuated.

Versions

- Profibus DP
- Interbus
- DeviceNet
- CANopen
- CC-Link
- CPX terminal
- EtherCAT
- CoDeSys controller
- Modbus/TCP
- PROFINET

➔ Internet: cpx

Valve terminal with control block connection from the CPX system



Controllers integrated in the Festo valve terminals enable the construction of stand-alone control units to IP65, without control cabinets.

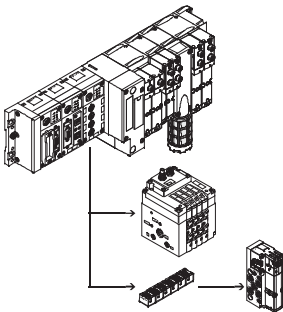
In the slave operating mode, these valve terminals can be used for intelligent preprocessing and are therefore ideal modules for designs using decentralised intelligence.

In the master operating mode, terminal groups can be designed with many options and functions that can autonomously control a medium-sized machine/system.

- CPX terminal

➔ Internet: cpx

CP string extension from the CPX system



The optional CP string extension enables additional valve terminals and I/O modules to be connected to the fieldbus node of the CPX terminal on up to 4 CP strings. Different input and output modules as well as CPV-SC, CPV and CPA valve terminals can be connected.

The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on site. All of the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

One CP string offers:

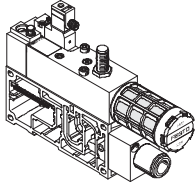
- 32 input signals
- 32 output signals for output modules 24 V DC or solenoid coils
- Logic and sensor supply for the input modules
- Load voltage supply for the valve terminals
- Logic supply for the output module

➔ Internet: ctec

Valve terminals type 45 VTSA-F

Key features

Soft-start valve

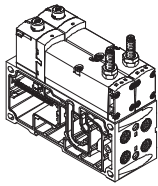


The soft-start valve is separately electrically actuated, independently of the multi-pin plug, AS-interface or field-bus connection, via a 4-pin plug to ISO 15407-1 or optionally via an M12 adapter.

The valve can optionally be ordered with a sensor that monitors switching of the soft-start valve and in this way supplies the valve terminal or one or more pressure zones with supply air. The optimum pressure build-up required by the application for each

pressure zone is configured directly on the valve terminal by setting the switchover pressure and filling time. A maximum of 5 soft-start valves can be integrated on one valve terminal in this way.

Valves for safety-oriented pneumatic components on valve terminals



These valves are used for special applications, for example for:

- Protecting against unexpected start-up
- Reversing

- Drives in manually loaded devices

For holding, blocking a movement (mechanically)

5/3-way valve for special functions; port 2 is pressurised, port 4 exhausted. Switching position 14 features a memory function.

Possible applications:

- Using lifting cylinders
- Using rotary cylinders

For pressureless switching, self-holding, pneumatic operation

5/3-way valve for special functions (3 phases). Mid-position is exhausted. Switching position 14 features a mem-

ory function. Possible applications:

- Pneumatic manual clamps for devices (insert stations)

Valve terminals type 45 VTSA-F

Peripherals overview

FESTO

Modular pneumatic components

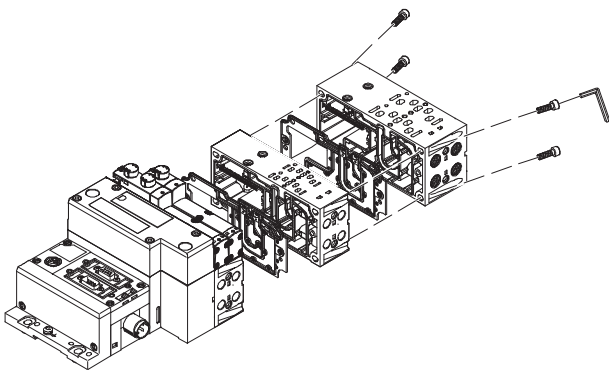
The modular design of the VTSA-F enables maximum flexibility right from the planning stage and offers maximum ease of service in operation.

The system consists of manifold sub-bases and valves. The manifold sub-bases are screwed together and thus form the support system for the valves.

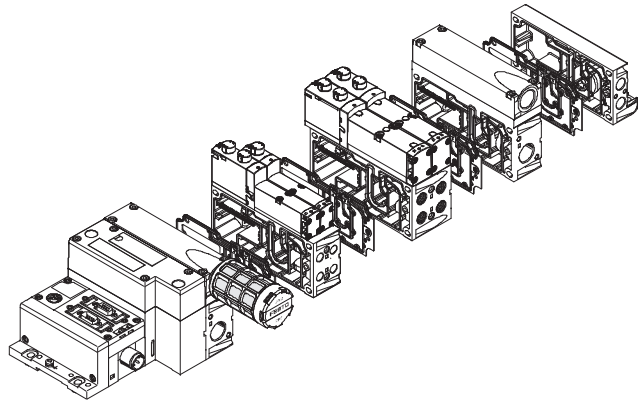
Inside the manifold sub-bases are the connection ducts for supplying compressed air to and venting from the valves on the terminal as well as the working lines for the pneumatic cylinders for each valve.

Each manifold sub-base is connected to the next using four screws. Individual terminal sections can be isolated and further manifold blocks inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

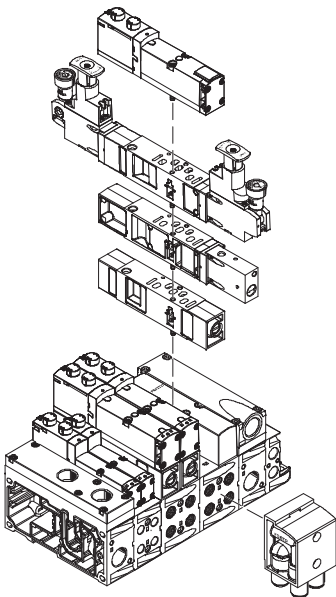
Basic system modularity



Valve modularity



Vertical stacking modularity



Valve terminals type 45 VTSA-F

Peripherals overview

Modular electrical peripherals

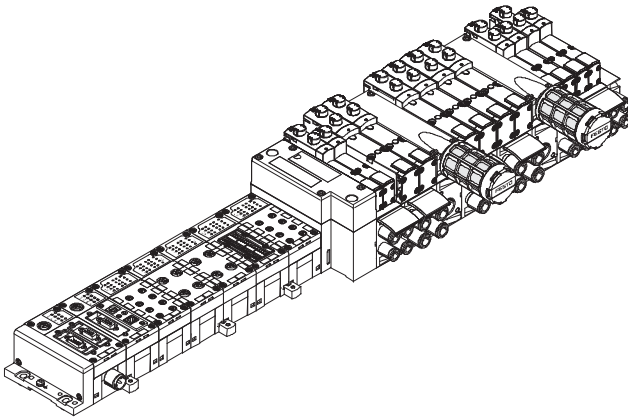
The manner in which the valves are actuated differs according to whether you are using a multi-pin terminal or fieldbus terminal.

The VTSA-F with CPX interface is based on the internal bus system of the CPX and uses this communication system for all solenoid coils and a range of electrical input and output functions.

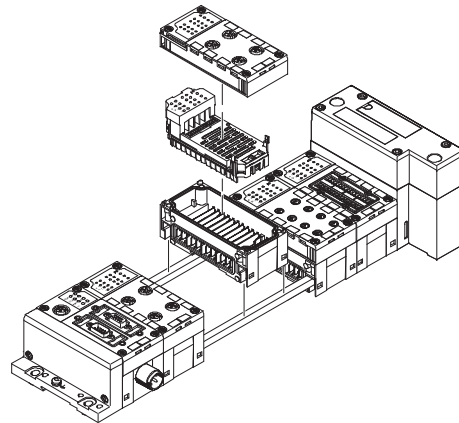
Parallel linking enables the following:

- Transmission of switching information
- High valve density
- Compact design
- Position-based diagnostics
- Separate voltage supply for valves
- Flexible conversion without address shifting
- Transmission of status, parameter and diagnostic data
 - ➔ Internet: cpx
- Option of CP interface
- CPX-FEC as stand-alone controller with access via Ethernet and web server

VTSA-F with electrical peripherals CPX



Modularity with electrical peripherals CPX

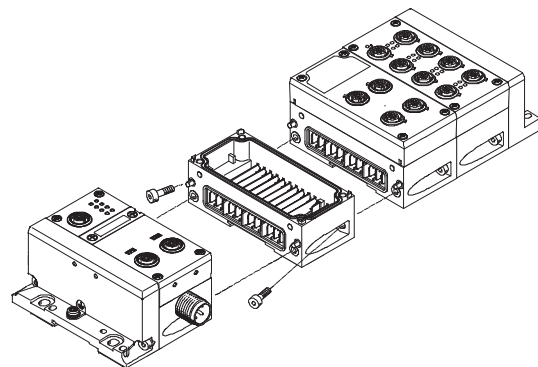


CPX terminal in metal design

- - Note

The CPX manifold blocks are also available in a metal design. This means a complete solution in a sturdy metal design can be selected for applications of the valve terminal VTSA-F in welding environments.

The mechanical connection between the CPX modules in metal design is created using special angle fittings. The CPX terminal can thus be expanded at any time.



Valve terminals type 45 VTSA-F

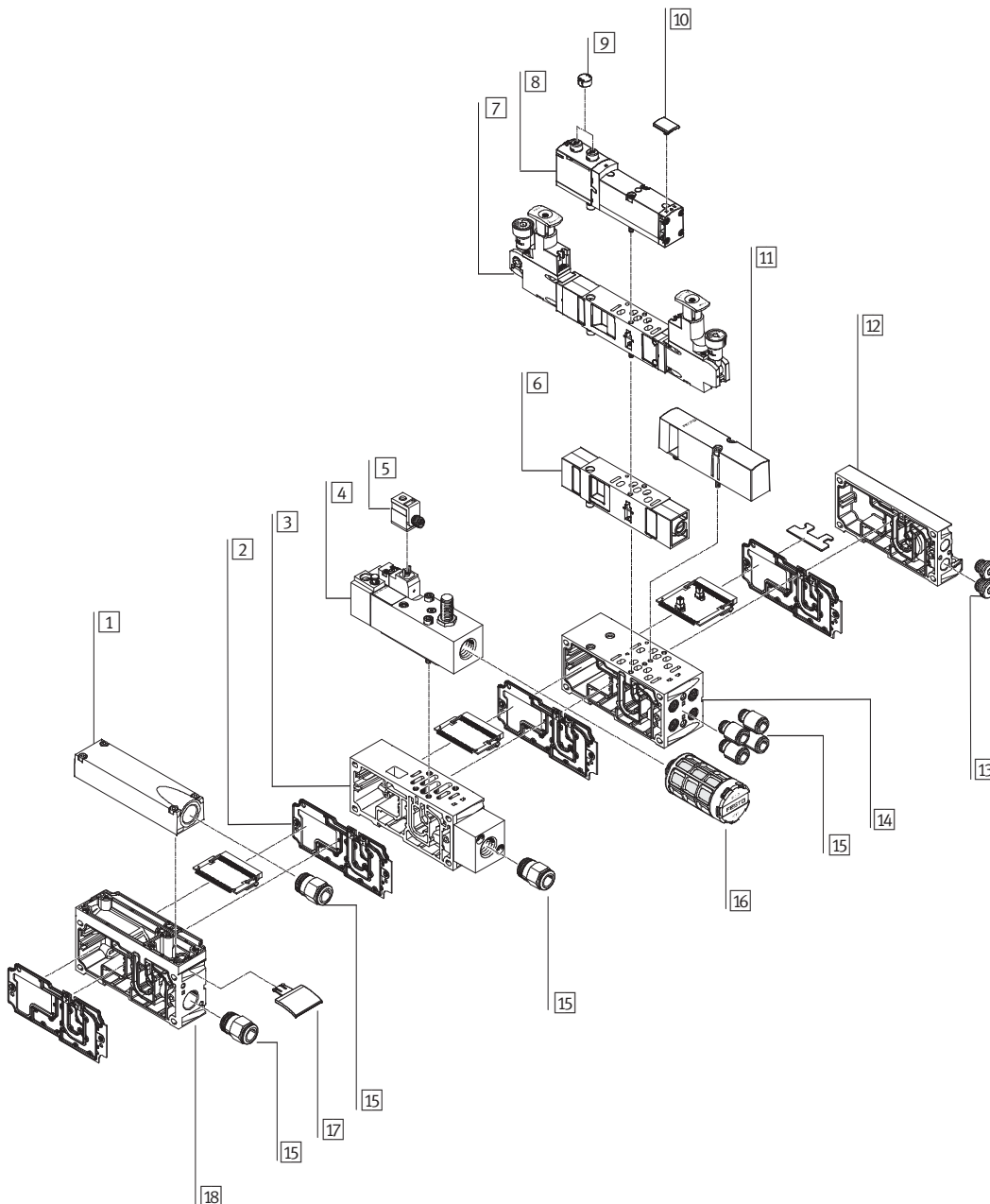
Peripherals overview

FESTO

Valve terminal pneumatics

The manifold sub-bases width 18 and 26 mm are suitable for:

- 2 single solenoid valves or
- 2 double solenoid valves.
- Double solenoid valve positions can be equipped with any valve or a blanking plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a blanking plate.



Valve terminals type 45 VTSA-F

Peripherals overview

Valve terminal pneumatics		
	Brief description	→ Page/Internet
1	Exhaust port cover	For ducted exhaust air (ports 3 and 5 combined)
2	Duct separation/seal	
3	Manifold sub-base	For soft-start valve
4	Soft-start valve	For slow and safe pressure build-up
5	Plug socket	
6	Flow control plate	
7	Pressure regulator plate	
8	Valve	Width 26 mm
9	Cover cap	For manual override, non-detenting, covered
10	Inscription label	For valve
11	Blanking plate	For unused valve position (vacant position)
12	End plate with pilot air selector	
13	Blanking plug	
14	Manifold sub-base	For valves with a width of 26 mm
15	Fittings	
16	Silencer	
17	Inscription label holder	For manifold sub-base, sub-base, 90° connection plate
18	Supply plate	

Valve terminals type 45 VTSA-F

Peripherals overview

Valve terminal with individual connection

Order code:

- 45E for the electrical components
- 45P for the pneumatic components

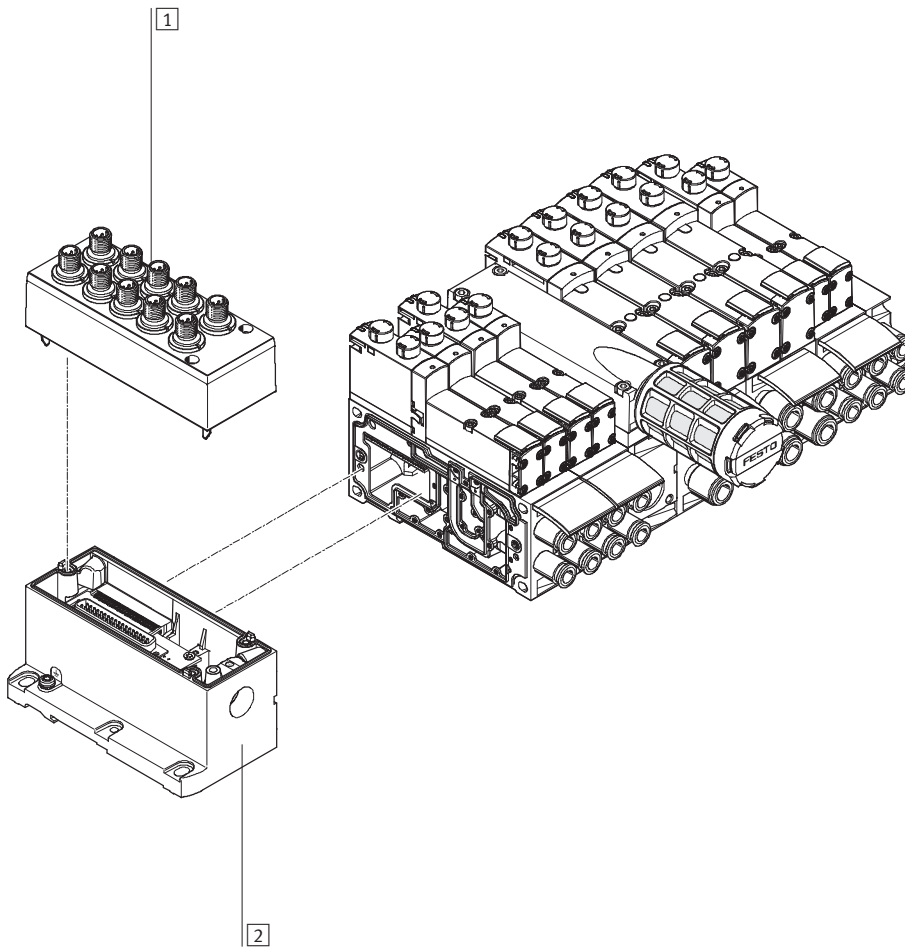
VTSA-F valve terminals with individual connection can be expanded with up to 20 valves with max. 20 solenoid coils.

The manifold sub-bases width 18 and 26 mm are suitable for:

- 2 single solenoid valves or
- 2 double solenoid valves.

- Double solenoid valve positions can be equipped with any valve or a blanking plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a blanking plate.

The electrical connection is established via a 5-pin M12 plug (24 V DC).



	Brief description	→ Page/Internet
1	Cover For individual connection	80
2	Multi-pin plug connection Individual connection with M12, 10-way or 6-way (including cover)	80

Valve terminals type 45 VTSA-F

Peripherals overview

Valve terminal with multi-pin plug connection

Order code:

- 45E for the electrical components
- 45P for the pneumatic components

VTSA-F valve terminals with multi-pin plug connection can be expanded with up to 32 valves with max. 32 solenoid coils.

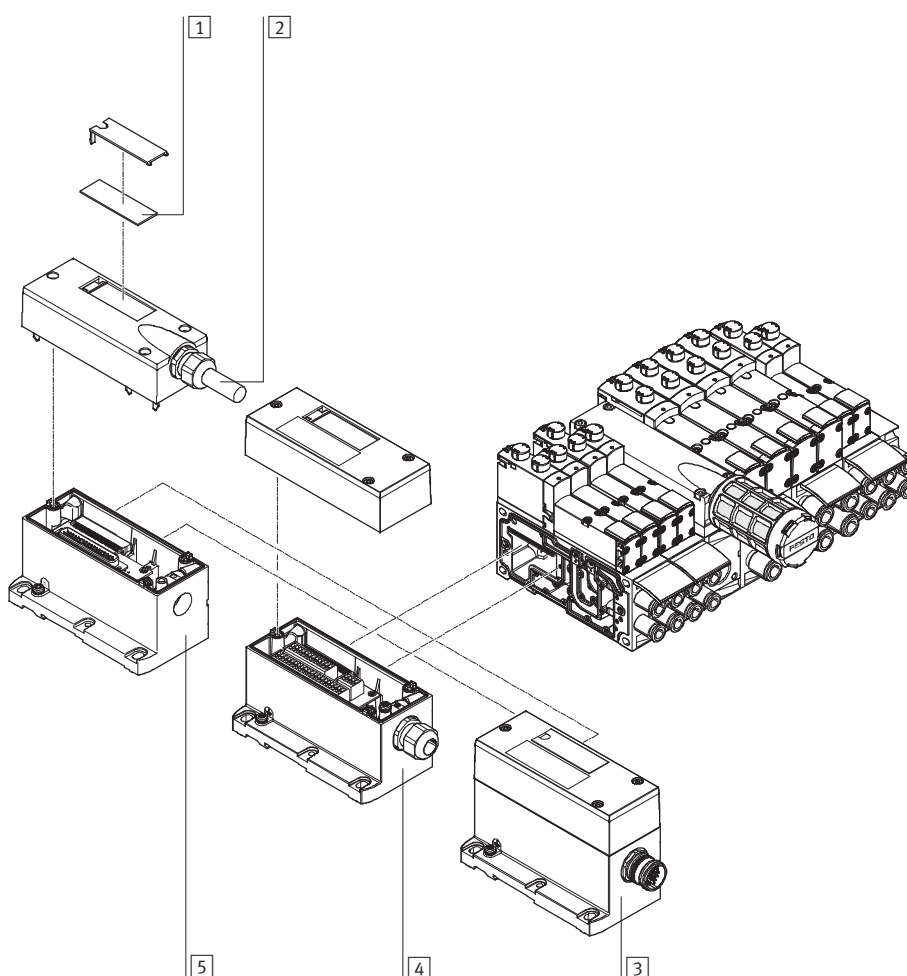
The manifold sub-bases width 18 and 26 mm are suitable for:

- 2 single solenoid valves or
- 2 double solenoid valves.

- Double solenoid valve positions can be equipped with any valve or a blanking plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a blanking plate.

The following multi-pin plug connections to IP65 are available:

- 37-pin Sub-D connection (24 V DC): The connecting cable can be ordered in lengths of 2.5 m, 5 m and 10 m for max. 8, 22 or 32 solenoid coils respectively.
- Terminal strip (24 V DC or 110 V AC).
- 19-pin round plug connector (24 V DC).



	Brief description	→ Page/Internet
1	Inscription labels Large, for multi-pin plug connection	–
2	Multi-pin plug cable	81
3	Multi-pin plug connection Via M23 round plug connection, 24 V DC	80
4	Multi-pin plug connection Via terminal strip (Cage Clamp®) 24 V DC or 110 V AC	80
5	Multi-pin plug connection Via multi-pin cable 24 V DC	80

Valve terminals type 45 VTSA-F

Peripherals overview

Valve terminal with AS-interface connection

Order code:

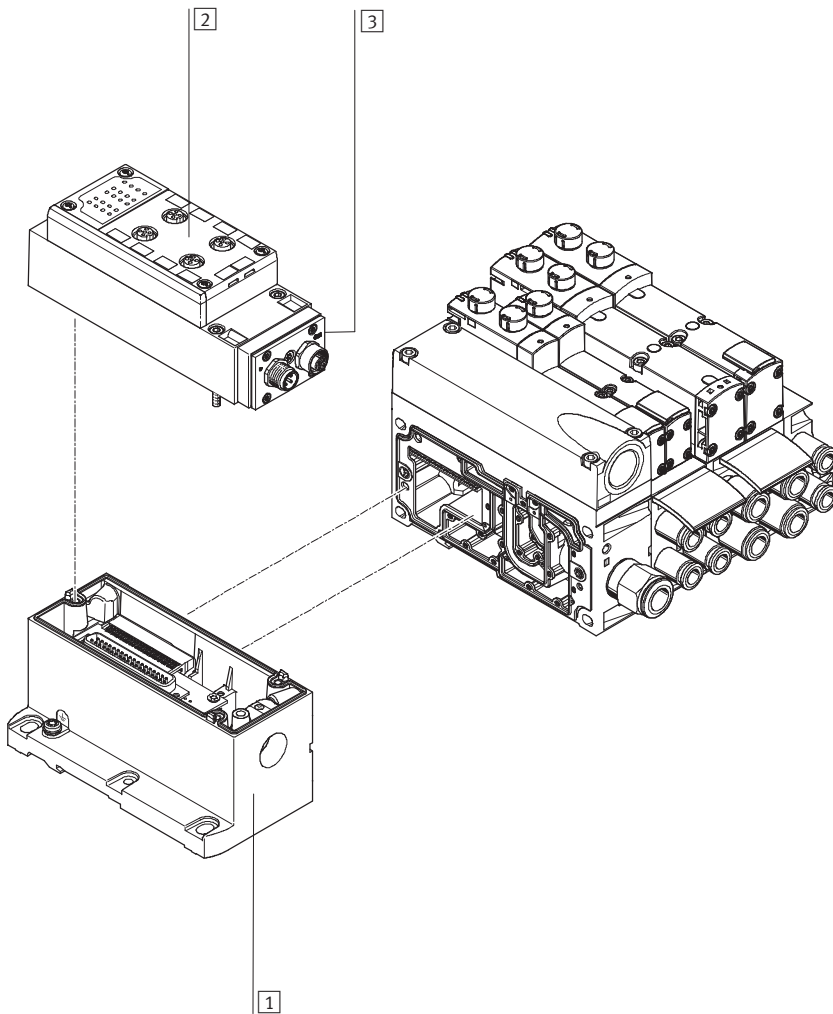
- 52E for the electrical components
- 45P for the pneumatic components

VTSA-F valve terminals with AS-interface connection can be expanded with up to 8 valves with max. 8 solenoid coils.

The manifold sub-bases width 18 and 26 mm are suitable for:

- 2 single solenoid valves or
- 2 double solenoid valves.

- Double solenoid valve positions can be equipped with any valve or a blanking plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a blanking plate.



	Brief description	→ Page/Internet
1	Multi-pin plug connection	Can be ordered together with the AS-interface module as an electrical connection for AS-interface
2	Manifold block for AS-interface	81
3	AS-interface module	81

Valve terminals type 45 VTSA-F

Peripherals overview

Valve terminal with fieldbus connection, control block (electrical peripherals CPX)

Order code:

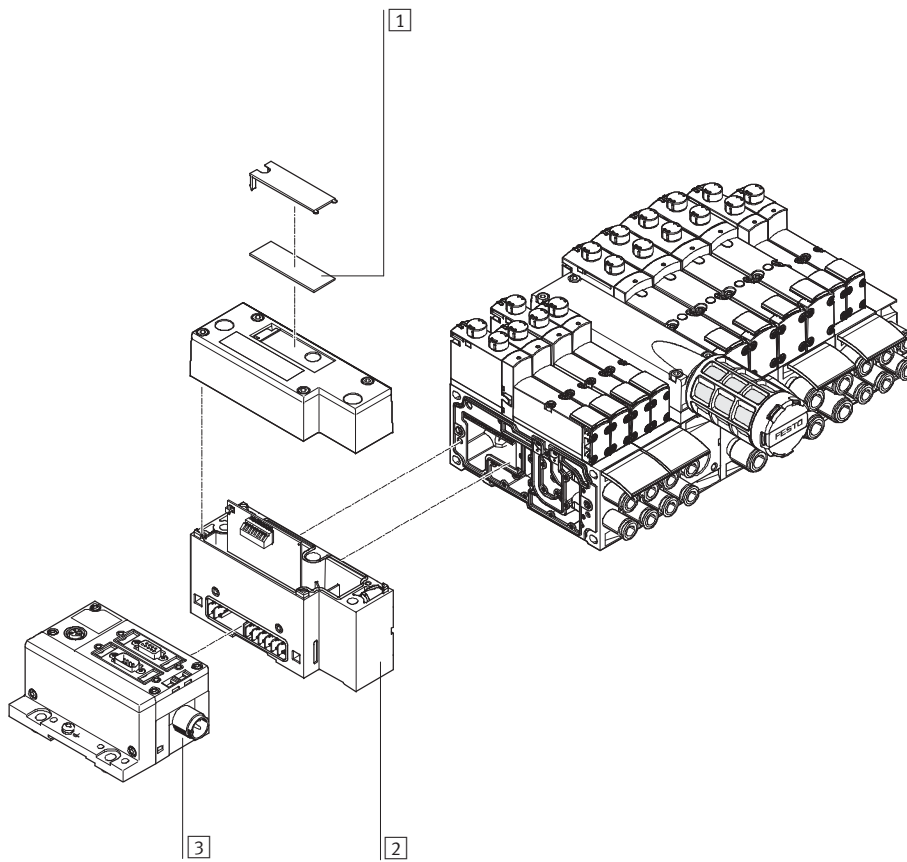
- 50E... for the electrical peripherals
- 51E... for the electrical peripherals, metal manifold module
- 45P for the pneumatic components

VTSA-F valve terminals with fieldbus interface can be expanded with up to 32 valves with max. 32 solenoid coils. Each valve position can be equipped with any valve or a blanking plate.

The rules for CPX apply to the equipment that can be used in combination with the electrical peripherals CPX.

In general:

- Max. 10 electrical modules
- Digital inputs/outputs
- Analogue inputs/outputs
- Parameterisation of inputs and outputs
- Integrated convenient diagnostic system
- Preventive maintenance concepts



	Brief description	→ Page/Internet
1	Inscription labels Large, for pneumatic interface CPX	-
2	Pneumatic interface	80
3	Fieldbus interface	cpx

Valve terminals type 45 VTSA-F

Peripherals overview

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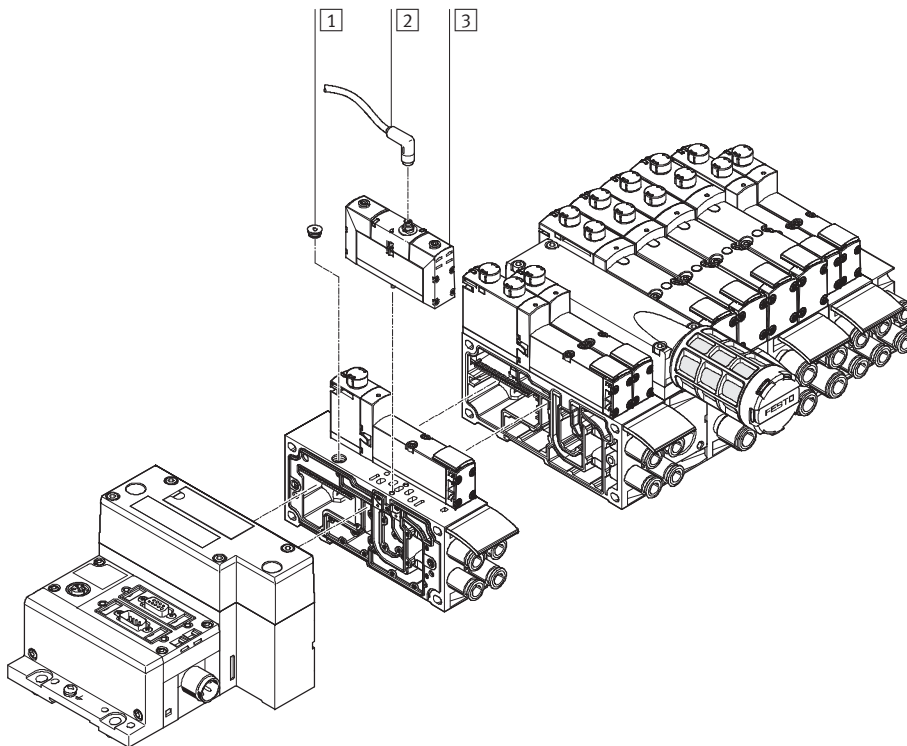
Valve terminal with fieldbus connection/multi-pin plug connection and individual valve connection

In applications with specific emergency stop conditions, it may be necessary to be able to individually switch one or more valves separately from the terminal controller. Valves (VSVA) with individual electrical connection (round or square plug) can

be mounted on the valve terminal to this end. In order for the protection class IP65 to be achieved, the functionless opening in the sub-base for the electrical

connection must be sealed. A sealing cap is available for the 18 mm and 26 mm widths. For central control of the valve terminal via a multi-pin plug or fieldbus

connection, the valve position occupied in this way acts like a vacant position, i.e. the assigned address in the fieldbus node or the corresponding connection in the multi-pin plug connection is occupied.



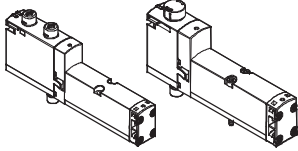
	Brief description	→ Page/Internet	
1	Sealing cap	For sealing the electrical connection on the sub-base	82
2	Connecting cable	–	valves vsva
3	Valve	Width 18 mm or width 26 mm	valves vsva

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

FESTO

Sub-base valve



VTSA-F offers a comprehensive range of valve functions. All valves are fitted with piston spool and patented sealing system, which ensures efficient sealing, a broad operating pressure range and long service life.

Sub-base valves can be quickly replaced since the tubing connections remain on the sub-base. Irrespective of the valve function there are sub-base valves with one solenoid coil (single solenoid) or with two solenoid coils for double solenoid or double valve functions.

Reverse/vacuum operation

Select reverse operation (code Z) if you wish to operate an actuator (cylinder) with different pressures for the forward and return stroke. Please note that the valves must then be operated via a separate pressure zone. The 3/2-way valves, reversible, are also suitable for vacuum operation.

Blanking plate

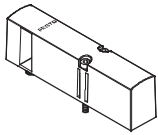


Plate without valve function for reserving valve positions on a valve terminal.

Valves and blanking plates are attached to the manifold sub-base using two screws.

Design

Valve replacement

The valves are attached to the metal manifold sub-base using two screws, which means that they can be easily

replaced. The mechanical robustness of the manifold sub-base guarantees efficient long-term sealing.

Expansion

Vacant positions can be fitted with valves at a later date. The dimensions, mounting points and existing pneumatic installations remain unchanged

during this process.

The order code VSVA-... is located on the front of the valve beneath the manual override.

Valve terminals type 45 VTSA-F

Key features – Pneumatic components



Valve function				
Code	Circuit symbol	Width		Description
		18 mm	26 mm	
VC		■	■	2x 2/2-way valve, single solenoid <ul style="list-style-type: none"> • Normally closed • Pneumatic spring return
VV		■	■	2x 2/2-way valve, single solenoid <ul style="list-style-type: none"> • Normally closed • Pneumatic spring return • Vacuum operation possible at 3 and 5
N		■	■	2x 3/2-way valve, single solenoid <ul style="list-style-type: none"> • Normally open • Pneumatic spring return • Operating pressure > 3 bar
K		■	■	2x 3/2-way valve, single solenoid <ul style="list-style-type: none"> • Normally closed • Pneumatic spring return • Operating pressure > 3 bar
H		■	■	2x 3/2-way valve, single solenoid <ul style="list-style-type: none"> • Normal position <ul style="list-style-type: none"> – 1x closed – 1x open • Pneumatic spring return • Operating pressure > 3 bar
P		■	■	2x 3/2-way valve, single solenoid <ul style="list-style-type: none"> • Reverse operation • Normally open • Pneumatic spring return
Q		■	■	2x 3/2-way valve, single solenoid <ul style="list-style-type: none"> • Reverse operation • Normally closed • Pneumatic spring return
R		■	■	2x 3/2-way valve, single solenoid <ul style="list-style-type: none"> • Reverse operation • Normal position <ul style="list-style-type: none"> – 1x closed – 1x open • Pneumatic spring return

- - Note
 A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup).

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

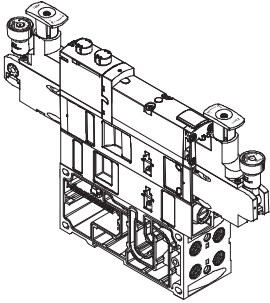
Valve function				
Code	Circuit symbol	Width		Description
		18 mm	26 mm	
M		■	■	5/2-way valve, single solenoid • Pneumatic spring return
O		■	■	5/2-way valve, single solenoid • Mechanical spring return
J		■	■	5/2-way valve, double solenoid
D		■	■	5/2-way valve, double solenoid • Dominant signal with port 14 on the control side
-		-	■	5/2-way valve ²⁾ , single solenoid, as plug-in or via pilot valve with pneumatic interface to ISO 15218 • Mechanical spring return • With piston position sensing via inductive sensor • PNP or NPN with switching output via push-in connector or cable with open wire ends
B		■	■	5/3-way valve • Mid-position pressurised ¹⁾ • Mechanical spring return
G		■	■	5/3-way valve • Mid-position closed ¹⁾ • Mechanical spring return
E		■	■	5/3-way valve • Mid-position exhausted ¹⁾ • Mechanical spring return
SA		-	■	5/3-way valve, with enhanced function through signal storage in switching position 14 • Pressureless switching, self-holding, pneumatic operation • Mid-position exhausted, switching position 14 with memory function • Pneumatic spring return
SB		-	■	5/3-way valve, with enhanced function through signal storage in switching position 14 • Holding, blocking a movement (mechanically) • Mid-position: port 2 pressurised, port 4 exhausted, switching position 14 with memory function • Pneumatic spring return
L		■	■	For valve terminal only: Blanking plate for valve position

- 1) If neither solenoid coil is energised, the valve moves to its mid-position by means of a mechanical spring. If the two coils are permanently energised one after the other, the valve remains in the switching position of the coil that was activated first.
- 2) The symbol represents a valve with a proximity sensor with a switching output signal, in the illustration a N/O contact. In accordance with ISO 1219-1, this symbol applies to both N/O contacts as well as N/C contacts. The switching element function of all sensors used here is a N/C contact.

Valve terminals type 45 VTSA-F


Key features – Pneumatic components

Vertical stacking

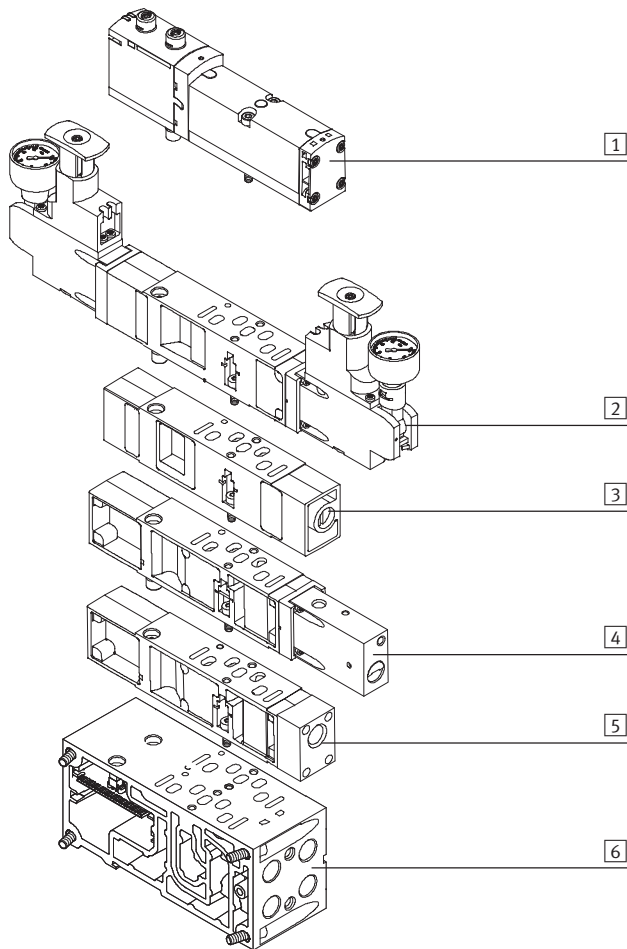


Additional functions can be added to each valve position between the sub-base and the valve. These functions are known as vertical stacking modules, and enable special functioning

or control of an individual valve position. Combinations of several valve sizes on one valve terminal are possible.

 Note
Certain combinations are not recommended due to the design of the individual vertical stacking components.

Vertical stacking components



The following component sequence is recommended for valve positions with vertical stacking:

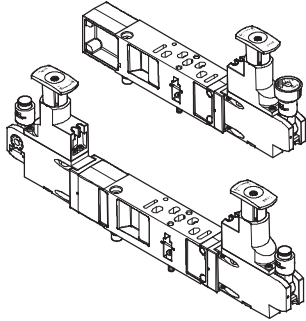
- 1 Valve
- 2 Pressure regulator plate
- 3 Flow control plate
- 4 Vertical pressure shut-off plate
- 5 Vertical supply plate
- 6 Manifold sub-base

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Vertical stacking

Pressure regulator plate



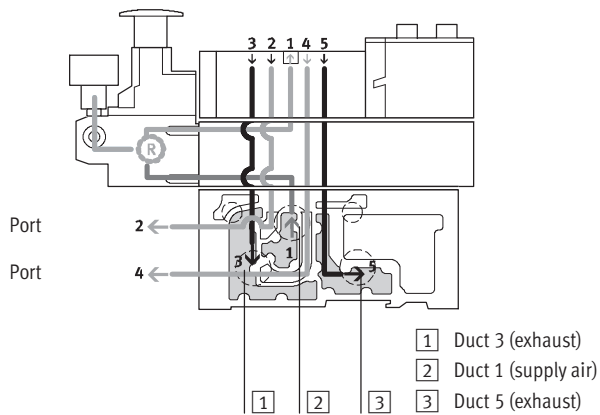
An adjustable pressure regulator can be installed between the sub-base and the valve in order to control the force of the triggered actuator.

This pressure regulator maintains an essentially constant output pressure (secondary side) independent of pressure fluctuations (primary side) and air consumption.

Standard version:

- Standard port pattern to ISO 15407-2
- For supply pressure up to 6 bar or up to 10 bar
- Without pressure gauge (optional)
- Regulator knob with 3 positions (locked, reference position, free running)

Mode of operation of pressure regulator plate (P regulator) for port 1; code: ZA, ZAY, ZF, ZFY



This pressure regulator regulates the pressure upstream of the valve in duct 1. Ducts 2 and 4 thus have the same regulated pressure.

During venting, the exhaust flow in the valve is from duct 2 to duct 3 and from duct 4 to duct 5.

Advantages

- The pressure regulator is not affected by venting, since the pressure is regulated upstream of the valve.
- The pressure regulator can always be adjusted, since the pressure from the valve terminal is always present.

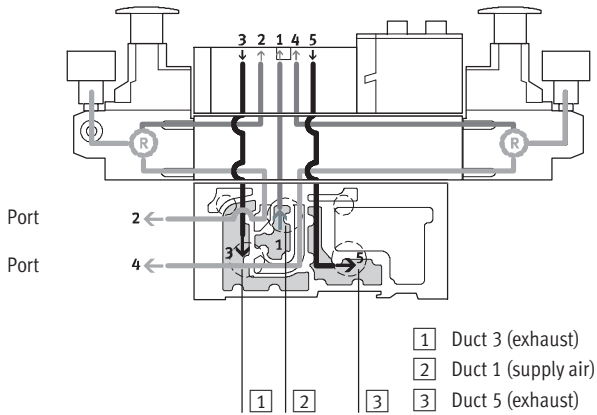
Application examples

- An equal working pressure is required at working lines 2 and 4.
- A lower working pressure (e.g. 3 bar) than the operating pressure present on the valve terminal (e.g. 8 bar) is required.

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Mode of operation of the pressure regulator plate (AB regulator) for ports 2 and 4; code: ZD, ZDY, ZI, ZIY



This pressure regulator regulates the pressure in ducts 2 and 4 after the pressure medium flows through the valve. During venting, the exhaust flow in the valve is from duct 2 to duct 3 and from duct 4 to duct 5 via the pressure regulator.

Example with the following switching position:
The supply air flows from duct 1 of the manifold sub-base via the valve to duct 2, it is then regulated and made available at port 2 of the manifold sub-base. At the same time, venting takes place via duct 4 of the manifold sub-base, via the regulator and via the valve into duct 5 of the manifold sub-base.

Restrictions

- The pressure regulator cannot be adjusted in the exhaust position. For example, the pressure regulator for duct 4 cannot be adjusted when the valve is pressurised in the switching position from duct 1 to duct 2 and vented from duct 4 to duct 5.

Application examples

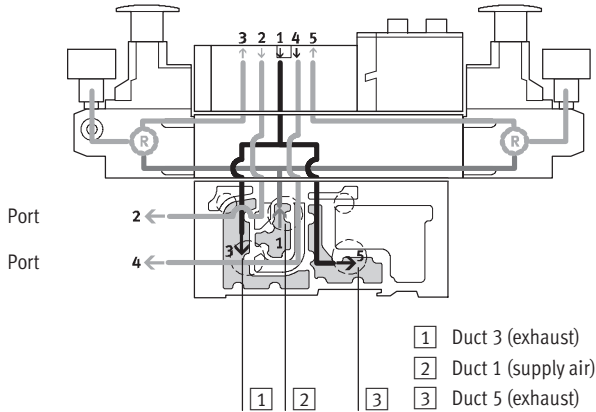
- When two different working pressures are required at ports 2 and 4 instead of the valve terminal operating pressure.

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Vertical stacking

Mode of operation of the pressure regulator plate (AB regulator, reversible) for ports 2 and 4, reversible; code: ZE, ZEY, ZJ, ZJY



With this pressure regulator, the supply air (duct 1) is split and routed directly to both pressure regulators. In each case the regulated supply air is present in ducts 3 and 5 on the valve. The valve is thus operated in reversible mode.

This means:

- Duct 3 routes the working pressure to port 2
- Duct 5 routes the working pressure to port 4

Example with the following switching position:

The supply air in duct 1 is split between ducts 3 and 5 in the regulator and flows from here to the valve. In the valve, the supply air is routed to port 2 of the manifold sub-base. The exhaust air is simultaneously routed via duct 4 of the manifold sub-base and via the valve to regulator duct 1, where it is split between ducts 3 and 5 and then expelled via the manifold sub-base.

Application examples

- When two different pressures are required in ducts 2 and 4 instead of the operating pressure.
- When fast venting is required.
- When the pressure regulator must always be adjustable.

Note

- Reversible pressure regulator plates can only be combined with valves that can be operated in reversible mode.
- Valves in valve positions with vertical pressure shut-off plates are operated with internal pilot air supply, even when the valve terminal is operated with external pilot air supply.
- The following combination of reversible valve terminals with vertical stacking components is not permitted:
 - Reversible pressure regulator plates
 - Flow control plates
 - Vertical pressure shut-off plates
 - Vertical supply plates

Advantages

- Fast cycle times.
- 50% higher exhaust flow rate, as air is not vented via the pressure regulator. The load on the pressure regulator is also reduced.
- No quick exhaust valves are required.
- Operating pressure is always present at the pressure regulator, as the pressure is regulated upstream of the valve, i.e. the regulator can always be adjusted.

Disadvantages

- 2x 3/2-way valves (code N, K, H) cannot be used, as pressure is present at ports 3 and 5.
- No practical combination with a flow control plate possible.

Valve terminals type 45 VTSA-F

Key features – Pneumatic components



Vertical stacking – Pressure regulator plate							
Code	Type	Width		Supply pressure		Description	
		18 mm	26 mm	6 bar	10 bar		
Pressure regulator plate for port 1 (P regulator)							
ZA		VABF-S4-...-R1C2-C-10	■	■	-	■	<ul style="list-style-type: none"> Regulates the operating pressure in duct 1 upstream of the directional control valve
ZAY ¹⁾		VABF-S4-...-R1C2-C-10E	■	■	-	■	
ZF		VABF-S4-...-R1C2-C-6	■	■	■	-	
ZFY ¹⁾		VABF-S4-...-R1C2-C-6E	■	■	■	-	
Pressure regulator plate for port 2 (B regulator)							
ZC		VABF-S4-...-R2C2-C-10	■	■	-	■	<ul style="list-style-type: none"> Regulates the operating pressure in duct 2 downstream of the directional control valve
ZCY ¹⁾		VABF-S4-...-R2C2-C-10E	■	■	-	■	
ZH		VABF-S4-...-R2C2-C-6	■	■	■	-	
ZHY ¹⁾		VABF-S4-...-R2C2-C-6E	■	■	■	-	
Pressure regulator plate for port 4 (A regulator)							
ZB ¹⁾		VABF-S4-...-R3C2-C-10	■	■	-	■	<ul style="list-style-type: none"> Regulates the operating pressure in duct 4 downstream of the directional control valve
ZG ¹⁾		VABF-S4-...-R3C2-C-6	■	■	■	-	
Pressure regulator plate for ports 2 and 4 (AB regulator)							
ZD		VABF-S4-...-R4C2-C-10	■	■	-	■	<ul style="list-style-type: none"> Regulates the working pressure in ducts 2 and 4 downstream of the directional control valve <p>Note</p> <p>These pressure regulator plates cannot be combined with reversible 2x 3/2-way valves (code P, Q, R).</p>
ZDY ¹⁾		VABF-S4-...-R4C2-C-10E	■	■	-	■	
ZI		VABF-S4-...-R4C2-C-6	■	■	■	-	
ZIY ¹⁾		VABF-S4-...-R4C2-C-6E	■	■	■	-	
Pressure regulator plate for port 2, reversible (B regulator)							
ZL		VABF-S4-...-R6C2-C-10	■	■	-	■	<ul style="list-style-type: none"> Reversible pressure regulator for port 2
ZLY ¹⁾		VABF-S4-...-R6C2-C-10E	■	■	-	■	
ZN		VABF-S4-...-R6C2-C-6	■	■	■	-	
ZNY ¹⁾		VABF-S4-...-R6C2-C-6E	■	■	■	-	
Pressure regulator plate for port 4, reversible (A regulator)							
ZK ¹⁾		VABF-S4-...-R7C2-C-10	■	■	-	■	<ul style="list-style-type: none"> Reversible pressure regulator for port 4
ZM ¹⁾		VABF-S4-...-R7C2-C-6	■	■	■	-	

1) Also suitable for symmetrical valves

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Vertical stacking – Pressure regulator plate							
Code	Type	Width		Supply pressure		Description	
		18 mm	26 mm	6 bar	10 bar		
Pressure regulator plate for ports 2 and 4, reversible (AB regulator)							
ZE		VABF-S4-...-R5C2-C-10	■	■	-	■	<ul style="list-style-type: none"> • Reversible pressure regulator for ports 2 and 4 • Pressure regulation upstream of the directional control valve
ZEY ¹⁾		VABF-S4-...-R5C2-C-10E	■	■	-	■	<ul style="list-style-type: none"> • Routes the operating pressure from duct 1 to ducts 3 and 5 • Routes the exhaust air from duct 1 to ducts 3 and 5
ZJ		VABF-S4-...-R5C2-C-6	■	■	■	-	<p> Note</p> <p>These pressure regulator plates cannot be combined with standard 2x 3/2-way valves (code N, K, H). Reversible 2x 3/2-way valves (code P, Q, R) must not be operated in a separate pressure zone in combination with these pressure regulators.</p>
ZJY ¹⁾		VABF-S4-...-R5C2-C-6E	■	■	■	-	

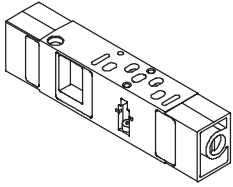
1) Also suitable for symmetrical valves

Valve terminals type 45 VTSA-F

Key features – Pneumatic components


FESTO

Vertical stacking – Flow control plate

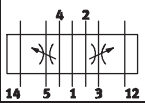


This plate is used for exhaust air flow control in ducts 3 and 5 of a valve in order to adjust the speed of the actuator.

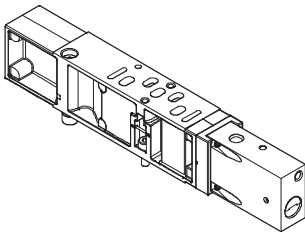
Ducts 3 and 5 can be adjusted independently of each other.

 Note
On reversible valve terminals, supply air flow control takes place in ducts 3 and 5 upstream of the valve.

Code	Type	Width		Description
		18 mm	26 mm	
X	VABF-S4-...F1B1-C	■	■	<ul style="list-style-type: none"> Restricts the exhaust air downstream of the valve in ducts 3 and 5




Vertical stacking – Vertical pressure shut-off plate

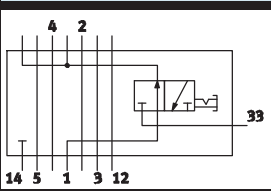


This plate enables a valve to be shut off from the supply pressure of the terminal. This means that the valve can be removed without shutting off the pressure.

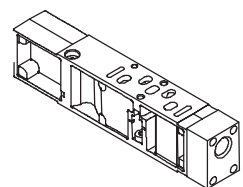
Following activation of the shut-off, the exhaust air/return air from the cylinder is expelled via the M5 threaded connection.

 Note
It must be ensured that the operating pressure of the valve terminal lies within the range of the required pilot pressure (i.e. min. 3 bar). When using an end plate with pilot air selector, only end plates with the code W and U can be used.

Code	Type	Width		Description
		18 mm	26 mm	
ZT	VABF-S4-...L1D1-C	■	■	<ul style="list-style-type: none"> 3/2-way valve for shutting off the operating pressure at the valve position Blocks ducts 1 and 14 for the valve position Supplies the valve position with internal pilot air

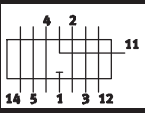


Vertical stacking – Vertical supply plate



This plate enables a valve to be supplied with individual operating pressure independently of the operating pressure of the terminal.

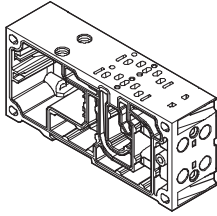
Code	Type	Width		Description
		18 mm	26 mm	
ZU	VABF-S4-...P1A3-...	■	■	<ul style="list-style-type: none"> Plate with port 11 for supplying individual operating pressure to a valve position



Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Manifold sub-base



VTSA-F is based on a modular system which consists of manifold sub-bases and valves. Manifold sub-bases are available for valve widths 18 mm and 26 mm in a double grid, i.e. two valves per manifold sub-base. The manifold sub-base contains a duct seal and an electrical interlinking module. They can be freely mixed within a valve terminal.

The manifold sub-bases are screwed together and thus form the support system for the valves.

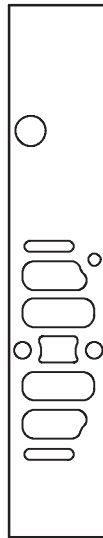
Inside the manifold sub-bases are the connection ducts for supplying compressed air to and venting from the valves on the terminal as well as the working lines for the pneumatic cylinders for each valve.

Each manifold sub-base is connected to the next using four screws. Individual terminal sections can be isolated and further manifold sub-bases inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

Port patterns on the manifold sub-base

Width 18 mm

Width 26 mm



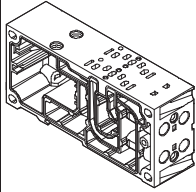
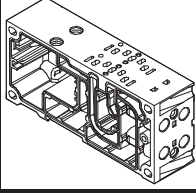
90° connection plate for working lines (2 and 4) of the manifold sub-bases

Code	Image	Type	Width		Ports	Working lines (2, 4) on the 90° connection plate
			18 mm	26 mm		
P		Threaded connection: VABF-S4-...-A2G2-G...	■	■	2 and 4	Outlet at bottom <ul style="list-style-type: none"> • Connection sizes for 18 mm width: G$\frac{1}{8}$ • Connection sizes for 26 mm width: G$\frac{1}{4}$

Valve terminals type 45 VTSA-F

Key features – Pneumatic components



Manifold sub-base variants						
Code		Type	Width		No. of valve positions/ solenoid coils	Working lines (2, 4) on the manifold sub-base
			18 mm	26 mm		
Manifold sub-base for multi-pin plug/fieldbus connection for double solenoid valves						
A AK		Threaded connection: VABV-S4-2HS-G18-2T2	■	–	2/4	• Connection sizes for 18 mm width: G $\frac{1}{8}$, QS-G $\frac{1}{8}$ -8, QS-G $\frac{1}{8}$ -6
B BK		Threaded connection: VABV-S4-1HS-G14-2T2	–	■	2/4	• Connection sizes for 26 mm width: G $\frac{1}{4}$, QS-G $\frac{1}{4}$ -10, QS-G $\frac{1}{4}$ -8
Manifold sub-base for multi-pin plug/fieldbus connection for single solenoid valves						
E EK		Threaded connection: VABV-S4-2HS-G18-2T1	■	–	2/2	• Connection sizes for 18 mm width: G $\frac{1}{8}$, QS-G $\frac{1}{8}$ -8, QS-G $\frac{1}{8}$ -6
F FK		Threaded connection: VABV-S4-1HS-G14-2T1	–	■	2/2	• Connection sizes for 26 mm width: G $\frac{1}{4}$, QS-G $\frac{1}{4}$ -10, QS-G $\frac{1}{4}$ -8

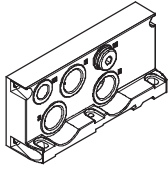
Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Compressed air supply and venting

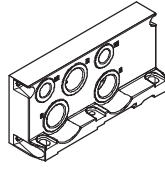
Right-hand end plate

- Code V



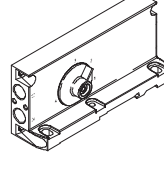
Right-hand end plate

- Code X



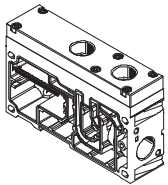
End plate with pilot air selector

- Code Z, Y, W, U



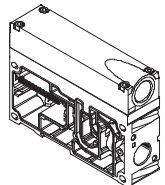
Port configuration for supply plates
Exhaust port 3/5 separated

- Code K



Port configuration for supply plates
Exhaust port 3/5 common

- Code L



The valve terminal VTSA-F can be supplied with compressed air at one or more points. This is a reliable way of ensuring that all functional components will always offer good performance, even with large-scale extensions. The valve terminal is supplied via supply plates (max. 16 per terminal) or via an end plate. Venting is via silencers or ports on the supply plates and/or on the right-hand end plate. There are two types of supply plates:

- Exhaust port 3/5 common
- Exhaust port 3/5 separated

Pilot air supply

The port for the pneumatic supply is located on the supply plates or the right-hand end plate. The ports differ for the following types of pilot air supply:

- Internal
- External

Internal pilot air supply

Internal pilot air supply can be selected if the working pressure is between 3 and 10 bar. The pilot air supply is then branched from the compressed air supply 1 using an internal connection. Port 14 on the right-hand end plate is sealed with a blanking plug.

External pilot air supply

If the supply pressure is less than 3 bar, you must operate your VTSA-F valve terminal using external pilot air supply. The pilot air supply is then supplied via port 14 on the right-hand end plate. This is the case even if the valve terminal is operated with different pressure zones.



Note

If a gradual pressure build-up is required in the system by means of a soft-start valve, then external pilot air should be selected whereby the pilot pressure is already applied at the point of switch-on.

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Compressed air supply/duct separation

Additional supply plates can be used for larger terminals or to create additional pressure zones. These can be selected at any point upstream or downstream of the manifold sub-bases.

Supply plates contain the ports:

- Compressed air supply (1)
- Exhaust port (3/5) common or separated

Depending on your order, the exhaust air ducts are either ducted or vented via silencers.

VTSA-F with ducted exhaust air:

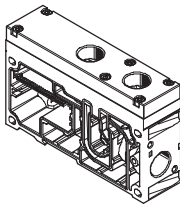
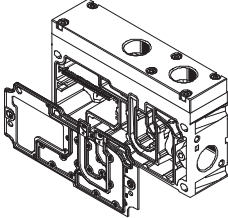
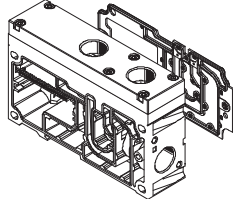
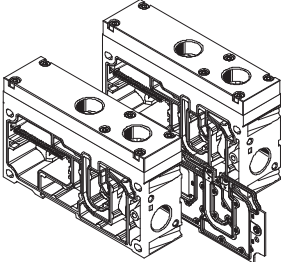
With ducted exhaust air, venting can be via a supply plate or a right-hand end plate (code V or X).

If duct separation is required, there are three different options:

- Duct separation 1, 3, 5: code S
- Duct separation 1: code T
- Duct separation 3, 5: code R

If a combination of duct separation (S, T or R) and one or two supply plates is required, the following variants can be selected:

- Supply plate with duct separation on the left-hand side: code SU, TU, RU
- Supply plate with duct separation on the right-hand side: code US, UT, UR
- 2 supply plates with intermediate duct separation: code USU, UTU, URU

Supply plates					
Code	Image	Type	Width		Description
			18 mm	26 mm	
U		<ul style="list-style-type: none"> • Exhaust port 3/5 common for threaded connection: VABF-S6-10-P1A7-G12 • Exhaust port 3/5 separated for threaded connection: VABF-S6-10-P1A6-G12 	■	■	Supply plate without duct separation (no R, S or T selected)
SU TU RU			■	■	Supply plate with duct separation on left, if R, S or T selected
US UT UR			■	■	Supply plate with duct separation on right, if R, S or T selected
USU UTU URU			■	■	2 supply plates with duct separation in centre, if R, S or T selected

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Right-hand end plate

Different right-hand end plates are available.

With the following two end plates, the outgoing direction of the ports is aligned with the horizontal stacking direction.

Right-hand end plates with pilot air supply/pilot exhaust air

- Internal pilot air supply: code V
- External pilot air supply: code X

For end plates with pilot air selector, the outgoing direction of the ports is to the front of the valve terminal. This means that all the ports on the terminal can be combined in one outgoing direction.

The special feature of the end plates with pilot air selector is the selector switch itself, which has four settings for different pilot air supply/pilot exhaust air.

End plates with pilot air selector switch set at the factory for:

- External pilot air supply: code Z
- Internal pilot air supply: code Y
- External pilot air supply, ducted pilot exhaust air: code W
- Internal pilot air supply, ducted pilot exhaust air: code U



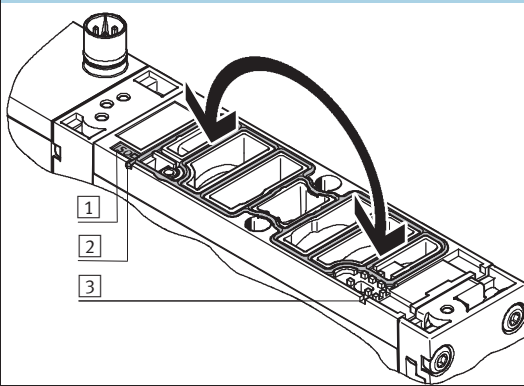
Note

The end plate with pilot air selector must be used in combination with a supply plate. The reversible 3/2-way valves (code P, Q, R) must only be operated in selector position 1 or 2. Ducted pilot exhaust air via port 12 is only possible with turned seals on the valve.

Right-hand end plate with pilot air selector

Code	Selector position	Seal not turned	Seal turned
Z	1	---	---
Y	2	---	---
W	3	---	Ducted exhaust air via port 12
U	4	---	Ducted exhaust air via port 12

Handling of the seals with ducted/unducted pilot exhaust air



Unducted pilot exhaust air:

- The seal is visible in the inspection window on control side 14.
- The ISO mark is visible on the designation label on the seal surface.

Ducted pilot exhaust air:

- The seal is visible in the inspection window on control side 12.
- The ISO mark is visible on the designation label on the seal surface.

- 1 Designation label
- 2 Inspection window on control side 14
- 3 Inspection window on control side 12

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

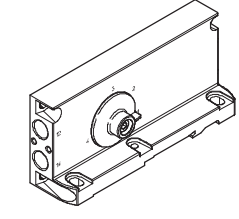
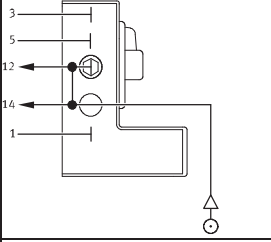
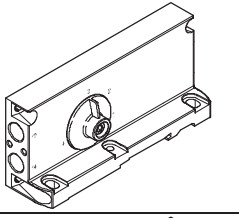
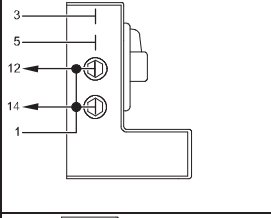
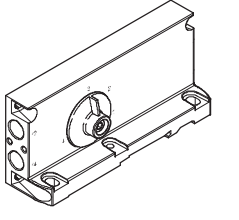
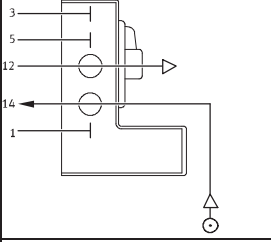
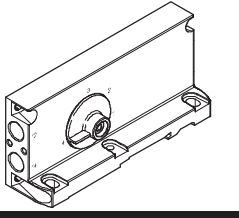
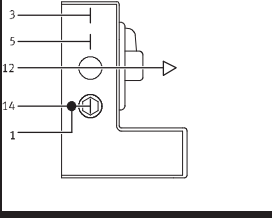


Right-hand end plate					
Code	Type of compressed air supply and pilot air supply	Width		Description	
		18 mm	26 mm		
Right-hand end plate					
V			■	■	<p>Internal pilot air supply</p> <ul style="list-style-type: none"> • Pilot air supply is branched internally from port 1 • Port 14 is sealed with a blanking plug • Exhaust air via ports 3 and 5 • For operating pressure in the range 3 ... 10 bar • Pilot exhaust air via port 12¹⁾
X			■	■	<p>External pilot air supply</p> <ul style="list-style-type: none"> • Pilot air supply between 2 and 10 bar is connected at port 14 • Exhaust air via ports 3 and 5 • For operating pressure in the range -0.9 ... 10 bar (suitable for vacuum) • Pilot exhaust air via port 12¹⁾
XP1			■	■	<p>External pilot air supply, pressure supply via soft-start valve</p> <ul style="list-style-type: none"> • Port 1 is sealed with a blanking plug • Exhaust air via ports 3 and 5 • Pilot exhaust air via port 12¹⁾
XP2			■	■	<p>External pilot air supply, pressure supply via soft-start valve</p> <ul style="list-style-type: none"> • Internal pilot air supply 14 via soft-start valve • Ports 1 and 14 are sealed with a blanking plug • Exhaust air via ports 3 and 5 • Pilot exhaust air via port 12¹⁾
XP3			■	■	<p>External pilot air supply, pressure supply via soft-start valve</p> <ul style="list-style-type: none"> • Internal pilot air supply 14 via soft-start valve • Ports 1, 3, 5 and 14 are sealed with a blanking plug • Pilot exhaust air via port 12¹⁾

1) Ducted pilot exhaust air is only possible with turned seals on the valve

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Right-hand end plate					
Code	Type of compressed air supply and pilot air supply	Width		Description	
		18 mm	26 mm		
Code ²⁾ End plate with pilot air selector ³⁾					
Z (1)			■	■	<p>External pilot air supply</p> <ul style="list-style-type: none"> • Pilot air supply is connected at port 14 • Port 12 is sealed with a blanking plug • Ports 12 and 14 are internally connected • Pilot exhaust air unducted via valve housing
Y (2)			■	■	<p>Internal pilot air supply</p> <ul style="list-style-type: none"> • Pilot air supply is branched internally from port 1 • Ports 1, 12 and 14 are internally connected • Ports 12 and 14 are sealed with blanking plugs • Pilot exhaust air unducted via valve housing
W (3)			■	■	<p>External pilot air supply, ducted pilot exhaust air</p> <ul style="list-style-type: none"> • Pilot air supply is connected at port 14 • Pilot exhaust air via port 12¹⁾
U (4)			■	■	<p>Internal pilot air supply, ducted pilot exhaust air</p> <ul style="list-style-type: none"> • Pilot air supply is branched internally from port 1 • Ports 1 and 14 are internally connected • Port 14 is sealed with a blanking plug • Pilot exhaust air via port 12¹⁾

- 1) Ducted pilot exhaust air is only possible with turned seals on the valve
- 2) Selector setting in brackets
- 3) Ducted pilot exhaust air is only possible in pilot air selector position 3 or 4

Valve terminals type 45 VTSA-F

Key features – Pneumatic components



Configuration of all pneumatic threaded connections						
Code		Port	Designation	Code M Push-in connector, large	Code N Push-in connector, small	
Right-hand end plate						
V			1	Push-in fitting	QS-G $\frac{1}{2}$ -16	QS-G $\frac{1}{2}$ -12
			3 and 5	Silencer or push-in fitting	U- $\frac{1}{2}$ -B or QS-G $\frac{1}{2}$ -16	U- $\frac{1}{2}$ -B or QS-G $\frac{1}{2}$ -12
			14	Blanking plug	B- $\frac{1}{4}$	B- $\frac{1}{4}$
X			1	Push-in fitting	QS-G $\frac{1}{2}$ -16	QS-G $\frac{1}{2}$ -12
			3 and 5	Silencer or push-in fitting	U- $\frac{1}{2}$ -B or QS-G $\frac{1}{2}$ -16	U- $\frac{1}{2}$ -B or QS-G $\frac{1}{2}$ -12
			12	Silencer or push-in fitting	U- $\frac{1}{4}$ or QS-G $\frac{1}{4}$ -10	U- $\frac{1}{4}$ or QS-G $\frac{1}{4}$ -8
			14	Push-in fitting	QS-G $\frac{1}{4}$ -10	QS-G $\frac{1}{4}$ -8
Code¹⁾ End plate with pilot air selector						
Z (1)			12	Blanking plug	B- $\frac{1}{4}$	B- $\frac{1}{4}$
			14	Push-in fitting	QS-G $\frac{1}{4}$ -10	QS-G $\frac{1}{4}$ -8
Y (2)			12	Blanking plug	B- $\frac{1}{4}$	B- $\frac{1}{4}$
			14	Blanking plug	B- $\frac{1}{4}$	B- $\frac{1}{4}$
W (3)			12	Silencer or push-in fitting	U- $\frac{1}{4}$ or QS-G $\frac{1}{4}$ -10	U- $\frac{1}{4}$ or QS-G $\frac{1}{4}$ -8
			14	Push-in fitting	QS-G $\frac{1}{4}$ -10	QS-G $\frac{1}{4}$ -8
U (4)			12	Silencer or push-in fitting	U- $\frac{1}{4}$ or QS-G $\frac{1}{4}$ -10	U- $\frac{1}{4}$ or QS-G $\frac{1}{4}$ -8
			14	Blanking plug	B- $\frac{1}{4}$	B- $\frac{1}{4}$

1) Selector setting in brackets

Valve terminals type 45 VTSA-F

Key features – Pneumatic components

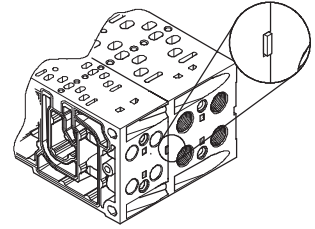


Creating pressure zones and separating exhaust air

The valve terminal VTSA-F offers a number of options for creating pressure zones if different working pressures are required. Pressure zones are created by isolating the internal supply ducts between the manifold sub-bases using appropriate duct separation.

Compressed air is supplied and vented via a supply plate. The position of the supply plates and duct separations can be freely selected for VTSA-F.

Duct separations are integrated ex-works as per your order. Duct separations can be distinguished by their coding, even when the valve terminal is assembled.



Creating pressure zones					
Code	Separating seal		Width		Description
	Pictorial examples	Coding	18 mm	26 mm	
T			■	■	Duct 1 separated
S			■	■	Ducts 1, 3 and 5 separated
R			■	■	Ducts 3 and 5 separated

Valve terminals type 45 VTSA-F

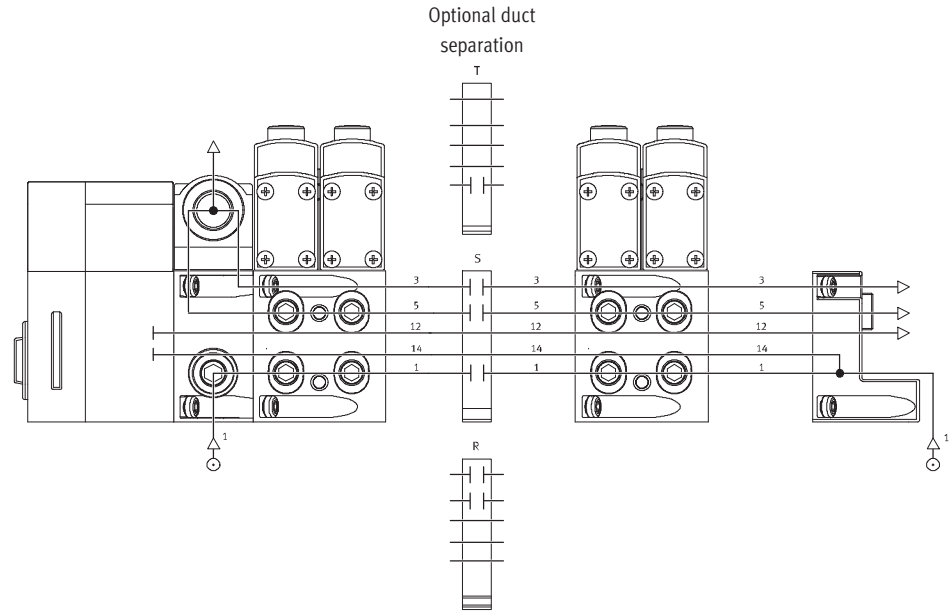
Key features – Pneumatic components



Examples: Compressed air supply and pilot air supply, right-hand end plate

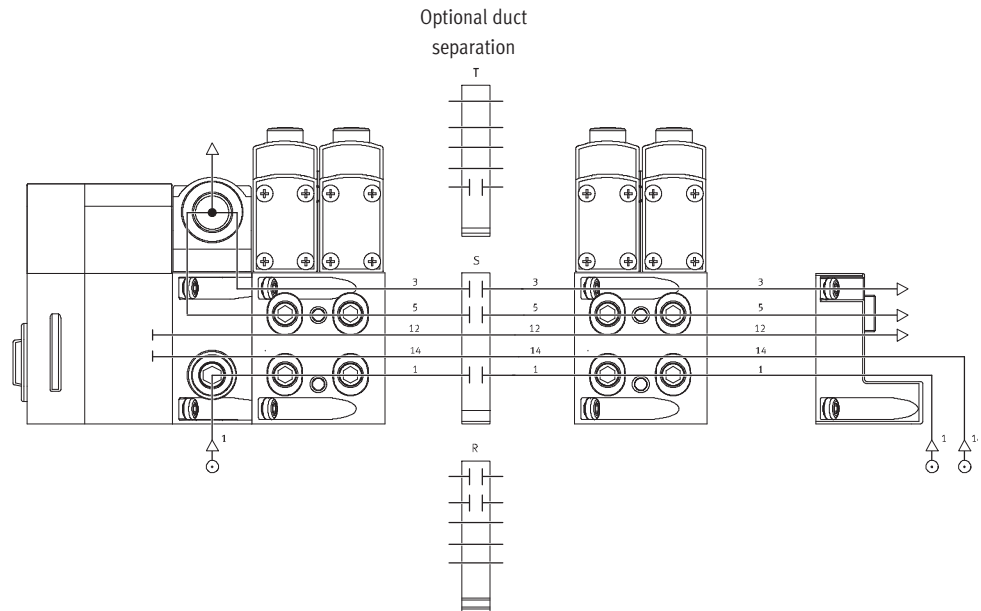
Internal pilot air supply, silencer/ducted exhaust air

Right-hand end plate: code V
 The diagram opposite shows an example of the configuration and connection of the compressed air supply with internal pilot air supply. Port 14 on the right-hand end plate is tightly sealed. Exhaust port 3/5 is expelled via the silencer.
 Duct separations can optionally be used to create pressure zones.



External pilot air supply, silencer/ducted exhaust air

Right-hand end plate: code X
 The diagram opposite shows an example of the configuration and connection of the compressed air supply with external pilot air supply. Port 14 on the right-hand end plate is equipped with a fitting for this. Exhaust port 3/5 is expelled via the silencer.
 Duct separations can optionally be used to create pressure zones.



Valve terminals type 45 VTSA-F

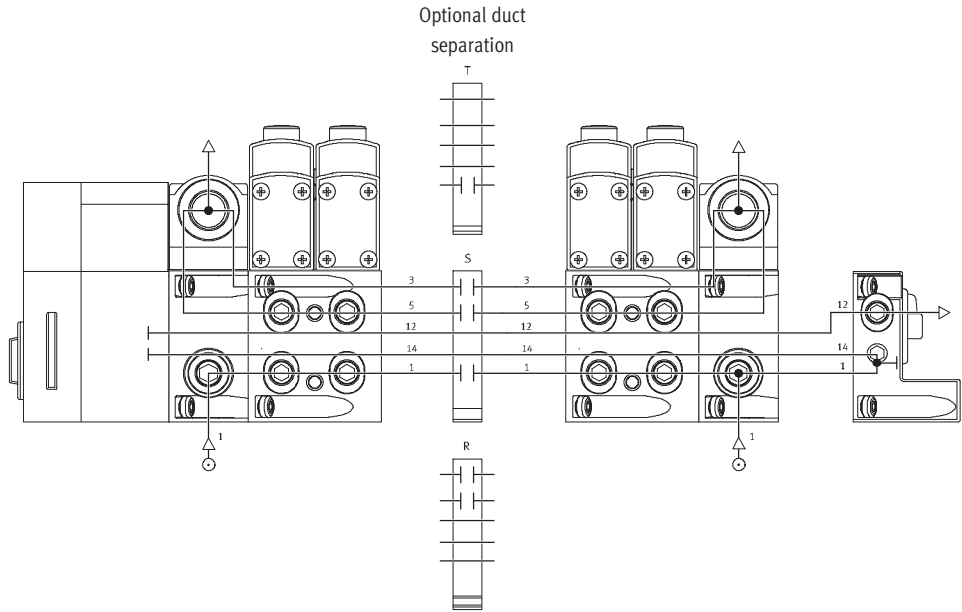
Key features – Pneumatic components



Examples: Compressed air supply and pilot air supply via end plate with pilot air selector

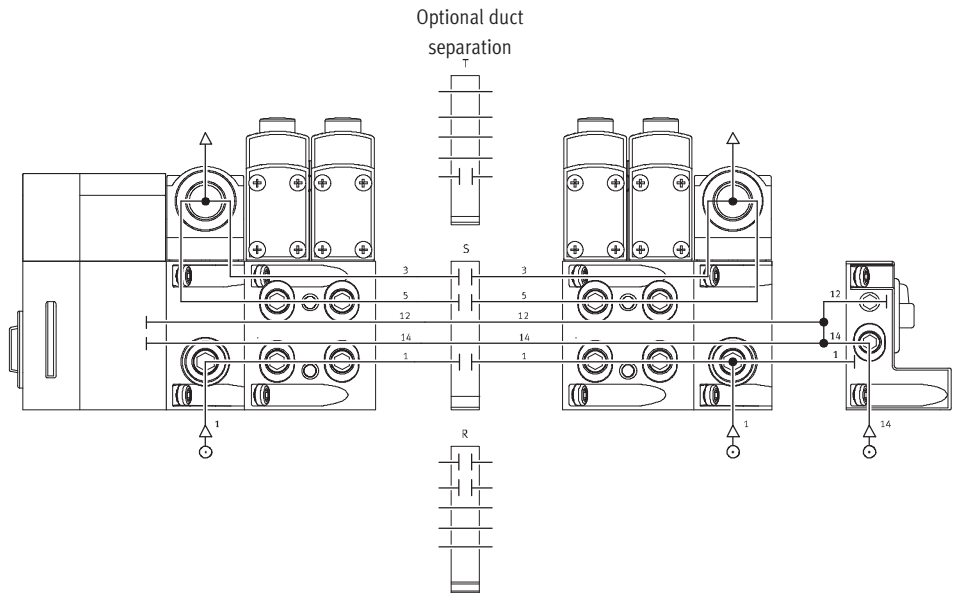
Internal pilot air supply, ducted exhaust air/silencer

Right-hand end plate: code U
 The diagram opposite shows an example of the configuration and connection of the compressed air supply with internal pilot air supply. Port 14 on the right-hand end plate is tightly sealed. Exhaust port 3/5 is ducted and expelled via the silencer.
 The selector switch in the pilot air selector is in position 4.
 Duct separations can optionally be used to create pressure zones.



External pilot air supply, ducted exhaust air/silencer

Right-hand end plate: code Z
 The diagram opposite shows an example of the configuration and connection of the compressed air supply with external pilot air supply. Port 14 on the right-hand end plate is equipped with a fitting for this. Port 12 is sealed with a blanking plug since it is internally connected with port 14. Exhaust port 3/5 is ducted or expelled via the silencer.
 The selector switch in the pilot air selector is in position 1.
 Duct separations can optionally be used to create pressure zones.



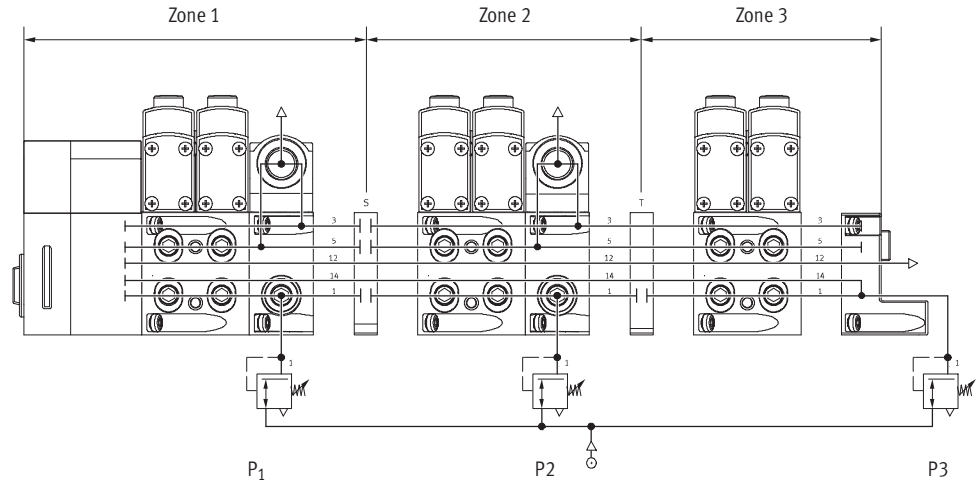
Valve terminals type 45 VTSA-F

Key features – Pneumatic components

Examples: Creating pressure zones

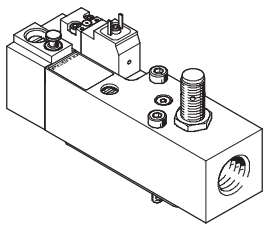
VTSA-F with CPX terminal connection

VTSA-F facilitates the creation of up to 16 pressure zones. The diagram shows an example of the configuration and connection of three pressure zones using duct separations – with internal pilot air supply.



Soft-start valve

Valve



The soft-start valve is used for slow and safe pressure build-up and quick venting of the supply pressure of the valve terminal. If a soft-start valve is used in a valve terminal, no additional elements supplying compressed air must be used in the same pressure zone.

The piston position of the soft-start valve is monitored by a sensor. This

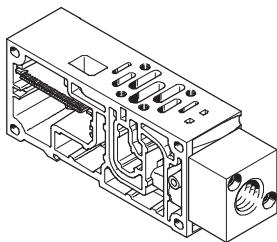
can be used to check whether the valve terminal compressed air supply is working. Pressure sensing via a pressure gauge (optional) is also possible.

The valve terminal can either be operated with internal pilot air supply via the soft-start valve or with internal or external pilot air supply via the different end plate variants. The type of

pilot air supply is determined by the seal of the soft-start valve. If internal pilot air supply via the soft-start valve is selected, there must be no additional pilot air supply (duct 14) within the valve terminal.

Exhaust air cannot be expelled via the soft-start valve. An exhaust plate is required for operation in a pressure zone with duct 1 and 3/5 separated.

Manifold sub-base



Modified manifold sub-bases (width 42 mm) are available for the soft-start valve. This manifold sub-base supplies the pressure zone on the valve terminal with compressed air and

provides a high flow range. The manifold sub-base comes with blanking plugs for sealing the ports on the end plate VABE-S6-1RZ-.... The ports on the end plate are sealed with

blanking plugs as appropriate to the position/pressure zone of the soft-start valve on the valve terminal and the use of internal or external pilot air supply.

Valve terminals type 45 VTSA-F

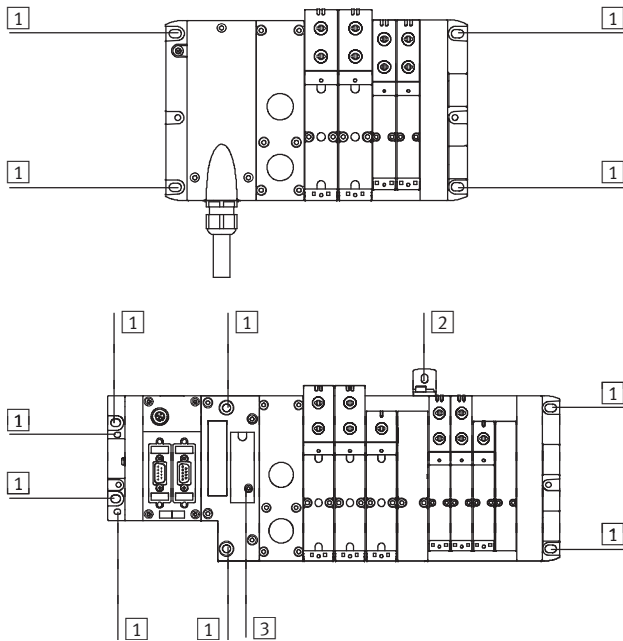
Key features – Mounting

Valve terminal mounting

Sturdy terminal mounting thanks to:

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

Wall mounting



The VTSA-F valve terminal is screwed onto the mounting surface using M6 screws. The mounting holes are located at the following points:

- Multi-pin plug (4 pieces):
2 each on the multi-pin connection block and the right-hand end plate
- Fieldbus, CPX (4 pieces):
2 each on the left-hand (CPX) and right-hand (VTSA-F) end plate. The pneumatic interface additionally provides further mounting holes as well as optional mounting brackets.

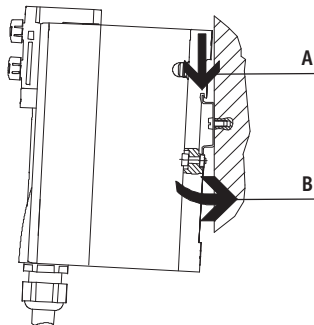
- 1 Hole for M6 screw
- 2 Hole for M5 screw
- 3 Hole for H-rail mounting



Note

When wall mounting valve terminals with more than five manifold sub-bases, use additional mounting brackets of the type VAME-S...-10-W to prevent damage to the valve terminal. The mounting brackets are mounted on the pneumatic supply plates.

H-rail mounting



The VTSA-F valve terminal is hooked onto the H-rail (see arrow A). It is then swivelled onto the H-rail and secured in place with the clamping component (see arrow B).

For H-rail mounting of the valve terminal you will need the following VTSA-F mounting kit:

- With multi-pin plug:
CPA-BG-NRH
- With fieldbus:
CPX-CPA-BG-NRH

This permits mounting of the valve terminal on an H-rail to EN 60715.

Valve terminals type 45 VTSA-F

Key features – Display and operation

Display and operation

Each solenoid coil is allocated an LED which indicates its switching status.

- Indicator 12 shows the switching status of the pilot control for output 2
- Indicator 14 shows the switching status of the pilot control for output 4

Manual override

The manual override enables the valve to be switched when not electrically actuated or energised.

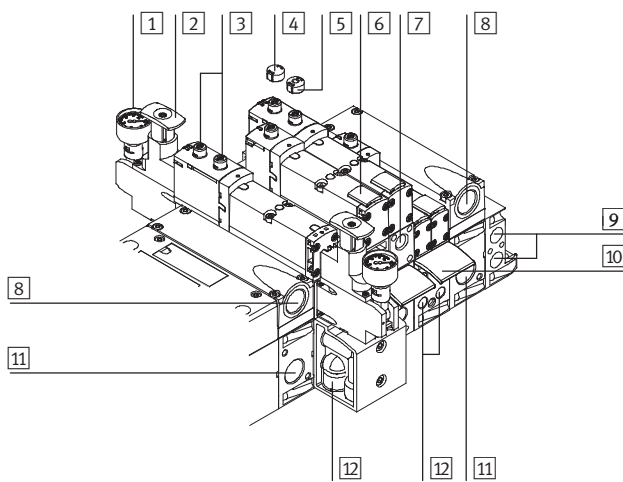
The valve is switched by pushing the manual override. The set switching status can also be locked by turning the manual override.

Alternatives:

- A cover cap (accessory code N) can be fitted over the manual override to prevent it from being turned. The valve can then only be actuated by pressing it.

- A cover cap (accessory code V) can be fitted over the manual override to prevent it from being accidentally actuated.

Pneumatic connection and control elements



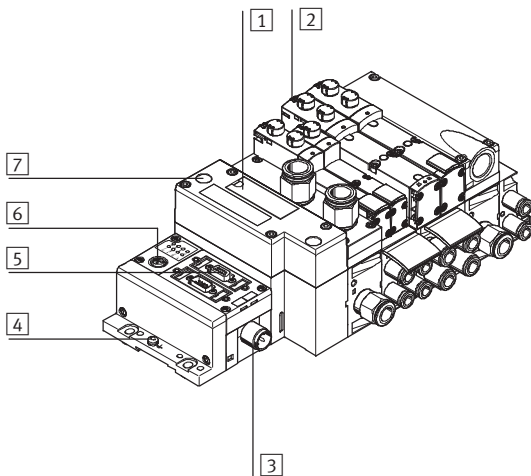
- 1 Pressure gauge (optional)
- 2 Adjusting knob of optional pressure regulator plate
- 3 Manual override (for each pilot solenoid coil, non-detenting or non-detenting/detenting)
- 4 Optional cover cap for manual override (prevents usage of manual override)
- 5 Optional cover cap for manual override with non-detenting function
- 6 Inscription label holder for valve
- 7 Adjusting screw of optional flow control plate
- 8 Exhaust ports (valves) (3/5)
- 9 Pilot ports 12 and 14 for supplying the external pilot air
- 10 Inscription label holder for sub-base
- 11 Supply port 1 (operating pressure)
- 12 Working lines 2 and 4, for each valve position



Note

A manually actuated valve (manual override) cannot be reset electrically. Conversely, an electrically actuated valve cannot be reset using the mechanical manual override.

Electrical connection and display components



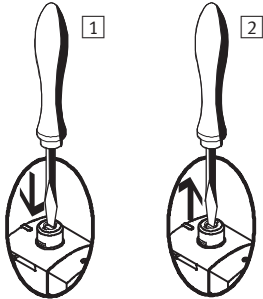
- 1 Inscription area and cover for H-rail mounting
- 2 Yellow LEDs: signal status display for pilot solenoid coils
- 3 Power supply connection
- 4 Earth terminal
- 5 Fieldbus connection (bus-specific)
- 6 Service interface for handheld unit, etc.
- 7 Red LED: common error display for valves

Valve terminals type 45 VTSA-F

Key features – Display and operation

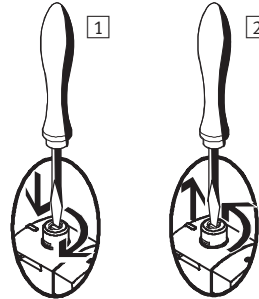
Manual override (MO)

MO with automatic return (non-detenting)



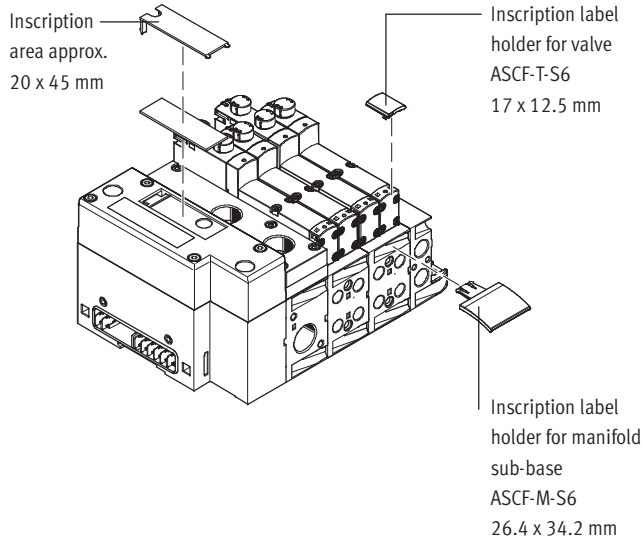
- 1 Press in the stem of the manual override using a pointed object or screwdriver. Valve is then switched.
- 2 Remove the pointed object or screwdriver. Spring force pushes the stem of the manual override back. Valve returns to initial position (not with double solenoid valve code J).

MO set via turning (covered)



- 1 Press in the stem of the manual override using a pointed object or screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached. Valve remains switched
- 2 Turn the stem anti-clockwise by 90° until the stop is reached and then remove the pointed object or screwdriver. Spring force pushes the stem of the manual override back. Valve returns to initial position (not with double solenoid valve code J and D).

Identification system



Inscription label holders can be applied to the valves and manifold sub-bases to identify them. These inscription label holders can be ordered by entering the code B or T in the order code for accessories. Scope of delivery: inscription label holder including inscription label. The following inscription labels can be used as spares:

- Inscription label holder for valve type ASCF-T-S6: Part No. 540888
 - Inscription label holder for manifold sub-base type ASCF-M-S6: Part No. 540889
- Large inscription labels can be attached to the pneumatic interface as an alternative or in addition to the smaller labels.

Valve terminals type 45 VTSA-F

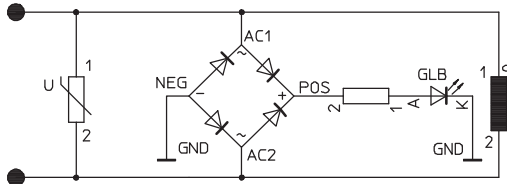
Key features – Electrical components

FESTO

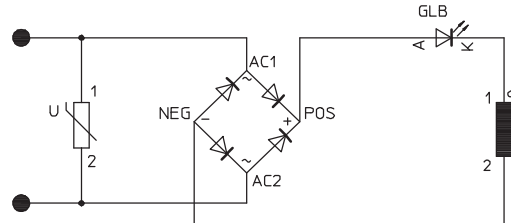
Protective circuit

Each VTSA-F solenoid coil is protected with a spark arresting protective circuit as well as against polarity reversal.

24 V DC version



110 V AC version



Individual electrical connection

A maximum of 20 solenoid coils can be actuated. 2 solenoid coils per valve can be addressed.

Individual electrical connection:

- M12
- 6-way or 10-way

- 5-pin
- 24 V DC

Valve terminals type 45 VTSA-F

Key features – Electrical components

FESTO

Electrical multi-pin plug connection

The following multi-pin plug connection variants are offered for the valve terminal VTSA-F:

- Sub-D multi-pin plug connection (37-pin for 24 V DC): this valve terminal is available with 2 ... 16 valve positions equipped with double solenoid valves and 2 ... 32 valve positions equipped with single solenoid valves. A maximum of 32 solenoid coils can be actuated.
- Terminal box (terminal strip for 24 V DC or 110 V AC): this valve terminal is available with 2 ... 16 valve positions equipped with double

solenoid valves and 2 ... 32 valve positions equipped with single solenoid valves. A maximum of 32 solenoid coils can be actuated.

- Multi-pin node (round plug connector): electrical multi-pin plug connection with round plug connector, 19-pin to CNOMO E03.62.530.N, connecting thread M23 for 24 V DC. The valve terminal can be equipped with max. 16 solenoid coils.

The valves are switched by means of positive or negative logic (PNP or

NPN). Mixed operation is not permitted.

Each pin on the Sub-D multi-pin plug or terminal box (terminal strip) can actuate exactly one solenoid coil. If the maximum configurable number of valve positions is 32, this means that 32 valves, each with a single solenoid coil, can be addressed. With 16 or fewer valve positions, 2 solenoid coils per valve can be addressed.



- Note

Use the following 37-pin connecting cables from Festo to connect the valve terminal VTSA-F with Sub-D multi-pin plug connection:

- NEBV-S1W37-...-LE10 for max. 8 solenoid coils
- NEBV-S1W37-...-LE26 for max. 22 solenoid coils
- NEBV-S1W37-...-LE37 for max. 32 solenoid coils
- NECV-S1W37 pre-assembled plug connector

AS-interface connection

VTSA valve terminals with AS-interface connection can be expanded with up to 8 valves with max. 8 solenoid coils. The valve terminal with AS-interface connection is based on the same electrical manifold module as the valve

terminal with multi-pin plug connection.

This means it is possible to convert a valve terminal with multi-pin plug connection using an AS-interface module.

- The technical specifications of the AS-interface system must be observed in this case.



- Note

AS-i module VAEM-S6-S-FAS-4-4E. Always operate solenoid valves with additional power supply if 4 solenoid coils are supplied with current simultaneously.

Further information can be found at:

➔ Internet: as-interface

Fieldbus connection/control block

All functions and features of the electrical peripherals CPX are permitted in connection with the CPX interface. This means:

- The valves and electrical outputs are supplied via the operating voltage connection CPX.
- The valves are supplied and switched off independently via a separate port on the CPX.



- Note

Further information can be found at:

➔ Internet: cpx

Valve terminals type 45 VTSA-F

Key features – Electrical components



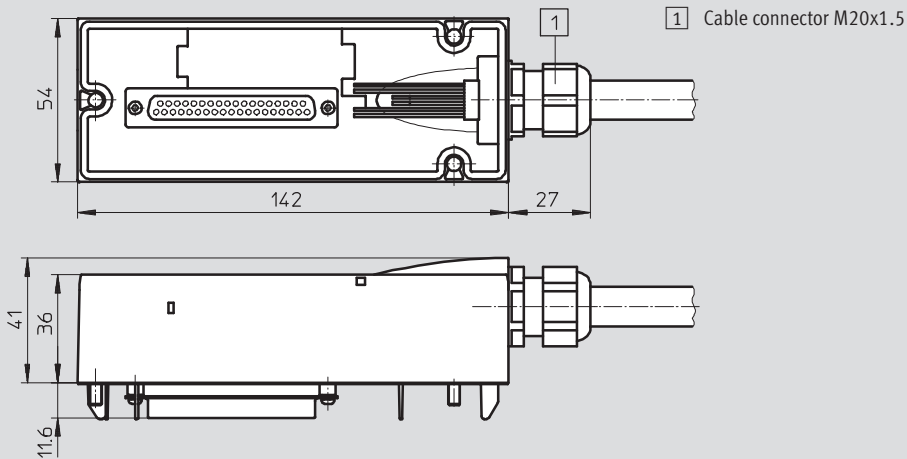
Pin allocation – Sub-D plug socket, 24 V DC; electrical connection code MP1							
	Pin ²⁾	Address/coil	Wire colour ¹⁾		Pin ²⁾	Address/coil	Wire colour ¹⁾
	1	0	WH		17	16	WH PK
	2	1	BN		18	17	PK BN
	3	2	GN		19	18	WH BU
	4	3	YE		20	19	BN BU
	5	4	GY		21	20	WH RD
	6	5	PK		22	21	BN RD
	7	6	BU		23	22	GY GN
	8	7	RD		24	23	YE GY
	9	8	GY PK		25	24	PK GN
	10	9	RD BU		26	25	YE PK
	11	10	WH GN		27	26	GN BU
	12	11	BN GN		28	27	YE BU
	13	12	WH YE		29	28	GN RD
	14	13	YE BN		30	29	YE RD
	15	14	WH GY		31	30	GN BK
	16	15	GY BN		32	31	GY BU
<p> - Note</p> <p>The drawing shows the view on the Sub-D plug socket at the multi-pin cable NEBV-S1W37-....</p>	Conductor						
	33	0 V ³⁾	YE BK		35	0 V ³⁾	BN BK
	34	0 V ³⁾	WH BK		36	0 V ³⁾	BK
	Earthing						
	37	FE	VT		-	-	-

- 1) To IEC 757
- 2) Pin 9 ... 35: not allocated with cable NEBV-S1-W37-...-LE10
Pin 23 ... 33: not allocated with cable NEBV-S1-W37-...-LE26
- 3) 0 V for positive switching control signals; connect 24 V for negative switching control signals; mixed operation is not permitted

Dimensions

Download CAD data → www.festo.com

Connecting cable NEBV-S1W37-...



The wire colours refer to the following pre-assembled multi-pin cables from Festo:

- NEBV-S1W37-...-LE10 for valve terminal with max. 8 solenoid coils
- NEBV-S1W37-...-LE26 for valve terminal with max. 22 solenoid coils
- NEBV-S1W37-...-LE37 for valve terminal with max. 32 solenoid coils

Valve terminals type 45 VTSA-F

Key features – Electrical components

FESTO

Sub-D plug, 24 V DC; electrical connection code MP1							
Type	Sheath	Length [m]	Wire x mm ² [mm ²]	Cable diameter [mm]	Part No.		
NEBV-S1W37-E2,5-LE10	Polyurethane	2.5	10 x 0.34	7.7	539240		
NEBV-S1W37-E5-LE10		5			539241		
NEBV-S1W37-E10-LE10		10			539242		
NEBV-S1W37-E2,5-LE26		Polyurethane	2.5	26 x 0.34	11.5	539243	
NEBV-S1W37-E5-LE26			5			539244	
NEBV-S1W37-E10-LE26			10			539245	
NEBV-S1W37-K2,5-LE37			Polyurethane	2.5	37 x 0.34	13	539246
NEBV-S1W37-K5-LE37				5			539247
NEBV-S1W37-K10-LE37				10			539248
NEBV-S1W37-KM-2,5-LE10	Polyvinyl chloride			2.5	10 x 0.34	7.7	543271
NEBV-S1W37-KM-5-LE10				5			543272
NEBV-S1W37-KM-10-LE10		10		543273			
NEBV-S1W37-KM-2,5-LE27		Polyvinyl chloride		2.5	27 x 0.34	11.5	543274
NEBV-S1W37-KM-5-LE27				5			543275
NEBV-S1W37-KM-10-LE27			10	543276			
NEBV-S1W37-KM-2,5-LE37			Polyvinyl chloride	2.5	37 x 0.34	13	543277
NEBV-S1W37-KM-5-LE37				5			543278
NEBV-S1W37-KM-10-LE37				10			543279

Valve terminals type 45 VTSA-F

Key features – Electrical components



Pin allocation – Multi-pin terminal strip (Cage Clamp®), 24 V DC and 110 V AC; electrical connection code T					
	Terminal	Coil/address		Terminal	Coil/address
<p>Each solenoid coil must be assigned to a specific terminal on the terminal strip in order for the valves to be actuated.</p>	1	0		17	16
	2	1		18	17
	3	2		19	18
	4	3		20	19
	5	4		21	20
	6	5		22	21
	7	6		23	22
	8	7		24	23
	9	8		25	24
	10	9		26	25
	11	10		27	26
	12	11		28	27
	13	12		29	28
	14	13		30	29
	15	14		31	30
	16	15		32	31
<p>- - Note The drawing shows the view onto the multi-pin terminal strip (Cage Clamp®).</p>	Conductor				
	33	0 V		35	0 V
	34	0 V		36	0 V

1) 0 V for positive switching control signals; connect 24 V for negative switching control signals; mixed operation is not permitted

Pin allocation – Round plug connector, 24 V DC; electrical connection code MP4					
	Address	Pin ¹⁾		Address	Pin ¹⁾
	0	15		8	17
	1	7		9	9
	2	5		10	2
	3	4		11	13
	4	16		12	11
	5	8		13	10
	6	3		14	1
	7	14		15	18

1) Pin 6: 0 V for positive switching control signals; connect 24 V for negative switching control signals; mixed operation is not permitted
Pin 12: earth
Pin 19: unused

Rules for addressing

- Address allocation does not depend on whether single or double solenoid valves are fitted.
- Addresses are allocated in ascending order without gaps, from left to right.

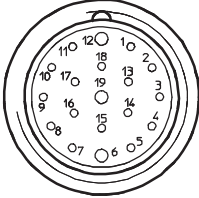
– A valve position for actuating one solenoid coil occupies one address (type VABV-...-...T1).

– A valve position for actuating two solenoid coils occupies two addresses (type VABV-...-...T2).
The following allocation applies in this case:

- Coil 14: lower-value address.
- Coil 12: higher-value address.

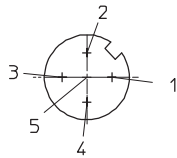
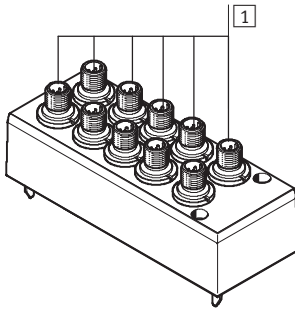
Valve terminals type 45 VTSA-F

Key features – Electrical components

Pin allocation – Round plug connector, 24 V DC; electrical connection – CNOMO assignment					
	Pin	Valve position/ solenoid coil		Pin	Valve position/ solenoid coil
	1	8/14		10	7/12
	2	6/14		11	7/14
	3	4/14		12	FE
	4	2/12		13	6/12
	5	2/14		14	4/12
	6	0 V ¹⁾		15	1/14
	7	1/12		16	3/14
	8	3/12		17	5/14
	9	5/12		18	8/12
			19	Unused	

1) 0 V for positive switching control signals; connect 24 V for negative switching control signals; mixed operation is not permitted

Individual electrical connection, 6-way or 10-way, 24 V DC, code MP2/MP3 for valve terminal



Pin allocation M12

With positive logic:

Pin1 – Unused

Pin2 – V_B for coil 12

Pin3 – 0 V for coil 12 and 14

Pin4 – V_B for coil 14

Pin5 – Functional earth

Pin allocation M12

With negative logic:

Pin1 – Unused

Pin2 – 0 V for coil 12

Pin3 – V_B for coil 12 and 14

Pin4 – 0 V for coil 14

Pin5 – Functional earth

1 Connector plug M12x1, 5-pin



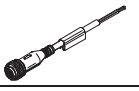
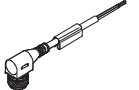
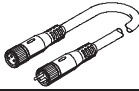
Note

Mixed operation of positive switching and negative switching control signals is not permitted.

Valve terminals type 45 VTSA-F

Key features – Electrical components

FESTO

Electrical connection technology				
	Electrical connection	Type of mounting/cable length	Type	Part No.
Plug socket with cable for connecting individual valves				
	Straight socket, 5-pin, M12	5 m	NEBU-M12G5-K-5-LE3	541364
	Angled socket, 5-pin, M12	5 m	NEBU-M12W5-K-5-LE3	541370
	Modular system for connecting cables	–	NEBU-... → Internet: nebu	–

System equipment

Operate system equipment with unlubricated compressed air if possible. Festo valves and cylinders are designed so that, if used as designated, they will not require additional lubrication and will still achieve a long service life. The quality of compressed air downstream of the compressor must correspond to that of unlubricated compressed air. If possible, do not operate all your system equipment with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator used.

Incorrect additional oil and too high an oil content in the compressed air reduce the service life of the valve terminal. Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalogue (as specified in DIN 51524 HLP32; basic oil viscosity 32 CST at 40 °C).

Bio-oils


When using bio-oils (oils which are based on synthetic or native ester, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m³ must not be exceeded (see ISO 8573-1 Class 2).


Mineral oils

When using mineral oils (e.g. HLP oils to DIN 51524, parts 1 to 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m³ must not be exceeded (see ISO 8573-1 Class 4). A higher residual oil content irrespective of the compressor oil cannot be permitted, as the basic lubricant would be flushed out over time.

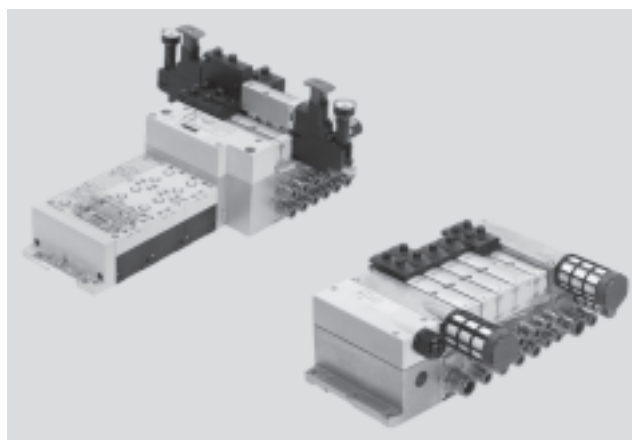
Valve terminals type 45 VTSA-F

Technical data


-  - Flow rate
Width 18 mm:
Up to 700 l/min
Width 26 mm:
Up to 1,400 l/min

-  - Valve width
02: 18 mm
01: 26 mm

-  - Voltage
24 V DC
110 V AC



General technical data		
Width	18 mm	26 mm
Design	Piston spool valve	
Sealing principle	Soft	
Actuation type	Electrical	
Type of control	Piloted	
Exhaust function, with flow control	Via flow control plate	
Lubrication	Lubricated for life	
Type of mounting	Wall mounting On H-rail to EN 60715	
Mounting position	Any	
Manual override	Non-detenting, detenting, covered	
Valve terminal design	Modular and expandable	
Max. no. of valve positions	32	
Width	18 mm	26 mm
Pneumatic connections	Threaded connection	
Pneumatic connection	Via manifold sub-base	
Supply port	1	<ul style="list-style-type: none"> • G$\frac{1}{2}$ • QS-G$\frac{1}{2}$-16 • QS-G$\frac{1}{2}$-12
Exhaust port	3/5	<ul style="list-style-type: none"> • G$\frac{1}{2}$ • QS-G$\frac{1}{2}$-16 • QS-G$\frac{1}{2}$-12
Working lines	2/4	Dependent on the connection type selected
	<ul style="list-style-type: none"> • G$\frac{1}{8}$ • QS-G$\frac{1}{8}$-6 • QS-G$\frac{1}{8}$-8 	<ul style="list-style-type: none"> • G$\frac{1}{4}$ • QS-G$\frac{1}{4}$-8 • QS-G$\frac{1}{4}$-10
External pilot air supply port	14	<ul style="list-style-type: none"> • G$\frac{1}{4}$ • QS-G$\frac{1}{4}$-10 • QS-G$\frac{1}{4}$-8
Pilot exhaust air port	12	<ul style="list-style-type: none"> • G$\frac{1}{4}$ • QS-G$\frac{1}{4}$-10 • QS-G$\frac{1}{4}$-8

-  - Note: This product conforms to ISO 1179-1 and to ISO 228-1

Valve terminals type 45 VTSA-F

Technical data

Standard nominal flow rate [l/min]																	
Valve function order code	VC	VV	N	K	H	P	Q	R	M	O	J	D	B	G	E	SA	SB
Width 18 mm																	
Flow rate of valve	700	600			750			700 ¹⁾ 330 ²⁾		-	-						
Flow rate of valve on valve terminal	650	550			700			480 ¹⁾ (U) 330 ²⁾ (E) 650 (C)		-	-						
Width 26 mm																	
Flow rate of valve	1,350	1,250			1,400			1,400 ¹⁾		1,400	700						
Flow rate of valve on valve terminal	1,300	1,150			1,350			1,350 ¹⁾ 700 ²⁾		1,000	700						

1) Switching position

2) Mid-position

Operating and environmental conditions																	
Valve function order code	VC	N	K	H	VV	P	Q	R	M	O	J	D	B	G	E	SA	SB
Operating medium	Filtered compressed air, lubricated or unlubricated, inert gases → 48																
Grade of filtration [µm]	40 (average pore size)																
Operating pressure [bar]	3 ... 10				-0.9 ... +10												
Operating pressure for valve terminal with internal pilot air supply [bar]	3 ... 10																
Pilot pressure [bar]	3 ... 10																
Ambient temperature [°C]	-5 ... +50																
Temperature of medium [°C]	-5 ... +50																
Storage temperature ¹⁾ [°C]	-20 ... +40																
Relative air humidity [%]	90																
PWIS criterion	Free of paint-wetting impairment substances																

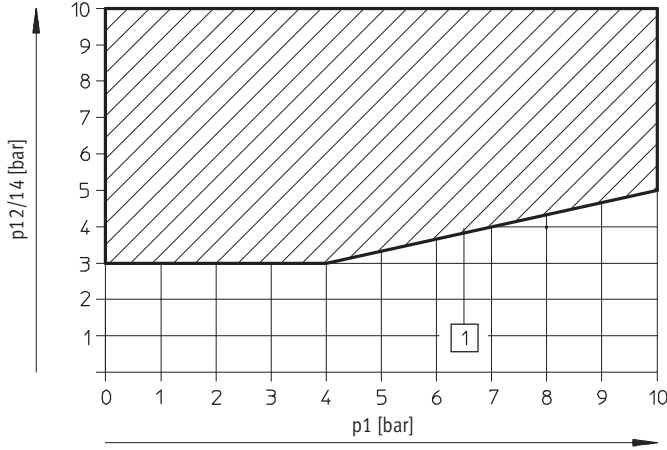
1) Long-term storage

Pneumatic characteristic data																	
Valve function order code	VC	VV	N	K	H	P	Q	R	M	O	J	D	B	G	E	SA	SB
Direction of flow																	
Any	-	■	-	-	-	-	-	-	■	■	■	■	■	■	■	-	■
Reversible only	-	-	-	-	-	■	■	■	-	-	-	-	-	-	-	-	-
Non-reversible	■	-	■	■	■	-	-	-	-	-	-	-	-	-	-	■	-
Reset method																	
Pneumatic spring	■	■	■	-	■	■	■	■	■	-	-	-	-	-	-	■	■
Mechanical spring	-	-	-	■	-	-	-	-	-	■	-	-	■	■	■	-	-

Valve terminals type 45 VTSA-F

Technical data

Pilot pressure p12/14 as a function of operating pressure p1
for 3/2-way valves



1 Operating range for valves with external pilot air supply

Note

Reversible 3/2-way valves (flow direction reversible only)

- These valves must only be operated on pressure zones with reversible supply (3 and 5 with supply pressure 1 as exhaust air) or on a reversible pressure

regulator. If necessary create pressure separation zones with duct separation.

- Reversible 3/2-way valves do not permit the special function “pilot exhaust air ducting”.

- Ports 112 and 14 on the end plate variants must be supplied with the same pressure.
- Right-hand end plate with pilot air selector: can be realised via position 1 or 2.

- Right-hand end plate with threaded connections: 12 and 14 must be supplied with the same pressure level.

Valve switching times [ms]

Valve function order code	VC	VV	N	K	H	P	Q	R	M	O	J	D	B	G	E	SA ¹⁾	SB ¹⁾	
18 mm, nominal operating voltage 24 V DC/110 V AC																		
Switching times	on	12	12	12	12	12	25	25	25	22	12	–	–	15	15	15	–	–
	off	30	30	30	30	30	12	12	12	28	38	–	–	44	44	44	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	11	13	–	–	–	–	–
26 mm, nominal operating voltage 24 V DC/110 V AC																		
Switching times	on	20	20	20	20	20	32	32	32	25	20	–	–	22	22	22	9/22	9/19
	off	38	38	38	38	38	30	30	30	45	65	–	–	65	65	65	49	36
	change-over	–	–	–	–	–	–	–	–	–	–	18	21	–	–	–	33	32

1) Valve code WA, switching time 22 ms for control side 12, 9 ms for control side 14
Valve code WB, switching time 19 ms for control side 12, 9 ms for control side 14

Valve terminals type 45 VTSA-F

Technical data

Electrical data		
VTSA-F with individual connection	18 mm	26 mm
Load voltage supply for valves (V_{val})		
Operating voltage	[V DC]	24 ±10%
Maximum residual current	[A]	10
Duty cycle		100%
Protection class to EN 60529	IP65 and NEMA 4 (for all types of signal transmission in assembled state)	
Power consumption at 24 V DC		
2x 3/2-way valve	[W]	1.3
5/2-way valve (code D)	[W]	1.3
5/2-way, 5/3-way valve	[W]	1.6

Electrical data		
VTSA-F with multi-pin plug connection	18 mm	26 mm
Load voltage supply for valves (V_{val})		
Operating voltage	[V DC]	24 ±10%
	[V AC]	110 ±10% (50 ... 60 Hz)
Maximum residual current	[A]	6
Acceptable current load at 40 °C	[A]	1
Surge capacity	[kV]	1.5
Degree of contamination		3
Duty cycle		100%
Protection class to EN 60529	IP65 and NEMA 4 (for all types of signal transmission in assembled state)	
Power consumption at 24 V DC		
2x 3/2-way valve	[W]	1.3
5/2-way valve (code D)	[W]	1.3
5/2-way, 5/3-way valve	[W]	1.6
Power consumption at 110 V AC		
2x 3/2-way valve	[VA]	1
5/2-way, 5/3-way valve	[VA]	1.6

Valve terminals type 45 VTSA-F

Technical data

Electrical data		
VTSA-F with CPX terminal	18 mm	26 mm
Power supply for electronics (V _{EL/SEN})		
Operating voltage	[V DC]	24 ±10%
Max. intrinsic current consumption at 24 V DC	[mA]	20
Duty cycle		100%
Load voltage supply for valves (V _{val})		
Operating voltage	[V DC]	24 ±10%
Diagnostic message undervoltage V _{OFF} , load voltage outside function range	[V]	21.6 ... 21.5
Protection class to EN 60529		IP65 and NEMA 4 (for all types of signal transmission in assembled state)
Power consumption at 24 V DC		
2x 3/2-way valve	[W]	1.3
5/2-way valve (code D)	[W]	1.3
5/2-way, 5/3-way valve	[W]	1.6

Certifications	
This product is certified for use in the ATEX zone in accordance with the EU ATEX Directive ¹⁾	
ATEX category for gas	II 3G
Explosion ignition protection type for gas	Ex nA II T3 X
ATEX category for dust	II 3D
Explosion ignition protection type for dust	Ex tD A22 IP65 T1 25° C X
ATEX temperature rating	[°C] -5 ≤ Ta ≤ +50
Certification	cULus recognized (OL)
CE mark ²⁾ (see declaration of conformity)	To EU EMC Directive

- 1) Certification valid for: VTSA-F-MP, VTSA-F-ASI, VTSA-F-FB
 2) Multi-pin plug variant 1 (24 V DC): I/O
 Multi-pin plug variant 2A (110 V): to EU Low Voltage Directive
 CPX variant: to EU EMC Directive

Materials	
	18 mm 26 mm
Manifold sub-base	Die-cast aluminium
Valve	Die-cast aluminium, reinforced polyamide
Seals	Nitrile rubber, elastomer (support made of steel)
Supply plate	Die-cast aluminium
Right-hand end plate	Die-cast aluminium
Pneumatic interface for CPX	Die-cast aluminium
Flow control plate	Die-cast aluminium
Pressure regulator plate	Die-cast aluminium, reinforced polyamide
Multi-pin connection block	Die-cast aluminium
Cover for the pneumatic interface and multi-pin plug connection	Wellamid, reinforced polyamide
RoHS status	RoHS-compliant

Valve terminals type 45 VTSA-F

Technical data

Product weight	Design		
	Approx. weight [g]	18 mm	26 mm
Sub-D multi-pin interface module or terminal strip ¹⁾	550		
Multi-pin node with M12 individual connection	760		
Interface module CPX ¹⁾	1,470		
Electrical connection for AS-interface	300		
AS-interface module	850		
Supply plate ²⁾			
• Exhaust plate with 3 and 5 common	617		
• Exhaust port cover with 3 and 5 separated	597		
Right-hand end plate ³⁾			
• Axial	339		
• Selector	281		
Manifold sub-base ⁴⁾	447		634
90° connection plate ³⁾	170		230
Pressure regulator plate			
for port 1	350		402
for port 4 or 2	367		448
for ports 4/2	611		692
Flow control plate	228		320
Vertical supply plate ³⁾	140		191
Vertical pressure shut-off plate	209		273
Valves			
• 5/3-way valve (code: B, G, E)	191		320
• 5/3-way valve (code: SA, SB)	–		301
• 5/2-way valve, single solenoid (code: M, O)	163		293
• 5/2-way valve, double solenoid (code: J, D)	172		276
• 2x 3/2-way valve (code: N, K, H, P, Q, R)	190		335
• 2x 2/2-way valve (code: VC, VV)	190		335
Blanking plate	34		73

1) With sheet metal seal, printed circuit board

2) With sheet metal seal and electrical interlinking module

3) With screws

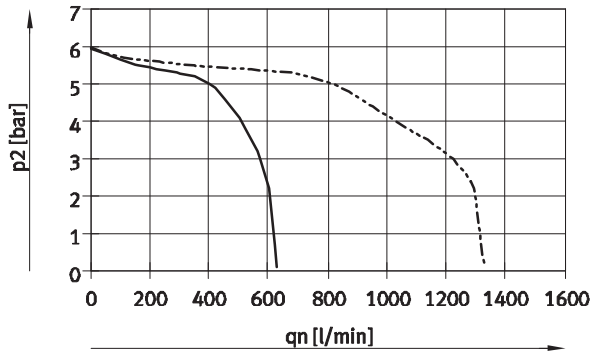
4) With sheet metal seal, electrical interlinking module, inscription label holder, 4 screws

Valve terminals type 45 VTSA-F

Technical data

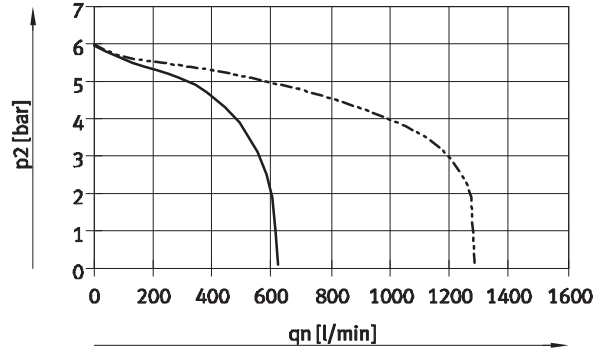
Flow rate q_n as a function of output pressure p_2 with pressure regulator plates (P regulator plate) for port 1

6 bar



— Width 18 mm
- - - Width 26 mm

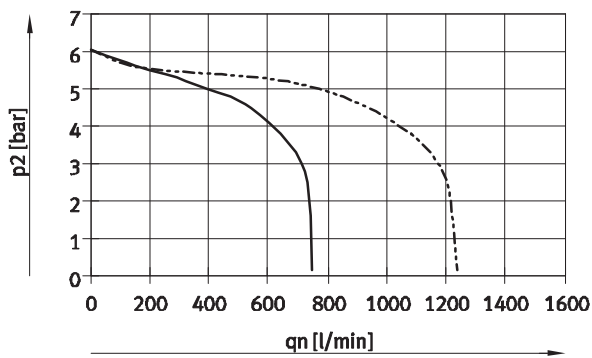
10 bar



— Width 18 mm
- - - Width 26 mm

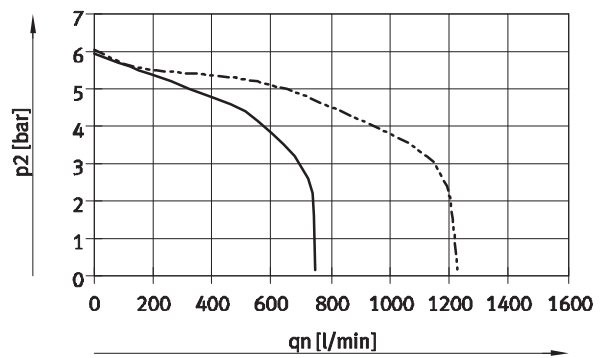
Flow rate q_n as a function of output pressure p_2 with pressure regulator plates (AB regulator plates) for port 2, 4 or ports 4/2

6 bar



— Width 18 mm
- - - Width 26 mm

10 bar



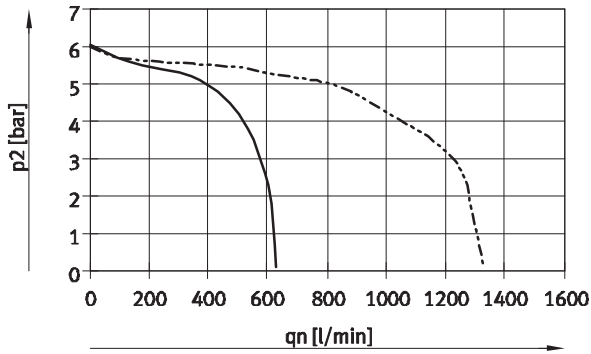
— Width 18 mm
- - - Width 26 mm

Valve terminals type 45 VTSA-F

Technical data

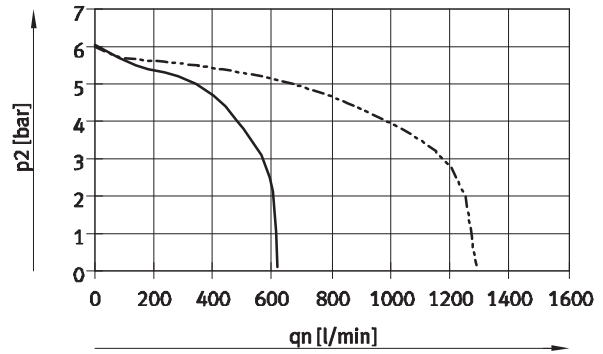
Flow rate q_n as a function of output pressure p_2 with pressure regulator plates (AB regulator plates, rev.) for ports 4/2, reversible

6 bar



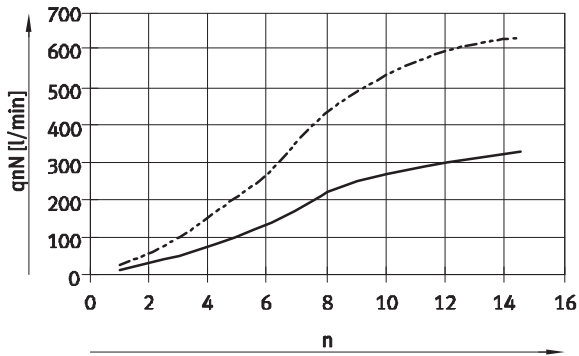
— Width 18 mm
 - - - Width 26 mm

10 bar



— Width 18 mm
 - - - Width 26 mm

Flow rate q_n as a function of flow control



— Width 18 mm
 - - - Width 26 mm
 n Revolutions of the adjusting screw

Valve terminals type 45 VTSA-F

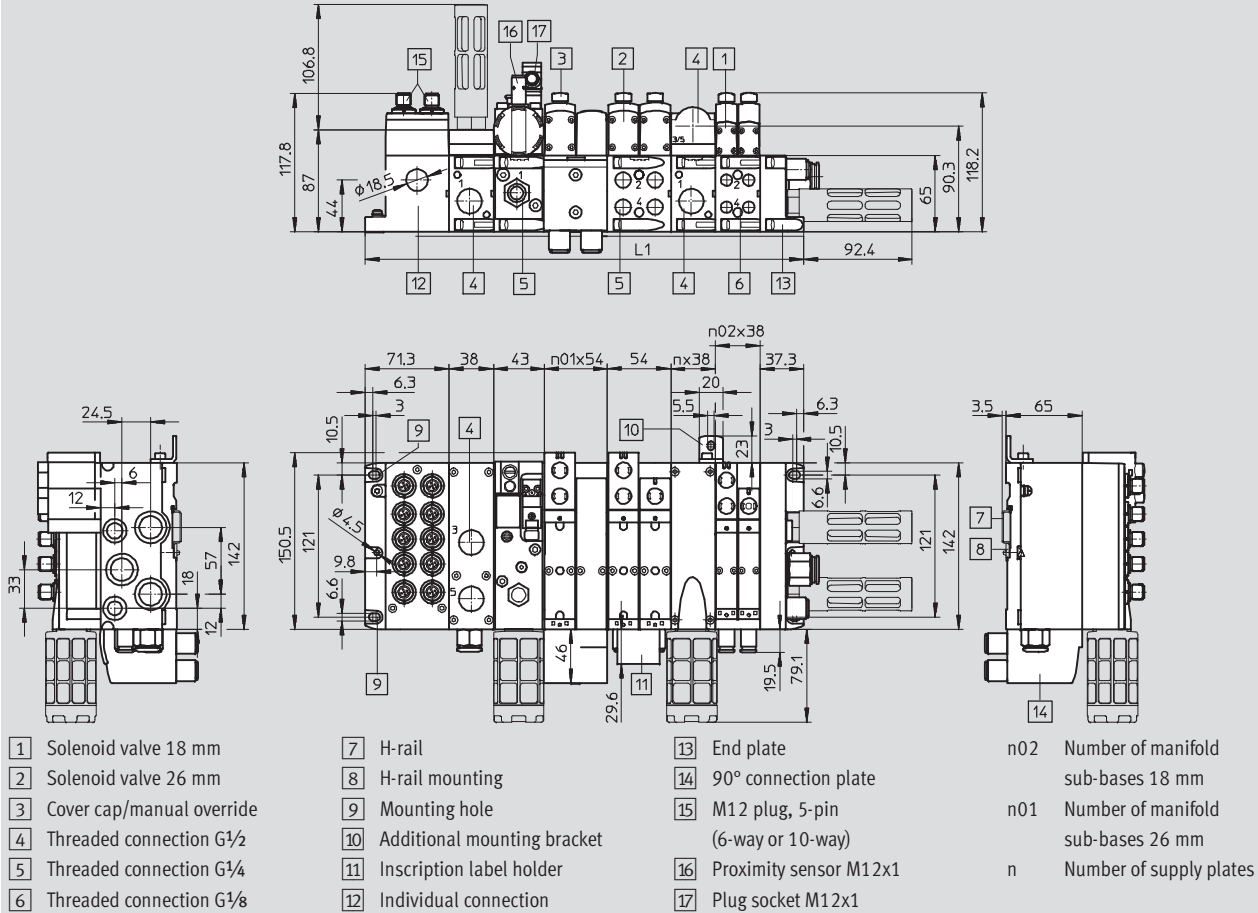
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

Valve terminal with individual electrical connection



Width	L1
18 mm	$71.3 + n02 \times 38 + 43 + nx 38 + 37.3$
26 mm	$71.3 + n01 \times 54 + 43 + nx 38 + 37.3$
Mixture of 18 mm and 26 mm	$71.3 + n02 \times 38 + n01 \times 54 + 43 + nx 38 + 37.3$

Note: This product conforms to ISO 1179-1 and ISO 228-1

Valve terminals type 45 VTSA-F

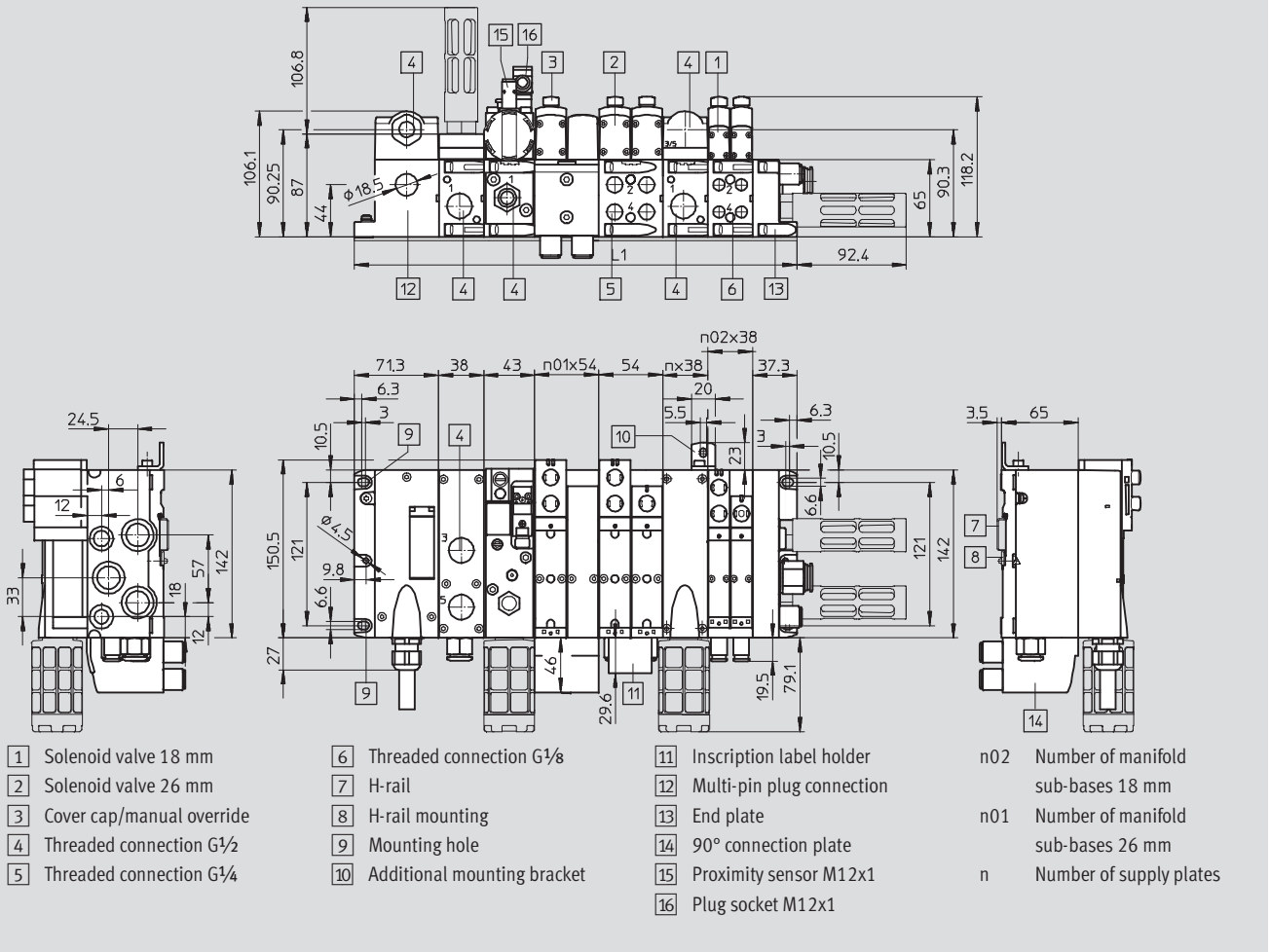
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

Valve terminal with multi-pin plug connection



Note: This product conforms to ISO 1179-1 and ISO 228-1

Valve terminals type 45 VTSA-F

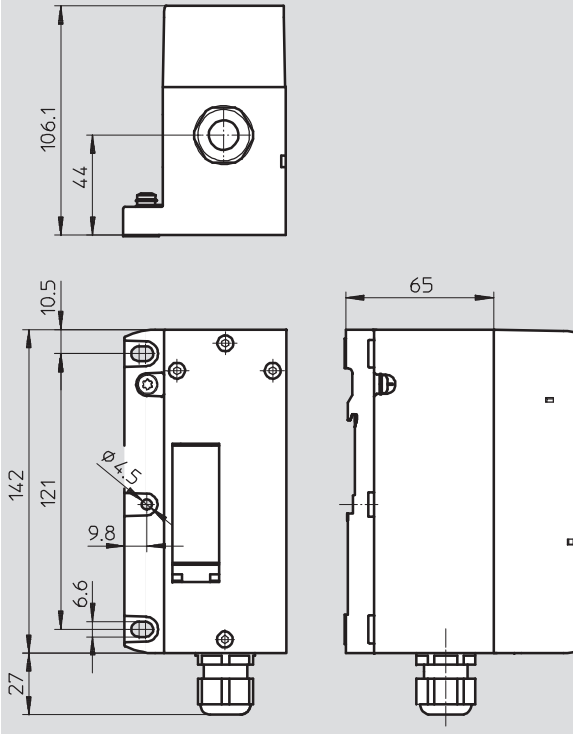
Technical data

FESTO

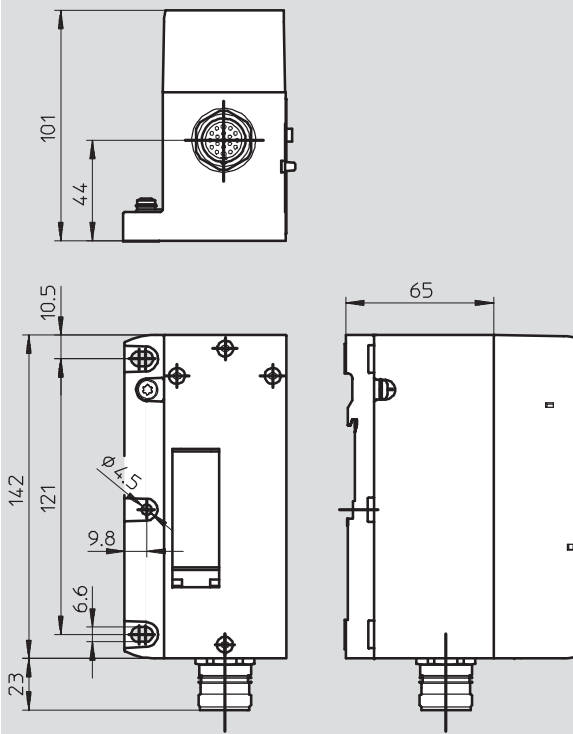
Dimensions

Download CAD data → www.festo.com

Multi-pin, terminal strip (Cage Clamp®)



Multi-pin, round plug connector



Valve terminals type 45 VTSA-F

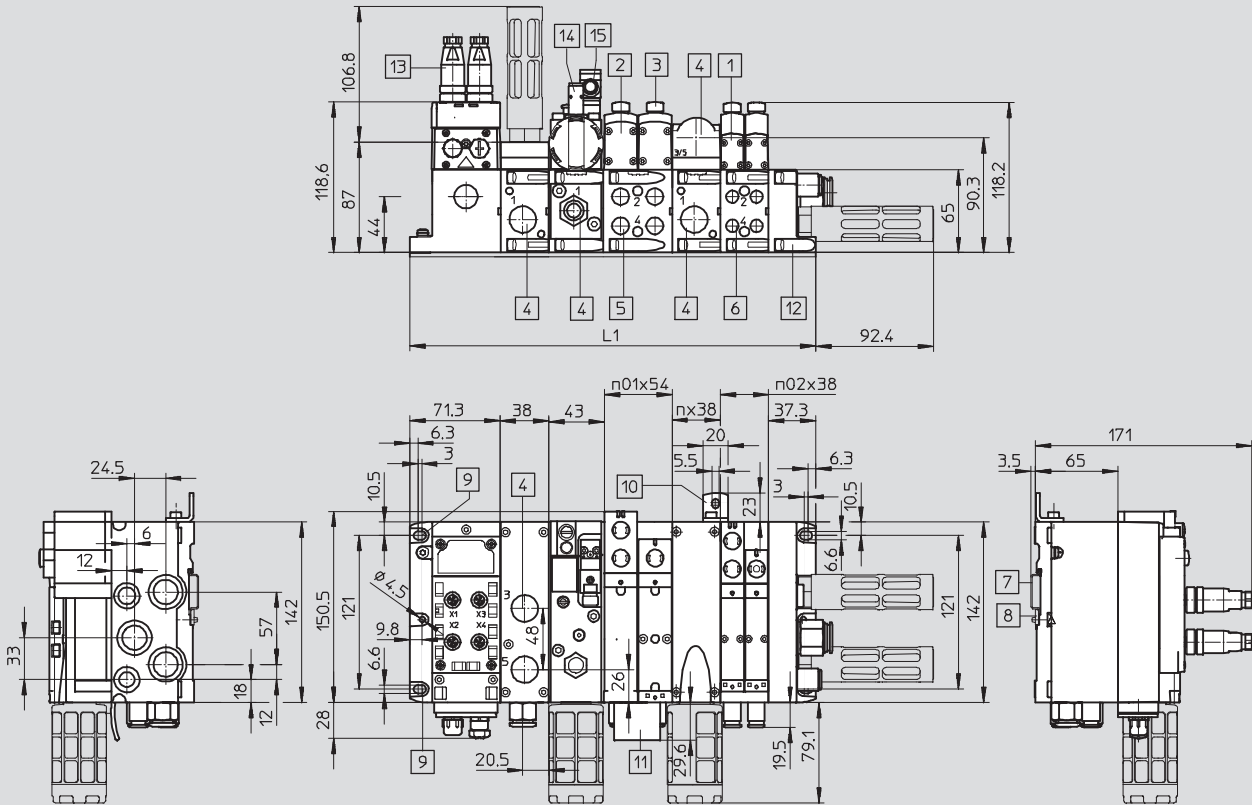
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

Valve terminal with AS-interface connection



- | | | | |
|---------------------------------------|---------------------------------------|-----------------------------|--|
| 1 Solenoid valve 18 mm | 6 Threaded connection G $\frac{3}{8}$ | 11 Inscription label holder | n02 Number of manifold sub-bases 18 mm |
| 2 Solenoid valve 26 mm | 7 H-rail | 12 End plate | n01 Number of manifold sub-bases 26 mm |
| 3 Cover cap/manual override | 8 H-rail mounting | 13 Plug M12 | n Number of supply plates |
| 4 Threaded connection G $\frac{1}{2}$ | 9 Mounting hole | 14 Proximity sensor M12x1 | |
| 5 Threaded connection G $\frac{1}{4}$ | 10 Additional mounting bracket | 15 Plug socket M12x1 | |

Width	L1
18 mm	$71.3 + n02 \times 38 + 43 + nx 38 + 37.3$
26 mm	$71.3 + n01 \times 54 + 43 + nx 38 + 37.3$
Mixture of 18 mm and 26 mm	$71.3 + n02 \times 38 + n01 \times 54 + 43 + nx 38 + 37.3$

Valve terminals type 45 VTSA-F

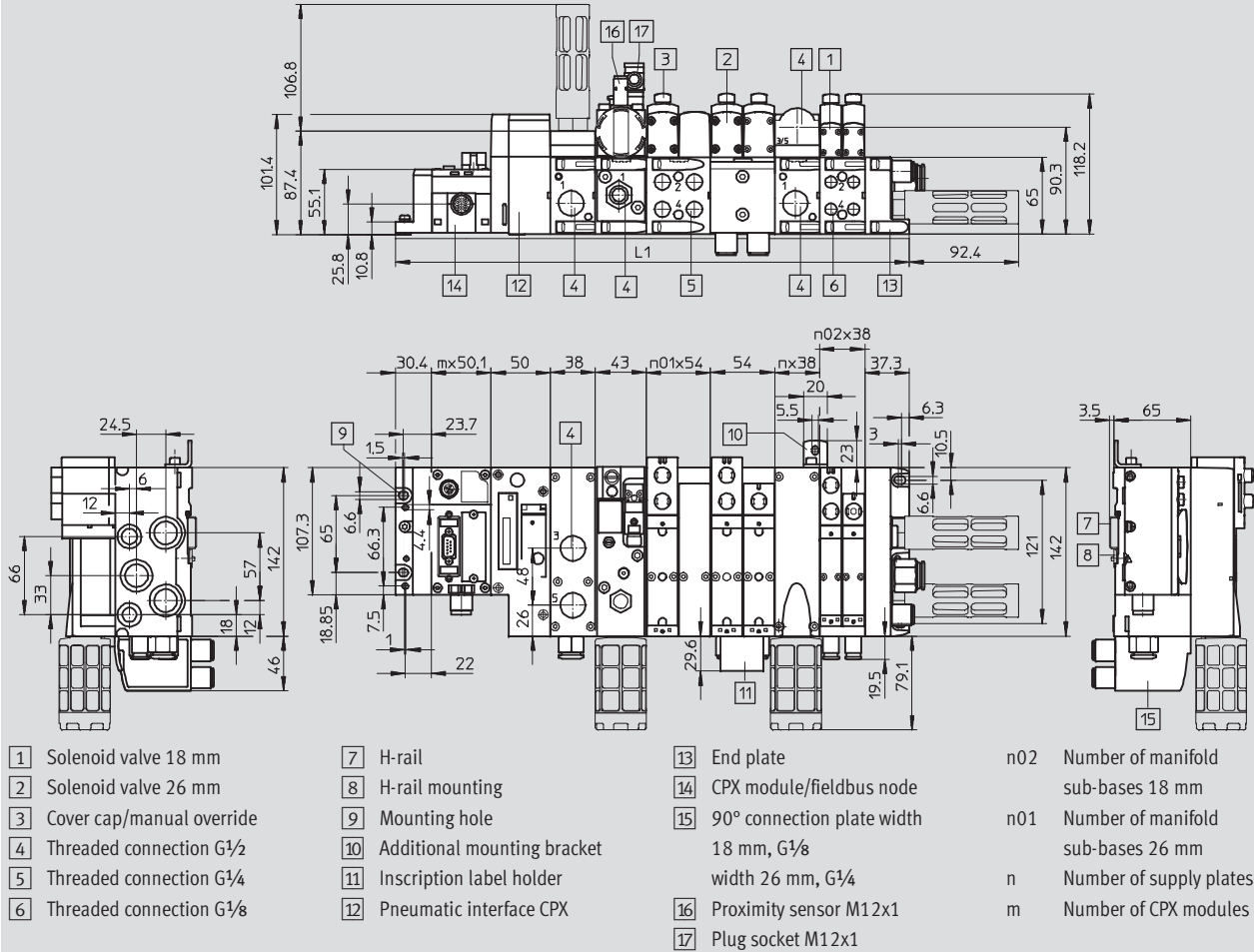
Technical data

FESTO

Dimensions

Download CAD data → www.festo.com

Valve terminal with fieldbus connection



Width	L1
18 mm	$30.4 + m \times 50.1 + 50 + 43 + n02 \times 38 + n \times 38 + 37.3$
26 mm	$30.4 + m \times 50.1 + 50 + 43 + n01 \times 54 + n \times 38 + 37.3$
Mixture of 18 mm and 26 mm	$30.4 + m \times 50.1 + 50 + 43 + n02 \times 38 + n01 \times 54 + n \times 38 + 37.3$

Note: This product conforms to ISO 1179-1 and ISO 228-1

Valve terminals type 45 VTSA-F

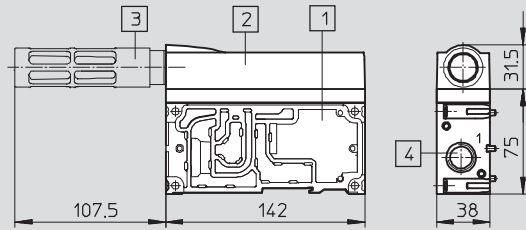
Technical data

FESTO

Dimensions

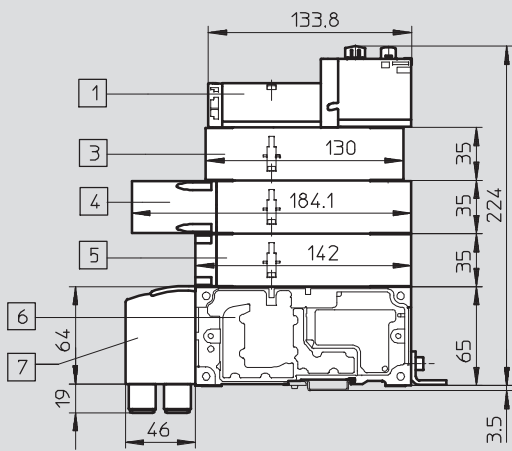
Download CAD data → www.festo.com

Supply plate with silencer

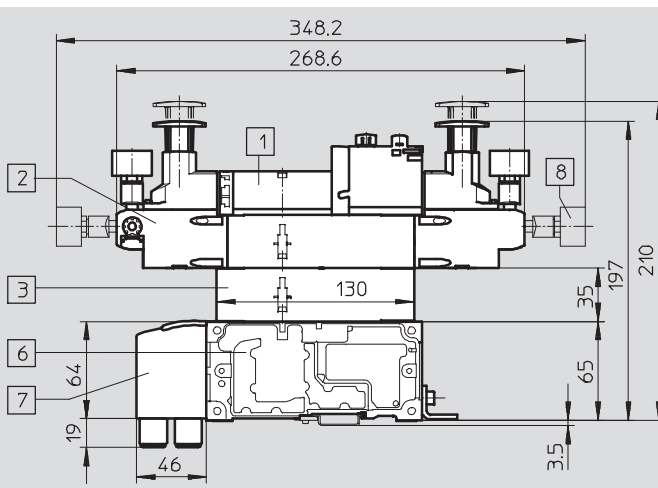


- 1 Supply plate
- 2 Exhaust port cover
- 3 Silencer U-1/2-B
- 4 Threaded connection G1/2

Vertical stacking components, width 18 mm



- 1 Solenoid valve with two solenoid coils, width 18 mm
- 3 Flow control plate
- 4 Vertical pressure shut-off plate
- 5 Vertical supply plate
- 6 Manifold sub-base
- 7 90° connection plate



- 1 Solenoid valve with two solenoid coils, width 18 mm
- 2 Pressure regulator plate
- 3 Flow control plate
- 4 Vertical pressure shut-off plate
- 6 Manifold sub-base
- 7 90° connection plate
- 8 Pressure gauge, freely positionable

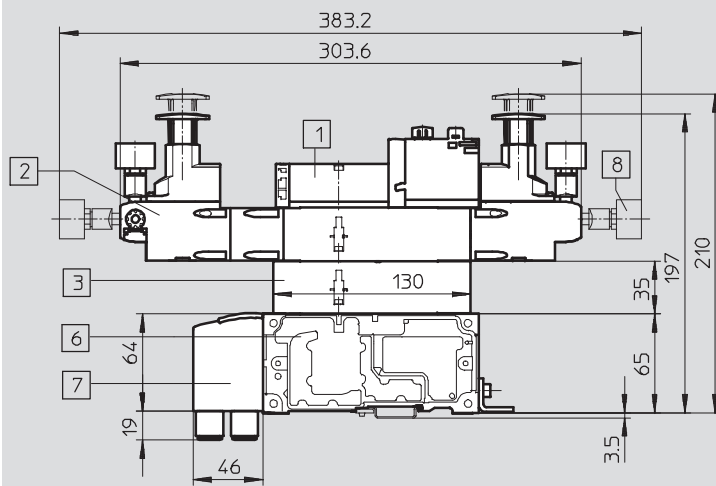
Valve terminals type 45 VTSA-F

Technical data

Dimensions

Download CAD data → www.festo.com

Vertical stacking components, width 18 mm, with the pressure regulator plate also suitable for symmetrical valves



- 1 Solenoid valve with two solenoid coils, width 18 mm
- 2 Pressure regulator plate
- 3 Flow control plate
- 6 Manifold sub-base
- 7 90° connection plate
- 8 Pressure gauge, freely positionable

Valve terminals type 45 VTSA-F

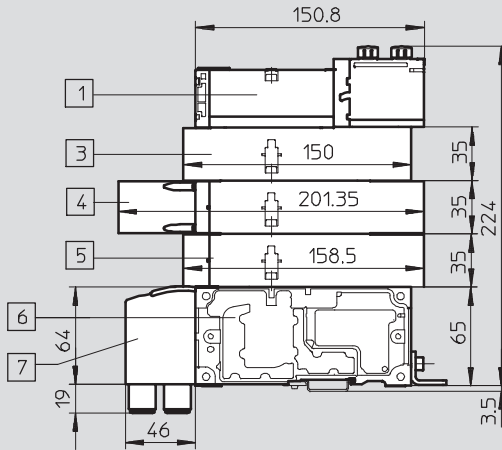
Technical data

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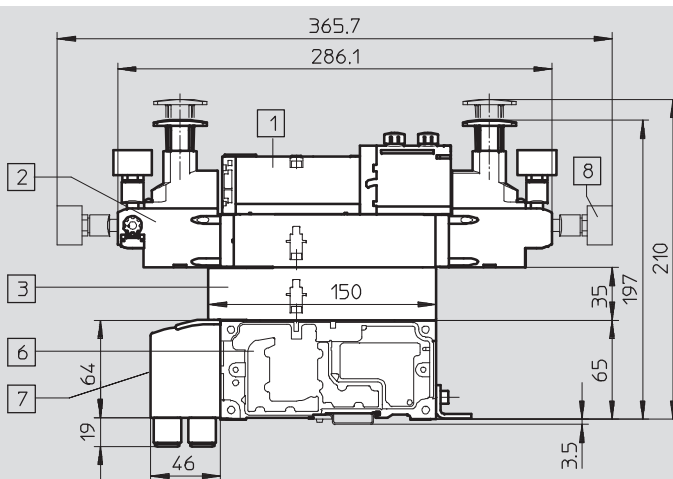
Dimensions

Download CAD data → www.festo.com

Vertical stacking components, width 26 mm

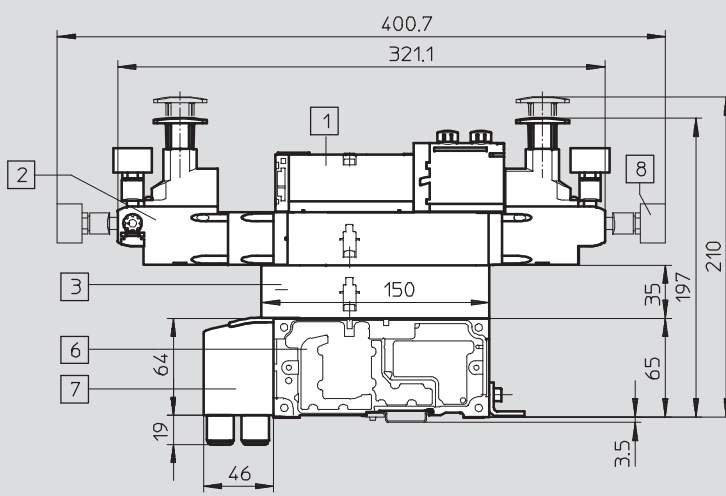


- 1 Solenoid valve with two solenoid coils, width 26 mm
- 3 Flow control plate
- 4 Vertical pressure shut-off plate
- 5 Vertical supply plate
- 6 Manifold sub-base
- 7 90° connection plate



- 1 Solenoid valve with two solenoid coils, width 26 mm
- 2 Pressure regulator plate
- 3 Flow control plate
- 4 Vertical pressure shut-off plate
- 6 Manifold sub-base
- 7 90° connection plate
- 8 Pressure gauge, freely positionable

Vertical stacking components, width 26 mm, with the pressure regulator plate also suitable for symmetrical valves



- 1 Solenoid valve with two solenoid coils, width 26 mm
- 2 Pressure regulator plate
- 3 Flow control plate
- 6 Manifold sub-base
- 7 90° connection plate
- 8 Pressure gauge, freely positionable

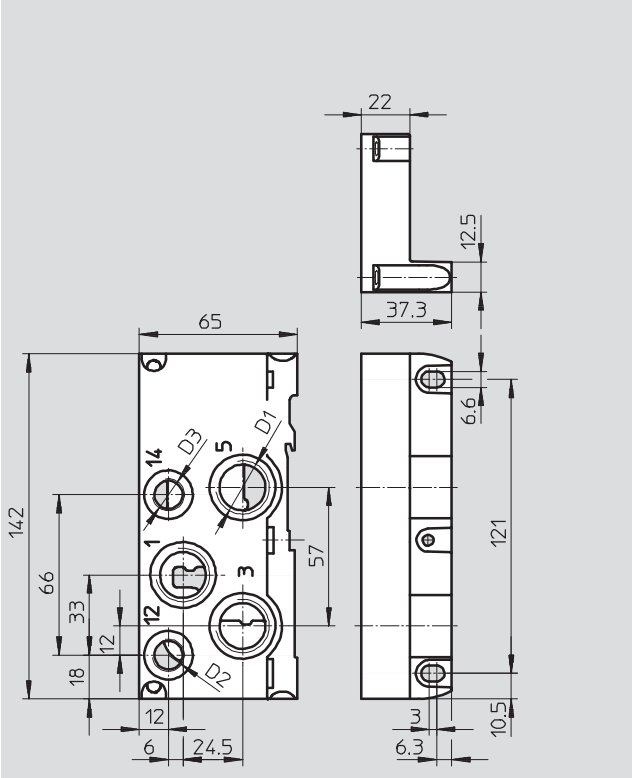
Valve terminals type 45 VTSA-F

Technical data

Dimensions

Download CAD data → www.festo.com

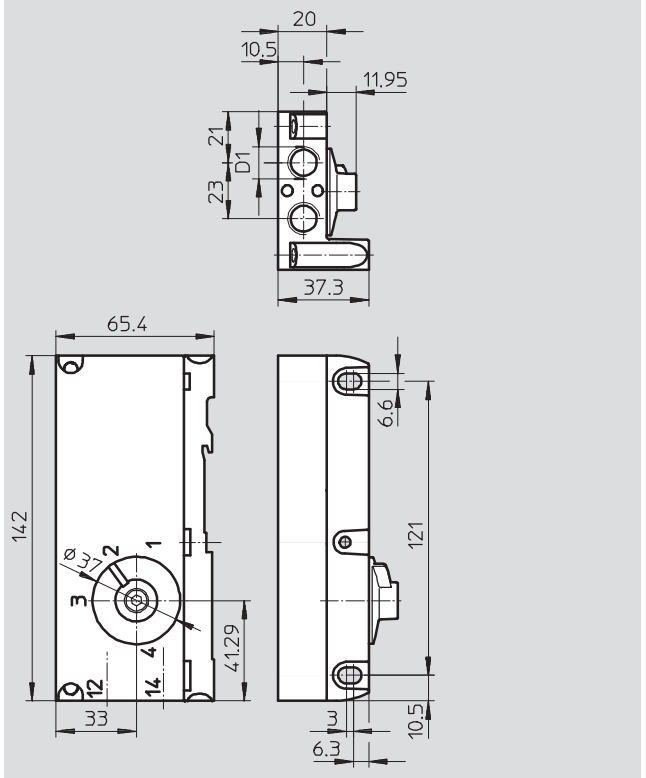
Right-hand end plate



Type	D1	D2	D3
VABE-S6-1R-G12	G1/2	G1/4	G1/4
VABE-S6-1RZ-G12			

1) -||- Note: This product conforms to ISO 1179-1 and ISO 228-1

Right-hand end plate with pilot air selector



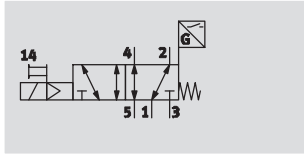
Type	D1
VABE-S6-1RZ-G-B1	G1/4





1) -||- Note: This product conforms to ISO 1179-1 and ISO 228-1

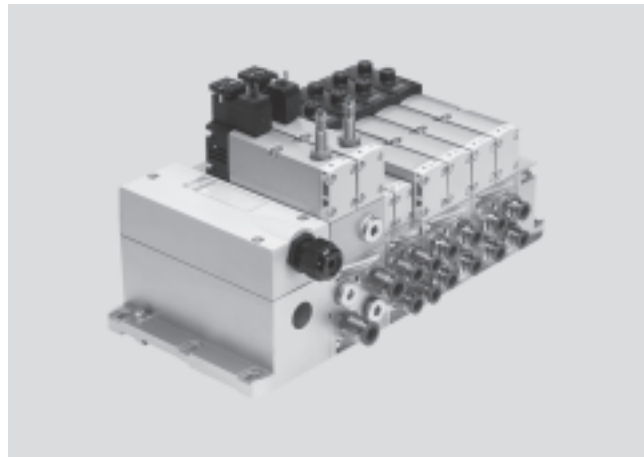
Valve terminals type 45 VTSA-F

Technical data

Function



-  - Flow rate
950 l/min
-  - Valve width
01: 26 mm
-  - Voltage
24 V DC
-  - Operating pressure
3 ... 10 bar



Valves for safety-oriented pneumatic components

Function

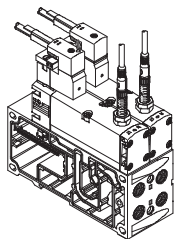
The single solenoid 5/2-way valve with spring return in width 26 mm features valve diagnostics. Designed as plug-in or individual connection valve with pilot valves to ISO 15218

and square plug type C. The normal position of the piston spool valve is monitored by the inductive sensor.

The use of a N/C contact enables wire breaks to be detected. Suitable for controllers with higher safety category to DIN EN 13849-1.

- Protection against unexpected start-up
- Drives in manually loaded devices
- Reversing of the cylinder movement

Valve terminal



The valves with integrated piston position sensing can be used regardless of the type of electrical actuation (individual, multi-pin plug or field-bus/control block connection).

Electrical connection via square plugs (DIN EN 175301-803, type C) is required for use in safety-oriented parts of controllers.

Pilot air supply

- The valve terminal can be supplied with internal or external pilot air via the various end plate variants.

- - Note

Do not replace the sensors in the valves as incorrect assembly can result in malfunctions or damage to the valve. Return the module to Festo for maintenance in the event of a fault. Valves (with switching position sensing) from the VSVA-B-M52 -...- series can only be ordered individually. If these are used on a valve terminal, appropriate vacant positions must be provided for them.

Valve terminals type 45 VTSA-F

Technical data

General technical data		
Width	26 mm	
Valve		
Design	Piston spool valve	
Sealing principle	Soft	
Actuation type	Electrical	
Type of control	Piloted	
Exhaust function, with flow control	Via flow control plate	
Lubrication	Lubricated for life	
Type of mounting	On manifold sub-base	
Mounting position	Any	
Manual override	Covered	
Individual sub-base		
Pneumatic connection	Threaded connection	Fitting
Supply port 1	G $\frac{1}{4}$	QS-G $\frac{1}{4}$ -8 QS-G $\frac{1}{4}$ -10 QS-G $\frac{1}{4}$ -12
Exhaust port 3/5	G $\frac{1}{4}$	QS-G $\frac{1}{4}$ -8 QS-G $\frac{1}{4}$ -10 QS-G $\frac{1}{4}$ -12
Working lines 2/4	G $\frac{1}{4}$	QS-G $\frac{1}{4}$ -8 QS-G $\frac{1}{4}$ -10 QS-G $\frac{1}{4}$ -12
Pilot air supply port 14	G $\frac{1}{8}$	QS-G $\frac{1}{8}$ -6 QS-G $\frac{1}{8}$ -8
Pilot exhaust air port 12	G $\frac{1}{8}$	QS-G $\frac{1}{8}$ -6 QS-G $\frac{1}{8}$ -8
Valve terminal → 49		

Standard nominal flow rate qnN [l/min]		
Valve	VSVA-B-M52-MZD-A1-1T1L-...-	VSVA-B-M52-MZ-A1-1C1-...-
Width 26 mm		
Flow rate of valve	1,400	1,400
Flow rate of valve on valve terminal	1,200	1,100

Operating and environmental conditions		
Valve/manifold sub-base		
Operating medium	Filtered compressed air, lubricated or unlubricated, inert gases → 48	
Grade of filtration	[μ m]	40 (average pore size)
Operating pressure	[bar]	3 ... 10
Operating pressure for valve terminal with internal pilot air supply	[bar]	3 ... 10
Pilot pressure	[bar]	3 ... 10
Ambient temperature	[°C]	-5 ... +50
Temperature of medium	[°C]	-5 ... +50
Storage temperature	[°C]	-20 ... +40
Relative air humidity	[%]	90

Valve terminals type 45 VTSA-F

Technical data

Valve switching times [ms]			
Valve		VSVA-B-M52-MZD-A1-1T1L-...-	VSVA-B-M52-MZ-A1-1C1-...-
Width 26 mm			
Switching times	on	20	21
	off	54	41

Electrical data			
Valve		VSVA-B-M52-MZD-A1-1T1L-...-	VSVA-B-M52-MZ-A1-1C1-...-
Electrical connection		4-pin plug to ISO 15407-2	Plug to DIN EN 175301-803, type C, without protective earth conductor
Nominal operating voltage	[V DC]	24	
Permissible voltage fluctuations	[%]	±10	-15/+10
Surge capacity	[kV]	2.5	
Degree of contamination		3	
Power consumption	[W]	1.6 W	1.8 W
Piston position sensing		Normal position via sensor	
Duty cycle		100	
Protection class to DIN EN 60529		IP65, NEMA 4	

Electrical data			
Sensor		M8x1	
Electrical connection	Cable	3-wire	
	Plug	M8x1, 3-pin	
Cable length	[m]	2.5	
Switching output		PNP or NPN	
Switching element function		N/C contact	
Switching status display		Yellow LED	
Operating voltage range	[V DC]	10 ... 30	
Residual ripple	[%]	±10	
Rated operating voltage	[V DC]	24	
Sensor idle current	[mA]	≤10	
Max. output current	[mA]	200	
Voltage drop	[V]	≤2	
Max. switching frequency	[Hz]	5 000	
Protection against short circuit		Pulsed	
Protection against polarity reversal for sensor		For all electrical connections	
Measuring principle		Inductive	
Piston position sensing		Valve normal position via sensor	

Valve terminals type 45 VTSA-F

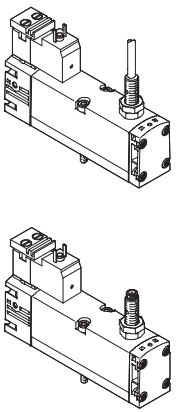
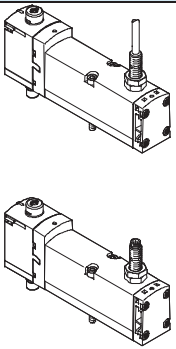
Technical data

Product weight		Width
Approx. weight	[g]	26 mm
5/2-way valves		
• VSVA-B-M52-MZ-A1-1C1-APC		332
• VSVA-B-M52-MZ-A1-1C1-APP		289
• VSVA-B-M52-MZ-A1-1C1-ANC		332
• VSVA-B-M52-MZ-A1-1C1-ANP		289
• VSVA-B-M52-MZD-A1-1T1L-APC		307
• VSVA-B-M52-MZD-A1-1T1L-APP		264
• VSVA-B-M52-MZD-A1-1T1L-ANC		307
• VSVA-B-M52-MZD-A1-1T1L-ANP		264
Individual sub-base		
		302

Materials	
	26 mm
Sub-base/manifold sub-base	Die-cast aluminium
Valve	Die-cast aluminium, reinforced polyamide
Seals	Nitrile rubber, elastomer (support made of steel)
Screws	Galvanised steel
Sensor housing	High-alloy stainless steel
Cable sheath	Polyurethane


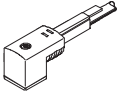
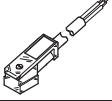
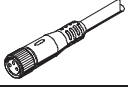
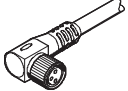
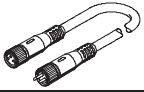
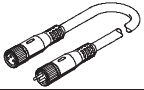

Valve terminals type 45 VTSA-F

Technical data

Ordering data					
	Code	Valve function	Width	Type	Part No.
Solenoid valves, 24 V DC, with pneumatic interface to ISO 15218					
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, PNP output with cable, 3-wire	26 mm	VSVA-B-M52-MZ-A1-1C1-APC	560725
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, NPN output with cable, 3-wire	26 mm	VSVA-B-M52-MZ-A1-1C1-ANC	560744
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, PNP output, 3-pin push-in connector, M8	26 mm	VSVA-B-M52-MZ-A1-1C1-APP	560726
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, NPN output, 3-pin push-in connector, M8	26 mm	VSVA-B-M52-MZ-A1-1C1-ANP	560745
Solenoid valves, 24 V DC, with plug-in connection					
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, PNP output with cable, 3-wire	26 mm	VSVA-B-M52-MZD-A1-1T1L-APC	560723
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, NPN output with cable, 3-wire	26 mm	VSVA-B-M52-MZD-A1-1T1L-ANC	560742
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, PNP output, 3-pin push-in connector, M8	26 mm	VSVA-B-M52-MZD-A1-1T1L-APP	560724
	-	5/2-way valve, single solenoid, mechanical spring return, with switching position sensing via inductive sensor, NPN output, 3-pin push-in connector, M8	26 mm	VSVA-B-M52-MZD-A1-1T1L-ANP	560743

Valve terminals type 45 VTSA-F

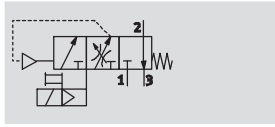
Technical data




Electrical connection technology				
	Electrical connection	Type of mounting/cable length	Type	Part No.
Plug sockets for connecting individual valves				
	Angled socket, 3-pin, screw terminal	Fitting PG7	MSSD-EB	151687
		Fitting M12	MSSD-EB-M12	539712
Plug socket with cable for connecting individual valves				
	Angled socket, 3-pin	2.5 m	KMEB-1-24-2,5-LED	151688
	Angled socket, 3-pin	5 m	KMEB-1-24-5-LED	151589
	Angled socket, 3-pin	10 m	KMEB-1-24-10-LED	193457
	Angled socket, 4-pin	2.5 m	KMEB-2-24-2,5-LED	174844
	Angled socket, 4-pin	5 m	KMEB-2-24-5-LED	174845
	Straight socket, 3-pin, M8	2.5 m	NEBU-M8G3-K-2,5-LE3	541333
		5 m	NEBU-M8G3-K-5-LE3	541334
	Angled socket, 3-pin, M8	2.5 m	NEBU-M8-W3-K-2,5-LE3	541338
		5 m	NEBU-M8W3-K-5-LE3	541341
	Straight socket, straight plug	2.5 m	NEBU-M8G3-K-2,5-M8G4	554037
	Modular system for connecting cables	–	NEBU-... → Internet: nebu	–
Ordering data – Illuminating seal for plug pattern DIN EN 175301-803, type C				
			Technical data → Internet: meb-ld	
	Voltage		Type	Part No.
	[V DC]	[V AC]		
	12 ... 24	–	MEB-LD-12-24DC	151 717
	–	230	MEB-LD-230AC	151 718

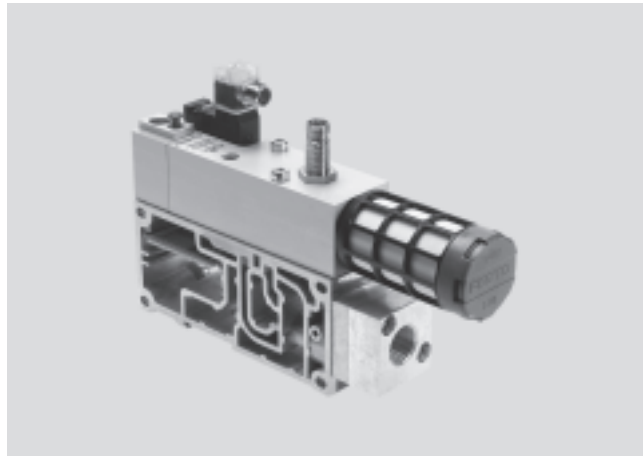
Valve terminals type 45 VTSA-F

Technical data – Soft-start valve

Function



-  - Flow rate
 Pressurisation: 3,000 l/min
 Exhaust: 3,300 l/min
-  - Temperature range
 -5 ... +50 °C
-  - Operating pressure
 2 ... 10 bar



Application

Function

The purpose of the soft-start valve is to slowly and safely build up the supply pressure in duct 1 of the valve terminal or to quickly vent it. Switch-on takes place in two stages:

- First the working pressure provided for duct 1 gradually increases (the speed can be adjusted using a flow control screw).
- Once the working pressure in duct 1 reaches a previously set value, the soft-start valve switches the full operating pressure at duct 1 of the valve terminal.

The switching point for full operating pressure is set to 4 bar at the factory, but can be changed using an adjusting screw. The full operating pressure is applied to duct 14 (pilot air) at all times. This pressure causes the valves on the valve terminal to immediately move to the required switching position.

When the valve is not switched, duct 1 of the valve terminal is exhausted via the soft-start valve's exhaust port. A self-resetting manual override is available for maintenance and service purposes.

Diagnostics

The piston position of the soft-start valve can be monitored by a sensor with integrated LED display. This sensor registers whether the valve has switched and thus whether the valve terminal is being supplied with air. Pressure sensing via a pressure gauge (optional) is also possible.

The soft-start valve can alternatively be ordered with a sensor (retrofitting of a sensor is very complicated due to the necessary sensor calibration).

Connecting cables with integrated LED display are provided for displaying the switching status/signal status.

Pilot air supply

The valve terminal can either be supplied with internal pilot air via the soft-start valve or with internal or external pilot air via the various end plate variants. The type of pilot air supply is determined by the seal of the soft-start valve. The scope of delivery of the soft-start valve includes both the seal for internal pilot air supply and the seal for external pilot air supply.

Restrictions

Compressed air supply	Exhaust air	Pilot air supply	Reverse operation
There must be no other elements supplying compressed air in the pressure zone in which the soft-start valve is being operated.	Exhaust air cannot be expelled via the soft-start valve. If it is being operated in a pressure zone with duct 3/5 separated, an exhaust plate is required.	If internal pilot air supply (duct 14) via the soft-start valve is chosen, there must be no other pilot air supply within the valve terminal.	The soft-start valve is not approved for reverse operation.

Valve terminals type 45 VTSA-F

Technical data – Soft-start valve

General technical data	
Design	Piston spool valve
Actuation type	Electrical
Sealing principle	Soft
Type of mounting	On sub-base
Mounting position	Any
Valve function	Soft-start function
Manual override	Non-detenting
Reset method	Mechanical spring
Type of control	Piloted
Pilot air supply	Internal, external
Direction of flow	Non-reversible
Piston position sensing	Via inductive sensor

Standard nominal flow rate q _{nN} [l/min]	
Pressurisation	3,000
Exhaust	3,300

Valve switching times [ms]		
Switching times	on	17
	off	50
	change-over	–

Electrical data		
Type	VABF-S6-1-P5A4-...-2A	VABF-S6-1-P5A4-...-1
Electrical connection	Plug type C to DIN EN 175301-803, square design	
Nominal operating voltage [V]	110 AC	24 DC
Operating voltage range [V]	110 AC ±10%	24 DC ±10%
Coil characteristics	110 V AC: 50/60 Hz, 3 VA pull 110 V AC: 50/60 Hz, 2.4 VA hold	24 V DC: 2.5 W
Protection class to EN 60529	IP65	

Operating and environmental conditions		
Type	VABF-S6-1-P5A4-...-2A	VABF-S6-1-P5A4-...-1
Operating pressure [bar]	2 ... 10	
Switchover pressure presetting [bar]	4	
Operating medium	Filtered compressed air, lubricated or unlubricated, grade of filtration 40 µm	
Ambient temperature [°C]	–5 ... +50	
CE mark (see declaration of conformity)	To EU EMC Directive	–

Weight [g]	
Manifold sub-base	570
Soft-start valves without proximity sensor	590
Soft-start valves with proximity sensor	605

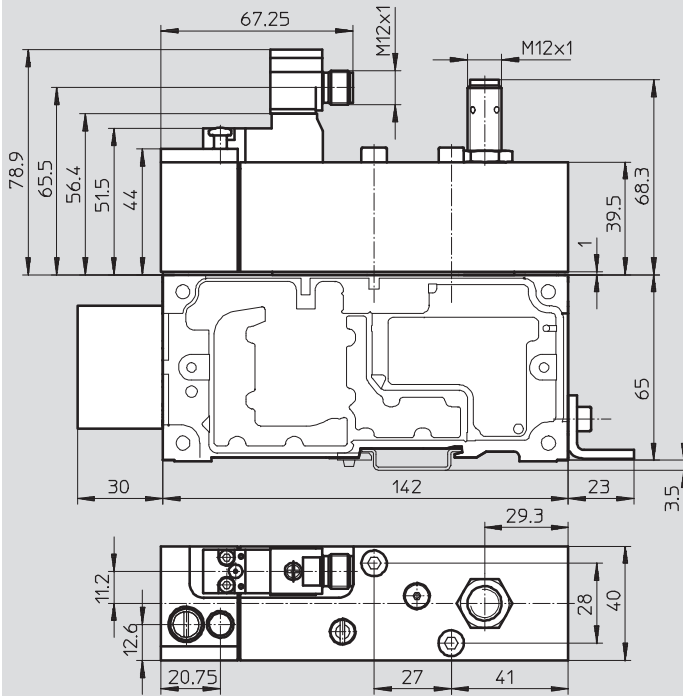
Materials	
Housing	Wrought aluminium alloy
Seals	Nitrile rubber
Screws	Galvanised steel

Valve terminals type 45 VTSA-F

Technical data – Soft-start valve

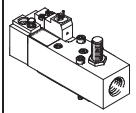
Dimensions

Download CAD data → www.festo.com

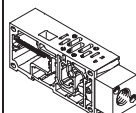


1 Socket head screw M5x48
DIN 912, captive

Ordering data – Valves












	Nominal operating voltage		Sensor output	Pneumatic connection	Type	Part No.
	24 V DC	110 V AC				
	-	■	None	G $\frac{1}{2}$	VABF-S6-1-P5A4-G12-4-2A	558228
	■	-	None	G $\frac{1}{2}$	VABF-S6-1-P5A4-G12-4-1	558230
	■	-	PNP	G $\frac{1}{2}$	VABF-S6-1-P5A4-G12-4-1-P	557377
	■	-	NPN	G $\frac{1}{2}$	VABF-S6-1-P5A4-G12-4-1-N	558233

Ordering data – Manifold sub-bases

	Pneumatic connection	Type	Part No.
	G $\frac{1}{2}$	VABV-S6-1Q-G12	556989

Valve terminals type 45 VTSA-F

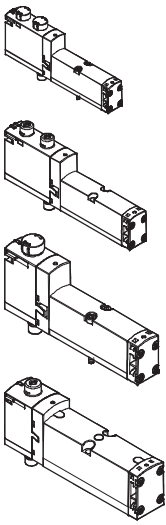
Technical data – Soft-start valve

Ordering data – Accessories				
		Type	Part No.	
	Angled socket, for solenoid coil, 2-pin; straight plug, 2-pin, M12	MSSD-EB-M12-MONO	188024	
	Protective cap M12 for sealing the sensor opening	ISK-M12	165592	
	Proximity sensor	PNP	SIEN-M12B-PS-S-L	150403
		NPN	SIEN-M12B-NS-S-L	150401
	Connecting cable, 4-wire, straight socket, M12x1	5 m cable	SIM-M12-4GD-5-PU	164259
	Connecting cable, 3-wire, angled socket, M12x1	5 m cable	NEBU-M12W5-K-5-LE3	541370
	Connecting cable, 3-wire, straight socket, M12x1	5 m cable	NEBU-M12G5-K-5-LE3	541364
	Connecting cable, angled socket, type C, for solenoid coil 24 V DC, with LED for switching status display	2.5 m cable	KMEB-1-24-2,5-LED	151688
		5 m cable	KMEB-1-24-5-LED	151689
		10 m cable	KMEB-1-24-10-LED	193457
	Connecting cable, angled socket, type C, for solenoid coil 230 V AC	2.5 m cable	KMEB-1-230AC-2,5	151690
		5 m cable	KMEB-1-230-5	151691
	Connecting cable, angled socket, type C, for solenoid coil 24 V DC, with LED for switching status display	2.5 m cable	KMEB-2-24-2,5-LED	174844
		5 m cable	KMEB-2-24-5-LED	174845
		2.5 m cable	KMEB-2-230AC-2,5	174846
	Connecting cable, angled socket, type C, for solenoid coil 230 V AC	5 m cable	KMEB-2-230-5	174847
		Blanking plug for thread G1/2		Scope of delivery 10 pieces
	Pressure gauge 0 ... 10 bar	Pneumatic connection M5	MA-27-10-M5	526323

Valve terminals type 45 VTSA-F

Individual valve

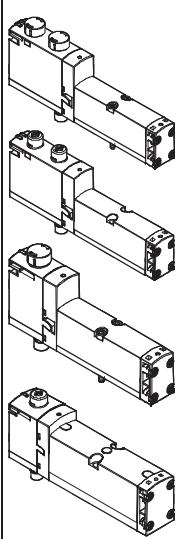
FESTO

Ordering data					
	Code	Valve function	Width	Type	Part No.
Solenoid valves, 24 V DC					
	VC	2x 2/2-way valve, single solenoid, normally closed, mechanical spring return	18 mm	VSVA-B-T22C-AZD-A2-1T1L	561155
			26 mm	VSVA-B-T22C-AZD-A1-1T1L	561149
	VV	2x 2/2-way valve, single solenoid, normally closed, mechanical spring return, vacuum operation possible at 3 and 5	18 mm	VSVA-B-T22CV-AZD-A2-1T1L	561159
			26 mm	VSVA-B-T22CV-AZD-A1-1T1L	561153
	N	2x 3/2-way valve, single solenoid, normally open	18 mm	VSVA-B-T32U-AZD-A2-1T1L	539178
			26 mm	VSVA-B-T32U-AZD-A1-1T1L	539152
	K	2x 3/2-way valve, single solenoid, normally closed	18 mm	VSVA-B-T32C-AZD-A2-1T1L	539176
			26 mm	VSVA-B-T32C-AZD-A1-1T1L	539150
	H	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	18 mm	VSVA-B-T32H-AZD-A2-1T1L	539180
			26 mm	VSVA-B-T32H-AZD-A1-1T1L	539154
	P	2x 3/2-way valve, single solenoid, reverse operation, normally open	18 mm	VSVA-B-T32F-AZD-A2-1T1L	539179
			26 mm	VSVA-B-T32F-AZD-A1-1T1L	539153
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	18 mm	VSVA-B-T32N-AZD-A2-1T1L	539177
			26 mm	VSVA-B-T32N-AZD-A1-1T1L	539151
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	18 mm	VSVA-B-T32W-AZD-A2-1T1L	539181
			26 mm	VSVA-B-T32W-AZD-A1-1T1L	539155
	M	5/2-way valve, single solenoid, pneumatic spring return	18 mm	VSVA-B-M52-AZD-A2-1T1L	539184
			26 mm	VSVA-B-M52-AZD-A1-1T1L	539158
	O	5/2-way valve, single solenoid, mechanical spring return	18 mm	VSVA-B-M52-MZD-A2-1T1L	539185
			26 mm	VSVA-B-M52-MZD-A1-1T1L	539159
J	5/2-way valve, double solenoid	18 mm	VSVA-B-B52-ZD-A2-1T1L	539182	
		26 mm	VSVA-B-B52-ZD-A1-1T1L	539156	
D	5/2-way valve, double solenoid, with dominant signal	18 mm	VSVA-B-D52-ZD-A2-1T1L	539183	
		26 mm	VSVA-B-D52-ZD-A1-1T1L	539157	
B	5/3-way valve, mid-position pressurised	18 mm	VSVA-B-P53U-ZD-A2-1T1L	539186	
		26 mm	VSVA-B-P53U-ZD-A1-1T1L	539160	
G	5/3-way valve, mid-position closed	18 mm	VSVA-B-P53C-ZD-A2-1T1L	539188	
		26 mm	VSVA-B-P53C-ZD-A1-1T1L	539162	
E	5/3-way valve, mid-position exhausted	18 mm	VSVA-B-P53E-ZD-A2-1T1L	539187	
		26 mm	VSVA-B-P53E-ZD-A1-1T1L	539161	
SA	5/3-way valve, mid-position exhausted, switching position 14 detenting	26 mm	VSVA-B-P53ED-H-A1-1T1L	560727	
SB	5/3-way valve, mid-position 1x exhausted, 1x pressurised, switching position 14 detenting	26 mm	VSVA-B-P53AD-H-A1-1T1L	560728	

Valve terminals type 45 VTSA-F

Individual valve

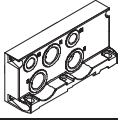
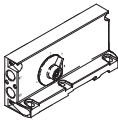
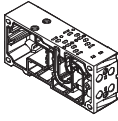


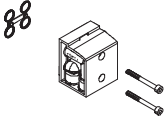
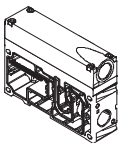
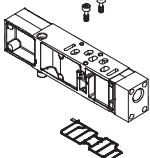
FESTO

Ordering data					
	Code	Valve function	Width	Type	Part No.
Solenoid valves, 110 V AC					
	VC	2x 2/2-way valve, single solenoid, normally closed, mechanical spring return	18 mm	VSVA-B-T22C-AZD-A2-2AT1L	561156
			26 mm	VSVA-B-T22C-AZD-A1-2AT1L	561150
	VV	2x 2/2-way valve, single solenoid, normally closed, mechanical spring return, vacuum operation possible at 3 and 5	18 mm	VSVA-B-T22CV-AZD-A2-2AT1L	561160
			26 mm	VSVA-B-T22CV-AZD-A1-2AT1L	561154
	N	2x 3/2-way valve, single solenoid, normally open	18 mm	VSVA-B-T32U-AZD-A2-2AT1L	539165
			26 mm	VSVA-B-T32U-AZD-A1-2AT1L	539139
	K	2x 3/2-way valve, single solenoid, normally closed	18 mm	VSVA-B-T32C-AZD-A2-2AT1L	539163
			26 mm	VSVA-B-T32C-AZD-A1-2AT1L	539137
	H	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	18 mm	VSVA-B-T32H-AZD-A2-2AT1L	539167
			26 mm	VSVA-B-T32H-AZD-A1-2AT1L	539141
	P	2x 3/2-way valve, single solenoid, reverse operation, normally open	18 mm	VSVA-B-T32F-AZD-A2-2AT1L	539166
			26 mm	VSVA-B-T32F-AZD-A1-2AT1L	539140
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	18 mm	VSVA-B-T32N-AZD-A2-2AT1L	539164
			26 mm	VSVA-B-T32N-AZD-A1-2AT1L	539138
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	18 mm	VSVA-B-T32W-AZD-A2-2AT1L	539168
			26 mm	VSVA-B-T32W-AZD-A1-2AT1L	539142
	M	5/2-way valve, single solenoid, pneumatic spring return	18 mm	VSVA-B-M52-AZD-A2-2AT1L	539171
			26 mm	VSVA-B-M52-AZD-A1-2AT1L	539145
	O	5/2-way valve, single solenoid, mechanical spring return	18 mm	VSVA-B-M52-MZD-A2-2AT1L	539172
			26 mm	VSVA-B-M52-MZD-A1-2AT1L	539146
J	5/2-way valve, double solenoid	18 mm	VSVA-B-B52-ZD-A2-2AT1L	539169	
		26 mm	VSVA-B-B52-ZD-A1-2AT1L	539143	
D	5/2-way valve, double solenoid, with dominant signal	18 mm	VSVA-B-D52-ZD-A2-2AT1L	539170	
		26 mm	VSVA-B-D52-ZD-A1-2AT1L	539144	
B	5/3-way valve, mid-position pressurised	18 mm	VSVA-B-P53U-ZD-A2-2AT1L	539173	
		26 mm	VSVA-B-P53U-ZD-A1-2AT1L	539147	
G	5/3-way valve, mid-position closed	18 mm	VSVA-B-P53C-ZD-A2-2AT1L	539175	
		26 mm	VSVA-B-P53C-ZD-A1-2AT1L	539149	
E	5/3-way valve, mid-position exhausted	18 mm	VSVA-B-P53E-ZD-A2-2AT1L	539174	
		26 mm	VSVA-B-P53E-ZD-A1-2AT1L	539148	

Valve terminals type 45 VTSA-F

Accessories

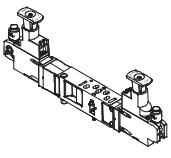
FESTO

Ordering data						
Designation	Code	Description	Width	Type	Part No.	
Right-hand end plate						
	Threaded connection					
	V	With supply air/exhaust air, internal pilot air supply, G $\frac{1}{2}$		VABE-S6-1R-G12	539234	
	X	With supply air/exhaust air, external pilot air supply, G $\frac{1}{2}$		VABE-S6-1RZ-G12	539236	
End plate with pilot air selector						
	Threaded connection					
	Y	Internal pilot air supply		VABE-S6-1RZ-G-B1	539238	
	U	Internal pilot air supply, ducted pilot exhaust air				
	Z	External pilot air supply				
	W	External pilot air supply, ducted pilot exhaust air				
Manifold sub-base, optimised for flow rate						
	Threaded connection					
	A	2 valve positions, 4 addresses, for double solenoid valves	18 mm	VABV-S4-2HS-G18-2T2	546215	
	B	2 valve positions, 4 addresses, for double solenoid valves	26 mm	VABV-S4-1HS-G14-2T2	546211	
	E	2 valve positions, 2 addresses, for single solenoid valves	18 mm	VABV-S4-2HS-G18-2T1	546214	
	F	2 valve positions, 2 addresses, for single solenoid valves	26 mm	VABV-S4-1HS-G14-2T1	546210	
Separator plate						
	S	Duct separation 1, 3, 5		VABD-S6-10-P3-C	539228	
		T	Duct separation 1		VABD-S6-10-P1-C	539227
		R	Duct separation 3, 5		VABD-S6-10-P2-C	539229
90° connection plate						
	Threaded connection					
	P	Outlet underneath, connecting thread G $\frac{1}{8}$	18 mm	VABF-S4-2-A2G2-G18	539719	
	P	Outlet underneath, connecting thread G $\frac{1}{4}$	26 mm	VABF-S4-1-A2G2-G14	539721	
Supply plate						
	Threaded connection					
	L	With exhaust plate, 3/5 common, G $\frac{1}{2}$		VABF-S6-10-P1A7-G12	539231	
	K	With exhaust port cover, 3/5 separated, G $\frac{1}{2}$		VABF-S6-10-P1A6-G12	539230	
Vertical supply plate						
	Threaded connection					
	ZU	Connecting thread G $\frac{1}{8}$	18 mm	VABF-S4-2-P1A3-G18	540173	
		Connecting thread G $\frac{1}{4}$	26 mm	VABF-S4-1-P1A3-G14	540171	

Valve terminals type 45 VTSA-F

Accessories




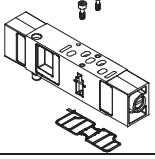
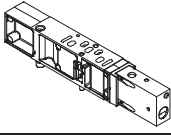
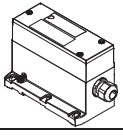
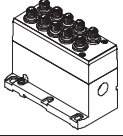
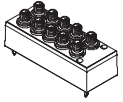
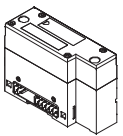
FESTO

Ordering data					
Designation	Code	Description	Width	Type	Part No.
Regulator plate					
	ZA	For port 1, 0.5 ... 10 bar	18 mm	VABF-S4-2-R1C2-C-10	540153
		For port 1, 0.5 ... 10 bar	26 mm	VABF-S4-1-R1C2-C-10	540154
	ZF	For port 1, 0.5 ... 6 bar	18 mm	VABF-S4-2-R1C2-C-6	540151
		For port 1, 0.5 ... 6 bar	26 mm	VABF-S4-1-R1C2-C-6	540152
	ZB	For port 4, 2 ... 10 bar	18 mm	VABF-S4-2-R3C2-C-10	540157
		For port 4, 2 ... 10 bar	26 mm	VABF-S4-1-R3C2-C-10	540158
	ZG	For port 4, 2 ... 6 bar	18 mm	VABF-S4-2-R3C2-C-6	540155
		For port 4, 2 ... 6 bar	26 mm	VABF-S4-1-R3C2-C-6	540156
	ZC	For port 2, 2 ... 10 bar	18 mm	VABF-S4-2-R2C2-C-10	540161
		For port 2, 2 ... 10 bar	26 mm	VABF-S4-1-R2C2-C-10	540162
	ZH	For port 2, 2 ... 6 bar	18 mm	VABF-S4-2-R2C2-C-6	540159
		For port 2, 2 ... 6 bar	26 mm	VABF-S4-1-R2C2-C-6	540160
	ZD	For ports 2 and 4, 2 ... 10 bar	18 mm	VABF-S4-2-R4C2-C-10	540165
		For ports 2 and 4, 2 ... 10 bar	26 mm	VABF-S4-1-R4C2-C-10	540166
	ZI	For ports 2 and 4, 2 ... 6 bar	18 mm	VABF-S4-2-R4C2-C-6	540163
		For ports 2 and 4, 2 ... 6 bar	26 mm	VABF-S4-1-R4C2-C-6	540164
	ZE	For ports 2 and 4, reversible, 0.5 ... 10 bar	18 mm	VABF-S4-2-R5C2-C-10	540169
		For ports 2 and 4, reversible, 0.5 ... 10 bar	26 mm	VABF-S4-1-R5C2-C-10	540170
	ZJ	For ports 2 and 4, reversible, 0.5 ... 6 bar	18 mm	VABF-S4-2-R5C2-C-6	540167
		For ports 2 and 4, reversible, 0.5 ... 6 bar	26 mm	VABF-S4-1-R5C2-C-6	540168
	ZL	For port 2, reversible, 0.5 ... 10 bar	18 mm	VABF-S4-2-R6C2-C-10	546252
		For port 2, reversible, 0.5 ... 10 bar	26 mm	VABF-S4-1-R6C2-C-10	546251
	ZN	For port 2, reversible, 0.5 ... 6 bar	18 mm	VABF-S4-2-R6C2-C-6	546248
		For port 2, reversible, 0.5 ... 6 bar	26 mm	VABF-S4-1-R6C2-C-6	546247
	ZK	For port 4, reversible, 0.5 ... 10 bar	18 mm	VABF-S4-2-R7C2-C-10	546254
		For port 4, reversible, 0.5 ... 10 bar	26 mm	VABF-S4-1-R7C2-C-10	546253
	ZM	For port 4, reversible, 0.5 ... 6 bar	18 mm	VABF-S4-2-R7C2-C-6	546250
		For port 4, reversible, 0.5 ... 6 bar	26 mm	VABF-S4-1-R7C2-C-6	546249

Valve terminals type 45 VTSA-F

Accessories

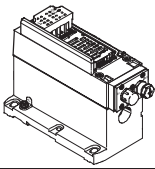
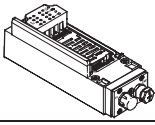
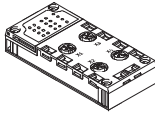

FESTO

Ordering data					
Designation	Code	Description	Width	Type	Part No.
Pressure gauge					
	T	With cartridge connection for regulator, 10 bar for regulator plate code ZA, ZB, ZC, ZD, ZE		PAGN-26-16-P10	543487
	U	With cartridge connection for regulator, 6 bar for regulator plate code ZF, ZG, ZH, ZI, ZJ		PAGN-26-10-P10	543488
	-	For soft-start valve		MA-27-10-M5	526323
Cartridge for regulator plate					
	-	For tubing O.D. 4 mm		QSP10-4	172972
Flow control plate					
	X	Controls the flow of exhaust air downstream of the valve to ducts 3 and 5	18 mm	VABF-S4-2-F1B1-C	540176
			26 mm	VABF-S4-1-F1B1-C	540175
Vertical pressure shut-off plate					
	ZT	2/2-way valve for shutting off the operating pressure at the valve position	18 mm	VABF-S4-2-L1D1-C	542884
			26 mm	VABF-S4-1-L1D1-C	542885
Multi-pin node					
	T	Tension spring, for threaded connection, 36-pin		VABE-S6-1LF-C-M1-C36M	543412
	MP1	Sub-D plug, 37-pin		VABE-S6-1LT-C-M1-S37	543414
	MP4	Round plug, 19-pin		VABE-S6-1LF-C-M1-R19	543 415
Individual electrical connection					
	-MP2	Multi-pin node with individual connection M12, 6-way		VABE-S6-LT-C-S6-R5	549046
	-MP3	Multi-pin node with individual connection M12, 10-way		VABE-S6-LT-C-S10-R5	549047
	-	Cover for individual connection M12, 6-way		VAEM-S6-C-S6-R5	549048
	-	Cover for individual connection M12, 10-way		VAEM-S6-C-S10-R5	549049
Pneumatic interface					
	-	For electrical terminal CPX in plastic design		VABA-S6-1-X1	543416
	-	For electrical terminal CPX in metal design		VABA-S6-1-X2	550663

Valve terminals type 45 VTSA-F

Accessories

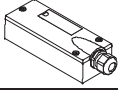
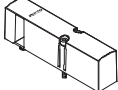





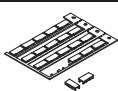
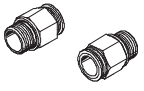
FESTO

Ordering data					
Designation	Code	Description	Type	Part No.	
Electrical connection for AS-interface					
	-	4 inputs/4 outputs	VABE-S6-1LF-C-A4	549042	
	-	8 inputs/8 outputs	VABE-S6-1LF-C-A8	549043	
AS-interface module					
	-	4 inputs/4 outputs	VAEM-S6-S-FAS-4-4E	549044	
	-	8 inputs/8 outputs	VAEM-S6-S-FAS-8-8E	549045	
Manifold block for AS-interface					
	X	4xM12, 5-pin, double, socket	CPX-AB-4-M12x2-5POL	195704	
	GW	4xM12, 5-pin, socket, metal thread	CPX-AB-4-M12x2-5POL-R	541254	
	R	8xM8, 3-pin, socket	CPX-AB-8-M8-3POL	195706	
	J	8xspring-loaded terminal, Cage Clamp®, 4-pin	CPX-AB-8-KL-4POL	195708	
	H	4xHarax®, 4-pin, socket	CPX-AB-4-HAR-4POL	525636	
	B	Sub-D, 25-pin, socket	CPX-AB-1-SUB-BU-25POL	525676	
Connecting cable with Sub-D plug socket					
	Polyurethane, IP65				
	GA	Connecting cable for max. 8 solenoid coils, 10-pin	2.5 m	NEBV-S1W37-E-2,5-LE10	539240
	GB		5 m	NEBV-S1W37-E-5-LE10	539241
	GC		10 m	NEBV-S1W37-E-10-LE10	539242
	GD	Connecting cable for max. 22 solenoid coils, 26-pin	2.5 m	NEBV-S1W37-E-2,5-LE26	539243
	GE		5 m	NEBV-S1W37-E-5-LE26	539244
	GF		10 m	NEBV-S1W37-E-10-LE26	539245
	GG	Connecting cable for max. 32 solenoid coils, 37-pin	2.5 m	NEBV-S1W37-K-2,5-LE37	539246
	GH		5 m	NEBV-S1W37-K-5-LE37	539247
	GI		10 m	NEBV-S1W37-K-10-LE37	539248
	Polyvinyl chloride, IP65				
	GK	Connecting cable for max. 8 solenoid coils, 10-pin, cable properties (standard)	2.5 m	NEBV-S1W37-KM-2,5-LE10	543271
	GL		5 m	NEBV-S1W37-KM-5-LE10	543272
	GM		10 m	NEBV-S1W37-KM-10-LE10	543273
	GN	Connecting cable for max. 22 solenoid coils, 27-pin, cable properties (standard)	2.5 m	NEBV-S1W37-KM-2,5-LE27	543274
	GO		5 m	NEBV-S1W37-KM-5-LE27	543275
	GP		10 m	NEBV-S1W37-KM-10-LE27	543276
	GQ	Connecting cable for max. 32 solenoid coils, 37-pin, cable properties (standard)	2.5 m	NEBV-S1W37-KM-2,5-LE37	543277
	GR		5 m	NEBV-S1W37-KM-5-LE37	543278
	GS		10 m	NEBV-S1W37-KM-10-LE37	543279

Valve terminals type 45 VTSA-F

Accessories

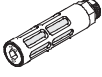

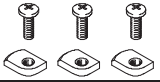


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Ordering data					
Designation	Code	Description	Type	Part No.	
Cover for multi-pin plug					
	-	For user configuration	NECV-S1W37	545974	
Cover					
	L	Blanking plate for vacant position	18 mm	VABB-S4-2-WT	539213
			26 mm	VABB-S4-1-WT	539212
	N	Cover cap for manual override, non-detenting	10 pieces	VAMC-S6-CH	541010
	V	Cover cap for manual override, covered	10 pieces	VAMC-S6-CS	541011
	-	End cap for electrical manifold module, size 18 mm and 26 mm	10 pieces	VABD-S4-E-C	547713
Inscription label holder					
	B	Clip-on inscription label holder for valve cap	5 pieces	ASCF-T-S6	540888
	T	Inscription label holder for manifold blocks	5 pieces	ASCF-M-S6	540889
	-	Inscription label (20 labels in frames)	20 pieces	IBS-9x20	18182
Push-in fitting					
	Threaded connection				
	-	Connecting thread G $\frac{1}{4}$ for tubing O.D. 10 mm	10 pieces	QS-G $\frac{1}{4}$ -10	186101
	-	Connecting thread G $\frac{1}{4}$ for tubing O.D. 8 mm	10 pieces	QS-G $\frac{1}{4}$ -8	186099
	-	Connecting thread G $\frac{1}{8}$ for tubing O.D. 10 mm	10 pieces	QS-G $\frac{1}{8}$ -10	190643
	-	Connecting thread G $\frac{1}{8}$ for tubing O.D. 8 mm	10 pieces	QS-G $\frac{1}{8}$ -8	186098
	-	Connecting thread G $\frac{1}{8}$ for tubing O.D. 6 mm	10 pieces	QS-G $\frac{1}{8}$ -6	186096
	-	Connecting thread G $\frac{1}{2}$ for tubing O.D. 16 mm	1 piece	QS-G $\frac{1}{2}$ -16	186105
	-	Connecting thread G $\frac{3}{8}$ for tubing O.D. 10 mm	10 pieces	QS-G $\frac{3}{8}$ -10	186102
-	Connecting thread G $\frac{3}{8}$ for tubing O.D. 12 mm	10 pieces	QS-G $\frac{3}{8}$ -12	186103	

Valve terminals type 45 VTSA-F

Accessories

FESTO

Ordering data					
Designation	Code	Description	Type	Part No.	
Silencer					
	Threaded connection				
	-	Connecting thread G1/4	U-1/4	2316	
	K	Connecting thread G1/2	U-1/2-B	6844	
Blanking plug					
	Threaded connection				
	-	Thread G1/8	10 pieces	B-1/8	3568
	-	Thread G1/4	10 pieces	B-1/4	3569
H-rail mounting					
	-	VTSA-F with fieldbus	3 pieces	CPX-CPA-BG-NRH	526032
	-	VTSA-F with multi-pin plug	2 pieces	CPA-BG-NRH	173498
Wall mounting					
	U	Mounting bracket		VAME-S6-10-W	539214
Manual					
	D	Manual for valve terminal VTSA-F	German	P.BE-VTSA-44-DE	538922
	E		English	P.BE-VTSA-44-EN	538923
	S		Spanish	P.BE-VTSA-44-ES	538924
	F		French	P.BE-VTSA-44-FR	538925
	I		Italian	P.BE-VTSA-44-IT	538926
	V		Swedish	P.BE-VTSA-44-SV	538927