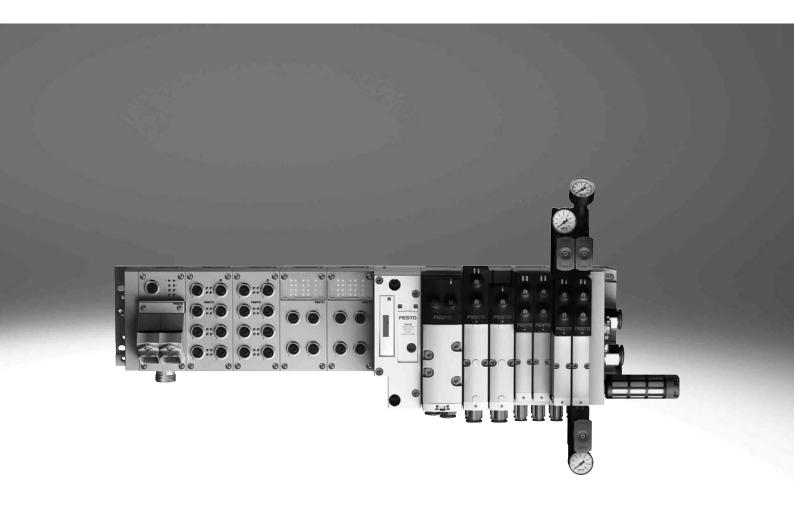
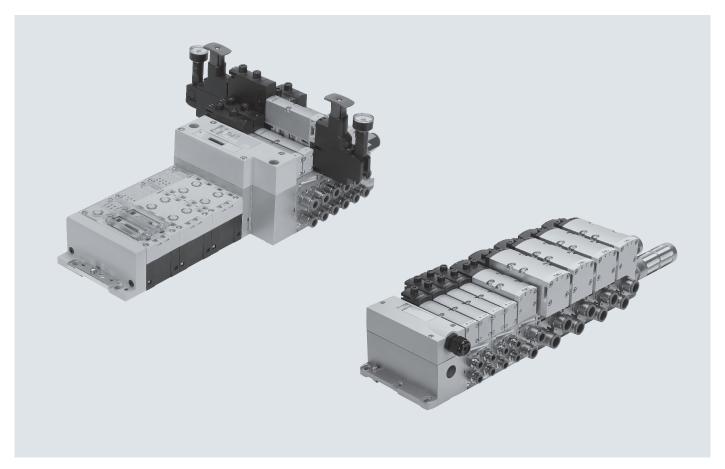
Valve terminals VTSA/VTSA-F, NPT

FESTO





Innovative

- High-performance valves in a sturdy metal housing
- Four valve sizes on one valve terminal
- Standardised from the multi-pin plug connection to the fieldbus interface and control block
- Dream team: fieldbus valve terminal suitable for electrical peripherals CPX. This means:
 - Forward-looking internal communication system for controlling 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 EN ISO 13849-1

Versatile

- Modular system offering a range of configuration options
- Expandable with up to 32 solenoid coils
- Conversions and extensions are possible at any time
- Manifold sub-bases can be extended using four screws, sturdy duct separation on metal support
- 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 rate range 550 ... 4000 l/min
- Wide range of valve functions
- Valves 24 V DC

Reliable

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

Easy to mount

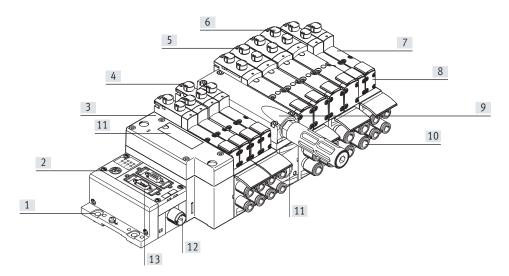
- Assembled and checked unit, ready for installation
- Reduced selection, ordering, installation and commissioning costs
- Secure wall mounting or H-rail mounting

- 🏺

Note

The key features, valves and functions of width 65 mm are described separately in the chapter "Adaptation to width 65 mm, ISO size 3"

→ Page 170.



- [1] Quick to mount: directly using screws or H-rail
- [2] CPX diagnostic interface for handheld devices (channel-oriented diagnostics down to the individual valve)
- [3] Pneumatic interface to CPX
- [4] Widths of 18 mm, 26 mm, 42 mm and 52 mm can be combined on one valve terminal without an adapter
- [5] Reduced downtimes: LED diagnostics on site
- [6] Safe operation: manual override non-detenting, non-detenting/ detenting or concealed
- [7] Versatile: 32 valve positions/32 solenoid coilsOne valve series for a wide range of flow rates
- [8] Comprehensive range of valve functions
- [9] Modular: air supply plate facilitates the creation of multiple pressure zones as well as numerous additional exhaust and supply options
- [10] Practical: large connections, flow-optimised ducts, sturdy metal threads or pre-assembled push-in connections for compressed air tubing with standardised O.D.
- [11] Convenient: large inscription labels

- [12] Reliable: valves, outputs and logic voltage can be switched off separately
- [13] Simple electrical connections
 - Fieldbus interface via CPX
 Multi-pin plug connection with
 pre-assembled cable or terminal
 strip (Cage Clamp)
 Control block via CPX
 AS-Interface
 Individual connection

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 solenoid valve
 - Single solenoid, pneumatic spring/mechanical spring
 - Double solenoid
 - Double solenoid with dominant signal
- 5/2-way valves for special functions, single solenoid
 - Mechanical spring
 - Switching position sensing via inductive sensors with PNP or NPN output
 - Protection against unexpected start-up to EN 1037
 - Reversing
- 5/3-way solenoid valve
 - Mid-position pressurised
 - Mid-position closed
- Mid-position exhausted

- 5/3-way solenoid valve for special functions
 - Switching position 14 is retained (switching position 14 is retained in the event of an emergency off application/power failure), there is no spring return on switching position 12.
 - Only for valve terminal (plug-in)

 - Switching position 14 is retained
 - Pneumatic spring return

- 5/3-way solenoid valve for special functions
 - Switching position 12 is retained (switching position 12 is retained in the event of an emergency off application/power failure), there is no spring return on switching position 14.
 - Only for valve terminal (plug-in)
- Switching position 12 is retained
- Pneumatic spring return
- Soft start valve for slow and safe pressure build-up
 - High degree of safety
 - Sensing function provides feedback on switching operation



The key features, valves and functions of width 65 mm are described separately in the chapter "Adaptation to width 65 mm, ISO size 3" $\,$

→ Page 170.

Special features

Individual valve on individual sub-base up to width 52 mm

- · 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

Valve terminal with individual connection

- Max. 20 valve positions/ max. 20 solenoid coils
- Any compressed air supply
- · Any number of pressure zones

Square plug or plug-in, with integrated switching position sensing

- Electrical connection to DIN EN 175301-803 type C (square
- · For configuration by the user via 4-pin spring-loaded terminal or
- · Cable with open end

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

CPX terminal

- 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

Combinable

- Width 18 mm: flow rate of VTSA up to 550 l/min, VTSA-F up to 700 l/min
- Width 26 mm: flow rate of VTSA up to 1100 l/min, VTSA-F up to 1350 I/min
- Width 42 mm: flow rate of VTSA up to 1300 l/min, VTSA-F up to 1860 l/min
- Width 52 mm: valve flow rate up to 2900 l/min
- Widths 18 mm, 26 mm, 42 mm, 52 mm and 65 mm can be combined on a single valve terminal (using an adapter)

Note

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

Order a valve terminal VTSA-F using the

Valve terminal configurator

A valve terminal configurator is available to help you select a suitable VTSA/ VTSA-F valve terminal. This makes it much easier to order the right product. The valve terminals are fully assembled according to your order specification and are individually checked. This reduces assembly and installation time to a minimum.

Order a valve terminal VTSA using the order code:

Ordering system for VTSA

→ Internet: vtsa

CPX ordering system

→ Internet: cpx

→ Internet: www.festo.com

order code.

Ordering system for VTSA-F

→ Internet: vtsa-f

CPX ordering system

→ Internet: cpx

Ordering data – Product options



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

The configurator can be found under Products on the DVD or at

→ www.festo.com/catalogue/...

Part no. Type 539215 VTSA-MP 547963 VTSA-F-MP 539217 VTSA-FB 547965 VTSA-F-FB 555564 VTSA-ASI 555566 VTSA-F-ASI 8073100 VTSA-F-CB

Individual pneumatic connection

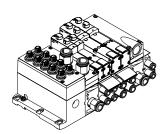


Valves on individual sub-bases up to width 52 mm can be used for actuators further away from the valve terminal.

The electrical connection is established either via a standard 4-pin M12 plug, 24 V DC (EN 61076-2-101), a

4-pin spring-loaded terminal or a cable with open end 24 V DC, which are configured by the user.

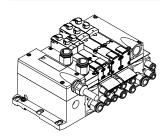
Valve terminal with individual electrical connection



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

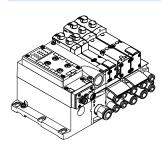


Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire cable or a self-assembled multi-pin plug connection (spring-loaded terminal), which substantially reduces installation time. The valve terminal can be equipped with max. 32 valves and max. 32 solenoid coils.

Versions

- Multi-pin plug connection with terminal strip (spring-loaded terminal), 24 V DC
- Pre-assembled connecting cable, 24 V DC
- Sub-D plug for assembly by the user, 37-pin
- Round plug 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 1 to 8 valves VSVA.
- With all available valve functions

The connection technology used for the inputs can be selected as with CPX: M8, M12, quick connector, Sub-D, spring-loaded terminal (terminals to IP20).

Further information

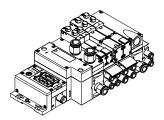
→ Internet: as-interface

- 🖣 - Note

The valve terminal VTSA/VTSA-F with AS-Interface connection is based on the same electrical interlinking 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 (→ Page 125). The technical specifications of the AS-Interface system must be observed in this case.

- → Page 58
- → Internet: as-interface

Valve terminal with fieldbus interface from the CPX system

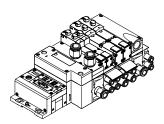


An integrated bus node manages the communication connection with a higher-order PLC. This enables a space-saving pneumatic and electronic Valve terminals with fieldbus interfaces from the CPX system can be configured with up to 16 manifold subbases. With 2 solenoid coils per connection, up to 32 solenoid coils can thus be actuated.

Versions

- PROFIBUS
- INTERBUS
- DeviceNet
- CANopen
- CC-Link
- EtherNet/IP EtherCAT
- Modbus TCP
- PROFINET
- POWERLINK
- Sercos III
- → Internet: cpx

Valve terminal with control block connection from the CPX system



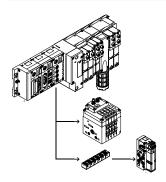
A controller integrated in the Festo valve terminal enables the construction of stand-alone control units with protection to IP65 without a control cabinet thanks to two different operating modes.

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.

→ 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 bus node of the CPX terminal on up to 4 CP strings. Different input and output modules as well as valve terminals MPA-S and CPV can be connected.

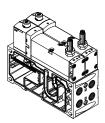
The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on-site. All the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

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

Key features - Valves

Solenoid valve with switching position sensing, width 18 mm, 26 mm



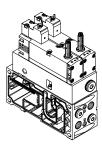
The 5/2-way single solenoid valve with spring return in width 26 mm features switching position sensing.
The normal position of the piston spool is monitored.

Designed as a plug-in or individual connection valve with pilot valves to ISO 15218 and square plug type C. This valve is not a safety device in accordance with the Machinery Directive 2006/42/EC.

It is suitable for use in safety-related parts of control systems to EN ISO 13849-1.

→ Page 128

Control block with safety function, width 26 mm



5/2-way solenoid valve These valves are used for special applications, for example for:

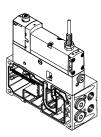
- Protecting against unexpected start-up
- · Safe reversing
- Drives in manually loaded devices

This control block is suitable for use as a press safety valve to EN 962.

This valve is a safety device in accordance with the Machinery Directive 2006/42/EC.

→ Page 138

Pilot air switching valve, width 18 mm, 26 mm



The pilot air switching valve is a combination of a 5/2-way solenoid valve with switching position sensing and the intermediate plate VABF-S4-...S. It enables verifiable switching on and off (sensing function) of the pilot air supply from duct 1 to 14 for the entire pressure zone or valve terminal.

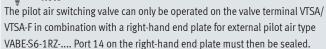
Switching position sensing is carried out using an inductive PNP proximity switch with cable and push-in connector in the size M12x1 to EN 61076-2-104.

This valve is not a safety device in accordance with the Machinery Directive 2006/42/EC.

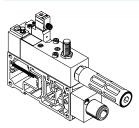
It is suitable for use in safety-related parts of control systems to EN ISO 13849-1.

→ Page 145





Soft-start valve, module width 43 mm



The soft-start valve is separately electrically actuated, independently of the multi-pin plug connection, AS-Interface or fieldbus interface, via a square plug of type C to EN 175301-803 or optionally via an M12 adapter.

The valve can optionally be ordered with a sensor that monitors the switching of the soft-start valve. The soft-start valve can supply the valve terminal or one or more pressure zones with working air.

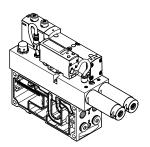
The pressure build-up for each pressure zone is optimised for the application directly at the valve terminal by setting the switch-over pressure and the filling time.

A maximum of 5 soft-start valves can be integrated on one valve terminal in this way.

→ Page 154

Key features - Valves

Vacuum block, module width 53 mm



5/3-way solenoid valve, with switching position 12 retained.

The vacuum block is screwed to a manifold sub-base for 2 valve positions, width 26 mm, and this integrated into the valve terminal VTSA/VTSA-F.

The vacuum block is supplied with power and the vacuum is sensed via a standardised 4-pin M12 plug.

The vacuum block is used in conjunction with a suction gripper to pick up, hold and place components. An adjustable ejector pulse is used for setting the components down.

The vacuum block is equipped with an air saving function.

If there is no electric or pneumatic supply, the valve reverts to switching

position 12 "generate vacuum".

→ Page 164

5/3-way solenoid valve for special functions

For holding, blocking a movement (mechanically)

5/3-way solenoid valve for special functions; port 2 is pressurised, port 4 exhausted. Switching position 14 is retained (code SA).

5/3-way solenoid valve for special functions; port 2 is pressurised, port 4 exhausted. Switching position 12 is retained (code SE).

Possible applications:

- Using lifting cylinders
- Using rotary cylinders

Possible applications:

- Using lifting cylinders
- Using rotary cylinders

For pressureless switching, self-holding, pneumatic operation

5/3-way solenoid valve for special functions (3 phases). Mid-position is exhausted. Switching position 14 is retained.

5/3-way solenoid valve for special functions (3 phases). Mid-position is exhausted. Switching position 12 is retained.

Possible applications:

Pneumatic manual clamps for devices (inserting stations)

Possible applications:

Pneumatic manual clamps for devices (inserting stations)

Peripherals

Modular pneumatic peripherals

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

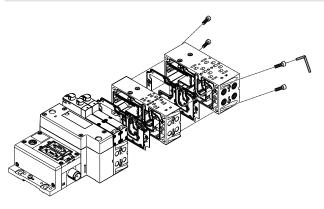
The system consists of manifold subbases and valves.

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

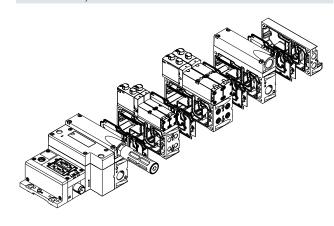
Inside the manifold sub-bases are the connection ducts for supplying compressed air to and exhausting the valve terminal as well as the working ports for each valve for the pneumatic cylinders.

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

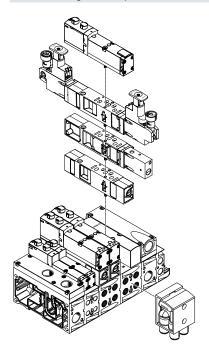
Basic system modularity



Valve modularity



Vertical stacking modularity





See also "Adaptation to width 65 mm, ISO size 3" → Page 170

Peripherals

Modular electrical peripherals

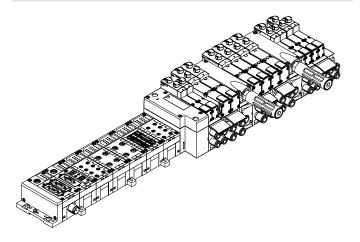
How the valves are actuated differs according to whether you are using a multi-pin terminal or fieldbus terminal.

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

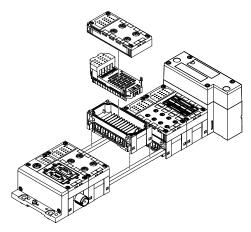
Parallel links enable the following:

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

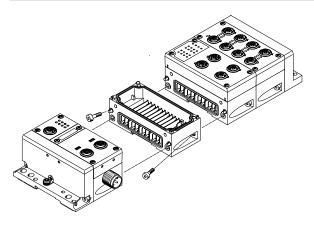
VTSA/VTSA-F with electrical peripherals CPX



Modularity with electrical peripherals CPX



CPX terminal in metal design



The mechanical connection between the CPX modules in metal design is created using special slanted fittings.

The CPX terminal can thus be expanded at any time.

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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/VTSA-F in welding environments.

Valve terminal widths

Order code for VTSA:

- 44E-... for the electrical components
- 44P-... for the pneumatic components Order code for VTSA-F:
- 45E-... for the electrical components
- 45P-... for the pneumatic components

Regardless of the type of control (e.g. multi-pin plug, fieldbus, etc.), valve terminals VTSA/VTSA-F of widths

- 18 mm
- 26 mm
- 42 mm
- 52 mm

can be combined without adapters.
This enables a flow range for the VTSA of

400 l/min to 2900 l/min for the VTSA-F of:

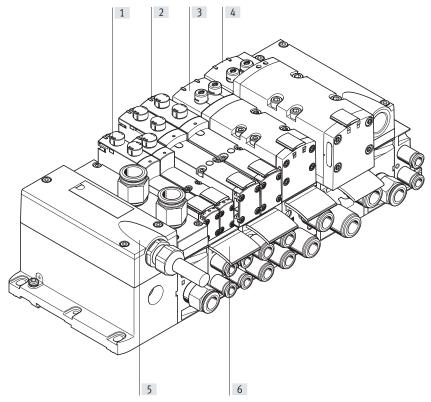
700 l/min to 2900 l/min

to be covered on one valve terminal. A wide range of valve functions and vertical stacking components are available for all widths.

Valves with a width of 65 mm can be mixed with other widths. However, these are only configured after the adapter plate VABA and are thus always at the end of the valve terminal configuration.

See "Adaptation to width 65 mm, ISO size 3"

→ Page 170



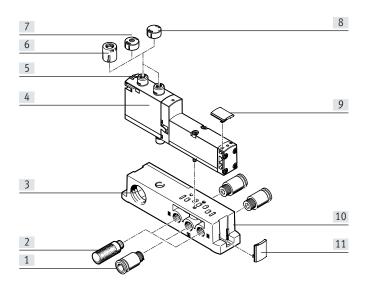
		Description	→ Page/Internet
[1]	Valve	Width 18 mm	88
[2]	Valve	Width 26 mm	96
[3]	Valve	Width 42 mm	104
[4]	Valve	Width 52 mm	111
[5]	Multi-pin plug connection	Via multi-pin cable, 24 V DC	125
[6]	Inscription labels	For manifold sub-base, sub-base, 90°-connection plate	127

Individual sub-base, width 18 mm, ISO 15407-2

Order code: Individual sub-bases can be equipped

Using individual part number with any valve

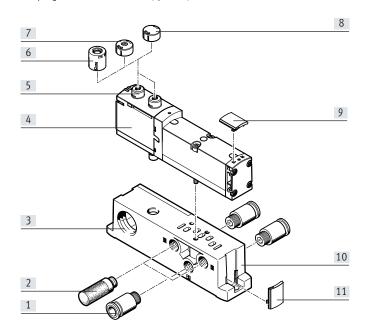
Width 18 mm with spring-loaded terminal or cable (open end)



		Description	→ Page/Internet
[1]	Fitting	1/8 NPT for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	199
[2]	Silencer	U-1/8-B-NPT for exhaust ports (3, 5)	200
[3]	Electrical connection	Spring-loaded terminal, cable (open end)	-
[4]	Valve VSVA	Width 18 mm	88
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting, heavy duty, detenting via accessory	124
[7]	Cover cap, coded	For non-detenting manual override (limited function)	124
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	124
[9]	Inscription label holder	For valves	127
[10]	Individual sub-base	For valve VSVA	198
[11]	Inscription label holder	For manifold block	127

Individual sub-base, width 26 mm, ISO 15407-2

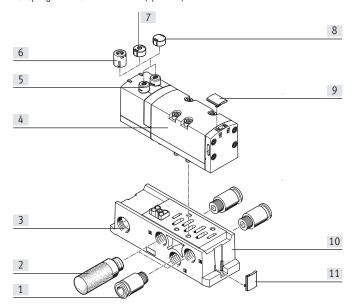
With spring-loaded terminal or cable (open end)



		Description	→ Page/Internet
[1]	Fitting	1/4 NPT for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	199
[2]	Silencer	U-1/4-B-NPT for exhaust ports (3, 5)	200
[3]	Electrical connection	Spring-loaded terminal, cable (open end)	-
[4]	Valve VSVA	Width 26 mm	96
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting, heavy duty, detenting via accessory	124
[7]	Cover cap, coded	For non-detenting manual override (limited function)	124
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	124
[9]	Inscription label holder	For valves	127
[10]	Individual sub-base	For valve VSVA	198
[11]	Inscription label holder	For manifold block	127

Individual sub-base, width 42 mm, ISO 5599-2

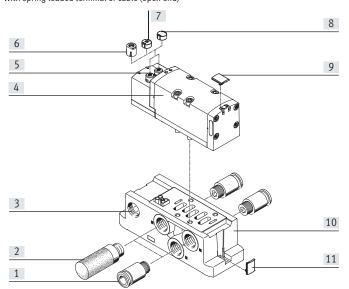
With spring-loaded terminal or cable (open end)



		Description	→ Page/Internet
[1]	Fitting	3/8 NPT for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	199
[2]	Silencer	U-3/8-B-NPT for exhaust ports (3, 5)	200
[3]	Electrical connection	Spring-loaded terminal, cable (open end)	-
[4]	Valve VSVA	Width 42 mm	104
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting, heavy duty, detenting via accessory	124
[7]	Cover cap, coded	For non-detenting manual override (limited function)	124
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	124
[9]	Inscription label holder	For valves	127
[10]	Individual sub-base	For valve VSVA	198
[11]	Inscription label holder	For manifold block	127

Individual sub-base, width 52 mm, ISO 5599-2

With spring-loaded terminal or cable (open end)



		Description	→ Page/Internet
[1]	Fitting	1/2 NPT for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	199
[2]	Silencer	U-1/2-B-NPT for exhaust ports (3, 5)	200
[3]	Electrical connection	Spring-loaded terminal, cable (open end)	-
[4]	Valve VSVA	Width 52 mm	111
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting, heavy duty, detenting via accessory	124
[7]	Cover cap, coded	For non-detenting manual override (limited function)	124
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	124
[9]	Inscription label holder	For valves	127
[10]	Individual sub-base	For valve VSVA	198
[11]	Inscription label holder	For manifold block	127

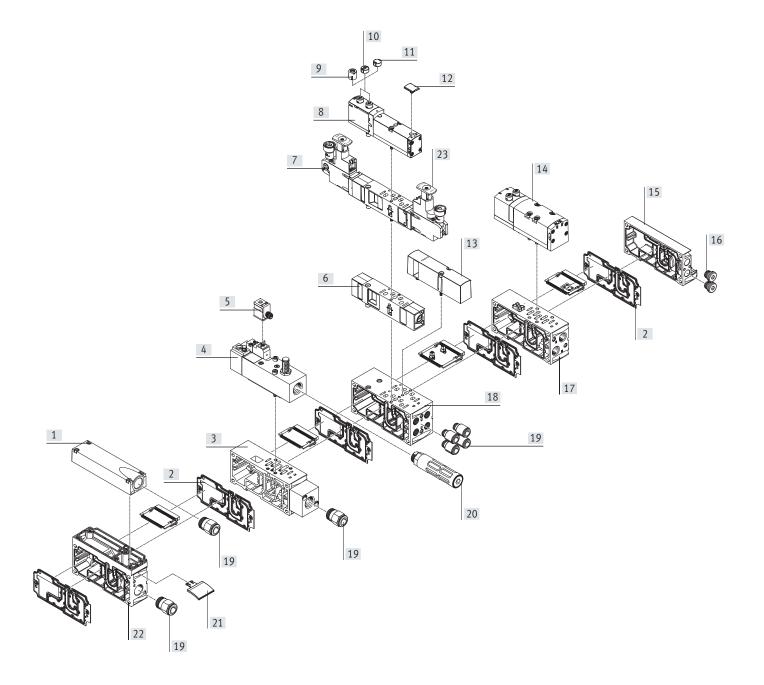
Valve terminal pneumatics

The manifold sub-bases for valves with a width of 18 or 26 mm are either suitable for

- 2 single solenoid valves or
- 2 double solenoid valves

The manifold sub-bases for valves with a width of 42 or 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 cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a cover plate.



Valve	/alve terminal pneumatics			
		Description	→ Page/Internet	
[1]	Exhaust air cover	For ducted exhaust air (ports 3 and 5 combined)	119	
[2]	Duct separation/seal	-	119	
[3]	Manifold sub-base	For soft start valve	162	
[4]	Soft-start valve	For slow and safe pressure build-up	162	
[5]	Plug socket	-	163	
[6]	Throttle plate	-	124	
[7]	Pressure regulator plate	-	120	
[8]	Valve	Width 18 mm or 26 mm	88, 96	
[9]	Cover cap, heavy duty	For manual override, non-detenting, heavy duty, detenting via accessory	124	
[10]	Cover cap, coded	For non-detenting manual override (limited function)	124	
[11]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	124	
[12]	Inscription label holder	For valve	127	
[13]	Cover plate	For unused valve position (vacant position)	124	
[14]	Valve	Width 42 mm or 52 mm	104, 111	
[15]	End plate with pilot air selector	-	118	
[16]	Blanking plug	-	200	
[17]	Manifold sub-base VTSA	For valves with a width of 42 mm or 52 mm	118	
[17]	Manifold sub-base VTSA-F	For valves with a width of 42 mm or 52 mm	118	
[18]	Manifold sub-base VTSA	For valves with a width of 18 mm or 26 mm	118	
[18]	Manifold sub-base VTSA-F	For valves with a width of 18 mm or 26 mm	118	
[19]	Fittings	-	199	
[20]	Silencer	-	200	
[21]	Inscription label holder	For manifold sub-base, sub-base, 90°-connection plate	127	
[22]	Supply plate	-	119	
[23]	Control element	Regulator knobs in different versions	31	



Note

Special applications for the valve terminal, such as:

- Solenoid valve with switching position sensing
- Control block with safety function
- Pilot air switching valve
- Soft-start valve
- Vacuum block

are listed after → Accessories – General

Valve terminal with individual electrical connection

Order code for VTSA:

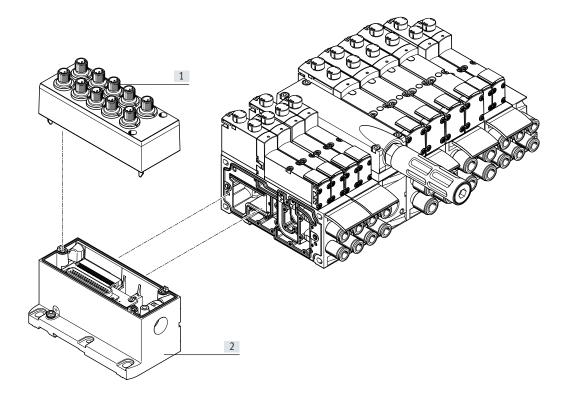
- 44E-... for the electrical components
- 44P-... for the pneumatic components Order code for VTSA-F:
- 45E-... for the electrical components
- $\bullet \;\;$ 45P-... for the pneumatic components

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

The manifold sub-bases for valves with a width of 18 or 26 mm are either suitable for

- 2 single solenoid valves or
- 2 double solenoid valves and the manifold sub-bases for valves with a width of 42, 52 and 65 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 cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a cover plate.
- The electrical connection is established via a 5-pin M12 plug (24 V DC).
- Valves with a width of 65 mm cannot be mixed with other widths – these are always at the end of the valve terminal configuration. See "Adaptation to width 65 mm, ISO size 3"
- → Page 170



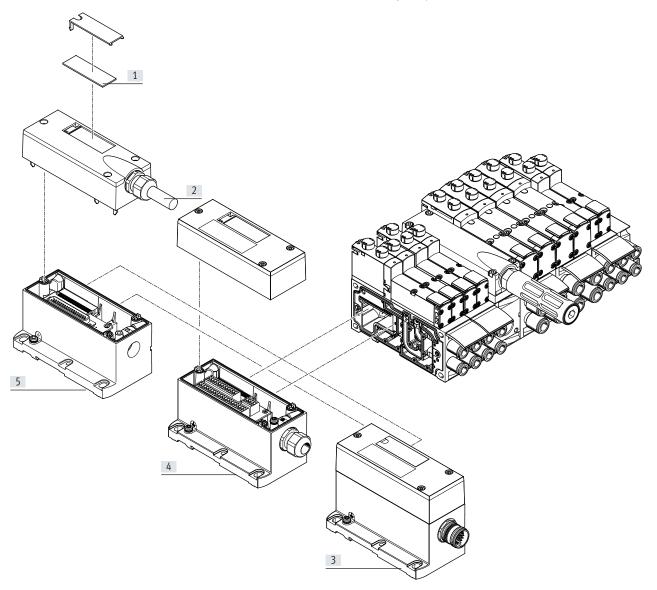
		Description	→ Page/Internet
[1]	Cover	For individual connection	125
[2]	Multi-pin plug connection	Individual connection with M12, 10-way or 6-way (including cover)	125

Valve terminal with electrical multi-pin plug connection

Order code for VTSA:

- 44E-... for the electrical components
- 44P-... for the pneumatic components Order code for VTSA-F:
- 45E-... for the electrical components
- 45P-... for the pneumatic components
- Valve terminals VTSA/VTSA-F with multi-pin plug connection can be expanded with up to 32 valves with max. 32 sole-noid coils. The manifold sub-bases for valves with a width of 18 or 26 mm are suitable for
- 2 single solenoid valves or
- 2 double solenoid valves and the manifold sub-bases for valves with a width of 42, 52 and 65 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 cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a cover 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), 19-pin round plug (24 V DC)
- Valves with a width of 65 mm cannot be mixed with other widths – these are always at the end of the valve terminal configuration. See "Adaptation to width 65 mm, ISO size 3"
- → Page 170



		Description	→ Page/Internet
[1]	Inscription labels	Large, for multi-pin plug connection	-
[2]	Multi-pin cable	-	126
[3]	Multi-pin plug connection	Via M23 round plug connection, 24 V DC	125
[4]	Multi-pin plug connection	Via terminal strip (CageClamp) 24 V DC	125
[5]	Multi-pin plug connection	Via multi-pin cable, 24 V DC	125

Valve terminal with AS-Interface connection

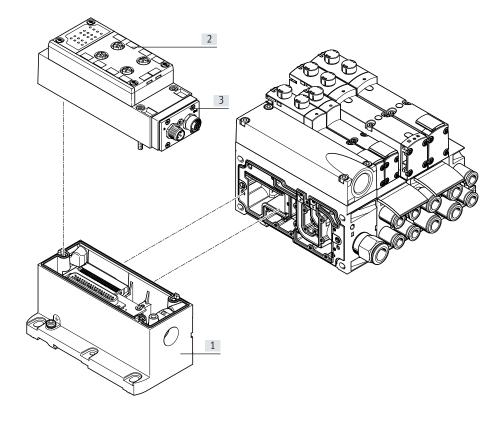
Order code for VTSA:

- 52E-... for the electrical components
- 44P-... for the pneumatic components Order code for VTSA-F:
- 52E-... for the electrical components
- $\bullet \;\;$ 45P-... for the pneumatic components

Valve terminals VTSA/VTSA-F with AS-Interface connection can be expanded with up to 8 valves with max. 8 solenoid coils. The manifold sub-bases for valves with a width of 18 or 26 mm are either suitable for

- 2 single solenoid valves or
- 2 double solenoid valves and the manifold sub-bases for valves with a width of 42, 52 and 65 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 cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a cover plate.
- Valves with a width of 65 mm cannot be mixed with other widths – these are always at the end of the valve terminal configuration. See "Adaptation to width 65 mm, ISO size 3"
- → Page 170



		Description	→ Page/Internet
[1]	Multi-pin plug connection	Can be ordered together with the AS-Interface module as an electrical connection for AS-Interface	125
[2]	Manifold block for AS-Interface	-	126
[3]	AS-Interface module	-	125

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

Order code:

- 50E-... for the electrical peripherals, polymer variant
- 51E-... for the electrical peripherals, metal variant
- 53E-... for the electrical peripherals, for control cabinet installation

For VTSA:

- 44P-... for the pneumatic components For VTSA-F:
- 45P-... for the pneumatic components

Valve terminals VTSA/VTSA-F with fieldbus interface can be expanded with up to 32 valves with max. 32 solenoid coils.

The manifold sub-bases for valves with a width of 18 or 26 mm are either suitable for

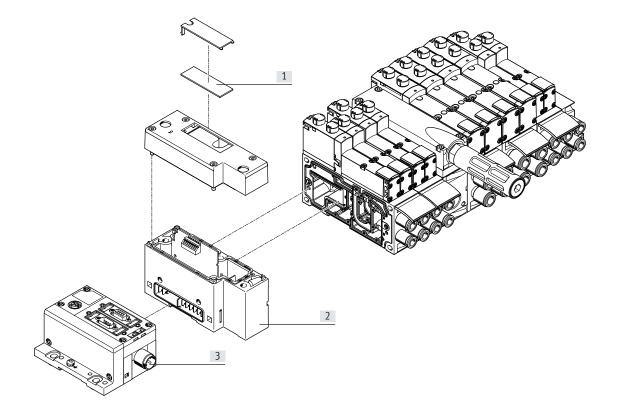
- 2 single solenoid valves or
- 2 double solenoid valves and the manifold sub-bases for valves with a width of 42, 52 and 65 mm are suitable for
- 1 single solenoid valve or
- 1 double solenoid valve

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

Each valve position can be equipped with any valve or a cover plate. The rules for CPX apply to the equipment that can be used with the electrical peripherals CPX. In general:

- Max. 10 electrical modules
- Digital inputs/outputs
- Analogue inputs/outputs

- · Parameterisation of inputs and outputs
- Integrated convenient diagnostics
- Preventive maintenance concepts
- Valves with a width of 65 mm cannot be mixed with other widths – these are always at the end of the valve terminal configuration. See "Adaptation to width 65 mm, ISO size 3"
- → Page 170



		Description	→ Page/Internet
[1]	Inscription labels	Large, for pneumatic interface CPX	-
[2]	Pneumatic interface	-	125
[3]	Fieldbus interface	-	срх

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

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

Standard valves (VSVA) with individual electrical connection (round or square plug) are therefore mounted on the valve terminal.

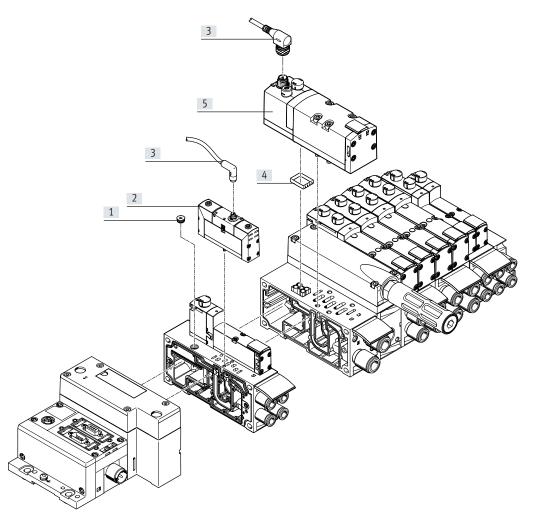
In order for degree of protection IP65 to be achieved, the functionless opening in the sub-base for the electrical connection must be sealed.

A sealing cap is available for width 18 mm and 26 mm.

With manifold or individual sub-bases, valves with width 42 mm and 52 mm must be used with a seal to comply with the IP protection class

(see → Page 124).

For central control of the valve terminal via a multi-pin plug or fieldbus connection, the valve position occupied in this way acts like a vacant position, i.e. the assigned address in the bus node or the corresponding connection in the multi-pin plug connection is occupied.



		Description	→ Page/Internet
[1]	Sealing cap	For sealing the electrical connection on the sub-base	124
[2]	Valve	Width 18 mm or width 26 mm	vsva
[3]	Connecting cable	-	vsva
[4]	Seal	For ensuring IP protection class (with width 42 mm and 52 mm)	124
[5]	Valve	Width 42 mm or width 52 mm	vsva



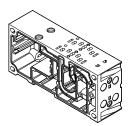
Note

Standard valves VSVA can be used on the valve terminal. A vacant position must be provided for this in the valve terminal configurator.

The corresponding standard valve VSVA can be ordered on the Internet at:

→ vsva

Manifold sub-base



VTSA/VTSA-F is based on a modular system which consists of manifold sub-bases and valves. The VTSA-F manifold sub-bases are designed to optimise the flow rate. 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 valves with a width of 42 mm or 52 mm, there are manifold sub-bases with one valve per sub-base. The manifold sub-base contains

a duct seal and an electrical connection 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 exhausting the valve terminal as well as the working ports for each valve for the pneumatic cylinders. Each manifold sub-base is connected to the next using four

screws. Individual valve terminal sections can be isolated and further manifold sub-bases can be inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

See also "Adaptation to width 65 mm, ISO size 3"

→ Page 170

Port patterns to ISO 15407-2

Width 18 mm (size 02)

Width 26 mm (size 01)

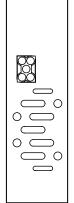
Port patterns to ISO 5599-2

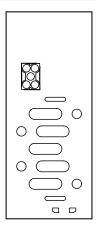
Width 42 mm (size 1)

Width 52 mm (size 2)









Port patterns - High-flow sub-bases with optimised flow rate (no standard)

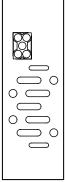
Width 18 mm

Width 26 mm

Width 42 mm









Note

The illustrations shown represent the pneumatic ISO port patterns. The port patterns on the valve terminal VTSA-F do not correspond to the ISO $\,$

standard.

ode		Туре	Width				No. of valve posi-	Working ports (2, 4)		
			18 mm	26 mm	42 mm	52 mm	tions (solenoid	Code M	Code N	
							coils) ¹⁾	large	small	
anifold sub-bas	se for double solenoid val	ves								
		VABV-S4-2S-N18-2T2		-	-	-	2 (4)	QB-1/8-5/16-U	_	
								-	QB-1/8-1/4-U	
		VABV-S4-1S-N14-2T2	-	•	-	-	2 (4)	QB-1/4-3/8-U	_	
								-	QB-1/4-5/16-U	
		VABV-S2-1S-N38-T2	-	-	•	-	1 (2)	QB-3/8-1/2-U	-	
`								-	QB-3/8-3/8-U	
		VABV-S2-2S-N12-T2	-	-	-	-	1 (2)	QB-1/2-1/2-U	-	
								_	-	
prifold sub-ba	se for single solenoid valv									
ווווטנע טעט-טמ:	se ioi siligle solellolu valv	VABV-S4-2S-N18-2T1		_	_	l –	2 (2)	QB-1/8-5/16-U		
		VADV-54-25-N10-211	_				2 (2)	-	QB-1/8-1/4-U	
		VABV-S4-1S-N14-2T1		_	_	_	2 (2)	QB-1/4-3/8-U	25 2/0 2/10	
	1000 00 00 00 00 00 00 00 00 00 00 00 00	VABV-54-15-N14-211	-	-	_	_	2 (2)	QB-1/4-5/6-0	QB-1/4-5/16-U	
—— 🔍							. (1)		_	
		VABV-S2-1S-N38-T1	-	_	•	_	1 (1)	QB-3/8-1/2-U	-	
(000							-	QB-3/8-3/8-U	
/		VABV-S2-2S-N12-T1	_	-	-	-	1 (1)	QB-1/2-1/2-U	-	
								-	-	

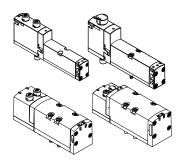
Value in brackets is max. number of solenoid coils that can be actuated.

ode		Туре	Width				No. of valve posi-	Working ports (2, 4)		
			18 mm	26 mm	42 mm	52 mm	tions (solenoid	Code M	Code N	
							coils) ¹⁾	large	small	
anifolo	sub-base for double solenoid val	ves								
		VABV-S4-2HS-N18-2T2		_	_	_	2 (4)	QB-1/8-5/16-U	_	
K								-	QB-1/8-1/4-U	
		VABV-S4-1HS-N14-2T2	-	•	-	-	2 (4)	QB-1/4-3/8-U	_	
<								-	QB-1/4-5/16-U	
		VABV-S2-1HS-N38-T2	-	-	•	-	1 (2)	QB-3/8-1/2-U	-	
(-	QB-3/8-3/8-U	
		VABV-S2-2S-N12-T2	-	-	-	-	1 (2)	QB-1/2-1/2-U	-	
K								-	-	
	0.500									
anifold	sub-base for single solenoid valv	ins	<u>'</u>							
aiiiioid	Sub-base for strigge societion valv	VABV-S4-2HS-N18-2T1		l –	l –	_	2 (2)	QB-1/8-5/16-U	_	
K			-				2 (2)	-	QB-1/8-1/4-U	
		VABV-S4-1HS-N14-2T1	_	•	_	_	2 (2)	QB-1/4-3/8-U	-	
(V/IDV 34 1113 1V14 211		_			2 (2)	-	QB-1/4-5/16-U	
		VABV-S2-1HS-N38-T1		_	•	_	1 (1)	QB-3/8-1/2-U	QB 1/4 3/10 0	
K		V/IDV 32 1113 N 30 11			•		1 (1)	QB 3/0 1/2 0	QB-3/8-3/8-U	
K		VABV-S2-2S-N12-T1		_	_	-	1 (1)	QB-1/2-1/2-U	QB-3/6-3/6-0	
K		V/\DV-3Z-Z3-I\12-11	-	_	_	•	1 (1)	Qυ-1/2-1/2-U	_	
\								_	_	
		1		1	1	l			1	

¹⁾ Value in brackets is max. number of solenoid coils that can be actuated $\,$

90°-conn	0°-connection plate for working ports 2 and 4 with NPT thread												
Code		Туре					Connections	Working ports (2, 4)					
			18 mm	26 mm	42 mm	52 mm		on the 90°-connection plate					
P		VABF-S4A2G2-N	•	_	-	-	2 and 4	1/8 NPT					
			_	•	-	-		1/4 NPT					
			-	-	-	-		3/8 NPT					
			-	-	-	•		1/2 NPT					

Sub-base valve



All valves have a 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

The reversible 3/2-way solenoid valves are also suitable for vacuum operation.

Reverse operation is only possible in pressure zones with external pilot air supply.



Note

- If a pressure zone is in reverse operation, supply pressure is connected to port 3/5 and exhausting is via port 1 at all valve positions in this pressure zone.
- Reversible pressure regulators cannot be selected when a pressure zone is in reverse operation.
- With reversible pressure regulators, only the valve at this position is in reverse operation.
- When using 5/3-way valves in reverse operation, the mid-position function switches from exhausted to pressurised and vice versa.

Cover plate

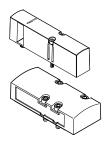


Plate without valve function for reserving valve positions on a valve terminal.

Valve and cover 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 or four 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.

For more information and technical data on extension, refer to the user documentation:

→ Internet: p.be.-vtsa-44

Valve fund							
Terminal code	Circuit symbol	Valve code	Width 18 mm	26 mm	42 mm	52 mm	Description
VC	12/14 (14)	T22C	•	•	•	•	2x 2/2-way valve, single solenoid Normally closed Pneumatic spring return
W	112/114 11 1 11 (14) (5) (3)	T22CV	•	-	•	-	2x 2/2-way valve, single solenoid Reverse operation Normally closed Pneumatic spring return Vacuum operation possible at 3 and 5
N	10 10 10 10 10 10 10 10 10 10 10 10 10 1	T32U	•	•	•	•	2x 3/2-way valve, single solenoid Normally open Pneumatic spring return Operating pressure > 3 bar
К	12/14 1 5 3	T32C	•	•	•	•	2x 3/2-way valve, single solenoid Normally closed Pneumatic spring return Operating pressure > 3 bar
Н	14 10 10 10 10 10 10 10 10 10 10 10 10 10	Т32Н	•	•	•	•	2x 3/2-way valve, single solenoid Normal position 1x closed 1x open Pneumatic spring return Operating pressure > 3 bar
Р	30/50 5 1 3 12 (14) (1) (5/3) (1)	T32F	•	•	•	•	2x 3/2-way valve, single solenoid Reverse operation only Normally open Pneumatic spring return
Q	32/54 5 1 3 12 (14) (1) (5/3) (1)	T32N	•	•	•	•	2x 3/2-way valve, single solenoid Reverse operation only Normally closed Pneumatic spring return
R	30/54 5 1 3 12 (14) (1) (5/3) (1)	T32W	•	•	•	•	2x 3/2-way valve, single solenoid Reverse operation only 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 with connector).

Valve fund	ction						
Terminal code	Circuit symbol	Valve code	Width	26 mm	/2 mm	F2 mm	Description
M	14 4 2 14 5 1 3	M52-A	18 mm	26 mm	42 mm	52 mm ■	5/2-way valve, single solenoid Reverse operation Pneumatic spring return
0	14 4 2 14 5 1 3	M52M	•	•	•	•	5/2-way valve, single solenoid Reverse operation Mechanical spring return
J	14 4 2 12 (14) 5 1 3	B52	•	•	•	•	5/2-way valve, double solenoid
D	14 4 2 12 12 (14) 5 1 3	D52	•	•	•	•	5/2-way valve, double solenoid Dominant signal at port 14 on the control side
SO SQ SS	14 2 G 14 7 T W 14 5 1 3	M52M	•	-	-	-	5/2-way single solenoid valve ²⁾ , as plug-in or via pilot valve with pneumatic interface to ISO 15218 See also special valve function in the separate chapter "Solenoid valve with switching position sensing" → Page 128
SO SQ SS	4 2 G 14 5 1 3	M52M	-		-	-	5/2-way single solenoid valve ²⁾ , as plug-in or via pilot valve with pneumatic interface to ISO 15218 See also special valve function in the separate chapter "Solenoid valve with switching position sensing" → Page 128
SP SN	14 14 14 14 14 15 13 13 14 15 13 13 14 15 15 15 15 15 15 15 15 15 15 15 15 15	T52-M	-	•	-	-	2x 5/2-way single solenoid valve, with switching position sensing, pneumatically linked via two ducts as special valve function "control block with safety function" → Page 138
В	14 W 4 2 W 12 (14) 5 1 3	P53U	•	•	•	•	5/3-way solenoid valve • Mid-position pressurised¹) • Mechanical spring return
G	14 W 4 2 W 12 (14) 5 1 3	P53C	•	•	•	•	5/3-way solenoid valve • Mid-position closed ¹⁾ • Mechanical spring return
Е	14 W 12 W 12 (14) 5 1 3	P53E	•	•	•	•	5/3-way solenoid valve • Mid-position exhausted 1) • Mechanical spring return

¹⁾ If neither solenoid coil is energised, the valve is moved to its mid-position by 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

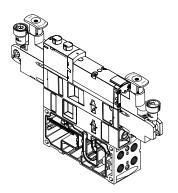
²⁾ The symbol represents a valve with a proximity switch with a switching output signal, in the illustration an N/O contact. To ISO 1219-1, this symbol applies to both N/O contacts and N/C contacts. The switching element function of all sensors used here is an N/C contact.

Valve fund		1	1				
Terminal code	Circuit symbol	Valve code	Width 18 mm	26 mm	42 mm	52 mm	Description
SA	14 W 4 2 12 12 12 12/14 5 1 3	P53ED	•	•	-	-	5/3-way solenoid valve, for special functions as switching position 14 is retained • Pressureless switching, self-latching loop, pneumatic operation • Mid-position exhausted, switching position 14 with retained • Mechanical spring return
SB	14 W 4 2 14(12) 14 5 1 3	P53AD	•	•	-	-	5/3-way solenoid valve, for special functions as switching position 14 is retained • Holding, blocking a movement (mechanically) • Mid-position: port 2 pressurised, port 4 exhausted, switching position 14 is retained • Mechanical spring return
SD	12 W 4 2 112 112 112 113 113 113 113 113 113 1	P53BD	•	•	-	-	5/3-way solenoid valve, for special functions as switching position 14 is retained • Holding, blocking a movement (mechanically) • Mid-position: port 4 pressurised, port 2 exhausted, switching position 14 is retained • Mechanical spring return
SE	14 - 4 2 W 12 12/14 5 1 3	P53EP	•	•	-	-	5/3-way solenoid valve, for special functions as switching position 12 is retained • Pressureless switching, self-latching loop, pneumatic operation • Mid-position exhausted, switching position 12 with retained • Mechanical spring return
VG	14 W 4 2 W 12 14 12 5 1 3	P53F	-	-	•	•	5/3-way solenoid valve Positioning Mid-position: port 2 pressurised, port 4 closed ¹⁾ Mechanical spring return
VB	-	_	-	•	-	-	Vacuum generator with ejector pulse and adjustable air saving function (plate for 2 valve positions, sensor SDE3 with display and M12 connection)
L	-	-	•	•	•	•	For valve terminal only: Cover plate for valve position

¹⁾ If neither solenoid coil is energised, the valve is moved to its mid-position by 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.

29

Vertical stacking



Additional function units can be added to each valve position between the base plate (manifold sub-base) and the valve.

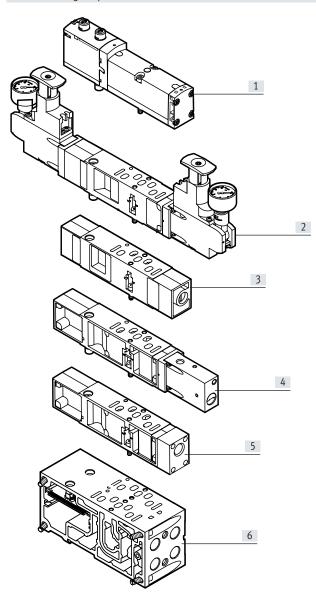
These functions are known as vertical stacking modules and enable special functions or control of an individual valve position. It is possible to link several valve sizes on one valve terminal.



Note

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

Vertical stacking components

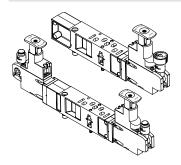


The following component sequence is recommended for valve positions with vertical stacking:

- [1] Valve VSVA
- [2] Pressure regulator plate
- [3] Throttle 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 base plate (manifold sub-base) and the valve in order to control the force of the triggered actuator.

This pressure regulator maintains a constant output pressure (secondary side) independent of pressure fluctuations (primary side) and air consumption. Also suitable for valves with symmetrical design.

Standard design:

- Standard port pattern to ISO 15407-2 or ISO 5599-2
- For pressure regulation up to 6 bar or up to 10 bar
- Without pressure gauge (optional)
- Regulator knob with 3 positions (locked, reference position, freely positionable)



With the A, B and AB pressure regulators VABF-S...-1-..., the regulated pressure should not be less than 2 bar.

Use the reversible A, B or AB pressure regulators for regulated pressure of less than 2 bar.

· 🖟 - Note

Please note for repeat orders of pressure regulators in sizes 42 mm and 52 mm:

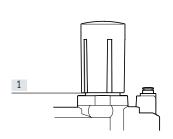
The part number on the regulator plate refers only to the standard version.

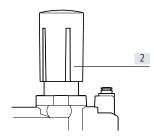
When reordering pressure regulators with additional features, such as a lockable rotary knob, extended design etc., only use the VABF configurator.

→ Internet: vabf-s2

Rotary knob for pressure regulator for width 42 mm and 52 mm

Setting the pressure

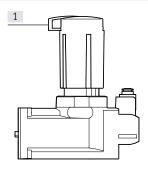




- [1] Pull the rotary knob upward out of the locking level [1] into the setting level [2]
- [2] Set the required pressure at the setting level [2] using the rotary knob
- [3] After setting the pressure, push the rotary knob back down to the locking level [1]

Rotary knob for pressure regulator for width 42 mm and 52 mm

Locking the rotary knob



[1] Locking element, pushed out

After setting the pressure, the rotary knob can be locked against unauthorised actuation.

To do this, the blue locking element is pushed out and secured with a padlock.

The rotary knob is now fixed in place and cannot be moved.

- Note

The position of the rotary knob using the locking element is determined by the pressure setting.

If a number of pressure regulators are installed next to one another, there may not always be enough space to push out the locking elements.

To ensure that the rotary knob can still be locked, it can be pulled off completely, rotated 60° or 120° and pushed back on.

Vertical stacking

Energy efficiency through dual-pressure operation or through operation with reversible pressure regulators

Energy conservation starts with compressed air generation. It is possible to achieve energy savings of up to 10% per 1 bar drop in pressure. Therefore, wherever possible reduce the pressure to the minimum required.

To save additional energy, you can operate valves in dual-pressure mode in a separate pressure zone.

To do this, the valves used must be operated in reverse mode, i.e. with reversed flow direction (see also information on → Page 86). In dual-pressure operation, the valves are then supplied with pressure separately via ducts 3 and 5. The air is exhausted via duct 1.

Requirements for dual-pressure operation:

- Exhaust ducts 3 and 5 in the pressure zone are completely separate.
- The valves used can be operated in reverse mode.

Advantages of dual-pressure operation:

It is possible to save energy if different pressures can be applied to one valve. The advantages are:

- Saves energy because the return stroke can be carried out using reduced force, e.g. 3 bar instead of 6 bar.
- Just one valve is required, as in the case of vacuum application with ejector pulse for example (e.g. duct 3 for vacuum switching, duct 5 for the ejector pulse).
- A reduction in compressed air consumption of up to 50% is possible if two different pressures can be applied to the valve (return stroke uses reduced pressure).

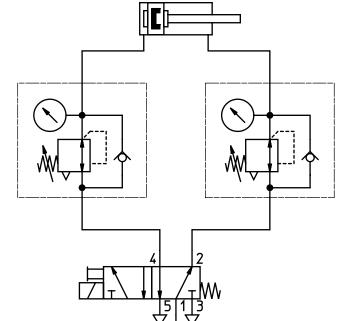
Advantages of reversible operation:

If compressed air is applied to the pressure regulator upstream of the valve (circuit diagram 2), exhausting is directly via the solenoid valve.

This has the following advantages:

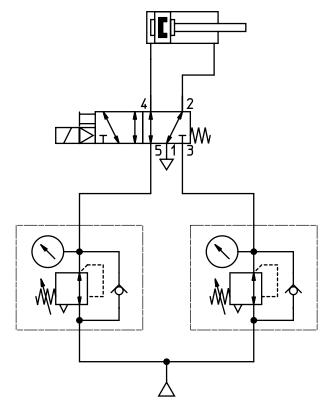
- Increased exhaust capacity, exhausting is up to 50% quicker
- Lower wear on the pressure regulator
- Very precisely adjustable, perfect for very low operating pressures
- No quick exhaust valves are required.
- · Fast cycle times
- The pressure regulator can be adjusted independently of the valve position because operating pressure is permanently present at the pressure regulator.

Dual-pressure operation with standard regulator



Pressure is regulated downstream of the valve

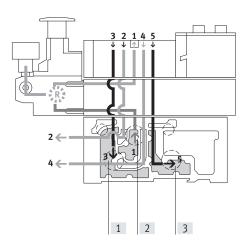
Dual-pressure operation with reversible regulator



Pressure is regulated upstream of the valve

Vertical stacking

Mode of operation of the 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.

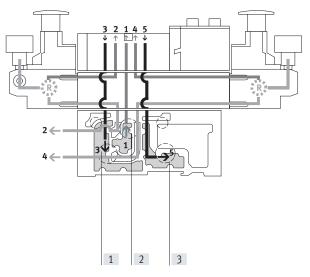
During exhausting, the exhaust flow in the valve is from duct 2 to duct 3 and from duct 4 to duct 5.

- Advantages
- The pressure regulator is not affected by exhausting, 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.
- [1] Duct 3 (exhaust)
- [2] Duct 1 (working air)
- [3] Duct 5 (exhaust)

Application examples

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

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 exhausting, 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 working air flows from duct 1 of

The working 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, exhausting 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.

- [1] Duct 3 (exhaust)
- [2] Duct 1 (working air)
- [3] Duct 5 (exhaust)

Application examples

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

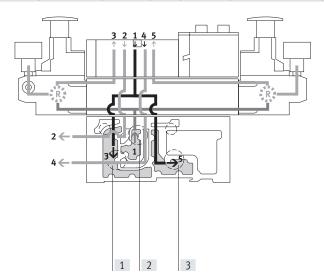
Restrictions

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 exhausted from duct 4 to duct 5.

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 working air (duct 1) is split and routed directly to both pressure regulators. In each case the regulated working air is present in ducts 3 and 5 on the valve. The valve is thus operated in reverse mode.

This means the following:

- Duct 3 routes the working pressure to port 2
- Duct 5 routes the working pressure to port 4
- [1] Duct 3 (exhaust)
- [2] Duct 1 (working air)
- [3] Duct 5 (exhaust)

Example with the following switching position:

The working air in duct 1 is split between ducts 3 and 5 in the regulator and flows from here to the valve. In the valve, the working 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 discharged via the manifold sub-base.

Application examples

- Two different pressures are required in ducts 2 and 4 instead of the valve terminal's operating pressure.
- Quick exhausting is required.
- The pressure regulator must always be adjustable.

- Note

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

Advantages

- Fast cycle times
- 50% higher exhaust flow rate, as air is not exhausted 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 solenoid valves (code N, K, H) cannot be used, as pressure is present at ports 3 and 5.
- No practical combination with a throttle plate possible.

Code		Туре	Width	_			Pressure up to	regulation	Description
			18 mm	26 mm	42 mm	52 mm	6 bar	10 bar	
ressure regulato	r plate for port 1 (P regulator)								
'A	0	VABF-SR1C2-C-10	•	-	-	-	-		Regulates the operating pres-
'AY ²⁾		VABF-SR1C2-C-10E	•	-	-	-	_	-	sure in duct 1 upstream of the
"F		VABF-SR1C2-C-6	•	-	-	-	-	-	solenoid directional control valve
FY ²⁾	14 5 11 3 112	VABF-SR1C2-C-6E	•	•	•	•	•	-	vaive
ressure regulato	r plate for port 2 (B regulator)								
Ĉ .		VABF-SR2C2-C-10	•	-	•	-	_	•	Regulates the operating pres
CY ²⁾		VABF-SR2C2-C-10E	•	•	•	•	_	•	sure in duct 2 downstream of
H		VABF-SR2C2-C-6	•	•	•	•	•	_	the solenoid directional cont valve
(HY ²⁾	1 3 12	VABF-SR2C2-C-6E	•	•	•	•	•	-	vaive
	r plate for port 4 (A regulator)	LVADES DOSS CAS							
B ²⁾ G ²⁾	4 2	VABF-SR3C2-C-10	-	-	•	-	-	-	Regulates the operating pres
	14.5 1 3 12	VABFSR3C2-C-6	•	•	•	•	•		the solenoid directional cont valve
ressure regulato	r plate for ports 2 and 4 (AB re	gulator)							
D O	○	VABF-SR4C2-C-10	•	-	•	-	-	•	Regulates the working pressu
DY ²⁾	4 2	VABF-SR4C2-C-10E	•	•	•	•	-	•	in ducts 2 and 4 downstream the solenoid directional contr valve
	14 5 11 3 12	VABF-SR4C2-C-6 VABF-SR4C2-C-6E	•	-	•	:	•	-	- Note These pressure regulator pla cannot be combined with re-
									versible 2x 3/2-way solenoid valves (code P, Q, R).

Width variants 42 mm and 52 mm (ISO 5599-2, ISO 1 and ISO 2) can be selected via the pressure regulator configurator VABF-S2
 Also suitable for valves with symmetrical design

Valve terminals VTSA/VTSA-F, NPT

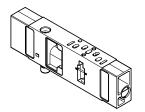
Key features – Pneumatic components

Code		Туре	Width				up to	regulation	Description
			18 mm	26 mm	42 mm	52 mm	6 bar	10 bar	
Pressure	regulator plate for port 2, reversible (B ı	egulator)							
ĽL	\(\begin{array}{c c c c c c c c c c c c c c c c c c c	VABF-SR6C2-C-10	•	•	•	•	-	•	Reversible pressure regulator for port 2
ZLY ²⁾		VABF-SR6C2-C-10E	•	•	-	•	-	-	
N		VABF-SR6C2-C-6	•	•	•	•	•	-	
'NY ²⁾	14 5 1 3 12	VABF-SR6C2-C-6E	•	•	•	•	•	-	
ressure	regulator plate for port 4, reversible (A r	egulator)	<u> </u>						
ZK ²⁾	4 2	VABF-SR7C2-C-10	•	-	•	•	-	•	Reversible pressure regulator for port 4
M ²⁾	14/5/ 1/ 3/ 12	VABF-SR7C2-C-6	•	-	•	•	•	-	
ressure	regulator plate for ports 2 and 4, revers	ible (AB regulator)							
E	4 2	VABF-SR5C2-C-10	•	•	•	•	-	•	Reversible pressure regula for ports 2 and 4 Pressure regulation up- stream of the solenoid directional control valve Pouts the operating pres
ZEY ²⁾	14 5 1 3 12	VABF-SR5C2-C-10E	•	•	•	•	_	•	Routes the operating pressure from duct 1 to ducts 3 and 5 Routes the exhaust air from duct 1 to ducts 3 and 5
<u>7</u> J		VABF-SR5C2-C-6	•	•	•	•	•	_	- Note
									These pressure regulator plat cannot be combined with standard 2x 3/2-way solenoic valves (code N, K, H).
JY ²⁾		VABF-SR5C2-C-6E	•	•	•	•	•	-	Reversible 2x 3/2-way solend valves (code P, Q, R) must not be operated in a separate prosure zone in combination with these pressure regulators.

Width variants 42 mm and 52 mm (ISO 5599-2, ISO 1 and ISO 2) can be selected via the pressure regulator configurator VABF-S2
 Also suitable for valves with symmetrical design

Vertical stacking

Throttle plate



The throttle plate has two flow control valves on which the exhaust air flow rate at exhaust ports 3 or 5 can be adjusted.

This enables the movement of the drive to be initiated and the required speed to be set on the valve terminal using the manual override.

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

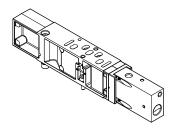


Note

On valve terminals in reverse mode, the flow of the working air is controlled in ducts 3 and 5 upstream of the valve.

Code		Туре	Width				Description
			18 mm	26 mm	42 mm	52 mm	
Х	14 5 1 3 12	VABF-S4F1B1-C	•	•	•	•	Restricts the exhaust air downstream of the valve in ducts 3 and 5

Vertical pressure shut-off plate



The vertical pressure shut-off plate has a switch via which the compressed air supply can be shut off. This enables a solenoid 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.

Once the shut-off has been activated, the exhaust air/return air from the actuated valve is expelled. This takes place via an M5 threaded connection or via duct 3 in the case of width 18 and 26 mm, and via duct 3 in the case of width 42 and 52 mm.



Note

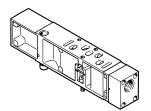
The operating pressure of the valve terminal must lie within the range of the required pilot pressure (i.e. min. 3 bar). When using the end plate with pilot air selector, only the switching position with the code W and U can be used.

Code		Туре	Width				Description
			18 mm	26 mm	42 mm	52 mm	
ZT	33 11 514	VABF-S4L1D1-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
	14 5 1 3 12	VABF-S2L1D1-C	-	-	•	•	Pressure separation at the valve assembly
ZS	33 12 3 1 5 14	VABF-SL1D2-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 Key-operated pressure separation at the valve assembly



The vertical pressure shut-off plates VABF-... are provided only in combination with solenoid valves VSVA-...T1L from Festo. In the vertical pressure shut-off plate only ducts 1 and 14, and not duct 12, are blocked.

Vertical supply plate



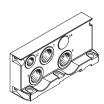
This plate enables a valve to be supplied with individual operating pressure independently of the operating pressure of the valve terminal.

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

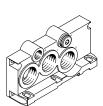
Code		Туре	Width				Description	
			26 mm	18 mm	42 mm	52 mm		
ZU	11 14 5 1 1 3 12	VABF-SP1A3	•	•	•	•	Plate with port 11 for supplying individual operating pressure to a valve position, duct 1	
ZV	11 14 5 1 1 3 12	VABF-SP1A14C	•	•	•	•	Plate with port 11 for supplying individual operating pressure to a valve position, ducts 1 and 14	

Compressed air supply and exhaust

Right-hand end plate, internal pilot air supply



- Code V
- (no port 14)

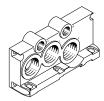


- Code V1, V3
- (port 14 is sealed with a blanking plug)



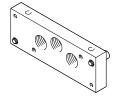
Right-hand end plate, external pilot air supply

Code X



• Code X1, X3

Right-hand end plate, size ISO 3, internal pilot air supply

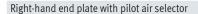


• Code V2, for width 65 mm



Right-hand end plate, size ISO 3, external pilot air supply

• Code X2, for width 65 mm





The valve terminal VTSA/VTSA-F can be

supplied with compressed air at one or more points. This is a reliable way of ensuring that all functional components will always offer good performance, even with large-scale extensions. • Code Z, Y, W, U

- Code Z: selector position 1, external pilot air supply
- Code Y: selector position 2, internal pilot air supply

• Code W: selector position 3, external pilot air supply (ducted)

 Code U: selector position 4, internal pilot air supply (ducted)

The valve terminal is generally supplied via supply plates (max. 16 per valve terminal) and/or via the righthand end plate. When using valves with a width of 65 mm, the compressed air can also be supplied and exhausted using the adapter plate VABA-....

Exhausting is via silencers or ports for ducted exhaust air on the supply plates and/or on the right-hand end plate.



Note

Compressed air supply and exhausting for size ISO 3 is described in a separate chapter on adaptation to width 65 mm (internal/external pilot air is regulated via MUH plate (solenoid valve)).

Supply plates, exhaust port 3/5 separated



• Code K

Supply plates, exhaust port 3/5 common



Code L

Additional compressed air supply/duct separation

Additional supply plates can be used to ensure the compressed air supply for larger valve 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 exhausted via silencers.

VTSA/VTSA-F with ducted exhaust air:

With ducted exhaust air, exhausting 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,
- Supply plate with duct separation on the right-hand side: code US, UT, UR
- 2 supply plates with intermediate duct separation: code USU, UTU,

Supply Code	Julies 	Туре	Width				Description
couc		, ypc	18 mm	26 mm	42 mm	52 mm	- Description
U		Exhaust port 3/5 common VABF-S6-1-P1A7-N12 Exhaust port 3/5 separate VABF-S6-1-P1A6-N12	•	•	•	•	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

Right-hand end plates with different port sizes are available depending on the air supply required.

With the following right-hand end plates, the outlet direction of the ports is aligned axially with the horizontal stacking direction.

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

- Internal pilot air supply: code V, V1, V2 and V3 (ducts 1 and 14 are connected)
- External pilot air supply: code X, X1, X2 and X3, as well as XP1, XP2, XP3 and XS

For end plates with pilot air selector, the outlet direction of the ports is to the front of the valve terminal. This means that all the ports on the valve terminal can be combined in one outlet 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: selector position 1 (code Z)
- Internal pilot air supply: selector position 2 (code Y)
- External pilot air supply, ducted pilot exhaust air: selector position 3 (code W)
- Internal pilot air supply, ducted pilot exhaust air: selector position 4 (code U)

┋.

- Note

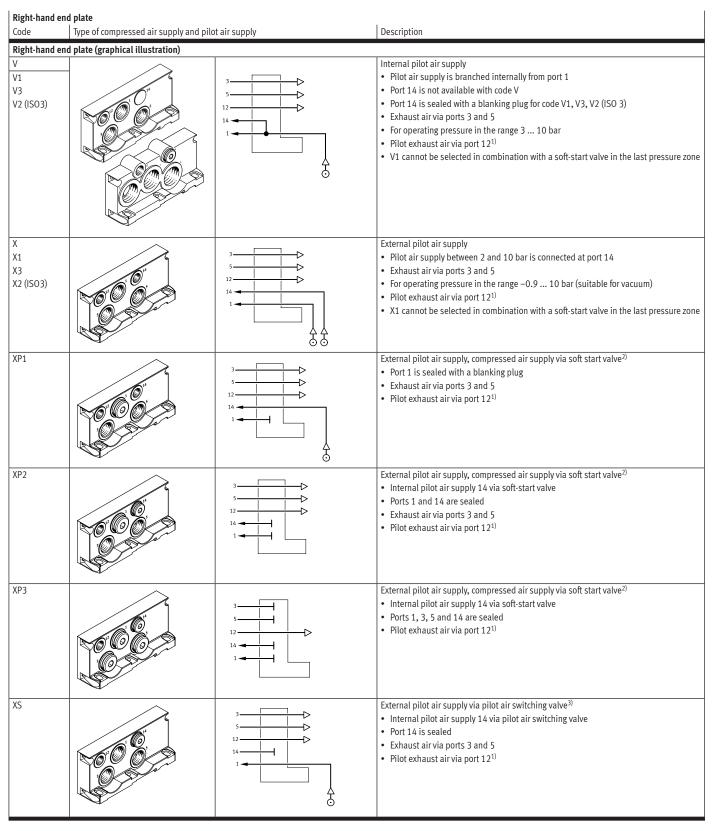
- The end plate with pilot air selector must be used in combination with a supply plate.
- The reversible 3/2-way solenoid valves (code P, Q, R) must only be operated in selector position 1 or 2.
- Ducted pilot exhaust air via port 12 is only possible with rotated seals on the valve.

Right-han	d end plate, variants					
Code	Blanking plug in duct	Pilot air supply	Ducted pilot exhaust air1)	Connecting thread		
			Position of seal on solenoid valve ("ISO" is visible)	1, 3, 5	12, 14	
V	-	Internal	-	1/2 NPT	1/4 NPT	
V1	14		-	3/4 NPT	1/4 NPT	
V2	14		-	1 NPT	1/8 NPT	
V3	14		•	3/4 NPT	1/4 NPT	
Χ		External	-	1/2 NPT	1/4 NPT	
X1	-		-	3/4 NPT	1/4 NPT	
X2	-		-	1 NPT	1/8 NPT	
Х3	-		•	3/4 NPT	1/4 NPT	
XP1 ²⁾	1	External, via soft start valve	-	1/2 NPT	1/4 NPT	
XP2 3)	1, 14	("gradual pressure build-up")	-	1/2 NPT	1/4 NPT	
XP3 3)	1, 3, 5, 14		-	1/2 NPT	1/4 NPT	
XS ⁴⁾	14	External, via pilot air switching valve ("switchable pilot air")	-	1/2 NPT	1/4 NPT	

- 1) Pilot exhaust air is ducted on the end plate via port 12 and exhausted (done by turning the seal on the solenoid valve to position "ISO")
- 2) Not possible in combination with soft start valve code PQ, PP, PO (with internal pilot air supply)
- Not possible in combination with soft start valve code PN, PM, PK (with external pilot air supply)
- 4) Only possible in combination with pilot air switching valve code SS with intermediate plate code ZO

Right-han	d end plate with pilot air selector			
Code	Pilot air supply	Selector position	Ducted pilot exhaust air ¹⁾ Position of seal on solenoid valve ("ISO" is visible)	Connecting thread 12, 14
Z	External	1	-	1/4 NPT
ΙY	Internal	2	_	1/4 NPT
W	Internal External (ducted)	3	-	1/4 NPT 1/4 NPT

¹⁾ Pilot exhaust air is ducted on the end plate via port 12 and exhausted (done by turning the seal on the solenoid valve to position "ISO")



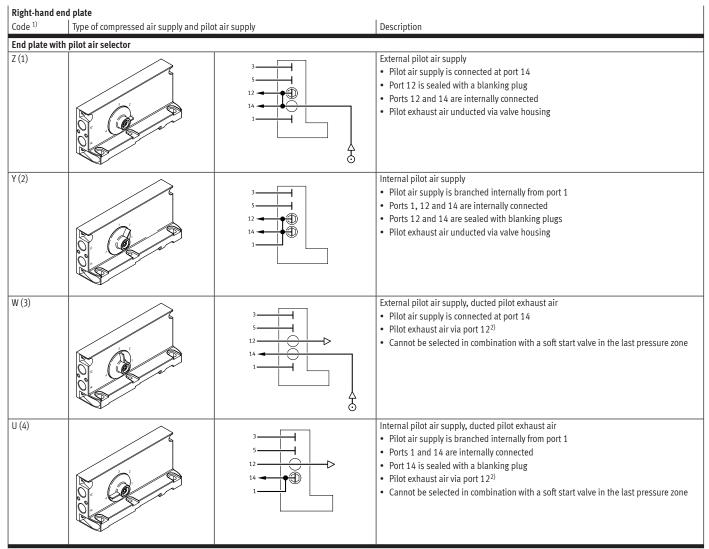
- 1) Ducted pilot exhaust air is only possible with turned seals on the valve
- Application with XP1, XP2, XP3 and soft-start valve in combination with valves of width 52 mm: please note the maximum flow rate of the soft-start valve in this pressure zone
- 3) Application with XS and pilot air switching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



- Note

The key features, valves and functions of width 65 mm are described separately in the chapter "Adaptation to width 65 mm, ISO size 3" $\,$

→ Page 170.



- Selector position in brackets
- 2) Ducted pilot exhaust air is only possible with rotated seals on the valve (pilot exhaust air 82/84 including exhaust air for valves)



The reversible 3/2-way solenoid valves (code P, Q, R) must only be operated in selector position 1 or 2.

Configura Code	ation of all pneumatic connections with	NPT thread	Connection (duct)	Designation	Code M Push-in connector, large	Code N Push-in connector, small
Right-hai	nd end plate					
V	600	3 5 12 14	1 3 and 5	Push-in fitting Silencer or Push-in fitting Silencer or Push-in fitting	QS-1/2-5/8-U U-1/2-B-NPT or QS-1/2-5/8-U U-1/4-B-NPT or QB-1/4-3/8-U	QB-1/2-1/2-U U-1/2-B-NPT or QB-1/2-1/2-U U-1/4-B-NPT or QB-1/4-5/16-U
X	000	3 5 12 14 1	1 3 and 5	Push-in fitting Silencer or Push-in fitting Silencer or Push-in fitting Push-in fitting	QS-1/2-5/8-U U-1/2-B-NPT or QS-1/2-5/8-U U-1/4-B-NPT or QB-1/4-3/8-U QB-1/4-3/8-U	QB-1/2-1/2-U U-1/2-B-NPT or QB-1/2-1/2-U U-1/4-B-NPT or QB-1/4-5/16-U QB-1/4-5/16-U
//1		3 5 12 14	1 3 and 5	Barbed hose fitting Silencer or Barbed hose fitting Silencer or Push-in fitting Plug	N-3/4-P-19-NPT ¹⁾ U-3/4-B-NPT ¹⁾ or N-3/4-P-19-NPT ¹⁾ U-1/4-B-NPT or QB-1/4-1/2-U B-1/4-NPT	- U-1/4-B-NPT or QB-1/4-3/8-U B-1/4-NPT
X1 X3		3 5 12 14 1	1 3 and 5 12	Barbed hose fitting Silencer or Barbed hose fitting Silencer or Push-in fitting Push-in fitting	N-3/4-P-19-NPT ¹⁾ U-3/4-B-NPT or N-3/4-P-19-NPT ¹⁾ U-1/4-B-NPT or QB-1/4-1/2-U QB-1/4-1/2-U	U-1/4-B-NPT or QB-1/4-3/8-U QB-1/4-3/8-U

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

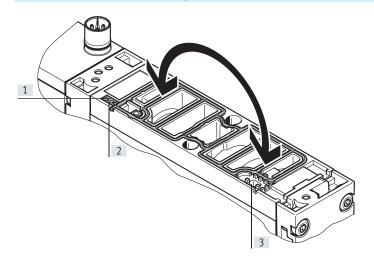


The key features, valves and functions of width 65 mm are described separately in the chapter "Adaptation to width 65 mm, ISO size 3" \rightarrow Page 170.

Configura Code ¹⁾	ation of all pneumatic connections with	NPT thread	Connection	Designation	Code M Push-in connector, large	Code N Push-in connector, small
End plate	with pilot air selector					
Z (1)			12	Blanking plug	B-1/4-NPT	B-1/4-NPT
		3 5 12 14 1	14	Push-in fitting	QB-1/4-3/8-U	QB-1/4-5/16-U
Y (2)	^		12	Blanking plug	B-1/4-NPT	B-1/4-NPT
T (2)		3 5 12 14	14	Blanking plug	B-1/4-NPT	B-1/4-NPT
W (3)	_		12	Silencer	U-1/4-B-NPT	U-1/4-B-NPT
(5)		,		or	or	or
		5		Push-in fitting	QB-1/4-3/8-U	QB-1/4-5/16-U
		12 14 1 1 1	14	Push-in fitting	QB-1/4-3/8-U	QB-1/4-5/16-U
U (4)	^		12	Silencer	U-1/4-B-NPT	U-1/4-B-NPT
		3		or	or	or
	8	12	14	Push-in fitting Blanking plug	QB-1/4-3/8-U B-1/4-NPT	QB-1/4-5/16-U B-1/4-NPT

¹⁾ Selector position in brackets

Using the seals with ducted/unducted pilot exhaust air



Unducted pilot exhaust air:

- The seal is visible in the display 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 display window on control side 12.
- The "ISO" mark is visible on the designation label on the seal surface.
- [1] Designation label
- [2] Display window on control side 14 ("ISO" is visible)
- [3] Display window on control side 12 ("ISO" is visible)

Pilot air supply

The port for the pneumatic supply is located on the supply plates or the right-hand end plate.

The ports differ for the following types of pilot air supply:

- Internal
- External

Internal pilot air supply

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

In this case the pilot air supply is branched from the compressed air supply 1 using an internal connection. Port 14 is not available with code V and is sealed with a blanking plug for code V1, V2, V3.

- 🏻 -

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

External pilot air supply

Note

If the supply pressure is less than 3 bar, you must operate your valve terminal VTSA/VTSA-F 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.



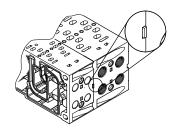
When using valves with a width of 65 mm, ISO size 3, the internal/external pilot air supply for the valves with a width of 18 ... 52 mm is provided via the adapter plate VABA-....

The external pilot air supply for valves with width of 65 mm is provided via the right-hand end plate IEPR

Creating pressure zones and separating exhaust air

The valve terminal VTSA/VTSA-F/ VTSA-F-CB 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 by appropriate duct separation. Compressed air is supplied and exhausted via a supply plate.
The position of the supply plates and duct separations can be freely selected for VTSA/VTSA-F.

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



Creating Code	pressure zones Separating seal			Width				Description
	Illustrated examples	Coding	Basic representation	18 mm	26 mm	42 mm	52 mm	<u> </u>
T			3	•	•	•	-	Duct 1 separated
S	513		5 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•		•		Ducts 1, 3 and 5 separated
R			7 R 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	•		•	•	Ducts 3 and 5 separated
TL		Colour-coded in white	7L 3 5 12 14 1 1 1		•		•	Duct 1 and 14 separated
К	513	Colour-coded in red	3				•	Ducts 1, 3, 5 and 14 separated
L		Colour-coded in green	3				-	Duct 14 separated

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

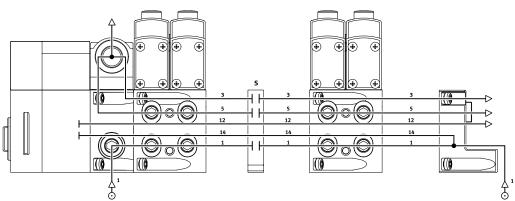
Internal pilot air supply, silencer/ducted exhaust air

Right-hand end plate: code V and V1

The diagram on the right shows an example of the configuration and connection of the compressed air supply with internal pilot air supply:

- Port 14 is not present with code V and is sealed with a blanking plug for code V1.
- The air is exhausted via the silencer at exhaust port 3/5.
- Duct separations can optionally be used to create pressure zones.

Optional duct separation



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

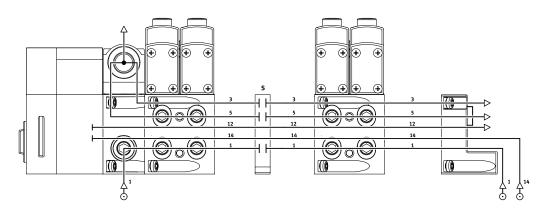
External pilot air supply, silencer/ducted exhaust air

Right-hand end plate: code X and X1

The diagram on the right 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.
- The air is exhausted via the silencer at exhaust port 3/5.
- Duct separations can optionally be used to create pressure zones.

Optional duct separation



Key features – Pneumatic components – Compressed air supply and pressure zones, examples

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

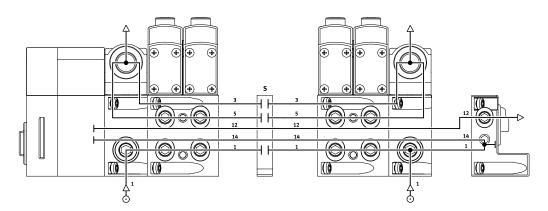
Internal pilot air supply, ducted exhaust air/silencer

Right-hand end plate: code U

Optional duct separation

The diagram on the right 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.
- At exhaust port 3/5 the air is ducted or discharged via the silencer.
- The selector switch on the pilot air selector is in position 4.
- Duct separations can optionally be used to create pressure zones.



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

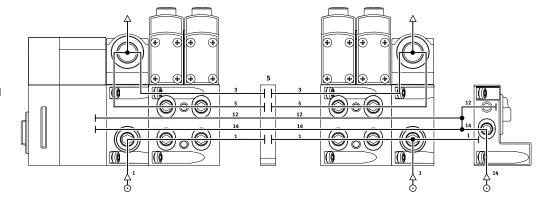
External pilot air supply, ducted exhaust air/silencer

Right-hand end plate: code Z

Optional duct separation

The diagram on the right 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.
- At exhaust port 3/5 the air is ducted or discharged via the silencer.
- The selector switch on the pilot air selector is in position 1.
- Duct separations can optionally be used to create pressure zones.

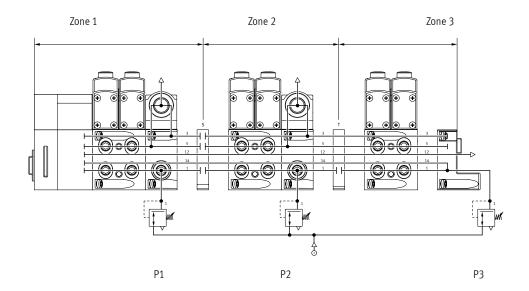


Key features – Pneumatic components – Compressed air supply and pressure zones, examples

Examples: Creating pressure zones

VTSA/VTSA-F with CPX terminal

With the VTSA/VTSA-F, up to 16 pressure zones can be created (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.



- 🖣 - Note

Examples with pressure zones and soft start valve are described separately in the chapter "Soft start valve"

→ Page 157.

Key features - Mounting

Valve terminal mounting

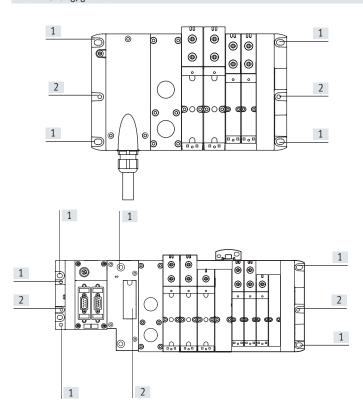
Sturdy valve terminal mounting thanks to:

- Through-holes for wall mounting
- · Additional mounting brackets
- H-rail mounting for VTSA/VTSA-F (horizontal mounting position permitted)



Further information on mounting the valve terminal, arranged by valve terminal configuration, can be found on the catalogue DVD or online.

Wall mounting, general



- [1] Drilled hole for M6 screw
- [2] Drilled hole for H-rail mounting

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

- Multi-pin plug
 - 2 each on the multi-pin manifold block and the right-hand end plate
- Fieldbus, CPX:
 - 2 each on the left-hand (CPX) and right-hand (VTSA/VTSA-F) end plate and the pneumatic interface

Mounting brackets can be mounted on pneumatic supply plates and manifold sub-bases.

If using CPX components, see:

→ Internet: cpx

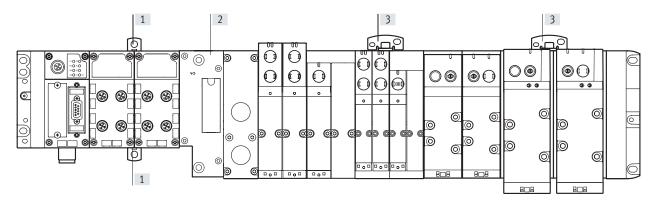
- Note

Wall mounting of the VTSA/VTSA-F with more than five pneumatic modules

Note the following instructions:

- Additionally use mounting brackets of the type VAME-S6-W-M46
- Mount these on each fourth plate (manifold sub-base, supply plate or exhaust plate), counting from left to right, starting after the pneumatic interface.
- No mounting bracket is required next to the right-hand end plate.
- Use the pre-assembled mounting brackets when mounting factory pre-assembled valve terminals on a wall

Wall mounting with CPX polymer design



- [1] Additional wall mounting for polymer CPX terminal
- [2] Pneumatic interface

In the case of CPX terminals in polymer design with 4 and more interlinking blocks, additional wall mountings of the type CPX \equiv BG \equiv RW must be used every 100 ... 150 mm. These mountings are clipped in at the top and bottom between the CPX modules.

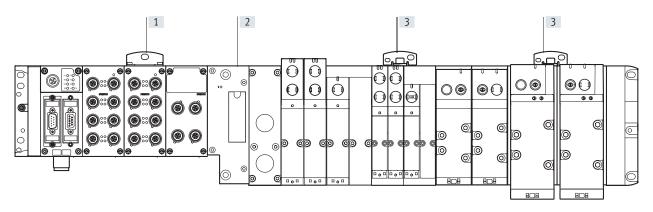
[3] Additional wall mounting for VTSA/VTSA-F (with hole for M5 and M6 screw)

In the case of the VTSA/VTSA-F, mounting brackets must be mounted on the wall as instructed above.

Brackets of the type VAME-S6-W-M46 must be used as an additional wall mounting.

Key features - Mounting

Wall mounting with CPX metal design



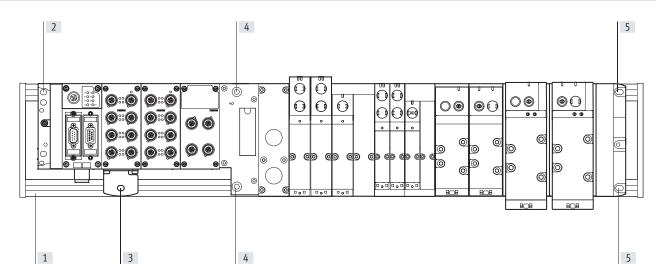
- [1] Additional wall mounting for metal CPX terminal
- [2] Pneumatic interface
- [3] Additional wall mounting for VTSA/VTSA-F
- (with hole for M5 and M6 screw)

In the case of CPX terminals in metal design with 4 and more interlinking blocks, additional wall mountings of the type CPX□M□BG-RW must be used every 100 ... 150 mm. These wall mountings are screwed in at the top on the corresponding CPX module.

In the case of the VTSA/VTSA-F, mounting brackets must be mounted on the wall as instructed above.

Brackets of the type VAME-S6-W-M46 must be used as an additional wall mounting.

Mounting on support system with CPX metal design



- [1] Support system (DIN mounting
- [2] Upper mounting for metal CPX terminal, left-hand end plate on DIN mounting rail
- [3] Lower mounting for metal CPX terminal on DIN mounting rail with mounting bracket CPX-M-BG-VT-2X
- [4] Mounting for pneumatic interface on DIN mounting rail
- [5] Mounting for right-hand end plate on DIN mounting rail

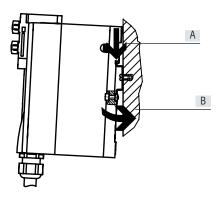
- If a terminal CPX (metal version) with VTSA pneumatic components is mounted on DIN mounting rails, it may be necessary to have one or more mounting brackets on the CPX side to compensate for the length. It is possible to compensate for the length by using special mounting brackets CPX-M-BG-VT-2X. The mounting bracket connects the terminal CPX (metal version) to the DIN mounting rail.
- Note
- Only CPX modules (metal version) with VTSA/VTSA-F modules of width 18 ... 52 mm may be used.
- The number of mounting brackets required depends on the number of CPX modules installed and any possible system supply.

Further information about mounting the valve terminal can be found in the assembly instructions on the Festo Support portal.

→ www.festo.com/sp

Key features – Mounting

H-rail mounting



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

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

• CPX-CPA-BG-NRH

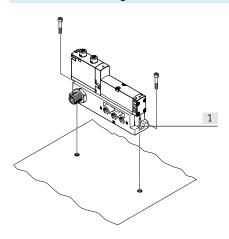
This enables the valve terminal to be mounted on an H-rail to EN 60715.



Note

- Wall mounting is recommended if more than one vertical stacking element or a long valve terminal design is required.
- Vibration/shock loads are not permissible with H-rail mounting.
- Only horizontal mounting position is permissible for H-rail mounting.

Individual valve mounting



[1] Vertical mounting holes

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

Key features – Display and operation

Display and operation

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

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

Manual override (MO):

The manual override enables the valve to be switched when not electrically actuated or when de-energised. The valve is switched by pushing the manual override. The set switching status can also be locked by turning the manual override.

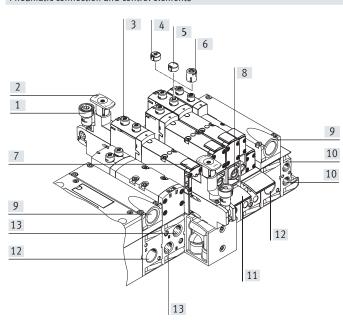
Alternatives:

- The cover cap (code N) limits the function of the manual override, preventing it from being locked. The valve can then only be actuated with non-detenting operation.
- The cover cap (code V) can be used to secure the manual override against accidental actuation.
- The heavy-duty cover cap protects the manual override located on the valve. The valve can be actuated as non-detenting or as detenting via accessory.



Special valve variants with pre-assembled cover caps for the manual override are available for valve terminal VTSA/VTSA-F.

Pneumatic connection and control elements



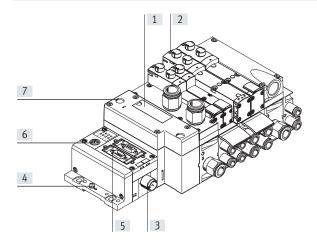
- [1] Pressure gauge (optional)
- [2] Adjusting knob for optional pressure regulator plate
- [3] Manual override (MO) (for each pilot solenoid coil, non-detenting or non-detenting/detenting)
- [4] Cover cap for MO, non-detenting
- [5] Cover cap for MO, concealed
- [6] Cover cap for MO, non-detenting, heavy-duty, detenting via accessory
- [7] Inscription label holder for valve
- [8] Adjusting screw of optional throttle plate
- [9] Exhaust ports "Valves" (3/5)

- [10] Pilot ports 12 and 14 for supplying the external pilot air
- [11] Inscription label holder for sub-base
- [12] Supply port 1 (for operating pressure)
- [13] Working ports 2 and 4, per valve position



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

Electrical connection and display elements

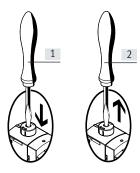


- [1] Inscription area and covering for H-rail mounting
- [2] Yellow LEDs: signal status indication for the pilot solenoid coils
- [3] Power supply connection
- [4] Earthing connection
- [5] Fieldbus interface (bus-specific)
- [6] Service interface
- [7] Red LED: common error display for valves

Key features – Display and operation

Manual override (MO) - Function

MO with automatic reset (non-detenting)



[1] Press in the plunger of the manual override using a pointed object or screwdriver.

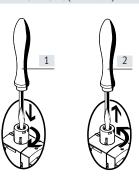
The valve is in switching position.

[2] Remove the pointed object or screwdriver.

The spring force pushes the plunger of the manual override back.

The valve returns to its normal position (not with double solenoid valve code J or D).

MO with detent (concealed)



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

Cover caps for manual override

Cover cap for MO, heavy-duty, with automatic reset (non-detenting/detenting via accessory)



[1] Non-detenting: push in key for MO. The valve is in switching position.

Detenting: turn coded key in switching position clockwise through 90° until the stop is reached. The valve remains in switching position. In this position the key is latched and cannot be removed.

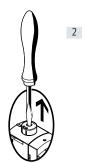
Cover cap for MO, with automatic return (non-detenting)



[1] Restricted function, non-detenting: push in the plunger of the MO cap using a pointed object or screwdriver. The valve is in switching position.



[2] Turn the key anti-clockwise 90° until the stop is reached. The key is now unlatched. The key is pushed out by the spring force of the manual override. The valve returns to its normal position (not with double solenoid valve code J or D).



[2] Remove the pointed object or screwdriver.

> The spring force pushes the plunger of the manual override back.

The valve returns to its normal position (not with double solenoid valve code J or D).

Cover cap for MO, concealed



When concealed by the cover cap, the MO can be secured against accidental actuation.



Cover caps for the manual override can be ordered separately as accessories. There are also VSVA valve variants with pre-assembled cover caps.

Key features – Display and operation

Overview of valve variants and co	over caps for	manual override (MO)		
Illustrations	Terminal code	Description of valve terminal order code	Manual override (MO)	Valve code identification on the rating plate sticker ¹⁾
/SVA solenoid valve without cov	er cap			
	R	Without cover cap on MO	Non-detenting, detenting	VSVA-BMZD
VSVA solenoid valve with pre-ass	sembled cov	er cap on MO		
	В	MO non-detenting/heavy duty with cover cap, can be used as detenting via accessory (key), as valve variant	Non-detenting, detenting via accessory (key)	VSVA-BMZTR
	С	MO can be used as non-detenting only with coded cover cap, as valve variant	Non-detenting	VSVA-BMZH
	D	MO concealed by cover cap – operation of MO prevented, as valve variant	Concealed	VSVA-BMZ
Cover caps for MO				
P	N	MO can be used as non-detenting only with coded cover cap	Non-detenting	VSVA-BMZD
	V	MO concealed by cover cap – operation of MO prevented	Concealed	VSVA-BMZD
	A	MO non-detenting/heavy duty with cover cap, detenting via accessory (key)	Non-detenting, detenting via accessory	VSVA-BMZD
Accessory for manual override, h	eavy duty			
	-	Coded key (accessory) for actuating MO, non-detenting/heavy duty, for detenting position	For manual override, detenting	-

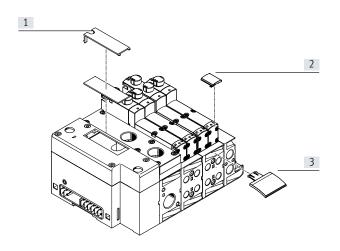
¹⁾ As an example, the part code for a 5/2-way single solenoid valve, mechanical spring return is used here (e.g.: VSVA-B-M52-MZTR-A2-1T1L)



Cover caps for non-detenting/heavy duty manual override, detenting via accessory, are provided for one-off use only.

If they are used more than once, reliable locking of the cover cap cannot be guaranteed.

Inscription system



- [1] Inscription area (approx. 20 x 45 mm)
- [2] Inscription label holder for valve ASCF-T-S6 (17 x 12.5 mm), ASCF-T-S6-Z
- [3] Inscription label holder for manifold sub-base ASCF-M-S6, ASCF-M-S2-2

Inscription label holders can be applied to the valves and manifold subbases 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 with additional fields for marking for valve type ASCF-T-S6-Z: part no. 8106532

- Inscription label holder for manifold sub-base type ASCF-M-S6: part no. 540889
- Inscription label holder for manifold sub-base (for valve width 52 mm) type ASCF-M-S2-2: part no. 562577 Large inscription labels can be

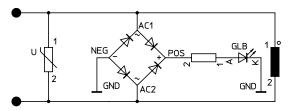
Large inscription labels can be attached to the pneumatic interface as an alternative or in addition to the smaller labels.

Protective circuit

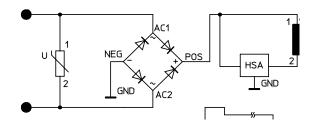
Each VSVA solenoid coil is provided with a spark arresting protective circuit and protected against polarity reversal.

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

24 V DC version (width 18 to 42 mm)



24 V DC version (width 52 mm)



· 🖣 - Note

All control signals of the solenoid coils of a valve terminal share a common load (independent of whether multi-pin, AS-i (actuator-sensor interface) or CPX).

Individual valve

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

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

Individual electrical connection

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

Individual electrical connection:

- 6-way or 10-way
- 5-pin
- 24 V DC

Electrical multi-pin connection

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

- Sub-D multi-pin plug connection (37-pin for 24 V DC): This valve terminal can be equipped with
 - 1 ... 16 valve positions (with double solenoid valves), or with
 - 1 ... 32 valve positions (with single solenoid valves). A maximum of 32 solenoid coils can be actuated.
- Terminal box (terminal strip for 24 V DC): This valve terminal can be equipped with 1 ... 16 valve positions (with double solenoid valves), or with 1 ... 32 valve positions (with single solenoid valves).

A maximum of 32 solenoid coils can be actuated.

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

The valves are switched by positive or negative logic (PNP or NPN). Mixed operation is not permissible because all control signals of the solenoid coils of a valve terminal share a common load. Each pin on the multi-pin plug (Sub-D) or terminal box (terminal strip) can actuate exactly one solenoid coil. When using the maximum configurable number of 32 valve positions, 32 valves can be addressed, each with a single solenoid coil.

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/VTSA-F with Sub-D multi-pin plug connection:

- · NEBV-...-LE10 for max. 8 solenoid coils
- NEBV-...-LE26 for max. 22 solenoid coils
- NEBV-...-LE27 for max. 23 solenoid coils
- NEBV-...-LE37 for max. 32 solenoid coils
- NECV-S1W37 pre-assembled plug

AS-Interface connection

Valve terminals VTSA/VTSA-F 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 interlinking 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-Interface module

VAEM-S6-S-FAS-4-4E Always operate the AS-Interface module with additional power supply if 4 solenoid coils (width 52 mm) are supplied with current simultaneously.

More information can be found at:

→ Internet: as-interface

Fieldbus interface/control block

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

- 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

More information can be found at:

→ Internet: cpx

Rules for addressing

Address allocation

Address allocation doesn't depend on whether single or double solenoid valves are fitted.

Addresses are allocated in ascending order without gaps, from left to right.

Single solenoid valve

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

Double solenoid valve

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

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

Connecting cable

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

- NEBV-...-LE10 for valve terminal with max. 8 solenoid coils
- NEBV-...-LE26 for valve terminal with max. 22 solenoid coils
- NEBV-...-LE27 for valve terminal with max. 23 solenoid coils
- NEBV-...-LE37 for valve terminal with max. 32 solenoid coils

			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
PIN 1 -		PIN 20	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
PIN 19 -		PIN 37	16	15	GY BN		32	31	GY BU
<u> </u>			Conduct	tor		I			
Note)		33	0 V ₃₎	YE BK		35	0 V ₃₎	BN BK
	uus a nlan viau	of the Cub D	34	0 V ³⁾	WH BK		36	0 V ³⁾	BK
	ows a plan view ne connecting ca		Earthing	_ '					
ig socket at ti	ie connecting ca	INIC MEDA	37	FE	VT		_	_	_

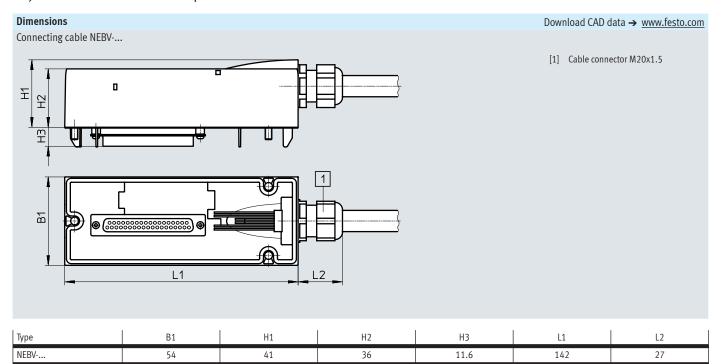
¹⁾ To IEC 757

²⁾ Pin 9 ... 35: not allocated in the case of connecting cable NEBV-...-LE10

Pin 23 ... 33: not allocated in the case of connecting cable NEBV-...-LE26

Pin 24 ... 33: not allocated in the case of connecting cable NEBV-...-LE27

³⁾ Connect O V for positive-switching control signals, 24 V for negative-switching control signals. Mixed operation is not permissible because all control signals of the solenoid coils of a valve terminal share a common load!



	Cable sheath	Connecting cable	Length [m]	Part no.	Туре
~	TPE-U(PUR)	For max. 8 solenoid coils, 10-wire	2.5	539240	NEBV-S1W37-E-2.5-LE10
			5	539241	NEBV-S1W37-E-5-LE10
			10	539242	NEBV-S1W37-E-10-LE10
Y		For max. 22 solenoid coils, 26-wire	2.5	539243	NEBV-S1W37-E-2.5-LE26
V~	[']		5	539244	NEBV-S1W37-E-5-LE26
			10	539245	NEBV-S1W37-E-10-LE26
		For max. 32 solenoid coils, 37-wire	2.5	539246	NEBV-S1W37-K-2.5-LE37
			5	539247	NEBV-S1W37-K-5-LE37
			10	539248	NEBV-S1W37-K-10-LE37
	PVC	For max. 8 solenoid coils, 10-wire	2.5	543271	NEBV-S1W37-KM-2.5-LE10
			5	543272	NEBV-S1W37-KM-5-LE10
			10	543273	NEBV-S1W37-KM-10-LE10
		For max. 23 solenoid coils, 27-wire	2.5	543274	NEBV-S1W37-KM-2.5-LE27
			5	543275	NEBV-S1W37-KM-5-LE27
			10	543276	NEBV-S1W37-KM-10-LE27
		For max. 32 solenoid coils, 37-wire	2.5	543277	NEBV-S1W37-KM-2.5-LE37
			5	543278	NEBV-S1W37-KM-5-LE37
			10	543279	NEBV-S1W37-KM-10-LE37

			Terminal	Coil/address	Terminal	Coil/address
ach solenoid coil is ass	igned to a specific ter	minal on the terminal strip				
n order for the valves to						
			1	0	17	16
			2	1	18	17
0		19	3	2	19	18
U		1	4	3	20	19
		1	5	4	21	20
	╫╱╫╱╫╱╫╱╫╱╫ ╫╱╫╱╫		6	5	22	21
			7	6	23	22
			8	7	24	23
			9	8	25	24
<u> </u>		<u>_ _ </u>	10	9	26	25
			11	10	27	26
			12	11	28	27
0V ¹⁾	20	31	13	12	29	28
			14	13	30	29
			15	14	31	30
			16	15	32	31
Note			Conductor			
Fhe drawing shows a plan view of the multi-pin terminal strip		33	0 V	35	0 V	
te drawing shows a pia Cage Clamp).	iii view oi tile illutti-p	iii teriiiiiat strip	34	0 V	36	0 V

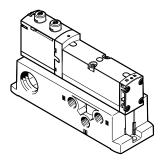
Pin allocation – Multi-pin, round plug, 24 V DC; electrical control code MP4							
	Address	Pin ¹⁾		Address	Pin ¹⁾		
	0	15		8	17		
6	1	7		9	9		
5+++7	2	5		10	2		
// ⁴ + ⁴⁴ ⁴⁵ ⁴⁶ + ⁸ \	3	4		11	13		
$\left(\left(3 + \frac{1}{43} + \frac{1}{43} + 9 \right) \right)$	4	16		12	11		
	5	8		13	10		
1 1 1 1 1 1 1	6	3		14	1		
	7	14		15	18		

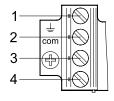
Pin allocation - Multi-pin plug, round plug, 24 V DC; electrical actuation	n – CNOMO allocation			
	Pin	Valve position/	Pin	Valve position/
		solenoid coil		solenoid coil
	1	8/14	11	7/14
	2	6/14	12	FE
	3	4/14	13	6/12
110 120 10	4	2/12	14	4/12
/ //10 170 19 0 3	5	2/14	15	1/14
	6	0 V ¹⁾	16	3/14
	7	1/12	17	5/14
O7 O6 O5	8	3/12	18	8/12
	9	5/12	19	Unused
	10	7/12		

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: not allocated

Electrical connection, individual valve 24 V DC up to width 52 mm





Pin allocation for assembly by the user With positive logic:

Pin1 - Not allocated

Pin2 – U_B for coil 12

Pin3 - 0 V for coil 12 and 14

Pin4 – U_B for coil 14

With negative logic:

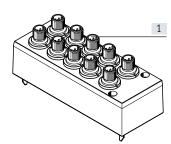
Pin1 - Not allocated

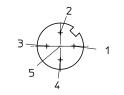
Pin2 - 0 V for coil 12

Pin3 - U_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 up to width 52 mm





[1] Connection plug M12x1, 5-pin

Pin allocation M12 With positive logic:

Pin1 – Not allocated

Pin2 – U_B for coil 12

Pin3 - 0 V for coil 12 and 14

Pin4 - U_B for coil 14

Pin5 - Functional earth

Pin allocation M12 With negative logic:

Pin1 – Not allocated

Pin2 – 0 V for coil 12

Pin3 – U_B for coil 12 and 14

Pin4 - 0 V for coil 14

Pin5 - Functional earth



- Mixed operation of positive-switching (PNP) and negative-switching (NPN)
 control signals is not permissible because all control signals of the solenoid
 coils of a valve terminal share a common load.
- All M12 connections (MP2/MP3) within a valve terminal share a common load.

Application notes

System equipment

Operate your system with unlubricated compressed air if possible. Festo valves and cylinders are designed so that, if used as intended, 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 the entire system with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator requiring them.

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 esters, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m³ must not be exceeded (see ISO 8573-1:2010 Class 2).

Mineral oils

When using mineral oils (e.g. HLP oils to DIN 51524, parts 1 to 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m³ must not be exceeded (see ISO 8573-1:2010 Class 4).

A higher residual oil content is not permitted, regardless of the compressor oil, because permanent lubrication would otherwise be flushed out over a period of time.

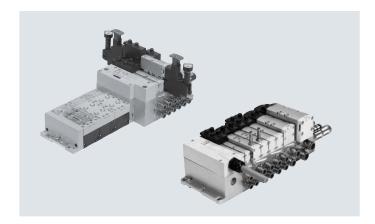
- **[]** - Valve width to ISO 15407-2

- 18 mm
- 26 mm to ISO 5599-2
- 42 mm (ISO 1)
- 52 mm (ISO 2)

Voltage 24 V DC

- 11

Flow rate¹⁾
Width 18 mm: up to 550 (700) l/min
Width 26 mm: up to 1100 (1350) l/min
Width 42 mm: up to 1300 (1860) l/min
Width 52 mm:
up to 2900 l/min



1) Flow rates in brackets apply to VTSA-F

General technical data	
Terminal type VTSA/VTSA-F	VTSA is the standard version, VTSA-F is the version with optimised flow rate
Valve sizes	Widths 18 mm, 26 mm, 42 mm, 52 mm, extendable with adapter to 65 mm
Actuation type	Electrical
Electrical actuation	With multi-pin: multi-pin
	With fieldbus: integrated controller, fieldbus, Industrial Ethernet
Type of control	Piloted
Exhaust function, can be throttled	Via throttle plate
Type of mounting	Wall mounting
	On H-rail to EN 60715
Mounting position	Any
Manual override	Non-detenting, detenting, concealed
Suitable for vacuum	Yes
Valve terminal design	Modular, valve sizes can be mixed
Max. no. of valve positions	32 1)
Pneumatic connections — NPT thread	
Pneumatic connection	Via manifold sub-base
Supply port 1	Dependent on the end plate or supply plate used (and adapter plate when using ISO size 3 valves)
Exhaust port 3/5	Dependent on the end plate or supply plate used (and adapter plate when using ISO size 3 valves)
Working ports 2/4	Depending on the connection type selected
External pilot air supply port 14	Dependent on the end plate used (and adapter plate when using ISO size 3 valves)
Pilot exhaust air port 12	Dependent on the end plate used (and adapter plate when using ISO size 3 valves)

¹⁾ Dependent on the electrical interface and the manifold sub-bases used

 $[\]mbox{\ }\mbox{\ }\$

Standard nominal flow rate of valve/valve terminal [l/m Valve function (with valve code)		Width 18 mm			Width 26 mm		
valve function (with valve code)	code	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F
5/2-way, double solenoid (B52)	J	750	550	700	1400	1100	1350
5/2-way, double solenoid with dominant signal (D52)	D	750	550	700	1400	1100	1350
5/2-way, single solenoid, pneumatic spring (M52A)	M	750	550	700	1400	1100	1350
5/2-way, single solenoid, mechanical spring (M52M)	0	750	550	700	1400	1100	1350
5/3-way, closed (P53C)	G	700	450	650	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾
5/3-way, exhausted (P53E)	E	700 ¹⁾ 330 ²⁾	450 ¹⁾ 330 ²⁾	480 ¹⁾ 330 ²⁾	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾
5/3-way, pressurised (P53U)	В	700 ¹⁾ 330 ²⁾	450 ¹⁾ 330 ²⁾	480 ¹⁾ 330 ²⁾	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	-	380 ¹⁾ 310 ²⁾	430 ¹⁾ 360 ²⁾	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	-	380 ¹⁾ 300 ²⁾	460 ¹⁾ 350 ²⁾	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	-	380 ¹⁾ 350 ²⁾	440 ¹⁾ 400 ²⁾	700 ¹⁾ 700 ²⁾	700 ¹⁾ 700 ²⁾	700 ¹⁾ 700 ²⁾
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	-	370 ¹⁾ 340 ²⁾	430 ¹⁾ 360 ²⁾	-	850 ¹⁾ 820 ²⁾	950 ¹⁾ 860 ²⁾
2x3/2-way, single solenoid, closed (T32C)	K	600	400	550	1250	900	1150
2x3/2-way, single solenoid, open (T32U)	N	600	400	550	1250	900	1150
2x3/2-way, single solenoid, open/closed (T32H)	Н	600	400	550	1250	900	1150
2x3/2-way, single solenoid, closed (T32N)	Q	600	400	550	1250	900	1150
2x3/2-way, single solenoid, open (T32F)	Р	600	400	550	1250	900	1150
2x3/2-way, single solenoid, open/closed (T32W)	R	600	400	550	1250	900	1150
2x2/2-way, single solenoid, closed (T22C)	VC	700	500	650	1350	1000	1300
2x2/2-way, single solenoid, closed (T22CV)	W	700	500	650	1350	1000	1300

Switching position
 Mid-position

Valve terminals VTSA/VTSA-F, NPT

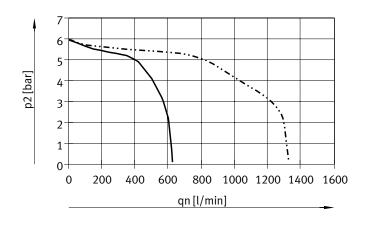
Data sheet – Valve terminal

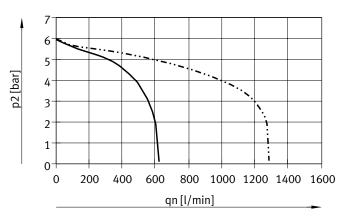
Valve function (with valve code)	Terminal	Width 42 mm			Width 52 mm		
	code	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F
5/2-way, double solenoid (B52)	J	2000	1300	1860	4000	2900	2900
5/2-way, double solenoid with dominant signal (D52)	D	2000	1300	1860	4000	2900	2900
5/2-way, single solenoid, pneumatic spring (M52A)	M	2000	1300	1860	4000	2900	2900
5/2-way, single solenoid, mechanical spring (M52M)	0	2000	1300	1860	4000	2900	2900
5/3-way, closed (P53C)	G	1900 ¹⁾ 950 ²⁾	1200 ¹⁾ 800 ²⁾	1690 ¹⁾ 830 ²⁾	3600 ¹⁾ 1700 ²⁾	2800 ¹⁾ 1700 ²⁾	2800 ¹⁾ 1700 ²⁾
5/3-way, exhausted (P53E)	E	1900 ¹⁾ 950 ²⁾	1200 ¹⁾ 800 ²⁾	1690 ¹⁾ 830 ²⁾	3600 ¹⁾ 1700 ²⁾	2800 ¹⁾ 1700 ²⁾	2800 ¹⁾ 1700 ²⁾
5/3-way, pressurised (P53U)	В	1900 ¹⁾ 950 ²⁾	1200 ¹⁾ 800 ²⁾	1690 ¹⁾ 830 ²⁾	3600 ¹⁾ 1700 ²⁾	2800 ¹⁾ 1700 ²⁾	2800 ¹⁾ 1700 ²⁾
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	1700 ¹⁾ 700 ²⁾	1400 ¹⁾ 800 ²⁾	1700 ¹⁾ 700 ²⁾	3000 ¹⁾ 900 ²⁾	2300 ¹⁾ 900 ²⁾	2300 ¹⁾ 900 ²⁾
2x3/2-way, single solenoid, closed (T32C)	K	1600	1200	1300	3000	2400	2400
2x3/2-way, single solenoid, open (T32U)	N	1600	1200	1300	3000	2400	2400
2x3/2-way, single solenoid, open/closed (T32H)	Н	1600	1200	1300	3000	2400	2400
2x3/2-way, single solenoid, closed (T32N)	Q	1600	1200	1300	3000	2400	2400
2x3/2-way, single solenoid, open (T32F)	Р	1600	1200	1300	3000	2400	2400
2x3/2-way, single solenoid, open/closed (T32W)	R	1600	1200	1300	3000	2400	2400
2x2/2-way, single solenoid, closed (T22C)	VC	1600	1400	1500	4000	2800	2800
2x2/2-way, single solenoid, closed (T22CV)	W	1600	1400	1500	1-	-	-

Switching position
 Mid-position

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

6 bar 10 bar

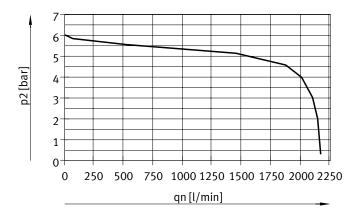


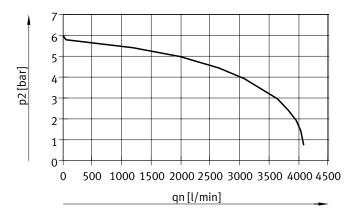


----- Width 18 mm

----- Width 18 mm
----- Width 26 mm

Input pressure 10 bar, regulated pressure set at 6 bar



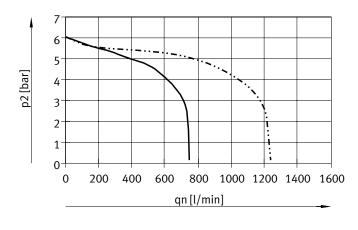


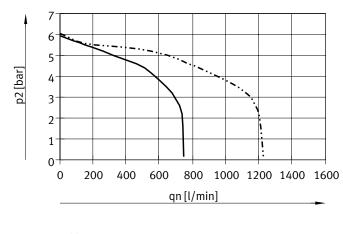
Width 42 mm (ISO 1)

Width 52 mm (ISO 2)

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

par 10 bar

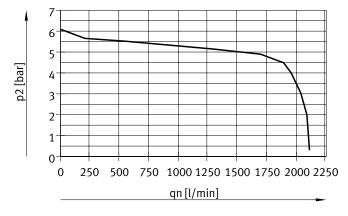


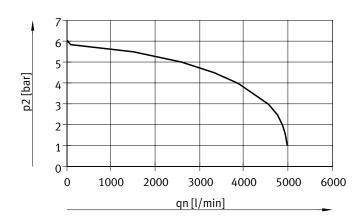


Width 18 mm
Width 26 mm

----- Width 18 mm

Input pressure 10 bar, regulated pressure set at 6 bar



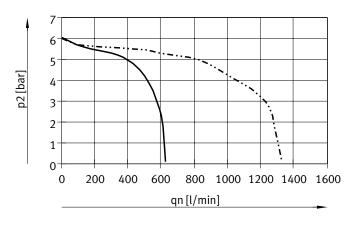


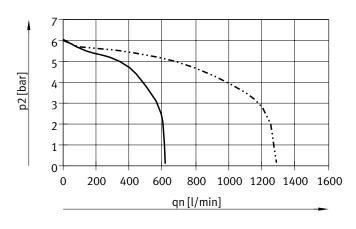
Width 42 mm (ISO 1)

Width 52 mm (ISO 2)

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

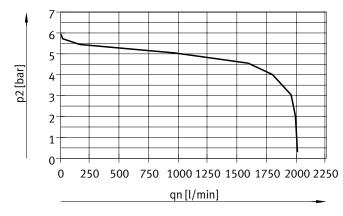
bar 10 bar

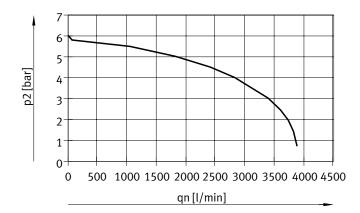




----- Width 18 mm ----- Width 26 mm ----- Width 18 mm

Input pressure 10 bar, regulated pressure set at 6 bar

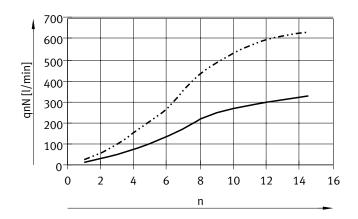




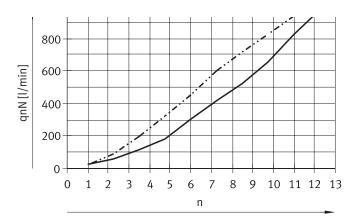
Width 42 mm (ISO 1)

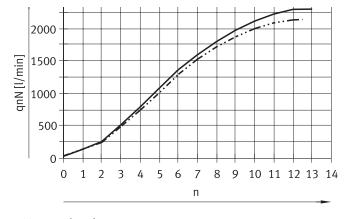
Width 52 mm (ISO 2)

Flow rate qn as a function of flow control



------ Width 18 mm





Width 42 mm (ISO 1)

Flow control screw from $2 \rightarrow 3$ Flow control screw from $4 \rightarrow 5$

n = revolutions of the adjusting screw

Width 52 mm (ISO 2)

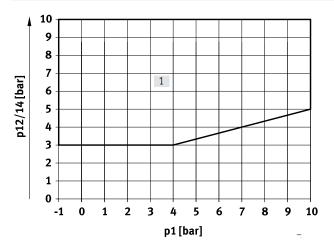
Flow control screw from $2 \rightarrow 3$

Flow control screw from $4 \rightarrow 5$

n = revolutions of the adjusting screw

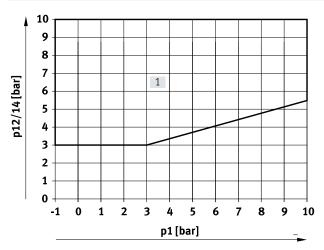
Pilot pressure p12/14 as a function of operating pressure p1

For 3/2-way solenoid valves (T32, T22)



[1] Operating range for valves with external pilot air supply





[1] Operating range for valves with external pilot air supply

Standard nominal flow rate of vertice	al stacking [l/min]					
Widths	18 mm	26 mm	42 mm	52 mm		
Throttle plate						
VABF-S4-2-F1B1-C	See characteristic curve	-	-	-		
VABF-S4-1-F1B1-C	-	See characteristic curve	-	-		
VABF-S2-1-F1B1-C	-	-	1100	-		
VABF-S2-2-F1B1-C	-	-	-	See characteristic curve		
Vertical supply plate						
VABF-S4-2-P1AG18	430	-	-	-		
VABF-S4-1-P1AG14	-	900	-	-		
VABF-S2-1-P1AG38	-	-	1300	-		
VABF-S2-2-P1AG12	-	-	-	2800		
Vertical pressure shut-off plate	Vertical pressure shut-off plate					
VABF-S4-2-L1D1-C	400	-	-	-		
VABF-S4-2-L1D2-C ¹⁾	320	-	-	-		
VABF-S4-1-L1D1-C	-	800	-	-		
VABF-S4-1-L1D2-C ¹⁾	-	620	-	-		
VABF-S2-1-L1D1-C	-	-	1200	-		
VABF-S2-2-L1D1-C	-	-	-	1950		

¹⁾ Lockable with key

Operating and environmental co	nditions	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Notes on operating/ pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure for valve terminal, pilot air supply ²⁾		
External	[bar]	-0.9 +10
Internal	[bar]	310
Pilot pressure	[bar]	310
Sound pressure level LpA	[dB(A)]	85
Ambient temperature	[°C]	-5 +50
Temperature of medium	[°C]	-5+50
Storage temperature	[°C]	-20 +60
Relative air humidity	[%]	090
Certification		BIA
		C-Tick
		c UL us – Recognized (OL)
CE marking (see		To EU EMC Directive ¹⁾
declaration of conformity)		
KC mark		KC EMC
Corrosion resistance class CRC ³⁾		0

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

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

No corrosion stress. Applies to small, visually unimportant standards-based parts such as threaded pins, circlips and clamping sleeves which are usually only available on the market in a phosphated or burnished version (and possibly oiled) as well as to ball bearings (for components < CRC 3) and plain bearings.

²⁾ Solenoid valves with code VC (2/2-way type ... T22C), N (3/2-way type ... T32C), H (3/2-way type ... T32C), H (3/2-way type ... T32C) and the reduction of the entitled micro measures for the entitled micro measures for the entitled micro micro measures for the entitled micro measures for the entitled micro measures for the entitled micro micro measures for the entitled micro micro micro micro measures for the entitled micro m

³⁾ Corrosion resistance class CRC 0 to Festo standard FN 940070

Electrical data – Individual electrical	Electrical data – Individual electrical connection				
Load voltage supply for valves (U _{val})					
Operating voltage	[V DC]	24 ±10%			
Max. residual current at 24 V DC	[A]	10			
Duty cycle ED		100%			
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)			

Electrical data – Multi-pin plug	Electrical data – Multi-pin plug connection					
Load voltage supply for valves (L	Load voltage supply for valves (U _{val})					
Operating voltage	[V DC]	24 ±10%				
Max. residual current	[A]	6				
Current rating at 40°C	[A]	1				
Surge resistance	[kV]	1.5				
Pollution degree		3				
Duty cycle ED		100%				
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)				

Electrical data — With CPX terminal		
Power supply for electronics (U _{EL/SEN})		
Operating voltage	[V DC]	24 ±10%
Max. intrinsic current consumption	[mA]	20
at 24 V DC		
Duty cycle ED		100%
Load voltage supply for valves (U _{val})		
Operating voltage	[V DC]	24 ±10%
Diagnostic message on undervoltage U _{OFF}	[V]	21.6 21.5
load voltage outside functional range		
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)

Materials	
Manifold sub-base	Die-cast aluminium
Valve	Die-cast aluminium, PA
Seals	FPM, NBR, HNBR
Supply plate	Die-cast aluminium
Right-hand end plate	Die-cast aluminium
Pneumatic interface for CPX	Die-cast aluminium
Throttle plate	Die-cast aluminium
Pressure regulator plate	Die-cast aluminium, PA
Multi-pin manifold block	Die-cast aluminium
Cover for the pneumatic interface and multi-pin plug	PA
connection	
Note on materials	RoHS-compliant RoHS-compliant

Product weights				
Approx. weights	s]			
Width	18 mm	26 mm	42 mm	52 mm
Multi-pin node with Sub-D or terminal strip ¹⁾	550			
Multi-pin node with M12 individual connection	760			
Pneumatic interface CPX ¹⁾	1470			
Electrical interface for AS-Interface	300			
AS-Interface module	850			
Supply plate ²⁾				
Exhaust plate with 3 and 5 common	617			
Exhaust air cover with 3 and 5 separated	597			
Right-hand end plate ³⁾				
With threaded connections	339			336
Selector	281			-
Manifold sub-base ⁴⁾	447	634	340, 330 ⁵⁾	610
90°-connection plate ³⁾	170	230	176	359
Pressure regulator plate				
For port 1 (P)	350	402	640	1190
For port 4 or 2 (A or B)	367	448	640	1230
For ports 4 and 2 (A/B)	611	692	920	1990
Throttle plate	228	320	220	565
Vertical supply plate ³⁾	140	191	340	605
Vertical pressure shut-off plate	209	273	600	1030
Vertical pressure shut-off plate (lockable with key)	231	290	-	-
Cover plate	34	73	68	146

¹⁾ With sheet metal seal, printed circuit board

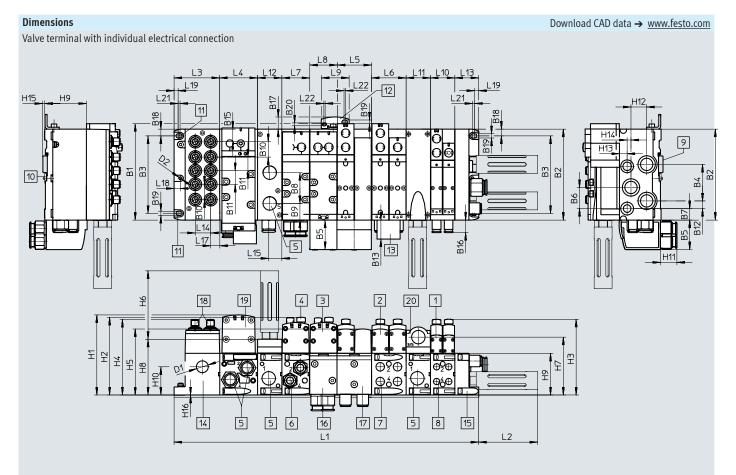
with sheet metal seal, plinted thicult board

With sheet metal seal and electrical links

With screws

With sheet metal seal, electrical links, inscription label holder, 4 screws

Manifold sub-base optimised for flow rate, HS



- [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 1/2 NPT
- [6] Threaded connection 3/8 NPT
- [7] Threaded connection 1/4 NPT
- [8] Threaded connection 1/8 NPT
- [9] H-rail
- [10] H-rail mounting
- [11] Mounting hole
- [12] Additional mounting bracket
- [13] Inscription label holder
- [14] Individual connection
- [15] End plate

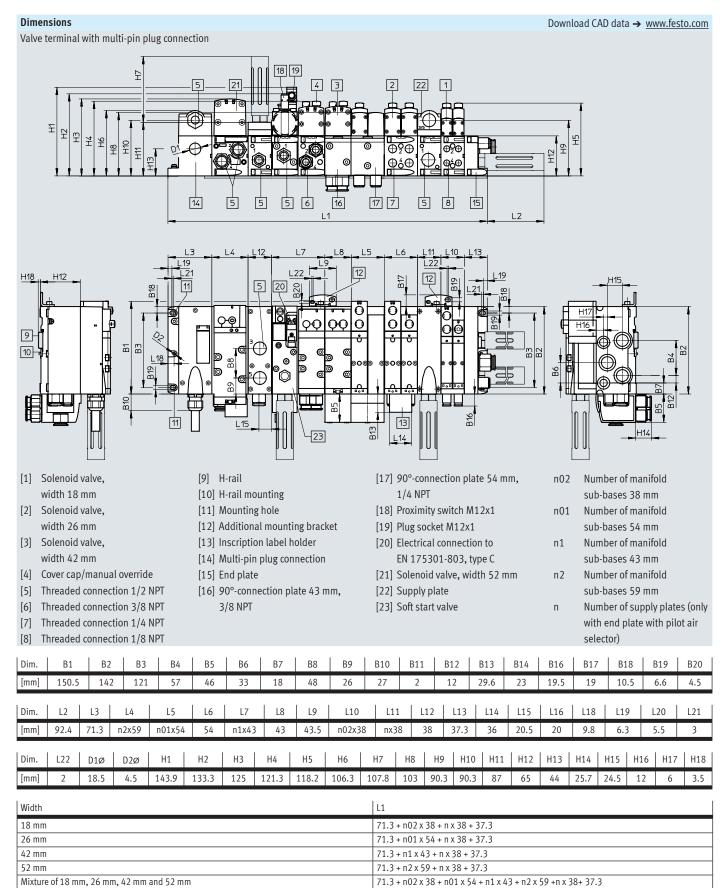
- [16] 90°-connection plate 43 mm,
- [17] 90°-connection plate 54 mm, 1/4 NPT
- [18] M12 plug 5-pin (6-way or 10-way)
- [19] Solenoid valve, width 52 mm
- [20] Supply plate

- 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
- Number of supply plates (only with end plate with pilot air selector)

Dim.	B1	B2	В	3 E	34 B5	Б	6 B7	B8	B9	B1	0 B1	1 B1	.2 B	13 B	14	B15	B16	B17	B18	ВВ	19	B20
[mm]	150.5	142	1.2	21 5	57 46	3:	3 18	48	26	2	4 21	.3 1	2 29	9.6	23	19.6	19.5	19	10.	5 6	5.6	4.5
Dim.	L2	L3	L	_4	L5	L6	L7	L8	L9		L10	L11	L12	L13	L14	L1	5 1	16	L17	L18	8	L19
[mm]	92.4	71.3	n2	x59	n01x54	54	n1x43	43	43.	5 n()2x38	nx38	38	37.3	24	20	.5	20	14.1	9.8	8	6.3
Dim.	L20	L21	L22	D1ø	D2ø	H1	H2	Н3	H4	H5	H6	H7	H8	H9	H10	H11	H1:	2 H1	13 H	14	H15	H16
[mm]	5.5	3	2	18.5	4.5	125	121.3	118.2	118	103	107.8	90.3	87	65	44	25.7	24.	5 1	2	6	3.5	0.5

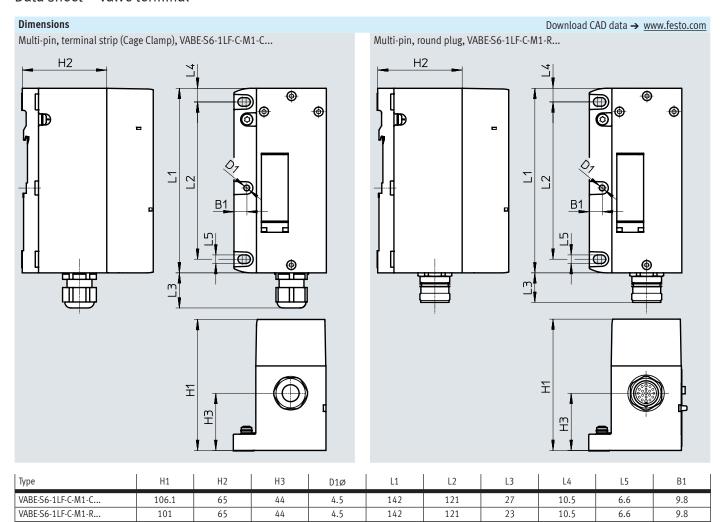
Width	L1
18 mm	71.3 + n02 x 38 + n x 38 + 37.3
26 mm	71.3 + n01 x 54 + n x 38 + 37.3
42 mm	71.3 + n1 x 43 + n x 38 + 37.3
52 mm	71.3 + n2 x 59 + n x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2x59 + n x 38 + 37.3

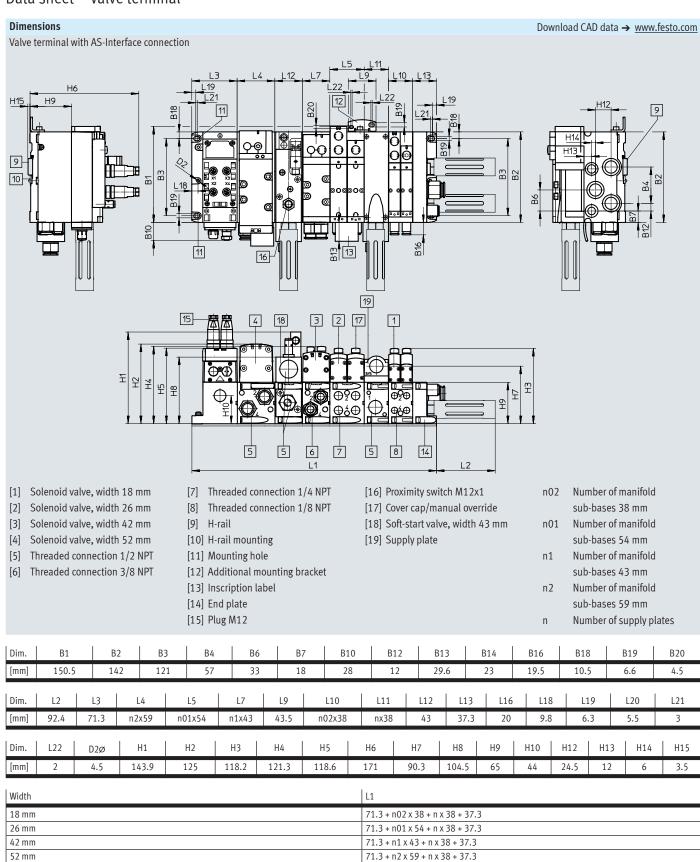
 $[\]mbox{\ensuremath{\$}}$ - Note: This product conforms to ISO 1179-1 and ISO 228-1.



Mixture of 18 mm, 26 mm, 42 mm and 52 mm

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





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 + n x 38 + 37.3

Dimensions Download CAD data → www.festo.com Valve terminal with fieldbus interface H18 B20 9 10 13 22 ФбФ 14 5 5 18 5 8 15 16 7 [1] Solenoid valve, width 18 mm [10] H-rail mounting [20] Plug socket M12x1 n02 Number of manifold Solenoid valve, width 26 mm [11] Mounting hole [21] Electrical connection to sub-bases 38 mm [2] [12] Additional mounting bracket Number of manifold Solenoid valve, width 42 mm EN 175301-803, type C [3] Cover cap/manual override [13] Inscription label holder [22] Hole for additional mounting, sub-bases 54 mm [4] [5] Threaded connection 1/2 NPT [14] Pneumatic interface CPX diameter 6.4 2x n1 Number of manifold Threaded connection 3/8 NPT [15] End plate [23] Solenoid valve, width 52 mm sub-bases 43 mm [6] Threaded connection 1/4 NPT [16] CPX module/bus node [24] Supply plate Number of manifold [7] n2 Threaded connection 1/8 NPT sub-bases 59 mm [17] 90°-connection plate 43 mm, [25] Soft-start valve [8] [9] H-rail 3/8 NPT Number of supply plates (only [18] 90°-connection plate with end plate with pilot air 54 mm, 1/4 NPT selector) [19] Proximity switch M12x1 Number of CPX modules m B19 Dim. В1 В3 B4 B5 B6 В7 В8 B10 B11 B12 B13 B14 B16 B17 B18 B20 B22 107.3 142 121 57 46 33 18 48 26 66 29.6 23 19.5 19 10.5 6.6 18.9 [mm] 78 12 4.5 65 7.5 4.4 L9 L19 L22 Dim. L2 L3 L4 L6 L7 L8 L10 L11 L12 L13 L14 L15 L17 L18 L21 [mm] 92.4 50 n2x59 n01x54 54 n1x43 43 mx50.1 n02x38 nx38 38 37.3 20.5 22 Dim. L23 L24 L25 Н6 Н8 Н9 H10 H12 H13 | H14 | H15 | H16 | H17 | H18 | H19 106.8 143.9 133.3 125 121.3 118.2 103 87 90.3 92.9 10.8 [mm] 30.4 23.7 55.1 65 25.8 25.7 24.5 12 Width 11 18 mm 30.4 + m x 50.1 + 50 + n02 x 38 + n x 38 + 37.3 30.4 + m x 50.1 + 50 + n01 x 54 + n x 38 + 37.3 26 mm

30.4 + m x 50.1 + 50 + n1 x 43 + n x 38 + 37.3 30.4 + m x 50.1 + 50 + n2 x 59 + n x 38 + 37.3

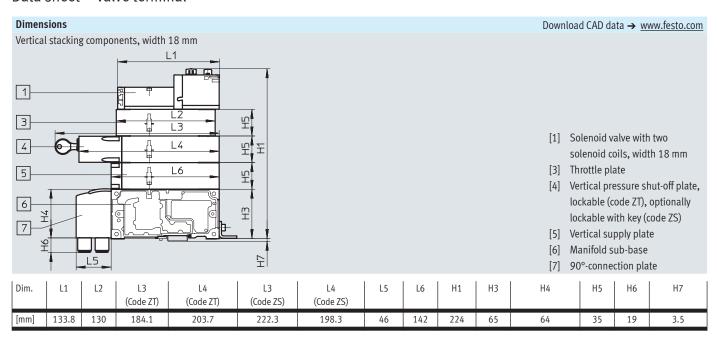
30.4 + m x 50.1 + 50 + n02 x 38 + n01 x 54 + n1 x 43 + n2x59 + n x 38 + 37.3

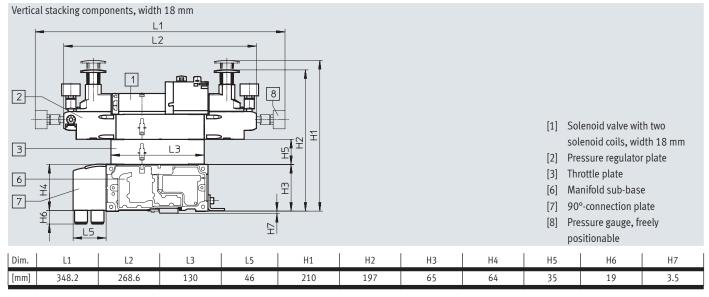
42 mm

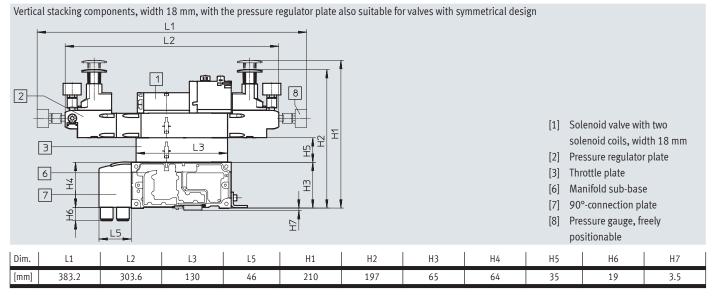
52 mm

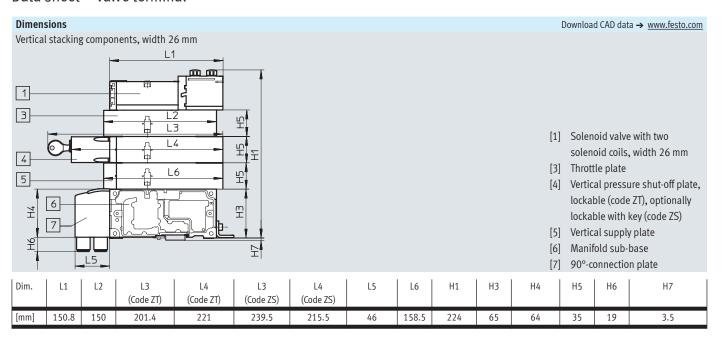
Mixture of 18 mm, 26 mm, 42 mm and 52 mm

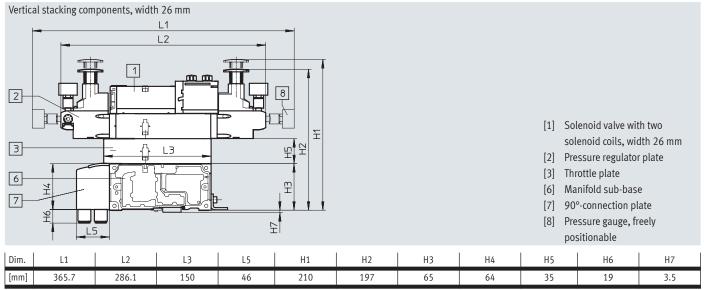
Note: This product conforms to ISO 1179-1 and ISO 228-1.

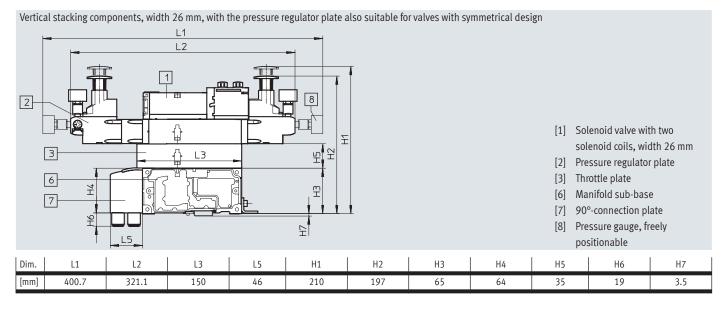












Dimensions Download CAD data → www.festo.com Vertical stacking components, width 42 mm L1 1 3 L3 L4 L6 5 Solenoid valve 6 Throttle plate [3] 兕 7 2 Vertical pressure shut-off plate [4] Vertical supply plate [5] 7 Manifold sub-base [6] L5 L2 90°-connection plate [7]

117.6

236

Н3

65

Н4

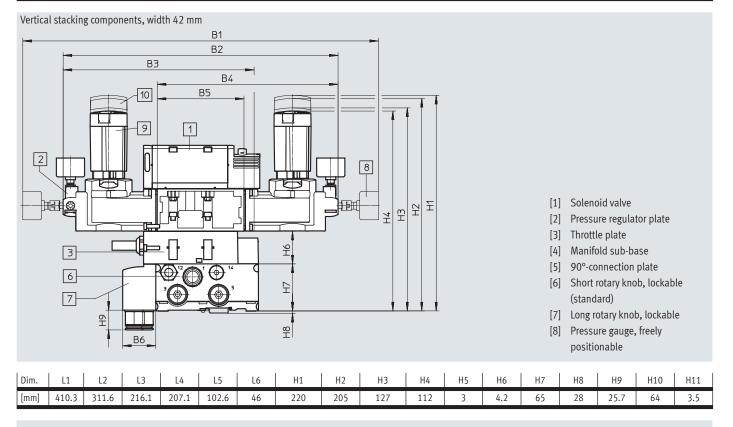
64

Н5

45.3

Н6

25.7



- Note

Dim.

[mm]

137.8

Pressure regulator plates for valves with symmetrical design with widths of 42 mm and 52 mm can only be ordered via the pressure regulator configurator VABF-S2.

L3

105.3

173.8

142

→ Internet: vabf-s2

The following can be selected using the pressure regulator configurator VABF-S2:

- Rotary knob, short version with locking element (standard)
- Rotary knob, long version with locking element
- Rotary knob with integrated lock

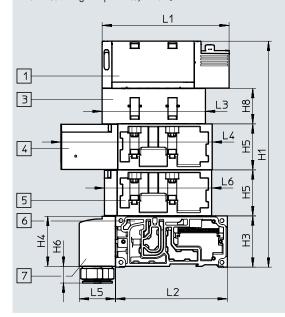
Н8

28

3.5

Dimensions

Vertical stacking components, width 52 mm

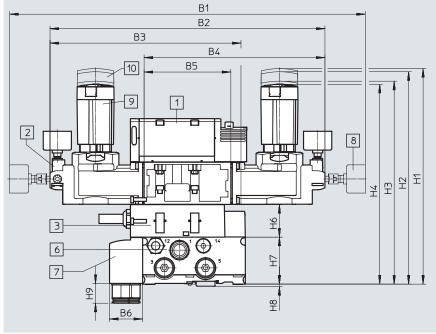


Download CAD data → www.festo.com

- [1] Solenoid valve
- Throttle plate
- Vertical pressure shut-off plate
- Vertical supply plate
- Manifold sub-base
- 90°-connection plate

Dim.	L1	L2	L3	L4	L5	L6	H1	H3	H4	H5	Н6	H8
[mm]	160.7	142	131	191.2	46	136	287.4	65	63.5	58.7	21.2	45

Vertical stacking components, width 52 mm



- [1] Solenoid valve
- Pressure regulator plate
- Throttle plate [3]
- Manifold sub-base [4]
- 90°-connection plate
- Short rotary knob, lockable (standard)
- [7] Long rotary knob, lockable
- Pressure gauge, freely positionable

Dim.	L1	L2	L3	L4	L5	L6	H1	H2	Н3	H4	H5	Н6	H7	Н8	H9	H10	H11
[mm]	492	380.4	264.2	250.2	120	45.8	291	276	181	166	5.5	4.5	65	45	27.4	63.5	3.5



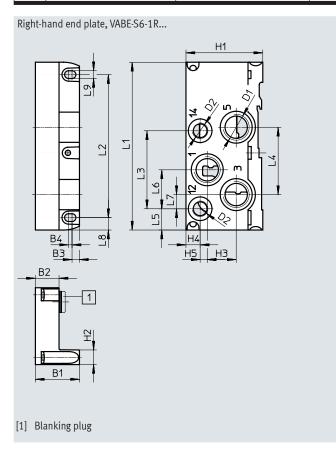
Pressure regulator plates for valves with symmetrical design with widths of 42 mm and 52 mm can only be ordered via the pressure regulator configurator VABF-S2.

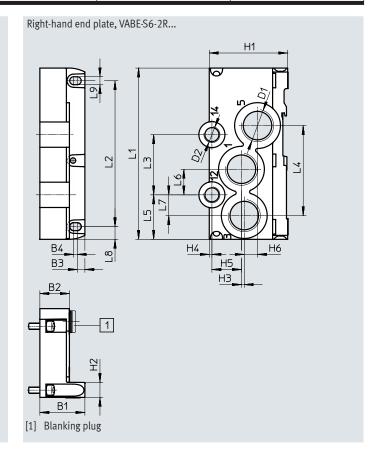
→ Internet: vabf-s2

The following can be selected using the pressure regulator configurator VABF-S2:

- Rotary knob, short version with locking element (standard)
- Rotary knob, long version with locking element
- · Rotary knob with integrated lock

Dimensions Download CAD data → www.festo.com Supply plate with silencer 3 2 1 [1] Supply plate [2] Exhaust air cover [3] Silencer U-1/2-B-NPT L2 [4] Threaded connection 1/2 NPT Dim. L1 L2 Н1 H2 В1 107.5 [mm] 142 75 31.5 38





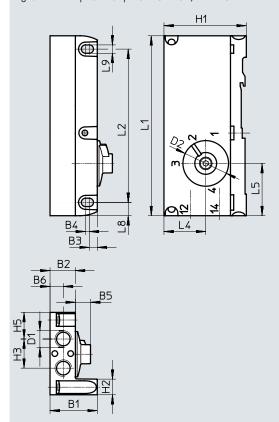
Туре	L1	L2	L3	L4	L5	L6	L7	L8	L9	D1	D2	H1	H2	Н3	H4	H5	Н6	B1	В2	В3	В4	With ¹⁾
VABE-S6-1R-G12	142	121	66	E 7	18	33	12	10.5	6.6	1/2 NPT	1/4 NPT	65	12.5	24.5	12	4		37.3	22	6.2	2	[1]
VABE-S6-1RZ-G12	142	121	66	57	10))	12	10.5	0.0	1/2 NF1	1/4 NF1	05	12.5	24.5	12	0	_	3/.3	22	0.5	ر	-
VABE-S6-2R-G34	142	121	49.9	74.6	36.9	21.2	172	10.5	6.6	3/4 NPT	1/4 NPT	65	12.5	2.3	2.2	24.5	11	37.3	24.5	63	2	[1]
VABE-S6-2RZ-G34	142	121	47.7	74.0	70.9	21.2	17.2	10.5	0.0)/4 NF1	1/4 NF1	65	12.5	2.5	2.2	24.5	11	ر./ر	24.5	0.5		- 1

With blanking plug = internal pilot air supply, – without blanking plug = external pilot air supply Special feature: For VABE-S6-1R-G12 (code V), there is no port 14.

 $[\]mbox{\ensuremath{|\hspace{-1.6pt}|}}$ - Note: This product conforms to ISO 1179-1 and ISO 228-1.

Dimensions

Right-hand end plate with pilot air selector, VABE-S6-1RZ-N-B1



Туре	L1	L2	L5	L8	L9	D1	D2	H1	H2	Н3	H4	H5	B1	B2	В3	B4	B5	В6
VABE-S6-1RZ-N-B1	142	121	41.3	10.5	6.6	1/4 NPT	37	65.4	12.5	23	33	21	37.3	20	6.3	3	12	10.5

Download CAD data → www.festo.com

Data sheet - Solenoid valves VSVA

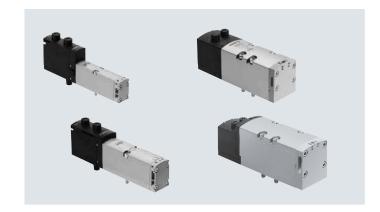
- **[]** - Valve width to ISO 15407-2

- 18 mm
- 26 mm to ISO 5599-2
- 42 mm (ISO 1)
- 52 mm (ISO 2)

- **** - Voltage 24 V DC



Width 18 mm: up to 550 (700) l/min Width 26 mm: up to 1100 (1350) l/min Width 42 mm: up to 1300 (1860) l/min Width 52 mm: up to 2900 l/min



1) Flow rates in brackets apply to VTSA-F

General technical data for solen	oid valves	
Design		Piston spool valve
Sealing principle		Soft
Overlap		Positive overlap (excluding types P53AD, P53BD)
		Negative overlap (types P53AD, P53BD)
Reset method		Mechanical or pneumatic, depending on type used
Actuation type		Electrical
Electrical connection		Plug to ISO 15407-2, 2-pin (single solenoid types) or 4-pin (double solenoid and 5/3-way types)
Type of control		Piloted
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmission in mounted state)
Exhaust function, can be throttle	d	Via individual sub-base, via throttle plate (not with valve type T22)
Type of mounting		On manifold sub-base, on individual sub-base
Mounting position		Any
Manual override		Non-detenting, detenting, concealed
Signal status indication		LED (except types with signal status indication sensor, and part nos.: 560727 and 560728)
Sensor signal status indication		Yellow LED
Duty cycle	[%]	100
Pollution degree		3
Surge resistance	[kV]	2.5
Nominal operating voltage	[V DC]	24 (dependent on valve type)
Permissible voltage fluctuations	[%]	±10
Pneumatic connections		
Supply port	1	Via the manifold sub-base of the valve terminal or via individual sub-base
Exhaust port	3/5	
Working ports	2/4	
Pilot air supply	12/14	
Pilot exhaust air port	82/84	Either ducted or unducted

Data sheet - Solenoid valves

Pneumatic character	istic data									
Terminal code	VC	W	N	K	Н	P	Q	R	M	0
Valve code	T22C	T22CV	T32U	T32C	T32H	T32F	T32N	T32W	M52-A	M52M
Flow direction										
Any	-	•	_	_	_	_	-	_	-	-
Only reversible	-	-	-	-	-	•	•	-	-	-
Non-reversible		-			•	-	-	-	-	_
Reset method										
Pneumatic spring		•	-	-	-	-		-	-	-
Mechanical	-	-	-	-	_	_	-	_	-	-
spring										

Pneumatic characte	ristic data									
Terminal code	J	D	В	G	E	SA	SB	SD	SE	VG
Valve code	B52	D52	P53U	P53C	P53E	P53ED	P53AD	P53BD	P53EP	P53F
Flow direction										
Any	•	•	•	•	•	-	-	-	-	•
Only reversible	-	-	-	-	-	-	-	_	-	_
Non-reversible	-	-	-	-	-	•	-	•	•	-
Reset method										
Pneumatic spring	_	-	-	_	_	_	_	_	-	_
Mechanical	_	-	•	•	•	•	•	-	•	•
spring										

Flow direction of solenoid valves

Solenoid valves with only reversible flow direction

- 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 solenoid valves do not permit the special function "ducted pilot exhaust air"
- 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

Solenoid valves with any flow direction

- Valves with any flow direction such as the 5/2-way solenoid valve, code M, for example, are suitable for vacuum operation (standard valves such as the 2x 2/2-way solenoid valve with code VC, for example, may not be used for vacuum operation).
- An exception is the 2x 2/2-way solenoid valve with code VV (T22CV), which only allows vacuum operation at ports 3 and 5. The solenoid valve with code VV (T22CV) cannot be combined with other valve functions; a separate pressure zone is required.

Data sheet – Solenoid valves

Operating and environmental conditions		
Operating medium	•	Compressed air to ISO 8573-1:2010 [7:4:4]
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Notes on operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Operating pressure, pilot air supply ²⁾	[bar]	-0.9 +10 (valves with any flow direction and reversible valves)
	[bar]	3 10 (non-reversible valves)
Pilot pressure	[bar]	310
Pilot air supply		External
		Internal via valve terminal
Ambient temperature	[°C]	-5 +50
Relative air humidity	[%]	0 90
Certification		BIA (for characteristic SP and/or SN only)
		C-Tick (only size 52 mm and solenoid valves with sensor (position sensing))
		c UL us – Recognized (OL)
		CSA (OL)
		c CSA us (OL) (valve size 52 mm only)
CE marking (see		To EU EMC Directive ¹⁾
declaration of conformity)		

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

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

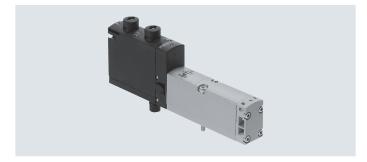
²⁾ Solenoid valves with code VC (2/2-way type ... T22C), N (3/2-way type ... T32U), K (3/2-way type ... T32C), H (3/2-way type ... T32H) must not be operated with vacuum; the operating pressure here is 3 ... 10 bar

Data sheet - Solenoid valve, width 18 mm

Valve width to ISO 15407-2 18 mm

Flow rate
Valve width 18 mm:
VTSA up to 550 l/min
VTSA-F up to 700 l/min





Safety characteristics – Valve, width 18 mm	
Conforms to standard	EN 13849-1/2
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾ (only solenoid valves with sensor)
Shock resistance	Shock test with severity level 2, to EN 60068-2-27
Vibration resistance	Transport application test with severity level 2, to EN 60068-2-6

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

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

Safety characteristics – Valve, width 18 mm Valve function (with valve code)	Terminal	Test pulses				
	code	Max. positive test pulse with logic 0 [µs]	Max. negative test pulse with logic 1 [μs]			
5/2-way, double solenoid (B52)	J	1500	800			
5/2-way, double solenoid with dominant signal (D52)	D	1700	1200			
5/2-way, single solenoid (M52A)	M	1500	800			
5/2-way, single solenoid (M52M)	0	1500	800			
5/3-way, closed (P53C)	G	1500	800			
5/3-way, exhausted (P53E)	E	1500	800			
5/3-way, pressurised (P53U)	В	1500	800			
5/3-way, exhausted, switching position 14 detenting	SA	1500	800			
(P53ED)						
5/3-way, exhausted, switching position 12 detenting	SE	1500	800			
(P53EP)						
5/3-way, port 2 pressurised, 4 exhausted, switching	SB	1500	800			
position 14 detenting (P53AD)						
5/3-way, port 4 pressurised, 2 exhausted, switching	SD	1500	800			
position 14 detenting (P53BD)						
2x3/2-way, single solenoid, closed (T32C)	K	1700	1200			
2x3/2-way, single solenoid, open (T32U)	N	1700	1200			
2x3/2-way, single solenoid, open/closed (T32H)	Н	1700	1200			
2x3/2-way, single solenoid, closed (T32N)	Q	1700	1200			
2x3/2-way, single solenoid, open (T32F)	Р	1700	1200			
2x3/2-way, single solenoid, open/closed (T32W)	R	1700	1200			
2x2/2-way, single solenoid, closed (T22C)	VC	1700	1200			
2x2/2-way, single solenoid, closed (T22CV)	W	1700	1200			

Data sheet – Solenoid valve, width 18 mm

Valve function (with valve code)	Termina	Flow direction			Reset method	Weight	
	code	Any	Only reversible	Non-reversible	Pneumatic spring	Mechanical spring	[g]
5/2-way, double solenoid (B52)	J	•	-	-	-	-	172
5/2-way, double solenoid with dominant signal (D52)	D	-	_	-	-	-	172
5/2-way, single solenoid (M52A)	M	-	-	-	•	-	163
5/2-way, single solenoid (M52M)	0	-	-	-	-	•	163
5/3-way, closed ¹⁾ (P53C)	G	•	-	-	-	•	191
5/3-way, exhausted ¹⁾ (P53E)	E	-	_	-	-	•	191
5/3-way, pressurised ¹⁾ (P53U)	В	-	_	-	-	-	191
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	-	-	-	-	•	170
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	-	-	-	-	•	170
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	•	-	-	-	•	172
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	-	-	-	-	•	172
2x3/2-way, single solenoid, closed (T32C)	K	-	_	•	•	-	190
2x3/2-way, single solenoid, open (T32U)	N	-	_	•	•	-	190
2x3/2-way, single solenoid, open/closed (T32H)	Н	-	-	•	•	-	190
2x3/2-way, single solenoid, closed (T32N)	Q	-	-	_	•	-	190
2x3/2-way, single solenoid, open (T32F)	Р	-	•	_	•	-	190
2x3/2-way, single solenoid, open/closed (T32W)	R	-	•	-	•	-	190
2x2/2-way, single solenoid, closed (T22C)	VC	-	-	•	•	-	190
2x2/2-way, single solenoid, closed (T22CV)	W	•	_	-	•	-	190

If neither solenoid coil is energised, the valve is moved to its mid-position by spring force.
 If both solenoid coils are energised at the same time, the valve remains in the previously assumed switching position.

Data sheet - Solenoid valve, width 18 mm

Valve function (with valve code)	Terminal	Flow rate			
	code	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve on individual sub-base
5/2-way, double solenoid (B52)	J	750	550	700	600
5/2-way, double solenoid with dominant signal (D52)	D	750	550	700	600
5/2-way, single solenoid (M52A)	М	750	550	700	600
5/2-way, single solenoid (M52M)	0	750	550	700	600
5/3-way, closed (P53C)	G	700	450	650	550
5/3-way, exhausted (P53E)	Е	700 ¹⁾	450 ¹⁾	480 ¹⁾	500 ¹⁾
		330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾
5/3-way, pressurised (P53U)	В	7001)	450 ¹⁾	480 ¹⁾	500 ¹⁾
		330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾
5/3-way, exhausted, switching position 14 detenting	SA	-	380 ¹⁾	430 ¹⁾	390 ¹⁾
(P53ED)			310 ²⁾	360 ²⁾	310 ²⁾
5/3-way, exhausted, switching position 12 detenting	SE	-	380 ¹⁾	460 ¹⁾	390 ¹⁾
(P53EP)			300 ²⁾	350 ²⁾	320 ²⁾
5/3-way, port 2 pressurised, 4 exhausted, switching	SB	-	380 ¹⁾	440 ¹⁾	380 ¹⁾
position 14 detenting (P53AD)			350 ²⁾	400 ²⁾	360 ²⁾
5/3-way, port 4 pressurised, 2 exhausted, switching	SD	-	370 ¹⁾	430 ¹⁾	4001)
position 14 detenting (P53BD)			340 ²⁾	360 ²⁾	350 ²⁾
			360 ³⁾	450 ³⁾	390 ³⁾
			360 ⁴⁾	450 ⁴⁾	380 ⁴⁾
2x3/2-way, single solenoid, closed (T32C)	K	600	400	550	500
2x3/2-way, single solenoid, open (T32U)	N	600	400	550	500
2x3/2-way, single solenoid, open/closed (T32H)	Н	600	400	550	500
2x3/2-way, single solenoid, closed (T32N)	Q	600	400	550	500
2x3/2-way, single solenoid, open (T32F)	Р	600	400	550	500
2x3/2-way, single solenoid, open/closed (T32W)	R	600	400	550	500
2x2/2-way, single solenoid, closed (T22C)	VC	700	500	650	500
2x2/2-way, single solenoid, closed (T22CV)	W	700	500	650	500

- Switching position
 Mid-position
- Switching position 4 → 5
- 4) Mid-position 2 → 3

Note

When using the solenoid valves VSVA-B-P53AD-...- or VSVA-B-P53BD-...- (terminal code SB or SD) for unobstructed exhausting (1 \rightarrow 2 or 1 \rightarrow 4) in the detenting or mid-position, the flow rate can reduce or drop to 0 l/min if the operating pressure is greater than 6 bar. This does not happen if the length of the tubing at port $2/4\,$ is at least 15 cm.

Data sheet – Solenoid valve, width 18 mm

Valve switching times in [ms], width 18 mm				
Valve function (with valve code)	Terminal	On	Off	Changeover
	code			
5/2-way, double solenoid (B52)	J	-	-	11
5/2-way, double solenoid with dominant signal (D52)	D	-	-	13
5/2-way, single solenoid (M52A)	М	22	28	-
5/2-way, single solenoid (M52M)	0	12	38	-
5/3-way, closed (P53C)	G	15	44	-
5/3-way, exhausted (P53E)	E	15	44	-
5/3-way, pressurised (P53U)	В	15	44	-
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	13 for control side 12	37 for control side 12	(24)
		10 for control side 14		
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	10 for control side 12	30 for control side 12	(23)
		13 for control side 14		
5/3-way, port 2 pressurised, 4 exhausted, switching position	SB	12 for control side 12	28 for control side 12	_
14 detenting (P53AD)		9 for control side 14		
5/3-way, port 4 pressurised, 2 exhausted, switching position	SD	12 for control side 12	28 for control side 12	-
14 detenting (P53BD)		9 for control side 14		
2x3/2-way, single solenoid, closed (T32C)	K	12	30	-
2x3/2-way, single solenoid, open (T32U)	N	12	30	-
2x3/2-way, single solenoid, open/closed (T32H)	Н	12	30	-
2x3/2-way, single solenoid, closed (T32N)	Q	25	12	-
2x3/2-way, single solenoid, open (T32F)	Р	25	12	-
2x3/2-way, single solenoid, open/closed (T32W)	R	25	12	-
2x2/2-way, single solenoid, closed (T22C)	VC	12	30	-
2x2/2-way, single solenoid, closed (T22CV)	W	12	30	-

Characteristic coil data, width 18 mm		
Valve function (with valve code)	Terminal	[W]
	code	
5/2-way, double solenoid (B52)	J	1.6
5/2-way, double solenoid with dominant signal (D52)	D	1.3
5/2-way, single solenoid (M52A)	M	1.6
5/2-way, single solenoid (M52M)	0	1.6
5/3-way, closed (P53C)	G	1.6
5/3-way, exhausted (P53E)	E	1.6
5/3-way, pressurised (P53U)	В	1.6
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	1.6
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	1.6
5/3-way, port 2 pressurised, 4 exhausted, switching position	SB	1.6
14 detenting (P53AD)		
5/3-way, port 4 pressurised, 2 exhausted, switching position	SD	1.6
14 detenting (P53BD)		
2x3/2-way, single solenoid, closed (T32C)	K	1.3
2x3/2-way, single solenoid, open (T32U)	N	1.3
2x3/2-way, single solenoid, open/closed (T32H)	Н	1.3
2x3/2-way, single solenoid, closed (T32N)	Q	1.3
2x3/2-way, single solenoid, open (T32F)	Р	1.3
2x3/2-way, single solenoid, open/closed (T32W)	R	1.3
2x2/2-way, single solenoid, closed (T22C)	VC	1.3
2x2/2-way, single solenoid, closed (T22CV)	VV	1.3

Materials	
Housing	Die-cast aluminium, PA
Seals	FPM, NBR, HNBR
Screws	Galvanised steel
Note on materials	RoHS-compliant

	1					
	l .	Valve function	Valve	Width	Part no.	Туре
	code		code			
Solenoid valves						
	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	561155	VSVA-B-T22C-AZD-A2-1T1L
		normally closed,				
	W	pneumatic spring return 2x 2/2-way valve, single solenoid,	T22CV	10 mm	F611F0	VSVA-B-T22CV-AZD-A2-1T1L
Mar Barris	l vv	normally closed,	12200	18 mm	561159	V3VA-B-122CV-AZD-AZ-111L
		pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	18 mm	539178	VSVA-B-T32U-AZD-A2-1T1L
		normally open				
	K	2x 3/2-way valve, single solenoid,	T32C	18 mm	539176	VSVA-B-T32C-AZD-A2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	18 mm	539180	VSVA-B-T32H-AZD-A2-1T1L
	_	1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid,	T32F	18 mm	539179	VSVA-B-T32F-AZD-A2-1T1L
		reverse operation, normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	539177	VSVA-B-T32N-AZD-A2-1T1L
		reverse operation,	13211	10 111111	337177	VOVA B 192N A2D A2 111E
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	18 mm	539181	VSVA-B-T32W-AZD-A2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	18 mm	539184	VSVA-B-M52-AZD-A2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	18 mm	539185	VSVA-B-M52-MZD-A2-1T1L
		mechanical spring return 5/2-way valve, double solenoid	B52	18 mm	539182	VSVA-B-B52-ZD-A2-1T1L
	,	3/2-way valve, double solellold	032	10 111111	339182	V3VA-0-032-20-A2-111L
	D	5/2-way valve, double solenoid,	D52	18 mm	539183	VSVA-B-D52-ZD-A2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	18 mm	539186	VSVA-B-P53U-ZD-A2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	18 mm	539188	VSVA-B-P53C-ZD-A2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	18 mm	539187	VSVA-B-P53E-ZD-A2-1T1L
	CA	mid-position exhausted	DESER	10	0024047	VCVA D DE2ED 7D A2 4741
	SA	5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting,	P53ED	18 mm	8031814	VSVA-B-P53ED-ZD-A2-1T1L
		mechanical spring return				
	SE	5/3-way solenoid valve,	P53EP	18 mm	8031818	VSVA-B-P53EP-ZD-A2-1T1L
		mid-position exhausted, switching position 12 detenting,				
		mechanical spring return				
	SB	5/3-way solenoid valve,	P53AD	18 mm	8031815	VSVA-B-P53AD-ZD-A2-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4 and exhausted from 2 to 3,				
		mechanical spring return				
	SD	5/3-way solenoid valve,	P53BD	18 mm	8031817	VSVA-B-P53BD-ZD-A2-1T1L
		mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5,				
		mechanical spring return				

•		lve with cover cap for MO non-detenting/heavy duty, detenting via a l Valve function	Valve	Width	Part no.	Туре
	code	valve fulletion	code	Width	T dit iio.	1,500
	couc		couc			
noid valves	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033457	VSVA-B-T22C-AZTR-A2-1T1L
	VC	normally closed,	1220	10 111111	6055457	V3VA-D-122C-AZ1R-AZ-111L
\		pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033458	VSVA-B-T22CV-AZTR-A2-1T1L
Ja Ro	V V	normally closed,	12200	10 111111	8055458	VSVA-B-122CV-AZIK-AZ-111L
	À	pneumatic spring return,				
	4	vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	18 mm	8033446	VSVA-B-T32U-AZTR-A2-1T1L
	"	normally open	1520	10 111111	0033440	VSVA D 1920 AZIK AZ 111E
	K	2x 3/2-way valve, single solenoid,	T32C	18 mm	8033444	VSVA-B-T32C-AZTR-A2-1T1L
	l K	normally closed	1520	10 111111	0033444	VSVA D 1920 AZIK AZ 1112
	Н	2x 3/2-way valve, single solenoid,	T32H	18 mm	8033448	VSVA-B-T32H-AZTR-A2-1T1L
	''	1x normally open, 1x normally closed	.52	10	2033112	
	P	2x 3/2-way valve, single solenoid,	T32F	18 mm	8033447	VSVA-B-T32F-AZTR-A2-1T1L
	'	reverse operation,	.52.	10		
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	8033445	VSVA-B-T32N-AZTR-A2-1T1L
	`	reverse operation,			2033113	
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	18 mm	8033449	VSVA-B-T32W-AZTR-A2-1T1L
	"	reverse operation,	.52	10	00557.15	
		1x normally open, 1x normally closed				
	М	5/2-way valve, single solenoid,	M52-A	18 mm	8033452	VSVA-B-M52-AZTR-A2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	18 mm	8033453	VSVA-B-M52-MZTR-A2-1T1L
		mechanical spring return				
	T	5/2-way valve, double solenoid	B52	18 mm	8033450	VSVA-B-B52-ZTR-A2-1T1L
	ľ					
	D	5/2-way valve, double solenoid,	D52	18 mm	8033451	VSVA-B-D52-ZTR-A2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	18 mm	8033454	VSVA-B-P53U-ZTR-A2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	18 mm	8033456	VSVA-B-P53C-ZTR-A2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	18 mm	8033455	VSVA-B-P53E-ZTR-A2-1T1L
		mid-position exhausted				
	SA	5/3-way solenoid valve,	P53ED	18 mm	8039181	VSVA-B-P53ED-ZTR-A2-1T1L
		mid-position exhausted, switching position 14 detenting,				
		mechanical spring return				
	SE	5/3-way solenoid valve,	P53EP	18 mm	8039190	VSVA-B-P53EP-ZTR-A2-1T1L
		mid-position exhausted, switching position 12 detenting,				
		mechanical spring return				
	SB	5/3-way solenoid valve,	P53AD	18 mm	8039184	VSVA-B-P53AD-ZTR-A2-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4				
		and exhausted from 2 to 3,				
		mechanical spring return				
	SD	5/3-way solenoid valve,	P53BD	18 mm	8040110	VSVA-B-P53BD-ZTR-A2-1T1L
		mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5,				
		mechanical spring return	1	1		

Ordering data – VSVA so	lenoid valv	ve with cover cap for MO, non-detenting (H)				
	Terminal	Valve function	Valve	Width	Part no.	Туре
	code		code			
Solenoid valves						
	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033475	VSVA-B-T22C-AZH-A2-1T1L
400		normally closed,				
	101	pneumatic spring return		1.2		
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033476	VSVA-B-T22CV-AZH-A2-1T1L
		normally closed, pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	18 mm	8033464	VSVA-B-T32U-AZH-A2-1T1L
		normally open				
	K	2x 3/2-way valve, single solenoid,	T32C	18 mm	8033462	VSVA-B-T32C-AZH-A2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	18 mm	8033466	VSVA-B-T32H-AZH-A2-1T1L
		1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid,	T32F	18 mm	8033465	VSVA-B-T32F-AZH-A2-1T1L
		reverse operation, normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	8033463	VSVA-B-T32N-AZH-A2-1T1L
	٩	reverse operation,	1 7211	10 111111	8033403	V3VA-D-132N-AZ11-AZ-111L
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	18 mm	8033467	VSVA-B-T32W-AZH-A2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	18 mm	8033470	VSVA-B-M52-AZH-A2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	18 mm	8033471	VSVA-B-M52-MZH-A2-1T1L
	1	mechanical spring return 5/2-way valve, double solenoid	B52	10 mm	0022460	VSVA-B-B52-ZH-A2-1T1L
]	5/2-way valve, double solelloid	D52	18 mm	8033468	V3VA-D-D32-ZN-AZ-111L
	D	5/2-way valve, double solenoid,	D52	18 mm	8033469	VSVA-B-D52-ZH-A2-1T1L
		with dominant signal	552	10	2000.00	101112 232 211712 2112
	В	5/3-way solenoid valve,	P53U	18 mm	8033472	VSVA-B-P53U-ZH-A2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	18 mm	8033474	VSVA-B-P53C-ZH-A2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	18 mm	8033473	VSVA-B-P53E-ZH-A2-1T1L
	64	mid-position exhausted	DESER	10	0000100	NGW B BESEE THE ACCUSE
	SA	5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting,	P53ED	18 mm	8039182	VSVA-B-P53ED-ZH-A2-1T1L
		mechanical spring return				
	SE	5/3-way solenoid valve,	P53EP	18 mm	8039191	VSVA-B-P53EP-ZH-A2-1T1L
		mid-position exhausted, switching position 12 detenting,				
		mechanical spring return				
	SB	5/3-way solenoid valve,	P53AD	18 mm	8039185	VSVA-B-P53AD-ZH-A2-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4				
		and exhausted from 2 to 3, mechanical spring return				
	SD	5/3-way solenoid valve,	P53BD	18 mm	8040111	VSVA-B-P53BD-ZH-A2-1T1L
		mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,	1 7 700	10 111111	0070111	13.11 b 1 3300 E11-A2-111E
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5,				
		mechanical spring return				

rucinig data v		alve with cover cap for MO, concealed al Valve function	Valve	Width	Part no.	Туре
	code	at valve function	code	Width	raitiio.	туре
olenoid valves	0000		0000			
	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033493	VSVA-B-T22C-AZ-A2-1T1L
	"	normally closed,	1220	10	0033133	VSVV B 1220 NE VE TITE
YY		pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033494	VSVA-B-T22CV-AZ-A2-1T1L
R		normally closed,				
		pneumatic spring return,				
	<u> </u>	vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	18 mm	8033482	VSVA-B-T32U-AZ-A2-1T1L
	14	normally open	T225	10	0000/00	VICINA D TOOC AT AN ATAI
	K	2x 3/2-way valve, single solenoid,	T32C	18 mm	8033480	VSVA-B-T32C-AZ-A2-1T1L
	Н	normally closed 2x 3/2-way valve, single solenoid,	T32H	18 mm	8033484	VSVA-B-T32H-AZ-A2-1T1L
	"	1x normally open, 1x normally closed	13211	10 111111	6055464	V3VA-B-132H-AZ-AZ-111L
	P	2x 3/2-way valve, single solenoid,	T32F	18 mm	8033483	VSVA-B-T32F-AZ-A2-1T1L
	l'	reverse operation,	1321	10	0033103	13111 5 1321 112 1112
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	8033481	VSVA-B-T32N-AZ-A2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	18 mm	8033485	VSVA-B-T32W-AZ-A2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	18 mm	8033488	VSVA-B-M52-AZ-A2-1T1L
		pneumatic spring return	MESM	10	0022400	VCVA D MES ME AS ATAL
	0	5/2-way valve, single solenoid,	M52M	18 mm	8033489	VSVA-B-M52-MZ-A2-1T1L
	1	mechanical spring return 5/2-way valve, double solenoid	B52	18 mm	8033486	VSVA-B-B52-Z-A2-1T1L
	,	3/2-way valve, double solellold	032	10 111111	8033480	V3VA-B-B32-2-A2-111L
	D	5/2-way valve, double solenoid,	D52	18 mm	8033487	VSVA-B-D52-Z-A2-1T1L
	-	with dominant signal				
	В	5/3-way solenoid valve,	P53U	18 mm	8033490	VSVA-B-P53U-Z-A2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	18 mm	8033492	VSVA-B-P53C-Z-A2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	18 mm	8033491	VSVA-B-P53E-Z-A2-1T1L
		mid-position exhausted				
	SA	5/3-way solenoid valve,	P53ED	18 mm	8039183	VSVA-B-P53ED-Z-A2-1T1L
		mid-position exhausted, switching position 14 detenting, mechanical spring return				
	SE	5/3-way solenoid valve,	P53EP	18 mm	8039192	VSVA-B-P53EP-Z-A2-1T1L
	اعد	mid-position exhausted, switching position 12 detenting,	1 3361	10 111111	0037172	V3VA-D-1 33L1-2-A2-111L
		mechanical spring return				
	SB	5/3-way solenoid valve,	P53AD	18 mm	8039186	VSVA-B-P53AD-Z-A2-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4				
		and exhausted from 2 to 3,				
		mechanical spring return				
	SD	5/3-way solenoid valve,	P53BD	18 mm	8040112	VSVA-B-P53BD-Z-A2-1T1L
		mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,				
		switching position 14 detenting, same function in both switching positions: pressurised from 1 to 2				
		same function in both switching positions: pressurised from 1 to 2 and exhausted from 4 to 5,				
		mechanical spring return				
	1	meenameat spring return				

Data sheet - Solenoid valve, width 26 mm

Valve width to ISO 15407-2 26 mm

Flow rate
Valve width 26 mm:
VTSA up to 1100 l/min
VTSA-F up to 1350 l/min

- **** - Voltage 24 V DC



Safety characteristics – Valve, width 26 mm	
Conforms to standard	EN 13849-1/2
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾ (only solenoid valves with sensor)
Shock resistance	Shock test with severity level 2, to EN 60068-2-27
Vibration resistance	Transport application test with severity level 2, to EN 60068-2-6

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

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

Valve function (with valve code)	Termina	l Test pulses	
	code	Max. positive test pulse with logic 0 [μs]	Max. negative test pulse with logic 1 [μs]
5/2-way, double solenoid (B52)	J	1200	1100
5/2-way, double solenoid with dominant signal (D52)	D	1200	1100
5/2-way, single solenoid (M52A)	M	1200	1100
5/2-way, single solenoid (M52M)	0	1200	1100
5/3-way, closed (P53C)	G	1200	1100
5/3-way, exhausted (P53E)	E	1200	1100
5/3-way, pressurised (P53U)	В	1200	1100
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	1200	1100
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	1200	1100
5/3-way, port 2 pressurised, 4 exhausted, switching position 14	SB	1200	1100
detenting (P53AD)			
5/3-way, port 4 pressurised, 2 exhausted, switching position 14	SD	1200	1100
detenting (P53BD)			
2x3/2-way, single solenoid, closed (T32C)	K	1500	1200
2x3/2-way, single solenoid, open (T32U)	N	1500	1200
2x3/2-way, single solenoid, open/closed (T32H)	Н	1500	1200
2x3/2-way, single solenoid, closed (T32N)	Q	1500	1200
2x3/2-way, single solenoid, open (T32F)	Р	1500	1200
2x3/2-way, single solenoid, open/closed (T32W)	R	1500	1200
2x2/2-way, single solenoid, closed (T22C)	VC	1500	1200
2x2/2-way, single solenoid, closed (T22CV)	W	1500	1200

Data sheet – Solenoid valve, width 26 mm

Technical data - Valve, width 26 mm Valve function (with valve code)	Terminal	Flow direction			Reset method		Weight [g]
·	code	Any	Only reversible	Non-reversible	Pneumatic spring	Mechanical spring	
5/2-way, double solenoid (B52)	J	•	_	-	_	-	276
5/2-way, double solenoid with dominant signal (D52)	D	•	-	-	-	_	276
5/2-way, single solenoid (M52A)	М	•	-	-	•	-	293
5/2-way, single solenoid (M52M)	0	•	-	-	-	•	293
5/3-way, closed ¹⁾ (P53C)	G	•	-	-	-	•	320
5/3-way, exhausted ¹⁾ (P53E)	E	•	-	-	-	•	320
5/3-way, pressurised ¹⁾ (P53U)	В	•	-	-	-	•	320
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	-	-		-	•	291
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	-	-	•	-	•	291
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	•	-	-	-	•	301
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	-	-	-	-	•	301
2x3/2-way, single solenoid, closed (T32C)	K	-	-		•	-	335
2x3/2-way, single solenoid, open (T32U)	N	-	-	•	•	-	335
2x3/2-way, single solenoid, open/closed (T32H)	Н	-	-		•	-	335
2x3/2-way, single solenoid, closed (T32N)	Q	-	•	-	•	-	335
2x3/2-way, single solenoid, open (T32F)	Р	-	•	-	•	-	335
2x3/2-way, single solenoid, open/closed (T32W)	R	-	•	_	•	-	335
2x2/2-way, single solenoid, closed (T22C)	VC	-	-	•	•	-	335
2x2/2-way, single solenoid, closed (T22CV)	VV	•	-	_		-	335

If neither solenoid coil is energised, the valve is moved to its mid-position by spring force.
 If both solenoid coils are energised at the same time, the valve remains in the previously assumed switching position.

Data sheet - Solenoid valve, width 26 mm

Valve function (with valve code)	Terminal	Flow rate			
		Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve on individual sub-base
5/2-way, double solenoid (B52)	J	1400	1100	1350	1200
5/2-way, double solenoid with dominant signal (D52)	D	1400	1100	1350	1200
5/2-way, single solenoid (M52A)	M	1400	1100	1350	1200
5/2-way, single solenoid (M52M)	0	1400	1100	1350	1200
5/3-way, closed (P53C)	G	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, exhausted (P53E)	Е	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, pressurised (P53U)	В	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	700 ¹⁾ 700 ²⁾	700 ¹⁾ 700 ²⁾	700 ¹⁾ 700 ²⁾	700 ¹⁾ 700 ²⁾
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	-	850 ¹⁾ 820 ²⁾	950 ¹⁾ 860 ²⁾	900 ¹⁾ 840 ²⁾
2x3/2-way, single solenoid, closed (T32C)	К	1250	900	1150	1100
2x3/2-way, single solenoid, open (T32U)	N	1250	900	1150	1100
2x3/2-way, single solenoid, open/closed (T32H)	Н	1250	900	1150	1100
2x3/2-way, single solenoid, closed (T32N)	Q	1250	900	1150	1100
2x3/2-way, single solenoid, open (T32F)	Р	1250	900	1150	1100
2x3/2-way, single solenoid, open/closed (T32W)	R	1250	900	1150	1100
2x2/2-way, single solenoid, closed (T22C)	VC	1350	1000	1300	1100
2x2/2-way, single solenoid, closed (T22CV)	VV	1350	1000	1300	1100

¹⁾ Switching position

- 🏺 - Note

The solenoid valves VSVA-B-P53BD...-A1-1T1L (terminal code SD) can be operated without restrictions at an operating pressure of less than 6 bar. At an operating pressure of more than 6 bar, the actual flow rate must not exceed 1900 l/min (e.g. 10-->2 bar), otherwise these solenoid valves may switch unintentionally (to the mid-position or switching

At high pressures, this can be achieved, for example, by using a flow control valve/orifice (e.g. a reducing nipple on port 2 or 4 to reduce it from G1/4 to G1/8).

²⁾ Mid-position

Data sheet – Solenoid valve, width 26 mm

Valve switching times in [ms], width 26 mm Valve function (with valve code)	Terminal	On	Off	Changeover
valve fullction (with valve code)	code	OII	Oil	Changeover
	code			
5/2-way, double solenoid (B52)	J	=	-	18
5/2-way, double solenoid with dominant signal (D52)	D	-	-	21
5/2-way, single solenoid (M52A)	M	25	45	-
5/2-way, single solenoid (M52M)	0	20	65	_
5/3-way, closed (P53C)	G	22	65	_
5/3-way, exhausted (P53E)	E	22	65	_
5/3-way, pressurised (P53U)	В	22	65	-
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	22 for control side 12	49 for control side 12	33
		9 for control side 14		
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	10 for control side 12	50 for control side 14	40
		22 for control side 14		
5/3-way, port 2 pressurised, 4 exhausted, switching position 14	SB	19 for control side 12	36 for control side 12	32
detenting (P53AD)		9 for control side 14		
5/3-way, port 4 pressurised, 2 exhausted, switching position 14	SD	16 for control side 12	26 for control side 12	_
detenting (P53BD)		9 for control side 14	36 for control side 14	
2x3/2-way, single solenoid, closed (T32C)	K	20	38	_
2x3/2-way, single solenoid, open (T32U)	N	20	38	_
2x3/2-way, single solenoid, open/closed (T32H)	Н	20	38	-
2x3/2-way, single solenoid, closed (T32N)	Q	32	30	-
2x3/2-way, single solenoid, open (T32F)	Р	32	30	-
2x3/2-way, single solenoid, open/closed (T32W)	R	32	30	-
2x2/2-way, single solenoid, closed (T22C)	VC	20	38	-
2x2/2-way, single solenoid, closed (T22CV)	W	20	38	_

Characteristic coil data, width 26 mm		
Valve function (with valve code)	Terminal	[W]
	code	
5/2-way, double solenoid (B52)	J	1.6
5/2-way, double solenoid with dominant signal (D52)	D	1.3
5/2-way, single solenoid (M52A)	M	1.6
5/2-way, single solenoid (M52M)	0	1.6
5/3-way, closed (P53C)	G	1.6
5/3-way, exhausted (P53E)	E	1.6
5/3-way, pressurised (P53U)	В	1.6
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	1.6
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	1.6
5/3-way, port 2 pressurised, 4 exhausted, switching position 14	SB	1.6
detenting (P53AD)		
5/3-way, port 4 pressurised, 2 exhausted, switching position 14	SD	1.6
detenting (P53BD)		
2x3/2-way, single solenoid, closed (T32C)	K	1.3
2x3/2-way, single solenoid, open (T32U)	N	1.3
2x3/2-way, single solenoid, open/closed (T32H)	Н	1.3
2x3/2-way, single solenoid, closed (T32N)	Q	1.3
2x3/2-way, single solenoid, open (T32F)	Р	1.3
2x3/2-way, single solenoid, open/closed (T32W)	R	1.3
2x2/2-way, single solenoid, closed (T22C)	VC	1.3
2x2/2-way, single solenoid, closed (T22CV)	W	1.3

Materials					
Housing	Die-cast aluminium, PA				
Seals	FPM, NBR, HNBR				
Screws	Galvanised steel				
Note on materials	RoHS-compliant				

rucinis uutu v		lve, MO non-detenting/detenting (D)	Valve	Width	Part no.	Туре
	code	valve function	code	Width	raitiio.	Туре
lenoid valves	code		code			
	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	561149	VSVA-B-T22C-AZD-A1-1T1L
	l vc	normally closed,	1220	20 111111	301149	VSVA-B-122C-ALB-A1-111L
		pneumatic spring return				
A S	W	2x 2/2-way valve, single solenoid,	T22CV	26 mm	561153	VSVA-B-T22CV-AZD-A1-1T1L
		normally closed,				
•	**	pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	26 mm	539152	VSVA-B-T32U-AZD-A1-1T1L
		normally open				
	K	2x 3/2-way valve, single solenoid,	T32C	26 mm	539150	VSVA-B-T32C-AZD-A1-1T1L
	Н	normally closed 2x 3/2-way valve, single solenoid,	Table	26 mm	F201F4	VCVA D T22H A7D A4 4T41
	"	1x normally open, 1x normally closed	T32H	26 mm	539154	VSVA-B-T32H-AZD-A1-1T1L
	P	2x 3/2-way valve, single solenoid,	T32F	26 mm	539153	VSVA-B-T32F-AZD-A1-1T1L
	'	reverse operation,	1 7 2 1	20 111111	337133	VOVA D 1921 ALD AT TITE
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	539151	VSVA-B-T32N-AZD-A1-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	539155	VSVA-B-T32W-AZD-A1-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	26 mm	539158	VSVA-B-M52-AZD-A1-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	26 mm	539159	VSVA-B-M52-MZD-A1-1T1L
	1	mechanical spring return 5/2-way valve, double solenoid	B52	26 mm	539156	VSVA-B-B52-ZD-A1-1T1L
	,	3/2-way valve, double solelloid	D D D Z	20 111111	559150	V3VA-D-B32-ZD-A1-111L
	D	5/2-way valve, double solenoid,	D52	26 mm	539157	VSVA-B-D52-ZD-A1-1T1L
		with dominant signal	552	20 111111	333137	VOIN D DOZ ED NE TITE
	В	5/3-way solenoid valve,	P53U	26 mm	539160	VSVA-B-P53U-ZD-A1-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	26 mm	539162	VSVA-B-P53C-ZD-A1-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	26 mm	539161	VSVA-B-P53E-ZD-A1-1T1L
		mid-position exhausted				
	SA	5/3-way solenoid valve,	P53ED	26 mm	560727	VSVA-B-P53ED-ZD-A1-1T1L
		mid-position exhausted, switching position 14 detenting,				
	SE	mechanical spring return 5/3-way solenoid valve,	P53EP	26 mm	2024420	VSVA B DE 2ED 7D A1 1T11
) SE	mid-position exhausted, switching position 12 detenting,	רססבר	26 mm	8026638	VSVA-B-P53EP-ZD-A1-1T1L
		mechanical spring return				
	SB	5/3-way solenoid valve,	P53AD	26 mm	560728	VSVA-B-P53AD-ZD-A1-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,			,	
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4				
		and exhausted from 2 to 3,				
		mechanical spring return		1		
	SD	5/3-way solenoid valve,	P53BD	26 mm	8031816	VSVA-B-P53BD-ZD-A1-1T1L
		mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5, mechanical spring return				
		mechanical spring return		1		

Ordering data – VSVA so	lenoid val	ve with cover cap for MO non-detenting/heavy duty, detenting via a	ccessory (T	R)		
	Terminal	Valve function	Valve	Width	Part no.	Туре
	code		code			
Solenoid valves						
	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033032	VSVA-B-T22C-AZTR-A1-1T1L
		normally closed,				
	W	pneumatic spring return 2x 2/2-way valve, single solenoid,	T22CV	26 mm	8033033	VSVA-B-T22CV-AZTR-A1-1T1L
	l v v	normally closed,	12200	20 111111	8033033	V3VA-B-122CV-AZ1R-A1-111L
		pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	26 mm	8033015	VSVA-B-T32U-AZTR-A1-1T1L
		normally open				
	K	2x 3/2-way valve, single solenoid,	T32C	26 mm	8033013	VSVA-B-T32C-AZTR-A1-1T1L
		normally closed	Table	26	0022047	VCVA D TOOL AZED A4 4T41
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	T32H	26 mm	8033017	VSVA-B-T32H-AZTR-A1-1T1L
	P	2x 3/2-way valve, single solenoid,	T32F	26 mm	8033016	VSVA-B-T32F-AZTR-A1-1T1L
		reverse operation,	1.52.	20	2000020	1000.000
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	8033014	VSVA-B-T32N-AZTR-A1-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	8033018	VSVA-B-T32W-AZTR-A1-1T1L
		reverse operation, 1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	26 mm	8033021	VSVA-B-M52-AZTR-A1-1T1L
	"	pneumatic spring return	1113271	20 111111	0033021	VSVV B INSE NEIKVIE TITE
	0	5/2-way valve, single solenoid,	M52M	26 mm	8033022	VSVA-B-M52-MZTR-A1-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	26 mm	8033019	VSVA-B-B52-ZTR-A1-1T1L
	D	5/2-way valve, double solenoid,	D52	26 mm	8033020	VSVA-B-D52-ZTR-A1-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	26 mm	8033023	VSVA-B-P53U-ZTR-A1-1T1L
	_	mid-position pressurised		1		
	G	5/3-way solenoid valve,	P53C	26 mm	8033025	VSVA-B-P53C-ZTR-A1-1T1L
	E	mid-position closed 5/3-way solenoid valve,	P53E	26 mm	8033024	VSVA-B-P53E-ZTR-A1-1T1L
	-	mid-position exhausted	FJJL	20 111111	8033024	V3VA-D-F33L-ZIR-AT-TTIL
	SA	5/3-way solenoid valve,	P53ED	26 mm	8033028	VSVA-B-P53ED-ZTR-A1-1T1L
		mid-position exhausted, switching position 14 detenting,				
		mechanical spring return				
	SE	5/3-way solenoid valve,	P53EP	26 mm	8033035	VSVA-B-P53EP-ZTR-A1-1T1L
		mid-position exhausted, switching position 12 detenting,				
	SB	mechanical spring return 5/3-way solenoid valve,	P53AD	26 mm	8033029	VSVA-B-P53AD-ZTR-A1-1T1L
	SD	mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,	POSAU	26 111111	8033029	VSVA-B-P33AD-ZIR-AI-IIIL
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4				
		and exhausted from 2 to 3,				
		mechanical spring return				
	SD	5/3-way solenoid valve,	P53BD	26 mm	8039187	VSVA-B-P53BD-ZTR-A1-1T1L
		mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,		1		
		switching position 14 detenting, same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5,				
		mechanical spring return				
				_		

Ordering data – vSVA s		ve with cover cap for MO, non-detenting (H)		1	1	1
		Valve function	Valve	Width	Part no.	Туре
	code		code			
Solenoid valves						
(Pa	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033055	VSVA-B-T22C-AZH-A1-1T1L
		normally closed,				
1 Per 1	W	pneumatic spring return	Taacv	26 mm	9022056	VSVA-B-T22CV-AZH-A1-1T1L
	\ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \ \	2x 2/2-way valve, single solenoid, normally closed,	T22CV	26 mm	8033056	VSVA-B-122CV-AZH-A1-111L
	!	pneumatic spring return,				
~		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	26 mm	8033038	VSVA-B-T32U-AZH-A1-1T1L
		normally open				
	K	2x 3/2-way valve, single solenoid,	T32C	26 mm	8033036	VSVA-B-T32C-AZH-A1-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	26 mm	8033040	VSVA-B-T32H-AZH-A1-1T1L
		1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid,	T32F	26 mm	8033039	VSVA-B-T32F-AZH-A1-1T1L
		reverse operation,				
		normally open	TOOM	26		MOVE D. TOOM ATH A CATAL
	Q	2x 3/2-way valve, single solenoid, reverse operation,	T32N	26 mm	8033037	VSVA-B-T32N-AZH-A1-1T1L
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	8033041	VSVA-B-T32W-AZH-A1-1T1L
	I K	reverse operation,	17244	20 111111	0033041	VOVA B 192W AZII AT TITE
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	26 mm	8033044	VSVA-B-M52-AZH-A1-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	26 mm	8033045	VSVA-B-M52-MZH-A1-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	26 mm	8033042	VSVA-B-B52-ZH-A1-1T1L
	D	5/2-way valve, double solenoid,	D52	26 mm	8033043	VSVA-B-D52-ZH-A1-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	26 mm	8033046	VSVA-B-P53U-ZH-A1-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	26 mm	8033048	VSVA-B-P53C-ZH-A1-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	26 mm	8033047	VSVA-B-P53E-ZH-A1-1T1L
	CA	mid-position exhausted	DESED	26	0022054	VCVA D DESER ZU A4 474
	SA	5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting,	P53ED	26 mm	8033051	VSVA-B-P53ED-ZH-A1-1T1
		mechanical spring return				
	SE	5/3-way solenoid valve,	P53EP	26 mm	8033058	VSVA-B-P53EP-ZH-A1-1T1L
	"	mid-position exhausted, switching position 12 detenting,	. 552.	20		101112132121
		mechanical spring return				
	SB	5/3-way solenoid valve,	P53AD	26 mm	8033052	VSVA-B-P53AD-ZH-A1-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4				
		and exhausted from 2 to 3,				
	CD	mechanical spring return	DESER	26	0020400	VCVA D DE2DD 7U A4 4T41
	SD	5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,	P53BD	26 mm	8039188	VSVA-B-P53BD-ZH-A1-1T1L
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5,				
		mechanical spring return				
	1	<u> </u>				

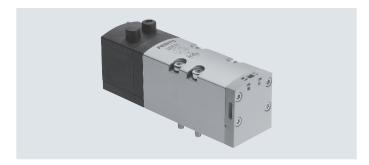
Ordering data – VSVA so	lenoid val	ve with cover cap for MO, concealed				
		Valve function	Valve	Width	Part no.	Туре
	code		code			
Solenoid valves						
	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033078	VSVA-B-T22C-AZ-A1-1T1L
		normally closed,				
		pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	26 mm	8033079	VSVA-B-T22CV-AZ-A1-1T1L
		normally closed, pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	26 mm	8033061	VSVA-B-T32U-AZ-A1-1T1L
	"	normally open	1320	20 11111	0033001	VSIN B 1920 NEXT THE
	K	2x 3/2-way valve, single solenoid,	T32C	26 mm	8033059	VSVA-B-T32C-AZ-A1-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	26 mm	8033063	VSVA-B-T32H-AZ-A1-1T1L
		1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid,	T32F	26 mm	8033062	VSVA-B-T32F-AZ-A1-1T1L
		reverse operation,				
		normally open	Taaki	126	0000046	VCVA D TOOM AT A CATCO
	Q	2x 3/2-way valve, single solenoid, reverse operation,	T32N	26 mm	8033060	VSVA-B-T32N-AZ-A1-1T1L
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	8033064	VSVA-B-T32W-AZ-A1-1T1L
	"	reverse operation,	13200	20 111111	0033004	VSVA B 192W AZ AT TITE
		1x normally open, 1x normally closed				
	М	5/2-way valve, single solenoid,	M52-A	26 mm	8033067	VSVA-B-M52-AZ-A1-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	26 mm	8033068	VSVA-B-M52-MZ-A1-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	26 mm	8033065	VSVA-B-B52-Z-A1-1T1L
	D	5/2-way valve, double solenoid,	D52	26 mm	8033066	VSVA-B-D52-Z-A1-1T1L
		with dominant signal	0 3 2	20 11111	0033000	VSIN B BSE ENI TITE
	В	5/3-way solenoid valve,	P53U	26 mm	8033069	VSVA-B-P53U-Z-A1-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	26 mm	8033071	VSVA-B-P53C-Z-A1-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	26 mm	8033070	VSVA-B-P53E-Z-A1-1T1L
		mid-position exhausted	DESEC	126	6000	VCVA D DESCENT TAKE ATO
	SA	5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting,	P53ED	26 mm	8033074	VSVA-B-P53ED-Z-A1-1T1L
		mid-position exhausted, switching position 14 detenting, mechanical spring return		1		
	SE	5/3-way solenoid valve,	P53EP	26 mm	8033081	VSVA-B-P53EP-Z-A1-1T1L
		mid-position exhausted, switching position 12 detenting,				
		mechanical spring return				
	SB	5/3-way solenoid valve,	P53AD	26 mm	8033075	VSVA-B-P53AD-Z-A1-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 4				
		and exhausted from 2 to 3, mechanical spring return				
	SD	5/3-way solenoid valve,	P53BD	26 mm	8039189	VSVA-B-P53BD-Z-A1-1T1L
	35	mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4,	טטנניו	20 111111	3037107	1317 D 1 3300-2-71-111L
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5,				
		mechanical spring return		\perp		
	:		:			

Data sheet - Solenoid valve, width 42 mm

- **\[\]** - Valve width to ISO 5599-2 42 mm (ISO 1)

Flow rate
Width 42 mm:
VTSA up to 1300 l/min
VTSA-F up to 1860 l/min





Safety characteristics - Valve, width 42 mm	
Conforms to standard	EN 13849-1/2
Shock resistance	Shock test with severity level 2, to EN 60068-2-27
Vibration resistance	Transport application test with severity level 2, to EN 60068-2-6

Valve function (with valve code)		Test pulses				
	code	Max. positive test pulse with 0 signal [µs]	Max. negative test pulse with 1 signal [μs]			
5/2-way, double solenoid (B52)	J	1400	900			
5/2-way, double solenoid with dominant signal (D52)	D	1600	1100			
5/2-way, single solenoid (M52A)	M	1400	900			
5/2-way, single solenoid (M52M)	0	1400	900			
5/3-way, closed (P53C)	G	1400	900			
5/3-way, exhausted (P53E)	E	1400	900			
5/3-way, pressurised (P53U)	В	1400	900			
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	_	-			
2x3/2-way, single solenoid, closed (T32C)	K	1600	1100			
2x3/2-way, single solenoid, open (T32U)	N	1600	1100			
2x3/2-way, single solenoid, open/closed (T32H)	Н	1600	1100			
2x3/2-way, single solenoid, closed (T32N)	Q	1600	1100			
2x3/2-way, single solenoid, open (T32F)	Р	1600	1100			
2x3/2-way, single solenoid, open/closed (T32W)	R	1600	1100			
2x2/2-way, single solenoid, closed (T22C)	VC	1600	1100			
2x2/2-way, single solenoid, closed (T22CV)	VV	1600	1100			

Data sheet – Solenoid valve, width 42 mm

Valve function (with valve code)	Terminal	Flow direction				Weight	
	code	Any	Only reversible	Non-reversible	Pneumatic spring	Mechanical spring	[g]
5/2-way, double solenoid (B52)	J	•	-	-	_	-	439
5/2-way, double solenoid with dominant signal (D52)	D	•	-	-	-	-	439
5/2-way, single solenoid (M52A)	M	•	-	-	•	-	426
5/2-way, single solenoid (M52M)	0	•	-	-	-	•	426
5/3-way, closed ¹⁾ (P53C)	G	•	-	-	-	•	456
5/3-way, exhausted ¹⁾ (P53E)	E	•	-	-	-	-	456
5/3-way, pressurised ¹⁾ (P53U)	В	•	-	-	-	•	456
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	•	-	-	-	-	456
2x3/2-way, single solenoid, closed (T32C)	K	-	-	•	•	-	442
2x3/2-way, single solenoid, open (T32U)	N	-	-	•	•	-	442
2x3/2-way, single solenoid, open/closed (T32H)	Н	-	-	•	•	-	442
2x3/2-way, single solenoid, closed (T32N)	Q	-	•	-	•	-	442
2x3/2-way, single solenoid, open (T32F)	Р	-	•	-	•	-	442
2x3/2-way, single solenoid, open/closed (T32W)	R	-	•	-	•	-	442
2x2/2-way, single solenoid, closed (T22C)	VC	-	-	•	-	-	442
2x2/2-way, single solenoid, closed (T22CV)	W	•	-	_	•	-	442

¹⁾ If neither solenoid coil is energised, the valve is moved to its mid-position by spring force. If both solenoid coils are energised at the same time, the valve remains in the previously assumed switching position.

Valve function (with valve code)	Terminal	Flow rate					
	code	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve on individual sub-base		
5/2-way, double solenoid (B52)	J	2000	1300	1860	1500		
5/2-way, double solenoid with dominant signal (D52)	D	2000	1300	1860	1500		
5/2-way, single solenoid (M52A)	M	2000	1300	1860	1500		
5/2-way, single solenoid (M52M)	0	2000	1300	1860	1500		
5/3-way, closed (P53C)	G	1900 ¹⁾ 950 ²⁾	1200 ¹⁾ 800 ²⁾	1690 ¹⁾ 830 ²⁾	1400 ¹⁾ 800 ²⁾		
5/3-way, exhausted (P53E)	E	1900 ¹⁾ 950 ²⁾	1200 ¹⁾ 800 ²⁾	1690 ¹⁾ 830 ²⁾	1400 ¹⁾ 800 ²⁾		
5/3-way, pressurised (P53U)	В	1900 ¹⁾ 950 ²⁾	1200 ¹⁾ 800 ²⁾	1690 ¹⁾ 830 ²⁾	1400 ¹⁾ 800 ²⁾		
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	1700 ¹⁾ 700 ²⁾	1400 ¹⁾ 800 ²⁾	1700 ¹⁾ 700 ²⁾	1400 ¹⁾ 700 ²⁾		
2x3/2-way, single solenoid, closed (T32C)	K	1600	1200	1300	1200		
2x3/2-way, single solenoid, open (T32U)	N	1600	1200	1300	1200		
2x3/2-way, single solenoid, open/closed (T32H)	Н	1600	1200	1300	1200		
2x3/2-way, single solenoid, closed (T32N)	Q	1600	1200	1300	1200		
2x3/2-way, single solenoid, open (T32F)	Р	1600	1200	1300	1200		
2x3/2-way, single solenoid, open/closed (T32W)	R	1600	1200	1300	1200		
2x2/2-way, single solenoid, closed (T22C)	VC	1600	1400	1500	1400		
2x2/2-way, single solenoid, closed (T22CV)	VV	1600	1400	1500	1400		

Switching position
 Mid-position

Data sheet – Solenoid valve, width 42 mm

Valve switching times in [ms], width 42 mm				
Valve function (with valve code)	Terminal code	On	Off	Changeover
5/2-way, double solenoid (B52)	J	-	-	16
5/2-way, double solenoid with dominant signal (D52)	D	-	-	19
5/2-way, single solenoid (M52A)	M	27	45	-
5/2-way, single solenoid (M52M)	0	22	60	-
5/3-way, closed (P53C)	G	22	65	38
5/3-way, exhausted (P53E)	E	22	65	38
5/3-way, pressurised (P53U)	В	22	65	38
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	22	65	38
2x3/2-way, single solenoid, closed (T32C)	K	20	38	_
2x3/2-way, single solenoid, open (T32U)	N	20	38	_
2x3/2-way, single solenoid, open/closed (T32H)	Н	20	38	_
2x3/2-way, single solenoid, closed (T32N)	Q	34	28	_
2x3/2-way, single solenoid, open (T32F)	Р	34	28	-
2x3/2-way, single solenoid, open/closed (T32W)	R	34	28	-
2x2/2-way, single solenoid, closed (T22C)	VC	20	38	-
2x2/2-way, single solenoid, closed (T22CV)	VV	20	38	-

Characteristic coil data, width 42 mm		
Valve function (with valve code)	Terminal code	[W]
5/2-way, double solenoid (B52)	J	1.6
5/2-way, double solenoid with dominant signal (D52)	D	1.3
5/2-way, single solenoid (M52A)	M	1.6
5/2-way, single solenoid (M52M)	0	1.6
5/3-way, closed (P53C)	G	1.6
5/3-way, exhausted (P53E)	E	1.6
5/3-way, pressurised (P53U)	В	1.6
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	1.6
2x3/2-way, single solenoid, closed (T32C)	K	1.3
2x3/2-way, single solenoid, open (T32U)	N	1.3
2x3/2-way, single solenoid, open/closed (T32H)	Н	1.3
2x3/2-way, single solenoid, closed (T32N)	Q	1.3
2x3/2-way, single solenoid, open (T32F)	Р	1.3
2x3/2-way, single solenoid, open/closed (T32W)	R	1.3
2x2/2-way, single solenoid, closed (T22C)	VC	1.3
2x2/2-way, single solenoid, closed (T22CV)	VV	1.3

Materials	
Housing	Die-cast aluminium, PA
Seals	FPM, NBR, HNBR
Screws	Galvanised steel
Note on materials	RoHS-compliant

	Terminal code	Valve function with MO detenting/non-detenting (D)	Valve code	Width	Part no.	Туре
id valves						
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	42 mm	561340	VSVA-B-T22C-AZD-D1-1T1L
	W	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5	T22CV	42 mm	561344	VSVA-B-T22CV-AZD-D1-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	42 mm	543692	VSVA-B-T32U-AZD-D1-1T1L
	K	2x 3/2-way valve, single solenoid, normally closed	T32C	42 mm	543690	VSVA-B-T32C-AZD-D1-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	T32H	42 mm	543694	VSVA-B-T32H-AZD-D1-1T1L
	Р	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	42 mm	543693	VSVA-B-T32F-AZD-D1-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	42 mm	543691	VSVA-B-T32N-AZD-D1-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	42 mm	543695	VSVA-B-T32W-AZD-D1-1T1L
	M	5/2-way valve, single solenoid, pneumatic spring return	M52-A	42 mm	543698	VSVA-B-M52-AZD-D1-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52M	42 mm	543699	VSVA-B-M52-MZD-D1-1T1L
	J	5/2-way valve, double solenoid	B52	42 mm	543696	VSVA-B-B52-ZD-D1-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	42 mm	543697	VSVA-B-D52-ZD-D1-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	42 mm	543700	VSVA-B-P53U-ZD-D1-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	42 mm	543702	VSVA-B-P53C-ZD-D1-1T1L
	E	5/3-way solenoid valve, mid-position exhausted	P53E	42 mm	543701	VSVA-B-P53E-ZD-D1-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	42 mm	8000464	VSVA-B-P53F-ZD-D1-1T1L

	Terminal code	Valve function	Valve code	Width	Part no.	Туре
d valves						
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	42 mm	8034781	VSVA-B-T22C-AZTR-D1-1T1L
	W	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5	T22CV	42 mm	8034782	VSVA-B-T22CV-AZTR-D1-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	42 mm	8034770	VSVA-B-T32U-AZTR-D1-1T1L
	К	2x 3/2-way valve, single solenoid, normally closed	T32C	42 mm	8034768	VSVA-B-T32C-AZTR-D1-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	42 mm	8034772	VSVA-B-T32H-AZTR-D1-1T1L
	Р	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	42 mm	8034771	VSVA-B-T32F-AZTR-D1-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	42 mm	8034769	VSVA-B-T32N-AZTR-D1-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	42 mm	8034773	VSVA-B-T32W-AZTR-D1-1T1L
	M	5/2-way valve, single solenoid, pneumatic spring return	M52-A	42 mm	8034776	VSVA-B-M52-AZTR-D1-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52M	42 mm	8034777	VSVA-B-M52-MZTR-D1-1T1L
	J	5/2-way valve, double solenoid	B52	42 mm	8034774	VSVA-B-B52-ZTR-D1-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	42 mm	8034775	VSVA-B-D52-ZTR-D1-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	42 mm	8034778	VSVA-B-P53U-ZTR-D1-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	42 mm	8034780	VSVA-B-P53C-ZTR-D1-1T1L
	E	5/3-way solenoid valve, mid-position exhausted	P53E	42 mm	8034779	VSVA-B-P53E-ZTR-D1-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	42 mm	8034783	VSVA-B-P53F-ZTR-D1-1T1L

	Terminal code	Valve function with MO non-detenting (H)	Valve code	Width	Part no.	Туре
noid valves						
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	42 mm	8034812	VSVA-B-T22C-AZH-D1-1T1L
	W	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5	T22CV	42 mm	8034813	VSVA-B-T22CV-AZH-D1-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	42 mm	8034801	VSVA-B-T32U-AZH-D1-1T1L
	K	2x 3/2-way valve, single solenoid, normally closed	T32C	42 mm	8034799	VSVA-B-T32C-AZH-D1-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	42 mm	8034803	VSVA-B-T32H-AZH-D1-1T1L
	Р	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	42 mm	8034802	VSVA-B-T32F-AZH-D1-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	42 mm	8034800	VSVA-B-T32N-AZH-D1-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	42 mm	8034804	VSVA-B-T32W-AZH-D1-1T1L
	M	5/2-way valve, single solenoid, pneumatic spring return	M52-A	42 mm	8034807	VSVA-B-M52-AZH-D1-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52M	42 mm	8034808	VSVA-B-M52-MZH-D1-1T1L
	J	5/2-way valve, double solenoid	B52	42 mm	8034805	VSVA-B-B52-ZH-D1-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	42 mm	8034806	VSVA-B-D52-ZH-D1-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	42 mm	8034809	VSVA-B-P53U-ZH-D1-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	42 mm	8034811	VSVA-B-P53C-ZH-D1-1T1L
	E	5/3-way solenoid valve, mid-position exhausted	P53E	42 mm	8034810	VSVA-B-P53E-ZH-D1-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	42 mm	8034814	VSVA-B-P53F-ZH-D1-1T1L

	Terminal code	Valve function	Valve code	Width	Part no.	Туре
d valves						
The second secon	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	42 mm	8034843	VSVA-B-T22C-AZ-D1-1T1L
	W	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5	T22CV	42 mm	8034844	VSVA-B-T22CV-AZ-D1-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	42 mm	8034832	VSVA-B-T32U-AZ-D1-1T1L
	К	2x 3/2-way valve, single solenoid, normally closed	T32C	42 mm	8034830	VSVA-B-T32C-AZ-D1-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	42 mm	8034834	VSVA-B-T32H-AZ-D1-1T1L
	P	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	42 mm	8034833	VSVA-B-T32F-AZ-D1-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	42 mm	8034831	VSVA-B-T32N-AZ-D1-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	42 mm	8034835	VSVA-B-T32W-AZ-D1-1T1L
	M	5/2-way valve, single solenoid, pneumatic spring return	M52-A	42 mm	8034838	VSVA-B-M52-AZ-D1-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52M	42 mm	8034839	VSVA-B-M52-MZ-D1-1T1L
	J	5/2-way valve, double solenoid	B52	42 mm	8034836	VSVA-B-B52-Z-D1-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	42 mm	8034837	VSVA-B-D52-Z-D1-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	42 mm	8034840	VSVA-B-P53U-Z-D1-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	42 mm	8034842	VSVA-B-P53C-Z-D1-1T1L
	E	5/3-way solenoid valve, mid-position exhausted	P53E	42 mm	8034841	VSVA-B-P53E-Z-D1-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	42 mm	8034845	VSVA-B-P53F-Z-D1-1T1L

Data sheet - Solenoid valve, width 52 mm

Valve width to ISO 5599-2 52 mm (ISO 2)

- N - Flow rate
Width 52 mm:
VTSA up to 2900 l/min
VTSA-F up to 2900 l/min

- **** - Voltage 24 V DC



Safety characteristics - Valve, width 52 mm	
Conforms to standard	EN 13849-1/2
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾
Shock resistance	Shock test with severity level 2, to EN 60068-2-27
Vibration resistance	Transport application test with severity level 2, to EN 60068-2-6

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

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

Valve function (with valve code)	Termina	Test pulses	t pulses		
	code	Max. positive test pulse with logic 0 [μs]	Max. negative test pulse with logic 1 [μs]		
5/2-way, double solenoid (B52)	J	1000	3500		
5/2-way, double solenoid with dominant signal (D52)	D	1000	3500		
5/2-way, single solenoid (M52A)	M	1000	3500		
5/2-way, single solenoid (M52M)	0	1000	3500		
5/3-way, closed (P53C)	G	1000	3500		
5/3-way, exhausted (P53E)	E	1000	3500		
5/3-way, pressurised (P53U)	В	1000	3500		
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	-	-		
2x3/2-way, single solenoid, closed (T32C)	K	1000	3500		
2x3/2-way, single solenoid, open (T32U)	N	1000	3500		
2x3/2-way, single solenoid, open/closed (T32H)	Н	1000	3500		
2x3/2-way, single solenoid, closed (T32N)	Q	1000	3500		
2x3/2-way, single solenoid, open (T32F)	P	1000	3500		
2x3/2-way, single solenoid, open/closed (T32W)	R	1000	3500		
2x2/2-way, single solenoid, closed (T22C)	VC	1000	3500		

Data sheet – Solenoid valve, width 52 mm

Valve function (with valve code)	Terminal	Flow direction			Reset method		Weight
	code	Any	Only reversible	Non-reversible	Pneumatic spring	Mechanical spring	[g]
5/2-way, double solenoid (B52)	J		-	-	-	-	732
5/2-way, double solenoid with dominant signal (D52)	D	•	-	-	-	-	732
5/2-way, single solenoid (M52A)	M	•	-	-	-	-	702
5/2-way, single solenoid (M52M)	0	•	-	-	-	•	702
5/3-way, closed ¹⁾ (P53C)	G	•	-	-	-	•	780
5/3-way, exhausted ¹⁾ (P53E)	E	•	_	-	-	•	780
5/3-way, pressurised ¹⁾ (P53U)	В	•	-	-	-	•	780
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	•	-	-	-	-	780
2x3/2-way, single solenoid, closed (T32C)	K	-	-	•	-	-	740
2x3/2-way, single solenoid, open (T32U)	N	-	-	•	-	-	740
2x3/2-way, single solenoid, open/closed (T32H)	Н	-	-	•	-	-	740
2x3/2-way, single solenoid, closed (T32N)	Q	-	•	-	-	-	740
2x3/2-way, single solenoid, open (T32F)	Р	-	•	-	•	-	740
2x3/2-way, single solenoid, open/closed (T32W)	R	-	•	-	•	-	740
2x2/2-way, single solenoid, closed (T22C)	VC	_	-	•	-	-	740

If neither solenoid coil is energised, the valve is moved to its mid-position by spring force.
 If both solenoid coils are energised at the same time, the valve remains in the previously assumed switching position.

Valve function (with valve code)	Terminal	minal Flow rate					
	code	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve on individual sub-base		
5/2-way, double solenoid (B52)	J	4000	2900	2900	3400		
5/2-way, double solenoid with dominant signal (D52)	D	4000	2900	2900	3400		
5/2-way, single solenoid (M52A)	M	4000	2900	2900	3400		
5/2-way, single solenoid (M52M)	0	4000	2900	2900	3400		
5/3-way, closed (P53C)	G	3600 ¹⁾	2800 ¹⁾	2800 ¹⁾	3200 ¹⁾		
		1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾		
5/3-way, exhausted (P53E)	E	3600 ¹⁾	2800 ¹⁾	2800 ¹⁾	3200 ¹⁾		
		1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾		
5/3-way, pressurised (P53U)	В	3600 ¹⁾	2800 ¹⁾	2800 ¹⁾	3200 ¹⁾		
		1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾		
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	3000 ¹⁾	2300 ¹⁾	2300 ¹⁾	2600 ¹⁾		
		900 ²⁾	900 ²⁾	900 ²⁾	900 ²⁾		
2x3/2-way, single solenoid, closed (T32C)	K	3000	2400	2400	2600		
2x3/2-way, single solenoid, open (T32U)	N	3000	2400	2400	2600		
2x3/2-way, single solenoid, open/closed (T32H)	Н	3000	2400	2400	2600		
2x3/2-way, single solenoid, closed (T32N)	Q	3000	2400	2400	2600		
2x3/2-way, single solenoid, open (T32F)	Р	3000	2400	2400	2600		
2x3/2-way, single solenoid, open/closed (T32W)	R	3000	2400	2400	2600		
2x2/2-way, single solenoid, closed (T22C)	VC	4000	2800	2800	3400		

¹⁾ Switching position

Mid-position

Data sheet – Solenoid valve, width 52 mm

Valve switching times in [ms], width 52 mm				
Valve function (with valve code)	Terminal code	On	Off	Changeover
5/2-way, double solenoid (B52)	J	-	-	18
5/2-way, double solenoid with dominant signal (D52)	D	-	-	18
5/2-way, single solenoid (M52A)	M	40	45	-
5/2-way, single solenoid (M52M)	0	20	60	-
5/3-way, closed (P53C)	G	23	60	38
5/3-way, exhausted (P53E)	E	23	60	38
5/3-way, pressurised (P53U)	В	23	60	38
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	23	60	38
2x3/2-way, single solenoid, closed (T32C)	K	20	35	-
2x3/2-way, single solenoid, open (T32U)	N	20	35	-
2x3/2-way, single solenoid, open/closed (T32H)	Н	20	35	-
2x3/2-way, single solenoid, closed (T32N)	Q	20	35	-
2x3/2-way, single solenoid, open (T32F)	Р	20	35	-
2x3/2-way, single solenoid, open/closed (T32W)	R	20	35	-
2x2/2-way, single solenoid, closed (T22C)	VC	14	35	-

Characteristic coil data, width 52 mm		
Valve function (with valve code)	Terminal	[W]
	code	
5/2-way, double solenoid (B52)	J	4.6
5/2-way, double solenoid with dominant signal (D52)	D	4.6
5/2-way, single solenoid (M52A)	M	4.6
5/2-way, single solenoid (M52M)	0	4.6
5/3-way, closed (P53C)	G	4.6
5/3-way, exhausted (P53E)	E	4.6
5/3-way, pressurised (P53U)	В	4.6
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	4.6
2x3/2-way, single solenoid, closed (T32C)	K	4.6
2x3/2-way, single solenoid, open (T32U)	N	4.6
2x3/2-way, single solenoid, open/closed (T32H)	Н	4.6
2x3/2-way, single solenoid, closed (T32N)	Q	4.6
2x3/2-way, single solenoid, open (T32F)	Р	4.6
2x3/2-way, single solenoid, open/closed (T32W)	R	4.6
2x2/2-way, single solenoid, closed (T22C)	VC	4.6

Maximum current consumption per solenoid o	oil, width 52	? mm
At nominal voltage 24 V DC (valves with holding	g current re	duction)
Nominal pick-up current	[mA]	165
Nominal current following current reduction	[mA]	35
Time until current reduction	[ms]	30

Materials	
Housing	Die-cast aluminium, PA
Seals	FPM, NBR, HNBR
Screws	Galvanised steel
Note on materials	RoHS-compliant

	Terminal	Valve function	Valve	Width	Part no.	Туре
	code		code			
d valves						
	VC	2x 2/2-way valve, single solenoid,	T22C	52 mm	560831	VSVA-B-T22C-AZD-D2-1T1L
9		normally closed,				
? ?	\geq	pneumatic spring return				
	N	2x 3/2-way valve, single solenoid,	T32U	52 mm	560827	VSVA-B-T32U-AZD-D2-1T1L
	, 🌖	normally open				
	K	2x 3/2-way valve, single solenoid,	T32C	52 mm	560825	VSVA-B-T32C-AZD-D2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	52 mm	560829	VSVA-B-T32H-AZD-D2-1T1L
		1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid,	T32F	52 mm	560828	VSVA-B-T32F-AZD-D2-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	52 mm	560826	VSVA-B-T32N-AZD-D2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	52 mm	560830	VSVA-B-T32W-AZD-D2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	52 mm	560820	VSVA-B-M52-AZD-D2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	52 mm	560821	VSVA-B-M52-MZD-D2-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	52 mm	560818	VSVA-B-B52-ZD-D2-1T1L
	D	5/2-way valve, double solenoid,	D52	52 mm	560819	VSVA-B-D52-ZD-D2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	52 mm	560822	VSVA-B-P53U-ZD-D2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	52 mm	560824	VSVA-B-P53C-ZD-D2-1T1L
		mid-position closed				
	Е	5/3-way solenoid valve,	P53E	52 mm	560823	VSVA-B-P53E-ZD-D2-1T1L
		mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	52 mm	8000465	VSVA-B-P53F-ZD-D2-1T1L

	Terminal	Valve function	Valve	Width	Part no.	Туре
	code		code			
oid valves						
200	VC	2x 2/2-way valve, single solenoid,	T22C	52 mm	8034967	VSVA-B-T22C-AZTR-D2-1T1L
•		normally closed,				
P. P.		pneumatic spring return				
	N	2x 3/2-way valve, single solenoid,	T32U	52 mm	8034963	VSVA-B-T32U-AZTR-D2-1T1L
	J	normally open				
4	K	2x 3/2-way valve, single solenoid,	T32C	52 mm	8034961	VSVA-B-T32C-AZTR-D2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	52 mm	8034965	VSVA-B-T32H-AZTR-D2-1T1L
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	52 mm	8034964	VSVA-B-T32F-AZTR-D2-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	52 mm	8034962	VSVA-B-T32N-AZTR-D2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	52 mm	8034966	VSVA-B-T32W-AZTR-D2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	52 mm	8034956	VSVA-B-M52-AZTR-D2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	52 mm	8034957	VSVA-B-M52-MZTR-D2-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	52 mm	8034954	VSVA-B-B52-ZTR-D2-1T1L
	D	5/2-way valve, double solenoid,	D52	52 mm	8034955	VSVA-B-D52-ZTR-D2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	52 mm	8034958	VSVA-B-P53U-ZTR-D2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	52 mm	8034960	VSVA-B-P53C-ZTR-D2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	52 mm	8034959	VSVA-B-P53E-ZTR-D2-1T1L
		mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	52 mm	8034968	VSVA-B-P53F-ZTR-D2-1T1L
		mid-position pressurised 1 to 2, 4 to 5 closed				

		Valve function	Valve	Width	Part no.	Туре
	code		code			
d valves						
•	VC	2x 2/2-way valve, single solenoid,	T22C	52 mm	8034982	VSVA-B-T22C-AZH-D2-1T1L
•		normally closed,				
		pneumatic spring return				
	N	2x 3/2-way valve, single solenoid,	T32U	52 mm	8034978	VSVA-B-T32U-AZH-D2-1T1L
	, 기	normally open				
V	K	2x 3/2-way valve, single solenoid,	T32C	52 mm	8034976	VSVA-B-T32C-AZH-D2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	52 mm	8034980	VSVA-B-T32H-AZH-D2-1T1LL
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	52 mm	8034979	VSVA-B-T32F-AZH-D2-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	52 mm	8034977	VSVA-B-T32N-AZH-D2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	52 mm	8034981	VSVA-B-T32W-AZH-D2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	52 mm	8034971	VSVA-B-M52-AZH-D2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	52 mm	8034972	VSVA-B-M52-MZH-D2-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	52 mm	8034969	VSVA-B-B52-ZH-D2-1T1L
	D	5/2-way valve, double solenoid,	D52	52 mm	8034970	VSVA-B-D52-ZH-D2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	52 mm	8034973	VSVA-B-P53U-ZH-D2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	52 mm	8034975	VSVA-B-P53C-ZH-D2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	52 mm	8034974	VSVA-B-P53E-ZH-D2-1T1L
		mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	52 mm	8034983	VSVA-B-P53F-ZH-D2-1T1L

	Terminal	Valve function	Valve	Width	Part no.	Туре
	code		code			
l valves						
A	VC	2x 2/2-way valve, single solenoid,	T22C	52 mm	8034997	VSVA-B-T22C-AZ-D2-1T1L
•		normally closed,				
		pneumatic spring return				
	N	2x 3/2-way valve, single solenoid,	T32U	52 mm	8034993	VSVA-B-T32U-AZ-D2-1T1L
		normally open				
W	K	2x 3/2-way valve, single solenoid,	T32C	52 mm	8034991	VSVA-B-T32C-AZ-D2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	52 mm	8034995	VSVA-B-T32H-AZ-D2-1T1L
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	52 mm	8034994	VSVA-B-T32F-AZ-D2-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	52 mm	8034992	VSVA-B-T32N-AZ-D2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	52 mm	8034996	VSVA-B-T32W-AZ-D2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	52 mm	8034986	VSVA-B-M52-AZ-D2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52M	52 mm	8034987	VSVA-B-M52-MZ-D2-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	52 mm	8034984	VSVA-B-B52-Z-D2-1T1L
ŀ	D	5/2-way valve, double solenoid,	D52	52 mm	8034985	VSVA-B-D52-Z-D2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	52 mm	8034988	VSVA-B-P53U-Z-D2-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	52 mm	8034990	VSVA-B-P53C-Z-D2-1T1L
		mid-position closed				
Ī	E	5/3-way solenoid valve,	P53E	52 mm	8034989	VSVA-B-P53E-Z-D2-1T1L
		mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	52 mm	8034998	VSVA-B-P53F-Z-D2-1T1L
		mid-position pressurised 1 to 2, 4 to 5 closed				

Ordering data					
	Code	Description		Part no.	Туре
Right-hand end plate				•	
6000	V	With working air/exhaust air, internal pilot air supply, 1/2 NPT (no port 14)			VABE-S6-1R-N12
	V1	With working air/exhaust air, internal pilot air supply, 3/4 NPT (port 14 is sealed with a blanking plug)			VABE-S6-2R-N34
000	X	With working air/exhaust air, external pilot air supply, 1/2 NPT		539237	VABE-S6-1RZ-N12
	X1	With working air/exhaust air, external pilot air supply, 3/4 NPT	rorking air/exhaust air, external pilot air supply, 3/4 NPT		VABE-S6-2RZ-N34
End plate with pilot air	r selector				
	Y1) U1) Z1) W1)	Internal pilot air supply Internal pilot air supply, ducted pilot exhaust air External pilot air supply External pilot air supply, ducted pilot exhaust air		539239	VABE-S6-1RZ-N-B1
Manifold sub-base no	ort nattern t	to ISO 15407-2 and ISO 5599-2			
Mannota sub-base, po	A	2 valve positions, 4 addresses, for double solenoid valves	18 mm	539223	VABV-S4-2S-N18-2T2
	В	2 valve positions, 4 addresses, for double solenoid valves	26 mm	539219	VABV-S4-1S-N14-2T2
	С	1 valve position, 2 addresses, for double solenoid valves	42 mm	542460	VABV-S2-1S-N38-T2
o o	D E	1 valve position, 2 addresses, for double solenoid valves	52 mm	560843	VABV-S2-2S-N12-T2
	F	2 valve positions, 2 addresses, for single solenoid valves	18 mm	539225 539221	VABV-S4-2S-N18-2T1
	G	2 valve positions, 2 addresses, for single solenoid valves 1 valve position, 1 address, for single solenoid valves	26 mm 42 mm	542461	VABV-S4-1S-N14-2T1 VABV-S2-1S-N38-T1
	Н	1 valve position, 1 address, for single solenoid valves 1 valve position, 1 address, for single solenoid valves	52 mm	560844	VABV-52-15-N38-11 VABV-S2-2S-N12-T1
			32	J00044	1112111-02-22-W1
Manifold sub-base VT					
	А	2 valve positions, 4 addresses, for double solenoid valves	18 mm	546217	VABV-S4-2HS-N18-2T2
	В	2 valve positions, 4 addresses, for double solenoid valves	26 mm	546213	VABV-S4-1HS-N14-2T2
	С	1 valve position, 2 addresses, for double solenoid valves	42 mm	546221	VABV-S2-1HS-N38-T2
	E	2 valve positions, 2 addresses, for single solenoid valves	18 mm	546216	VABV-S4-2HS-N18-2T1
	F	2 valve positions, 2 addresses, for single solenoid valves	26 mm	546212	VABV-S4-1HS-N14-2T1
	G	1 valve position, 1 address, for single solenoid valves	42 mm	546220	VABV-S2-1HS-N38-T1

¹⁾ Code letter within the order code for a valve terminal configuration

Ordering data – Duct s		I/SPAI			
	Code	Description	Weight [g]	Part no.	Туре
	S	Duct separation 1, 3, 5	57	539228	VABD-S6-1-P3-C
	T	Duct separation 1	43	539227	VABD-S6-1-P1-C
	R	Duct separation 3, 5	54	539229	VABD-S6-1-P2-C
	L	Seal between sub-bases, duct 1, 3, 5 open, port 14 blocked (colour coding: white)	40	573191	VABD-S6-1-P7-C
	TL	Seal between sub-bases, duct 1 blocked, port 14 blocked (colour coding: red) Note: additional pilot air supply required	43	8060483	VABD-S6-1-P8-C
	K	Seal between sub-bases, duct 1, 3, 5 blocked, port 14 blocked (colour coding: green)	57	8034612	VABD-S6-1-P6-C
Ordering data	Code	Description	Width	Part no.	Туре
90°-connection plate			<u>'</u>		
08	Р	Outlet at bottom, connecting thread 1/8 NPT	18 mm	539720	VABF-S4-2-A2G2-N18
88		Outlet at bottom, connecting thread 1/4 NPT	26 mm	539722	VABF-S4-1-A2G2-N14
		0 11 11 11 11 11 11 11 12 12 1 1 1 1 2 10 NDT	12		
		Outlet at bottom, connecting thread 3/8 NPT	42 mm	546098	VABF-S2-1-A1G2-N38
	9	Outlet at bottom, connecting thread 1/2 NPT	52 mm	546098	VABF-S2-1-A1G2-N38 VABF-S2-2-A1G2-N12
Supply plate	9				
Supply plate) 	Outlet at bottom, connecting thread 1/2 NPT		555703	VABF-S2-2-A1G2-N12
Supply plate	L K				
	К	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT		555703	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12
Vertical supply plate (or	К	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT		555703	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12
	K K perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT ressure 0.910 bar)	52 mm	555703 539233 539232	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12
Vertical supply plate (or	K K perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT ressure 0.910 bar) Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT	52 mm	555703 539233 539232	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12
Vertical supply plate (or	K K perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT ressure 0.910 bar) Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1	18 mm 26 mm	539233 539232 540174 540172	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S4-1-P1A3-N14
Vertical supply plate (or	K K perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT ressure 0.910 bar) Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT	52 mm	555703 539233 539232 540174	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18
Vertical supply plate (or	K K perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT ressure 0.910 bar) Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT Individual compressed air supply, duct 1	18 mm 26 mm 42 mm	539233 539232 540174 540172 546094	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S4-1-P1A3-N14 VABF-S2-1-P1A3-N38
Vertical supply plate (or	K K perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT ressure 0.910 bar) Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT	18 mm 26 mm	539233 539232 540174 540172	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S4-1-P1A3-N14
Vertical supply plate (or	K K perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/2 NPT Individual compressed air supply, duct 1 Connecting thread 1/2 NPT Individual compressed air supply, duct 1 Connecting thread 1/8 NPT	18 mm 26 mm 42 mm	539233 539232 540174 540172 546094	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S4-1-P1A3-N14 VABF-S2-1-P1A3-N38
Vertical supply plate (or	perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/2 NPT Individual compressed air supply, duct 1 Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/8 NPT Individual compressed air supply, ducts 1 and 14	18 mm 26 mm 42 mm 52 mm 18 mm	539233 539232 540174 540172 546094 555787 8000694	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S4-1-P1A3-N14 VABF-S2-1-P1A3-N38 VABF-S2-2-P1A3-N12 VABF-S4-2-P1A14-N18
Vertical supply plate (or	perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/2 NPT Individual compressed air supply, duct 1 Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/8 NPT Individual compressed air supply, ducts 1 and 14 Connecting thread 1/4 NPT	18 mm 26 mm 42 mm 52 mm	539233 539232 539232 540174 540172 546094 555787	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S4-1-P1A3-N14 VABF-S2-1-P1A3-N38 VABF-S2-2-P1A3-N12
Vertical supply plate (or	perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/2 NPT Individual compressed air supply, duct 1 Connecting thread 1/8 NPT Individual compressed air supply, ducts 1 and 14 Connecting thread 1/4 NPT Individual compressed air supply, ducts 1 and 14 Connecting thread 3/8 NPT	18 mm 26 mm 42 mm 52 mm 18 mm	539233 539232 540174 540172 546094 555787 8000694	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S4-1-P1A3-N14 VABF-S2-1-P1A3-N38 VABF-S2-2-P1A3-N12 VABF-S4-2-P1A14-N18
Vertical supply plate (or	perating p	Outlet at bottom, connecting thread 1/2 NPT With exhaust plate, 3/5 common, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT With exhaust air cover, 3/5 separate, 1/2 NPT Connecting thread 1/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/4 NPT Individual compressed air supply, duct 1 Connecting thread 3/8 NPT Individual compressed air supply, duct 1 Connecting thread 1/2 NPT Individual compressed air supply, duct 1 Connecting thread 1/8 NPT Individual compressed air supply, ducts 1 and 14 Connecting thread 1/4 NPT Individual compressed air supply, ducts 1 and 14	18 mm 26 mm 42 mm 52 mm 18 mm 26 mm	539233 539232 539232 540174 540172 546094 555787 8000694 8000690	VABF-S2-2-A1G2-N12 VABF-S6-1-P1A7-N12 VABF-S6-1-P1A6-N12 VABF-S4-2-P1A3-N18 VABF-S2-1-P1A3-N14 VABF-S2-1-P1A3-N38 VABF-S2-2-P1A3-N12 VABF-S4-2-P1A14-N18

	Code	Pressure regulation for port	Control range [bar]	Part no.	Туре
egulator plate, width	18 mm				
®	ZA	1	0.510	540153	VABF-S4-2-R1C2-C-10
	ZF	1	0.56	540151	VABF-S4-2-R1C2-C-6
	ZC	2	210	540161	VABF-S4-2-R2C2-C-10
	ZH	2	26	540159	VABF-S4-2-R2C2-C-6
11/1	ZB	4	210	540157	VABF-S4-2-R3C2-C-10
	ZG	4	26	540155	VABF-S4-2-R3C2-C-6
	ZD	2 and 4	210	540165	VABF-S4-2-R4C2-C-10
	ZI	2 and 4	26	540163	VABF-S4-2-R4C2-C-6
	ZE	2 and 4, reversible	0.510	540169	VABF-S4-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	540167	VABF-S4-2-R5C2-C-6
	ZL	2, reversible	0.510	546252	VABF-S4-2-R6C2-C-10
	ZN	2, reversible	0.56	546248	VABF-S4-2-R6C2-C-6
	ZK	4, reversible	0.510	546254	VABF-S4-2-R7C2-C-10
	ZM	4, reversible	0.56	546250	VABF-S4-2-R7C2-C-6
gulator plate, width	26 mm				
	ZA	1	0.510	540154	VABF-S4-1-R1C2-C-10
	ZF	1	0.56	540152	VABF-S4-1-R1C2-C-6
	ZC	2	210	540162	VABF-S4-1-R2C2-C-10
	ZH	2	26	540160	VABF-S4-1-R2C2-C-6
	ZB	4	210	540158	VABF-S4-1-R3C2-C-10
	ZG	4	26	540156	VABF-S4-1-R3C2-C-6
	ZD	2 and 4	210	540166	VABF-S4-1-R4C2-C-10
	ZI	2 and 4	26	540164	VABF-S4-1-R4C2-C-6
	ZE	2 and 4, reversible	0.510	540170	VABF-S4-1-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	540168	VABF-S4-1-R5C2-C-6
	ZL	2, reversible	0.510	546251	VABF-S4-1-R6C2-C-10
	ZN	2, reversible	0.56	546247	VABF-S4-1-R6C2-C-6
	ZK	4, reversible	0.510	546253	VABF-S4-1-R7C2-C-10
	ZM	4, reversible	0.56	546249	VABF-S4-1-R7C2-C-6

Ordering data	Code	Draceure regulation for nort	Control rongo	Part no.	LTune
	Code	Pressure regulation for port	Control range [bar]	Part no.	Туре
			[Dai]		
Regulator plate, width					
<u></u>	ZA	1	0.510	546084	VABF-S2-1-R1C2-C-10
	ZF	1	0.56	546083	VABF-S2-1-R1C2-C-6
	ZC	2	1.010	546088	VABF-S2-1-R2C2-C-10
	ZH	2	1.06	546087	VABF-S2-1-R2C2-C-6
	ZB	4	1.010	546086	VABF-S2-1-R3C2-C-10
~ \p	ZG	4	0.56	546085	VABF-S2-1-R3C2-C-6
	ZD	2 and 4	1.010	546090	VABF-S2-1-R4C2-C-10
	ZI	2 and 4	1.06	546089	VABF-S2-1-R4C2-C-6
	ZE	2 and 4, reversible	0.510	546092	VABF-S2-1-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	546091	VABF-S2-1-R5C2-C-6
	ZL	2, reversible	0.510	546832	VABF-S2-1-R6C2-C-10
	ZN	2, reversible	0.56	546831	VABF-S2-1-R6C2-C-6
	ZK	4, reversible	0.510	546834	VABF-S2-1-R7C2-C-10
	ZM	4, reversible	0.56	546833	VABF-S2-1-R7C2-C-6
Regulator plate, width	52 mm				
	ZA	1	0.510	555772	VABF-S2-2-R1C2-C-10
	ZF	1	0.56	555771	VABF-S2-2-R1C2-C-6
	ZC	2	1.010	555774	VABF-S2-2-R2C2-C-10
	ZH	2	1.06	555773	VABF-S2-2-R2C2-C-6
	ZB	4	1.010	555776	VABF-S2-2-R3C2-C-10
Z Z	ZG	4	1.06	555775	VABF-S2-2-R3C2-C-6
	ZD	2 and 4	1.010	555778	VABF-S2-2-R4C2-C-10
	ZI	2 and 4	1.06	555777	VABF-S2-2-R4C2-C-6
	ZE	2 and 4, reversible	0.510	555780	VABF-S2-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	555779	VABF-S2-2-R5C2-C-6
	ZL	2, reversible	0.510	555782	VABF-S2-2-R6C2-C-10
	ZN	2, reversible	0.56	555781	VABF-S2-2-R6C2-C-6
	ZK	4, reversible	0.510	555784	VABF-S2-2-R7C2-C-10
	ZM	4, reversible	0.56	555783	VABF-S2-2-R7C2-C-6

Ordering data	Code	Pressure regulation for port	Control range	Part no.	Туре
			[bar]		
egulator plate for valv	es with sym	metrical design, width 18 mm			
	ZAY	1	0.510	560756	VABF-S4-2-R1C2-C-10E
	ZFY	1	0.56	560758	VABF-S4-2-R1C2-C-6E
	ZCY	2	210	560763	VABF-S4-2-R2C2-C-10E
	ZHY	2	26	560765	VABF-S4-2-R2C2-C-6E
11/10	ZDY	2 and 4	210	560767	VABF-S4-2-R4C2-C-10E
•	ZIY	2 and 4	26	560769	VABF-S4-2-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	560771	VABF-S4-2-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	560773	VABF-S4-2-R5C2-C-6E
	ZLY	2, reversible	0.510	560775	VABF-S4-2-R6C2-C-10E
	ZNY	2, reversible	0.56	560777	VABF-S4-2-R6C2-C-6E
agulator plato for val	oc with cum	metrical design, width 26 mm			
	ZAY	1	0.510	560757	VABF-S4-1-R1C2-C-10E
	ZFY	1	0.56	549876	VABF-S4-1-R1C2-C-6E
∖ Ø.	ZCY	2	210	560764	VABF-S4-1-R2C2-C-10E
	ZHY	2	26	560766	VABF-S4-1-R2C2-C-6E
	ZDY	2 and 4	210	560768	VABF-S4-1-R4C2-C-10E
	ZIY	2 and 4	26	560770	VABF-S4-1-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	560772	VABF-S4-1-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	560774	VABF-S4-1-R5C2-C-6E
	ZLY	2, reversible	0.510	560776	VABF-S4-1-R6C2-C-10E
	ZNY	2, reversible	0.56	560778	VABF-S4-1-R6C2-C-6E
		1 '	0.50	300710	WIDT 54 I ROCE COL
egulator plate for val		metrical design, width 42 mm ¹⁾			
P	ZAY	1	0.510	-	VABF-S2-1-R1C2-C-10E
	ZFY	1	0.56	-	VABF-S2-1-R1C2-C-6E
	ZCY	2	0.510	-	VABF-S2-1-R2C2-C-10E
	ZHY	2	0.56	-	VABF-S2-1-R2C2-C-6E
	ZBY	4	0.510	_	VABF-S2-1-R3C2-C-10E
₹ Ø	ZGY	4	0.56	_	VABF-S2-1-R3C2-C-6E
	ZDY	2 and 4	0.510	-	VABF-S2-1-R4C2-C-10E
	ZIY	2 and 4	0.56	-	VABF-S2-1-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	-	VABF-S2-1-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	-	VABF-S2-1-R5C2-C-6E
	ZLY	2, reversible	0.510	-	VABF-S2-1-R6C2-C-10E
	ZNY	2, reversible	0.56	-	VABF-S2-1-R6C2-C-6E
	ZKY	4, reversible	0.510	-	VABF-S2-1-R7C2-C-10E
	ZMY	4, reversible	0.56	_	VABF-S2-1-R7C2-C-6E

¹⁾ These functions are available via the pressure regulator configurator VABF-S2 for width 42 mm and 52 mm only (ISO 5599-2, ISO 1 and ISO 2)

Ordering data					
	Code	Pressure regulation for port	Control range [bar]	Part no.	Туре
Regulator plate for valves	with symm	netrical design, width 52 mm ¹⁾	[ex.]		
<u> </u>	ZAY	1	0.510	-	VABF-S2-2-R1C2-C-10E
	ZFY	1	0.56	-	VABF-S2-2-R1C2-C-6E
	ZCY	2	0.510	-	VABF-S2-2-R2C2-C-10E
	ZHY	2	0.56	-	VABF-S2-2-R2C2-C-6E
	ZBY	4	0.510	-	VABF-S2-2-R3C2-C-10E
750	ZGY	4	0.56	_	VABF-S2-2-R3C2-C-6E
	ZDY	2 and 4	0.510	_	VABF-S2-2-R4C2-C-10E
	ZIY	2 and 4	0.56	_	VABF-S2-2-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	-	VABF-S2-2-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	_	VABF-S2-2-R5C2-C-6E
	ZLY	2, reversible	0.510	_	VABF-S2-2-R6C2-C-10E
	ZNY	2, reversible	0.56	-	VABF-S2-2-R6C2-C-6E
	ZKY	4, reversible	0.510	_	VABF-S2-2-R7C2-C-10E
	ZMY	4, reversible	0.56	-	VABF-S2-2-R7C2-C-6E

¹⁾ These functions are available via the pressure regulator configurator VABF-S2 for width 42 mm and 52 mm only (ISO 5599-2, ISO 1 and ISO 2)

	Code	Description	Width	Part no.	Туре
essure gauge					
	T	With cartridge connection for regulator, 10 bar,	18 mm	543487	PAGN-26-16-P10
		scale bar/psi,	26 mm		
		display range 016 bar/0240 psi,	42 mm	548010	PAGN-40-16-P10
		for regulator plate code ZA, ZB, ZC, ZD, ZE, ZK, ZL	52 mm		
	U	With cartridge connection for regulator, 6 bar,	18 mm	543488	PAGN-26-10-P10
		scale bar/psi,	26 mm		
		display range 010 bar/0145 psi,	42 mm	548009	PAGN-40-10-P10
		for regulator plate code ZF, ZG, ZH, ZI, ZJ, ZM, ZN	52 mm		
	WT	With cartridge connection for regulator, 10 bar	18 mm	563735	PAGN-26-1.6M-P10
		scale MPa,	26 mm		
		display range 016 bar/01.6 MPa,	42 mm	563737	PAGN-40-1.6M-P10
		for regulator plate code ZA, ZB, ZC, ZD, ZE, ZK, ZL	52 mm		
	WU	With cartridge connection for regulator, 6 bar,	18 mm	563736	PAGN-26-1M-P10
		scale MPa,	26 mm		
		display range 016 bar/01 MPa	42 mm	563738	PAGN-40-1M-P10
		for regulator plate code ZF, ZG, ZH, ZI, ZJ, ZM, ZN	52 mm		
	VT	With cartridge connection for regulator, 10 bar	18 mm	563731	PAGN-26-232P-P10
		scale psi/bar,	26 mm		
		display range 016 bar/0232 psi	42 mm	563733	PAGN-40-232P-P10
		for regulator plate code ZA, ZB, ZC, ZD, ZE, ZK, ZL	52 mm		
	PS	With cartridge connection for regulator, 6 bar,	18 mm	563732	PAGN-26-145P-P10
		scale psi/bar,	26 mm		
		display range 010 bar/0145 psi	42 mm	563734	PAGN-40-145P-P10
		for regulator plate code ZF, ZG, ZH, ZI, ZJ, ZM, ZN	52 mm		

Ordering data				1	ı
	Code	Description		Part no.	Туре
Cartridge for regulator p	late				
	_	For tubing O.D. 4 mm	1 piece	172972	QSP10-4
	-	Adapter for pressure gauge (allows products with threaded connection G1/8 to be attached to the cartridge connection)	6 pieces	565811	QSP10-G1/8
Throttle plate					
	Х	Controls the flow of exhaust air downstream of the valve to ducts 3 and 5	18 mm	540176	VABF-S4-2-F1B1-C
			26 mm	540175	VABF-S4-1-F1B1-C
No.			42 mm	546095	VABF-S2-1-F1B1-C
			52 mm	555789	VABF-S2-2-F1B1-C
Vertical pressure shut-o	ff plate				
A STREET PRESSURE SHUL-0	ZT	3/2-way valve for shutting off the operating pressure at the valve position	18 mm	542884	VABF-S4-2-L1D1-C
	-	Pressure separation can be shut off on the valve assembly	26 mm	542885	VABF-S4-1-L1D1-C
		,	42 mm	546096	VABF-S2-1-L1D1-C
			52 mm	555791	VABF-S2-2-L1D1-C
<u> </u>	ZS	3/2-way valve for shutting off the operating pressure at the valve position	18 mm	8001178	VABF-S4-2-L1D2-C
		Pressure separation can be shut off on the valve assembly using a key	26 mm	8001179	VABF-S4-1-L1D2-C
Cover		_			
\sim	L	Cover plate for vacant position	18 mm	539213	VABB-S4-2-WT
R			26 mm	539212	VABB-S4-1-WT
			42 mm	543186	VABB-S2-1-WT
*			52 mm	560845	VABB-S2-2-WT
	N	Cover cap for manual override, non-detenting	10 pieces	541010	VAMC-S6-CH
	V	Cover cap for manual override, concealed	10 pieces	541011	VAMC-S6-CS
	A	Cover cap, heavy duty, for manual override, non-detenting heavy duty, detenting via accessory (key) (The cover cap is provided for one-off mounting only)	10 pieces	4105147	VAMC-B-S6-CTR
9	-	Sealing cap for electrical links (with individual connection), size 18 mm and 26 mm	10 pieces	547713	VABD-S4-E-C
	-	Seal (with individual connection), size 42 mm and 52 mm	2 pieces	571343	VABD-S2-1-S-C
Accessory for manual ov	erride, hea	vy duty			
	-	Coded key (accessory) for actuating cover cap, heavy duty, for detenting position (VAMC-B-S6-CTR)	1 piece	1662543	АНВ-МЕВ-В



There is a wide range of preconfigured solenoid valves with cover cap for manual override and correct valve type code available to order in the sections on solenoid valves.

Accessories – Electrical components

Ordering data				
	Code	Description	Part no.	Туре
Multi-pin node				
	Т	Terminal strip, 36-pin	543412	VABE-S6-1LF-C-M1-C36M
	MP1	Sub-D plug, 37-pin	543414	VABE-S6-1LT-C-M1-S37
	MP4	Round plug, 19-pin	543415	VABE-S6-1LF-C-M1-R19
ag ag				
ndividual electrical c	connection			
alla.	-MP2	Multi-pin node with individual connection M12, 6-way	549046	VABE-S6-LT-C-S6-R5
0	-MP3	Multi-pin node with individual connection M12, 10-way	549047	VABE-S6-LT-C-S10-R5
	-	Cover for individual connection M12, 6-way	549048	VAEM-S6-C-S6-R5
	-	Cover for individual connection M12, 10-way	549049	VAEM-S6-C-S10-R5
neumatic interface		For electrical terminal CPX in polymer design	543416	VABA-S6-1-X1
(; *				
	-	For electrical terminal CPX in metal design	550663	VABA-S6-1-X2
	_	For electrical terminal CPX in metal design, with changed diagnostic function	573613	VABA-S6-1-X2-D
lectrical interface for	r AS-Interface			
	-	4 inputs/4 outputs	549042	VABE-S6-1LF-C-A4-E
	-	8 inputs/8 outputs	549043	VABE-S6-1LF-C-A8-E
AS-Interface module				NATION OF THE AVE
	-	4 inputs/4 outputs	549044	VAEM-S6-S-FAS-4-4E
1500	_	8 inputs/8 outputs	549045	VAEM-S6-S-FAS-8-8E

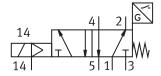
Accessories – Electrical components

	Code	Description		Part no.	Туре
Nanifold block for AS-I	nterface	·			
A	X	4x M12, 5-pin, double, socket		195704	CPX-AB-4-M12x2-5POL
	GW	4x M12, 5-pin, socket, metal thread		541254	CPX-AB-4-M12x2-5POL-R
	R	8x M8, 3-pin, socket		195706	CPX-AB-8-M8-3POL
	J	8x spring-loaded terminal, Cage Clamp, 4-pin		195708	CPX-AB-8-KL-4POL
	Н	4x Harax [®] , 4-pin, socket		525636	CPX-AB-4-HAR-4POL
	В	Sub-D, 25-pin, socket		525676	CPX-AB-1-SUB-BU-25POL
Connecting cable, Sub	-D (TPE-U(PL	JR), IP65)			
•	GA	Connecting cable for max. 8 solenoid coils, 10-wire	2.5 m	539240	NEBV-S1W37-E-2.5-LE10
	GB		5 m	539241	NEBV-S1W37-E-5-LE10
	GC		10 m	539242	NEBV-S1W37-E-10-LE10
	GD	Connecting cable for max. 22 solenoid coils, 26-wire	2.5 m	539243	NEBV-S1W37-E-2.5-LE26
V V	GE		5 m	539244	NEBV-S1W37-E-5-LE26
	GF		10 m	539245	NEBV-S1W37-E-10-LE26
	GG	Connecting cable for max. 32 solenoid coils, 37-wire	2.5 m	539246	NEBV-S1W37-K-2.5-LE37
	GH		5 m	539247	NEBV-S1W37-K-5-LE37
	GI		10 m	539248	NEBV-S1W37-K-10-LE37
Connecting cable, Sub	-D (PVC, IP6	5)			
•	GK	Connecting cable for max. 8 solenoid coils, 10-wire	2.5 m	543271	NEBV-S1W37-KM-2.5-LE10
	GL		5 m	543272	NEBV-S1W37-KM-5-LE10
	GM		10 m	543273	NEBV-S1W37-KM-10-LE10
	, GN	Connecting cable for max. 23 solenoid coils, 27-wire	2.5 m	543274	NEBV-S1W37-KM-2.5-LE27
√	GO		5 m	543275	NEBV-S1W37-KM-5-LE27
	GP		10 m	543276	NEBV-S1W37-KM-10-LE27
	GQ	Connecting cable for max. 32 solenoid coils, 37-wire	2.5 m	543277	NEBV-S1W37-KM-2.5-LE37
	GR		5 m	543278	NEBV-S1W37-KM-5-LE37
	GS		10 m	543279	NEBV-S1W37-KM-10-LE37
Cover for multi-pin plu	g				
	-	For user configuration		545974	NECV-S1W37
		3 ** **		3.337.1	
\checkmark					

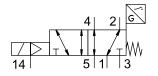
Accessories – General

	Code	Description		Part no.	Туре
scription label hold	ers/inscripti	on labels		:	
	В	Clip-on inscription label holder for valve cap	5 pieces	540888	ASCF-T-S6
*	Т	Inscription label holder for manifold blocks	5 pieces	540889	ASCF-M-S6
	TD	Inscription label holder for manifold blocks, size 52 mm	5 pieces	562577	ASCF-M-S2-2
	-	Inscription label for ISO 15407 valves with individual electrical connection (20 labels in frames)	20 pieces	18182	IBS-9x20
	-	Inscription label for pressure zone separation 4 inscription labels, duct 1/3/5 blocked 4 inscription labels, duct 1 blocked 4 inscription labels, duct 3/5 blocked	3x4 pieces	8003303	ASLR-L-S6-2016
rail mounting					
		VTSA/VTSA-F	3 pieces	526032	CPX-CPA-BG-NRH
all mounting					
	-	Mounting bracket with a mounting hole for M5 screw	5 pieces	539214	VAME-S6-10-W
	U	Mounting bracket with a mounting hole for M4 screw and a mounting hole for M6 screw	1 piece	567038	VAME-S6-W-M46
	AW	Mounting bracket for length compensation on the CPX side when mounting using support system Set comprising 1 bracket and 2 screws	1 piece	2721419	CPX-M-BG-VT-2X
er documentation					
	D	User documentation for valve terminal VTSA/VTSA-F	German	538922	P.BE-VTSA-44-DE
	≥ E		English	538923	P.BE-VTSA-44-EN
	S		Spanish	538924	P.BE-VTSA-44-ES
	F		French	538925	P.BE-VTSA-44-FR
	I		Italian	538926	P.BE-VTSA-44-IT
eumatic connection	n accessories	5			-
		anking plugs, silencers and other pneumatic accessories can be found in the			

Function¹⁾ Valves with code SO, SO, SS, width 18 mm



Valves with code SO, SQ, SS, width 26 mm

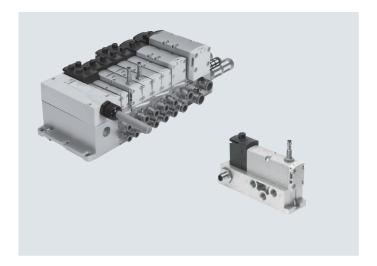


Flow rate up to 1100 l/min

Valve width 18 mm 26 mm

Voltage 24 V DC

Operating pressure 3 ... 10 bar



ISO valves with switching position sensing for safety-oriented pneumatic components Function

The single solenoid 5/2-way valve with spring return in width 18 mm and 26 mm features valve diagnostics. It is available as a plug-in or individual connection valve with pilot valves to ISO 15218 and square plug type C.

The normal position of the piston spool is monitored by the inductive

This valve is not a safety device to the Machinery Directive 2006/42/EC. When used in higher categories, the sensor signal from the valve must be evaluated by the control system.

This valve is suitable for use in safety-related parts of control systems to EN ISO 13849-1.

The control block has been developed and manufactured in accordance with the basic and proven safety principles of EN ISO 13849-2.

This valve is designed for installation in machines and automation systems and must only be used in industrial applications (high-demand mode).

Decentralised individual connection variant



Variant for valve terminal VTSA/VTSA-F



plug or plug-in) with integrated switching position sensing.

Valve on individual sub-base (square

The electrical connection is established via either a standardised 4-pin M12 plug 24 V DC (ISO 15407-2), a 4-pin spring-loaded terminal or a cable (open end) 24 V DC, which can be configured by the user.

The individual sub-base can be supplied with internal or external pilot air depending on the version.

The valves with integrated switching position sensing in plug-in design for valve terminal VTSA/VTSA-F can be used regardless of the type of electrical actuation (individual, multi-pin plug or fieldbus/control block

Pilot air supply:

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

Note

Valves in plug-in design are always supplied with pilot air via duct 14 in the manifold sub-base.

The circuit symbol represents a valve with a proximity switch with an N/O switching output signal. To ISO 1219-1, this symbol applies to both N/O contacts and N/C contacts. The switching element function of the sensors used here is designed as an N/C contact.



Note

Pilot exhaust air port 12 is vented directly at the valve, without a connection. If the customer requests a "turned seal", exhaust air is vented at the end plates of the valve terminal, which does not conform to the ISO standard.

connection).

Safety characteristics				
Conforms to standard	EN 13849-1/2			
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾			
Shock resistance	Shock test with severity level 2, to EN 60068-2-27			
Vibration resistance	Transport application test with severity level 2, to EN 60068-2-6			

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

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

Safety characteristics				
Valve function 5/2-way, single solenoid	Test pulses			
	Max. positive test pulse with logic 0 [µs]	Max. negative test pulse with logic 1 [µs]		
VSVA-B-M52-MZA1-1T1L	1200	1100		
10010 0 11-1 11-1				
VSVA-B-M52-MZA2-1T1L	1500	800		

General technical data			
Valve	VSVA-B-M52-MZD-A2-1T1L	VSVA-B-M52-MZD-A1-1T1L	VSVA-B-M52-MZ-A1-1C1
Width	18 mm	26 mm	26 mm
Conforms to standard	ISO 15407-2		ISO 15407-1
Design	Piston spool valve		
Sealing principle	Soft		
Overlap	Positive overlap		
Actuation type	Electrical		
Type of control	Piloted		
Exhaust function, can be throttled	Via individual sub-base, via throttle p	late	
Lubrication	Life-time lubrication		
Type of mounting	Via through-hole, on manifold sub-ba	se	
Mounting position	Any		
Manual override	Concealed		
Individual sub-base			→ Page 190
Valve terminal			→ Page 64

Standard nominal flow rate [l/min]				
Valve function	Flow rate			
	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve on individual sub-base
VSVA-B-M52-MZ-A1-1C1-ANC	1400	1100	-	1100
VSVA-B-M52-MZ-A1-1C1-ANP	1400	1100	-	1100
VSVA-B-M52-MZ-A1-1C1-APC	1400	1100	-	1100
VSVA-B-M52-MZ-A1-1C1-APP	1400	1100	-	1100
VSVA-B-M52-MZD-A1-1T1L-ANC	1400	1100	1350	1200
VSVA-B-M52-MZD-A1-1T1L-ANP	1400	1100	1350	1200
VSVA-B-M52-MZD-A1-1T1L-APC	1400	1100	1350	1200
VSVA-B-M52-MZD-A1-1T1L-APP	1400	1100	1350	1200
VSVA-B-M52-MZD-A1-1T1L-APX-0.5	1400	1100	1350	1200
VSVA-B-M52-MZD-A2-1T1L-ANP	750	550	700	600
VSVA-B-M52-MZD-A2-1T1L-APP	750	550	700	600
VSVA-B-M52-MZD-A2-1T1L-APX-0.5	750	550	700	600

Valve switching times [ms]					
Valve		VSVA-B-M52-MZD-A2-1T1L	VSVA-B-M52-MZD-A1-1T1L	VSVA-B-M52-MZ-A1-1C1	
Width		18 mm	26 mm	26 mm	
Valve switching times	On	12	20	21	
	Off	38	54	41	
Sensor switching times	On	32	60	60	
	Off	9	11	11	

Electrical data for valve	Electrical data for valve					
Valve		VSVA-B-M52-MZD-A2-1T1L	VSVA-B-M52-MZD-A1-1T1L	VSVA-B-M52-MZ-A1-1C1		
Width		18 mm	26 mm	26 mm		
Electrical connection		1 1 3		Plug to EN 175301-803, type C, without PE conductor		
Nominal operating voltage	[V DC]	24				
Permissible voltage fluctuations	[%]	±10		-15/+10		
Surge resistance	[kV]	2.5				
Pollution degree		3				
Power consumption	[W]	1.6		1.8		
Switching position sensing		Normal position via sensor				
Duty cycle ED [%]		100				
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmiss	MA 4 (for all types of signal transmission in mounted state)			
Signal status indication		LED Via accessories		Via accessories		

Electrical data for sensor		
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 indication		Yellow LED
Operating voltage range	[V DC]	1030
Residual ripple	[%]	±10
Sensor no-load supply current	[mA]	š10
Max. output current	[mA]	200
Voltage drop	[V]	š2
Max. switching frequency	[Hz]	5000
Short circuit current rating		Pulsed
Sensor reverse polarity protection		For all electrical connections
Measuring principle		Inductive
Switching position sensing		Valve normal position via sensor

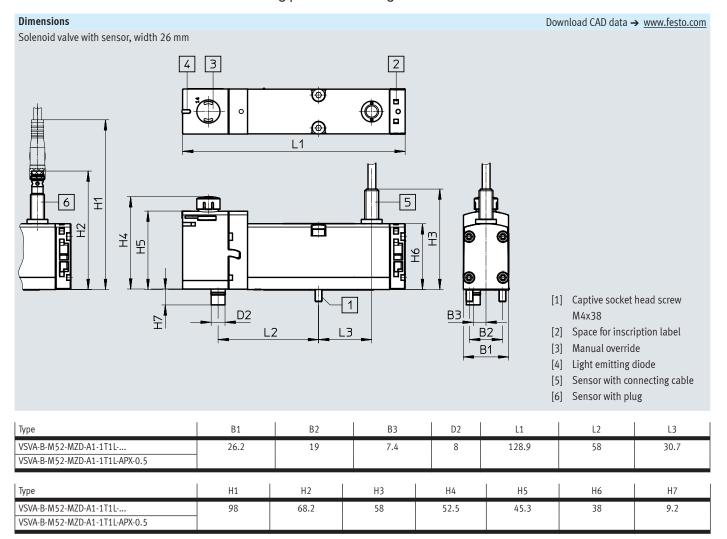
Operating and environmental con	ditions			
Valve		VSVA-B-M521T1L	VSVA-B-M521C1	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
Notes on operating/		Lubricated operation possible (in which case lubricated operation w	ill always be required)	
pilot medium				
Operating pressure	[bar]	-0.9 10		
Operating pressure for valve	[bar]	310		
terminal with internal pilot air				
supply				
Pilot pressure	[bar]	310		
Ambient temperature	[°C]	-5 +50		
Temperature of medium	[°C]	-5 +50		
Note on materials		RoHS-compliant		
Sound pressure level LpA	[dB(A)]	85		
CE marking (see declaration of con	formity)	To EU EMC Directive ¹⁾		
Certification		C-Tick	C-Tick	
		CSA (OL)	-	
		c UL us - Recognized (OL)	-	

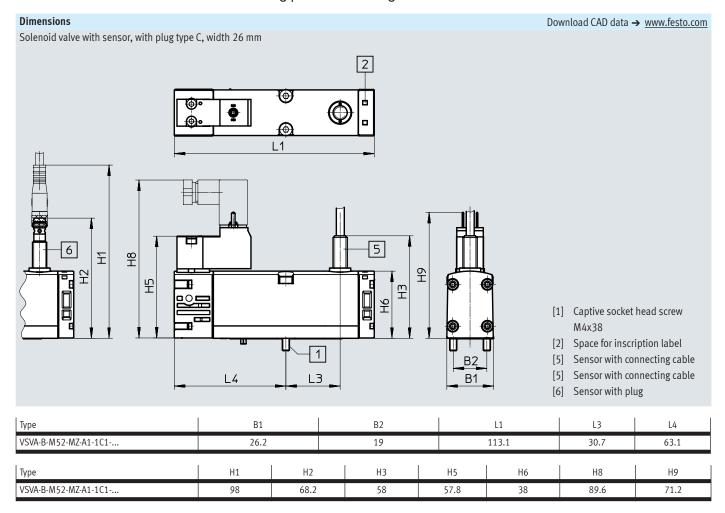
¹⁾ For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

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

Materials				
Sub-base/manifold sub-base	Die-cast aluminium			
Valve	Die-cast aluminium, PA			
Seals	FPM, NBR			
Screws	Galvanised steel			
Sensor housing	High-alloy stainless steel			
Sensor cable sheath	TPE-U(PUR)			

Product weights					
Width	18 mm	26 mm			
5/2-way solenoid valve type					
VSVA-B-M52-MZD-A2-1T1L-APX-0.5	157 g	-			
VSVA-B-M52-MZD-A2-1T1L-APP	140 g	-			
VSVA-B-M52-MZD-A2-1T1L-ANP	140 g	_			
VSVA-B-M52-MZD-A1-1T1L-APC	-	307 g			
VSVA-B-M52-MZD-A1-1T1L-APP	-	264 g			
VSVA-B-M52-MZ-A1-1C1-APC	-	332 g			
VSVA-B-M52-MZ-A1-1C1-APP	-	289 g			
VSVA-B-M52-MZD-A1-1T1L-ANC	-	307 g			
VSVA-B-M52-MZD-A1-1T1L-ANP	-	264 g			
VSVA-B-M52-MZ-A1-1C1-ANC	-	332 g			
VSVA-B-M52-MZ-A1-1C1-ANP	-	289 g			
VSVA-B-M52-MZD-A1-1T1L-APX-0.5	-	281 g			
Individual connection	Individual connection				
Individual sub-base	_	302 g			





Ordering data - Solenoid valve with switching position sensing

Ordering data – VSVA solenoid valve, manual override non-detenting/detenting (D)								
	Code	Valve function	Width	Part no.	Туре			
5/2-way solenoid valve with proximity switch								
	_	Inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	560723	VSVA-B-M52-MZD-A1-1T1L-APC			
	-	Inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	560742	VSVA-B-M52-MZD-A1-1T1L-ANC			
	SS	Inductive sensor with PNP output with 0.5 m connecting cable and	18 mm	573201	VSVA-B-M52-MZD-A2-1T1L-APX-0.5			
		4-pin sensor push-in connector M12x1	26 mm	570850	VSVA-B-M52-MZD-A1-1T1L-APX-0.5			
	S0	Inductive sensor with PNP output and 3-pin sensor push-in connector	18 mm	573202	VSVA-B-M52-MZD-A2-1T1L-APP			
		M8x1	26 mm	560724	VSVA-B-M52-MZD-A1-1T1L-APP			
	SQ	Inductive sensor with NPN output and 3-pin sensor push-in connector	18 mm	573203	VSVA-B-M52-MZD-A2-1T1L-ANP			
		M8x1	26 mm	560743	VSVA-B-M52-MZD-A1-1T1L-ANP			

Ordering data – VSVA so	l enoid val Code	enoid valve with cover cap for manual override non-detenting/heavy duty, detenting via accessory (TR) Code Valve function Width Part no. Type								
5/2-way solenoid valve,	with proxim	nity switch								
	-	Inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	8033026	VSVA-B-M52-MZTR-A1-1T1L-APC					
	_	Inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	8033030	VSVA-B-M52-MZTR-A1-1T1L-ANC					
J	SS	Inductive sensor with PNP output with 0.5 m connecting cable and	18 mm	8033459	VSVA-B-M52-MZTR-A2-1T1L-APX-0.5					
		4-pin sensor push-in connector M12x1	26 mm	8033034	VSVA-B-M52-MZTR-A1-1T1L-APX-0.5					
	S0	SO Inductive sensor with PNP output and 3-pin sensor push-in connecto	18 mm	8033460	VSVA-B-M52-MZTR-A2-1T1L-APP					
		M8x1	26 mm	8033027	VSVA-B-M52-MZTR-A1-1T1L-APP					
	SQ	Inductive sensor with NPN output and 3-pin sensor push-in connector	18 mm	8033461	VSVA-B-M52-MZTR-A2-1T1L-ANP					
		M8x1	26 mm	8033031	VSVA-B-M52-MZTR-A1-1T1L-ANP					

Ordering data – Solenoid valve with switching position sensing

Ordering data – VSVA so	dering data – VSVA solenoid valve with cover cap for manual override, non-detenting (H)									
	Code	Code Valve function Width Part no. Type								
5/2-way solenoid valve, v	vith proxim	ity switch								
	_	Inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	8033049	VSVA-B-M52-MZH-A1-1T1L-APC					
	-	Inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	8033053	VSVA-B-M52-MZH-A1-1T1L-ANC					
P	SS	Inductive sensor with PNP output with 0.5 m connecting cable and	18 mm	8033477	VSVA-B-M52-MZH-A2-1T1L-APX-0.5					
		4-pin sensor push-in connector M12x1	26 mm	8033057	VSVA-B-M52-MZH-A1-1T1L-APX-0.5					
	S0	Inductive sensor with PNP output and 3-pin sensor push-in connector	18 mm	8033478	VSVA-B-M52-MZH-A2-1T1L-APP					
		M8x1	26 mm	8033050	VSVA-B-M52-MZH-A1-1T1L-APP					
	SQ	Inductive sensor with NPN output and 3-pin sensor push-in connector	18 mm	8033479	VSVA-B-M52-MZH-A2-1T1L-ANP					
		M8x1	26 mm	8033054	VSVA-B-M52-MZH-A1-1T1L-ANP					

Ordering data – VSVA so	Ordering data – VSVA solenoid valve with cover cap for manual override, concealed							
	Code	Valve function	Туре					
5/2-way solenoid valve, v	5/2-way solenoid valve, with proximity switch							
	_	Inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	8033072	VSVA-B-M52-MZ-A1-1T1L-APC			
	-	Inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	8033076	VSVA-B-M52-MZ-A1-1T1L-ANC			
P	SS	Inductive sensor with PNP output with 0.5 m connecting cable and	18 mm	8033495	VSVA-B-M52-MZ-A2-1T1L-APX-0.5			
		4-pin sensor push-in connector M12x1	26 mm	8033080	VSVA-B-M52-MZ-A1-1T1L-APX-0.5			
	S0	Inductive sensor with PNP output and 3-pin sensor push-in connector	18 mm	8033496	VSVA-B-M52-MZ-A2-1T1L-APP			
		M8x1	26 mm	8033073	VSVA-B-M52-MZ-A1-1T1L-APP			
	SQ	Inductive sensor with NPN output and 3-pin sensor push-in connector	18 mm	8033497	VSVA-B-M52-MZ-A2-1T1L-ANP			
		M8x1	26 mm	8033077	VSVA-B-M52-MZ-A1-1T1L-ANP			

Ordering data – Solenoid valve with switching position sensing

Ordering data								
	Code	Valve function	Width	Part no.	Туре			
Solenoid valves, with pneumatic interface to ISO 15218 for individual sub-base								
n e	_	Inductive sensor with PNP output and cable, 3-wire, 2.5 m, electrical connection to EN 175301-803, type C	26 mm	560725	VSVA-B-M52-MZ-A1-1C1-APC			
	-	Inductive sensor with NPN output and cable, 3-wire, 2.5 m, electrical connection to EN 175301-803, type C	26 mm	560744	VSVA-B-M52-MZ-A1-1C1-ANC			
	_	Inductive sensor with PNP output and 3-pin sensor push-in connector M8x1, electrical connection to EN 175301-803, type C	26 mm	560726	VSVA-B-M52-MZ-A1-1C1-APP			
	-	Inductive sensor with NPN output and 3-pin sensor push-in connector M8x1, electrical connection to EN 175301-803, type C	26 mm	560745	VSVA-B-M52-MZ-A1-1C1-ANP			



Note

- The sensors integrated in the valves must not be replaced by the customer. Incorrect assembly can result in malfunctions or damage to the valve. Return the module to Festo for repair 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. Exceptions are the valves with ident. code SS, SO and SQ.

Accessories – Solenoid valve with switching position sensing

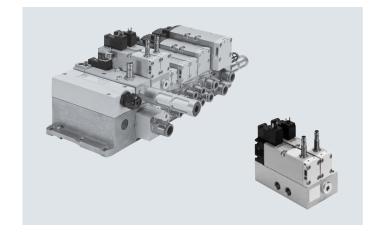
Ordering data	Code	Description		Part no.	Туре
				rait iiu.	туре
ndividual sub-base,	, port patterr	n to ISO 15407-2, electrical connection via cable terminals	10	F/40/0	VADC C4 3C NAO D V3
	-	Threaded connection, internal pilot air supply, lateral connections	18 mm	541068	VABS-S4-2S-N18-B-K2
100			26 mm	541066	VABS-S4-1S-N14-B-K2
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	<u> </u>	Threaded connection, external pilot air supply, lateral connections	18 mm	539724	VABS-S4-2S-N18-K2
			26 mm	539726	VABS-S4-1S-N14-K2
Plug socket for the e	lectrical con	nection of individual valves, type C	I		
	-	Angled socket, type C, 3-pin		151687	MSSD-EB
		Straight plug, PG7			
		• 230 V AC			
\downarrow		Angled socket, type C, 3-pin		539712	MSSD-EB-M12
		Straight plug, M12x1			
lluminating seal for	plug patterr	n to EN 175301-803, type C		Data sheets →	Internet: meb-ld
	-	For plug socket MSSD, 12 24 V DC		151717	MEB-LD-12-24DC
Connecting cable for	electrical co	onnection of individual valves, type C			
	GG	Angled socket, type C, 3-pin, with LED	2.5 m	151688	KMEB-1-24-2.5-LED
Al .	GH	Open end, 3-wire	5 m	151689	KMEB-1-24-5-LED
	GJ	• 24 V DC, PVC	10 m	193457	KMEB-1-24-10-LED
	′				
<u> </u>					
	the electrica	al connection of sensors for switching position sensing	I		
<u></u>	GM	Straight socket, M8x1, 3-pin	2.5 m	541333	NEBU-M8G3-K-2.5-LE3
		Open end, 3-wire			
	GN	Straight socket, M8x1, 3-pin	5 m	541334	NEBU-M8G3-K-5-LE3
		Open end, 3-wire			
8	GO	Angled socket, M8x1, 3-pin	2.5 m	541338	NEBU-M8W3-K-2.5-LE3
Minis		Open end, 3-wire			
	GP	Angled socket, M8x1, 3-pin	5 m	541341	NEBU-M8W3-K-5-LE3
		Open end, 3-wire			
-	-	Angled socket, rotatable, M8x1, 3-pin	2.5 m	8001660	NEBU-M8R3-K-2.5-LE3
		Open end, 3-wire			
	-	Angled socket, rotatable, M8x1, 3-pin	5 m	8001661	NEBU-M8R3-K-5-LE3
		Open end, 3-wire			
	GQ	Straight socket, M8x1, 3-pin	2.5 m	554037	NEBU-M8G3-K-2.5-M8G4
		Straight plug, M8x1, 4-pin			
	-	Modular system for a choice of connecting cables	-	-	NEBU
					→ Internet: nebu
neumatic connection		,			
selection of possibl	le fittings, bla	anking plugs, silencers and other pneumatic accessories can be found in the	chapter "Accessor	ies" → Page 199	

- N - Flow rate on valve terminal: 830 l/min

Solenoid valve width 26 mm

Voltage 24 V DC

Operating pressure 3 ... 10 bar



Description

The control block is designed for two-channel control of pneumatic drive components such as double-acting linear cylinders and can be used to realise the following protective measures:

- Protection against unexpected start-up (EN 1037)
- Reversing hazardous movements, provided the reversing motion will not result in further hazards

Version for valve terminal VTSA/VTSA-F

The control attributes of the control block enable Performance Level e to be achieved for the protective measures. The control block has been developed and manufactured in accordance with the basic and proven safety principles of EN ISO 13849-1 and EN ISO 13849-2.

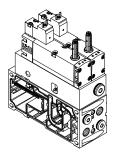
The requirements of EN ISO 13849-1 and EN ISO 13849-2 (e.g. CCF, DC) must be taken into consideration to implement and operate the component and to use it in higher categories (2 to 4).

When using this product in machines

When using this product in machines or systems subject to specific C standards, the requirements specified in these standards must be observed.

The control block with safety function is designed for installation in machines and automation systems and must only be used in industrial applications (high-demand mode)!

The control block with safety function is suitable for use as a press safety valve to EN 962.



The valves with integrated switching position sensing on manifold sub-base for valve terminal VTSA/VTSA-F need to be supplied with electrical power regardless of the type of electrical actuation (individual, multi-pin plug or fieldbus/control block connection).

The electrical connection for the solenoid valves is established separately via a standardised square plug to EN 175301-803, type C.

The switching position sensing of the inductive PNP or NPN proximity switch is realised using a push-in connector of size M8x1 to EN 61076-2-104.

· Note

The appropriate manifold sub-base VABV-S4-..., which is required for integration into the valve terminal, is not part of the control block. It is automatically allocated by the configurator when the control block is selected.

- 🖣 - Note

The control block with safety function (VOFA) is also available as a decentralised individual connection variant with electrical and pneumatic individual connection.

For information see:

→ Internet: vofa

Pneumatic/electrical links

Function

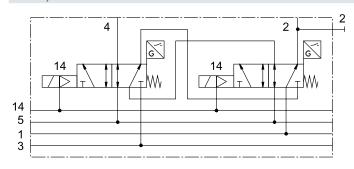
The safety function is achieved pneumatically linking two channels for two 5/2-way single solenoid valves within the control block: port 4 is only pressurised if both solenoid valves are switched to switching position 14.

Port 2 is always pressurised if at least one of the two solenoid valves is in normal position. The valves are reset via a mechanical spring.

The switching operation of the solenoid valves can be monitored by sensing using the proximity switches at the solenoid valves (switching position sensing). By connecting the control signal and the switching signal of the proximity switch it is possible to check if the piston spool of the solenoid valve has reached or left the normal position (expectations). The piston spools of the solenoid valves are designed so that pneumatic short circuits between ports 2 and 4 are prevented (positive overlap).

The two solenoid valves must be actuated via two separate ducts to achieve the required category 4 (Performance Level e, to EN ISO 13849-1).

Circuit symbol¹⁾



For the control block with safety function VOFA-B26-T52-... for the valve terminal, two 5/2-way solenoid valves of width 26 mm

are pneumatically linked via two ducts, using an intermediate plate as vertical stacking element (output 2 is switched in parallel, output 4 is switched in series).

1) The circuit symbol represents a valve with a proximity switch with an N/O switching output signal.
To ISO 1219-1, this symbol applies to both N/O contacts and N/C contacts. The switching element function of the sensors used here is designed as an N/C contact.

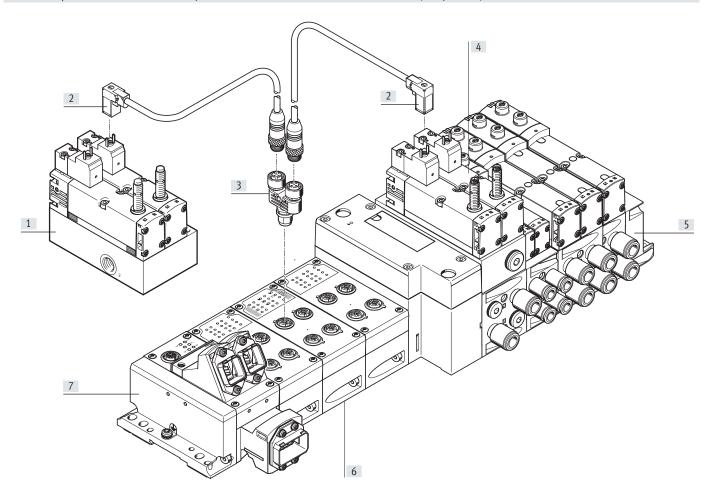
Safety characteristics	
Conforms to standard	EN 13849-1
Safety function	Protection against manipulation, prevention of unexpected start-up
	Reversing a movement
Performance Level (PL)	Protection against manipulation, prevention of unexpected start-up/up to category 4, Performance Level e
	Reversing a movement/up to category 4, Performance Level e
Note on forced checking procedure	Switching frequency min. 1/week
Certificate issuing authority	IFA 1001179
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾
	To EU Machinery Directive
Max. positive test pulse [μs] with logic 0	1000
Max. negative test pulse [μs] with logic 1	800
Shock resistance	Shock test with severity level 2, to EN 60068-2-27
Vibration resistance	Transport application test with severity level 2, to EN 60068-2-6

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

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

Peripherals overview

Connection option for control block with safety function via PROFIsafe shut-off module CPX-FVDA-P2 (safety module)



Perip	Peripherals overview					
		Description	→ Page/Internet			
[1]	Control block with safety function	Away from the valve terminal as a decentralised individual connection variant	vofa			
[2]	Connecting cable KMEB	For electrical connection of the control block with safety function via PROFIsafe shut-off module	kmeb			
		CPX-FVDA-P2 (safety module)				
[3]	Push-in T-connector NEDU	For simultaneous circuitry of two valves, e.g. control block with safety function	nedu			
[4]	Control block with safety function	Integrated in the pneumatic section of the valve terminal VTSA/VTSA-F	_			
[5]	Pneumatic section of the valve terminal VTSA/	Pneumatic components of the valve terminal VTSA/VTSA-F	_			
	VTSA-F					
[6]	CPX-FVDA-P2 (safety module)	PROFIsafe shut-off module integrated in the CPX terminal of the valve terminal VTSA/VTSA-F	срх			
[7]	CPX terminal of the valve terminal VTSA/VTSA-F	Electric components of the valve terminal VTSA/VTSA-F	_			

General technical data		
Design		Piston spool valve
Standard nominal flow rate	[l/min]	830
Reset method		Mechanical spring
Sealing principle		Soft
Exhaust air function		Can be throttled
Actuation type		Electrical
Overlap		Positive overlap
Type of control		Piloted
Flow direction		Non-reversible
Exhaust air function		Can be throttled
Suitability for vacuum		-
Nominal width	[mm]	9
Pilot air supply		Via valve terminal
Type of mounting		Via through-hole, on manifold sub-base
Mounting position		Any
Manual override		-
Signal status indication, valve		With accessories
Pneumatic connections		
Supply port	1	Via the manifold sub-base of the valve terminal
Exhaust port	3/5	
9.	2/4	
Pilot air supply	14	
Pressure gauge		G1/4

Operating and environmental c	onditions	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Notes on operating/		Lubricated operation possible (in which case lubricated operation will always be required)
pilot medium		
Operating pressure	[bar]	0 10
Operating pressure for valve	[bar]	310
terminal with internal pilot air		
supply		
Pilot pressure	[bar]	310
Sound pressure level LpA	[dB(A)]	85
Ambient temperature	[°C]	_5+50
Temperature of medium	[°C]	_5+50
CE marking (see declaration of conformity)		To EU EMC Directive ¹⁾
		To EU Machinery Directive

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

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

Electrical data for cont	rol block		
Electrical connection			Plug to EN 175301-803, type C, without PE conductor
Nominal operating volt	age	[V DC]	24
Permissible voltage flu	ctuations	[%]	-15/+10
Surge resistance		[kV]	2.5
Pollution degree			3
Power consumption		[W]	1.8
Max. magnetic interfer	ence field	[mT]	60
Switching position sen	sing		Normal position via sensor
Duty cycle ED		[%]	100
Degree of protection to	EN 60529		IP65, NEMA 4 (for all types of signal transmission in mounted state)
Protection against dire	ct and indi	rect contact	PELV
			Protected to EN 60950/IEC 950
Valve switching time	On	[ms]	22
	Off	[ms]	59
Valve sensor	On	[ms]	60
switching time ¹⁾	Off	[ms]	11

¹⁾ Valve sensor switching time off: period of time from the coil being energised to sensor being switched off when using a PNP sensor.

Valve sensor switching time on: period of time from the coil being de-energised to 0-L edge at the sensor when using a PNP sensor.



With a 100% duty cycle, the control block must be de-energised once per week.

Electrical data – Sensor (to EN 6	0947-5-2)	
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
Signal status indication		Yellow LED
Operating voltage range	[V DC]	1030
Residual ripple	[%]	±10
Sensor no-load supply current	[mA]	Max. 10
Max. output current	[mA]	200
Voltage drop	[V]	Max. 2
Max. switching frequency	[Hz]	5000
Short circuit current rating		Pulsed
Sensor reverse polarity protection	1	For all electrical connections
Measuring principle		Inductive

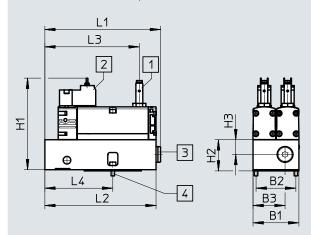
Materials	
Sub-base/manifold sub-base	Wrought aluminium alloy
Valve	Die-cast aluminium, PA
Seals	FPM, NBR, HNBR
Screws	Galvanised steel
Sensor housing	High-alloy stainless steel
Sensor cable sheath	PUR
Note on materials	RoHS-compliant

Download CAD data → www.festo.com

Data sheet - Control block with safety function

Dimensions

Version for valve terminal VTSA/VTSA-F



- [1] Proximity switch PNP or NPN, size M8x1, plug connection to EN 61076-2-104
- [2] Electrical connection to EN 175301-803, type C
- [3] Pneumatic connection G1/4 sealed with blanking plug
- [4] 2x screw with internal hexagon (width across flats 2.5), M4x12 (included in the scope of delivery)

Н3 В1 В2 В3 Н1 H2 L2 L3 L1 VOFA-B26-T52-M-1C1-APP 37 105.8 133.7 128.5 109.2 53 46 34.6 17 78.5 VOFA-B26-T52-M-1C1-ANP

Ordering	Ordering data							
Code	Valve function		Switching output	Weight	Part no.	Type		
				[g]				
Control block, version for valve terminal VTSA/VTSA-F								
SP ²⁾		2x 5/2-way valve, single solenoid, mechanical spring	PNP	1112	_ 1)	VOFA-B26-T52-M-1C1-APP		
SN ²		return, with switching position sensing via inductive sensor and 3-pin sensor push-in connector M8, mounted on intermediate plate for pneumatic interlinking	NPN	1112	_ 1)	VOFA-B26-T52-M-1C1-ANP		

- 1) The control block with safety function can only be ordered via the valve terminal configurator and therefore does not have a separate part number. The appropriate and necessary manifold sub-base for the valve terminal VTSA/VTSA-F is automatically allocated to the control block by the configurator.
- 2) Code letter within the order code for a valve terminal configuration

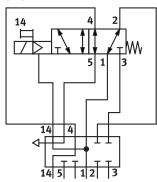


The sensors integrated in the valves must not be replaced by the customer. Incorrect assembly can result in malfunctions or damage to the valve. Please contact Festo in the event of a fault.

Accessories – Control block with safety function

	Code	Description		Part no.	Туре
lug socket for electric	cal connecti	on of individual valves			
	_	Angled socket, type C, 3-pin PG7		151687	MSSD-EB
	-	Angled socket, type C, 3-pin M12x1			MSSD-EB-M12
lluminating seal for p	lug pattern	to EN 175301-803		Data sheets →	Internet: meb-ld
	-	For plug socket MSSD		151717	MEB-LD-12-24DC
Connecting cable for e	lectrical con	nection of individual valves			
	GG	Angled socket, type C, 3-pin, with LED	2.5 m	151688	KMEB-1-24-2.5-LED
THE STATE OF THE S	GH	Open end, 3-wire	5 m	151689	KMEB-1-24-5-LED
	GJ		10 m	193457	KMEB-1-24-10-LED
Lonnecting cable for the	GM GM	connection of sensors for switching position sensing • Straight socket, M8x1, 3-pin	2.5 m	541333	NEBU-M8G3-K-2.5-LE3
	GIVI	Straight socket, Mox1, 3-pin Open end, 3-wire	2.)	341333	NEDU-MOUJ-N-2.J-LEJ
	GN	General, 5 mic	5 m	541334	NEBU-M8G3-K-5-LE3
	-	Angled socket, rotatable, M8x1, 3-pin Open end, 3-wire	2.5 m	8001660	NEBU-M8R3-K-2.5-LE3
	_		5 m	8001661	NEBU-M8R3-K-5-LE3
	GQ	Straight socket, M8x1, 3-pin Straight plug M8x1, 4-pin	2.5 m	554037	NEBU-M8G3-K-2.5-M8G4
	-	Modular system for a choice of connecting cables	_	-	NEBU → Internet: nebu
	he electrical	connection of PROFIsafe shut-off module CPX-FVDA-P2 to the control block	1		
	-	For single connection of one control block valve (power supply via PROFIsafe shut-off module CPX-FVDA-P2) • Angled socket, type C, 3-pin, with LED • Straight plug, M12x1, 5-pin	0.5 m	177677	KMEB-2-24-M12-0.5-LED
Push-in T-connector fo	r dual elect	rical connection of PROFIsafe shut-off module CPX-FVDA-P2 to the control blo	ck		
	-	For dual connection of two control block valves (power supply via PROFIsafe shut-off module CPX-FVDA-P2) • Straight plug, M12x1, 5-pin (A-coded) • 2x straight socket, M12x1, 5-pin (A-coded)		2839867	NEDU-L2R1-V10-M12G5-M12G5
Pneumatic connection	accessories		l		
		nking plugs, silencers and			
		e found in the chapter "Accessories" → Page 199			



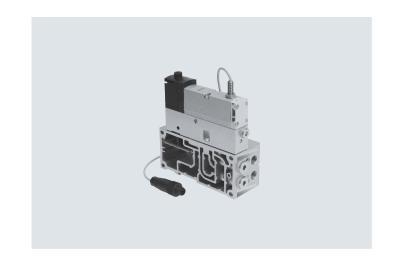


Flow rate
150 l/min (18 mm)
450 l/min (26 mm)

- **\]** - Valve width 18 mm 26 mm

- **** - Voltage 24 V DC

Operating pressure
-0.9 ... 10 bar



Description

The pilot air switching valve is essentially a combination of a 5/2-way solenoid valve with switching position sensing and the intermediate plate VABF-S4-...-S.

It enables the pilot air supply to be verifiably switched on and off (sensor

function) from duct 1 to 14 for the entire pressure zone or valve terminal. This valve is not a safety device to the Machinery Directive 2006/42/EC. When used in higher categories, the sensor signal from the valve must be evaluated by the control system.

This valve is suitable for use in safety-related parts of control systems to EN ISO 13849-1.

This valve is designed for installation in machines and automation systems and must only be used in industrial applications (high-demand mode).

Alternative switching position sensing with pressure switch

As an alternative to the sensing function in the solenoid valve, a pressure switch can be mounted (in place of the blanking plug) on the intermediate

plate VABF-S4-...-S. With this pressure switch, the switching on and off (sensing function) of the pilot air supply can be verified.

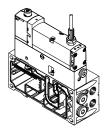
An ISO solenoid valve without a sensor can therefore be mounted on the intermediate plate to give the same function.

→ Internet: spba



The pilot air switching valve can only be operated on the valve terminal VTSA/VTSA-F in combination with a right-hand end plate for external pilot air type VABE-S6-1RZ-.... Port 14 on the right-hand end plate must then be sealed.

Vertical stacking variant for valve terminal VTSA/VTSA-F, width 18 mm, 26 mm



The valves with integrated switching position sensing in plug-in design for valve terminal VTSA/VTSA-F can be used regardless of the type of electrical actuation (individual, multi-pin plug or fieldbus/control block connection).

This module is supplied pre-assembled together with the valve terminal VTSA/VTSA-F. No other assembly steps are required before installation.

Switching position sensing is carried out using an inductive PNP proximity switch with cable and push-in connector in the size M12x1 to EN 61076-2-104.

Alternatively, combinations with a pressure switch in the intermediate plate and ISO solenoid valves are possible.

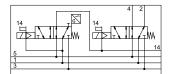
- 🖣 - Note

All solenoid valves VSVA to ISO 15407-1 can be used.

→ Internet: vsva

1) The circuit symbol represents a valve with a proximity switch with an N/O switching output signal. To ISO 1219-1, this symbol applies to both N/O contacts and N/C contacts. The switching element function of the sensors used here is designed as an N/C contact.

Function of pneumatic/electrical links



The function for switching off the pilot air is essentially achieved by combining the intermediate plate type VABF-S4-...-S with the 5/2-way single solenoid valve type VSVA-B-M52-MZD-...-1T1L-APX-0.5. The valve terminal is not supplied with any pilot air via the right-hand end plate type VABE-S6-1 (ident. code XS, external pilot air). Port 14 on the end plate is sealed.

The pilot air for the valve is branched from duct 1 in the intermediate plate and redirected to the pilot air duct 14 of the valve terminal when the valve is in the switching position. Ports 2 and 4 of the manifold sub-base are sealed with blanking plugs. The switching operation of the solenoid valve can be monitored by sensing using the proximity switch in the solenoid valve (or pressure switch in the intermediate plate VABF...).

By connecting the control signal and the switching signal of the proximity switch it is possible to check if the piston spool of the solenoid valve has reached or left the normal position (expectations).

The piston spool of the solenoid valve is designed so that pneumatic short circuits between ports 2 and 4 are prevented (positive overlap).

Alternatively, combinations with a pressure switch in the intermediate plate and ISO solenoid valves are possible.



A valve from the VTSA/VTSA-F modular system can be provided or configured to the right of the valve with switching position sensing on the intermediate plate of the pilot air switching valve.

Pilot air switching valve with integrated switching position sensing The pilot air switching valve can be ordered as a combination of a 5/2-way solenoid valve with switching position sensing and the intermediate plate VABF-S4-...-S.

Alternative switching position sensing with pressure switch

As an alternative to the pilot air switching valve with integrated switching position sensing, it is possible to combine an ISO solenoid valve and a pressure switch in the intermediate plate.

To do this, various 5/2-way solenoid valves in combination with a pressure switch SPBA-... are available.

Safety characteristics	
Conforms to standard	EN 13849-1/2
CE marking (see declaration of conformity)	To EU EMC Directive ¹⁾
Shock resistance	Shock test with severity level 2, to EN 60068-2-27
Vibration resistance	Transport application test with severity level 2, to EN 60068-2-6

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

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

Safety characteristics Valve function 5/2-way, single solenoid			
		Max. positive test pulse with 0 signal	Max. negative test pulse with 1 signal
VSVA-B-M52-MZA1-1T1L	[µs]	1200	1100
VSVA-B-M52-MZA2-1T1L	[µs]	1500	800
VSVA-B-M52-MZ-A1-1C1	[µs]	1000	800

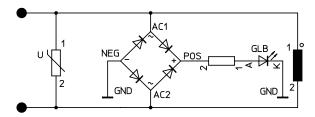
General technical data		
	Intermediate plate type VABF-S4-2-S and solenoid valve type VSVA-B-M52-MZD-A2-1T1L-APX-0.5 mounted on valve terminal VTSA/VTSA-F	Intermediate plate type VABF-S4-1-S and solenoid valve type VSVA-B-M52-MZD-A1-1T1L-APX-0.5 mounted on valve terminal VTSA/VTSA-F
Width	18 mm	26 mm
Design	Piston spool valve	
Sealing principle	Soft	
Overlap	Positive overlap	
Actuation type	Electrical	
Type of control	Piloted	
Type of mounting:		
Solenoid valve on intermediate plate	M3	M4
Intermediate plate on manifold sub-bas	M3x12 (captive)	M4x12 (captive)
Mounting position	Any	
Pneumatic connections		
Supply port 1	Via the manifold sub-base of the valve terminal	
Exhaust port 3/5	Via the manifold sub-base of the valve terminal	
Working ports 2/4	Sealed with blanking plug type B-1/4	
Pilot air supply 14	Via the manifold sub-base of the valve terminal	
Pressure gauge/pressure switch	G1/8	

Switching times [ms]					
Width		18 mm	26 mm		
Valve type 5/2 5/2					
Identifier		MZD-A2	MZD-A1	MZ-A1	
Valve switching time	On	12	20	21	
	Off	38	54	41	
Valve sensor switching time ¹⁾	On	32	60	60	
	Off	9	11	11	

¹⁾ Valve sensor switching time off: period of time from the coil being energised to sensor being switched off when using a PNP sensor.

Valve sensor switching time on: period of time from the coil being de-energised to 0-L edge at the sensor when using a PNP sensor.

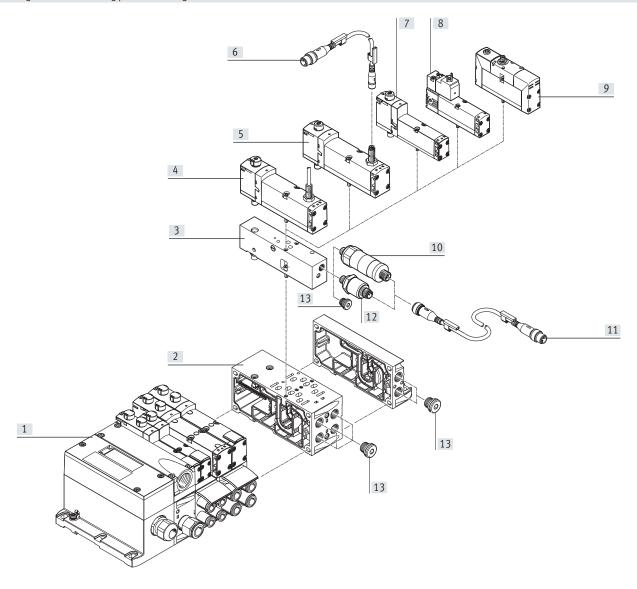
Protective circuit



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

Peripherals overview

Pilot air switching valve with switching position sensing



Perip	herals overview – Pilot air switching valve		
		Description	→ Page/Internet
[1]	Valve terminal VTSA/VTSA-F	Valve terminal with multi-pin plug interface	vtsa
[2]	Manifold sub-base VABF	Width 18 mm or 26 mm	118
[3]	Intermediate plate VABF-S4	For pilot air switching valve	151
[4]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with sensor and integrated cable 0.5 m	151
[5]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with sensor for external connecting cable	151
[6]	Connecting cable NEBU-M8	For connection to sensor	152
[7]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm ¹⁾	151
[8]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with plug to EN 175301, type C ¹⁾	151
[9]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with round plug ¹⁾	vsva
[10]	Pressure switch SPBA	Mechanically actuated	152
[11]	Connecting cable NEBU-M12G5	For connection to pressure switch	152
[12]	Pressure switch SPBA	Electrically actuated	152
[13]	Blanking plug	-	200

The switching position is sensed by pressure switches when the solenoid valves used have no integrated sensor.
 The pressure switch is screwed into the intermediate plate in place of the blanking plug.

Electrical data for pilot air switch	Electrical data for pilot air switching valve				
Nominal operating voltage	[V DC]	24			
Permissible voltage fluctuations	[%]	±10			
Surge resistance	[kV]	2.5			
Pollution degree		3			
Power consumption	[W]	1.6 W			
Max. magnetic interference field	[mT]	60			
Switching position sensing		Normal position via sensor			
Duty cycle ED	[%]	100			
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)			

Electrical data for sensor						
Sensor identifier		APP	ANP	APC	ANC	APX
Switching output		PNP	NPN	PNP	NPN	PNP
Sensor connection		Plug, M8x1, 3-pi	n	With fixed cable	e and open end	With fixed cable and plug M12x1, 4-pin
Cable length	[m]	0.5 (with socket	M8x1, plug M12x1)	2.5		0.5
Switching element function		N/C contact				
Signal status indication		Yellow LED (on se	ensor)			
Operating voltage range	[V DC]	10 30	1030			
Residual ripple	[%]	±10	±10			
Rated operating voltage	[V DC]	24				
Max. no-load supply current	[mA]	10				
Max. output current	[mA]	200				
Max. voltage drop	[V]	2				
Max. switching frequency	[Hz]	5000				
Short circuit current rating		Pulsed				
Reverse polarity protection		For all electrical	connections		-	
Measuring principle		Inductive			-	
Switching position sensing		Valve normal pos	sition via sensor			

Operating and environmenta	l conditions			
Valve		VSVA-B-M521T1L	VSVA-B-M521C1	Without sensor
Operating medium		Compressed air to ISO 8573-1:201	0 [7:4:4]	
Notes on operating/		Lubricated operation possible (in w	hich case lubricated operation will always be	e required)
pilot medium				
Operating pressure	[bar]	-0.9 10	-0.9 16	-0.9 10
Sound pressure level LpA	[dB(A)]	85	85	-
Ambient temperature	[°C]	-5 +50	-5 +50	-5 +50
Temperature of medium	[°C]	-5 +50	-5 +50	-
Note on materials		RoHS-compliant	RoHS-compliant	RoHS-compliant
Certification		C-Tick	C-Tick	-
		CSA (OL)	_	CSA (OL)
		c UL us Recognized (OL)	-	c UL us Recognized (OL)

Materials	
Sub-base/manifold sub-base	Die-cast aluminium
Valve	Die-cast aluminium, PA
Seals	FPM, NBR
Screws	Galvanised steel
Sensor housing	High-alloy stainless steel
Sensor cable sheath	TPE-U(PUR)

Product weights			
Width	18 mm	26 mm	
Solenoid valve			
VSVA-B-M52-MZD-A1-1T1L-APC	-	307 g	-
VSVA-B-M52-MZD-A1-1T1L-APP	-	264 g	
VSVA-B-M52-MZ-A1-1C1-APC	-	332 g	
VSVA-B-M52-MZ-A1-1C1-APP	-	289 g	-
VSVA-B-M52-MZD-A1-1T1L-ANC	-	307 g	-
VSVA-B-M52-MZD-A1-1T1L-ANP	-	264 g	-
VSVA-B-M52-MZ-A1-1C1-ANC	-	332 g	-
VSVA-B-M52-MZ-A1-1C1-ANP	-	289 g	-
VSVA-B-M52-MZD-A1-1T1L-APX-0.5	-	281 g	
VSVA-B-M52-MZD-A2-1T1L-APX-0.5	157 g	-	
VSVA-B-M52-MZD-A2-1T1L-APP	140 g	-	
VSVA-B-M52-MZD-A2-1T1L-ANP	140 g	-	
VSVA-B-M52-MZD-A1-1T1L	-	293 g	
VSVA-B-M52-MZD-A2-1T1L	163 g	-	
Intermediate plate			
VABF-S4-2-S	203.5 g	-	
VABF-S4-1-S	-	295 g	

Ordering data - Pilot air switching valve

Ordering data						
	Code	Valve function			Part no.	Туре
5/2-way solenoid valve, v						
è > n	SS	With 0.5 m connecting cable and 4-pin sensor push-in	PNP	18 mm	573201	VSVA-B-M52-MZD-A2-1T1L-APX-0.5
		connector M12x1		26 mm	570850	VSVA-B-M52-MZD-A1-1T1L-APX-0.5
	-	With 2.5 m connecting cable	PNP	26 mm	560723	VSVA-B-M52-MZD-A1-1T1L-APC
			NPN	26 mm	560742	VSVA-B-M52-MZD-A1-1T1L-ANC
	SO SO	With 3-pin sensor push-in connector M8x1	PNP	18 mm	573202	VSVA-B-M52-MZD-A2-1T1L-APP
				26 mm	560724	VSVA-B-M52-MZD-A1-1T1L-APP
	SQ		NPN	18 mm	573203	VSVA-B-M52-MZD-A2-1T1L-ANP
				26 mm	560743	VSVA-B-M52-MZD-A1-1T1L-ANP
	-	With plug to EN 175301, type C, with 2.5 m connecting cable	PNP	26 mm	560725	VSVA-B-M52-MZ-A1-1C1-APC
n I			NPN	26 mm	560745	VSVA-B-M52-MZ-A1-1C1-ANP
	-	With plug to EN 175301, type C, with 3-pin sensor push-in	PNP	26 mm	560726	VSVA-B-M52-MZ-A1-1C1-APP
		connector M8x1	NPN	26 mm	560744	VSVA-B-M52-MZ-A1-1C1-ANC
5/2-way solenoid valve						
P	-	-		26 mm	539159	VSVA-B-M52-MZD-A1-1T1L
				18 mm	539185	VSVA-B-M52-MZD-A2-1T1L
ntermediate plate for pil	ot air switc	hing valve				
	ZO	For switching the pilot air from duct 1 to duct 14		18 mm	573200	VABF-S4-2-S
				26 mm	570851	VABF-S4-1-S



Further solenoid valves with switching position sensing can be ordered as distinct types. These are preconfigured with the required manual override cover caps.

ightarrow Solenoid valve with switching position sensing, page 128



The sensors integrated in the valves must not be replaced by the customer. Incorrect assembly can result in malfunctions or damage to the valve. Please contact Festo in the event of a fault.

Ordering data – Pilot air switching valve

	Code	Description		Part no.	Туре
essure switch for i	ntermediate p	late for pilot air switching valve			
	WL	Mechanical pressure switch (only in combination with interme	ediate plate ZO), with	8000033	SPBA-P2R-G18-W-M12-0.25X
		plug M12x1, 4-pin			
	WH	Electrical pressure switch, switching output 2xPNP (only in cor	nbination with	8000210	SPBA-P2R-G18-2P-M12-0.25X
		intermediate plate ZO), with plug M12x1, 4-pin			
onnecting cable fo	r connecting pr	essure switches			
	GE	Straight socket, M12x1, 5-pin	0.5 m	8000208	NEBU-M12G5-K-0.5-M12G4
- ME - 33	リ	Straight plug, M12x1, 4-pin			
	r the electrical	connection of sensors for switching position sensing			
	<u> </u>	Straight socket, M8x1, 3-pin	0.5 m	8000209	NEBU-M8G3-K-0.5-M12G3
- ME - 33	<i>リ</i>	Straight plug, M12x1, 3-pin			
A THE STATE OF THE					
	GM	Straight socket, M8x1, 3-pin	2.5 m	541333	NEBU-M8G3-K-2.5-LE3
		Open end, 3-wire			
	GN		5 m	541334	NEBU-M8G3-K-5-LE3
		Applied applied MOvd. 2 min	2.5	F/4220	NEDII MOMO I/ 2 F 1 F 2
	GO GP	Angled socket, M8x1, 3-pin Open end, 3-wire	2.5 m	541338 541341	NEBU-M8W3-K-2.5-LE3 NEBU-M8W3-K-5-LE3
	- GF	Angled socket, rotatable, M8x1, 3-pin	2.5 m	8001660	NEBU-M8R3-K-2.5-LE3
	_	Open end, 3-wire	5 m	8001661	NEBU-M8R3-K-5-LE3
	GQ	Straight socket, M8x1, 3-pin	2.5 m	554037	NEBU-M8G3-K-2.5-M8G4
35	/	Straight plug, M8x1, 4-pin			
	-	Modular system for a choice of connecting cables	-	-	NEBU
					→ Internet: nebu

Ordering data – Pilot air switching valve

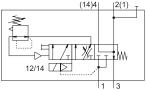
Ordering data							
	Code	Description			Туре		
Cover							
	N	Cover cap for manual override, non-detenting	10 pieces	541010	VAMC-S6-CH		
	V	Cover cap for manual override, concealed	10 pieces	541011	VAMC-S6-CS		
	A	Cover cap, heavy duty, for manual override, non-detenting heavy duty, detenting via accessory (key) (The cover cap is provided for one-off mounting only)	10 pieces	4105147	VAMC-B-S6-CTR		
Accessory for manual over	erride, heav	vy duty					
Coded key (accessory) for actuating cover cap, heavy duty, for detenting position Coded key (accessory) for actuating cover cap, heavy duty, for detenting and accessory duty, for detenting and accessor duty, for detenting accessor duty, for detenting and accessor duty, for detenting accessor duty, for detenting and accessor duty, for detenting acc							
Pneumatic connection accessories A selection of possible fittings, blanking plugs, silencers and other pneumatic accessories can be found in the chapter "Accessories" → Page 199							



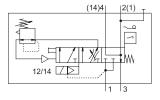
There is a wide range of preconfigured solenoid valves with cover cap for manual override and correct valve type code available to order in the sections on solenoid valves.

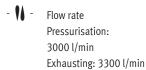
Data sheet - Soft-start valve

Function without sensor



with sensor













Description

Function

The purpose of the soft-start valve is to slowly and safely build up the supply pressure in duct 1 of the valve terminal or to quickly exhaust it.

Switch-on takes place in two stages:

 First the working pressure 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 to 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; no undefined status is possible.

Duct 1 of the valve terminal is exhausted via the soft-start valve's exhaust port only in the normal position, when the valve is not switched. The exhaust air can optionally be ducted with a fitting or using a silencer.

A detenting manual override with self-reset via an electrical control signal is available for maintenance and service purposes.



When using "Protection against unexpected start-up":

Protection against unexpected activation of the manual override (MO) must be guaranteed in all operating modes.

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 working air.

Pressure sensing via a pressure gauge (optional) is also possible.

The soft start valve can alternatively be ordered with a sensor. There is no provision for subsequently retrofitting a sensor because of the calibration that this requires.

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 pilot air supply for the valve terminal (internal/external) is determined by the seal between the manifold subbase and the soft start valve.

The scope of delivery of the soft start valve includes both the seal for internal pilot air supply (with hole) and the seal for external pilot air supply (no hole).

The soft start valve itself always has internal pilot air supply.

Data sheet - Soft start valve

Creation of pressure zones with a soft start valve

The soft-start valve can be used to supply the compressed air for the valve terminal or of a pressure zone. The soft start valve may only be used as the single compressed air supply component on valve terminals with one pressure zone or within a pressure zone.

If a soft-start valve in combination with a right-hand end plate (code XP3) is chosen for a pressure zone, a supply plate with a blanking plug in duct 1 (code W) is required in this pressure zone. When using a soft start valve, a supply plate (with blanking plug in duct 1) is generally also required for this pressure zone to discharge the exhaust air (duct 3/5).

A supply plate is not required if the exhaust air (duct 3/5) in a pressure zone with soft-start valve can be expelled via the right-hand end plate.

Restrictions

Compressed air supply

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

Exhaust air

Exhaust air cannot be expelled via the soft-start valve. If it is being used in a pressure zone with duct 3/5 separated, an exhaust plate is required.

Pilot air supply

If the soft-start valve is used for internal pilot air supply (duct 14), there must be no other pilot air supply within the valve terminal.

Reverse operation

The soft start valve is not approved for reverse operation.



being used.

Note

Setting options as well as drawings with descriptions of the components for the soft start valve can be found in the user documentation.

The adjusting screws are freely accessible in the installed state.

Conforms to standard	-	ISO 5599-2
Note on forced checking procedure		Switching frequency min. 1/month
Max. positive test pulse	[µs]	25001)
with logic 0		
Max. negative test pulse	[µs]	14001)
with logic 1		
Shock resistance		Shock test with severity level 2, to EN 60068-2-27
Vibration resistance		Transport application test with severity level 2, to EN 60068-2-6

¹⁾ Values apply only to types with direct voltage 24 V DC

General technical data

Design	Piston spool
Actuation type	Electrical
Sealing principle	Soft
Type of mounting	On sub-base, ISO size 1 to ISO 5599-2
Mounting position	Any
Valve function	Soft-start function
Manual override	Detenting, self-resetting via electrical control signal, normal position on top, → Page 161
Reset method	Mechanical spring
Type of control	Piloted
Pilot air supply	Internal, external
Flow direction	Non-reversible
Switching position sensing	Switching position via sensor

Standard nominal flow rate [l/min]

Pressurisation	3000				
Exhaust port	3300				

Data sheet – Soft start valve

Operating and environmental conditions				
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
Notes on operating/		Lubricated operation possible (in which case lubricated operation will always be required)		
pilot medium				
Operating pressure	[bar]	212		
Switchover pressure presetting	[bar]	4		
Ambient temperature	[°C]	-5 +50		
Note on materials		RoHS-compliant		

Valve switching times [ms]		
Valve switching time	On	17
	Off	50

Electrical data for soft-start valve				
Electrical connection		Plug, type C to EN 175301-803, square design		
Nominal operating voltage	[V]	24 DC		
Operating voltage range	[V]	24 DC ±10%		
Coil characteristics		24 V DC: 2.5 W		
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmission in mounted state)		

Electrical data for sensor			
Туре		SIEN-M12B-PS-S-L	SIEN-M12B-NS-S-L
Electrical connection		Plug M12x1 to EN 60947-5-2, 4-pin	
Switching output		PNP	NPN
Switching element function		N/O contact	
Signal status indication		Yellow LED	
Operating voltage range	[V DC]	10 30	
Residual ripple	[%]	±10	
Rated operating voltage	[V DC]	24	
Max. sensor no-load supply	[mA]	10	
current			
Max. output current	[mA]	200	
Max. voltage drop	[V]	2	
Max. switching frequency	[Hz]	3000	
Short circuit current rating		Pulsed	
Sensor reverse polarity protection		For all electrical connections	
Measuring principle		Inductive	
Switching position sensing		Switching position via sensor	

Materials – Soft-start valve	rerials – Soft-start valve				
	Soft-start valve	Manifold sub-base			
Housing	Wrought aluminium alloy	Die-cast aluminium			
Seals	NBR, HNBR	-			
Screws	Galvanised steel	-			

Data sheet - Soft-start valve

Example 1: Pressure zone with soft start valve and pilot air supply

Internal, external pilot air supply

Requirements

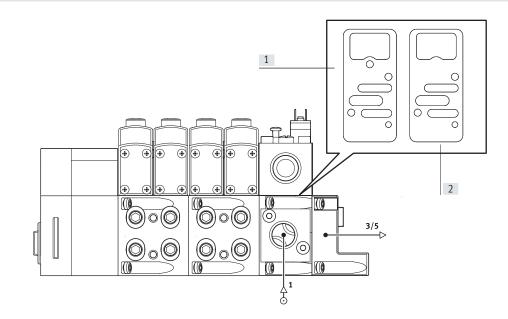
- Compressed air supply via soft start valve
- Right-hand end plate¹⁾:
 Blanking plug in duct 1

For internal pilot air supply:

- Seal (soft start valve manifold sub-base) with pilot air supply hole "open" and
- Right-hand end plate:
 Blanking plug in duct 14

For external pilot air supply:

- Seal (soft start valve manifold sub-base) with pilot air supply hole "closed" and
- Pilot air supply via duct 14 in the right-hand end plate



- [1] Seal for internal pilot air supply
- [2] Seal for external pilot air supply
- 1) With this configuration, a right-hand end plate with pilot air selector is not possible, as it doesn't allow the discharge of exhaust air

Example 2: Pressure zone with soft start valve, supply plate and pilot air supply

Internal, external pilot air supply

Requirements

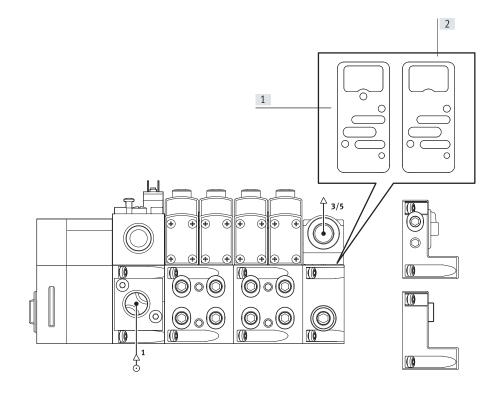
- Compressed air supply via soft start valve
- Supply plate: Blanking plug in duct 1
- Right-hand end plate: blanking plug in duct 1, 3, 5 or
- Right-hand end plate with pilot air selector

For internal pilot air supply:

- Seal (soft start valve manifold sub-base) with pilot air supply hole "open" and
- Right-hand end plate: blanking plug in duct 14 or
- End plate with coding (position 2, internal pilot air supply)

For external pilot air supply:

- Seal (soft start valve manifold sub-base) with pilot air supply hole "closed" and
- Pilot air supply via duct 14 in the right-hand end plate or
- End plate with coding (position 1, external pilot air supply)



- [1] Seal for internal pilot air supply
- [2] Seal for external pilot air supply

Data sheet - Soft start valve

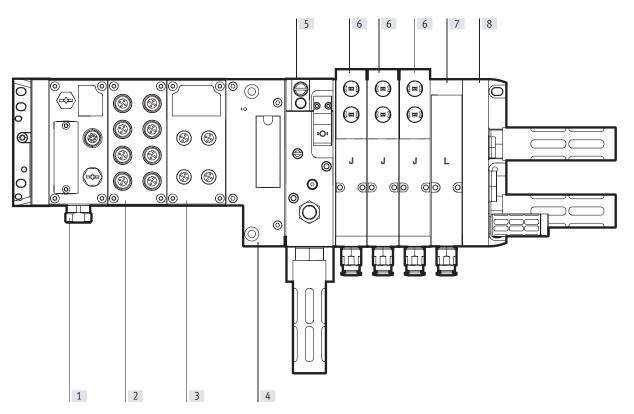
Practical example 1: Valve terminal VTSA with CPX terminal (metal design) and soft start valve

With internal pilot air (PP and XP2):

Selection no.: 539217

With external pilot air (PM and XP1):

Selection no.: 539217



- [1] Bus node for EtherNet/IP or Modbus TCP
- [2] Input module (16 digital inputs)
- [3] Output module (8 digital outputs)
- [4] CPX pneumatic interface
- [5] Soft start valve (PP – internal pilot air)
- [5] Soft start valve (PM – external pilot air)
- [6] 5/2-way valve, double solenoid (J)
- [7] Vacant position (L)
- [8] Right-hand end plate (XP2) with working air/exhaust air, external pilot air supply, blanking plug in duct 1 and 14
- [8] Right-hand end plate (XP1) with working air/exhaust air, external pilot air supply, blanking plug in duct 1

Selection with internal pilot air (PP and XP2):

Selection no. in online catalogue: 539217

Electrical section: 51E-F36GCQPNMKBLX-S+GSBA Pneumatic section: 44PNXP2SMPPBB3JL+UGBP1

Selection with external pilot air (PM and XP1):

Selection no. in online catalogue: 539217

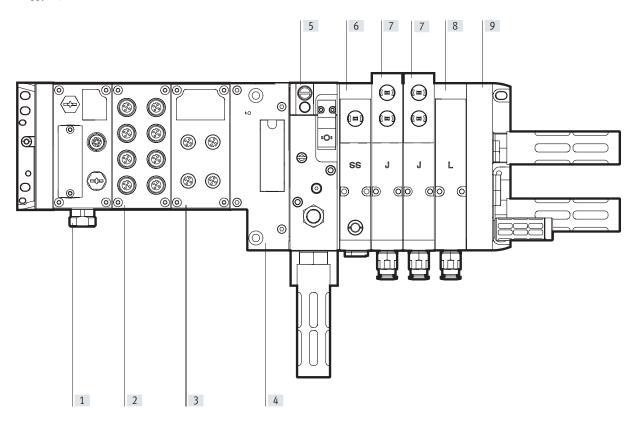
Electrical section: 51E-F36GCQPNMKBLX-S+GSBA Pneumatic section: 44PNXP1SMPMBB3JL+UGBP1

Data sheet - Soft-start valve, width 43 mm

Practical example 2: Valve terminal VTSA with CPX terminal (metal design), soft start valve and switching position sensing

With external pilot air (PM and XP2):

Selection no.: 539217



- [1] Bus node for EtherNet/IP or Modbus TCP
- [2] Input module (16 digital inputs)
- [3] Output module (8 digital outputs)
- [4] CPX pneumatic interface
- [5] Soft start valve (PM – external pilot air)
- [6] 5/2-way single solenoid valve, spring return, switching status indication with PNP sensor with 0.5 m connecting cable and pushin connector M12x1 (SS), and intermediate plate for switchable pilot air supply (ZO)
- [7] 5/2-way double solenoid valve (J), width 26 mm
- 8] Vacant position (L)
- [9] Right-hand end plate (XP2) with working air/exhaust air, external pilot air supply, blanking plug in duct 1 and 14

Selection with external pilot air (PM and XP2), solenoid valve with switching position sensing (SS) and intermediate plate for switchable pilot air supply (ZO)

Selection no. in online catalogue: 539217

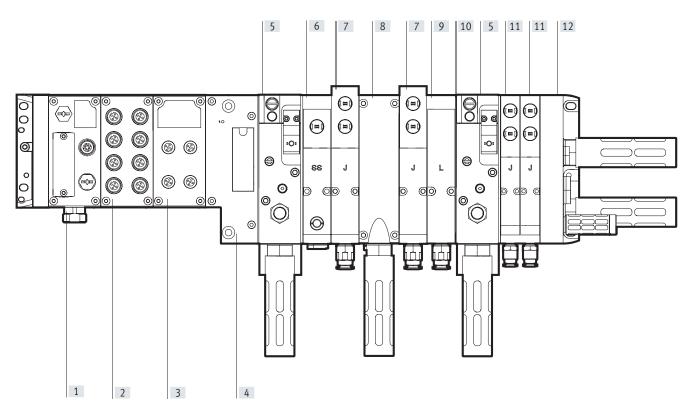
Electrical section: 51E-F36GCQPNMKBLX-S+GSBA
Pneumatic section: 44P-N-XP2-SMPM-BB-SSZOJJL+UGCGBP1

Data sheet - Soft start valve

Practical example 3: Valve terminal VTSA with CPX terminal (metal design), switching position sensing, soft start valve and 2 pressure zones

With external pilot air (PM and XP2)

Selection no.: 539217



- [1] Bus node for EtherNet/IP or Modbus TCP
- [2] Input module (16 digital inputs)
- [3] Output module (8 digital outputs)
- [4] CPX pneumatic interface
- [5] Soft start valve for one pressure zone (PM external pilot air)
- [6] 5/2-way single solenoid valve, spring return, switching status indication with PNP sensor with 0.5 m connecting cable and pushin connector M12x1 (SS), and intermediate plate for switchable auxiliary pilot air supply (ZO)
- [7] 5/2-way double solenoid valve (J), width 26 mm
- [8] Exhaust plate (W) for ducts 3/5
- [9] Vacant position (L)
- [10] Duct separation (S) 1, 3, 5
- [11] 5/2-way double solenoid valve (J), width 18 mm
- [12] Right-hand end plate (XP2) with working air/exhaust air, external pilot air supply, blanking plug in duct 1 and 14

Selection with external pilot air (PM and XP2), solenoid valve with switching position sensing (SS) and intermediate plate for switchable pilot air supply and 2 pressure zones

Selection no. in online catalogue: 539217

Electrical section: 51E-F36GCQPNMKBLX-S+GSBA

Pneumatic section: 44P-N-XP2-LSMPM-BWBSPMA-SSZOJJLJJ+UGCGBP1

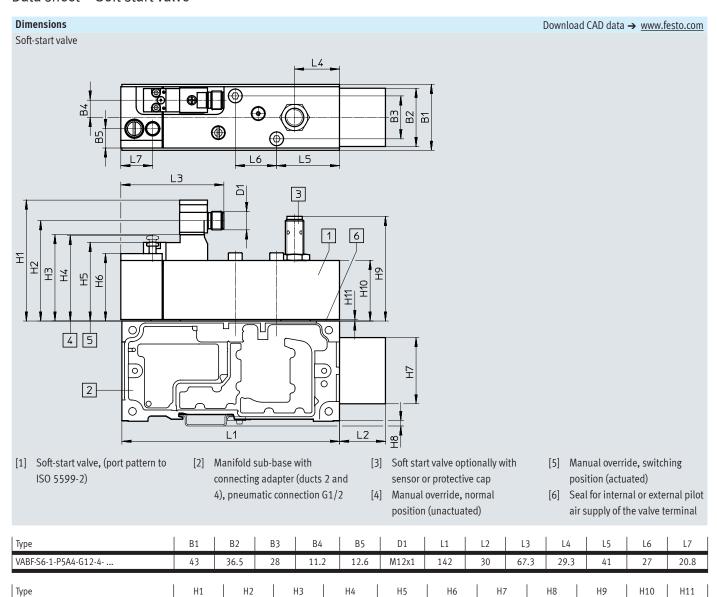
Electrical connection of pneumatic components

The solenoid valve with switching position sensing (SS), with sensor connection M12 is connected to the CPX input module using an appropriate connecting cable in order to link the sensor signal into the CPX system.

The soft start valve (PM – with sensor PNP) is connected to the CPX input module using an appropriate connecting cable (GC) in order to integrate the sensor signal into the CPX system.

A connecting cable (GBP1) to/from the CPX output module is used to control the soft start valve (PM). (Control signal)

Data sheet - Soft start valve





78.9

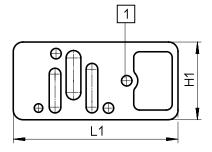
65.5

56.4

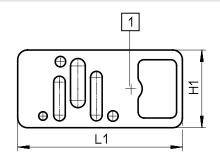
55.9

51.5

VABF-S6-1-P5A4-G12-4- ...



[1] With hole, internal pilot air supply



44

41.2

3.5

68.3

39.5

[1] Without hole, external pilot air supply

Туре	H1	L1
VABD-S6	40	84.8

¹⁾ Seals are included with the soft start valve

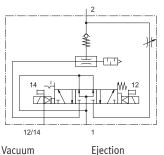
Data sheet – Soft start valve

Ordering data Terminal Description Weight Part no. Type					
	code	Description	[g]	Part IIO.	Туре
Soft start valve					
	-	Without sensor output (with seals for internal and external pilot air)	590	558231	VABF-S6-1-P5A4-N12-4-1
	PN	Seal for external pilot air (without hole)			
	PQ	Seal for internal pilot air (with hole)			
	-	With sensor output PNP (with seals for internal and external pilot air)	605	558232	VABF-S6-1-P5A4-N12-4-1-P
	PM	Seal for external pilot air (without hole)			
	PP	Seal for internal pilot air (with hole)			
	-	With sensor output NPN (with seals for internal and external pilot air)	605	558234	VABF-S6-1-P5A4-N12-4-1-N
	PK	Seal for external pilot air (without hole)			
	PO	Seal for internal pilot air (with hole)			
Manifold sub-base			,		
	-	Suitable for a soft-start valve (ports for ducts 2 and 4 combined)	570	556988	VABV-S6-1Q-N12

Accessories – Soft-start valve

Ordering data				1	1
Designation	Code	Description		Part no.	Туре
Cover cap					
as I	-	M12, for sealing the sensor opening	10 pieces	165592	ISK-M12
lectrical connection					
	P1	Angled socket, type C, 2-pin, with LED		188024	MSSD-EB-M12-MONO
		Straight plug, M12x1, 2-pin			
	GB	Straight socket, M12x1, 5-pin	5 m	541328	NEBU-M12G5-K-5-LE4
		• Open end, 4-wire			
	-	Angled socket, M12x1, 5-pin	5 m	541329	NEBU-M12W5-K-5-LE4
		Open end, 4-wire			
g ^r					
	GG	Angled socket, type C, 3-pin, with LED	2.5 m	151688	KMEB-1-24-2.5-LED
	GH	Open end, 3-wire	5 m	151689	KMEB-1-24-5-LED
	GJ		10 m	193457	KMEB-1-24-10-LED
\downarrow	GK	Angled socket, type C, 3-pin	2.5 m	151690	KMEB-1-230AC-2.5
>	GL	Open end, 3-wire	5 m	151691	KMEB-1-230AC-5
onnecting cable for	electrical conn	ection of the proximity switch			
	-	Straight socket, M12x1, 5-pin	5 m	541328	NEBU-M12G5-K-5-LE4
		Open end, 4-wire			
	GC	Angled socket, M12x1, 5-pin	5 m	541329	NEBU-M12W5-K-5-LE4
		Open end, 4-wire			
	-	Modular system for a choice of connecting cables		_	NEBU
	inductal system for a choice of conflecting capies			→ Internet: nebu	
ressure gauge					
	- 0 10 bar, pneumatic connection M5		526323	MA-27-10-M5	
ilencers					
	U	Standard design (1 piece)	1/2 NPT	12741	U-1/2-B-NPT
D					
	A	Sintered design (10 pieces)	1/2 NPT	1206992	AMTE-M-LH-N12
neumatic connection	n accessories				
		ing plugs, silencers and			
		found in the chapter "Accessories" → Page 199			

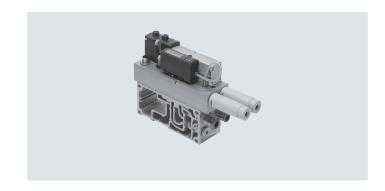
Function



- 🚺 - Vacuum block width 53 mm



Operating pressure 4 ... 8 bar



Description

The vacuum block can be integrated into the existing valve terminal VTSA/VTSA-F. To do this, the vacuum block is screwed to a manifold sub-base for 2 valve positions, width 26 mm.

The vacuum block is used in conjunction with a suction gripper to pick up, hold and place components. Picking up and holding are carried out by a suction gripper using a vacuum.

Once the component has been positioned, it is released by an ejector pulse. This ejector pulse is created by pressurising the vacuum system so that the vacuum briefly collapses. The ejector pulse can be set.



Note

The vacuum block can be operated in combination with the vertical stacking for pilot air switch-off (intermediate plate VABF-S4-1-S plus 5/2-way valve) on the valve terminal VTSA/VTSA-F.

Function

The vacuum block VABF-S4-1-V2B1... is intended to be used to generate a vacuum. The generated vacuum and a suction gripper produce a force which is used to grip and transport a workpiece. The supply of compressed air for vacuum generation is controlled by a solenoid valve.

The vacuum is generated by actuating the solenoid coil 12. The setpoint value set at duct B for the generated vacuum is monitored via a vacuum sensor (with switching output). Vacuum generation reverts to a self-holding phase after reaching the setpoint value. The vacuum block controls the vacuum generation process independently within the range of the set switching points (air saving function).

The integrated solenoid valve is used to generate an ejector pulse by activating coil 14. The workpiece is thus safely released from the suction cup and the vacuum is rapidly reduced. The length of the ejector pulse can be influenced by the duration of the electrical pulse. The strength of the ejector pulse is influenced by the adjustable flow control.



Note

In the absence of an electric or pneumatic supply when the valve is in the "generate vacuum" or "air saving" mode, the valve reverts to the "generate vacuum" position.

Mode of operation of the air saving function (LS)

If the required threshold value (1) (turn off suction) is reached for the vacuum, vacuum generation is automatically switched off.

Check valves prevent the reduction of the vacuum. However, leakages (e.g. due to rough workpiece surfaces) will slowly reduce the vacuum. If the vacuum drops below the set threshold value (turn on suction), vacuum generation is switched on automatically. Vacuum is generated until the set threshold value (turn off suction) is reached again.

Threshold value to turn off suction (air saving function):

The vacuum generator is switched off simultaneously with the setting of output Out A.

The preset value is -700 mbar.

Threshold value to turn on suction:

The threshold value should always be above the switching point of duct B "vacuum sensing".

The gap between two and three should be at least 50 mbar.



Note

Setting options and further instructions are described in the operating instructions and/or documentation VABF-S4-1-V2B1....

5/3-way, pressurised Non-modular Any 2.0 High vacuum, standard • Electric ejector pulse valve • Flow control • On/off valve, electric	
Any 2.0 High vacuum, standard • Electric ejector pulse valve • Flow control • On/off valve, electric	
2.0 High vacuum, standard • Electric ejector pulse valve • Flow control • On/off valve, electric	
High vacuum, standard • Electric ejector pulse valve • Flow control • On/off valve, electric	
Electric ejector pulse valve Flow control On/off valve, electric	
Electric ejector pulse valve Flow control On/off valve, electric	
Flow control On/off valve, electric	
On/offvalve, electric	
Electrical air-saving circuit	
Check valve	
Open silencer	
Vacuum switch	
Open	
Relative pressure	
Piezoresistive	
Threshold value comparator	
Yes	
For all electrical connections	
Adapted to MZ, MY, ME coils	
N/O contact	
-0.999 0 (recommended operating range: -0.950.05)	
-0.9 0	
Via own plug M12	
Via valve terminal VTSA/VTSA-F	
Intensity adjustable via flow control screw	
Electrically activated	
Vacuum generation via Venturi nozzle	
Piloted	
Non-reversible	
Can be throttled (duct 3 and 5)	
Via through-hole, screwed onto manifold sub-base, width 26 mm	
Non-detenting, detenting, concealed	
Yes, solenoid coil 12 (holding)	
Yes, solenoid coil 14 (spring return), (only effective when power supply is switched off)	
LED	
Via the manifold sub-base of the valve terminal, width 26 mm	
Via the modular silencer for vacuum block	
Via the manifold sub-base of the valve terminal (QS push-in fitting – vacuum), G1/4	
Via the manifold sub-base of the valve terminal (sealed with blanking plug type B-1/4)	
• • • O R P TI Y FO A N V V III E V P N C V N Y Y L V V	

Technical data for pressure switch of vacuum block (delivery status)		
Duct A: air saving function		
Switching behaviour		Threshold value comparator
 Switching point 	[mbar]	-700
 Hysteresis 	[mbar]	200
 Switching characteristic 		N/O (normally open contact)
Duct B, vacuum sensing		
Switching behaviour		Threshold value comparator
 Switching point 	[mbar]	-400
 Hysteresis 	[mbar]	5
• Switching characteristic N/O (normally open contact)		

· 🖣 - Not

Setting options for duct A and duct B and further instructions are described in the operating instructions and/or documentation VABF-S4-1-V2B1....

Electrical data		
Electrical connection		4-pin plug to ISO 15407-2 (vacuum block supplied with with power separately, not via valve terminal)
Nominal operating voltage	[V DC]	24
Operating voltage range	[V DC]	21.6 26.4
Duty cycle ED	[%]	100
Max. output current	[mA]	50
Voltage drop	[V]	š1.5
No-load supply current	[mA]	50 150 (dependent on the switching status of the solenoid coils)
Coil characteristics	[V DC]	24
Power consumption	[W]	1.3
(coil characteristics)		
Overload protection		Provided
Accuracy (full scale)	[% FS]	±3
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmission in mounted state)

Electrical connection ¹⁾					
2 + + + 4	Connection plug M12x1, 4-pin to EN 61076-2-101	Pin1 + 24 V DC (brown (BN)) Pin2 Out B (white (WH)) Pin3 0 V DC (blue (BU)) Pin4 Out A (black (BK))	Supply voltage Switching output B (duct B) 0 V DC Switching output A (duct A)		

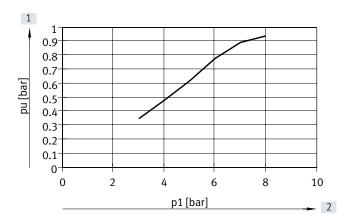
¹⁾ Max. permissible signal cable length: 5 m

Operating and environmental conditions				
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]		
Notes about the operating medi	um	Unlubricated operation		
Operating pressure	[bar]	48		
Nominal operating pressure	[bar]	6		
Pressure measuring range	[bar]	-1 0		
Negative pressure	[bar]	Up to approx. 0.9 (as a function of operating pressure)		
Ambient temperature	[°C]	0 50		
Temperature of medium	[°C]	0 50		
Sound pressure level LpA	[dB(A)]	78		
(at nominal operating pressure)				

Materials		
Housing, jet nozzle	Wrought aluminium alloy	
Screws Galvanised steel		
Seals	NBR	
Plug housing	Nickel-plated die-cast zinc	
Plug contacts	Gold-plated brass	
Inspection window on pressure sensor	PA PA	
Pressure sensor keypad	TPE-U	
Note on materials	RoHS-compliant	

Pressure ratios, air consumption and volumetric flow rate

Vacuum as a function of operating pressure

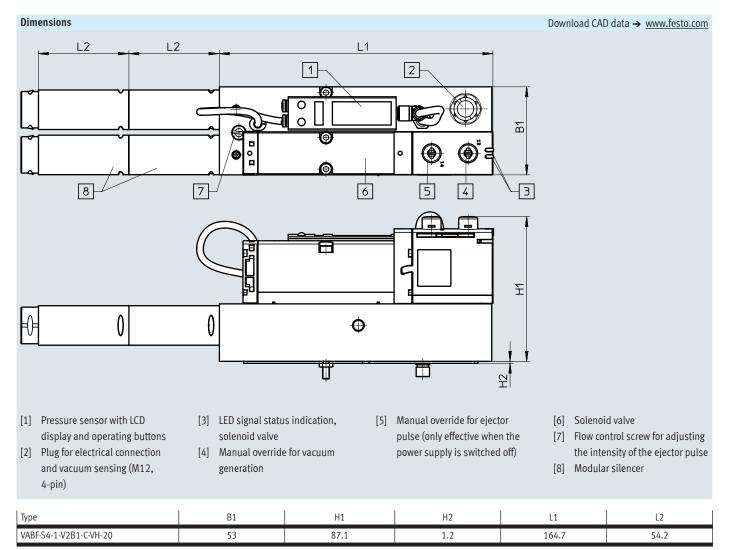


Air consumption as a function of operating pressure



[1] Vacuum

- [2] Operating pressure
- [1] Air consumption
- [2] Operating pressure



Ordering data					
	Code	Description		Part no.	Туре
/acuum block					
	VB	Vacuum block for valve terminal VTSA/VTSA-F with air-saving function and adjustable ejector pulse	1120 g	571425	VABF-S4-1-V2B1-C-VH-20
Manifold sub-base					
	L ²⁾	For vacuum block		_ 1)	VABV-S4
or o	LK ²⁾	For vacuum block With QS fitting, small		_ 1)	VABV-S4
Connecting cable					
	-	Straight socket, M12x1, 5-pinOpen end, 4-wire	2.5 m	550326	NEBU-M12G5-K-2.5-LE4
			5 m	541328	NEBU-M12G5-K-5-LE4
	GC	 Angled socket, M12x1, 5-pin Open end, 4-wire 	5 m	541329	NEBU-M12W5-K-5-LE4
	-	Modular system for a choice of connecting cables	1	-	NEBU → Internet: nebu
Pneumatic connection					
		nking plugs, silencers and e found in the chapter "Accessories" → Page 199			

The manifold sub-base for use with the vacuum block can only be ordered via the valve terminal configurator and therefore doesn't have a separate part number.
 Code letter within the order code for a valve terminal configuration

Adaptation to width 65 mm

- \[\] - Valve width 65 mm ISO size 3

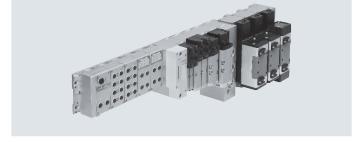
Voltage 24 V DC

- N - Flow rate up to 4000 l/min

Temperature range -5 ... +50°C



Operating pressure -0.9 ... 10 bar



Description

Function

The adaptation of valves, regulator plates and throttle plates for width 65 mm, ISO size 3 further expands the scope of application of the valve terminal VTSA/VTSA-F:

- 5 valve sizes with pneumatic function integration on a valve terminal VTSA/VTSA-F.
- Max. flow rate up to 4000 l/min
- Max. 26 solenoid coils of width 65 mm, ISO size 3 can be adapted to the valve terminal VTSA/VTSA-F.
- The total number of solenoid coils of all widths must not exceed 32!

Restrictions

End plate with pilot air selector

If components of ISO size 3 are used, the end plate with pilot air selector is not available for selection.

Pilot air supply via adapter plate

If no pneumatic components are installed on the left-hand side of the adapter plate (electric components only), ducts 12 and 14 of the adapter plate must be sealed with blanking plugs.

Pressure zones

Max. 2 pressure zones are possible with ISO size 3.

Key features – Adaptation to width 65 mm

Equipment options

Valve functions for width 65 mm, ISO size 3

5/2-way valve

- Single solenoid, pneumatic spring/mechanical spring
- Double solenoid
- Double solenoid with dominant signal

5/3-way valve

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

Special features

Fieldbus interface/CPX terminal

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

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

AS-Interface

 1 to 8 valve positions/ max. 8 solenoid coils. Auxiliary power supply is required! Combinable

- Width 65 mm: valve flow rate up to 4000 l/min
- Width 18 mm, 26 mm, 42 mm and 52 mm can be combined on a single valve terminal. Width 65 mm is mounted at the end of the VTSA/ VTSA-F configuration using adapter VABA ...



Note

The total number of solenoid coils of all widths must not exceed 32.

Valve terminal configurator

A valve terminal configurator is available to help you select a suitable VTSA/ VTSA-F valve terminal. This makes it much easier to order the right product. The valve terminals are fully assembled according to your order specification and are individually checked. This reduces assembly and installation time to a minimum.

Order a valve terminal VTSA using the order code:

Ordering system for VTSA

→ Internet: vtsa

CPX ordering system

→ Internet: cpx

→ Internet: www.festo.com

Order a valve terminal VTSA-F using the order code:

Ordering system for VTSA-F

→ Internet: vtsa-f

CPX ordering system

→ Internet: cpx

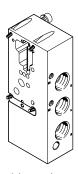


Please note that despite the basic configuration for ISO size 3 valves

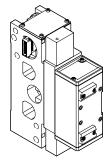
- The manual override is always non-detenting.
- Exhaust air 3/5 of the adapter plate for ISO size 3 is always routed separately.
- There is no option for a 90°-connection plate, outlet underneath.
- There is no option for sintered silencers.
- There is no option for pneumatic accessories.

Peripherals - Adaptation to width 65 mm

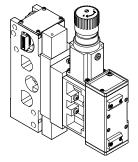
Overview of modules for width 65 mm, ISO size 3



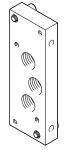
Adapter plate



Valve with manifold sub-base



Vertical stacking



End plate

Pneumatics

Pneumatic modules

- Manifold sub-base for ISO valves
- Size 3: 4000 l/min

Adapter plate

- Compressed air supply port, duct 1
- Exhaust air duct 3/5 (separate)
- External pilot air supply port (optional) for pneumatic components on the left-hand side

Pneumatic modules

- Manifold sub-base for an ISO valve
- Pilot control via intermediate solenoid plate
- ISO size 3

Vertical stacking

- Valves
- · Throttle plates
- Intermediate pressure regulator plates
- · Pressure gauge
- Creation of pressure zones with 10 bar or vacuum (with external pilot air supply only)

Information on valve actuation for ISO

- All intermediate solenoid plates have a non-detenting manual override
- Valve terminals with internal pilot air supply: restricted pressure range
- Valve terminals with external pilot air supply: pressure zones up to 10 bar or vacuum operation possible. In this case, the pilot air supply must be regulated externally and supplied additionally.

Additional modules

- Throttle plates: one-way flow control valves can be mounted between the manifold block and the valve so that the speed of travel can be set separately for single and double-acting cylinders
- Pressure regulators: intermediate pressure regulator plates for setting the contact pressure of a cylinder, either separately on duct 1, 2 or 4, or shared by 2 and 4.
- Pressure gauge on pressure regulator

Flexible compressed air supply

- Compressed air supply via the adapter plate or the right-hand end plate
- With large valve terminals, compressed air can be supplied at both sides

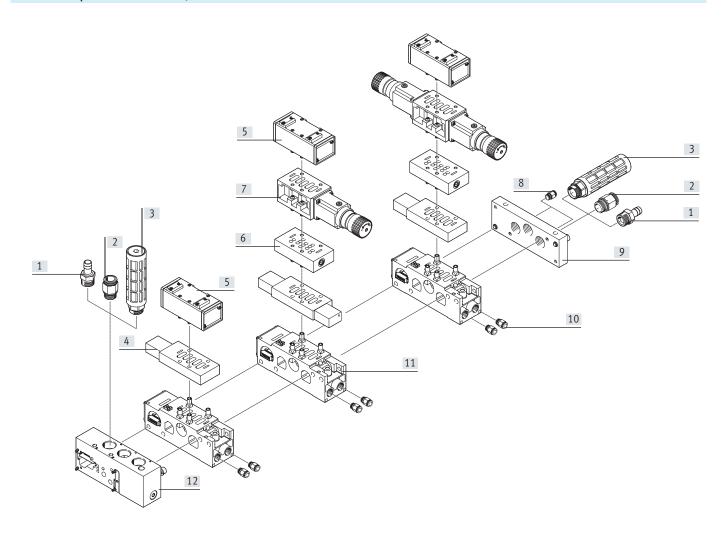
- Creation of pressure zones: maximum of 2 pressure zones, up to 10 bar as well as for vacuum, are possible for all valve sizes. Compressed air supply at both sides is essential in this case.
- Regulated external pilot air supply should be used for pressures
 3 bar.

Options

- Vacant positions for subsequent extensions
- All pneumatic connections can also be supplied with a G thread

Peripherals – Adaptation to width 65 mm

Pneumatic components of width 65 mm, ISO size 3



		Description	→ Page/Internet
[1]	Barbed hose fitting	-	199
[2]	Fitting	For compressed air supply	199
[3]	Silencer	For exhaust air	200
[4]	Intermediate solenoid plate	For pneumatically actuated standards-based valves	188
[5]	Valve	Pneumatically actuated standards-based valve	188
[6]	Throttle plate	For exhaust air flow control	189
[7]	Intermediate pressure regulator plate	-	189
[8]	Fitting	For pilot air	199
[9]	End plate	Right-hand end plate	189
[10]	Fitting	For working air	199
[11]	Manifold sub-base	For linking the valve terminal	189
[12]	Adapter plate VABA	For adapting components of width 65 mm to valve terminal VTSA/VTSA-F	189

Key features - Pneumatic components

Adapter plate VABA ...



The adapter plate VABA-... is used for adapting valves of width 65 mm ISO size 3 to valve terminal VTSA/VTSA-F. Ports for supply/exhaust air and pilot air supply are available.

The external pilot air used here supplies the valve terminal with valves of width 18 ... 52 mm to the left of the adapter.

The external pilot air supply for the valves with a width of 65 mm, ISO size 3, is provided via the end plate IEPR ...

Cover plates



Cover plates are used to seal off vacant valve positions.

No intermediate solenoid plate is mounted underneath the cover plate.

This depends on the valve used and must be ordered with the valve if the terminal is expanded at a later date.

Valves and pilot control



The valves used are pneumatically actuated standards-based valves that are controlled via an intermediate solenoid plate.

Compressed air supply

The pilot air supply is selected at the intermediate solenoid plate by configuring two plungers.

Air can be taken from the working air, or from a separate air supply.

A separate pilot air supply is required in principle if the supply pressure is less than 3 bar (including vacuum).

In this case it is advisable to restrict the pilot air supply to max. 10 bar with a suitable regulator.

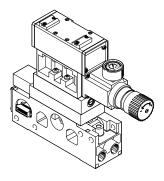
The following circuit symbols are shown as solenoid valves and are the combination (set) consisting of a pneumatic valve with corresponding solenoid intermediate plate. The symbols printed on the components can therefore vary.

	Valve function				
Terminal code	Circuit symbol	Description			
0	14 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5/2-way monostable valve • With intermediate solenoid plate • Mechanical spring			
-	14 4 2 7 7 14 5 1 3 12	5/2-way monostable valve • With intermediate solenoid plate • Pneumatic spring			
M	14 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	5/2-way monostable valve • With intermediate solenoid plate • Pneumatic spring, air supplied by external pilot air			
J	14 4 2 12 12 14 5 1 3 12	5/2-way bistable valve • With intermediate solenoid plate			
D	14 4 2 12 12 14 5 1 3 12	5/2-way bistable valve With intermediate solenoid plate Dominant signal			
G	14 W 4 2 W 12 14 5 1 3 12	5/3-way valve • With intermediate solenoid plate • Mid-position closed			
E	14 W 4 2 W 12 T T T T T T T T T T T T T T T T T T	5/3-way valve • With intermediate solenoid plate • Mid-position exhausted			
В	14 W 4 2 W 12 14 14 5 1 1 3 12	5/3-way valve • With intermediate solenoid plate • Mid-position pressurised			
L		Cover plate			



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).

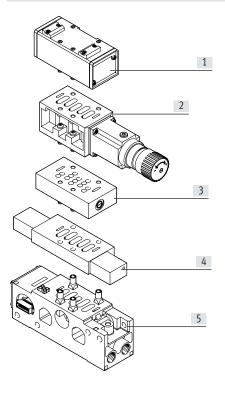
Vertical stacking



Additional components can be added to each valve position of width 65 mm, between the base plate (manifold sub-base) and the valve.

These functions are known as vertical stacking modules and enable special functions or control of an individual valve position.

Vertical stacking components



- [1] Valve
- [2] Intermediate pressure regulator plate
- [3] Throttle plate
- [4] Intermediate solenoid plate
- [5] Manifold sub-base with port pattern to DIN ISO 5599-2



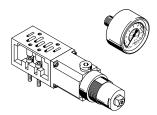
Certain combinations are not possible due to the design of the individual vertical stacking components.

Throttle plate



Intermediate plate with integrated exhaust air flow controls at ports 3 and 5 for regulating cylinder speed

Intermediate pressure regulator plate and pressure gauge



Intermediate plate with integrated pressure regulator for regulating pressure at

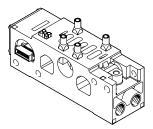
- Ports 2 and 4 (B, A)
- Port 4 (A)
- Port 2 (B)
- Port 1 (P)

Easy pressure setting

Pressure gauges can be screwed directly into the intermediate pressure regulator plate for setting the pressure.

Functions						
Code	Circuit symbol	Description				
X	-	Throttle plate (with two one-way flow control valves for exhaust air flow control)				
ZA	14 5 1 3 12	Intermediate pressure regulator plate, port 1				
ZB	14 5 1 3 12	Intermediate pressure regulator plate, port 4				
ZC	14 5 1 3 12	Intermediate pressure regulator plate, port 2				
ZD	14 5 1 3 12	Intermediate pressure regulator plate, ports 2 and 4				

Manifold sub-base for valves



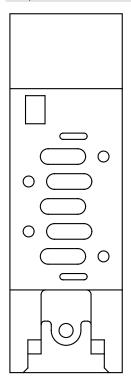
Adaptation to width 65 mm is based on a modular system which consists of manifold sub-bases and valves. The manifold sub-bases contain a duct seal and an electrical link, are screwed together and thus form the support system for the valves.

Inside the manifold sub-bases are the connection ducts for supplying compressed air to and exhausting the valve terminal as well as the working ports for each valve for the pneumatic cylinders.

Each manifold sub-base is connected to the next using two screws.

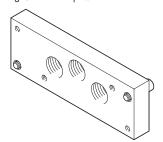
Individual valve terminal sections can be isolated and further manifold subbases can be inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended, even for width 65 mm, ISO size 3.

Port pattern to ISO 5599-2 of the manifold sub-base for valves with width 65 mm



Compressed air supply and exhaust

Right-hand end plate



With the adaptation to width 65 mm, compressed air is supplied via the right-hand end plate and/or the adapter plate VABA ...

Exhaust is optionally via silencers or ports for ducted exhaust air on the adapter plate VABA ... and/or on the right-hand end plate.

The external pilot air supply for the valves of width 65 mm is provided via the end plate IEPR ...

Pilot air supply

When using valves with a width of 65 mm, the internal/external pilot air supply for the valves with a width of 18 ... 52 mm is provided via the adapter plate VABA-....

The external pilot air supply for valves with a width of 65 mm is provided via the right-hand end plate IEPR ...

Internal pilot air supply

If the working pressure is between 3 ... 10 bar, internal pilot air supply can be selected.

The pilot air supply is then branched from the compressed air supply 1 using an internal connection. Ports 12 and 14 on the right-hand end plate should be sealed with a blanking plug.

External pilot air supply

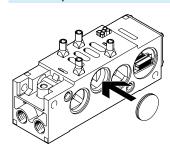
If the working pressure is not in the range from 3 ... 10 bar, you must operate the valves with a width of 65 mm using external pilot air supply. The pilot air supply is then supplied via ports 12 and 14 on the right-hand end plate.



Note

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

Creation of pressure zones

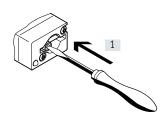


It is possible to have different supply pressures in the area containing valves with a width of 65 mm by installing isolating discs between two manifold blocks. It should be noted that the isolating disc is inserted into the manifold sub-base from the right.

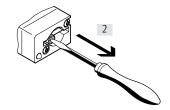
The air is supplied and exhausted on the left-hand side via the adapter plate VABA ... and via the right-hand end plate. Usually, only duct 1 has to be isolated. In special cases, isolating discs may also be inserted into exhaust ducts 3 and 5.

Manual override (MO)

Manual override with automatic return (non-detenting)



[1] Press in the plunger of the manual override using a pointed object or screwdriver. The valve is in switching position.



[2] Remove the pointed object or screwdriver.

The spring force pushes the plunger of the manual override back.

The valve returns to its initial position (not with bistable valve, code J, D).

Electrical connection concept

Replacing the solenoid coil fuse

Each solenoid coil is protected with a (fast-acting) 0.315 A fuse.

These fuses are located behind the cover of the manifold sub-base on the printed circuit board.

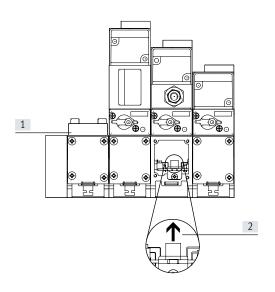
Each single solenoid manifold subbase has one fuse, while each double solenoid manifold sub-base has two fuses.



Note

Make sure that there is sufficient clearance for maintenance purposes.

Changing the solenoid coil fuse



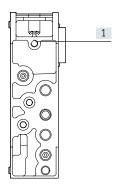
- [1] Loosen the retaining screws in the
- [2] Carefully remove the fuse from its

Right-hand fuse for valve solenoid

Left-hand fuse for valve solenoid 12

Key features - Mounting, adaptation to width 65 mm

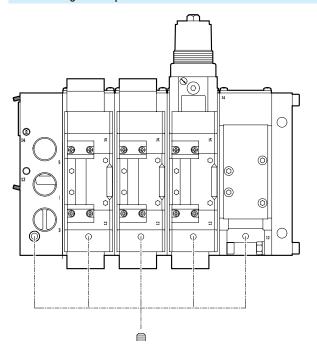
Rear side mounting



[1] Blind hole for rear side mounting

The rear side of the manifold subbases has holes (blind holes) for mounting the valve terminal on machines or metal racks (rear side mounting). M8 threads need to be cut for this purpose.

Wall mounting with adaptation to width 65 mm



- With M8 screws on the adapter plate and the manifold sub-bases
- Holes (blind holes) on the underside of the manifold sub-bases
- Drilled hole (through-hole) in the adapter plate



The mounting holes of every second manifold sub-base must be used for the wall mounting of a valve terminal VTSA-ASI of width 65 mm.

Data sheet – General technical data, adaptation to width 65 mm

General technical data for valve functions						
Design						
Valves		Piston spool valve				
Intermediate pressure regulator	plate	Pressure regulator with secondary exhausting				
Width	[mm]	65				
Nominal width	[mm]	14.5				
Type of mounting						
Valves		With through-holes on the manifold sub-base				
Throttle plate		With through-holes on the manifold sub-base				
Intermediate pressure regulator	plate	With through-holes on the manifold sub-base				
Mounting position		Any				
Manual override		Non-detenting				
Pneumatic connections – Threaded	connection					
Working air	1	1 1/2 NPT				
Exhaust air	3/5	1 1/2 NPT				
Working ports	2/4	1/2 NPT				
Pilot air supply	12/14	1/8 NPT				

Technical data									
Valve function	Terminal code	Valve switching times in [ms]			Flow direction		Reset method		Standard nominal flow rate in [l/min]
		On	Off	Change- over	Reversible	Non- reversible	Pneumatic spring	Mechanical spring	
5/2-way, double solenoid	J	-	-	8	-	-	-	-	4500
5/2-way, double solenoid with dominant signal	D	29	36	-	•	-	-	-	4500
5-2-way single solenoid, air supplied by external pilot air	М	29	36	-	•	-	-	-	4500
5/2-way, single solenoid	-	29	36	-	-	•	•	-	4500
5/2-way, single solenoid	0	17	61	-	•	-	-	•	4500
5/3-way, closed ¹⁾	G	17	61	-	•	-	-	-	3600
5/3-way, exhausted ¹⁾	E	18	63	-	•	-	-	-	3800
5/3-way, pressurised ¹⁾	В	16	60	-	•	_	_	•	3800
Intermediate plate									
For single solenoid valves (MUH-ZP-D-3-24G)	-	-	_	-	-	•	-	•	-
For double solenoid, 5/3-way and dominant-signal valves (MUHX2-ZP-D-3-24G)	-	-	-	-	-	•	-	•	-
For single solenoid valves, air supplied by external pilot air (MUH-ZP-D-3-L-24G)	-		-	-	-	•	-	•	-
Intermediate pressure regulator plate								,	
LR-ZP-A-D-	ZB	-	_	_	_	-	_	_	2300
LR-ZP-B-D-	ZC	-	-	-	-	-	-	-	2300
LR-ZP-P-D-	ZA	-	_	_	-	-	_	_	1800
LR-ZP-A/B-D-	ZD	-	-	-	-	-	-	-	_

If neither solenoid coil is energised, the valve is moved to its mid-position by spring force.
 If both solenoid coils are energised at the same time, the valve remains in the previously assumed switching position.

Data sheet – General technical data, adaptation to width 65 mm

Operating and environmental co	nditions	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Notes on operating/		Lubricated operation possible (in which case lubricated operation will always be required)
pilot medium		
Operating pressure for valve		
terminal		
With ext. pilot air supply	[bar]	-0.9 +10
With int. pilot air supply	[bar]	310
Pilot pressure for valve terminal	[bar]	310
Operating pressure for valves		
With ext. pilot air supply	[bar]	-0.9 +10 (for reversible valves, for non-reversible valves 2 10)
With int. pilot air supply	[bar]	3 10 (for mechanically reset valves, for pneumatically reset valves 2 10)
Pilot pressure for valves	[bar]	3 10 (for mechanically reset valves, for pneumatically reset valves 2 10)
Pressure regulation range	[bar]	0 12 (for intermediate pressure regulator plate)
Ambient temperature	[°C]	-5 +50
Temperature of medium	[°C]	5 +50
Mounting position		Any
Certification		c UL us – Recognized (OL)
CE marking (see		To EU EMC Directive ¹⁾ (for intermediate plate MUH)
declaration of conformity)		
Relative humidity	[%]	90

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

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

Electrical data for solenoid coil					
Protection against electric shock (protection against direct and indirect contact as per EN 60204-1/IEC 204)		With PELV power supply unit			
Operating voltage	[V]	24 DC ±10%			
Power consumption per coil	[W]	3.1 (130 mA at 24 V DC)			
Duty cycle ED		100% (50% concurrence)			
Degree of protection to EN 60529		IP65 (in assembled state)			
Relative humidity	[%]	90 at 40°C, non-condensing			

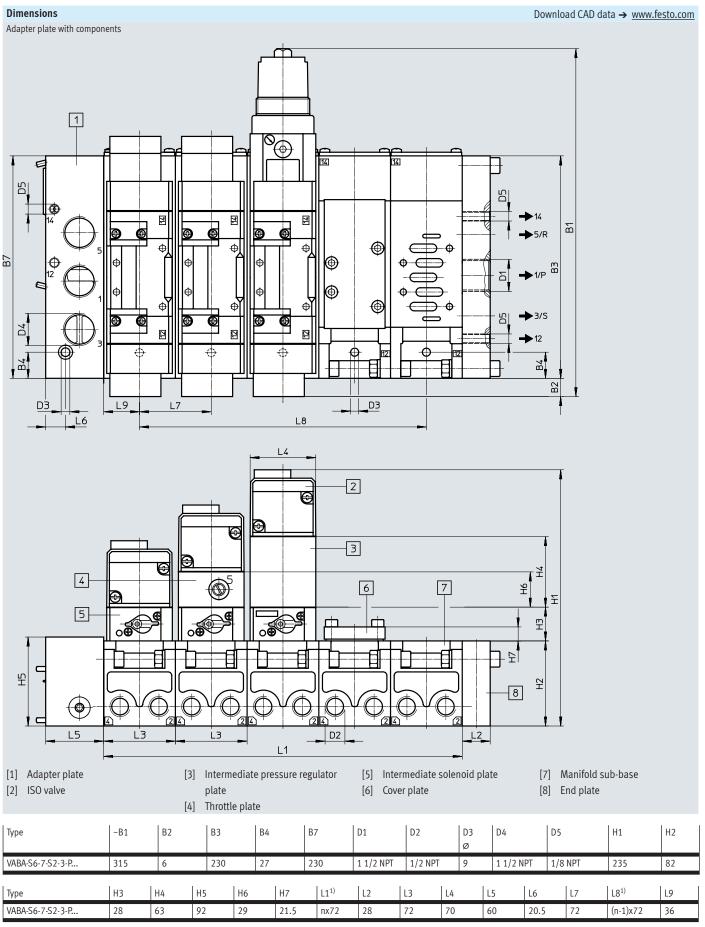
Electrical data – Adapter plate	lectrical data – Adapter plate					
Operating voltage	[V]	24 DC ±10%				
Max. current rating per signal	[mA]	500				
Duty cycle ED		100%				
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)				

Data sheet – General technical data, adaptation to width 65 mm

Materials	
Valves	Die-cast aluminium, steel
Adapter plate	Wrought aluminium alloy
Seals	NBR
Throttle plate	Anodised aluminium, brass
Intermediate pressure regulator plate	Die-cast aluminium, steel
Screws	Galvanised steel
Note on materials	RoHS-compliant

Product weights	
Approx. weights [g]	
Adapter plate	2600
Manifold sub-base	1120
Right-hand end plate	1120
Intermediate solenoid plate	500
Valves	
Single solenoid, double solenoid	760
Mid-position	840
Cover plate	180
Throttle plate	850
Intermediate pressure regulator plate	
• For duct 1, for duct 2, for duct 4	1120
For duct 2 and 4	1770

Data sheet - Adaptation to width 65 mm



¹⁾ n = number of valves

Data sheet - Dimensions, adaptation to width 65 mm

Dimensions Download CAD data → www.festo.com Manifold sub-bases for valves 1 2 **B**2 L5 2 王 [1] Adapter plate [3] Retaining screws Right-hand end plate В3 D1 D2 D3 D4 D5 Н1 H2 ~B1 B2 В4 D6 Туре Ø VIGI/VIGM-04-D-3-NPT Max. 237 230 Max. 64 27 1 1/2 NPT 1/2 NPT 9.0 1 1/2 NPT 1/8 NPT 1/8 NPT 92 82 Н3 H4 L1¹⁾ L2 L3 L4 L5¹⁾ L6 L7 L8 L9 Туре L10

VIGI/VIGM-04-D-3-NPT

20

5

nx72

72

60

36

(n-1)x72

20.5

36

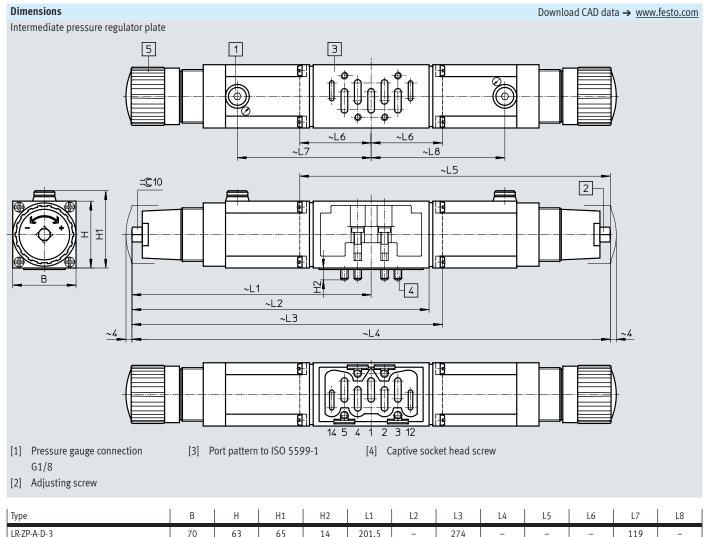
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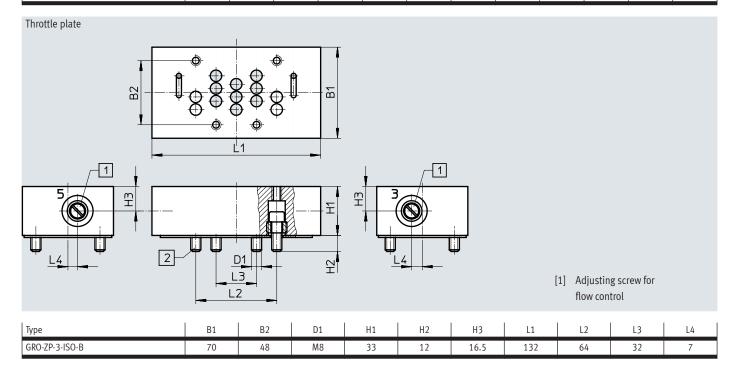
10

¹⁾ n = number of valves

Data sheet – Dimensions, adaptation to width 65 mm



Туре	В	Н	H1	H2	L1	L2	L3	L4	L5	L6	L7	L8
LR-ZP-A-D-3	70	63	65	14	201.5		274		-	-	119	-
LR-ZP-B-D-3	70	63	65	14	201.5	-	-	-	274	72.5	-	119
LR-ZP-A/B-D-3	70	63	65	14	201.5	-	-	403	-	_	119	119
LR-ZP-P-D-3	70	63	65	14	201.5	260	-	-	-	-	119	-



Ordering data – Adaptation to width 65 mm

Ordering data Designation	Code	Description	Part no.	Туре
Pneumatic valve	:		:	
	-	5/2-way valve, monostable, mechanical spring return	151863	VL-5/2-D-3-FR-C
	-	5/2-way valve, monostable, pneumatic spring return	151864	VL-5/2-D-3-C
	-	5/2-way valve, bistable	151865	J-5/2-D-3-C
	-	5/2-way valve, bistable, dominant signal	151866	JD-5/2-D-3-C
	-	5/3-way valve, mid-position closed	151867	VL-5/3G-D-3-C
	-	5/3-way valve, mid-position exhausted	151868	VL-5/3E-D-3-C
	-	5/3-way valve, mid-position pressurised	151869	VL-5/3B-D-3-C
Intermediate solenoio	d plate for p	oneumatic valve		
	<u> </u>	For actuating a monostable, pneumatically actuated directional control valve	34934	MUH-ZP-D-3-24G
To Cook	-	For actuating a monostable, pneumatically actuated directional control valve, air supplied by external pilot air	151715	MUH-ZP-D-3-L-24G
	-	For activating bistable, pneumatically actuated directional control valves or 5/3-way valves	34935	MUHX2-ZP-D-3-24G

Accessories – Adaptation to width 65 mm

Ordering data – Access Designation	sories Code	Description	Part no.	Туре
Adapter plate	code	beschiption	T utt iio.	1,750
_	T-	Adapter plate for adapting components of width 65 mm to valve terminal VTSA/VTSA-F (external	1302085	VABA-S6-7-S2-3-P-N1
		pilot air)	1302003	VADA-30-7-32-3-1-N1
	-	Adapter plate for adapting components of width 65 mm to valve terminal VTSA/VTSA-F (internal	1302091	VABA-S6-7-S2-3-P-B-N1
		pilot air)		
Cover plate				lua a a a
	L	Cover plate for vacant position	36121	IAP-04-D-3
() o				
Manifold sub-base, po				1.00 c. 5 c 1155
	M ¹⁾	1 valve position, 2 addresses, for bistable valves (with push-in fitting for connecting	18842	VIGI-04-D-3-NPT
	A41/21)	compressed air tubing with 0.D 16 mm)	-	
	MK ¹⁾	1 valve position, 2 addresses, for bistable valves (with push-in fitting for connecting		
In grade	N ¹⁾	compressed air tubing with 0.D 12 mm)	10026	VICAL OF D.2 NDT
	N ²	1 valve position, 1 address, for monostable valves (with push-in fitting for connecting compressed air tubing with 0.D 16 mm)	18836	VIGM-04-D-3-NPT
0	NK ¹⁾	1 valve position, 1 address, for monostable valves (with push-in fitting for connecting	-	
	INK '	compressed air tubing with 0.D 12 mm)		
		compressed an tabing war o.b 12 mm)		
Right-hand end plate			-	
Algiri-rialia eria piate	_	With working air/exhaust air, internal/external pilot air supply	18881	IEPR-04-D-3-NPT
6		(internal/external pilot air is regulated via intermediate solenoid plate)	10001	
• .00		(, , , , , , , , , , , , , , , , , , ,		
Throttle plate	T _V		11047	CDO TD O ICO D
100	X	Throttle plate (with two one-way flow control valves for exhaust air flow control)	119674	GRO-ZP-3-ISO-B
800 00 00 00 00 00 00 00 00 00 00 00 00				
Intermediate pressure	rogulate:	I plata		
miterinieurate pressure	ZA	Duct 1, pressure regulation range: 0.012 bar	35968	LR-ZP-P-D-3
1000	ZB	Duct 4, pressure regulation range: 0.512 bar	35971	LR-ZP-A-D-3
	ZC	Duct 2, pressure regulation range: 0.512 bar	35426	LR-ZP-B-D-3
	ZC ZD	Duct 2 and 4, pressure regulation range: 0.512 bar	35429	LR-ZP-A/B-D-3
Isolating disc				
	T	Duct separation 1	18910	NSC-04-D-3
(//)	R	Duct separation 3, 5		
	S	Duct separation 1, 3, 5		
Pressure gauge	Т	For regulator may 10 har	162025	MA 40 10 1/9 FN
	-	For regulator, max. 10 bar	162835	MA-40-10-1/8-EN
(((((((((((((((((((_	For regulator, max. 16 bar	529046	MA-40-16-1/8-EN-DPA
_				

¹⁾ Code letter within the order code for a valve terminal configuration

- [] - Valve width

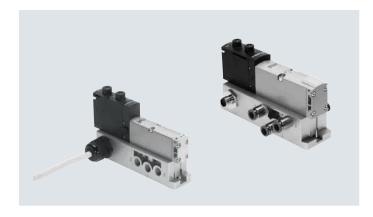
to ISO 15407-2

- 18 mm
- 26 mm to ISO 5599-2
- 42 mm (ISO 1)
- 52 mm (ISO 2)

Voltage 24 V DC



Flow rate
Width 18 mm:
up to 600 l/min
Width 26 mm:
up to 1200 l/min
Width 42 mm:
up to 1500 l/min
Width 52 mm:
up to 3400 l/min



General technical data									
Design		Piston spool valve							
Sealing principle		Soft							
Actuation type		Electrical							
Type of control		Piloted							
Exhaust function, can be throttled	l	Via individual sub-base							
Lubrication		Life-time lubrication							
Type of mounting									
Valve		Screwed onto sub-base							
Individual sub-base		Screwed via through-hole							
Mounting position		Any							
Manual override		Detenting, non-detenting, concealed							
Pneumatic connections – NPT three	ead								
Width		18 mm	26 mm	42 mm	52 mm				
Pneumatic connection		Via sub-base							
Supply port	1	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT				
Exhaust port	3/5	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT				
Working ports	2/4	1/8 NPT	1/4 NPT	3/8 NPT	1/2 NPT				
External pilot air supply port	14	10-32UNF-2B	1/8 NPT	1/8 NPT	1/8 NPT				
Pilot exhaust air port	12	10-32UNF-2B	1/8 NPT	1/8 NPT	1/8 NPT				

Operating and environmental conditions					
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Notes on operating/		Lubricated operation possible (in which case lubricated operation will always be required)			
pilot medium					
Operating pressure	[bar]	-0.9 +10			
Ambient temperature	[°C]	_5 +50			
Certification		c UL us - Recognized (OL)			
CE marking (see declaration of		To EU Low Voltage Directive (not for VABS-S4R3 and variants of width 52, VABS-S2-2S)			
conformity)					
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)			

Standard nominal flow rate of valve/individual sub-base [l/min]

Valve function (with valve code)	Width 18 mm		Width 26 mm	
	Valve	Valve on individual sub-base	Valve	Valve on individual sub-base
5/2-way, double solenoid (B52)	750	600	1400	1200
5/2-way, double solenoid with dominant signal (D52)	750	600	1400	1200
5/2-way, single solenoid, pneumatic spring (M52A)	750	600	1400	1200
5/2-way, single solenoid, mechanical spring (M52M)	750	600	1400	1200
5/3-way, closed (P53C)	700	550	1400 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, exhausted (P53E)	700 ¹⁾ 330 ²⁾	500 ¹⁾ 330 ²⁾	1400 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, pressurised (P53U)	700 ¹⁾ 330 ²⁾	500 ¹⁾ 330 ²⁾	1400 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, exhausted, switching position 14 detenting (P53ED)	-	390 ¹⁾ 310 ²⁾	1400 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, exhausted, switching position 12 detenting (P53EP)	-	390 ¹⁾ 320 ²⁾	1400 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	-	380 ¹⁾ 360 ²⁾	700 ¹⁾ 700 ²⁾	700 ¹⁾ 700 ²⁾
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	-	400	-	900 ¹⁾ 840 ²⁾
2x3/2-way, single solenoid, closed (T32C)	600	500	1250	1100
2x3/2-way, single solenoid, open (T32U)	600	500	1250	1100
2x3/2-way, single solenoid, open/closed (T32H)	600	500	1250	1100
2x3/2-way, single solenoid, closed (T32N)	600	500	1250	1100
2x3/2-way, single solenoid, open (T32F)	600	500	1250	1100
2x3/2-way, single solenoid, open/closed (T32W)	600	500	1250	1100
2x2/2-way, single solenoid, closed (T22C)	700	500	1350	1100
2x2/2-way, single solenoid, closed (T22CV)	700	500	1350	1100

Switching position
 Mid-position

Standard nominal flow rate of valve/individual sub-base [l/min] Width 42 mm Width 52 mm Valve function (with valve code) Valve Valve on individual sub-base Valve Valve on individual sub-base 5/2-way, double solenoid (B52) 2000 1500 4000 3400 5/2-way, double solenoid with dominant signal (D52) 2000 1500 4000 3400 5/2-way, single solenoid, pneumatic spring (M52A) 2000 1500 4000 3400 5/2-way, single solenoid, mechanical spring (M52M) 2000 1500 4000 3400 5/3-way, closed (P53C) 1900¹⁾ 14001) 3600¹⁾ 3200¹⁾ 1700²⁾ 1700²⁾ 950²⁾ $800^{2)}$ 5/3-way, exhausted (P53E) 1900¹⁾ 3200¹⁾ 1400¹ 3600¹⁾ $950^{2)}$ 8002) 1700²⁾ 1700²⁾ 5/3-way, pressurised (P53U) 1900¹⁾ 1400¹⁾ 3600¹⁾ 3200¹⁾ 1700²⁾ 1700²⁾ 950²⁾ 800²⁾ 5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F) 1700¹⁾ 1400¹⁾ 3000¹⁾ 2600¹⁾ 9002) $700^{2)}$ 700^{2} 9002) 1200 2x3/2-way, single solenoid, closed (T32C) 1600 3000 2600 2x3/2-way, single solenoid, open (T32U) 1600 1200 3000 2600 2x3/2-way, single solenoid, open/closed (T32H) 1600 1200 3000 2600 2x3/2-way, single solenoid, closed (T32N) 1600 1200 3000 2600 2x3/2-way, single solenoid, open (T32F) 1200 2600 1600 3000 2x3/2-way, single solenoid, open/closed (T32W) 1600 1200 3000 2600 2x2/2-way, single solenoid, closed (T22C) 1600 1400 4000 3400 2x2/2-way, single solenoid, closed (T22CV) 1600 1400

²⁾ Mid-position

Electrical data, individual su	ıb-base	
Current rating at 40°C	[A]	2 (1 A per coil)
Degree of protection to EN 60	529	IP65, NEMA 4 (for all types of signal transmission in mounted state)
Variants with cable connector	or	
Operating voltage range	[V DC]	24
	[V AC]	110
Surge resistance	[kV]	4
Pollution degree		3



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

¹⁾ Switching position

Materials				
Width	18 mm	26 mm	42 mm	52 mm
Sub-base	Die-cast aluminium			Gravity die-cast aluminium
Valve	Die-cast aluminium, PA			
Seals	FPM, NBR			
Note on materials	RoHS-compliant			

Product weights [g]				
Width	18 mm	26 mm	42 mm	52 mm
Valves				
5/2-way valve, double solenoid	172	276	439	732
5/2-way valve, single solenoid	163	293	426	702
5/3-way solenoid valve (P53C, P53E, P53U)	191	320	456	780
5/3-way solenoid valve (P53BD)	172	301	-	-
5/3-way solenoid valve (P53ED, P53EP)	170	291	-	-
5/3-way solenoid valve (P53AD)	172	301	-	-
5/3-way solenoid valve (P53F)	-	-	456	780
2x 3/2-way solenoid valve	190	335	442	740
2x 2/2-way solenoid valve	190	335	442	740
Individual connection				
Individual sub-base	192	302	386	815

Dimensions Download CAD data → www.festo.com Individual sub-base with cable terminals, width 18 mm B5. В1 Н2 H1 В2 $\overline{\bullet}$ 03 НЗ В1 D2 D3 D4 Туре В2 В3 B5 D1 D5ø Н1 H2 Н3 H4 H5 H6 Н7 VABS-S4-2S-N18-K2¹⁾ 10-32UNF-2B 10-32UNF-2B M20x1.5 32.4 30 18 1/8 NPT 5.5 31 53.4 14.5 13 13.7 8.8 VABS-S4-2S-N18-B-K22) Туре L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 VABS-S4-2S-N18-K2¹⁾ 133.5 124.5 38.6 22.2 32.4 33.2 16.6 25.3 16.2 4.5 VABS-S4-2S-N18-B-K2²⁾

¹⁾ External pilot air supply

²⁾ Internal pilot air supply

 $^{\ \ \}phi$ - Note: This product conforms to ISO 1179-1 and ISO 228-1.

Dimensions Download CAD data → www.festo.com Individual sub-base with cable terminals, width 26 mm 宁 B5_ ВЗ H2 H1 1 7/" \mathbb{C} 9 H3 H6 D3 Туре В1 В3 B5 D1 D2 D4 D5ø H1 H2 Н3 H4 H5 Н6 VABS-S4-1S-G14-K2¹⁾ 1/8 NPT 43 26 8.5 1/4 NPT 1/8 NPT M20x1.5 36.5 53.5 26.5 13 12.5 VABS-S4-1S-G14-B-K2²⁾ L1 L2 L3 L4 L5 L6 L7 L8 L10 L9 Туре VABS-S4-1S-G14-K21) 150.6 141.5 53.6 23.2 41.4 37.9 24.2 29.3 20.7 4.5

VABS-S4-1S-G14-B-K2²⁾
1) External pilot air supply

Internal pilot air supply

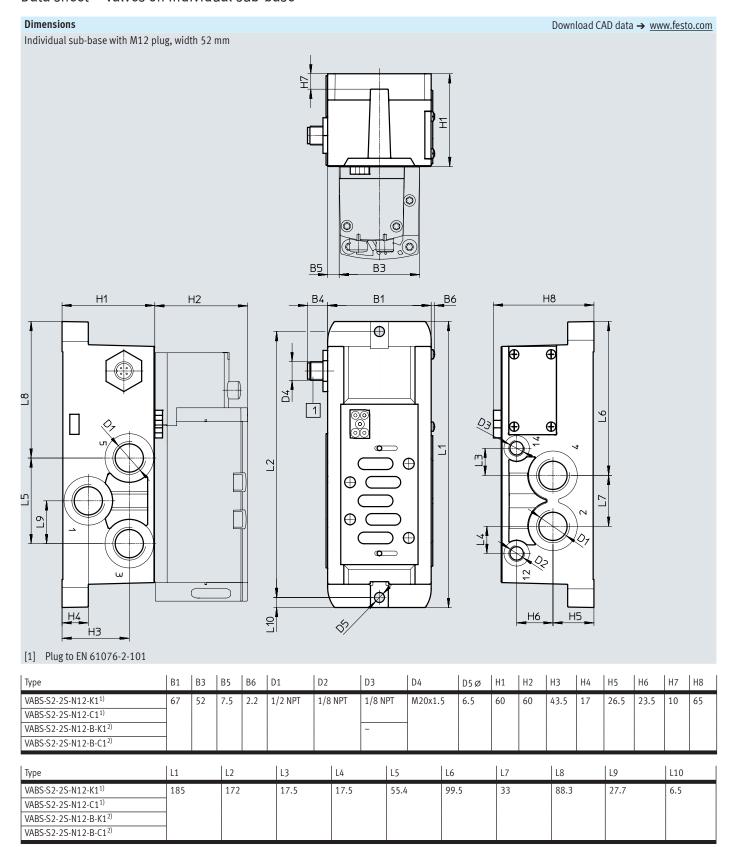
Note: This product conforms to ISO 1179-1 and ISO 228-1.

Dimensions Download CAD data → www.festo.com Individual sub-base with spring-loaded terminal or for assembly by the user, width 42 mm H H <u>B5</u> ВЗ H1 H2 В1 В6 Н8 φ ⊕ D3 7 6] <u>8</u> H4 ار ام H5_ Н6 НЗ D4 В1 D1 D2 D3 H2 H4 Туре В3 В5 В6 D5ø H1 Н3 Н5 Н6 Н7 Н8 VABS-S2-1S-N38-K1¹⁾ 1/8 NPT M20x1.5 47.5 42 3/8 NPT 1/8 NPT 42.5 13.6 17.1 50 55.3 29 16.3 VABS-S2-1S-N38-C11) VABS-S2-1S-N38-B-K12) VABS-S2-1S-N38-B-C1²⁾ L1 L3 L6 L10 L2 L5 L7 L8 L9 Type L4 VABS-S2-1S-N38-K1¹⁾ 150.6 141.5 53.6 23.2 44 37 26 28 22 4.5 VABS-S2-1S-N38-C11) VABS-S2-1S-N38-B-K1²⁾ VABS-S2-1S-N38-B-C1²⁾

¹⁾ External pilot air supply

²⁾ Internal pilot air supply

[♦] Note: This product conforms to ISO 1179-1 and ISO 228-1.



¹⁾ External pilot air supply

²⁾ Internal pilot air supply

[♦] Note: This product conforms to ISO 1179-1 and ISO 228-1.

Accessories – Individual connection

rdering data			1	1	1
	Description		Width	Part no.	Туре
ndividual sub-b	ase, electrical connection via cable terminals				
	Internal pilot air supply	Connections 1/8 NPT	18 mm	541068	VABS-S4-2S-N18-B-K2
		Connections 1/4 NPT	26 mm	541066	VABS-S4-1S-N14-B-K2
10000	External pilot air supply	Connections 1/8 NPT	18 mm	539724	VABS-S4-2S-N18-K2
		Connections 1/4 NPT	26 mm	539726	VABS-S4-1S-N14-K2
ndividual sub-b	ase, electrical connection via spring-loaded ter	minal			
	Internal pilot air supply	Connections 3/8 NPT	42 mm	546763	VABS-S2-1S-N38-B-C1
		Connections 1/2 NPT	52 mm	555644	VABS-S2-2S-N12-B-C1
10000	External pilot air supply	Connections 3/8 NPT	42 mm	546761	VABS-S2-1S-N38-C1
		Connections 1/2 NPT	52 mm	555639	VABS-S2-2S-N12-C1
ndividual sub-b	ase, electrical connection via cable (open end)	<u> </u>			
	Internal pilot air supply	Connections 3/8 NPT	42 mm	546103	VABS-S2-1S-N38-B-K1
10000		Connections 1/2 NPT	52 mm	555642	VABS-S2-2S-N12-B-K1
	External pilot air supply	Connections 3/8 NPT	42 mm	546100	VABS-S2-1S-N38-K1
		Connections 1/2 NPT	52 mm	555637	VABS-S2-2S-N12-K1
Connecting cable	e for electrical connection of individual valves a	t the individual electrical connection			
	Modular system for a choice of connectin	g cables		-	NEBU → Internet: nebu
Pneumatic conne	ction accessories				
selection of pos	ssible fittings, blanking plugs, silencers and othe	er pneumatic accessories can be found in the	chapter "Accesso	ories" → Page: 199)

Accessories

Ordering data					
	Description		Part no.	Туре	PU ¹⁾
Multi-pin plug distrib	outor				
F 1 6 6 6	15-pin Sub-D socket/8x 3-pin M8 plugs		177669	MPV-E/A08-M8	1
	15-pin Sub-D socket/12x 3-pin M8 plugs		177670	MPV-E/A12-M8	1
Push-in fitting					
	Connecting thread 1/4 NPT for tubing O.D.	1/2"	567771	QB-1/4-1/2-U	10
		3/8"	533278	QB-1/4-3/8-U	10
		5/16"	533277	QB-1/4-5/16-U	10
	Connecting thread 1/8 NPT for tubing O.D.	3/8"	567773	QB-1/8-3/8-U	10
		1/4"	533273	QB-1/8-1/4-U	10
		5/16"	533274	QB-1/8-5/16-U	10
	Connecting thread 3/8 NPT for tubing O.D.	1/2"	533282	QB-3/8-1/2-U	5
		3/8"	533281	QB-3/8-3/8-U	5
	Connecting thread 1/2 NPT for tubing O.D.	5/8"	190682	QS-1/2-5/8-U	1
		1/2"	533284	QB-1/2-1/2-U	5
		172	333204	Q5 1/2 1/2 0	
Barbed hose fitting		I			
	For right-hand end plate (connecting thread NPT)	3/4"	564848	N-3/4-P-19-NPT	1
	G	R1	572243	N-1-P-19-NPT	1
	For adapter plate (connecting thread NPT)	R1	572243	N-1-P-19-NPT	1
	Tot adapter place (confiecting tiffead NFT)	l _V 1	312243	14-1-1-17-14F1	1

¹⁾ Packaging unit

Valve terminals VTSA/VTSA-F, NPT

Accessories

12638 12639 12741 566823 571280 1206989 1206990 1206992	U-1/8-B-NPT U-1/4B-NPT U-1/2-B-NPT U-3/4-B-NPT U-1-B-NPT AMTE-M-LH-N18 AMTE-M-LH-N14 AMTE-M-LH-N12	1 1 1 1 1 20 20
12639 12741 566823 571280 1206989 1206990	U-1/4B-NPT U-1/2-B-NPT U-3/4-B-NPT U-1-B-NPT AMTE-M-LH-N18 AMTE-M-LH-N14	20
12741 566823 571280 1206989 1206990	U-1/2-B-NPT U-3/4-B-NPT U-1-B-NPT AMTE-M-LH-N18	20
566823 571280 1206989 1206990	U-3/4-B-NPT U-1-B-NPT AMTE-M-LH-N18 AMTE-M-LH-N14	20
571280 1206989 1206990	U-1-B-NPT AMTE-M-LH-N18 AMTE-M-LH-N14	20
1206989 1206990	AMTE-M-LH-N18 AMTE-M-LH-N14	20
1206990	AMTE-M-LH-N14	20
	The state of the s	
1206992	AMTE-M-LH-N12	10
		•
173985	B-1/8-NPT	1
174165	B-1/4-NPT	1
31785	B-1/2-NPT	1
31786	B-3/4-NPT	1
31787	B-1-NPT	1
3	31785 31786	B-1/2-NPT B1786 B-3/4-NPT

¹⁾ Packaging unit

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