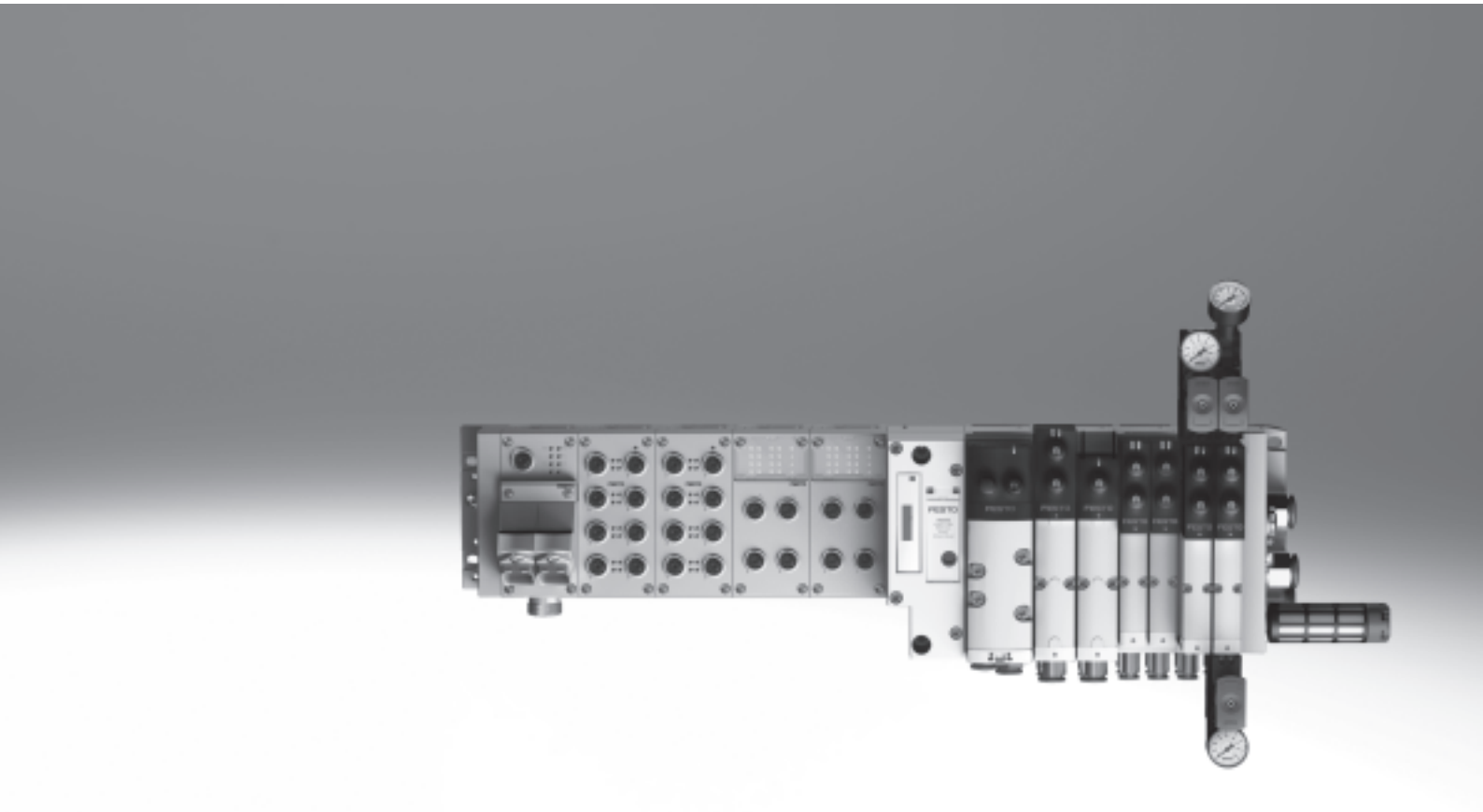
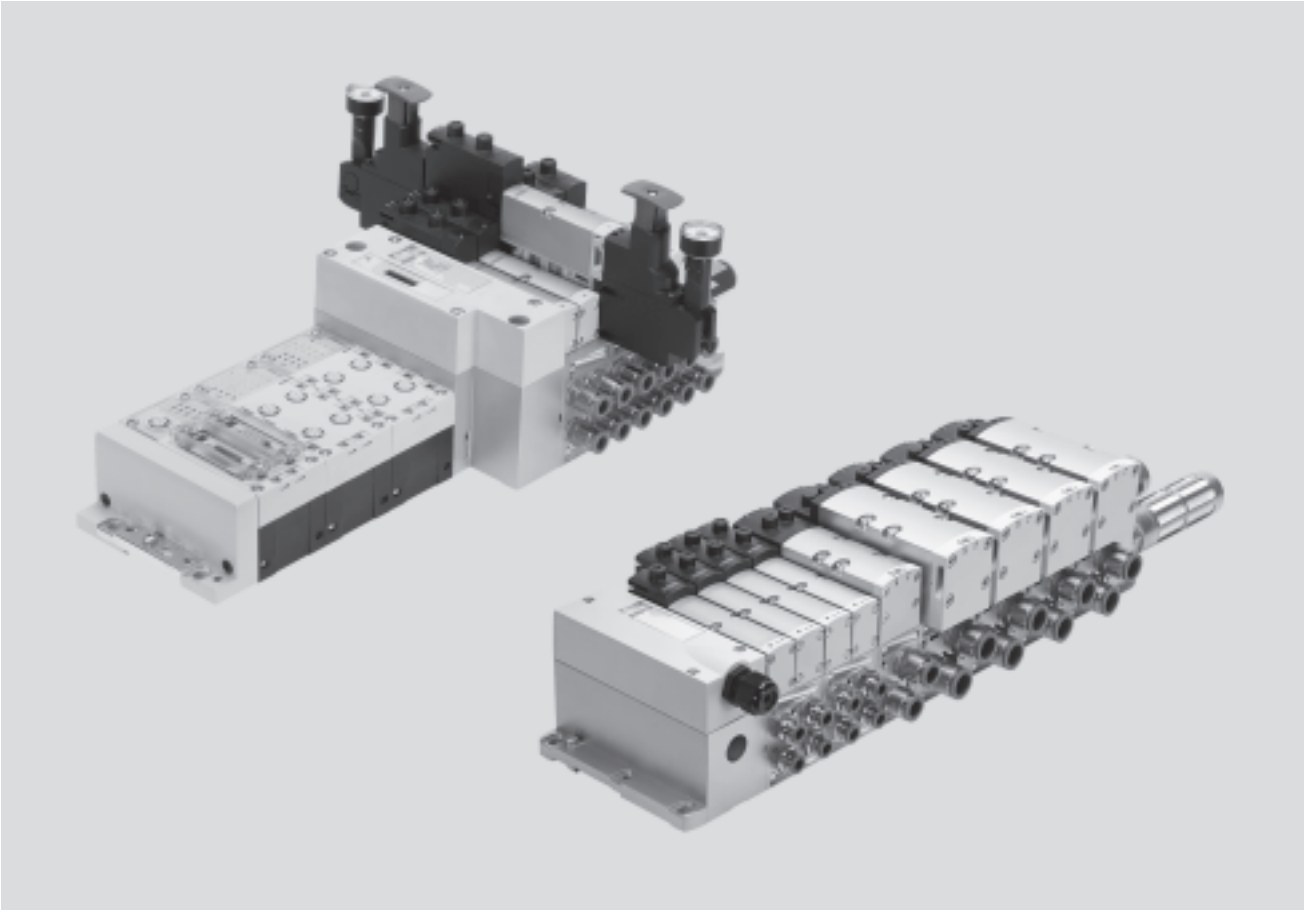
Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2



Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features



Innovative

- High-performance valves in sturdy metal housing
- Four valve sizes on one valve terminal
- 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
  - Four valve sizes on one valve terminal without adapters
- 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 up to 32 solenoid coils
- Conversions and expansions are possible at any time
- Manifold sub-bases can be expanded 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
- Flow range from 500 l/min up to 2,900 l/min
- Wide range of valve functions
- Valve supply: 24 V DC or 110 V AC

Reliable

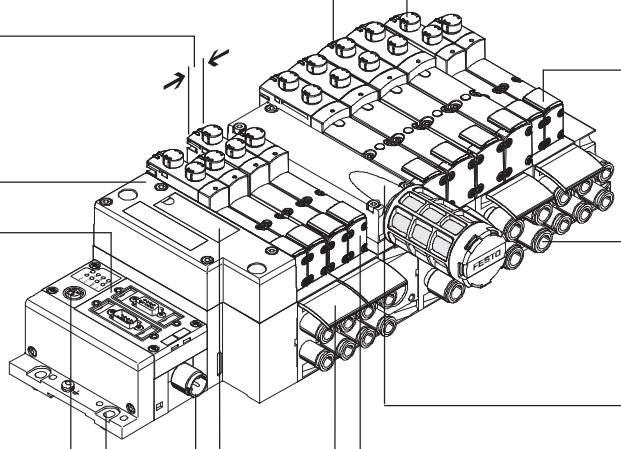
- Sturdy and durable metal components
  - Valves
  - Manifold sub-bases
  - Seals
- Fast troubleshooting thanks to LEDs on the valves and diagnostics via fieldbus
- Reliability of service thanks to valves that can be replaced quickly and easily
- Manual override either non-detenting, non-detenting/detenting or with cover
- 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 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features



Reduced downtimes:
On-the-spot diagnostics via LEDs

Width 18 mm, 26 mm, 42 mm and 52 mm can be combined on one valve terminal without adapters

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 hand-held 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 function, 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 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features

Special features

Individual valve on individual sub-base (plug-in)
- Electrical connection via standardised 4-pin M12 plug or via 4-pin spring-loaded terminal for configuration by the user
- Available with internal/external pilot air supply

Individual valve on individual sub-base (square plug or plug-in), with integrated piston position sensing
- Electrical connection to DIN EN 175301-803, type C (square plug) or via 4-pin spring-loaded terminal for configuration by the user or plug-in connection

Valve terminal with individual connection
- Max. 32 valve positions/ max. 32 solenoid coils
- 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 multi-pin plug connection
- Max. 32 valve positions/ max. 32 solenoid coils
- Parallel modular valve linking
- Any compressed air supply
- Any number of pressure zones

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

Valve terminal with fieldbus connection and electrical peripherals type 03
- Max. 26 valve positions/ max. 26 solenoid coils
- Any compressed air supply
- Any number of pressure zones

Combinable
- Width 18 mm: valve flow rate up to 550 l/min
- Width 26 mm: valve flow rate up to 1,100 l/min
- Width 42 mm: valve flow rate up to 1,300 l/min
- Width 52 mm: valve flow rate up to 2,900 l/min
- Width 18 mm, 26 mm, 42 mm and 52 mm can be combined on a single valve terminal

Note
- Valve terminal type 44 VTSA complies with ISO 15407-2 in width 18 and 26 mm and
- with ISO 5599-2 in width 42 and 52 mm

Valve terminal configurator

Online via: ➔ www.festo.com

Selecting an VTSA valve terminal using the online catalogue is quick and easy thanks to the convenient valve terminal configurator provided. This makes it much easier to find the right product.

The valve terminals are fully assembled according to your order specifications and are individually tested. This reduces the assembly and installation time to a minimum. You order a valve terminal type 44 using the order code.

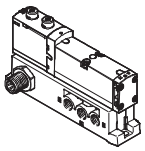
Ordering system for type 44
➔ Internet: type 44

Ordering system for CPX
➔ Internet: cpx

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features

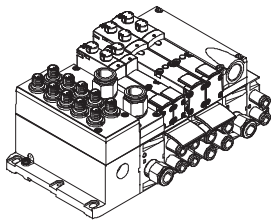
Individual connection



Valves on individual sub-bases can be used for actuators further away from the valve terminal.

The electrical connection is established either via a standardised 4-pin M12 plug 24 V DC (EN 61076-2-101), 4-pin spring-loaded terminal or a cable with open end 24 V DC or 110 V AC, which are configured by the user.

Valve terminal with individual connection

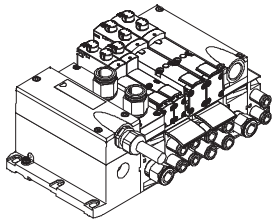


Control signals from the controller to the valve terminal are transmitted via an individual connecting cable.

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



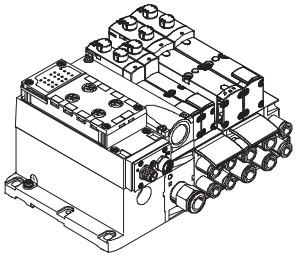
Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire cable or a self-assembled multi-pin plug connection (spring-loaded terminal), which substantially reduces installation time.

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

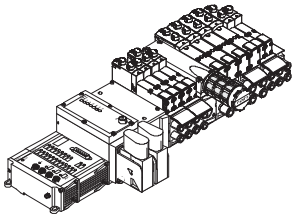
- Note

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 (➔ 116). The technical specifications of the AS-interface system must be observed in this case.
Not for size 2 valves.
➔ Internet: as-interface

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features

Valve terminal with fieldbus connection from the “Electrical peripherals type 03” system



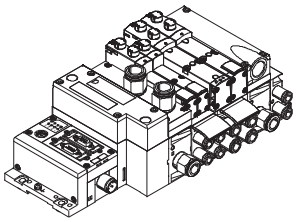
An integrated fieldbus node manages the communication connection with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Up to 26 solenoid coils can be actuated using the fieldbus connection from the “Electrical peripherals type 03” system.

Versions
- Interbus

➔ Internet: type 03

Valve terminal with fieldbus connection from the CPX system



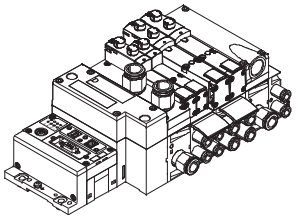
An integrated fieldbus node manages the communication connection with a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Valve terminals with fieldbus interfaces from the CPX system can be designed 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
- Ethernet/IP
- EtherCAT
- CoDeSys controller
- Modbus/TCP
- PROFINET

➔ Internet: cpx

Valve terminal with control block connection from the CPX system



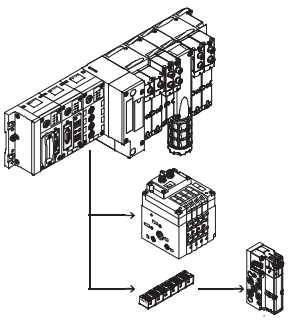
An integrated controller in the Festo valve terminal enables the construction of standalone control units with protection to IP65 without a control cabinet thanks to two different operating modes.

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. Various 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.

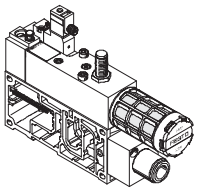
One CP string offers:
- 32 input signals
- 32 output signals for output modules 24 V DC or solenoid coils
- Logic and sensor supply for the input modules
- Load voltage supply for the valve terminals
- Logic supply for the output module

➔ Internet: ctec

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features

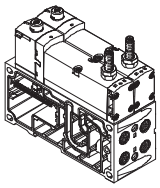
Soft-start valve



The soft-start valve is separately electrically actuated, independently of the multi-pin plug, AS-interface or fieldbus 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.

ISO 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 memory function.

Possible applications:

- Pneumatic manual clamps for devices (insert stations)

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

Modular pneumatic components

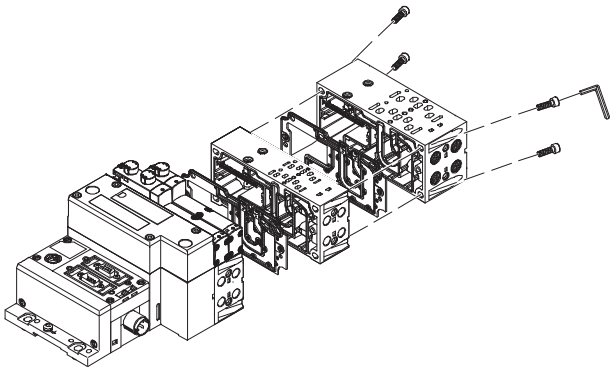
The modular design of the VTSA enables maximum flexibility right from the planning stage and offers maximum ease of service in operation.

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.

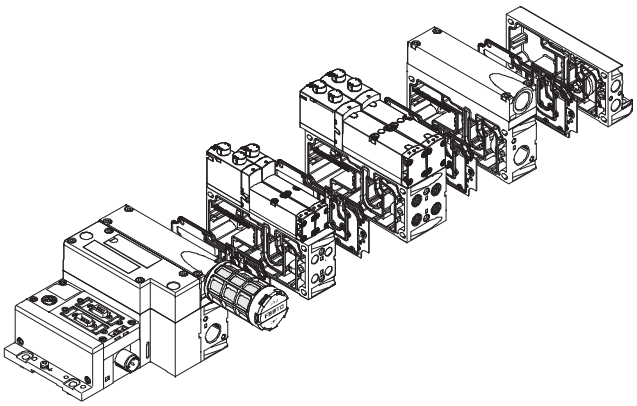
Inside the manifold sub-bases are the connection ducts for supplying compressed air to and venting from the valves on the terminal as well as the working lines for the pneumatic cylinders for each valve.

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.

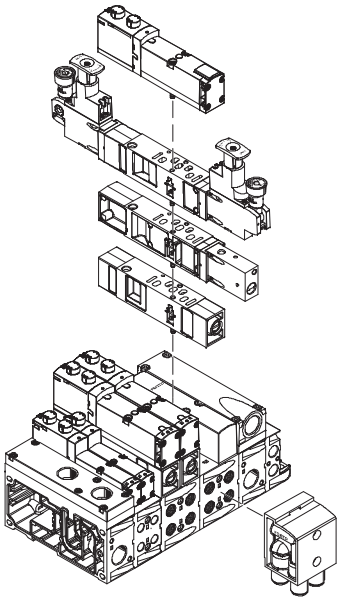
Basic system modularity



Valve modularity



Vertical stacking modularity



Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

Modular electrical peripherals

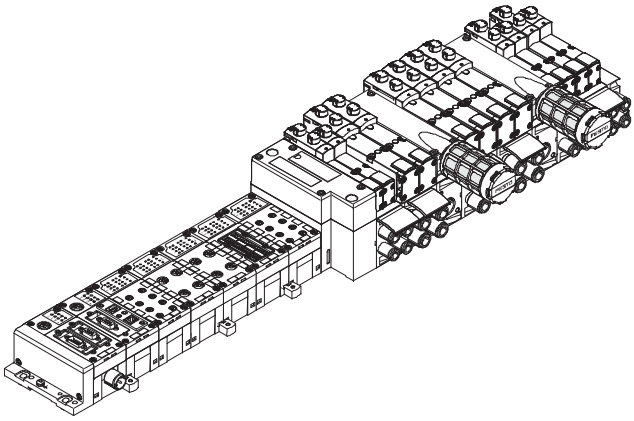
The manner in which the valves are actuated differs according to whether you are using a multi-pin terminal or fieldbus terminal.

The VTSA 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.

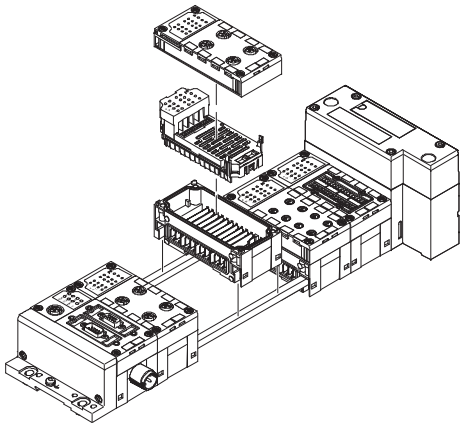
Parallel linking enables the following:

- 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 autonomous controller with access via Ethernet and web server

VTSA with electrical peripherals CPX



Modularity with electrical peripherals CPX

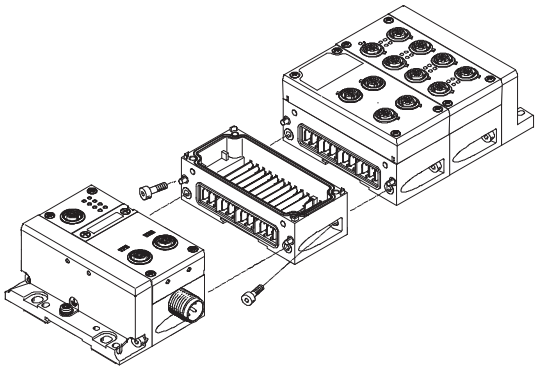


CPX terminal in metal design

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 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 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

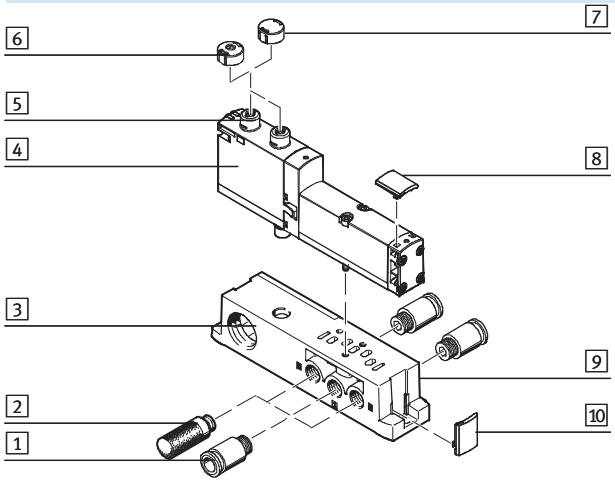
Individual sub-base

Order code:
- Using individual part numbers

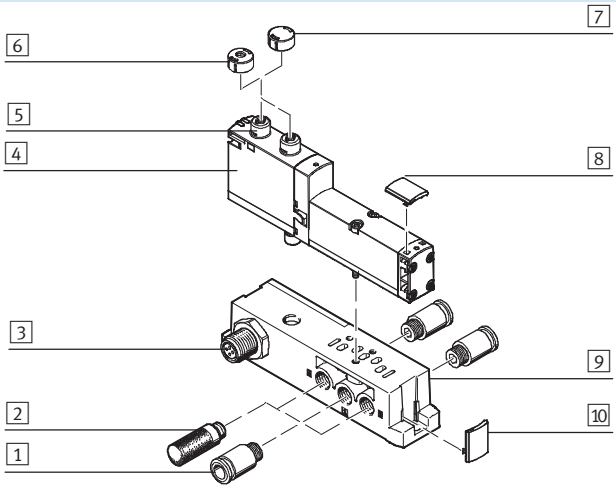
Individual sub-bases can be equipped with any valve.

The electrical connection is established via a standardised 4-pin M12 plug (EN 61076-2-101) or it can be configured by the user via a 4-pin clamped terminal connection/open cable end.

Width 18 mm with spring-loaded terminal or cable (open end)



Width 18 mm with M12 plug

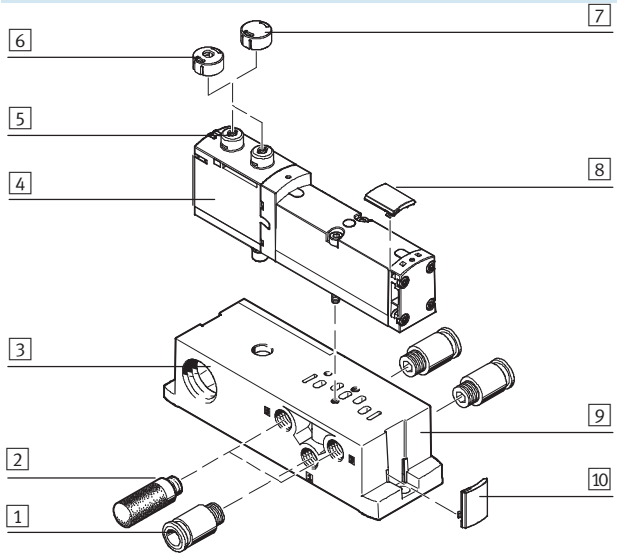


	Brief description	➔ Page/Internet
1 Fitting	G⅛ for supply/exhaust ports (1, 3, 5) and working lines (2, 4)	118
2 Silencer	U-⅛-B for exhaust ports (3, 5)	118
3 Electrical connection	Spring-loaded terminal, cable (open end) or plug M12[1], 4-pin	–
4 Valve VSVA	Width 18 mm	106
5 Manual override	Non-detenting/detenting, per solenoid coil	–
6 Cover cap	For non-detenting manual override	117
7 Cover cap	For covered manual override	117
8 Inscription label holder	For valves	117
9 Individual sub-base	For valve VSVA	94
10 Inscription label holder	For manifold blocks	117

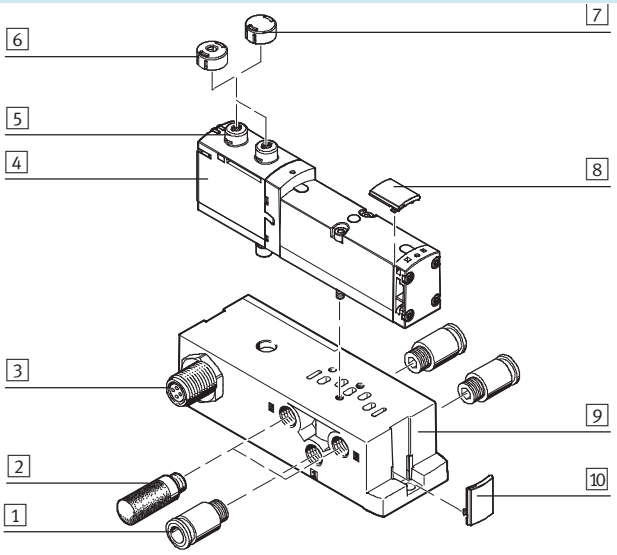
1) Only for 24 V DC

Individual sub-base

Width 26 mm with spring-loaded terminal or cable (open end)



Width 26 mm with M12 push-in connector



	Brief description	➔ Page/Internet
1 Fitting	G¼ for supply/exhaust ports (1, 3, 5) and working lines (2, 4)	118
2 Silencer	U-¼-B for exhaust ports (3, 5)	118
3 Electrical connection	Spring-loaded terminal, cable (open end) or plug M12[1], 4-pin	–
4 Valve VSVA	Width 26 mm	106
5 Manual override	Non-detenting/detenting, per solenoid coil	–
6 Cover cap	For non-detenting manual override	117
7 Cover cap	For covered manual override	117
8 Inscription label holder	For valves	117
9 Individual sub-base	For valve VSVA	94
10 Inscription label holder	For manifold blocks	117

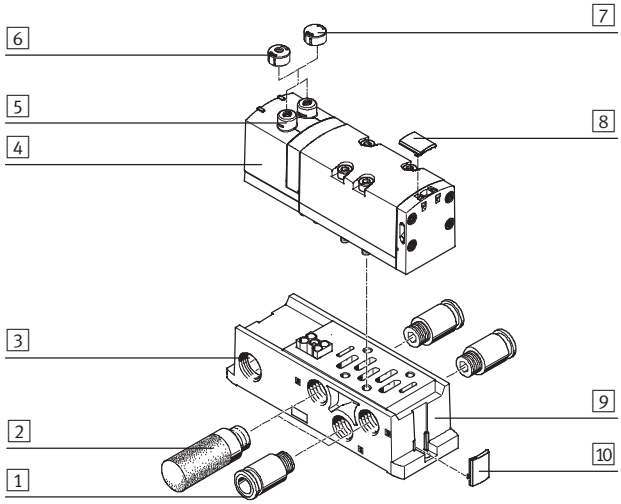
1) Only for 24 V DC

Valve terminals type 44 VTSA, to ISO 5599-2

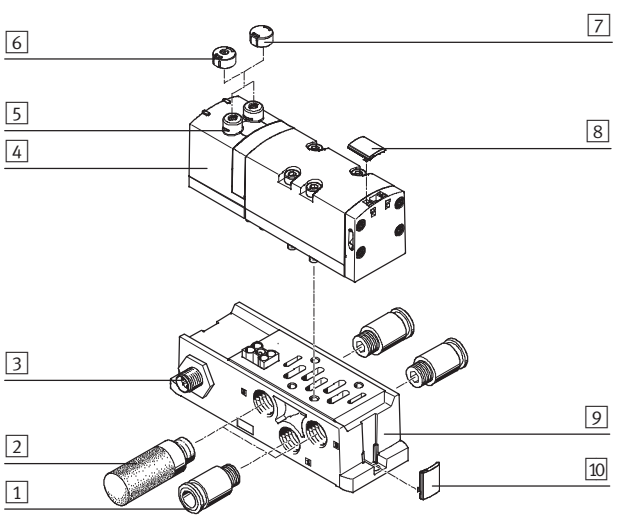
Peripherals overview

Individual sub-base

Width 42 mm with spring-loaded terminal or cable (open end)



Width 42 mm with M12 plug



	Brief description	➔ Page/Internet
1 Fitting	G3⁄8 for supply/exhaust ports (1, 3, 5) and working lines (2, 4)	118
2 Silencer	U-3⁄8-B for exhaust ports (3, 5)	118
3 Electrical connection	Spring-loaded terminal, cable (open end) or plug M12[1], 4-pin	–
4 Valve VSVA	Width 42 mm	106
5 Manual override	Non-detenting/detenting, per solenoid coil	–
6 Cover cap	For non-detenting manual override	117
7 Cover cap	For covered manual override	117
8 Inscription label holder	For valves	117
9 Individual sub-base	For valve VSVA	95
10 Inscription label holder	For manifold blocks	117

1) Only for 24 V DC

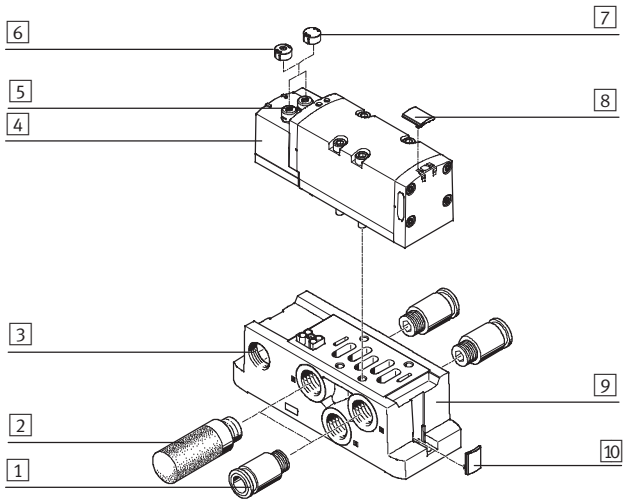
Valve terminals type 44 VTSA, to ISO 5599-2

Peripherals overview

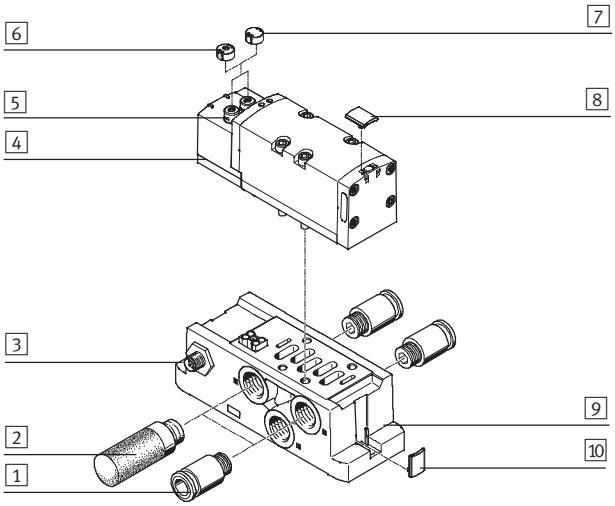
FESTO

Individual sub-base

Width 52 mm with spring-loaded terminal or cable (open end)



Width 52 mm with M12 plug



		Brief description	➔ Page/Internet
1	Fitting	G½ for supply/exhaust ports (1, 3, 5) and working lines (2, 4)	118
2	Silencer	U-½-B for exhaust ports (3, 5)	118
3	Electrical connection	Spring-loaded terminal, cable (open end) or plug M12[1], 4-pin	–
4	Valve VSVA	Width 52 mm	106
5	Manual override	Non-detenting/detenting, per solenoid coil	–
6	Cover cap	For non-detenting manual override	117
7	Cover cap	For covered manual override	117
8	Inscription label holder	For valves	117
9	Individual sub-base	For valve VSVA	95
10	Inscription label holder	For manifold blocks	117

1) Only for 24 V DC

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

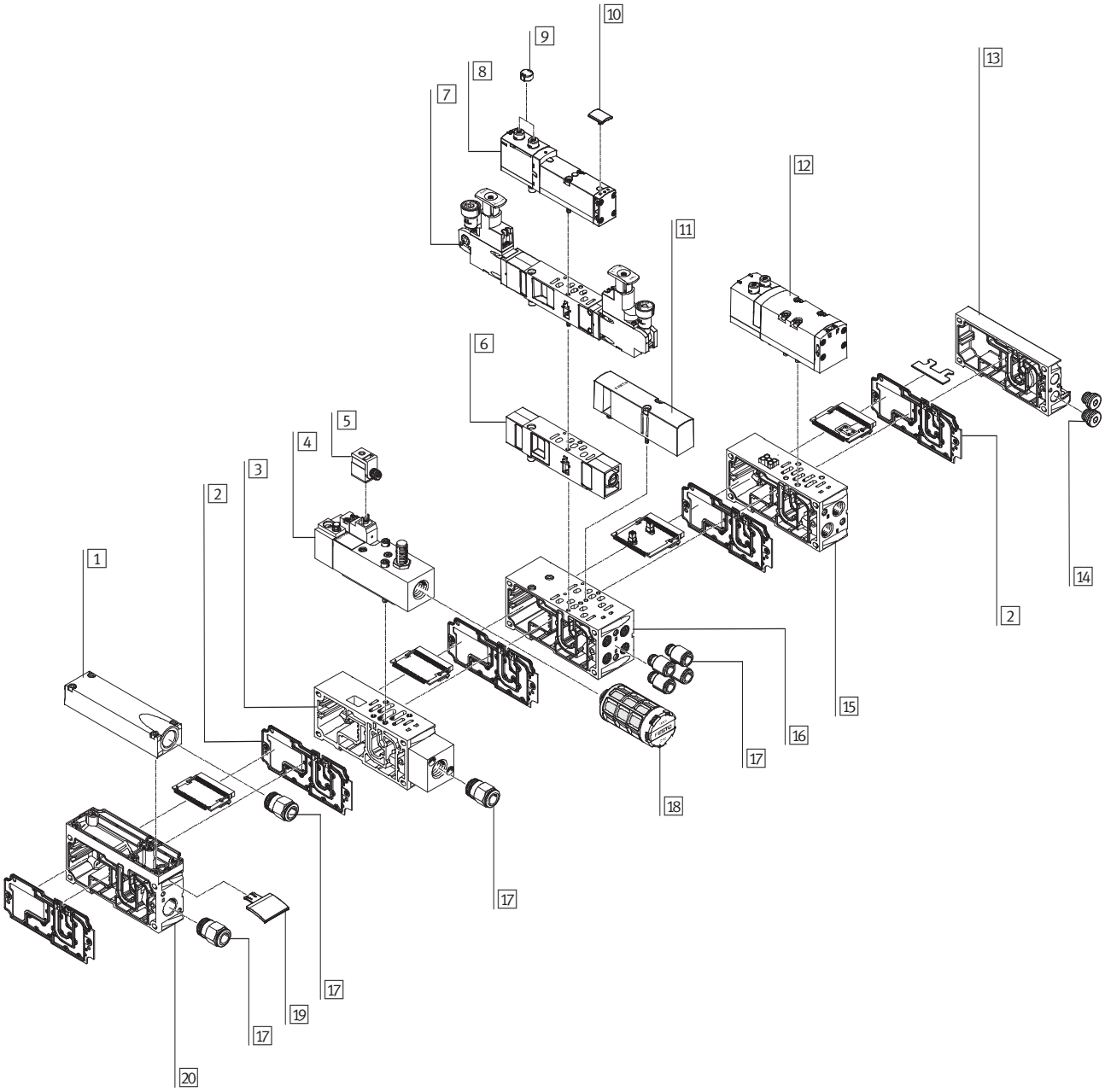
FESTO

Valve terminal pneumatics

The manifold sub-bases width 18 and 26 mm are suitable for:
- 2 single solenoid valves or
- 2 double solenoid valves.

The manifold sub-bases width 42 and 52 mm are suitable for:
- 1 single solenoid valve or
- 1 double solenoid valve.

- 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 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

FESTO

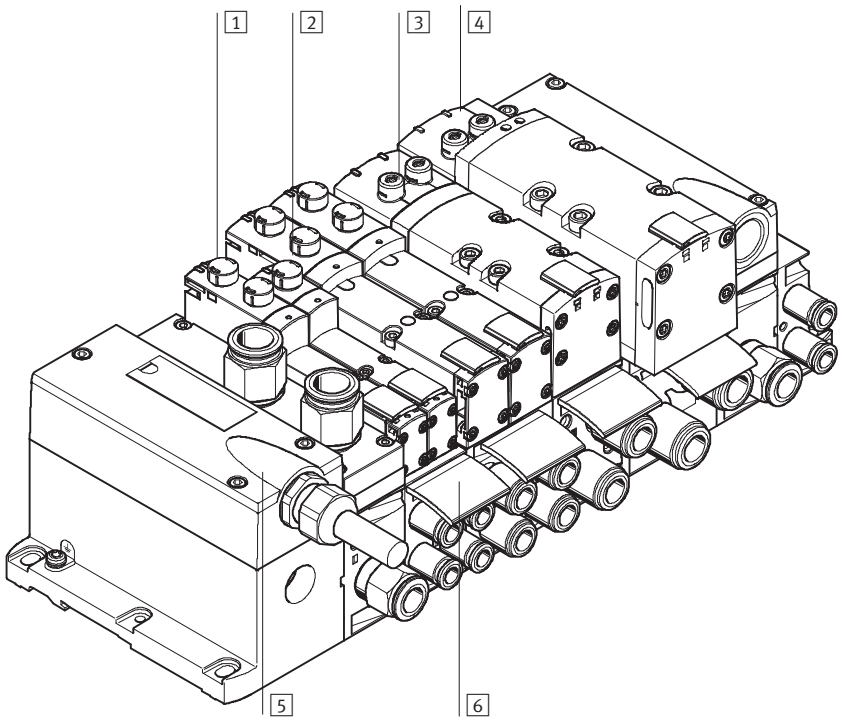
Valve terminal pneumatics			
		Brief description	→ Page/Internet
1	Exhaust port cover	For ducted exhaust air (ports 3 and 5 combined)	111
2	Duct separation/seal	–	111
3	Manifold sub-base	For soft-start valve	103
4	Soft-start valve	For slow and reliable pressure build-up	103
5	Plug socket	–	105
6	Flow control plate	–	115
7	Pressure regulator plate	–	47
8	Valve	Width 26 mm	110
9	Cover cap	For manual override, non-detenting, covered	117
10	Inscription label holder	For valve	117
11	Blanking plate	For unused valve position (vacant position)	117
12	Valve	Width 42 mm	110
13	End plate with pilot air selector	–	110
14	Blanking plug	–	118
15	Manifold sub-base	For valves with a width of 42 mm	110
16	Manifold sub-base	For valves with a width of 26 mm	110
17	Fittings	–	118
18	Silencer	–	118
19	Inscription label holder	For manifold sub-base, sub-base, 90° connection plate	117
20	Supply plate	–	111

Valve terminal widths

Order code:
- 44E for the electrical components
- 44P for the pneumatic components

Regardless of the type of actuation (e.g. multi-pin plug, fieldbus, etc.), VTSA valve terminals in the widths
- 18 mm
- 26 mm
- 42 mm
- 52 mm

can be combined without adapters. This means that a flow rate from 500 l/min to 2,900 l/min is covered on one valve terminal. A wide range of valve functions and vertical stacking components are available for all widths.



	Brief description	→ Page/Internet
1 Valve	Width 18 mm	110
2 Valve	Width 26 mm	110
3 Valve	Width 42 mm	110
4 Valve	Width 52 mm	110
5 Multi-pin plug connection	Via multi-pin cable 24 V DC	115
6 Inscription labels	For manifold sub-base, sub-base, 90° connection plate	117

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

Valve terminal with individual connection

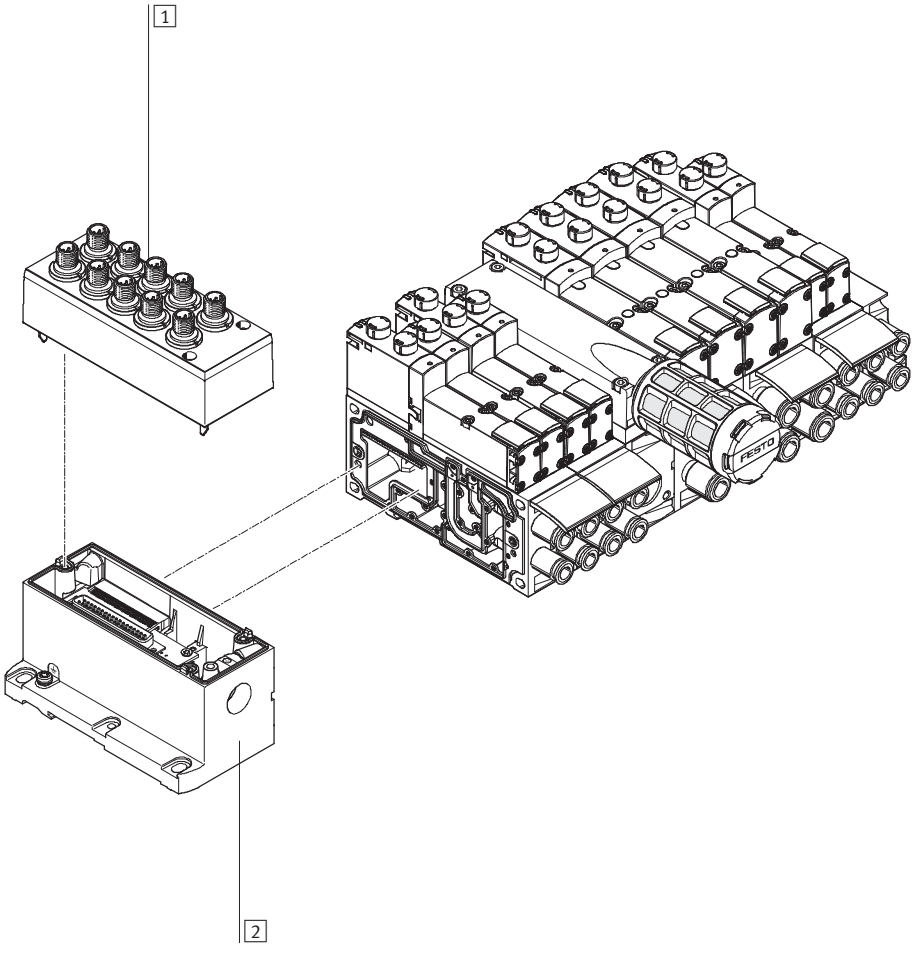
Order code:
- 44E for the electrical components
- 44P for the pneumatic components

VTSA valve terminals with individual connections 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.

The manifold sub-bases width 42 and 52 mm are suitable for:
- 1 single solenoid valve or
- 1 double solenoid valve.

- 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	115
2 Multi-pin plug connection	Individual connection with M12, 10-way or 6-way (including cover)	115

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

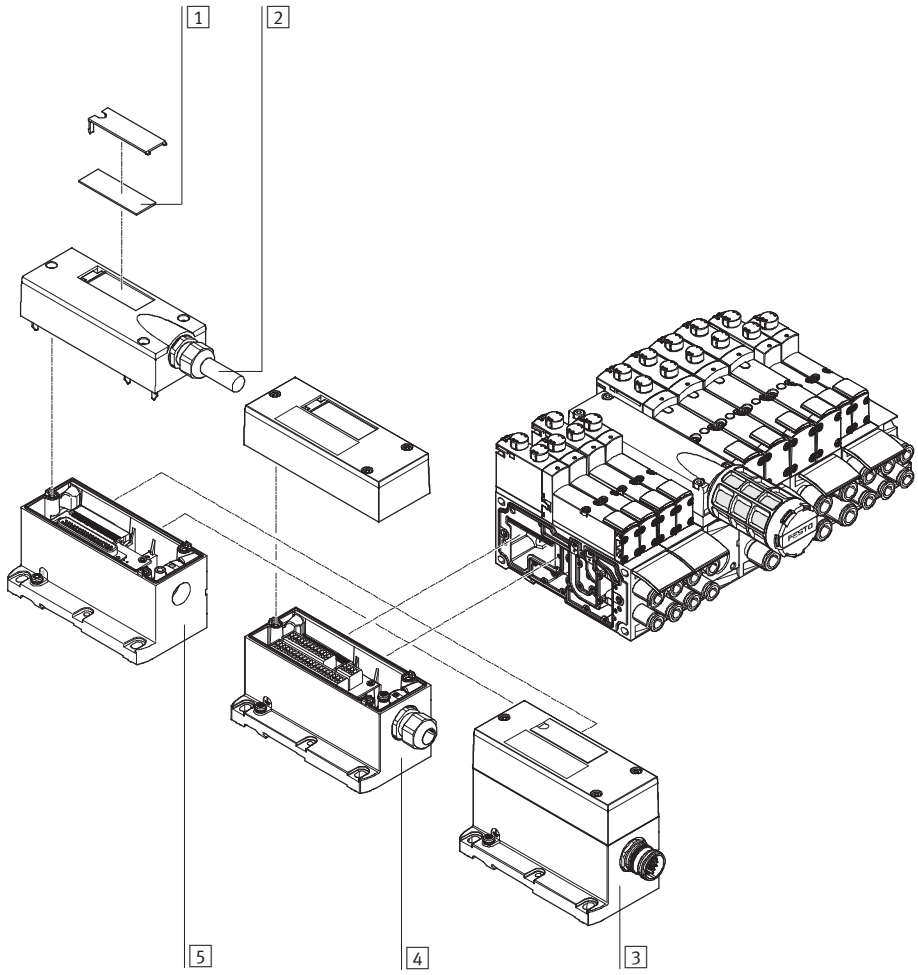
Valve terminal with multi-pin plug connection

Order code:
- 44E for the electrical components
- 44P for the pneumatic components

VTSA 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.

The manifold sub-bases width 42 and 52 mm are suitable for:
- 1 single solenoid valve or
- 1 double solenoid valve.
- 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	–	117
3	Multi-pin plug connection	Via M23 round plug connection, 24 V DC	115
4	Multi-pin plug connection	Via terminal strip (Cage Clamp®) 24 V DC or 110 V AC	115
5	Multi-pin plug connection	Via multi-pin cable 24 V DC	115

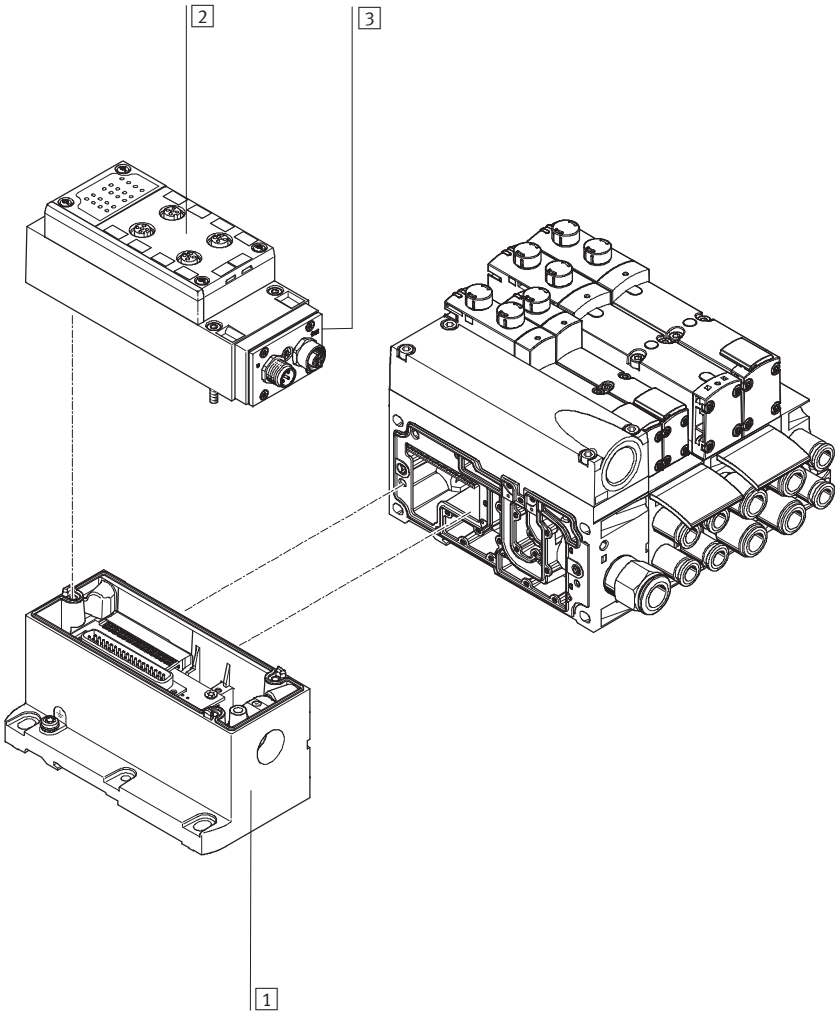
Valve terminal with AS-interface connection

Order code:
- 52E for the electrical components
- 44P for the pneumatic components

VTSA 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.

The manifold sub-bases width 42 and 52 mm are suitable for:
- 1 single solenoid valve or
- 1 double solenoid valve.

- 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	116
2 Manifold block for AS-interface	–	117
3 AS-interface module	–	116

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

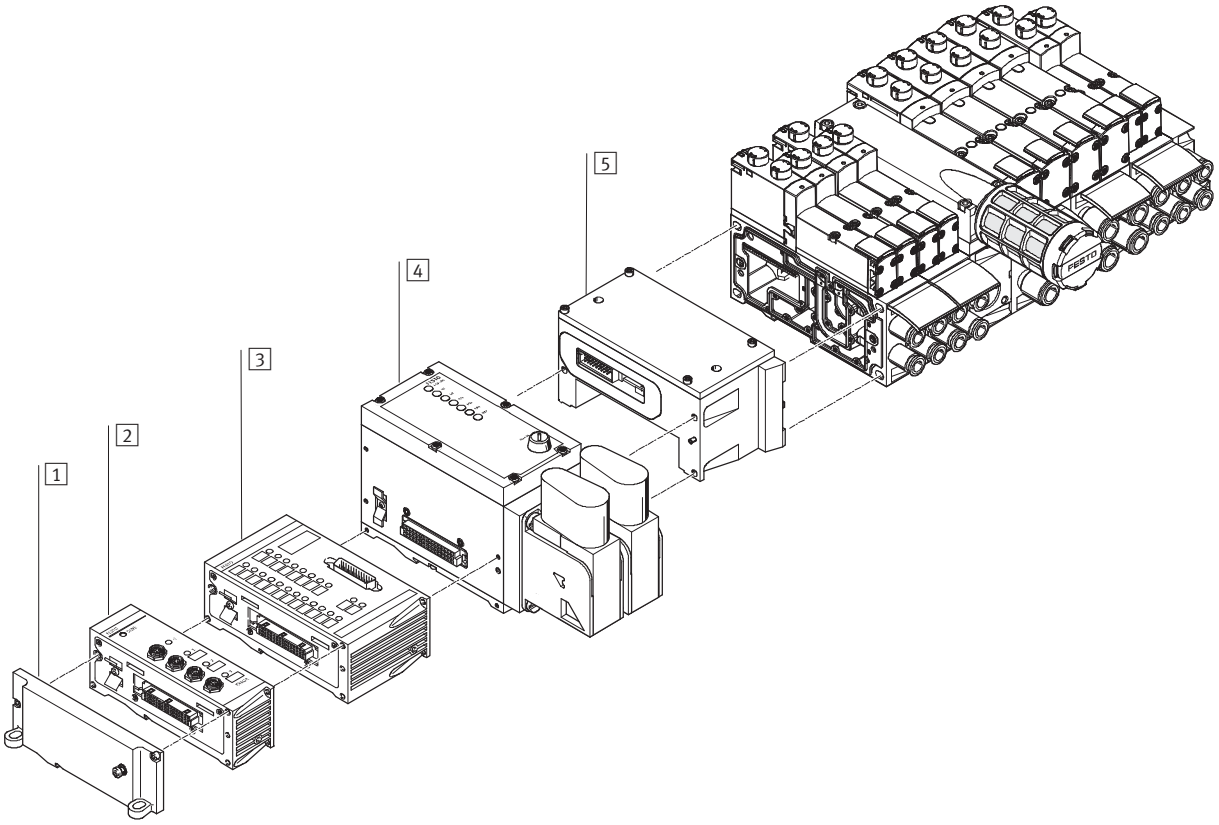
Valve terminal with fieldbus connection, electrical peripherals type 03

Order code:
- 03E-... for the electrical peripherals
- 44P for the pneumatic components

VTSA valve terminals with fieldbus interface can be expanded with up to 26 valves with max. 26 solenoid coils. Each valve position can be equipped with any valve or a blanking plate.

The rules for type 03 apply to the equipment that can be used in combination with electrical peripherals type 03.

In general:
- Max. 12 electrical modules
- Digital inputs/outputs
- Analogue inputs/outputs



	Brief description	➔ Page/Internet
1 Left-hand end plate	–	–
2 Input or output module	5-pin, M12	116
3 Input/output module	Sub-D	116
4 Bus node	FB21 (for Interbus with fibre optic cable)	116
5 Pneumatic interface	–	–

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Peripherals overview

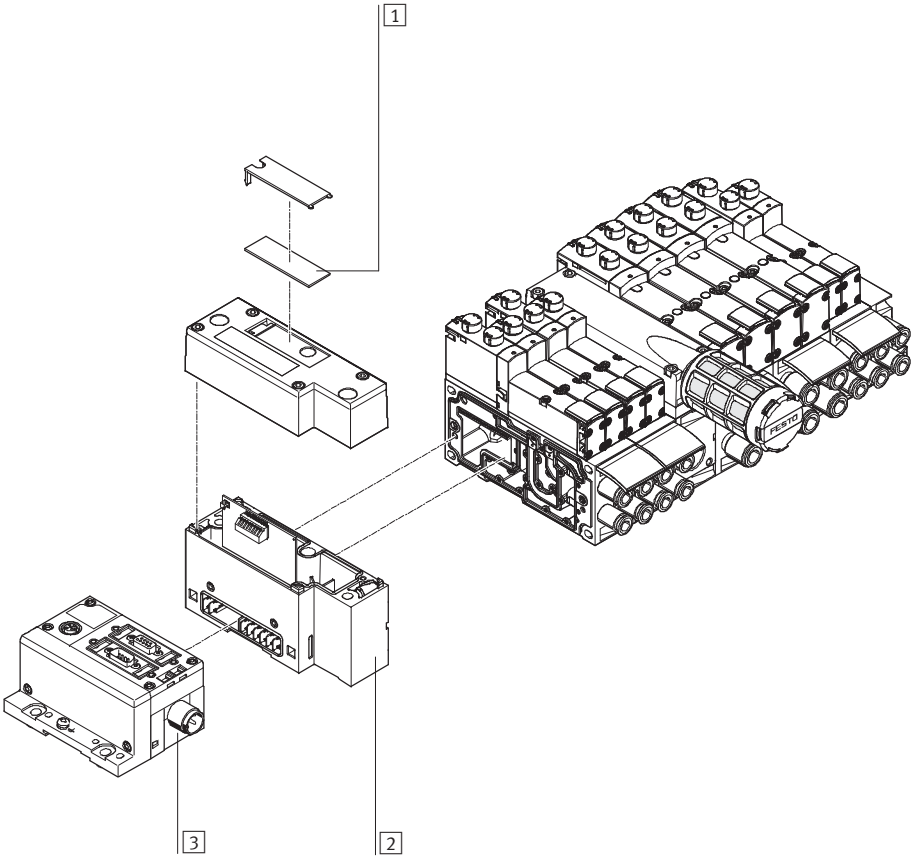
Valve terminal with fieldbus connection, control block (electrical peripherals CPX)

Order code:
- 50E-... for the electrical peripherals
- 51E-... for the electrical peripherals, metal linking
- 44P for the pneumatic components

VTSA 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



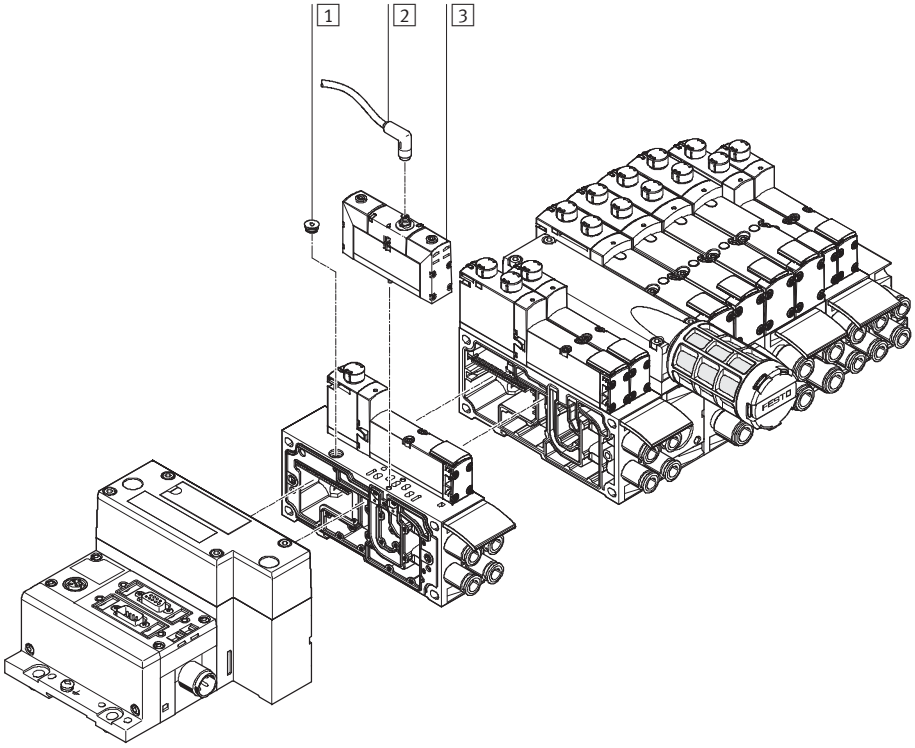
	Brief description	➔ Page/Internet
1 Inscription labels	Large, for pneumatic interface CPX	–
2 Pneumatic interface	–	116
3 Fieldbus interface	–	cpx

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.
Standard valves (VSVA) with individual electrical connections (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 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.

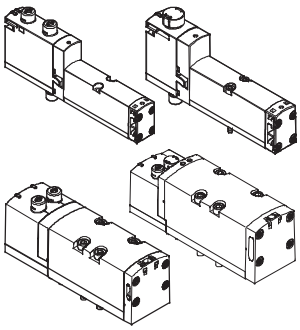


	Brief description	➔ Page/Internet
1 Sealing cap	For sealing the electrical connection on the sub-base	117
2 Connecting cable	–	valves vsva
3 Valve	Width 18 mm or width 26 mm	valves vsva

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features – Pneumatic components

Sub-base valve



The VTSA 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

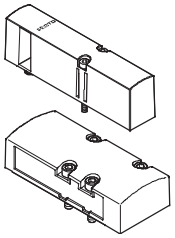


Plate without valve function for reserving valve positions on a valve terminal.

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

Design

Valve replacement

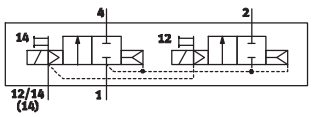
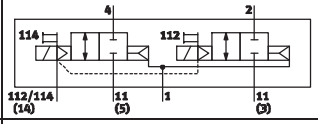
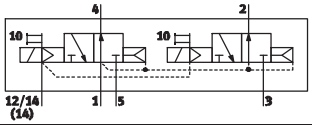
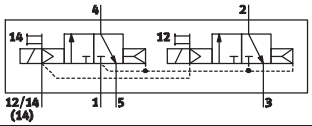
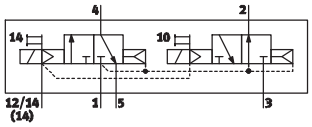
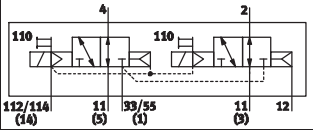
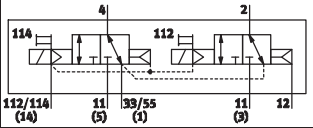
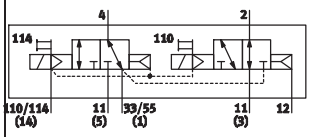
The valves are attached to the metal manifold sub-base using two screws, which means that they can be easily replaced. The mechanical robustness of the manifold sub-base guarantees efficient long-term sealing.

Extension

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.

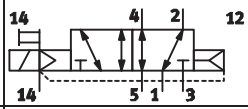
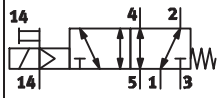
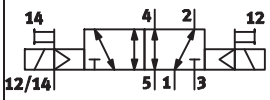
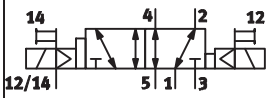
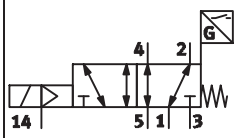
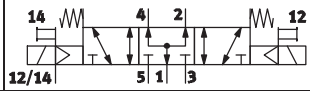
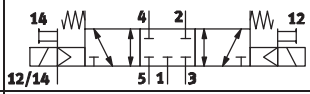
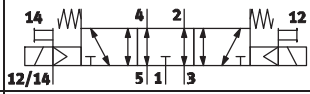
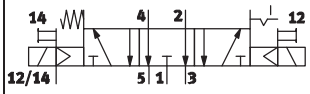
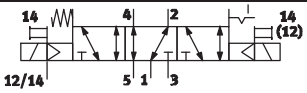
Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Key features – Pneumatic components

Valve function						
Code	Circuit symbol	Width				Description
		18 mm	26 mm	42 mm	52 mm	
VC		■	■	■	■	2x 2/2-way valve, single solenoid • Normally closed • Pneumatic spring return
VV		■	■	■	–	2x 2/2-way valve, single solenoid • Normally closed • Pneumatic spring return • Vacuum operation possible at 3 and 5
N		■	■	■	■	2x 3/2-way valve, single solenoid • Normally open • Pneumatic spring return • Operating pressure > 3 bar
K		■	■	■	■	2x 3/2-way valve, single solenoid • Normally closed • Pneumatic spring return • Operating pressure > 3 bar
H		■	■	■	■	2x 3/2-way valve, single solenoid • Normal position – 1x closed – 1x open • Pneumatic spring return • Operating pressure > 3 bar
P		■	■	■	■	2x 3/2-way valve, single solenoid • Reverse operation • Normally open • Pneumatic spring return
Q		■	■	■	■	2x 3/2-way valve, single solenoid • Reverse operation • Normally closed • Pneumatic spring return
R		■	■	■	■	2x 3/2-way valve, single solenoid • Reverse operation • Normal position – 1x closed – 1x open • Pneumatic spring return

Note

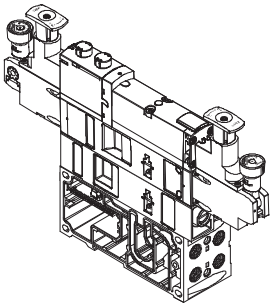
A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup).

Valve function						
Code	Circuit symbol	Width				Description
		18 mm	26 mm	42 mm	52 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, in 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 position14 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.

Vertical stacking

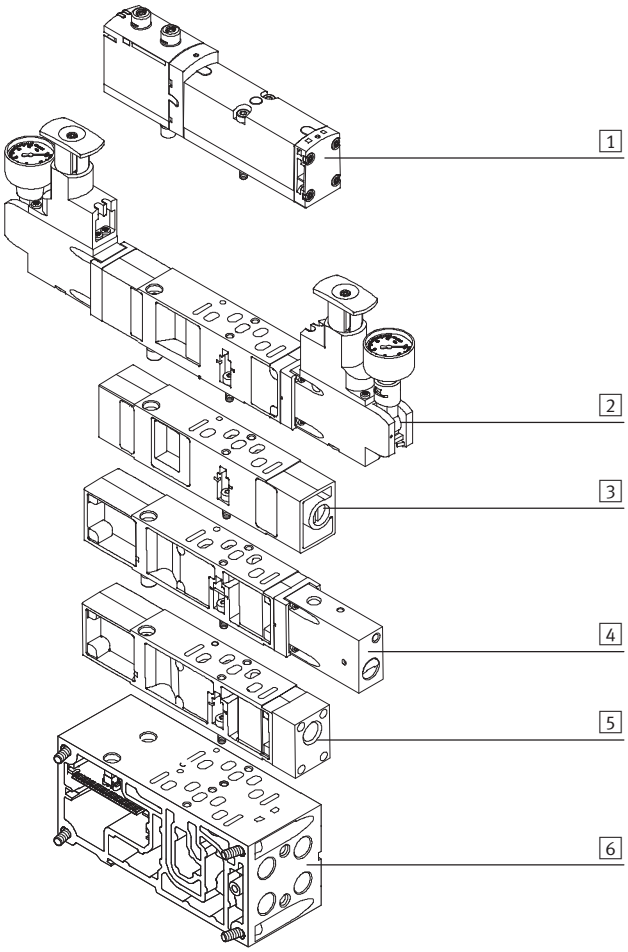


Additional functions can be added to each valve position between the manifold and the valve. These functions are known as vertical stacking modules, and enable special functioning or control of an individual valve position. Combinations of several valve sizes on one valve terminal are possible.

- Note

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

Vertical stacking components

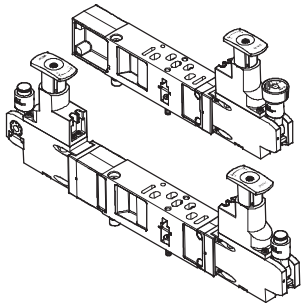


The following component sequence is recommended for valve positions with vertical stacking:

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

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. Also suitable for symmetrical valves.

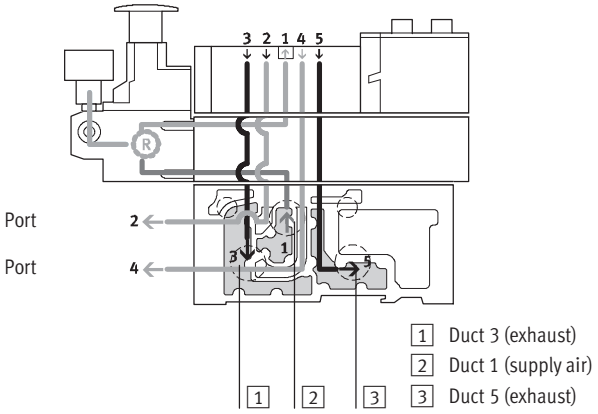
Note

With the A, B and AB pressure regulators VABF-S4-1..., the control pressure should not be under 2 bar. Use the reversible A, B or AB pressure regulators for control pressures under 2 bar.

Standard version:

- Standard port pattern to ISO 15407-2 or ISO 5599-2
- 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

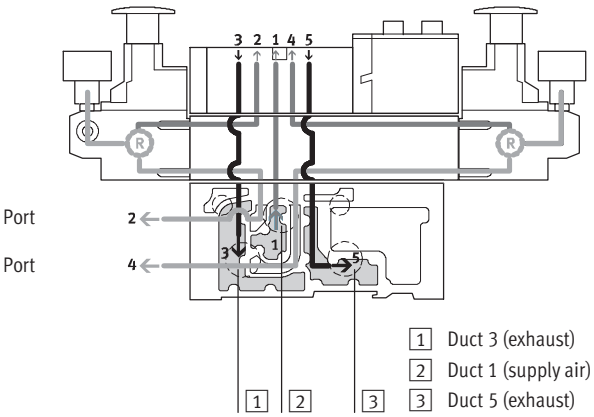
- The pressure regulator is not affected by venting, since the pressure is regulated upstream of the valve.
- The pressure regulator can always be adjusted, since the pressure from the valve terminal is always present.

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.

Vertical stacking

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

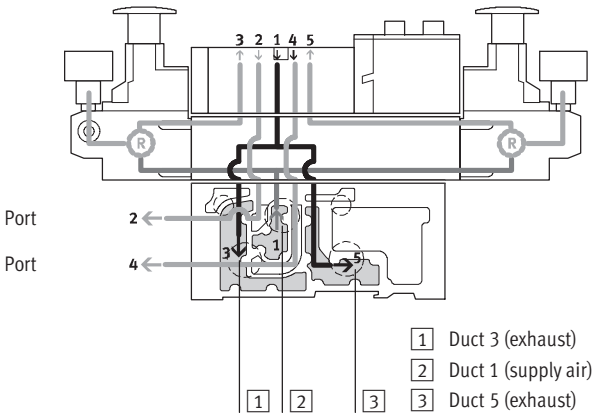
- The pressure regulator cannot be adjusted in the exhaust position. For example, the pressure regulator for duct 4 cannot be adjusted when the valve is pressurised in the switching position from duct 1 to duct 2 and vented from duct 4 to duct 5.

Application examples

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

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 among 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

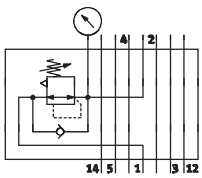
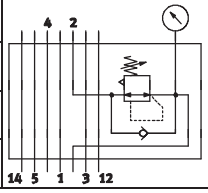
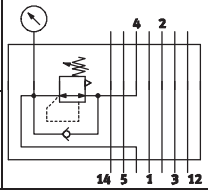
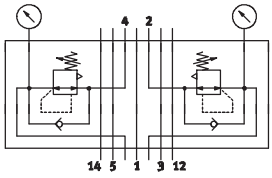
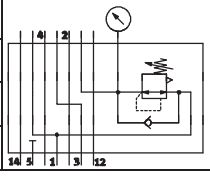
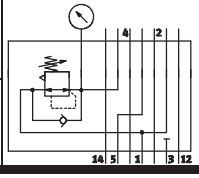
Advantages

- 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

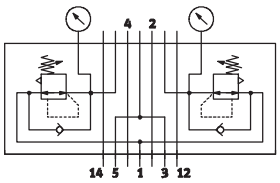
- 2x 3/2-way valves (code N, K, H) cannot be used, as pressure is present at ports 3 and 5.
- No practical combination with a flow control plate possible.

Vertical stacking – Pressure regulator plate

Code		Type	Width			Supply pressure		Description
			18 mm	26 mm	42 mm	6 bar	10 bar	
Pressure regulator plate for port 1 (P regulator)								
ZA		VABF-S4-...-R1C2-C-10	■	■	■	–	■	• 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	■	■	■	–	■	• 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	■	■	■	–	■	• 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	■	■	■	–	■	• Regulates the working pressure in ducts 2 and 4 downstream of the directional control valve
ZDY[1)]		VABF-S4-...-R4C2-C-10E	■	■	–	–	■	
ZI		VABF-S4-...-R4C2-C-6	■	■	■	■	–	- - Note These pressure regulator plates cannot be combined with reversible 2x 3/2-way valves (code P, Q, R).
ZIY[1)]		VABF-S4-...-R4C2-C-6E	■	■	–	■	–	
Pressure regulator plate for port 2, reversible (B regulator)								
ZL		VABF-S4-...-R6C2-C-10	■	■	■	–	■	• 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	■	■	■	–	■	• Reversible pressure regulator for port 4
ZM[1)]		VABF-S4-...-R7C2-C-6	■	■	■	■	–	

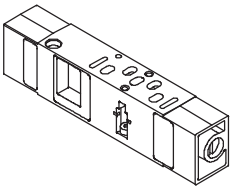
1) Also suitable for symmetrical valves

Vertical stacking – Pressure regulator plate

Code		Type	Width			Supply pressure		Description
			18 mm	26 mm	42 mm	6 bar	10 bar	
Pressure regulator plate for ports 2 and 4, reversible (AB regulator)								
ZE		VABF-S4-...-R5C2-C-10	■	■	■	–	■	• Reversible pressure regulator for ports 2 and 4 • Pressure regulation upstream of the directional control valve • Redirects the operating pressure from duct 1 to ducts 3 and 5 • Conducts the exhaust from duct 1 to ducts 3 and 5
ZEY[1)]		VABF-S4-...-R5C2-C-10E	■	■	–	–	■	
ZJ		VABF-S4-...-R5C2-C-6	■	■	■	■	–	- - Note 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.
ZJY[1)]		VABF-S4-...-R5C2-C-6E	■	■	–	■	–	

1) Also suitable for symmetrical valves

Vertical stacking – Flow control plate

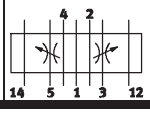


The flow control plate is equipped with two flow control valves on which the exhaust air flow rate at exhausts 3 or 5 can be adjusted. The movement of the drive can thus be initiated and the desired speed set on the valve terminal using the manual override.

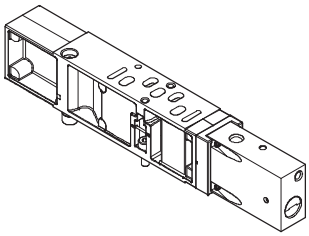
Ducts 3 and 5 can be adjusted independently of each other.

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	42 mm	
X		VABF-S4-...F1B1-C	■	■	■	• Restricts the exhaust air downstream of the valve in ducts 3 and 5

Vertical stacking – Vertical pressure shut-off plate

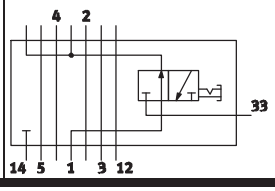


The vertical pressure shut-off plate is equipped with a switch via which the compressed air supply can be shut off. This enables a directional control valve or subsequent vertical stacking plate to be replaced without switching off the overall air supply. If the control chain has a redundant connection, the cycle can continue in the case of a cyclical control system.

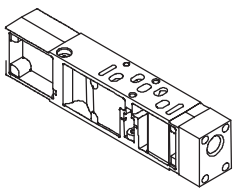
Following activation of the shut-off, the exhaust air/return air from the cylinder is expelled via the M5 threaded connection.

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.

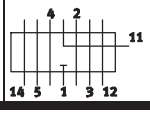
Code		Type	Width			Description
			18 mm	26 mm	42 mm	
ZT		VABF-S4-...L1D1-C	■	■	■	• 3/2-way valve for shutting off the operating pressure at the valve position • Blocks ducts 1 and 14 for the valve position • Supplies the valve position with internal pilot air

Vertical stacking – Vertical supply plate

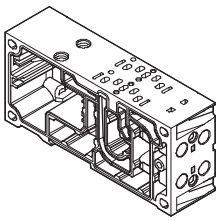


This plate enables a valve to be supplied with individual operating pressure independently of the operating pressure of the terminal.

As additional pressure supply for a valve. To supply an additional pressure zone.

Code		Type	Width			Description
			18 mm	26 mm	42 mm	
ZU		VABF-S4-...P1A3-...	■	■	■	• Plate with port 11 for supplying individual operating pressure to a valve position

Manifold sub-base

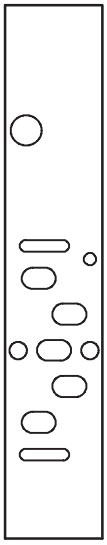


VTSA is based on a modular system which consists of manifold sub-bases and valves. Manifold sub-bases are available for valve widths 18 mm and 26 mm in a double grid, i.e. two valves per manifold sub-base. For widths 42 mm and 52 mm there are manifold sub-bases with one valve per sub-base. The manifold 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.

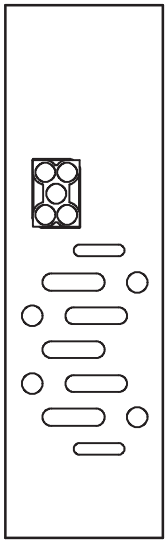
Port patterns on the manifold sub-base for one valve position

Width 18 mm

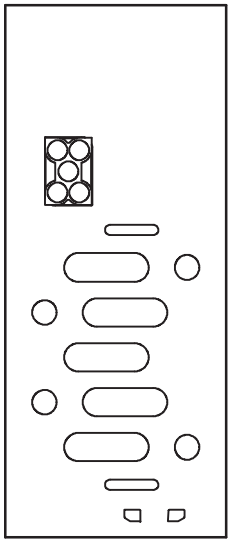
Width 26 mm



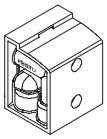
Width 42 mm



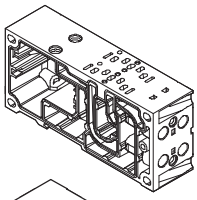
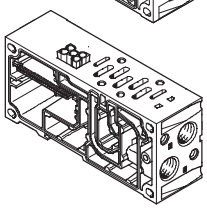
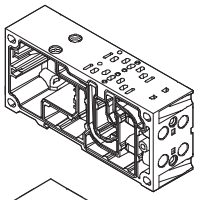
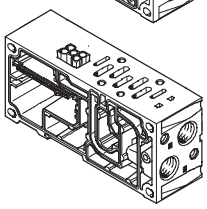
Width 52 mm



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

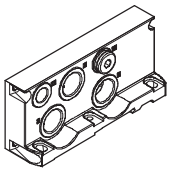
Code		Type	Width				Ports	Working lines (2, 4) on the 90° connection plate
			18 mm	26 mm	42 mm	52 mm		
P		Threaded connection: VABF-S4-...-A2G2-G...	■	■	■	–	2 and 4	Outlet at bottom • Connection sizes for 18 mm width: G1⁄8 • Connection sizes for 26 mm width: G1⁄4 • Connection sizes for 42 mm width: G3⁄8

1) 90° connection plate for 52 mm width not yet available

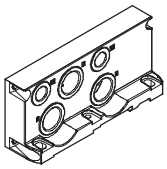
Manifold sub-base variants with threaded connection								
Code		Type	Width				No. of valve positions/ solenoid coils	Working lines (2, 4) on the manifold sub-base
			18 mm	26 mm	42 mm	52 mm		
Manifold sub-base for multi-pin plug/fieldbus connection for double solenoid valves								
A AK		VABV-S4-2S-G18-2T2	■	–	–	–	2/4	• Width 18 mm: G1⁄8, QS-G1⁄8-8, QS-G1⁄8-6
B BK		VABV-S4-1S-G14-2T2	–	■	–	–	2/4	• Width 26 mm: G1⁄4, QS-G1⁄4-10, QS-G1⁄4-8
C CK		VABV-S2-1S-G38-T2	–	–	■	–	1/2	• Width 42 mm: G3⁄8, QS-G3⁄8-12, QS-G3⁄8-10
D DK		VABV-S2-2S-G12-T2	–	–	–	■	1/2	• Width 52 mm: G1⁄2, QS-G1⁄2-16, QS-G1⁄2-12
Manifold sub-base for multi-pin plug/fieldbus connection for single solenoid valves								
E EK		VABV-S4-2S-G18-2T1	■	–	–	–	2/2	• Width 18 mm: G1⁄8, QS-G1⁄8-8, QS-G1⁄8-6
F FK		VABV-S4-1S-G14-2T1	–	■	–	–	2/2	• Width 26 mm: G1⁄4, QS-G1⁄4-10, QS-G1⁄4-8
G GK		VABV-S2-1S-G38-T1	–	–	■	–	1/1	• Width 42 mm: G3⁄8, QS-G3⁄8-12, QS-G3⁄8-10
H HK		VABV-S2-2S-G12-T1	–	–	–	■	1/1	• Width 52 mm: G1⁄2, QS-G1⁄2-16, QS-G1⁄2-12

Compressed air supply and venting

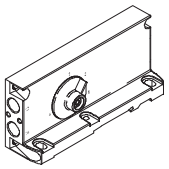
Right-hand end plate
- Code V
- Internal pilot air supply



Right-hand end plate
- Code X
- External pilot air supply

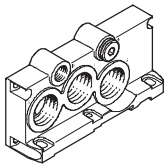


End plate with pilot air selector
- Code Z, Y, W, U

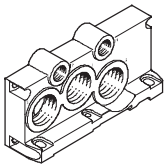


The valve terminal VTSA can be supplied with compressed air at one or more points. This is a reliable way of ensuring that all functional components will always offer good performance, even with large-scale extensions. The valve terminal is supplied via supply plates (max. 16 per terminal) or via an end plate.

Right-hand end plate
- Code V1
- Internal pilot air supply

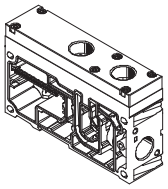


Right-hand end plate
- Code X1
- External pilot air supply

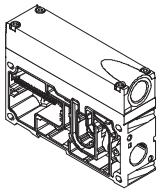


Venting is via silencers or ports for ducted exhaust air
on the supply plates and/or on the right-hand end plate. There are two types of supply plates:
- Exhaust port 3/5 common
- Exhaust port 3/5 separated

Port configuration for supply plates
Exhaust port 3/5 separated
- Code K



Port configuration for supply plates
Exhaust port 3/5 common
- Code L



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 connection
- External connection

Internal pilot air supply
Internal pilot air supply can be selected if the working pressure is between 3 and 10 bar.
In this case the pilot air supply is 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 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.

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

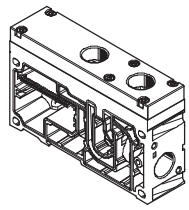
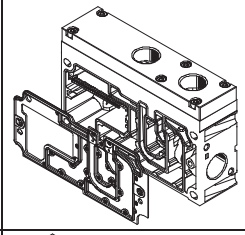
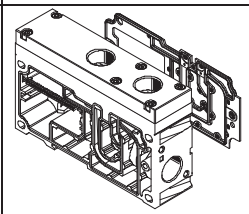
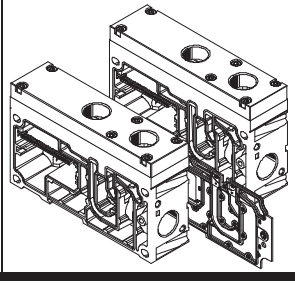
Depending on your order, the exhaust air ducts are either ducted or vented via silencers.

VTSA 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		Type	Width				Description
			18 mm	26 mm	42 mm	52 mm	
U		• Exhaust port 3/5 common VABF-S6-10-P1A7-G12 • Exhaust port 3/5 separated 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

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

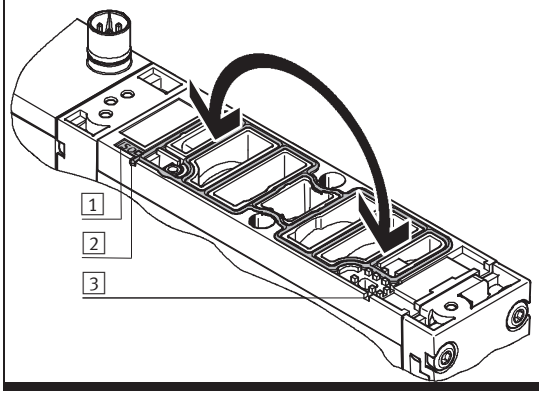
Note

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



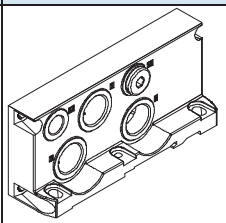
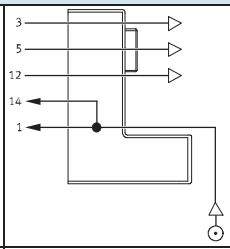
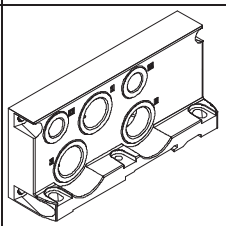
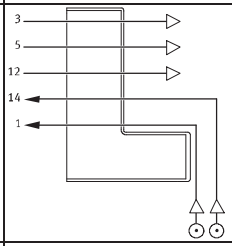
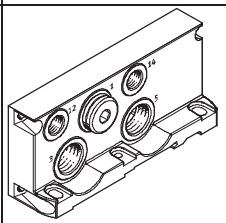
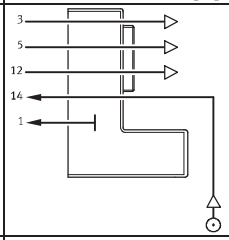
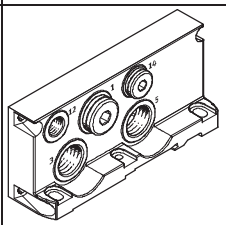
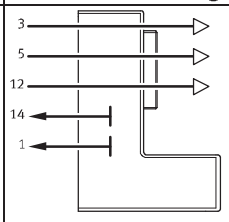
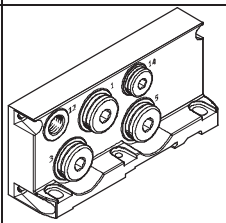
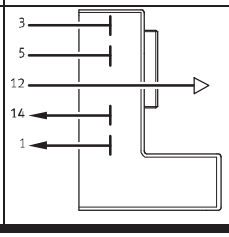
Unducted pilot exhaust air:

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

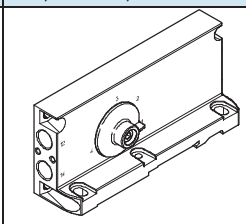
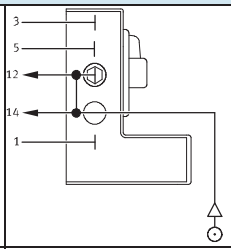
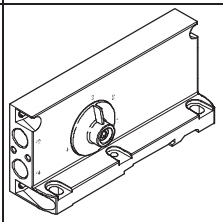
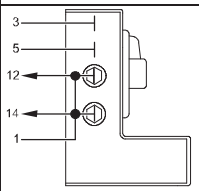
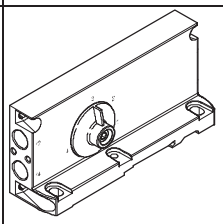
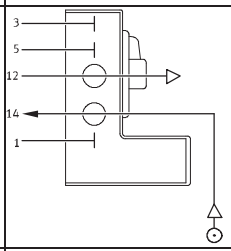
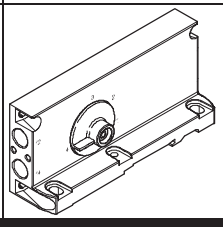
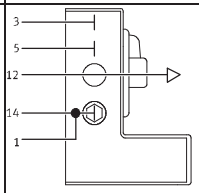
Ducted pilot exhaust air:

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

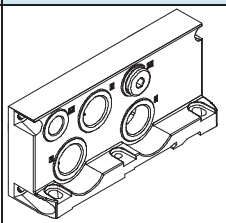
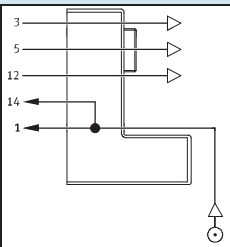
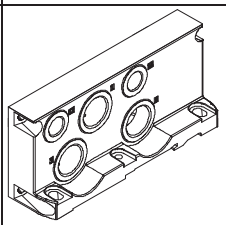
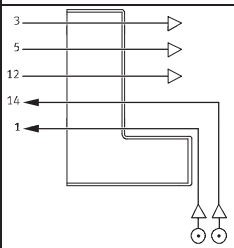
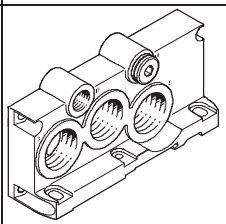
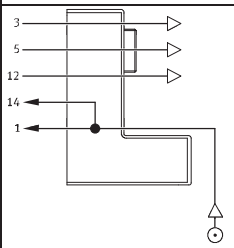
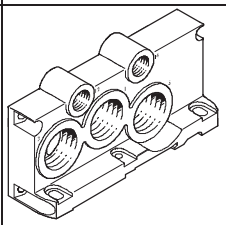
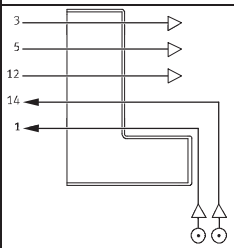
1 Designation label
2 Viewing window on control side 14
3 Viewing window on control side 12

Right-hand end plate							
Code	Type of compressed air supply and pilot air supply		Width				Description
			18 mm	26 mm	42 mm	52 mm	
	Right-hand end plate						
V V1			■	■	■	■	Internal pilot air supply • 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 12[1)]
X X1			■	■	■	■	External pilot air supply • 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 12[1)]
XP1			■	■	■	■	External pilot air supply, pressure supply via soft-start valve[2)] • Port 1 is sealed with a blanking plug • Exhaust air via ports 3 and 5 • Pilot exhaust air via port 12[1)]
XP2			■	■	■	■	External pilot air supply, pressure supply via soft-start valve[2)] • 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 12[1)]
XP3			■	■	■	■	External pilot air supply, pressure supply via soft-start valve[2)] • 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 12[1)]

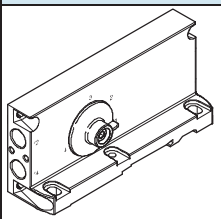
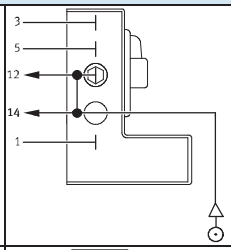
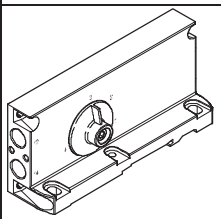
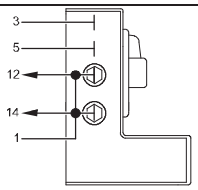
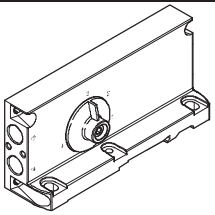
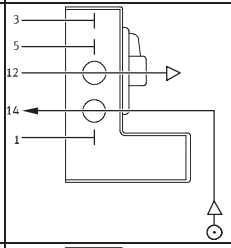
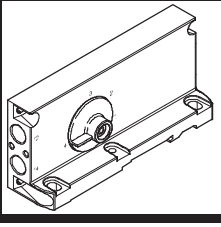
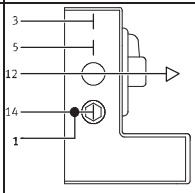
1) Ducted pilot exhaust air is only possible with turned seals on the valve
2) Application with XP1, XP2, XP3 and soft-start valve in combination with valves of width 52 mm: please note the maximum flow rate of the soft-start valve in this pressure zone

Right-hand end plate							
Code	Type of compressed air supply and pilot air supply		Width				Description
			18 mm	26 mm	42 mm	52 mm	
Code[2]	End plate with pilot air selector[3]						
Z (1)			■	■	■	■	External pilot air supply • 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)			■	■	■	■	Internal pilot air supply • 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)			■	■	■	■	External pilot air supply, ducted pilot exhaust air • Pilot air supply is connected at port 14 • Pilot exhaust air via port 12[1]
U (4)			■	■	■	■	Internal pilot air supply, ducted pilot exhaust air • 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 12[1]

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

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-G½-16	QS-G½-12
			3 and 5	Silencer or push-in fitting	U-½-B or QS-G½-16	U-½-B or QS-G½-12
			12	Silencer or push-in fitting	U-¼ or QS-G¼-10	U-¼ or QS-G¼-8
			14	Blanking plug	B-¼	B-¼
X			1	Push-in fitting	QS-G½-16	QS-G½-12
			3 and 5	Silencer or push-in fitting	U-½-B or QS-G½-16	U-½-B or QS-G½-12
			12	Silencer or push-in fitting	U-¼ or QS-G¼-10	U-¼ or QS-G¼-8
			14	Push-in fitting	QS-G¼-10	QS-G¼-8
V1			1	Female hose connector	N-¾-P-19[1]	–
			3 and 5	Silencer or female hose connector	U-¾-B or N-¾-P-19[1]	–
			12	Silencer or push-in fitting	U-¼ or QS-G¼-12	U-¼ or QS-G¼-10
			14	Blanking plug	B-¼	B-¼
X1			1	Female hose connector	N-¾-P-19[1]	–
			3 and 5	Silencer or female hose connector	U-¾-B or N-¾-P-19[1]	–
			12	Silencer or push-in fitting	U-¼ or QS-G¼-12	U-¼ or QS-G¼-10
			14	Push-in fitting	QS-G¼-12	QS-G¼-10

1) For tubing with I.D. 19 mm. Use tubing clips to DIN 3017

Configuration of all pneumatic threaded connections						
Code			Port	Designation	**Code M** Push-in connector, large	**Code N** Push-in connector, small
Code[1)]	End plate with pilot air selector					
Z (1)			12	Blanking plug	B-¼	B-¼
			14	Push-in fitting	QS-G¼-10	QS-G¼-8
Y (2)			12	Blanking plug	B-¼	B-¼
			14	Blanking plug	B-¼	B-¼
W (3)			12	Silencer or push-in fitting	U-¼ or QS-G¼-10	U-¼ or QS-G¼-8
			14	Push-in fitting	QS-G¼-10	QS-G¼-8
U (4)			12	Silencer or push-in fitting	U-¼ or QS-G¼-10	U-¼ or QS-G¼-8
			14	Blanking plug	B-¼	B-¼

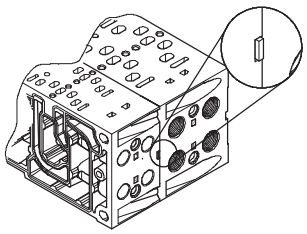
1) Selector setting in brackets

Creating pressure zones and separating exhaust air

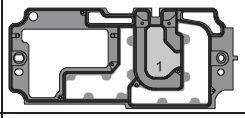
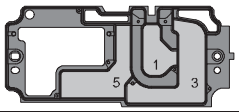
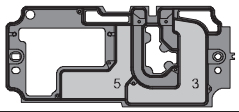
The valve terminal VTSA offers a number of options for creating pressure zones if different working pressures are required.
Pressure zones are created by isolating the internal supply ducts between the manifold sub-bases using appropriate duct separation.

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

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

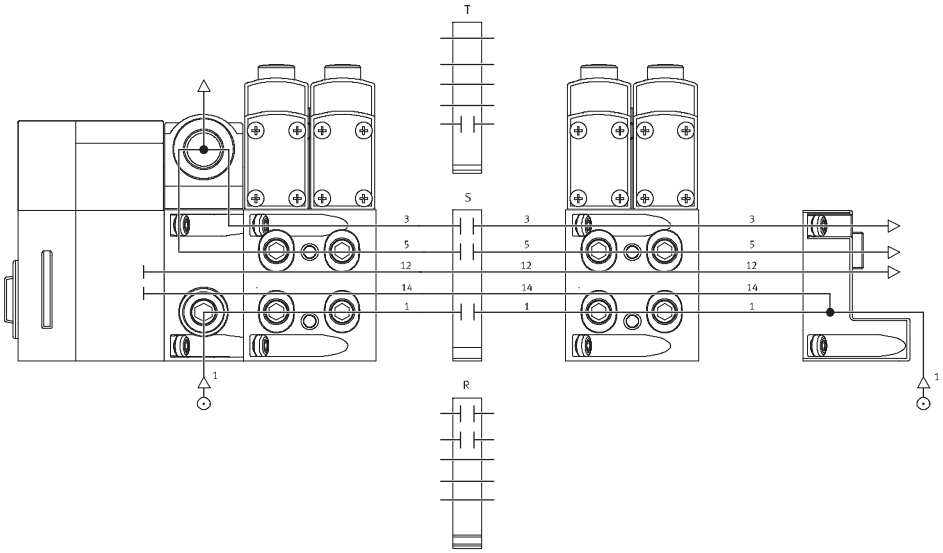
Code	Separating seal		Width				Description
	Pictorial examples	Coding	18 mm	26 mm	42 mm	52 mm	
T			■	■	■	■	Duct 1 separated
S			■	■	■	■	Ducts 1, 3 and 5 separated
R			■	■	■	■	Ducts 3 and 5 separated

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 and V1
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.

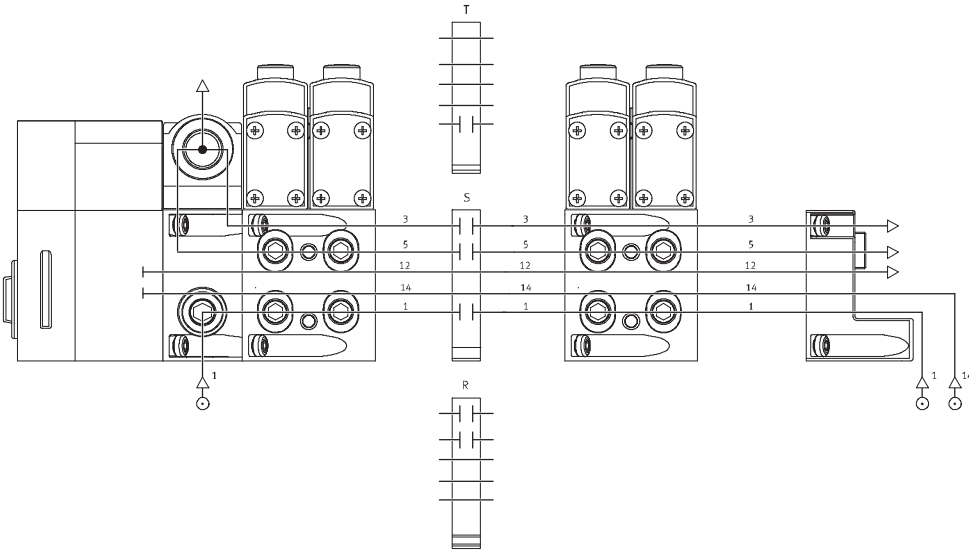
Optional duct separation



External pilot air supply, silencer/ducted exhaust air

Right-hand end plate: code X and X1
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.

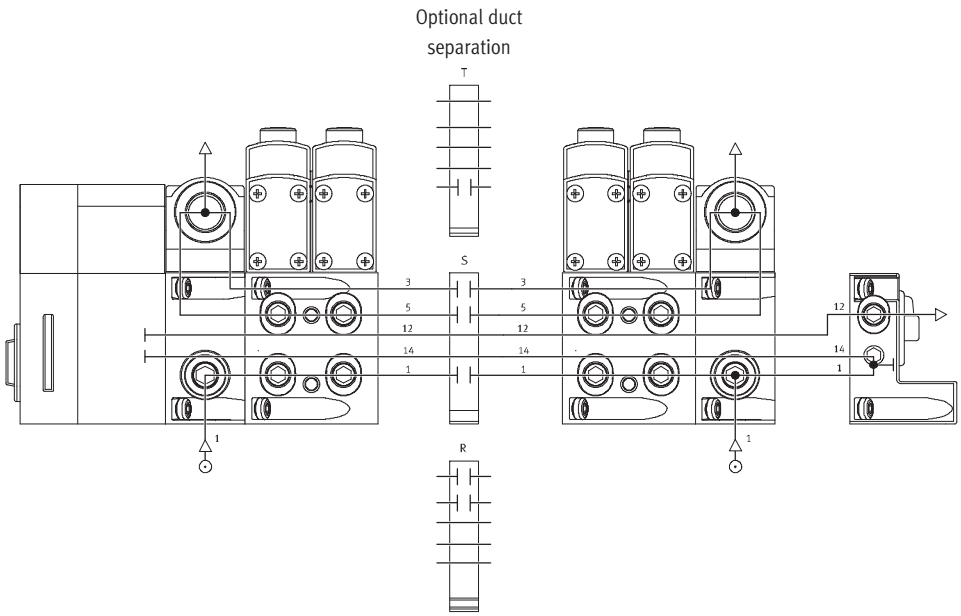
Optional duct separation



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

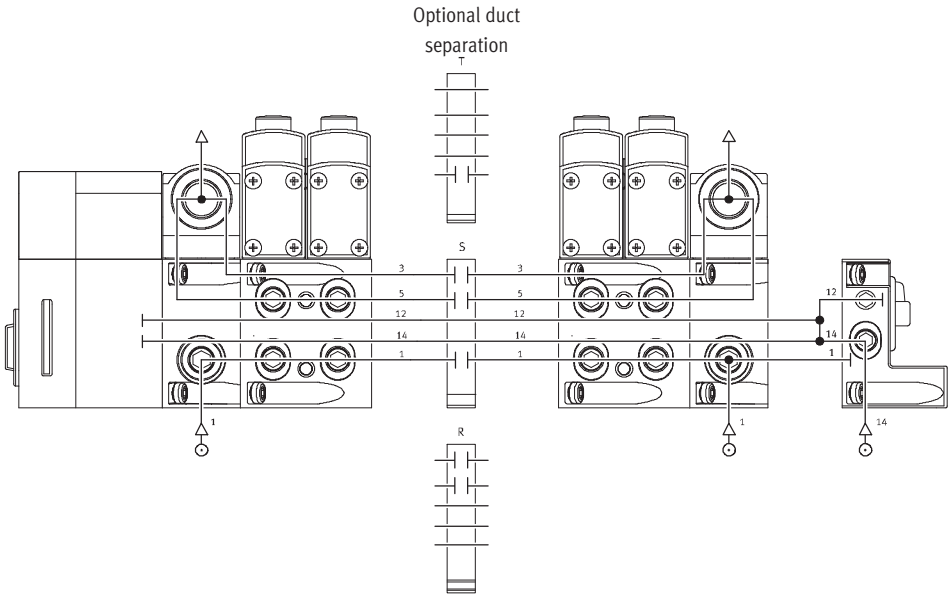
Internal pilot air supply, ducted exhaust air/silencer

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 or 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 44 VTSA, to ISO 15407-2/ISO 5599-2

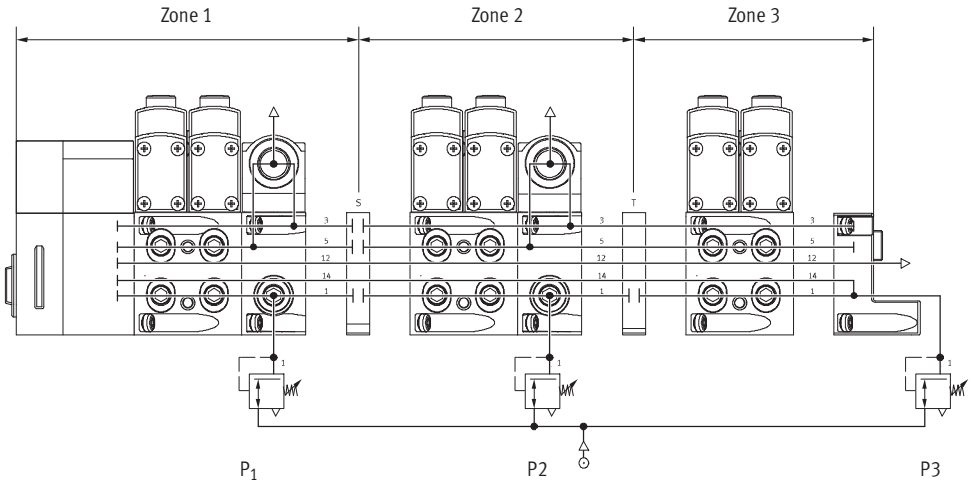
Key features – Pneumatic components

FESTO

Examples: Creating pressure zones

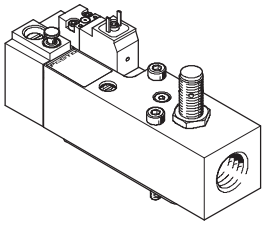
VTSA with CPX terminal connection

The VTSA allows the creation of up to 16 pressure zones (up to 32 pressure zones if only size 1, ISO 5599-2, is fitted). The diagram shows an example of the configuration and connection of three pressure zones using duct separations – with internal pilot air supply.



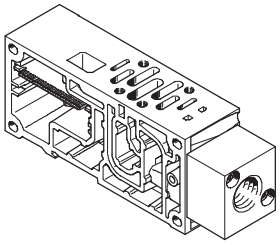
Soft-start valve

Valve



The soft-start valve is used for slow and gradual 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



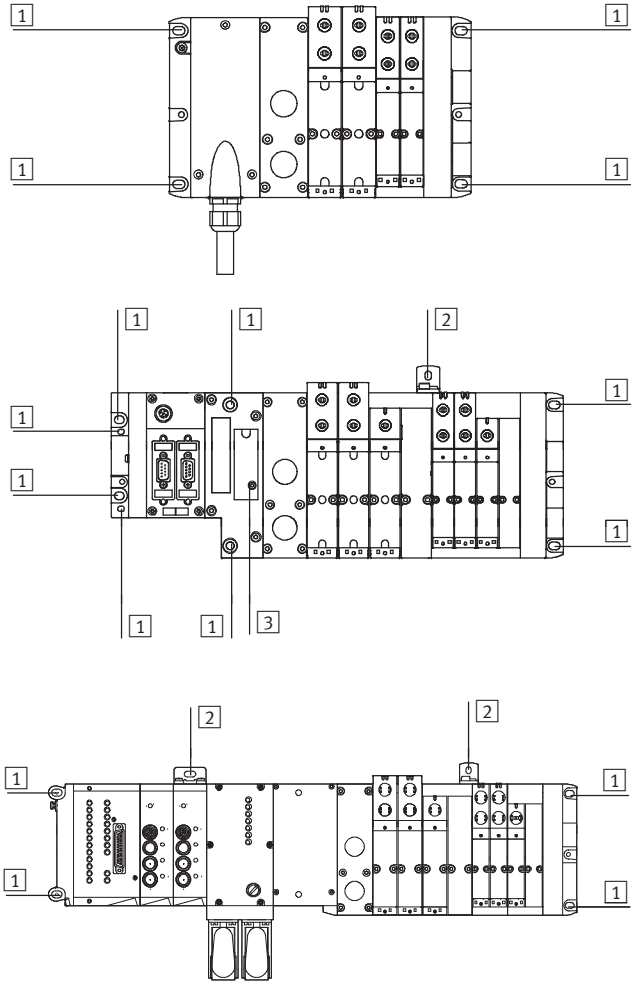
Modified manifold sub-bases (width 42 mm) are available for the soft-start valve. This manifold sub-base supplies the pressure zone on the valve terminal with compressed air and provides a high flow range. The pneumatic interface to ISO 5599-1 is used here so that conventional individual sub-bases to ISO in combination with the soft-start valve can be used as an alternative to this manifold sub-base.
Blanking plugs for sealing the ports on the end plate VABE-S6-1RZ-... are enclosed with the manifold sub-base.
The ports of 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 terminal assembly

Sturdy valve terminal assembly thanks to:

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

Wall mounting



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

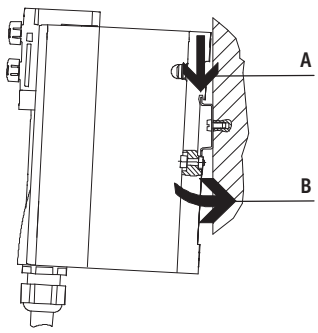
- Multi-pin plug (4 pieces):
  2 each on the multi-pin connection block and the right-hand end plate
- Fieldbus, CPX (4 pieces):
  2 each on the left-hand (CPX) and right-hand (VTSA) end plate. The pneumatic interface additionally provides further mounting holes as well as optional mounting brackets.
- Fieldbus, electrical peripherals type 03 (4 pieces):
  2 each on the left-hand (type 03) and right-hand (VTSA) end plate. There are additionally optional mounting brackets available.

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.
Use mounting brackets of the type IBGW-03 for the electrical part of the valve terminal VTSA-FB-03E.

H-rail mounting



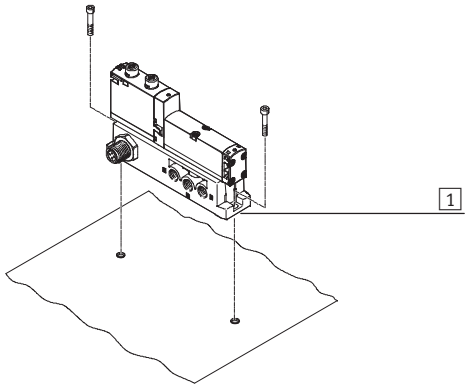
The VTSA valve terminal is attached to the H-rail (see arrow A).
It is then swivelled onto the H-rail and secured in place with the clamping component (see arrow B).

For H-rail mounting of the valve terminal you will need the following VTSA 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.

Individual valve assembly



1 Vertical mounting holes

The individual sub-base for wall mounting is designed for integration into a system or machine. It is mounted vertically.

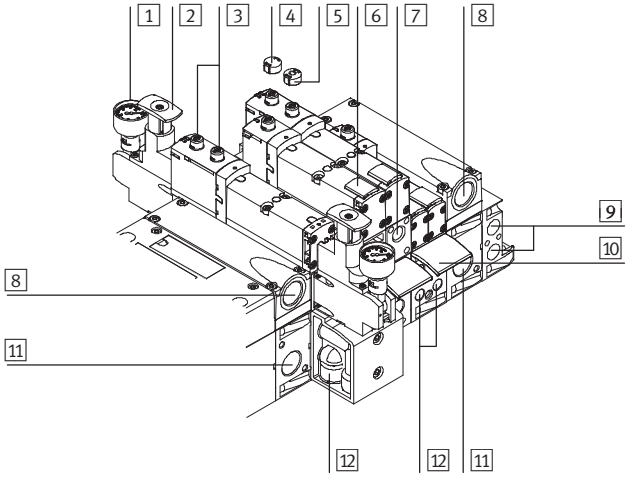
Display and operation

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 activated 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 (code V) can be fitted over the manual override to prevent it from being accidentally activated.

Pneumatic connection and control elements

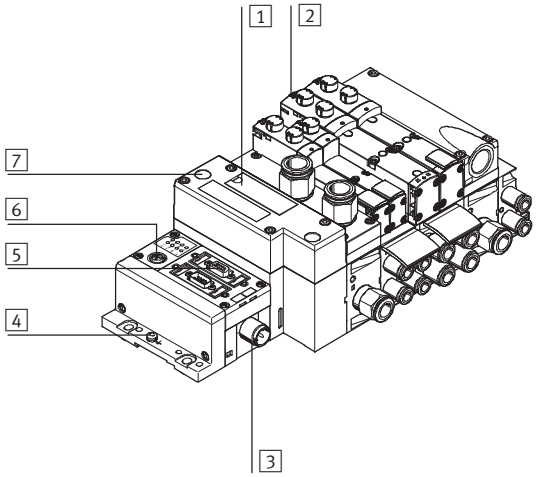


1 Pressure gauge (optional)
2 Adjusting knob of optional pressure regulator plate
3 Manual override (for each pilot solenoid coil, non-detenting or non-detenting/detenting)
4 Optional cover cap for manual override (prevents manual override)
5 Optional cover cap for manual override with non-detenting 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.

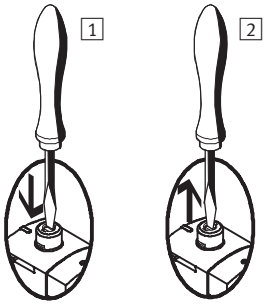
Electrical connection and display components



1 Inscription area and cover for H-rail mounting
2 Yellow LEDs: signal status display for pilot solenoid coils
3 Voltage 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

Manual override (MO)

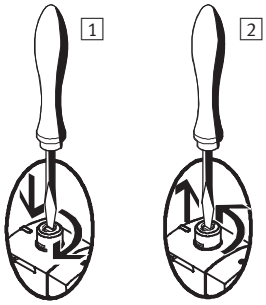
MO with automatic return (non-detenting)



1 Press in the stem of the manual override using a pin or screwdriver.
Valve is then switched.

2 Remove the pin or screwdriver.
Spring force pushes the stem of the manual override back.
Valve returns to initial position (not with double solenoid valve code J).

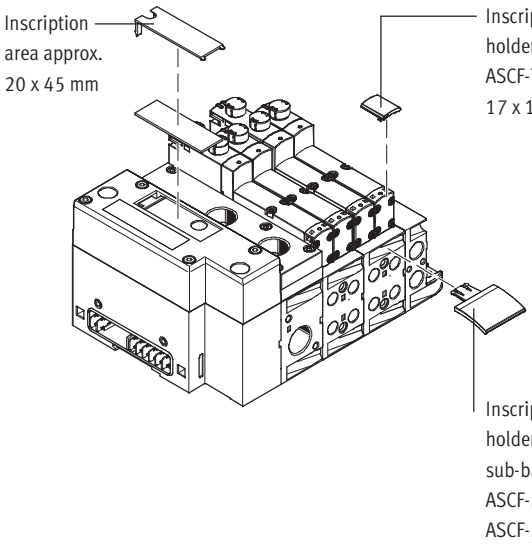
MO set via turning (covered)



1 Press in the stem of the manual override using a pin 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 pin 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).

Inscription 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
- Inscription label holder for manifold sub-base (width 52 mm) type ASCF-M-S2-2: Part No. 562577

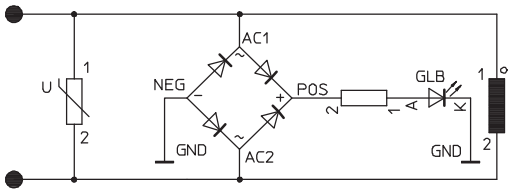
Large inscription labels can be attached to the pneumatic interface as an alternative or in addition to the smaller labels.

Protective circuit

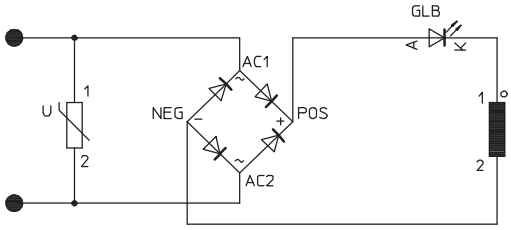
Each VSVA solenoid coil is protected with a spark arresting protective circuit as well as against polarity reversal.

The 24 V DC version of width 52 mm additionally features integrated holding current reduction.

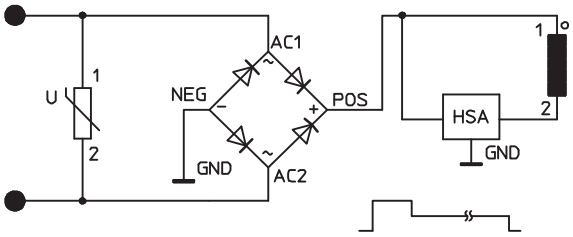
24 V DC version (width 18 to 42 mm)



110 V AC version (width 18 to 52 mm)



24 V DC version (width 52 mm)



Individual valve

Valves can also be used on individual sub-bases for actuators further away from the valve terminal.

- Electrical connection M12, 4 pin
  24 V DC
- 4-pin clamped terminal connection for configuration by the user
  24 V DC or 110 V AC
- Cable (open end) for configuration by the user 24 V DC or 110 V AC

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

Electrical multi-pin plug connection

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

- Sub-D multi-pin plug connection (37-pin for 24 V DC): this valve terminal is available with 1 ... 16 valve positions equipped with double solenoid valves and 1 ... 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 1 ... 16 valve positions equipped with double solenoid valves and 1 ... 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 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 (width 52 mm) are supplied with current simultaneously.
Further information can be found at:
➔ Internet: as-interface

Fieldbus connection/control block

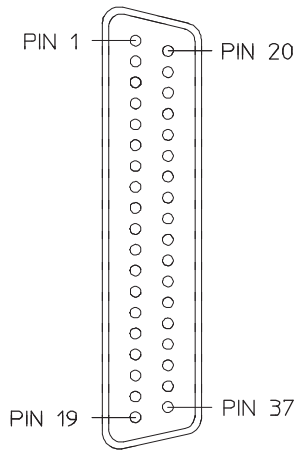
All functions and features of the electrical peripherals CPX are permitted in connection with the CPX interface.
This means:

- 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

Pin allocation – Sub-D plug socket, 24 V DC; electrical connection code MP1

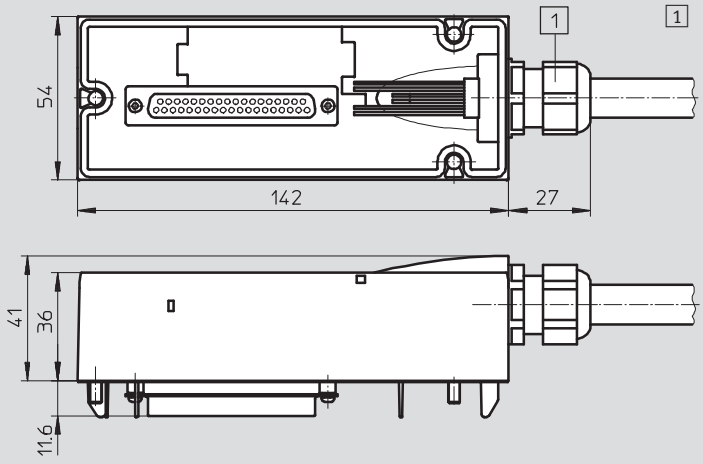


	Pin[2]	Address/coil	Wire colour[1]		Pin[2]	Address/coil	Wire colour[1]
	1	0	WH		17	16	WH PK
	2	1	BN		18	17	PK BN
	3	2	GN		19	18	WH BU
	4	3	YE		20	19	BN BU
	5	4	GY		21	20	WH RD
	6	5	PK		22	21	BN RD
	7	6	BU		23	22	GY GN
	8	7	RD		24	23	YE GY
	9	8	GY PK		25	24	PK GN
	10	9	RD BU		26	25	YE PK
	11	10	WH GN		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
- - Note	Conductor						
The drawing shows the view onto the Sub-D plug socket at the connecting cable NEBV-S1W37-....	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 connecting cable NEBV-S1-W37-...-LE10
Pin 23 ... 33: not allocated with connecting 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-...



1 Cable connector M20x1.5

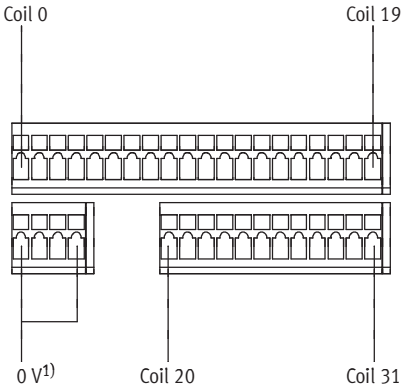
The wire colours refer to the following pre-assembled connecting cables from Festo:

- 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

Sub-D plug, 24 V DC, connecting cable; electrical connection code MP1					
Type	Sheath	Length [m]	Wire x mm² [mm²]	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		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		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	Cable properties	5			**543272**
NEBV-S1W37-KM-10-LE10	(standard)	10			**543273**
NEBV-S1W37-KM-2,5-LE27		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		2.5	37 x 0.34	13	**543277**
NEBV-S1W37-KM-5-LE37		5			**543278**
NEBV-S1W37-KM-10-LE37		10			**543279**

Pin allocation – Multi-pin terminal strip (Cage Clamp®), 24 V DC and 110 V AC; electrical connection code T

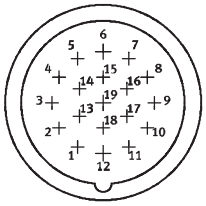
	Terminal	Coil/address		Terminal	Coil/address
Each solenoid coil must be assigned to a specific terminal on the terminal strip in order for the valves to be actuated.	1	0		17	16
	2	1		18	17
	3	2		19	18
	4	3		20	19
	5	4		21	20
	6	5		22	21
	7	6		23	22
	8	7		24	23
	9	8		25	24
	10	9		26	25
	11	10		27	26
	12	11		28	27
	13	12		29	28
	14	13		30	29
	15	14		31	30
	16	15		32	31
- Note	Conductor				
The drawing shows the view onto the multi-pin terminal strip (Cage Clamp®).	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

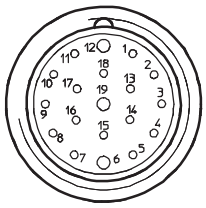
	Address	Pin1)		Address	Pin1)
	0	15		8	17
	1	7		9	9
	2	5		10	2
	3	4		11	13
	4	16		12	11
	5	8		13	10
	6	3		14	1
	7	14		15	18



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

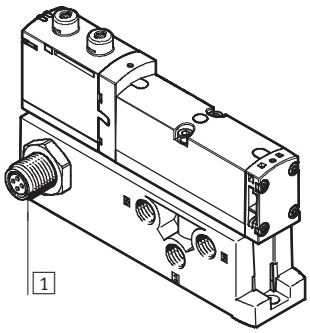
Rules for addressing

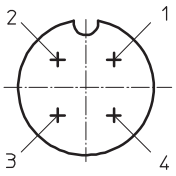
- Address allocation does not depend on whether single or double solenoid valves are fitted.
- Addresses are allocated in ascending order without gaps, from left to right.
- A valve position for actuating one solenoid coil occupies one address (type VABV-...-...T1).
- A valve position for actuating two 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

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.

Electrical connection, individual valve 24 V DC





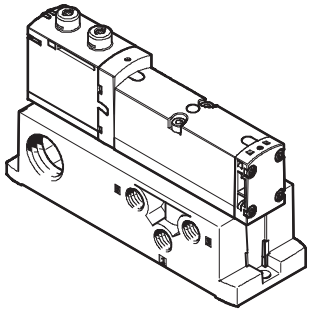
Pin allocation M12 on individual valve to ISO 20401

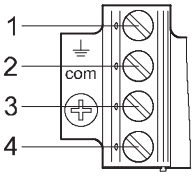
With positive logic:
- Pin1 – Unused
- Pin2 – V_B for coil 12
- Pin3 – 0 V for coil 12 and 14
- Pin4 – V_B for coil 14

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

[1] Connector plug M12x1, 4-pin to EN 61076-2-101

Electrical connection, individual valve 24 V DC or 110 V AC



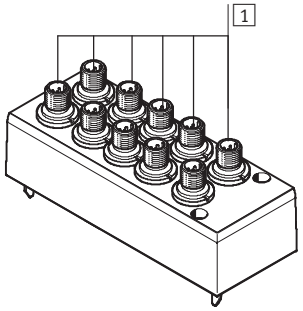


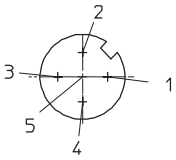
Pin allocation for assembly by the user

With positive logic:
- Pin1 – Unused (with 110 V AC connection for earthing)
- Pin2 – V_B for coil 12
- Pin3 – 0 V for coil 12 and 14
- Pin4 – V_B for coil 14

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

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





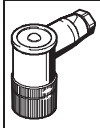
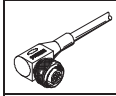
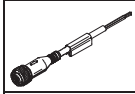
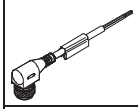
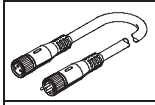
Pin allocation M12
With positive logic:
- Pin1 – Unused
- Pin2 – V_B for coil 12
- Pin3 – 0 V for coil 12 and 14
- Pin4 – V_B for coil 14
- Pin5 – Functional earth

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.

Electrical connection technology				
	Electrical connection	Type of mounting/cable length	Type	Part No.
Plug sockets for connecting individual valves				
	Angled socket, 4-pin, screw terminal	Union nut M12	**SEA-M12-4WD-PG7**	**185498**
Plug socket with cable for connecting individual valves				
	Angled socket, 4-pin, M12	5 m	**SIM-M12-4WD-5-PU**	**164258**
	Connecting cable, 5-pin, M12	5 m	**NEBU-M12G5-K-5-LE3**	**541364**
	Connecting cable, 5-pin, M12	5 m	**NEBU-M12W5-K-5-LE3**	**541370**
	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**

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/m^3 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/m^3 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 44 VTSA, to ISO 15407-2/ISO 5599-2

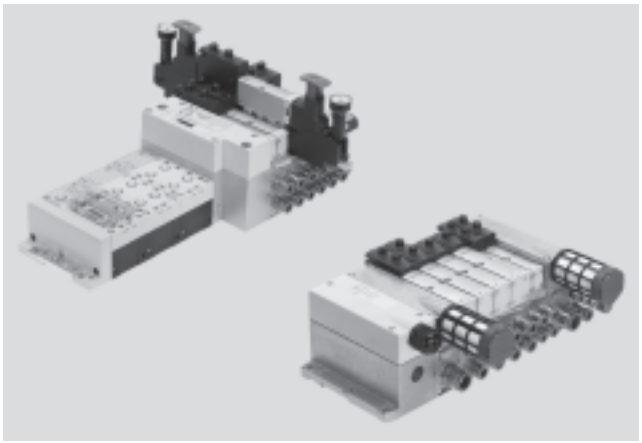
Technical data

FESTO

- Flow rate
  Width 18 mm:
  Up to 550 l/min
  Width 26 mm:
  Up to 1,100 l/min
  Width 42 mm:
  Up to 1,400 l/min
  Width 52 mm:
  2,900 l/min

- Valve width
  02: 18 mm
  01: 26 mm
  1: 42 mm
  2: 52 mm

- Voltage
  24 V DC
  110 V AC



General technical data – G thread					
Width		18 mm	26 mm	42 mm	52 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	42 mm	52 mm
Pneumatic connections		Threaded connection			
Pneumatic connection		Via manifold sub-base			
Supply port	1	• G½ • QS-G½-16 • QS-G½-12	• G½ • QS-G½-16 • QS-G½-12	• G½ • QS-G½-16 • QS-G½-12	• G¾ • N-¾-P-19
Exhaust port	3/5	• G½ • QS-G½-16 • QS-G½-12	• G½ • QS-G½-16 • QS-G½-12	• G½ • QS-G½-16 • QS-G½-12	• G¾ • N-¾-P-19
Working lines	2/4	Dependent on the connection type selected			
		• G⅛ • QS-G⅛-8 • QS-G⅛-6	• G¼ • QS-G¼-10 • QS-G¼-8	• G⅜ • QS-G⅜-12 • QS-G⅜-10	• G½ • QS-G½-16 • QS-G½-12
External pilot air supply port	14	• G¼ • QS-G¼-10 • QS-G¼-8	• G¼ • QS-G¼-10 • QS-G¼-8	• G¼ • QS-G¼-10 • QS-G¼-8	• G¼ • QS-G¼-12 • QS-G¼-10
Pilot exhaust air port	12	• G¼ • QS-G¼-10 • QS-G¼-8	• G¼ • QS-G¼-10 • QS-G¼-8	• G¼ • QS-G¼-10 • QS-G¼-8	• G¼ • QS-G¼-12 • QS-G¼-10

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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	500		400						550				450[1] 330[2]			–	–
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	1,000		900						1,100				1,000[1] 700[2]			1,000	700
Width 42 mm																	
Flow rate of valve	1,600		1,600						2,000				1,900[1] 800[2]			–	–
Flow rate of valve on valve terminal	1,400		1,200						1,300				1,200[1] 800[2]			–	–
Width 52 mm																	
Flow rate of valve	4,000		3,000						4,000				3,600[1] 1,700[2]			–	–
Flow rate of valve on valve terminal	2,800		2,400						2,900				2,800[1] 1,700[2]			–	–

1) Switching position
2) Mid-position

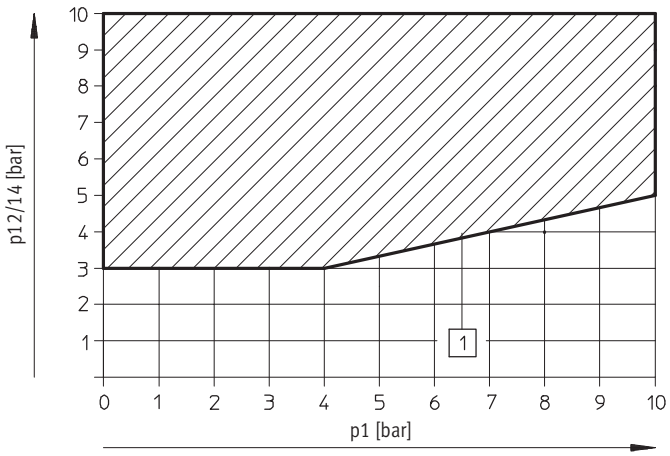
Operating and environmental conditions																	
Valve function order code		VC	N	K	H	VV	P	Q	R	M	O	J	D	B	G	E	SA	SB
Operating medium		Filtered compressed air, lubricated or unlubricated, inert gases ➔ 58																
Grade of filtration	[µm]	40 (average pore size)																
Operating pressure	[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																
Paint-wetting impairment substances 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	–	–	–	■	–	–	–	–	–	■	–	–	■	■	■	–	–

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 12 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
42 mm, nominal operating voltage 24 V DC																		
Switching times	on	20	20	20	20	20	34	34	34	27	22	–	–	22	22	22	–	–
	off	38	38	38	38	38	28	28	28	45	60	–	–	65	65	65	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	16	19	–	–	–	–	–
42 mm, nominal operating voltage 110 V AC																		
Switching times	on	22	22	22	22	22	34	34	34	20	20	–	–	22	22	22	–	–
	off	46	46	46	46	46	38	38	38	55	55	–	–	68	68	68	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	16	19	–	–	–	–	–

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 switching times [ms]																		
Valve function order code		VC	VV	N	K	H	P	Q	R	M	O	J	D	B	G	E	SA	SB
52 mm, nominal operating voltage 24 V DC with holding current reduction																		
Switching times	on	14	–	20	20	20	30	30	30	40	20	–	–	23	23	23	–	–
	off	35	–	35	35	35	30	30	30	45	60	–	–	60	60	60	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	18	18	–	–	–	–	–
52 mm, nominal operating voltage 110 V AC																		
Switching times	on	35	–	35	35	35	50	50	50	70	25	–	–	30	30	30	–	–
	off	70	–	70	70	70	65	65	65	90	110	–	–	100	100	100	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	35	42	–	–	–	–	–

Electrical data					
VTSA with CPX terminal		18 mm	26 mm	42 mm	52 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 under-voltage 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					
2/2-way and 3/2-way valve	[W]	1.3			4.6
5/2-way valve (code D)	[W]	1.3			4.6
5/2-way, 5/3-way valve	[W]	1.6			4.6

Electrical data					
VTSA with multi-pin plug connection		18 mm	26 mm	42 mm	52 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)			
Coil characteristics at 24 V DC					
2/2-way and 3/2-way valve	[W]	1.3			4.6
5/2-way valve (code D)	[W]	1.3			4.6
5/2-way, 5/3-way valve	[W]	1.6			4.6
Coil characteristics at 110 V AC					
2/2-way and 3/2-way valve	[VA]	1			
5/2-way, 5/3-way valve	[VA]	1.6			

Electrical data – VTSA			
Power consumption at 24 V DC Maximum current consumption per solenoid coil at nominal voltage (valves with holding current reduction), width 52 mm			
		2/2-way and 3/2-way valve	5/2-way, 5/3-way valve
Nominal pick-up current	[mA]	165	165
Nominal current following current reduction	[mA]	35	35
Time until current reduction	[ms]	30	30

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 T125° C X
ATEX ambient temperature	[°C]	−5 ≤ Ta ≤ +50
Certification		cULus recognized (OL)
CE mark[2] (see declaration of conformity)		To EU EMC Directive

1) Certification valid for: VTSA-MP; VTSA-ASI;-VTSA-FB; VTSA-F-MP; VTSA-F-ASI; VTSA-F-FB
Not for valves of width 52 mm
2) Multi-pin plug variant 1 (24 V DC): no
Multi-pin plug variant 2A (110 V): to EU Low Voltage Directive
CPX variant: to EU EMC Directive

Materials				
	18 mm	26 mm	42 mm	52 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[1]	RoHS-compliant			

1) Not for valves of width 52 mm

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

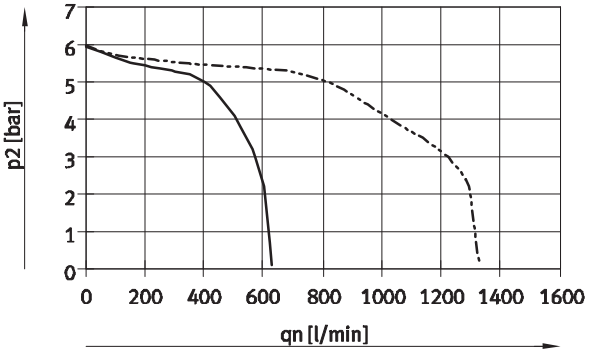
Technical data

Product weight	Design			
Approx. weight [g]	18 mm	26 mm	42 mm	52 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			336
• Selector	281			–
Manifold sub-base[4]	447	634	340	610
90° connection plate[3]	170	230	176	–
Pressure regulator plate				
for port 1	350	402	640	–
for port 4 or 2	367	448	640	–
for ports 4/2	611	692	920	–
Flow control plate	228	320	220	–
Vertical supply plate[3]	140	191	340	–
Vertical pressure shut-off plate	209	273	600	–
Valves				
• 5/3-way valve (code: B, G, E)	191	320	456	780
• 5/3-way valve (code: SA, SB)	–	301	–	–
• 5/2-way valve, single solenoid (code: M, O)	163	293	426	702
• 5/2-way valve, double solenoid (code: J, D)	172	276	439	732
• 2x 3/2-way valve (code: N, K, H, P, Q, R)	190	335	442	740
• 2x 2/2-way valve (code: VC, VV)	190	335	442	740
Blanking plate	34.4	73.3	68	146

1) With sheet metal seal, printed circuit board
2) With sheet metal seal and electrical manifold module
3) With screws
4) With sheet metal seal, electrical manifold module, inscription label holder, 4 screws

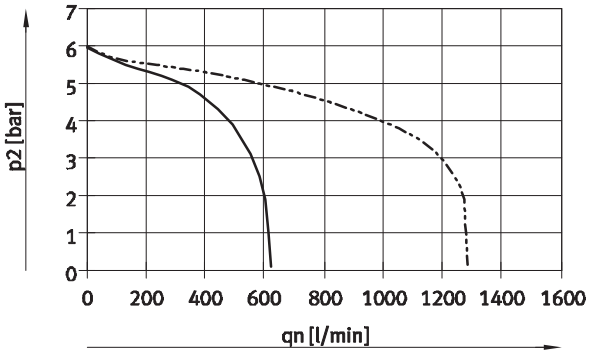
Flow rate qn as a function of output pressure p2 with pressure regulator plates (P regulator plate) for port 1

6 bar



Width 18 mm (ISO 02)
Width 26 mm (ISO 01)

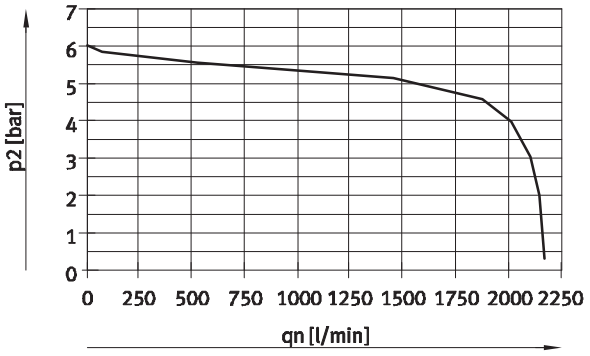
10 bar



Width 18 mm (ISO 02)
Width 26 mm (ISO 01)

Flow rate qn as a function of output pressure p2 with pressure regulator plates (P regulator plate) for port 1

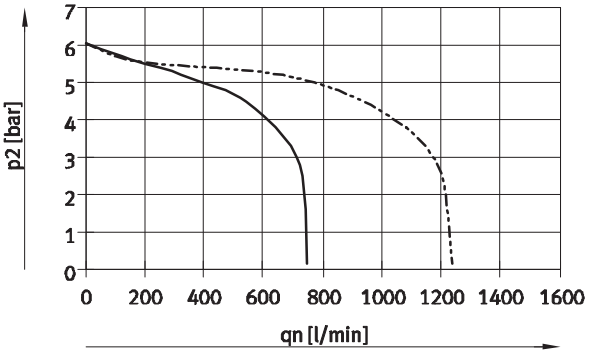
Supply pressure 10 bar, set control pressure 6 bar



Width 42 mm (ISO 1)

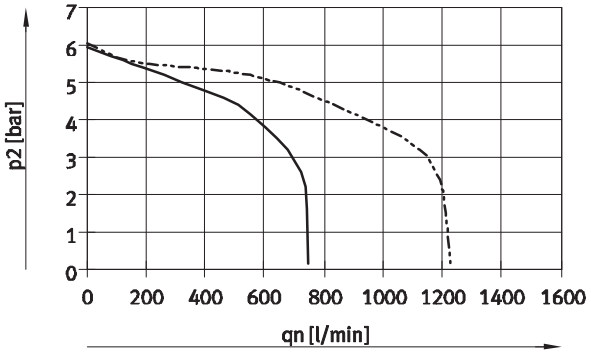
Flow rate qn as a function of output pressure p2 with pressure regulator plates (AB regulator plates) for port 2, 4 or ports 4/2

6 bar



Width 18 mm (ISO 02)
Width 26 mm (ISO 01)

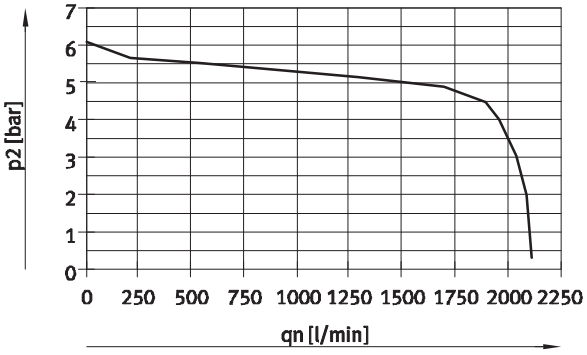
10 bar



Width 18 mm (ISO 02)
Width 26 mm (ISO 01)

Flow rate qn as a function of output pressure p2 with pressure regulator plates (AB regulator plates) for port 2, 4 or ports 4/2

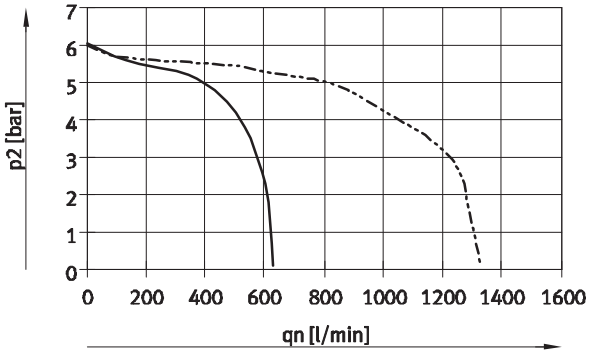
Supply pressure 10 bar, set controller pressure 6 bar



Width 42 mm (ISO 1)

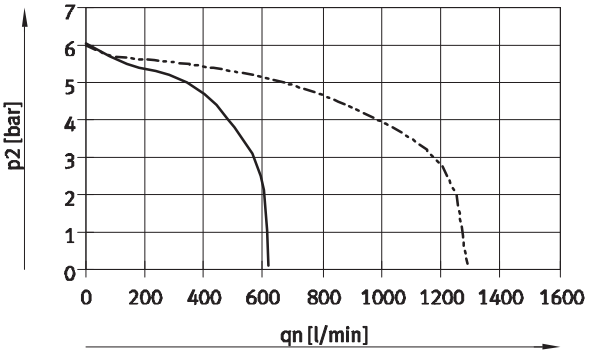
Flow rate qn as a function of output pressure p2 with pressure regulator plates (AB regulator plates, rev.) for ports 4/2, reversible

6 bar



Width 18 mm (ISO 02)
Width 26 mm (ISO 01)

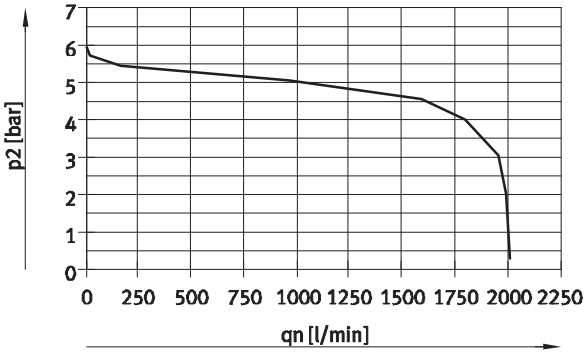
10 bar



Width 18 mm (ISO 02)
Width 26 mm (ISO 01)

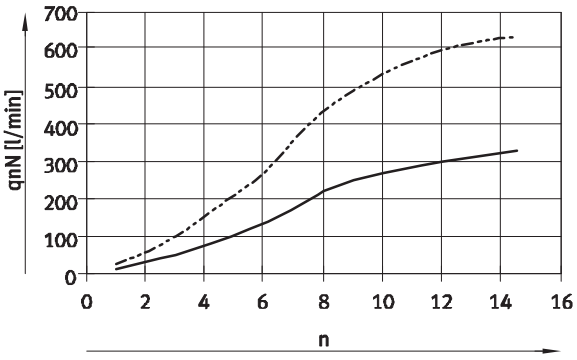
Flow rate qn as a function of output pressure p2 with pressure regulator plates (AB regulator plates, rev.) for ports 4/2, reversible

Supply pressure 10 bar, set controller pressure 6 bar



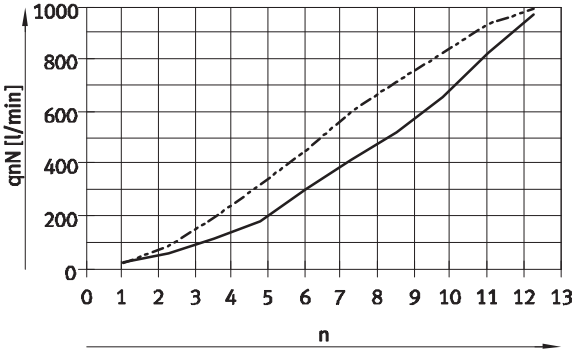
Width 42 mm (ISO 1)

Flow rate qn as a function of flow control



Width 18 mm (ISO 02)
Width 26 mm (ISO 01)

Flow rate qn as a function of flow control



Width 42 mm (ISO 01)

Flow control screw from 2 ⇢ 3
Flow control screw from 4 ⇢ 5

n Revolutions of the adjusting screw

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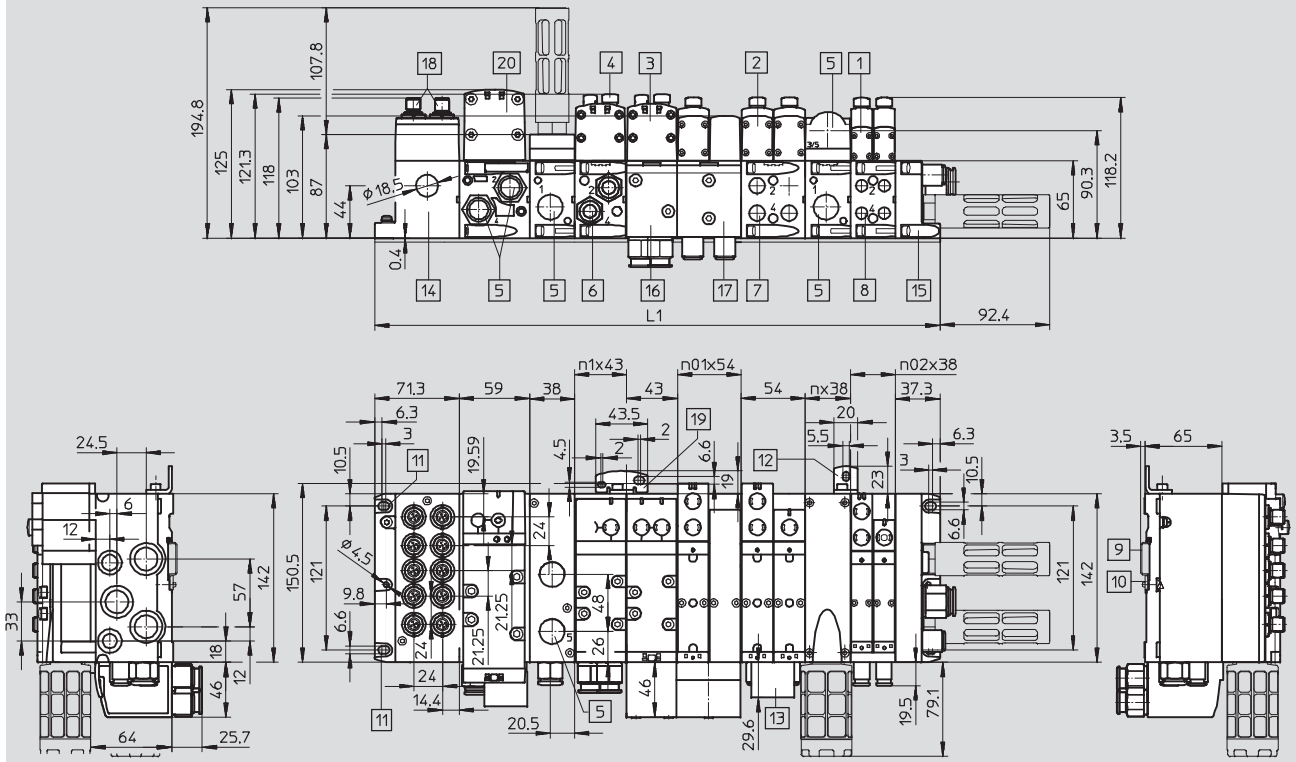
Valve terminal with individual electrical connection



1 Solenoid valve width 18 mm
2 Solenoid valve width 26 mm
3 Solenoid valve width 42 mm
4 Cover cap/manual override
5 Threaded connection G½
6 Threaded connection G⅜
7 Threaded connection G¼
8 Threaded connection G⅛
9 H-rail
10 H-rail mounting
11 Mounting hole
12 Additional mounting bracket
13 Inscription label holder
14 Individual connection
15 End plate
16 90° connection plate 43 mm, G⅜
17 90° connection plate 54 mm, G¼
18 M12 plug, 5-pin (6-way or 10-way)
19 Additional mounting bracket
20 Solenoid valve width 52 mm

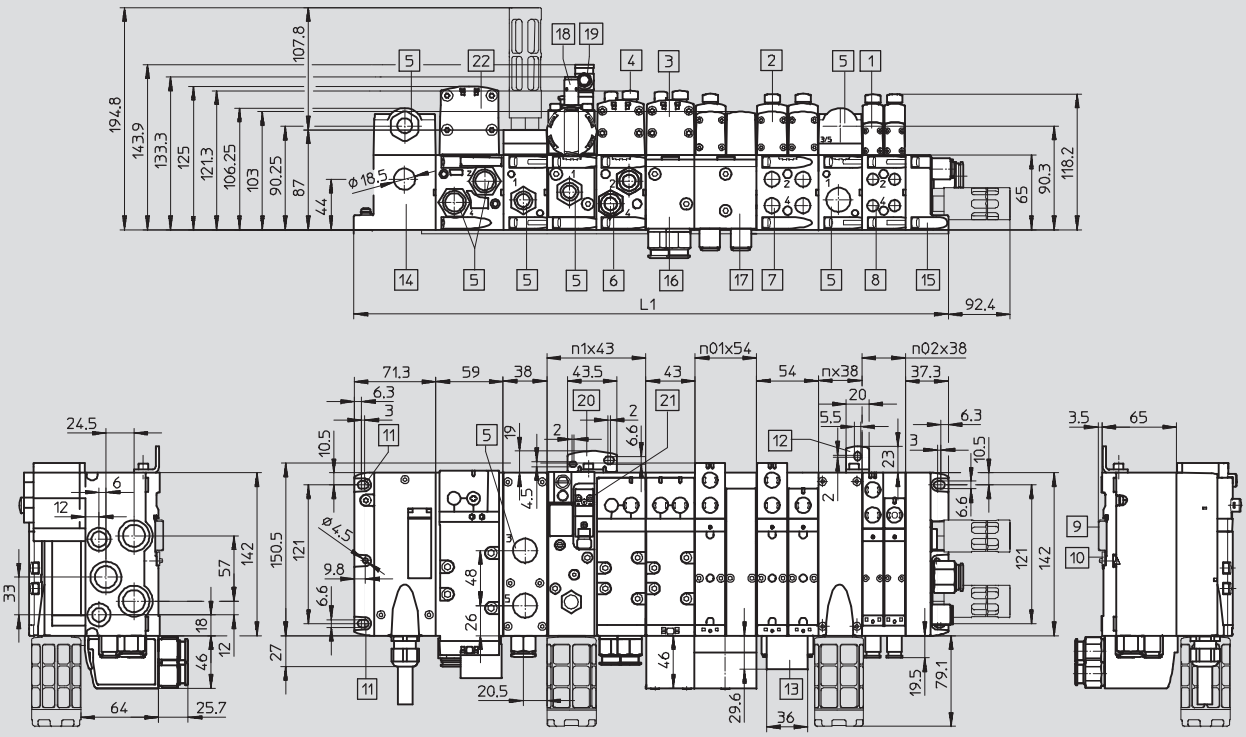
n02 Number of manifold sub-bases 38 mm
n01 Number of manifold sub-bases 54 mm
n1 Number of manifold sub-bases 43 mm
n2 Number of manifold sub-bases 59 mm
nzwp Number of supply plates (only with end plate with pilot air selector)

Width	L1
18 mm	71.3 + n02 x 38 + nzwp x 38 + 37.3
26 mm	71.3 + n01 x 54 + nzwp x 38 + 37.3
42 mm	71.3 + n1 x 43 + nzwp x 38 + 37.3
52 mm	71.3 + n2 x 59 + nzwp x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2 x 59 + nzwp x 38 + 37.3

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Valve terminal with multi-pin plug connection



1 Solenoid valve width 18 mm
2 Solenoid valve width 26 mm
3 Solenoid valve width 42 mm
4 Cover cap/manual override
5 Threaded connection G½
6 Threaded connection G⅜
7 Threaded connection G¼
8 Threaded connection G⅛
9 H-rail
10 H-rail mounting
11 Mounting hole
12 Additional mounting bracket
13 Inscription label holder
14 Multi-pin plug connection
15 End plate
16 90° connection plate 43 mm, G⅜
17 90° connection plate 54 mm, G¼
18 Proximity sensor M12x1
19 Plug socket M12x1
20 Additional mounting
21 Electrical connection to DIN EN 175301-803, type C
22 Solenoid valve width 52 mm

n02 Number of manifold sub-bases 38 mm
n01 Number of manifold sub-bases 54 mm
n1 Number of manifold sub-bases 43 mm
n2 Number of manifold sub-bases 59 mm
nzwp Number of supply plates (only with end plate with pilot air selector)

Width	L1
18 mm	71.3 + n02 x 38 + nzwp x 38 + 37.3
26 mm	71.3 + n01 x 54 + nzwp x 38 + 37.3
42 mm	71.3 + n1 x 43 + nzwp x 38 + 37.3
52 mm	71.3 + n2 x 59 + nzwp x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2 x 59 + nzwp x 38 + 37.3

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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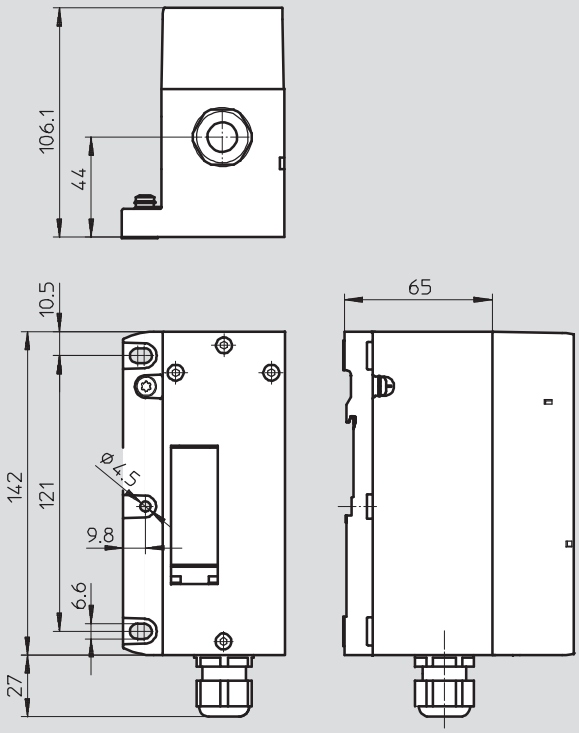
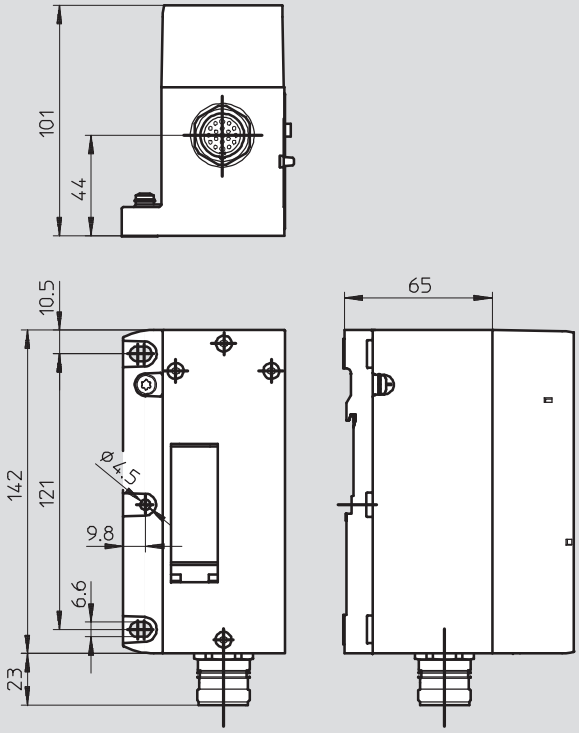
Multi-pin, terminal strip (Cage Clamp®)



Multi-pin, round plug connector



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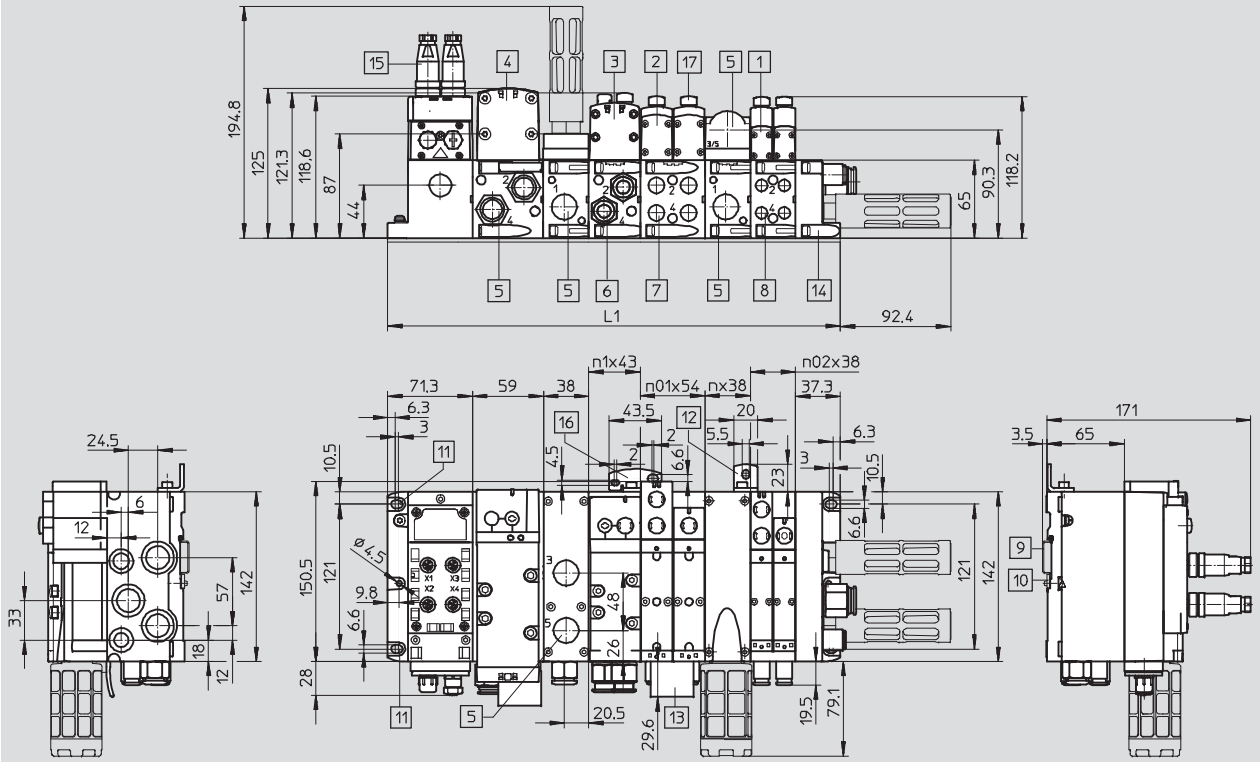
Valve terminal with AS-interface connection



1 Solenoid valve width 18 mm
2 Solenoid valve width 26 mm
3 Solenoid valve width 42 mm
4 Solenoid valve width 52 mm
5 Threaded connection G½
6 Threaded connection G⅜
7 Threaded connection G¼
8 Threaded connection G⅛
9 H-rail
10 H-rail mounting
11 Mounting hole
12 Additional mounting bracket
13 Inscription label holder
14 End plate
15 Plug M12
16 Additional mounting bracket
17 Cover cap/manual override

n02 Number of manifold sub-bases 38 mm
n01 Number of manifold sub-bases 54 mm
n1 Number of manifold sub-bases 43 mm
n2 Number of manifold sub-bases 59 mm
nzwp Number of supply plates

Width	L1
18 mm	71.3 + n02 x 38 + nzwp x 38 + 37.3
26 mm	71.3 + n01 x 54 + nzwp x 38 + 37.3
42 mm	71.3 + n1 x 43 + nzwp x 38 + 37.3
52 mm	71.3 + n2 x 59 + nzwp x 38 + 37.3
Mixture of 18 mm, 26 mm , 42 mm and 52 mm	71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2 x 59 + nzwp x 38 + 37.3

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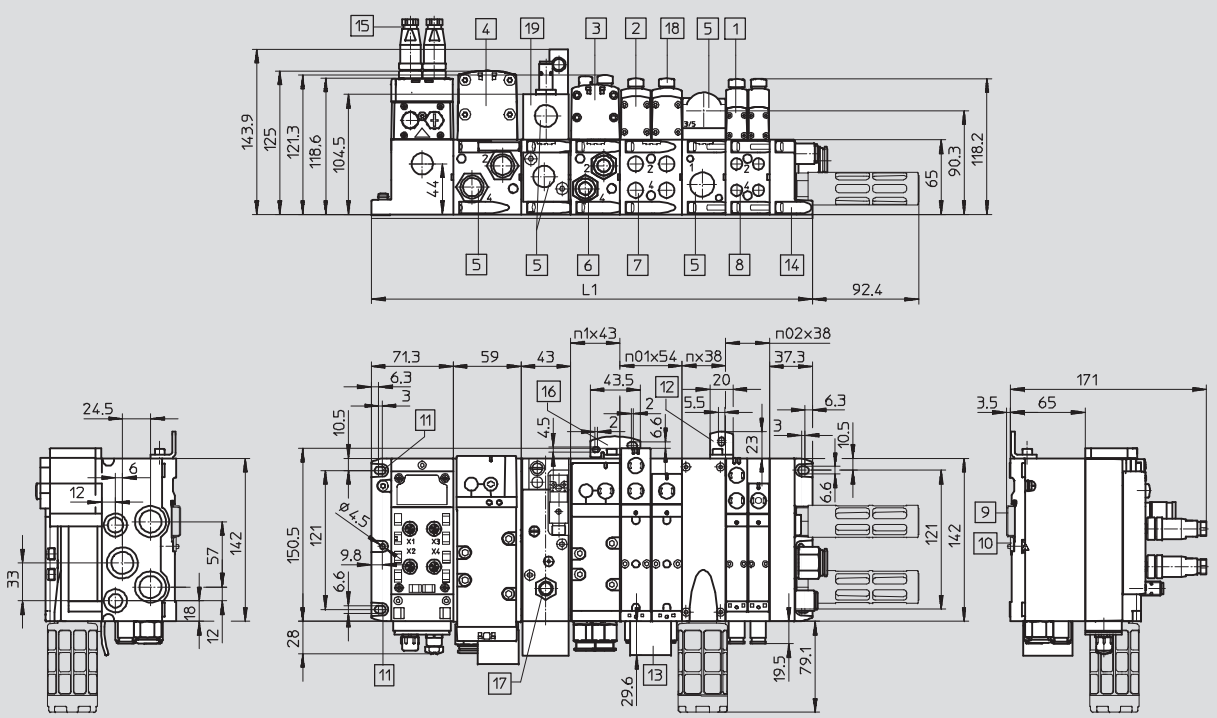
Valve terminal with AS-interface connection and soft-start valve



1 Solenoid valve width 18 mm
2 Solenoid valve width 26 mm
3 Solenoid valve width 42 mm
4 Solenoid valve width 52 mm
5 Threaded connection G1/2
6 Threaded connection G3/8
7 Threaded connection G1/4
8 Threaded connection G1/8
9 H-rail
10 H-rail mounting
11 Mounting hole
12 Additional mounting bracket
13 Inscription label
14 End plate
15 Plug M12
16 Additional mounting
17 Proximity sensor M12x1
18 Cover cap/manual override
19 Soft-start valve width 43 mm

n02 Number of manifold sub-bases 38 mm
n01 Number of manifold sub-bases 54 mm
n1 Number of manifold sub-bases 43 mm
n2 Number of manifold sub-bases 59 mm
nzwp Number of supply plates

Width	L1
18 mm	71.3 + n02 x 38 + nzwp x 38 + 37.3
26 mm	71.3 + n01 x 54 + nzwp x 38 + 37.3
42 mm	71.3 + n1 x 43 + nzwp x 38 + 37.3
52 mm	71.3 + n2 x 59 + nzwp x 38 + 37.3
Mixture of 18 mm, 26 mm , 42 mm and 52 mm	71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2 x 59 + nzwp x 38 + 37.3

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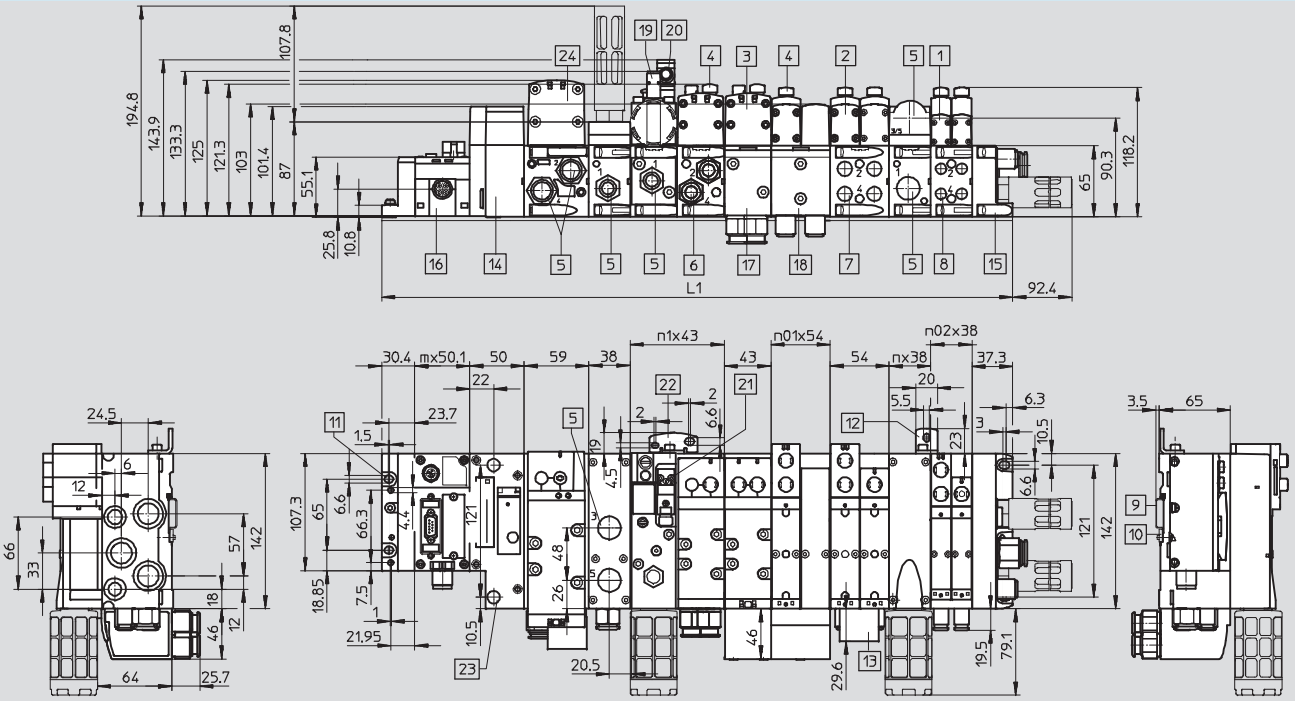
Valve terminal with fieldbus connection



1 Solenoid valve width 18 mm
2 Solenoid valve width 26 mm
3 Solenoid valve width 42 mm
4 Cover cap/manual override
5 Threaded connection G½
6 Threaded connection G⅜
7 Threaded connection G¼
8 Threaded connection G⅛
9 H-rail
10 H-rail mounting
11 Mounting hole
12 Additional mounting bracket
13 Inscription label holder
14 Pneumatic interface CPX
15 End plate
16 CPX module/fieldbus node
17 90° connection plate 43 mm, G⅜
18 90° connection plate 54 mm, G¼
19 Proximity sensor M12x1
20 Plug socket M12x1
21 Electrical connection to DIN EN 175301-803, type C
22 Additional mounting bracket
23 Hole for additional mounting, diameter 6.4 2x
24 Solenoid valve width 52 mm

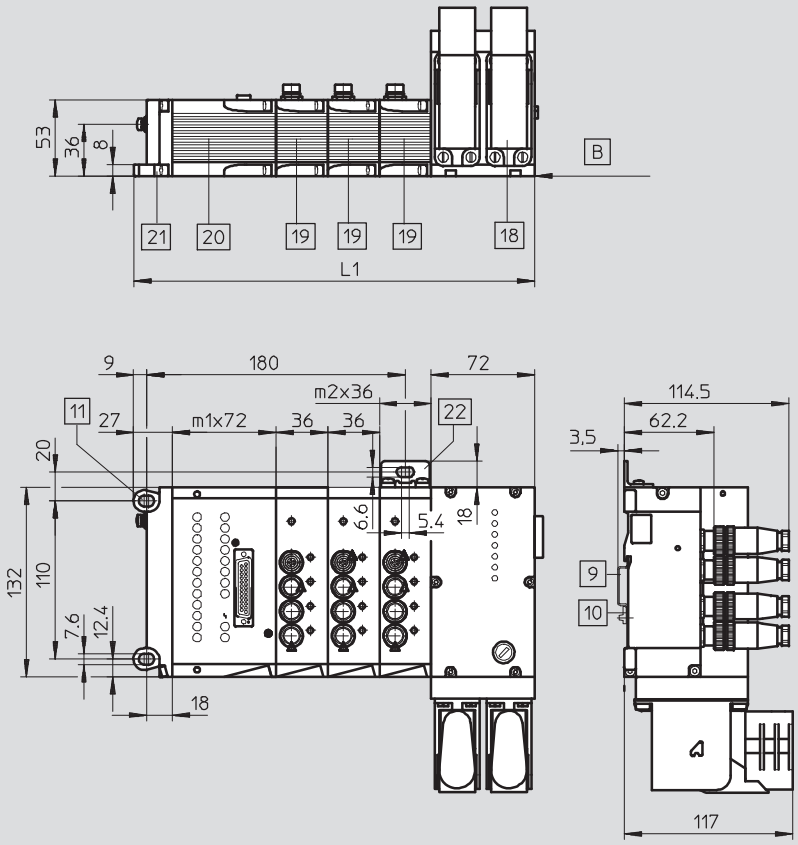
n02 Number of manifold sub-bases 38 mm
n01 Number of manifold sub-bases 54 mm
n1 Number of manifold sub-bases 43 mm
n2 Number of manifold sub-bases 59 mm
nzwp Number of supply plates (only with end plate with pilot air selector)
m Number of CPX modules

Width	L1
18 mm	30.4 + m x 50.1 + 50 + n02 x 38 + nzwp x 38 + 37.3
26 mm	30.4 + m x 50.1 + 50 + n01 x 54 + nzwp x 38 + 37.3
42 mm	30.4 + m x 50.1 + 50 + n1 x 43 + nzwp x 38 + 37.3
52 mm	30.4 + m x 50.1 + 50 + n2 x 59 + nzwp x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	30.4 + m x 50.1 + 50 + n02 x 38 + n01 x 54 + n1 x 43 + n2 x 59 + nzwp x 38 + 37.3

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Valve terminal with fieldbus connection from the “Electrical peripherals type 03” system – Electrical components



9	H-rail	19	I/O module VIGA-03-F, VIGE-03-F	21	End plate	m1	Number of I/O modules VIEA-03
10	H-rail mounting	20	I/O module VIEA-03	22	Additional mounting bracket	m2	Number of I/O modules VIGE/VIGA
11	Mounting hole						
18	Bus node IFB21-03						

L1
27 + m1 x 72 + m2 x 36 + 72

Note

The electrical peripherals type 03 with fieldbus FB21 can address a maximum of 26 valves with one solenoid coil or max. 13 valves with two solenoid coils each. The electrical extension is restricted to 12 I/O modules. The following modules from the electrical peripherals type 03 are available:

- Input modules:
  - VIGE-03-FB-8-5POL
  - VIGE-03-FB-8-5POL-S
- Output module:
  - VIGA-03-FB-4-5POL
- Input/output module:
  - VIEA-03-FB-12E-8A-SUBD

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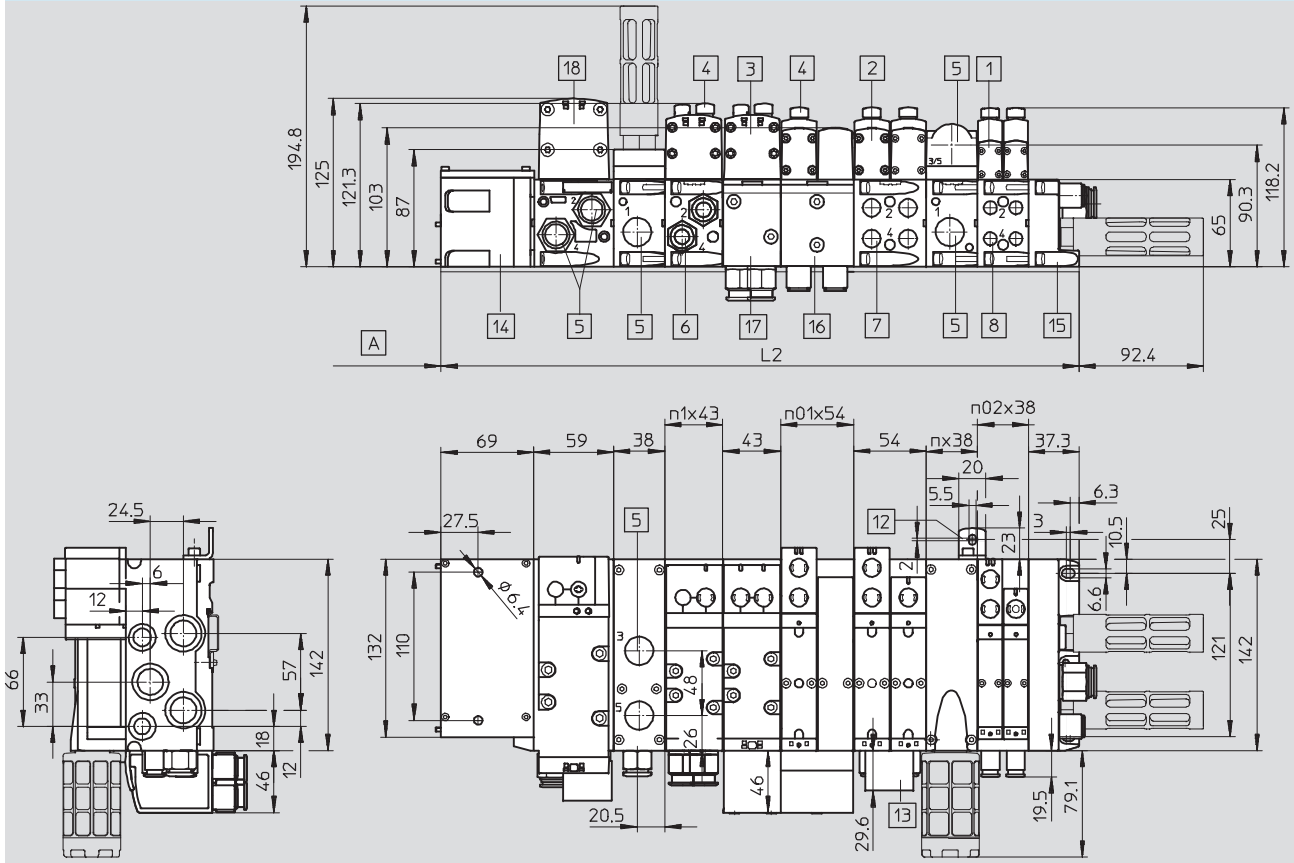
Valve terminal with fieldbus connection from the “Electrical peripherals type 03” system – Pneumatic components



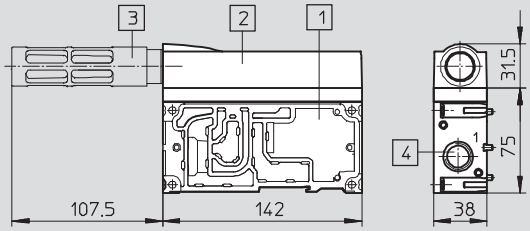
1 Solenoid valve width 18 mm
2 Solenoid valve width 26 mm
3 Solenoid valve width 42 mm
4 Cover cap/manual override
5 Threaded connection G½
6 Threaded connection G⅜
7 Threaded connection G¼
8 Threaded connection G⅛
9 H-rail
10 H-rail mounting
11 Mounting hole
12 Additional mounting bracket VAME-S6-10-W
13 Inscription label holder
14 Pneumatic interface
15 End plate
16 90° connection plate 54 mm, G¼
17 90° connection plate 43 mm, G⅜
18 Solenoid valve width 52 mm
A Bus node interface

n02 Number of manifold sub-bases 38 mm
n01 Number of manifold sub-bases 54 mm
n1 Number of manifold sub-bases 43 mm
n2 Number of manifold sub-bases 59 mm
nzwp Number of supply plates (only with end plate with pilot air selector)

Width	L1
18 mm	69 + n02 x 38 + nzwp x 38 + 37.3
26 mm	69 + n01 x 54 + nzwp x 38 + 37.3
42 mm	69 + n1 x 43 + nzwp x 38 + 37.3
52 mm	69 + n2 x 59 + nzwp x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	69 + n02 x 38 + n01 x 54 + n1 x 43 + n2 x 59 + nzwp x 38 + 37.3

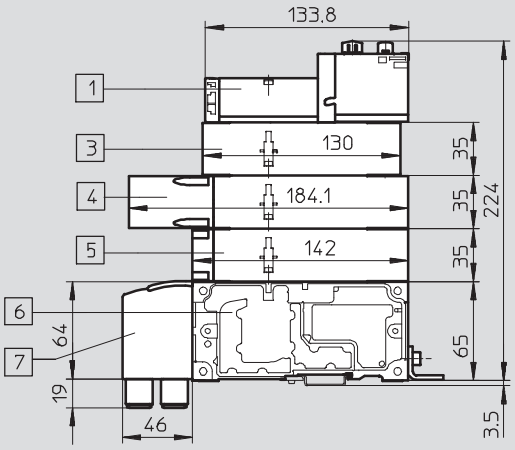
Dimensions Download CAD data ➔ **www.festo.com**

Supply plate with silencer

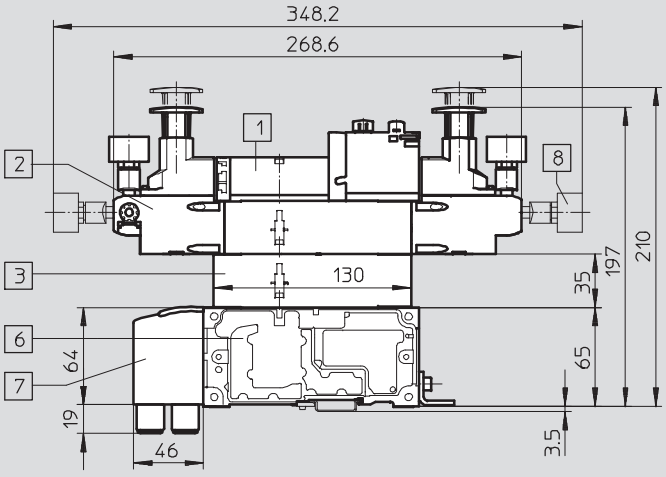


1 Supply plate
2 Exhaust port cover
3 Silencer U-½-B
4 Threaded connections G½

Vertical stacking components, width 18 mm



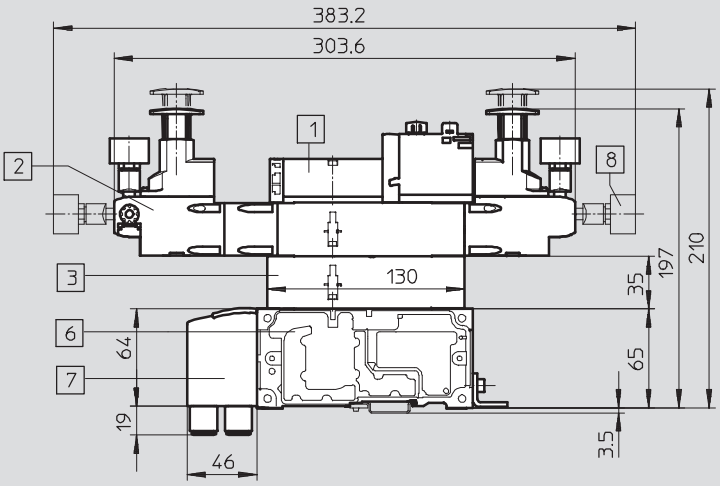
1 Solenoid valve with two solenoid coils, width 18 mm
3 Flow control plate
4 Vertical pressure shut-off plate
5 Vertical supply plate
6 Manifold sub-base
7 90° connection plate



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

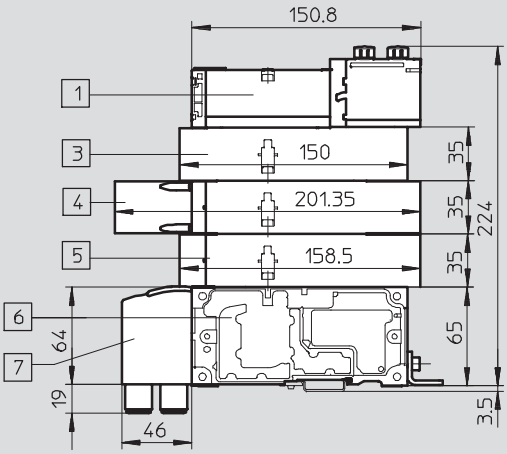
Dimensions Download CAD data ➔ **www.festo.com**

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

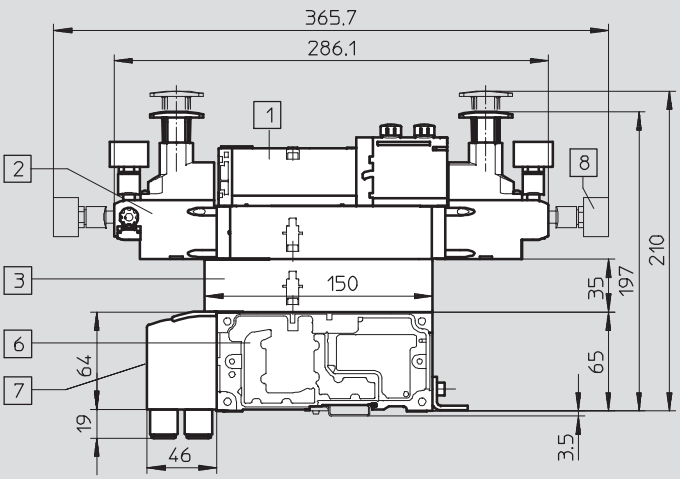


1 Solenoid valve with two solenoid coils, width 18 mm
2 Pressure regulator plate
3 Flow control plate
6 Manifold sub-base
7 90° connection plate
8 Pressure gauge, freely positionable

Vertical stacking components, width 26 mm



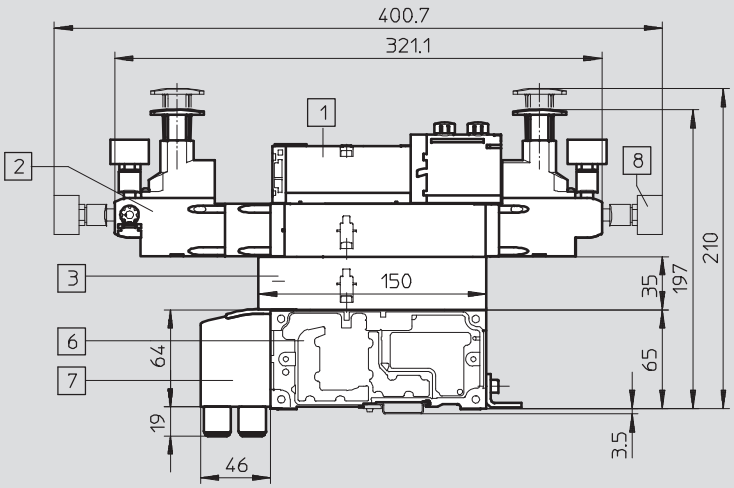
1 Solenoid valve with two solenoid coils, width 26 mm
3 Flow control plate
4 Vertical pressure shut-off plate
5 Vertical supply plate
6 Manifold sub-base
7 90° connection plate



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

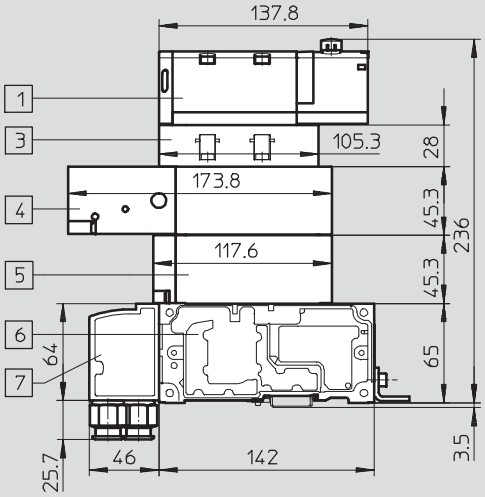
Dimensions Download CAD data ➔ **www.festo.com**

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

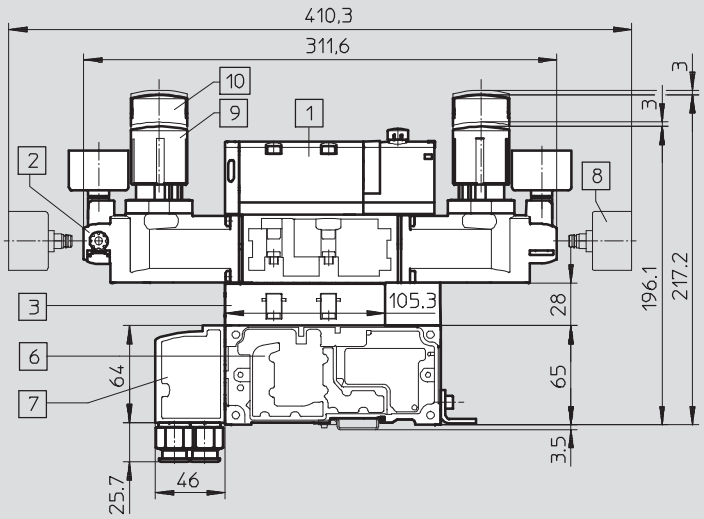
Vertical stacking components, width 42 mm



1 Solenoid valve
3 Flow control plate
4 Vertical pressure shut-off plate
5 Vertical supply plate
6 Manifold sub-base
7 90° connection plate

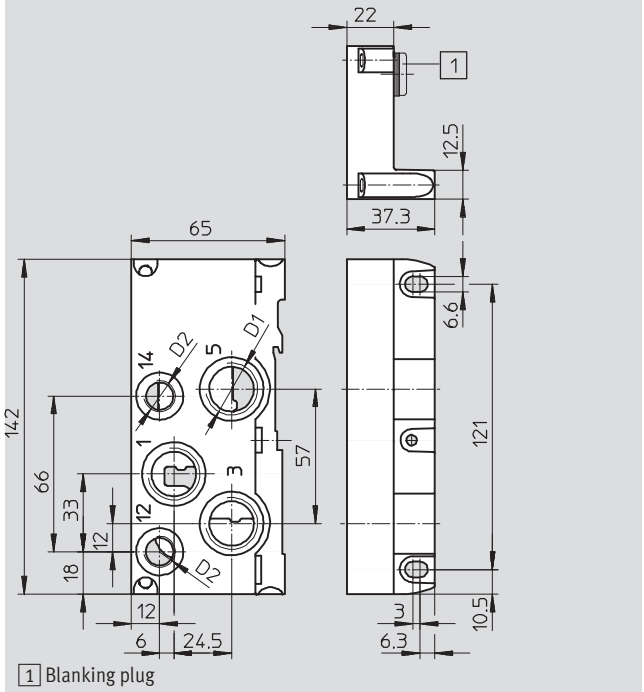
Dimensions Download CAD data ➔ **www.festo.com**

Vertical stacking components, width 42 mm



1 Solenoid valve
2 Pressure regulator plate
3 Flow control plate
6 Manifold sub-base
7 90° connection plate
8 Pressure gauge, freely positionable
9 Standard rotary knob
10 Lockable rotary knob

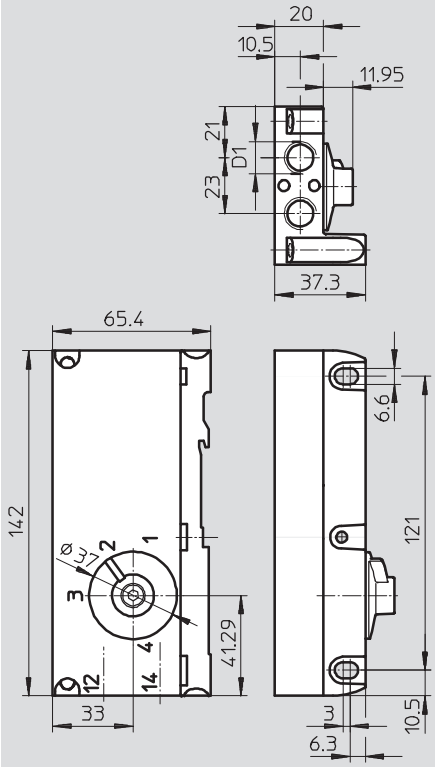
Right-hand end plate



1 Blanking plug

Type	D1	D2	With
VABE-S6-1R-G12	G½	G¼	1
VABE-S6-1RZ-G12	G½	G¼	–

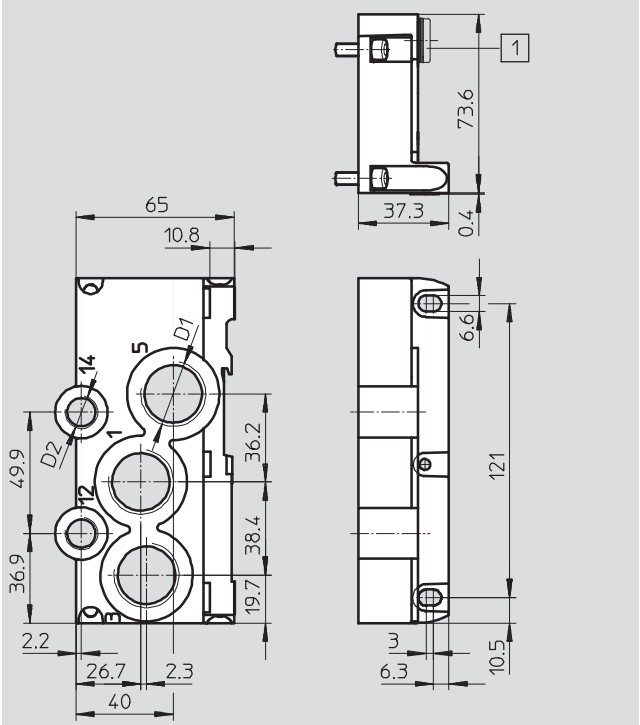
Right-hand end plate with pilot air selector



Type	D1
VABE-S6-1RZ-G-B1	G¼

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Right-hand end plate



1 Blanking plug

Type	D1	D2	With
VABE-S6-2R-G34	G¾	G¼	1
VABE-S6-2RZ-G34	G¾	G¼	

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

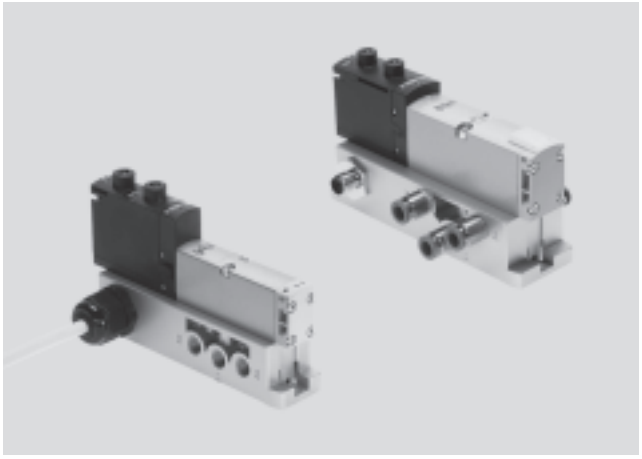
Technical data

FESTO

- Flow rate
  Width 18 mm:
  Up to 600 l/min
  Width 26 mm:
  Up to 1,200 l/min
  Width 42 mm:
  Up to 1,500 l/min
  Width 52 mm:
  Up to 3,200 l/min

- Valve width
  02: 18 mm
  01: 26 mm
  1: 42 mm
  2: 52 mm

- Voltage
  24 V DC
  110 V AC



General technical data – Threaded connection					
Width		18 mm	26 mm	42 mm	52 mm
Design		Piston spool valve			
Sealing principle		Soft			
Actuation type		Electrical			
Type of control		Piloted			
Exhaust function, with flow control		Via individual sub-base			
Lubrication		Lubricated for life			
Type of mounting		Through-hole to ISO 15407-2			
Mounting position		Any			
Manual override		Non-detenting, detenting, covered			
Width		18 mm	26 mm	42 mm	52 mm
Pneumatic connections		Threaded connection			
Pneumatic connection		Via sub-base			
Supply port	1	G1/8	G1/4	G3/8	G1/2
Exhaust port	3/5	G1/8	G1/4	G3/8	G1/2
Working lines	2/4	G1/8	G1/4	G3/8	G1/2
External pilot air supply port	14	M5	G1/8	G1/8	G1/8
Pilot exhaust air port	12	M5	G1/8	G1/8	G1/8

Standard nominal flow rate [l/min]																	
Valve function order code	VC	VV[1]	N	K	H	P	Q	R	M	O	J	D	B	E	G	SA	SB
Width 18 mm																	
Flow rate of valve	700		600						750				700[2] 330[3]			–	–
Flow rate of valve on individual sub-base	500		500						600				500[2] 330[3]		550	–	–
Width 26 mm																	
Flow rate of valve	1,350		1,250						1,400				1,400[2] 700[3]			1,400	700
Flow rate of valve on individual sub-base	1,100		1,100			1,000			1,200				1,200[2] 700[3]			1,200	700
Width 42 mm																	
Flow rate of valve	1,600		1,600						2,000				1,900[2] 950[3]			–	–
Flow rate of valve on individual sub-base	1,400		1,200						1,500				1,400[1] 800[3]			–	–
Width 52 mm																	
Flow rate of valve	3,500		3,000						4,000				3,500[2] 1,700[3]			–	–
Flow rate of valve on individual sub-base	3,000		2,500						3,200				3,000[2] 1,700[3]			–	–

1) Not for size 2
2) Switching position
3) Mid-position

Operating and environmental conditions		
Operating medium		Filtered compressed air, lubricated or unlubricated, inert gases ➔ 58
Grade of filtration	[µm]	40 (average pore size)
Operating pressure	[bar]	–0.9 ... +10
Ambient temperature	[°C]	–5 ... +50
Paint-wetting impairment substances criterion		Free of paint-wetting impairment substances

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	–	–	–	■	–	–	–	–	–	■	–	–	■	■	■	–	–

Certifications	
This product is certified for use in the ATEX zone in accordance with the EU ATEX Directive	
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 T125° C X
ATEX ambient temperature [°C]	−5 ≤ Ta ≤ +50
Certification	cULus recognized (OL)
Protection class	IP65, NEMA 4 in assembled state
CE mark[1] (see declaration of conformity)	To EU Low Voltage Directive

Note

The sub-bases with the part numbers shown opposite are ATEX-certified

- 563066
- 563067
- 563068
- 563069
- 563070
- 563071

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
42 mm, nominal operating voltage 24 V DC																		
Switching times	on	20	20	20	20	20	34	34	34	27	22	–	–	22	22	22	–	–
	off	38	38	38	38	38	28	28	28	45	60	–	–	65	65	65	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	16	19	–	–	–	–	–
42 mm, nominal operating voltage 110 V AC																		
Switching times	on	22	22	22	22	22	34	34	34	20	20	–	–	22	22	22	–	–
	off	46	46	46	46	46	38	38	38	55	55	–	–	68	68	68	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	16	19	–	–	–	–	–

1) Not for individual sub-base with round plug type VABS ...B-R3
2) Valve code SA, switching time 22 ms for control side 12, 9 ms for control side 14
Valve code SB, switching time 19 ms for control side 12, 9 ms for control side 14

Valve switching times [ms]																		
Valve function order code		VC	VV	N	K	H	P	Q	R	M	O	J	D	B	G	E	SA	SB
52 mm, nominal operating voltage 24 V DC with holding current reduction																		
Switching times	on	14	–	20	20	20	30	30	30	40	20	–	–	23	23	23	–	–
	off	35	–	35	35	35	30	30	30	45	60	–	–	60	60	60	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	18	18	–	–	–	–	–
52 mm, nominal operating voltage 110 V AC																		
Switching times	on	35	–	35	35	35	50	50	50	70	25	–	–	30	30	30	–	–
	off	70	–	70	70	70	65	65	65	90	110	–	–	100	100	100	–	–
	change-over	–	–	–	–	–	–	–	–	–	–	35	35	–	–	–	–	–

Note

A cable connector is needed to ensure the IP protection class and to protect against tensile load, twisting and bending.

Electrical data					
Valve on individual sub-base		18 mm	26 mm	42 mm	52 mm
Acceptable current load at 40 °C	[A]	2 (1 A per coil)			
Variants with round plug M12					
Operating voltage range	[V DC]	24 ±10% (with variants with round plug M12 VABS-...-R3)			
Surge capacity	[kV]	0.8			
Degree of contamination		3			
Duty cycle	[ED]	100%			
Variants with cable connector					
Operating voltage range	[V AC]	110 ±10% (50 ... 60 Hz) (with variants with cable and spring-loaded terminal VABS-...-K1/C1)			
Surge capacity	[kV]	4			
Degree of contamination		3			
Duty cycle	[ED]	100%			

Materials				
	18 mm	26 mm	42 mm	52 mm
Sub-base	Die-cast aluminium			Gravity die aluminium
Valve	Die-cast aluminium, reinforced polyamide			
Seals	Nitrile rubber, elastomer (support made of steel)			

Product weight				
Approx. weight [g]	18 mm	26 mm	42 mm	52 mm
Sub-base	192	302	386	815
Valves				
• 5/3-way valve (code: B, G, E)	191	320	456	780
• 5/3-way valve (code: SA, SB)	–	301	–	–
• 5/2-way valve, single solenoid (code: M, O)	163	293	426	702
• 5/2-way valve, double solenoid (code: J, D)	172	276	439	732
• 2x 3/2-way valve (code: N, K, H, P, Q, R)	190	335	442	740
• 2x 2/2-way valve (code: VC, VV)	190	335	442	740

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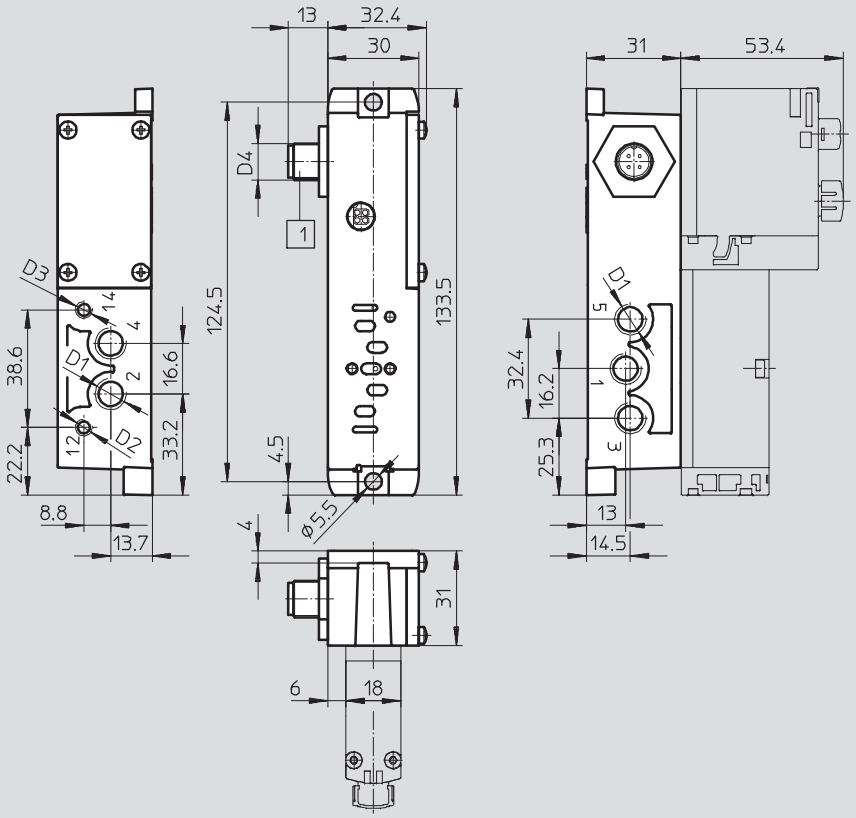
Individual sub-base with M12 plug, width 18 mm



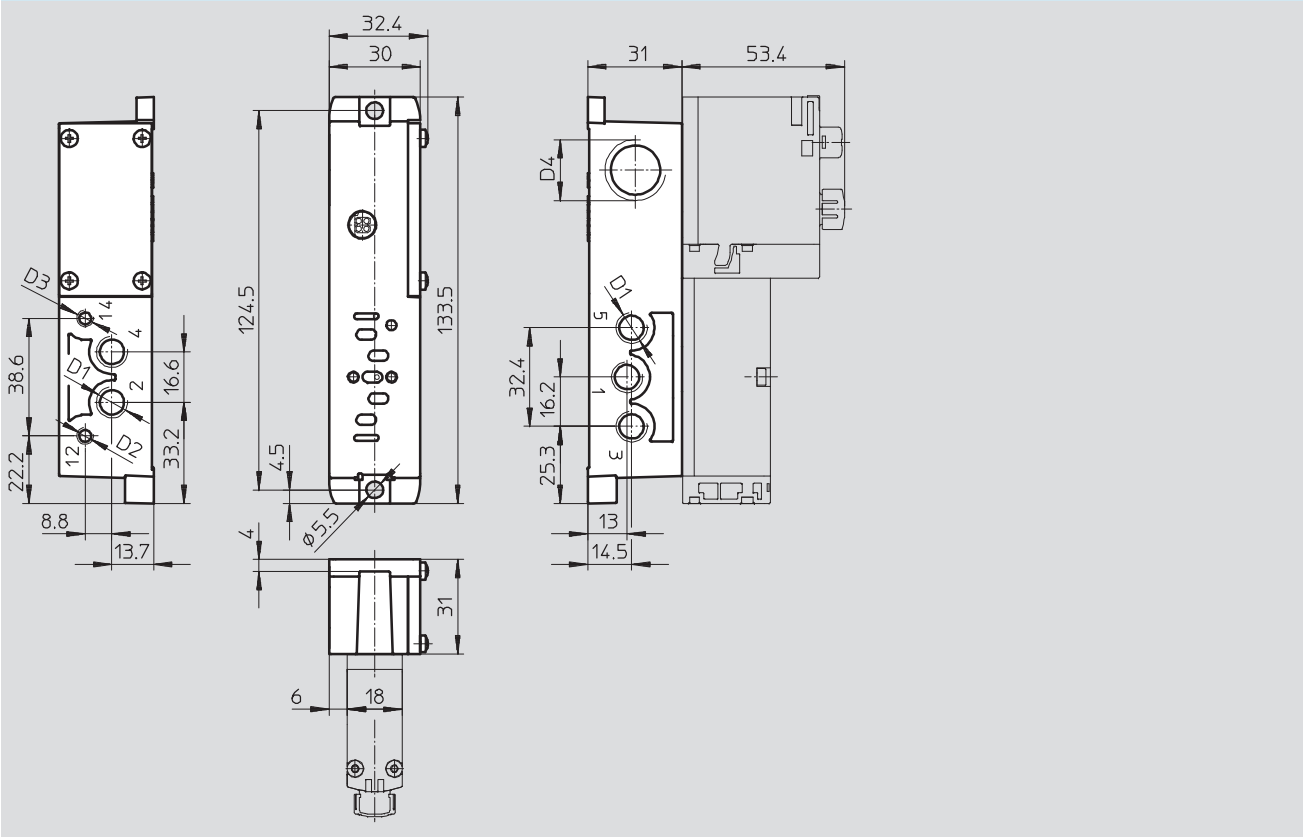
1 Plug to EN 61076-2-101

Type	D1	D2	D3	D4
External pilot air supply				
VABS-S4-2S-G18-R3	G1/8	M5	M5	M12x1
VABS-S4-2S-G18-R3-EX2	G1/8	M5	M5	M12x1
Internal pilot air supply				
VABS-S4-2S-G18-B-R3	G1/8	M5	–	M12x1
VABS-S4-2S-G18-B-R3-EX2	G1/8	M5	–	M12x1

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Individual sub-base with cable terminals, width 18 mm

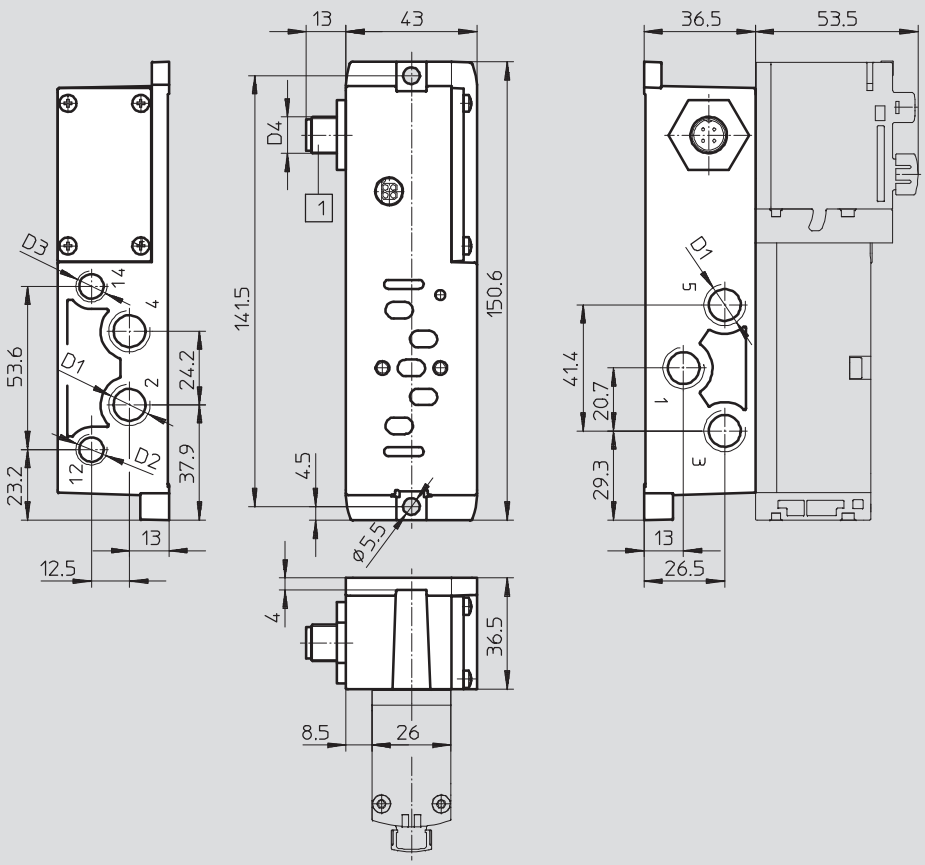


Type	D1	D2	D3	D4
External pilot air supply				
VABS-S4-2S-G18-K2	G⅛	M5	M5	M20x1.5
Internal pilot air supply				
VABS-S4-2S-G18-B-K2	G⅛	M5	–	M20x1.5

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Individual sub-base with M12 plug, width 26 mm



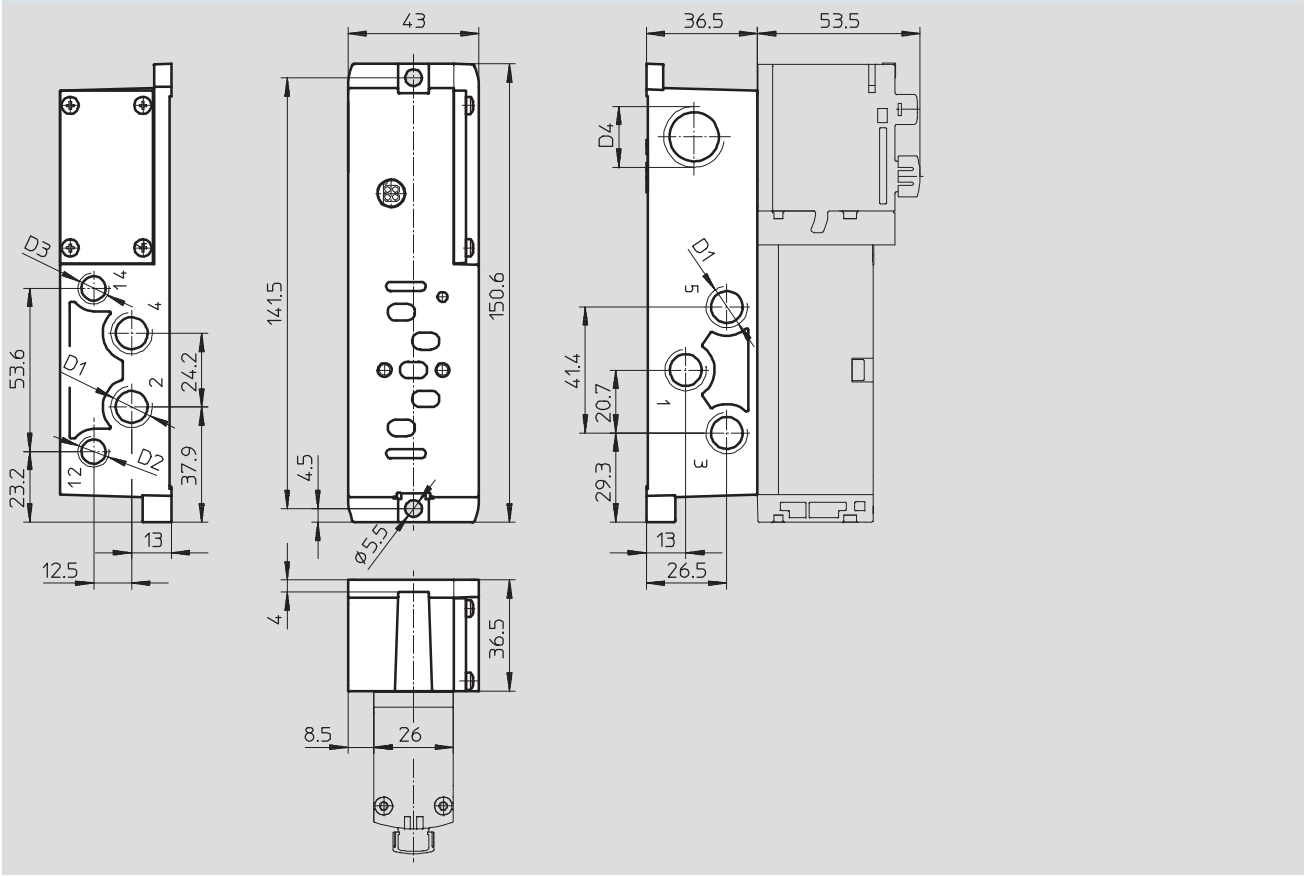
1 Plug to EN 61076-2-101

Type	D1	D2	D3	D4
External pilot air supply				
VABS-S4-1S-G14-R3	G¼	G⅛	G⅛	M12x1
VABS-S4-1S-G14-R3-EX2	G¼	G⅛	G⅛	M12x1
Internal pilot air supply				
VABS-S4-1S-G14-B-R3	G¼	G⅛	–	M12x1
VABS-S4-1S-G14-B-R3-EX2	G¼	G⅛	–	M12x1

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Individual sub-base with cable terminals, width 26 mm

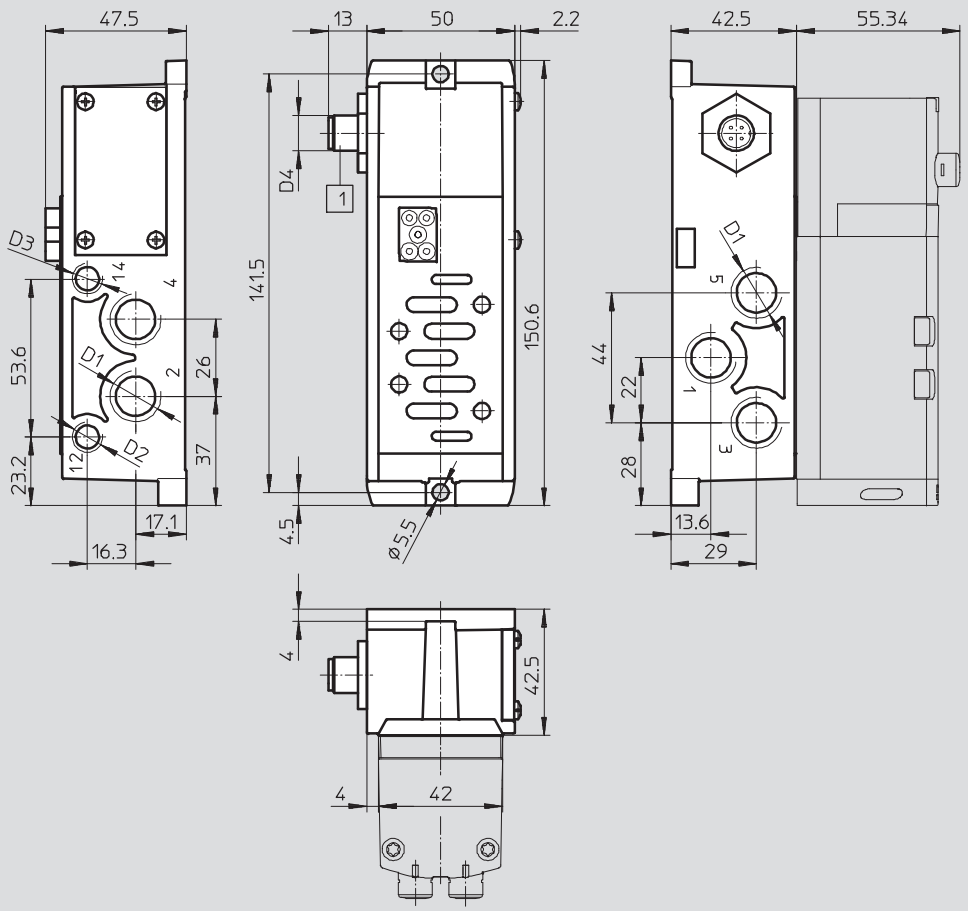


Type	D1	D2	D3	D4
External pilot air supply				
VABS-S4-1S-G14-K2	G¼	G⅛	G⅛	M20x1.5
Internal pilot air supply				
VABS-S4-1S-G14-B-K2	G¼	G⅛	–	M20x1.5

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Individual sub-base with M12 plug, width 42 mm



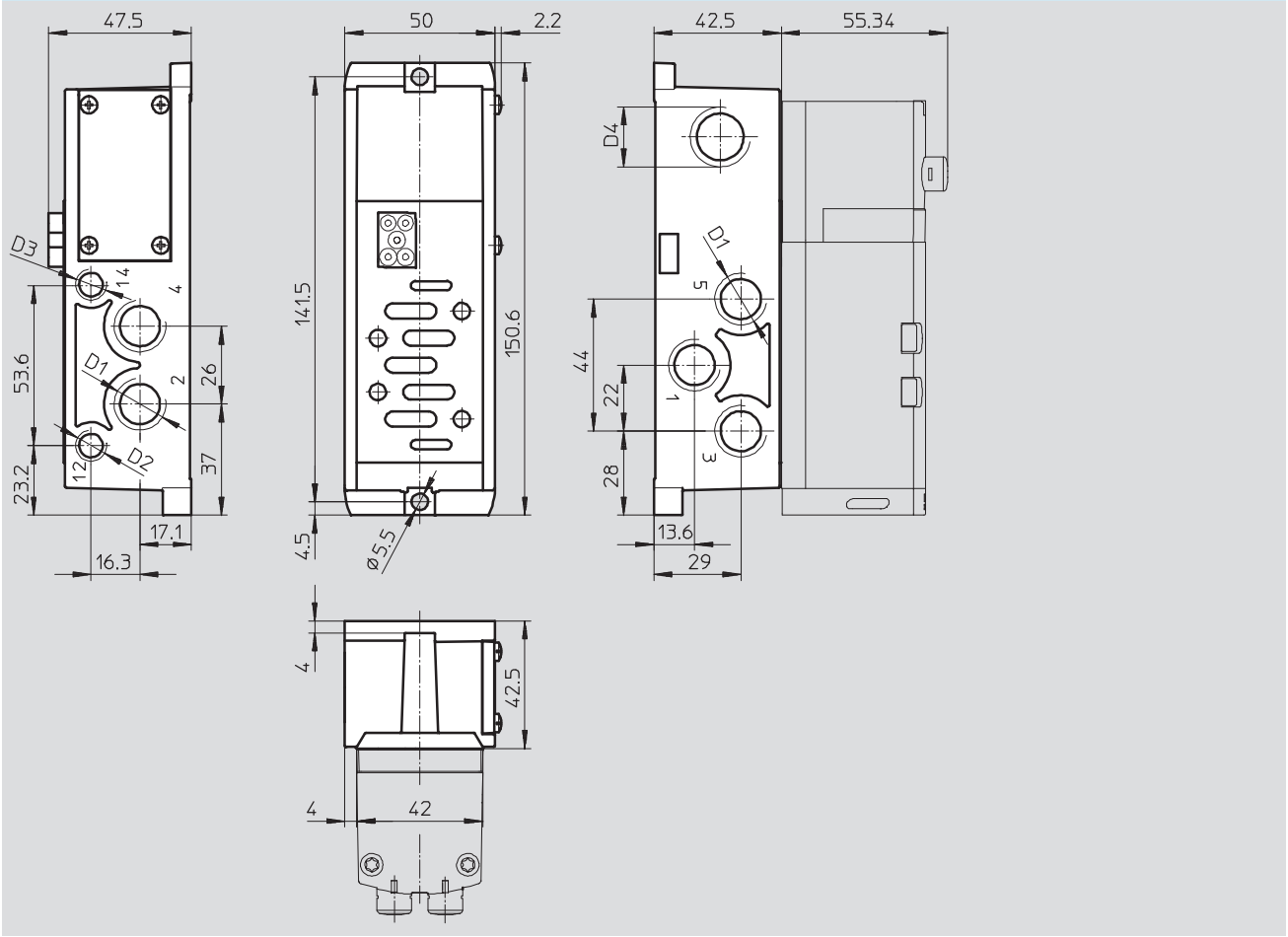
1 Plug to EN 61076-2-101

Type	D1	D2	D3	D4
External pilot air supply				
VABS-S2-1S-G38-R3	G3⁄8	G1⁄8	G1⁄8	M12x1
VABS-S2-1S-G38-R3-EX2	G3⁄8	G1⁄8	G1⁄8	M12x1
Internal pilot air supply				
VABS-S2-1S-G38-B-R3	G3⁄8	G1⁄8	–	M12x1
VABS-S2-1S-G38-B-R3-EX2	G3⁄8	G1⁄8	–	M12x1

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Individual sub-base with spring-loaded terminal or for self-assembly, width 42 mm



Type	D1	D2	D3	D4
External pilot air supply				
VABS-S2-1S-G38-K1	G⅜	G⅛	G⅛	M20x1.5
VABS-S2-1S-G38-C1	G⅜	G⅛	G⅛	M20x1.5
Internal pilot air supply				
VABS-S2-1S-G38-B-K1	G⅜	G⅛	–	M20x1.5
VABS-S2-1S-G38-B-C1	G⅜	G⅛	–	M20x1.5

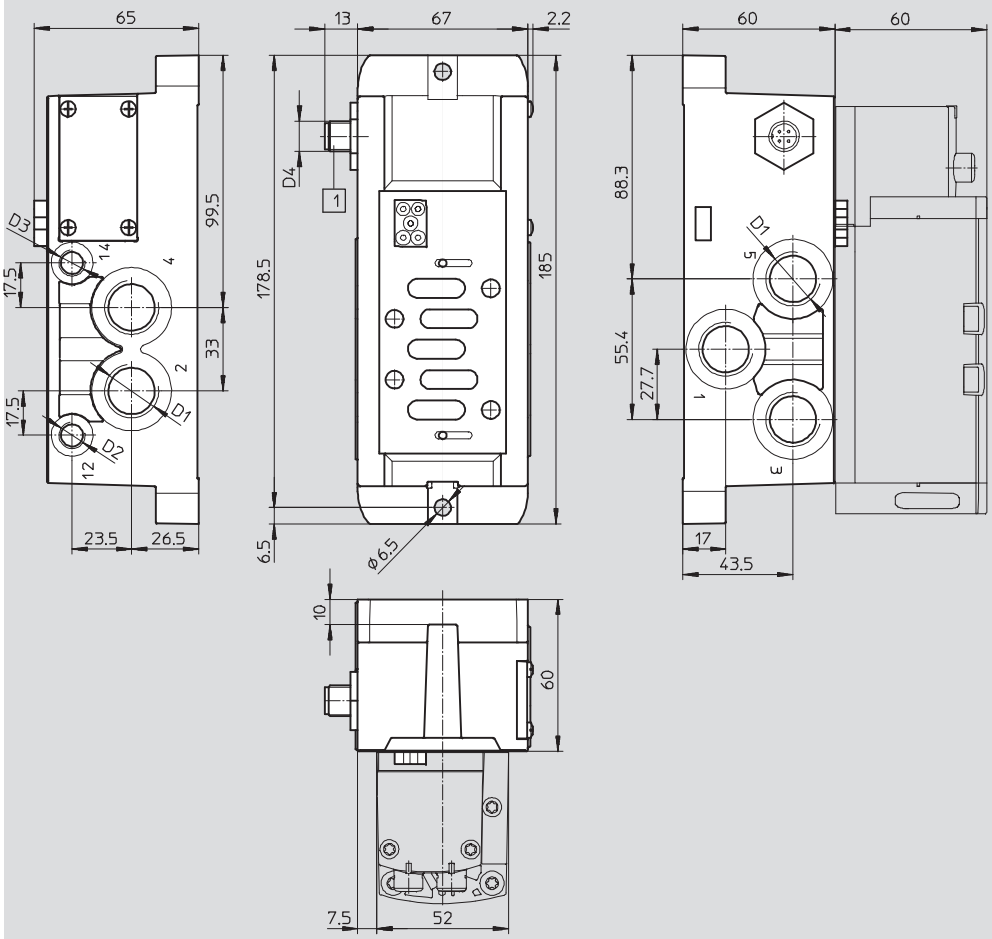
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Note

Electrical connection
- K1 open end
- C1 spring-loaded terminal

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

Individual sub-base with M12 plug, width 52 mm



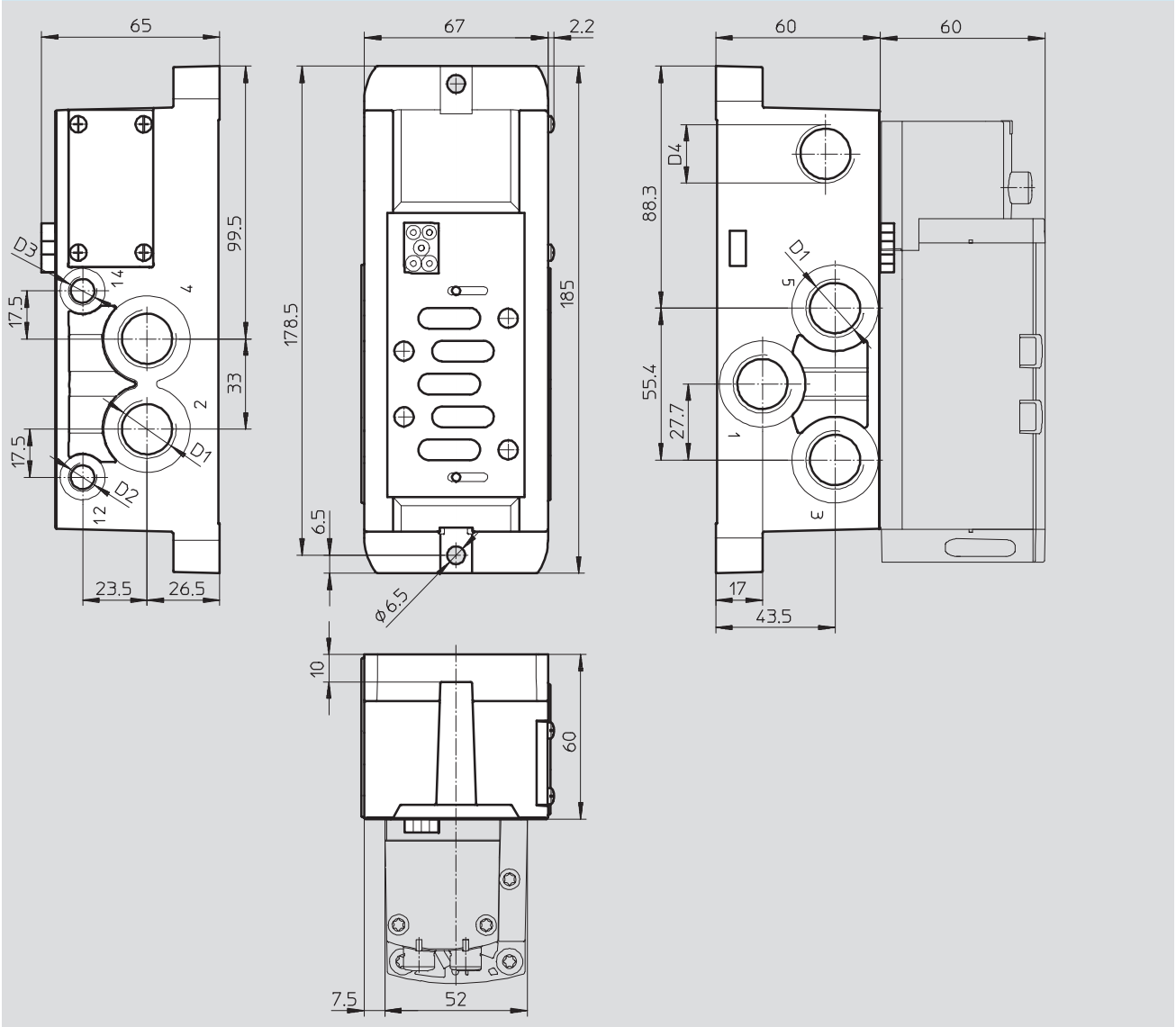
1 Plug to EN 61076-2-101

Type	D1	D2	D3	D4
External pilot air supply				
VABS-S2-2S-G12-R3	G½	G⅛	G⅛	M12x1
Internal pilot air supply				
VABS-S2-2S-G12-B-R3	G½	G⅛	–	M12x1

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

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

Individual sub-base with spring-loaded terminal or for self-assembly, width 52 mm

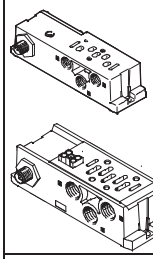
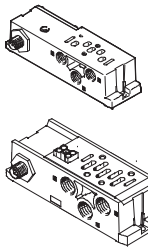
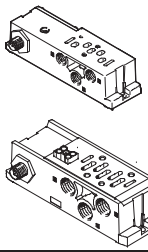
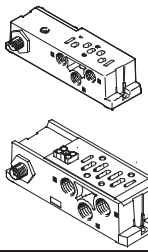
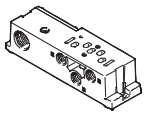


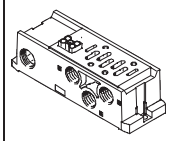
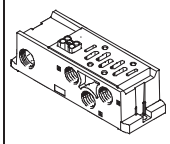
Type	D1	D2	D3	D4
External pilot air supply				
VABS-S2-2S-G12-K1	G½	G⅛	G⅛	M20x1.5
VABS-S2-2S-G12-C1	G½	G⅛	G⅛	M20x1.5
Internal pilot air supply				
VABS-S2-2S-G12-B-K1	G½	G⅛	–	M20x1.5
VABS-S2-2S-G12-B-C1	G½	G⅛	–	M20x1.5

Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

Note

Electrical connection
- K1 open end
- C1 spring-loaded terminal

Ordering data					
Designation	Code	Description	Width	Type	Part No.
Individual sub-base, port pattern to ISO 15407-2 and ISO 5599-2, electrical connection via plug connector M12					
	Threaded connection, internal pilot air supply				
	–	Lateral connections, G1⁄8	18 mm	**VABS-S4-2S-G18-B-R3**	**541070**
	–	Lateral connections, G1⁄4	26 mm	**VABS-S4-1S-G14-B-R3**	**541069**
	–	Lateral connections, G3⁄8	42 mm	**VABS-S2-1S-G38-B-R3**	**546104**
	–	Lateral connections, G1⁄2	52 mm	**VABS-S2-2S-G12-B-R3**	**555645**
	Threaded connection, external pilot air supply				
	–	Lateral connections, G1⁄8	18 mm	**VABS-S4-2S-G18-R3**	**541064**
	–	Lateral connections, G1⁄4	26 mm	**VABS-S4-1S-G14-R3**	**541063**
	–	Lateral connections, G3⁄8	42 mm	**VABS-S2-1S-G38-R3**	**546101**
	–	Lateral connections, G1⁄2	52 mm	**VABS-S2-2S-G12-R3**	**555640**
Individual sub-base, port pattern to ISO 15407-2 and ISO 5599-2, electrical connection via plug connector M12, with ATEX certification					
	Threaded connection, internal pilot air supply				
	–	Lateral connections, G1⁄8	18 mm	**VABS-S4-2S-G18-B-R3-EX2**	**563067**
	–	Lateral connections, G1⁄4	26 mm	**VABS-S4-1S-G14-B-R3-EX2**	**563069**
	–	Lateral connections, G3⁄8	42 mm	**VABS-S2-1S-G38-B-R3-EX2**	**563071**
	Threaded connection, external pilot air supply				
	–	Lateral connections, G1⁄8	18 mm	**VABS-S4-2S-G18-R3-EX2**	**563066**
	–	Lateral connections, G1⁄4	26 mm	**VABS-S4-1S-G14-R3-EX2**	**563068**
	–	Lateral connections, G3⁄8	42 mm	**VABS-S2-1S-G38-R3-EX2**	**563070**
Individual sub-base, port pattern to ISO 15407-2, electrical connection via cable terminals					
	Threaded connection, internal pilot air supply				
	–	Lateral connections, G1⁄8	18 mm	**VABS-S4-2S-G18-B-K2**	**541067**
	–	Lateral connections, G1⁄4	26 mm	**VABS-S4-1S-G14-B-K2**	**541065**
	Threaded connection, external pilot air supply				
	–	Lateral connections, G1⁄8	18 mm	**VABS-S4-2S-G18-K2**	**539723**
	–	Lateral connections, G1⁄4	26 mm	**VABS-S4-1S-G14-K2**	**539725**

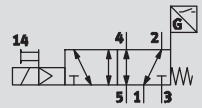
Ordering data					
Designation	Code	Description	Width	Type	Part No.
Individual sub-base, port pattern to ISO 5599-2, electrical connection via spring-loaded terminal					
	Threaded connection, internal pilot air supply				
	–	Lateral connections, G3/8	42 mm	**VABS-S2-1S-G38-B-C1**	**546762**
	–	Lateral connections, G1/2	52 mm	**VABS-S2-2S-G12-B-C1**	**555643**
	Threaded connection, external pilot air supply				
	–	Lateral connections, G3/8	42 mm	**VABS-S2-1S-G38-C1**	**546760**
	–	Lateral connections, G1/2	52 mm	**VABS-S2-2S-G12-C1**	**555638**
Individual sub-base, port pattern to ISO 5599-2, electrical connection via cable (open end)					
	Threaded connection, internal pilot air supply				
	–	Lateral connections, G3/8	42 mm	**VABS-S2-1S-G38-B-K1**	**546102**
	–	Lateral connections, G1/2	52 mm	**VABS-S2-2S-G12-B-K1**	**555641**
	Threaded connection, external pilot air supply				
	–	Lateral connections, G3/8	42 mm	**VABS-S2-1S-G38-K1**	**546099**
	–	Lateral connections, G1/2	52 mm	**VABS-S2-2S-G12-K1**	**555636**

New

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Technical data

Function

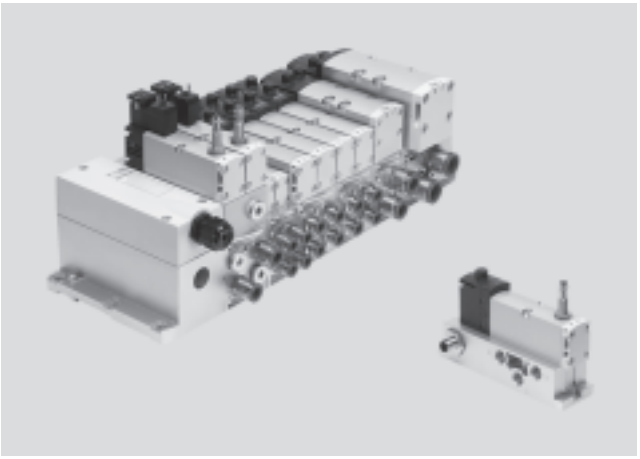


Flow rate
950 l/min

Valve width
01: 26 mm

Voltage
24 V DC

Operating pressure
3 ... 10 bar



ISO valves for safety-oriented pneumatic components

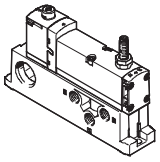
Function

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 from higher safety category to DIN EN 13849-1.

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

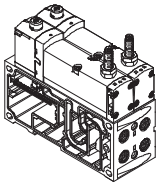
Individual sub-base



Valve on individual sub-base (square plug or plug-in), with integrated piston position sensing.

The electrical connection is established either via a standardised 4-pin M12 plug 24 V DC (EN 61076-2-101), a 4-pin spring-loaded terminal or a cable (open end) 24 V DC/110 V AC, which can be configured by the user.

Valve terminal



The valves with integrated piston position sensing can be used regardless of the type of electrical actuation (individual, multi-pin plug or fieldbus/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.
- The individual sub-base can be supplied with internal or external pilot air depending on the version.

Note

The sensors contained in the valves must not be replaced themselves. 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 44 VTSA, to ISO 15407-1/ISO 5599-2

Technical data

FESTO

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 individual sub-base	
Lubrication		Lubricated for life	
Type of mounting		Through-hole to ISO 15407-2	
Mounting position		Any	
Manual override		Covered	
Individual sub-base			
Pneumatic connection		Threaded connection	Fitting
Supply port	1	G¼	QS-G¼-8 QS-G-¼-10 QS-G¼-12
Exhaust port	3/5	G¼	QS-G¼-8 QS-G-¼-10 QS-G¼-12
Working lines	2/4	G¼	QS-G¼-8 QS-G¼-10 QS-G¼-12
Pilot air supply port	14	G⅛	QS-G⅛-6 QS-G⅛-8
Pilot exhaust air port	12	G⅛	QS-G⅛-6 QS-G⅛-8
Valve terminal			→ 59

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 on individual sub-base		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 → 58
Grade of filtration	[µm]	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[1)]	[°C]	−20 ... +40
Relative air humidity	[%]	90

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

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 44 VTSA, to ISO 15407-2/ISO 5599-2

Technical data

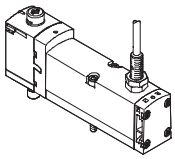
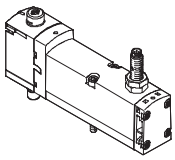
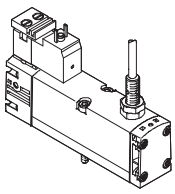
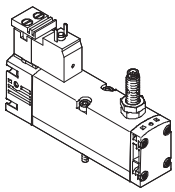
Product weight	Width
Approx. weight [g]	26 mm
5/2-way valves	
• VSVA-B-M52-MZD-A1-1T1L-APC	307
• VSVA-B-M52-MZD-A1-1T1L-APP	264
• VSVA-B-M52-MZ-A1-1C1-APC	332
• VSVA-B-M52-MZ-A1-1C1-APP	289
• VSVA-B-M52-MZD-A1-1T1L-ANC	307
• VSVA-B-M52-MZD-A1-1T1L-ANP	264
• VSVA-B-M52-MZ-A1-1C1-ANC	332
• VSVA-B-M52-MZ-A1-1C1-ANP	289
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 44 VTSA, to ISO 15407-2/ISO 5599-2

Technical data

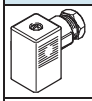
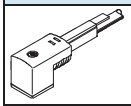
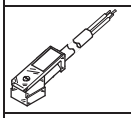
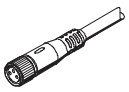
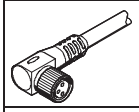
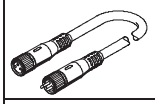
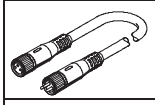
FESTO

Ordering data					
	Code	Valve function	Width	Type	Part No.
Solenoid valves, 24 V DC, plug-in design					
	–	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**
Solenoid valves, 24 V DC, with pneumatic interface to ISO 15218					
	–	5/2-way valve, single solenoid, mechanical spring return, for individual sub-base, 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, for individual sub-base, 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, for individual sub-base, 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, for individual sub-base, 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**

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Technical data

FESTO

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	**–**

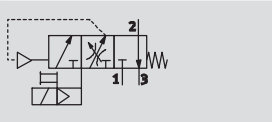
Ordering data – Illuminating seal for plug pattern DIN EN 175301-803, type C			Technical data ➔ Internet: meb-ld	
	Voltage		Type	Part No.
	[V DC]	[V AC]		
	12 ... 24	–	**MEB-LD-12-24DC**	**151 717**
	–	230	**MEB-LD-230AC**	**151 718**

New

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Technical data – Soft-start valve

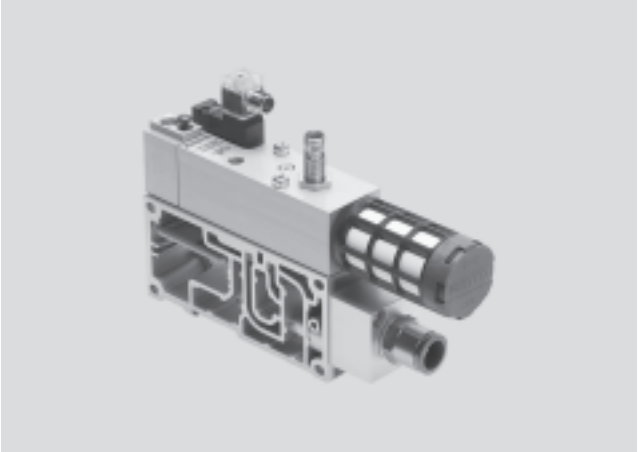
Function



Flow rate
Pressurisation: 3,000 l/min
Venting: 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 reliably 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 vented 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 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

There must be no other elements supplying compressed air in the pressure zone in which the soft-start valve is being operated.

Exhaust air

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.

Pilot air supply

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.

Reverse operation

The soft-start valve is not approved for reverse operation.

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

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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 qnN [l/min]	
Pressurisation	3,000
Venting	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 44 VTSA, to ISO 15407-2/ISO 5599-2

Technical data – Soft-start valve

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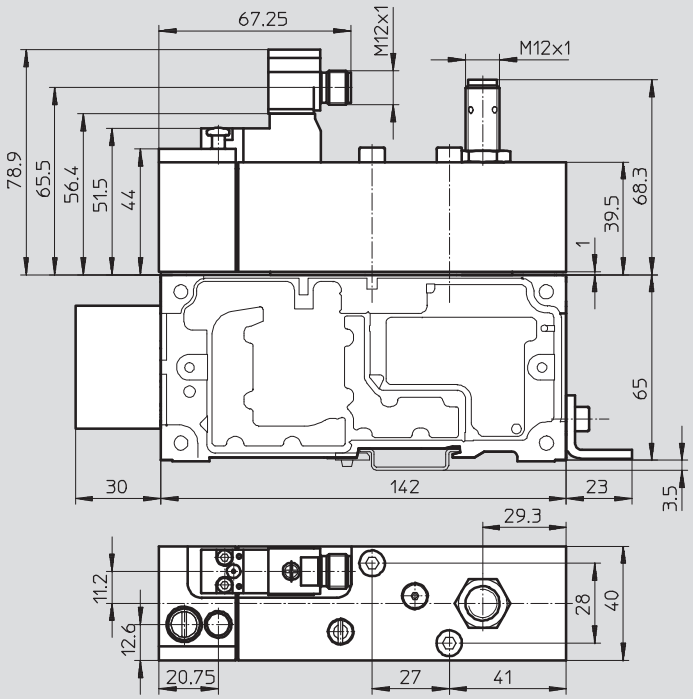
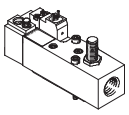
Dimensions Download CAD data ➔ **www.festo.com**

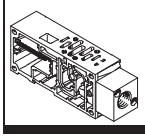


1 Socket head screw M5x48
DIN 912, captive

Ordering data – Valves

	Nominal operating voltage		Sensor output	Pneumatic connection	Type	Part No.
	24 V DC	110 V AC				
	–	■	None	G½	**VABF-S6-1-P5A4-G12-4-2A**	**558228**
	■	–	None	G½	**VABF-S6-1-P5A4-G12-4-1**	**558230**
	■	–	PNP	G½	**VABF-S6-1-P5A4-G12-4-1-P**	**557377**
	■	–	NPN	G½	**VABF-S6-1-P5A4-G12-4-1-N**	**558233**

Ordering data – Manifold sub-bases

	Pneumatic connection	Type	Part No.
	G½	**VABV-S6-1Q-G12**	**556989**

Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Technical data – Soft-start valve

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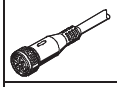
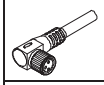
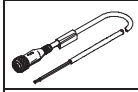
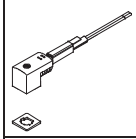
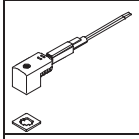
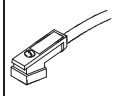
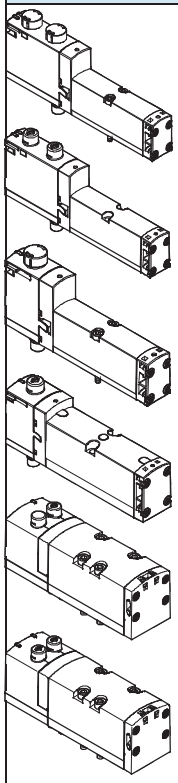
Ordering data – Accessories

			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 with integrated switching status display via LED (yellow)	PNP	**SIEN-M12B-PS-S-L**	**150403**
		NPN	**SIEN-M12B-NS-S-L**	**150401**
	Plug socket with 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**
	Plug socket with 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**
	Plug socket with 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**
	Plug socket with 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**
	Plug socket with cable, angled socket, type C, for solenoid coil 230 V AC	2.5 m cable	**KMEB-2-230AC-2,5**	**174846**
		5 m cable	**KMEB-2-230-5**	**174847**
	Blanking plug for thread G½	Scope of delivery 10 pieces	**B-½**	**3571**
	Pressure gauge 0 ... 10 bar	Pneumatic connection M5	**MA-27-10-M5**	**526323**

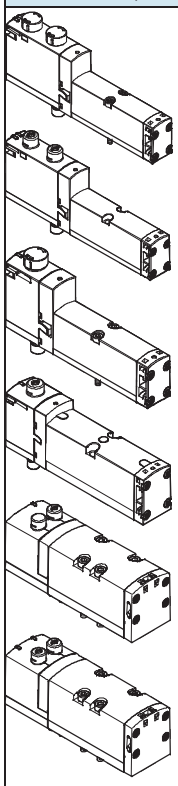
Valve terminals type 44 VTSA, to ISO 15407-2/ISO 5599-2

Individual valve 24 V DC

Ordering data

	Code	Valve function	Width	Type	Part No.
Solenoid valves, 24 V DC					
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	18 mm	**VSVA-B-T22C-AZD-A2-1T1L**	**561155**
			26 mm	**VSVA-B-T22C-AZD-A1-1T1L**	**561149**
			42 mm	**VSVA-B-T22C-AZD-D1-1T1L**	**561340**
			52 mm	**VSVA-B-T22C-AZD-D2-1T1L**	**560831**
	VV	2x 2/2-way valve, single solenoid, normally closed, pneumatic 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**
			42 mm	**VSVA-B-T22CV-AZD-D1-1T1L**	**561344**
	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**
			42 mm	**VSVA-B-T32U-AZD-D1-1T1L**	**543692**
			52 mm	**VSVA-B-T32U-AZD-D2-1T1L**	**560827**
	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**
			42 mm	**VSVA-B-T32C-AZD-D1-1T1L**	**543690**
			52 mm	**VSVA-B-T32C-AZD-D2-1T1L**	**560825**
	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**
			42 mm	**VSVA-B-T32H-AZD-D1-1T1L**	**543694**
			52 mm	**VSVA-B-T32H-AZD-D2-1T1L**	**560829**
	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**
			42 mm	**VSVA-B-T32F-AZD-D1-1T1L**	**543693**
			52 mm	**VSVA-B-T32F-AZD-D2-1T1L**	**560828**
	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**
			42 mm	**VSVA-B-T32N-AZD-D1-1T1L**	**543691**
			52 mm	**VSVA-B-T32N-AZD-D2-1T1L**	**560826**
	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**
			42 mm	**VSVA-B-T32W-AZD-D1-1T1L**	**543695**
			52 mm	**VSVA-B-T32W-AZD-D2-1T1L**	**560830**

Ordering data

	Code	Valve function	Width	Type	Part No.
Solenoid valves, 24 V DC					
	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**
			42 mm	**VSVA-B-M52-AZD-D1-1T1L**	**543698**
			52 mm	**VSVA-B-M52-AZD-D2-1T1L**	**560820**
	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**
			42 mm	**VSVA-B-M52-MZD-D1-1T1L**	**543699**
			52 mm	**VSVA-B-M52-MZD-D2-1T1L**	**560821**
	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**
			42 mm	**VSVA-B-B52-ZD-D1-1T1L**	**543696**
			52 mm	**VSVA-B-B52-ZD-D2-1T1L**	**560818**
	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**
			42 mm	**VSVA-B-D52-ZD-D1-1T1L**	**543697**
			52 mm	**VSVA-B-D52-ZD-D2-1T1L**	**560819**
	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**
			42 mm	**VSVA-B-P53U-ZD-D1-1T1L**	**543700**
			52 mm	**VSVA-B-P53U-ZD-D2-1T1L**	**560822**
	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**
			42 mm	**VSVA-B-P53C-ZD-D1-1T1L**	**543702**
			52 mm	**VSVA-B-P53C-ZD-D2-1T1L**	**560824**
	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**
			42 mm	**VSVA-B-P53E-ZD-D1-1T1L**	**543701**
			52 mm	**VSVA-B-P53E-ZD-D2-1T1L**	**560823**
	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 44 VTSA, to ISO 15407-2/ISO 5599-2

Individual valve 110 V AC

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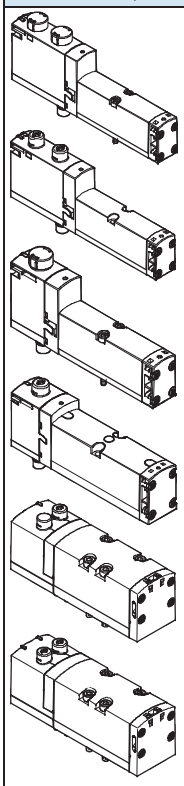
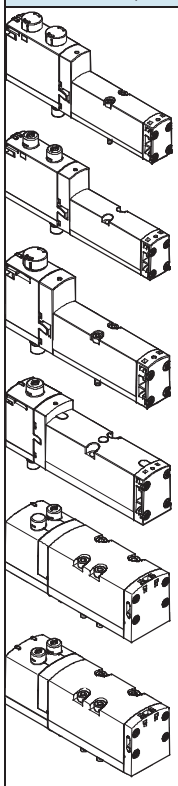
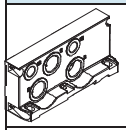
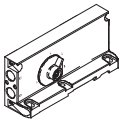
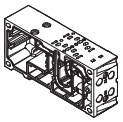
Ordering data

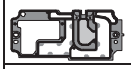
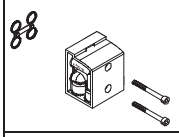
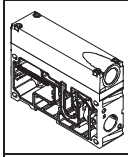
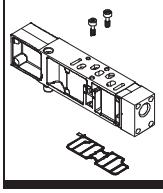
	Code	Valve function	Width	Type	Part No.
Solenoid valves, 110 V AC					
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	18 mm	**VSVA-B-T22C-AZD-A2-2AT1L**	**561156**
			26 mm	**VSVA-B-T22C-AZD-A1-2AT1L**	**561150**
			42 mm	**VSVA-B-T22C-AZD-D1-2AT1L**	**561341**
			52 mm	**VSVA-B-T22C-AZD-D2-2AT1L**	**560812**
	VV	2x 2/2-way valve, single solenoid, normally closed, pneumatic 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**
			42 mm	**VSVA-B-T22CV-AZD-D1-2AT1L**	**561345**
	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**
			42 mm	**VSVA-B-T32U-AZD-D1-2AT1L**	**543679**
			52 mm	**VSVA-B-T32U-AZD-D2-2AT1L**	**560808**
	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**
			42 mm	**VSVA-B-T32C-AZD-D1-2AT1L**	**543677**
			52 mm	**VSVA-B-T32C-AZD-D2-2AT1L**	**560806**
	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**
			42 mm	**VSVA-B-T32H-AZD-D1-2AT1L**	**543681**
			52 mm	**VSVA-B-T32H-AZD-D2-2AT1L**	**560810**
	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**
			42 mm	**VSVA-B-T32F-AZD-D1-2AT1L**	**543680**
			52 mm	**VSVA-B-T32F-AZD-D2-2AT1L**	**560809**
	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**
			42 mm	**VSVA-B-T32N-AZD-D1-2AT1L**	**543678**
			52 mm	**VSVA-B-T32N-AZD-D2-2AT1L**	**560807**
	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**
			42 mm	**VSVA-B-T32W-AZD-D1-2AT1L**	**543682**
			52 mm	**VSVA-B-T32W-AZD-D2-2AT1L**	**560811**

Ordering data

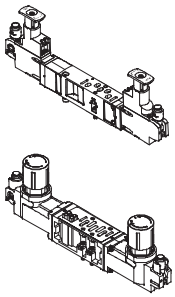
	Code	Valve function	Width	Type	Part No.
Solenoid valves, 110 V AC					
	M	5/2-way valve, single solenoid, pneumatic spring return	18 mm	**VSVA-B-M52-AZD-A2-2AT1L**	**539171**
			26 mm	**VSVA-B-M52-AZD-A1-2AT1L**	**539145**
			42 mm	**VSVA-B-M52-AZD-D1-2AT1L**	**543685**
			52 mm	**VSVA-B-M52-AZD-D2-2AT1L**	**560801**
	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**
			42 mm	**VSVA-B-M52-MZD-D1-2AT1L**	**543686**
			52 mm	**VSVA-B-M52-MZD-D2-2AT1L**	**560802**
	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**
			42 mm	**VSVA-B-B52-ZD-D1-2AT1L**	**543683**
			52 mm	**VSVA-B-B52-ZD-D2-2AT1L**	**560799**
	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**
			42 mm	**VSVA-B-D52-ZD-D1-2AT1L**	**543684**
			52 mm	**VSVA-B-D52-ZD-D2-2AT1L**	**560800**
	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**
			42 mm	**VSVA-B-P53U-ZD-D1-2AT1L**	**543687**
			52 mm	**VSVA-B-P53U-ZD-D2-2AT1L**	**560803**
	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**
			42 mm	**VSVA-B-P53C-ZD-D1-2AT1L**	**543689**
			52 mm	**VSVA-B-P53C-ZD-D2-2AT1L**	**560805**
	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**
			42 mm	**VSVA-B-P53E-ZD-D1-2AT1L**	**543688**
			52 mm	**VSVA-B-P53E-ZD-D2-2AT1L**	**560804**

Ordering data					
Designation	Code	Description	Width	Type	Part No.
Right-hand end plate					
	V	With supply air/exhaust air, internal pilot air supply, G1/2	–	**VABE-S6-1R-G12**	**539234**
	V1	With supply air/exhaust air, internal pilot air supply, G3/4	–	**VABE-S6-2R-G34**	**560837**
	X	With supply air/exhaust air, external pilot air supply, G1/2	–	**VABE-S6-1RZ-G12**	**539236**
	X1	With supply air/exhaust air, external pilot air supply, G3/4	–	**VABE-S6-2RZ-G34**	**560839**
End plate with pilot air selector					
	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, port pattern to ISO 15407-2 and ISO 5599-2					
	A	2 valve positions, 4 addresses, for double solenoid valves	18 mm	**VABV-S4-2S-G18-2T2**	**539224**
	B	2 valve positions, 4 addresses, for double solenoid valves	26 mm	**VABV-S4-1S-G14-2T2**	**539220**
	C	1 valve position, 2 addresses, for double solenoid valves	42 mm	**VABV-S2-1S-G38-T2**	**542458**
	D	1 valve position, 2 addresses, for double solenoid valves	52 mm	**VABV-S2-2S-G12-T2**	**560841**
	E	2 valve positions, 2 addresses, for single solenoid valves	18 mm	**VABV-S4-2S-G18-2T1**	**539226**
	F	2 valve positions, 2 addresses, for single solenoid valves	26 mm	**VABV-S4-1S-G14-2T1**	**539222**
	G	1 valve position, 1 address, for single solenoid valves	42 mm	**VABV-S2-1S-G38-T1**	**542459**
	H	1 valve position, 1 address, for single solenoid valves	52 mm	**VABV-S2-2S-G12-T1**	**560842**

Ordering data

Designation	Code	Description	Width	Type	Part No.
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					
	P	Outlet underneath, connecting thread G1⁄8	18 mm	**VABF-S4-2-A2G2-G18**	**539719**
		Outlet underneath, connecting thread G1⁄4	26 mm	**VABF-S4-1-A2G2-G14**	**539721**
		Outlet underneath, connecting thread G3⁄8	42 mm	**VABF-S2-1-A1G2-G38**	**546097**
Supply plate					
	L	With exhaust plate, 3/5 common, G1⁄2		**VABF-S6-10-P1A7-G12**	**539231**
	K	With exhaust port cover, 3/5 separated, G1⁄2		**VABF-S6-10-P1A6-G12**	**539230**
Vertical supply plate					
	ZU	Connecting thread G1⁄8	18 mm	**VABF-S4-2-P1A3-G18**	**540173**
		Connecting thread G1⁄4	26 mm	**VABF-S4-1-P1A3-G14**	**540171**
		Connecting thread G3⁄8	42 mm	**VABF-S2-1-P1A3-G38**	**546093**
		Connecting thread G1⁄2	52 mm	**VABF-S2-2-P1A3-G12**	**555786**

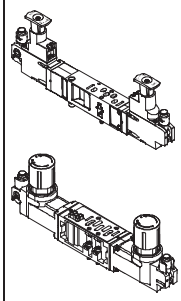
Ordering data

Designation	Code	Description	Width	Type	Part No.
Regulator plate, width 18 mm					
	ZA	For port 1, 0.5 ... 10 bar	18 mm	**VABF-S4-2-R1C2-C-10**	**540153**
	ZF	For port 1, 0.5 ... 6 bar	18 mm	**VABF-S4-2-R1C2-C-6**	**540151**
	ZB	For port 4, 2 ... 10 bar	18 mm	**VABF-S4-2-R3C2-C-10**	**540157**
	ZG	For port 4, 2 ... 6 bar	18 mm	**VABF-S4-2-R3C2-C-6**	**540155**
	ZC	For port 2, 2 ... 10 bar	18 mm	**VABF-S4-2-R2C2-C-10**	**540161**
	ZH	For port 2, 2 ... 6 bar	18 mm	**VABF-S4-2-R2C2-C-6**	**540159**
	ZD	For ports 2 and 4, 2 ... 10 bar	18 mm	**VABF-S4-2-R4C2-C-10**	**540165**
	ZI	For ports 2 and 4, 2 ... 6 bar	18 mm	**VABF-S4-2-R4C2-C-6**	**540163**
	ZE	For ports 2 and 4, reversible, 0.5 ... 10 bar	18 mm	**VABF-S4-2-R5C2-C-10**	**540169**
	ZJ	For ports 2 and 4, reversible, 0.5 ... 6 bar	18 mm	**VABF-S4-2-R5C2-C-6**	**540167**
	ZL	For port 2, reversible, 0.5 ... 10 bar	18 mm	**VABF-S4-2-R6C2-C-10**	**546252**
	ZN	For port 2, reversible, 0.5 ... 6 bar	18 mm	**VABF-S4-2-R6C2-C-6**	**546248**
	ZK	For port 4, reversible, 0.5 ... 10 bar	18 mm	**VABF-S4-2-R7C2-C-10**	**546254**
	ZM	For port 4, reversible, 0.5 ... 6 bar	18 mm	**VABF-S4-2-R7C2-C-6**	**546250**

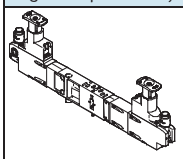
Ordering data

Designation	Code	Description	Width	Type	Part No.
Regulator plate, width 26 mm					
	ZA	For port 1, 0.5 ... 10 bar	26 mm	**VABF-S4-1-R1C2-C-10**	**540154**
	ZF	For port 1, 0.5 ... 6 bar	26 mm	**VABF-S4-1-R1C2-C-6**	**540152**
	ZB	For port 4, 2 ... 10 bar	26 mm	**VABF-S4-1-R3C2-C-10**	**540158**
	ZG	For port 4, 2 ... 6 bar	26 mm	**VABF-S4-1-R3C2-C-6**	**540156**
	ZC	For port 2, 2 ... 10 bar	26 mm	**VABF-S4-1-R2C2-C-10**	**540162**
	ZH	For port 2, 2 ... 6 bar	26 mm	**VABF-S4-1-R2C2-C-6**	**540160**
	ZD	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	26 mm	**VABF-S4-1-R4C2-C-6**	**540164**
	ZE	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	26 mm	**VABF-S4-1-R5C2-C-6**	**540168**
	ZL	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	26 mm	**VABF-S4-1-R6C2-C-6**	**546247**
	ZK	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	26 mm	**VABF-S4-1-R7C2-C-6**	**546249**

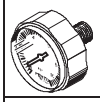
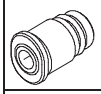
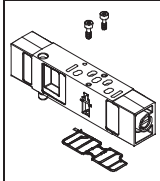
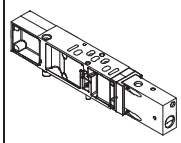
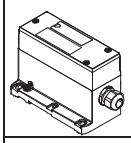
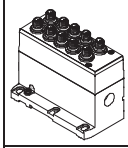
Ordering data

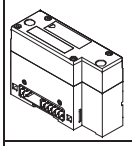
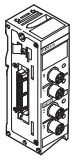
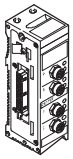
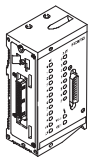
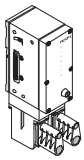
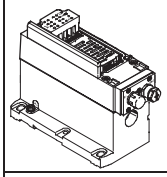
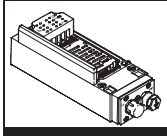
Designation	Code	Description	Width	Type	Part No.
Regulator plate, width 42 mm					
	ZA	For port 1, 0.5 ... 10 bar	42 mm	**VABF-S2-1-R1C2-C-10**	**546084**
	ZF	For port 1, 0.5 ... 6 bar	42 mm	**VABF-S2-1-R1C2-C-6**	**546083**
	ZB	For port 4, 2 ... 10 bar	42 mm	**VABF-S2-1-R3C2-C-10**	**546086**
	ZG	For port 4, 2 ... 6 bar	42 mm	**VABF-S2-1-R3C2-C-6**	**546085**
	ZC	For port 2, 2 ... 10 bar	42 mm	**VABF-S2-1-R2C2-C-10**	**546088**
	ZH	For port 2, 2 ... 6 bar	42 mm	**VABF-S2-1-R2C2-C-6**	**546087**
	ZD	For ports 2 and 4, 2 ... 10 bar	42 mm	**VABF-S2-1-R4C2-C-10**	**546090**
	ZI	For ports 2 and 4, 2 ... 6 bar	42 mm	**VABF-S2-1-R4C2-C-6**	**546089**
	ZE	For ports 2 and 4, reversible, 0.5 ... 10 bar	42 mm	**VABF-S2-1-R5C2-C-10**	**546092**
	ZJ	For ports 2 and 4, reversible, 0.5 ... 6 bar	42 mm	**VABF-S2-1-R5C2-C-6**	**546091**
	ZL	For port 2, reversible, 0.5 ... 10 bar	42 mm	**VABF-S2-1-R6C2-C-10**	**546832**
	ZN	For port 2, reversible, 0.5 ... 6 bar	42 mm	**VABF-S2-1-R6C2-C-6**	**546831**
	ZK	For port 4, reversible, 0.5 ... 10 bar	42 mm	**VABF-S2-1-R7C2-C-10**	**546834**
	ZM	For port 4, reversible, 0.5 ... 6 bar	42 mm	**VABF-S2-1-R7C2-C-6**	**546833**

Ordering data

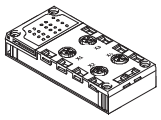
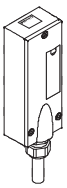
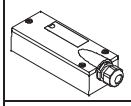
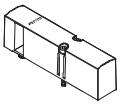
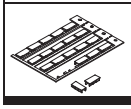
Designation	Code	Description	Width	Type	Part No.
Regulator plate for symmetrical valves					
	ZAY	For port 1, 0.5 ... 10 bar	18 mm	**VABF-S4-2-R1C2-C-10E**	**560756**
		For port 1, 0.5 ... 10 bar	26 mm	**VABF-S4-1-R1C2-C-10E**	**560757**
	ZFY	For port 1, 0.5 ... 6 bar	18 mm	**VABF-S4-2-R1C2-C-6E**	**560758**
		For port 1, 0.5 ... 6 bar	26 mm	**VABF-S4-1-R1C2-C-6E**	**549876**
	ZCY	For port 2, 2 ... 10 bar	18 mm	**VABF-S4-2-R2C2-C-10E**	**560763**
		For port 2, 2 ... 10 bar	26 mm	**VABF-S4-1-R2C2-C-10E**	**560764**
	ZHY	For port 2, 2 ... 6 bar	18 mm	**VABF-S4-2-R2C2-C-6E**	**560765**
		For port 2, 2 ... 6 bar	26 mm	**VABF-S4-1-R2C2-C-6E**	**560766**
	ZDY	For ports 2 and 4, 2 ... 10 bar	18 mm	**VABF-S4-2-R4C2-C-10E**	**560767**
		For ports 2 and 4, 2 ... 10 bar	26 mm	**VABF-S4-1-R4C2-C-10E**	**560768**
	ZIY	For ports 2 and 4, 2 ... 6 bar	18 mm	**VABF-S4-2-R4C2-C-6E**	**560769**
		For ports 2 and 4, 2 ... 6 bar	26 mm	**VABF-S4-1-R4C2-C-6E**	**560770**
	ZEY	For ports 2 and 4, reversible, 0.5 ... 10 bar	18 mm	**VABF-S4-2-R5C2-C-10E**	**560771**
		For ports 2 and 4, reversible, 0.5 ... 10 bar	26 mm	**VABF-S4-1-R5C2-C-10E**	**560772**
	ZJY	For ports 2 and 4, reversible, 0.5 ... 6 bar	18 mm	**VABF-S4-2-R5C2-C-6E**	**560773**
		For ports 2 and 4, reversible, 0.5 ... 6 bar	26 mm	**VABF-S4-1-R5C2-C-6E**	**560774**
	ZLY	For port 2, reversible, 0.5 ... 10 bar	18 mm	**VABF-S4-2-R6C2-C-10E**	**560775**
		For port 2, reversible, 0.5 ... 10 bar	26 mm	**VABF-S4-1-R6C2-C-10E**	**560776**
	ZNY	For port 2, reversible, 0.5 ... 6 bar	18 mm	**VABF-S4-2-R6C2-C-6E**	**560777**
		For port 2, reversible, 0.5 ... 6 bar	26 mm	**VABF-S4-1-R6C2-C-6E**	**560778**

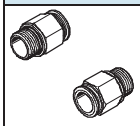
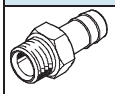
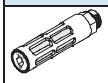
Ordering data

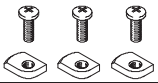
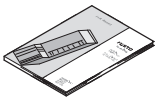
Designation	Code	Description	Width	Type	Part No.
Pressure gauge					
	T	With cartridge connection for regulator, 10 bar for regulator plate code ZA, ZB, ZC, ZD, ZE	18 mm	**PAGN-26-16-P10**	**543487**
			26 mm		
			42 mm	**PAGN-40-16-P10**	**548010**
	U	With cartridge connection for regulator, 6 bar for regulator plate code ZF, ZG, ZH, ZI, ZJ	18 mm	**PAGN-26-10-P10**	**543488**
			26 mm		
			42 mm	**PAGN-40-10-P10**	**548009**
	–	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**
			42 mm	**VABF-S2-1-F1B1-C**	**546095**
			52 mm	**VABF-S2-2-F1B1-C**	**555789**
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**
			42 mm	**VABF-S2-1-L1D1-C**	**546096**
			52 mm	**VABF-S2-2-L1D1-C**	**555791**
Multi-pin node					
	T	Terminal strip, 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**	**543415**
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**

Ordering data				
Designation	Code	Description	Type	Part No.
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**
Input module for electrical peripherals type 03				
	–	8 inputs, PNP, 5-pin	**VIGE-03-FB-8-5POL**	**175555**
	–	8 inputs, PNP, 5-pin, fuse	**VIGE-03-FB-8-5POL-S**	**188521**
Output module for electrical peripherals type 03				
	–	4 outputs, PNP, 5-pin	**VIGA-03-FB-4-5POL**	**175641**
Input/output module for electrical peripherals type 03				
	–	12 inputs/8 outputs, PNP, Sub-D	**VIEA-03-FB-12E-8A-SUBD**	**174483**
Bus node				
	–	For electrical peripherals type 03	**IFB21-03**	**188844**
Electrical connection for AS-interface				
	–	4 inputs/4 outputs	**VABE-S6-1LF-C-A4-E**	**549042**
	–	8 inputs/8 outputs	**VABE-S6-1LF-C-A8-E**	**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**

Ordering data

Designation	Code	Description		Type	Part No.
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**
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**
			42 mm	**VABB-S2-1-WT**	**543186**
			52 mm	**VABB-S2-2-WT**	**560845**
	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/inscription labels					
	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**
	TD	Inscription label holder for manifold blocks, size 52 mm	5 pieces	**ASCF-M-S2-2**	**562577**
	–	Inscription label (20 labels in frames)	20 pieces	**IBS-9x20**	**18182**

Ordering data					
Designation	Code	Description		Type	Part No.
Push-in fitting					
	–	Connecting thread G¼ for tubing O.D. 12 mm	10 pieces	**QS-G¼-12**	**186350**
		Connecting thread G¼ for tubing O.D. 10 mm	10 pieces	**QS-G¼-10**	**186101**
		Connecting thread G¼ for tubing O.D. 8 mm	10 pieces	**QS-G¼-8**	**186099**
		Connecting thread G⅛ for tubing O.D. 10 mm	10 pieces	**QS-G⅛-10**	**190643**
		Connecting thread G⅛ for tubing O.D. 8 mm	10 pieces	**QS-G⅛-8**	**186098**
		Connecting thread G⅛ for tubing O.D. 6 mm	10 pieces	**QS-G⅛-6**	**186096**
		Connecting thread G½ for tubing O.D. 12 mm	1 piece	**QS-G½-12**	**186104**
		Connecting thread G½ for tubing O.D. 16 mm	1 piece	**QS-G½-16**	**186105**
		Connecting thread G⅜ for tubing O.D. 10 mm	10 pieces	**QS-G⅜-10**	**186102**
		Connecting thread G⅜ for tubing O.D. 12 mm	10 pieces	**QS-G⅜-12**	**186103**
Female hose connector					
	–	For right-hand end plate G¾		**N-¾-P-19**	**3613**
Silencer					
	–	Connecting thread G⅛		**U-⅛-B**	**6841**
	–	Connecting thread G¼		**U-¼**	**2316**
		Connecting thread G½		**U-½-B**	**6844**
		Connecting thread G¾		**U-¾-B**	**6845**
Blanking plug					
	–	Thread M5	10 pieces	**B-M5**	**3843**
	–	Thread G⅛	10 pieces	**B-⅛**	**3568**
	–	Thread G¼	10 pieces	**B-¼**	**3569**
Adapter					
	–	Adapter for pressure gauge		**QSP10-G⅛**	**565811**

Ordering data					
Designation	Code	Description		Type	Part No.
H-rail mounting					
	–	VTSA with fieldbus	3 pieces	**CPX-CPA-BG-NRH**	**526032**
	–	VTSA with multi-pin plug	2 pieces	**CPA-BG-NRH**	**173498**
Wall mounting					
	U	Mounting bracket	5 pieces	**VAME-S6-10-W**	**539214**
	–	Mounting bracket		**VAME-S6-W-M46**	**567038**
Manual					
	D	Manual for valve terminal VTSA	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**