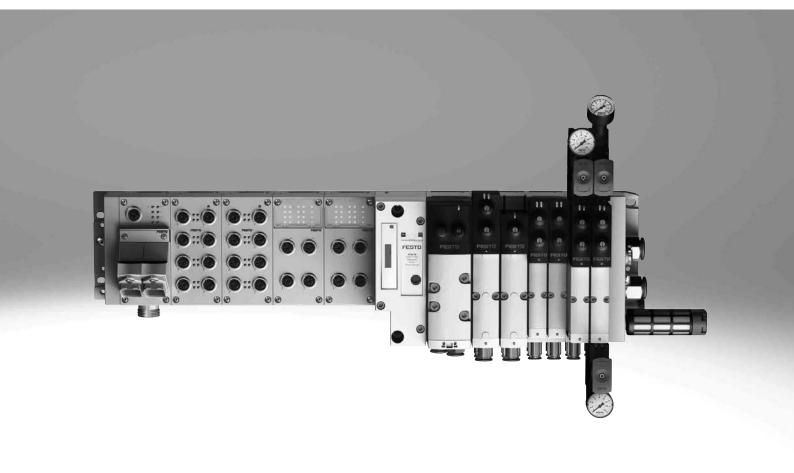
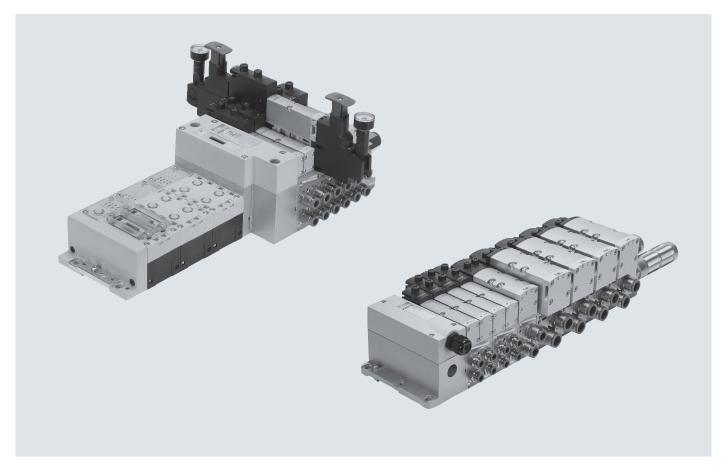
Valve terminals VTSA

FESTO





Innovative

- High-performance valves in a sturdy metal housing
- Five valve sizes on one valve terminal (width 65 mm with adapter)
- 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 actuating the valves and CPX modules
 - Four valve sizes on one valve terminal without adapters
 - Integration of smart valve functions with VTSA-F-CB
- Valve functions for integration in control architectures of higher categories to EN ISO 13849-1

Versatile

- Modular system offering a range of configuration options
- Up to 32 solenoid coils
- Conversions and extensions are possible at any time
- Integration of innovative function modules possible
- 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

Valve terminal VTSA-F-CB

- Serial communication in the pneumatic part
- Max. 4 voltage zones, including 3 with safe shut-off (1 without safe shut-off)
- Up to 96 valve positions (24 per voltage zone)

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

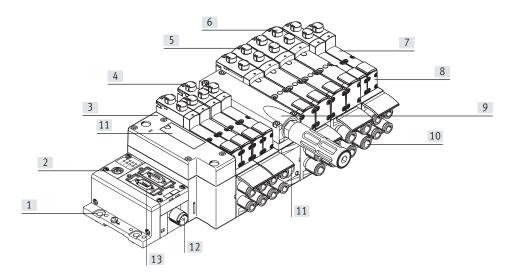
Easy to install

- Ready-to-install and tested unit
- Reduced outlay on selection, ordering, assembly and commissioning
- Secure mounting on wall or H-rail
- Manifold sub-bases can be extended using four screws, sturdy duct separation on metal support

- 📱 - 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 (technology type 04)

→ page 209.



- [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 locally
- [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 ports
- [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 with retained (switching position 14 is retained in the event of an emergency off application/power failure), there is no spring return to switching position 12.
 - Only for valve terminal (plug-in)

 - Switching position 14 with retained
 - Pneumatic spring return

- 5/3-way solenoid valve for special functions
 - Switching position 12 with retained (switching position 12 is retained in the event of an emergency off application/power failure), there is no spring return to switching position 14.
 - Only for valve terminal (plug-in)
- Switching position 12 with 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 (technology type 04)

→ Page 209.

Connection options

Individual valve on individual sub-base, plug-in

- Electrical connection via standardised 4-pin M12 plug or via 4-pin spring-loaded terminal for configuration by the user
- Available with internal/external pilot air supply

Individual valve on individual sub-base, square plug or plug-in

- With integrated switching position sensing
- Electrical connection to EN 175301-803 type C (square plug) or
- For configuration by the user via 4-pin spring-loaded terminal or
- · Cable with open end

Fieldbus interface CPX terminal

- Max. 32 valve positions/ max. 32 solenoid coils
- Any compressed air supply
- Any number of pressure zones
- Fieldbus interface CPX terminal with VTSA-F-CB
- Serial communication in the pneumatic part
- Up to 4 voltage zones for load voltage of the valves in the pneumatic part
- Flexible shutdown of up to 3 voltage zones in the CPX interfaces, either internally with PROFIsafe or externally by 3x M12
- Pilot air switching valve with integrated pressure sensor and connection via internal bus
- Soft start valve with integrated pressure sensor and connection via internal bus
- Vacuum generator with 3 performance settings, air-saving circuit, optional increased ejection rate (power ejector pulse) and connection via internal bus, parameters can be configured via the CPX system

Valve terminal with individual connection

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

Valve terminal with multi-pin plug connection

- Max. 32 valve positions/ max. 32 solenoid coils
- Parallel modular valve linkage
- 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

- Valve width 18 mm: flow rate of VTSA up to 550 l/min, VTSA-F up to 700 l/min
- Valve width 26 mm: flow rate of VTSA up to 1100 l/min, VTSA-F up to 1350 l/min
- Valve 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 – not for VTSA-F-CB)

Valve terminal VTSA complies with

- ISO 15407-2 for width 18 and 26 mm
- ISO 5599-2 for width 42 and 52 mm

Valve terminal configurator				→ Internet: www.festo.com
General information	VTSA	VTSA-F	VTSA-F-CB	
A valve terminal configurator is available to help you select a suitable VTSA valve terminal. This makes it much easier to order the right product. The valve terminals are fully assembled according to your order specifica-	 Valve terminal to ISO 15407-2 and ISO 5599-2 (flow rate: standard). Parallel communication between CPX module and switching valves VTSA 	 Valve terminal, flow rate-optimised (interlinking blocks) (flow rate: increased). Parallel communication between CPX module and switching valves VTSA 	of flow rate • Serial co	minal: optimised in terms ate and communication e: increased). mmunication between the ule and selected VTSA
tion and are individually checked. This reduces assembly and installation time to a minimum.	Order a valve terminal VTSA using the order code:	Order a valve terminal VTSA-F using the order code:	Order a valv	ve terminal VTSA-F-CB using olde:
	Ordering system for VTSA		Ordering sv	stem for VTSA-F-CB
	→ Internet: vtsa	Ordering system for VTSA-F → Internet: vtsa-f	→ Internet	
	CPX ordering system		CPX orderin	g system
	→ Internet: cpx	CPX ordering system → Internet: cpx	→ Internet	: срх
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. 539215 547963 539217 547965 555564 555566 8073100	Type VTSA-MP VTSA-F-MP VTSA-FB VTSA-F-FB VTSA-ASI VTSA-F-ASI VTSA-F-CB

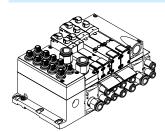
Individual pneumatic connection



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

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

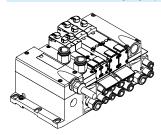
Valve terminal with individual electrical connection



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

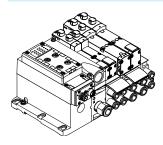


Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire cable or a multi-pin plug connection assembled by the user (spring-loaded terminal), which substantially reduces installation time. The valve terminal can be equipped with max. 32 valves and max.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

Variants

- 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, 24 V DC
- 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 2-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 VSVA valves.
- With all available valve functions

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

Further information

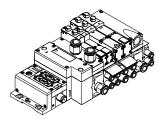
→ Internet: as-interface

- 🖣 - 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 139). The technical specifications of the AS-Interface system must be observed in this case.

- → Page 68
- → Internet: as-interface

Valve terminal with fieldbus interface from the CPX system



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

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

There is an extended range of functions in combination with the CPX system and the smart valve terminal VTSA-F-CB:

- Serial communication in the pneumatic part
- Several voltage zones for load voltage of the valves in the pneumatic part
- Flexible shutdown of up to 3 voltage zones in the CPX interface, either internally with PROFIsafe or externally by 3x M12
- Flexible zoning for electrical and pneumatic sections, for decentralised control of various system/ machine areas

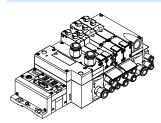
VTSA/VTSA-F versions

- PROFIBUS
- INTERBUS
- DeviceNet
- CANopen
- CC-LINK
- CC-LINK
- EtherNet/IP
- EtherCAT
- Modbus TCPPROFINET
- POWERLINK
- Sercos III

VTSA-F-CB versions

- PROFIBUS
- EtherNet/IP
- EtherCAT
- PROFINET
- → Internet: cpx

Valve terminal with control block connection from the CPX system



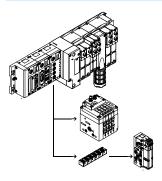
A controller integrated in the Festo valve terminal enables the construction of stand-alone control units with protection to IP65 without a control cabinet thanks to two different operating modes.

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 field-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.

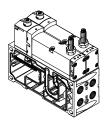
The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on-site. All the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

One CP string offers:

- 32 input signals
- 32 output signals for output stages 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 for VTSA/VTSA-F, width 18 mm, 26 mm



The 5/2-way single solenoid valve with spring return features switching position sensing.

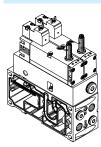
The normal position of the piston spool is monitored.

It is available 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 143

Control block with safety function for VTSA/VTSA-F, width 26 mm



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

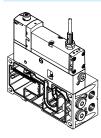
- Protecting against unexpected start-up
- · Safe reversing
- Drives in manually loaded machining jigs

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 154

Pilot air switching valve for VTSA/VTSA-F, 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.

The switching position sensing is implemented using an inductive PNP proximity sensor with cable and pushin 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.

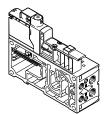
→ Page 161



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.

Key features - Valves

Pilot air switching valve for VTSA-F-CB with serial communication



The pilot air switching valve is used for pressurising and exhausting duct 14 for one pressure zone, or the entire valve terminal VTSA-F-CB.

The pilot air switching valve enables additional functions in combination with the CPX system:

- · Comprehensive diagnostics
- Transmission of analogue signals
- The elimination of cable connections between the pneumatic and electrical sections

In combination with the CPX system, an integrated pressure sensor and integrated feedback enable wireless detection of the state of the pilot air switching valve.

The pilot air switching valve can be used to realise the safety function "Protection against unexpected start-up".

The pilot air switching valve can be supplied with compressed air internally via the valve terminal or externally via duct 2.

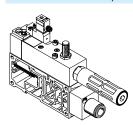
The hybrid manifold sub-base can be equipped both with an 18 mm and a 26 mm solenoid valve.

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 171

Soft start valve for VTSA/VTSA-F, 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 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 175

Soft start valve for VTSA-F-CB with serial communication



The soft start valve serves to pressurise/exhaust duct 1 (working air) of the valve terminal, or one or more pressure zones.

The soft start valve enables additional functions in combination with the CPX system:

- Comprehensive diagnostics
- Transmission of analogue signals
- The elimination of cable connections between the pneumatic and electrical sections of the CPX/VTSA-F-CB

In combination with the CPX system, an integrated pressure sensor and integrated feedback enable wireless detection of the state of the soft start valve.

The filling time can be adjusted; the switch-over pressure is set to half the operating pressure. The pressure build-up for each pressure zone can thus be optimised for the application directly at the valve terminal.

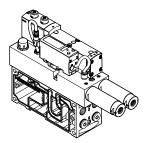
This valve is not a safety device in accordance with the Machinery Directive 2006/42/EC.

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

→ Page 185

Key features - Valves

Vacuum block for VTSA-VTSA-F, 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 thus 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.

In the absence of an electric or pneumatic supply, the valve reverts to switching position 12 "generate vacuum".

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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) or switching position 12 is retained (code SE).

Possible applications:

- · Using lifting cylinders
- · Using rotary cylinders

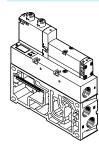
For pressureless switching, self-latching loop, pneumatic operation

5/3-way solenoid valve for special functions (3 phases). Mid-position is exhausted. Switching position 14 is retained (code SA) or switching position 12 is retained (code SE).

Possible applications:

Pneumatic manual clamps for machining jigs (inserting stations)

Integrated vacuum generator for VTSA-F-CB with serial communication



The vacuum generator in combination with the CPX/VTSA-F-CB and FMT (Festo Maintenance Tool) offers additional smart functions:

- Opening and saving of up to four records (on a local computer)
- Teach-in functionality: recording homing runs, from gripping and holding the workpiece to setting it down
- Preventive maintenance: measurement of all vacuum times, comparison with the homing run, warning message if a definable level of deviation is reached
- Locking of the ejector pulse: either when a safety function (voltage zone with safe shut-off within the valve terminal) is requested or when there is a fault with the valve load voltage (e.g. undervoltage)
- Switching air saving function on/off
- Changing the vacuum limits per data record

The vacuum generator 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.

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Peripherals

Modular pneumatic peripherals

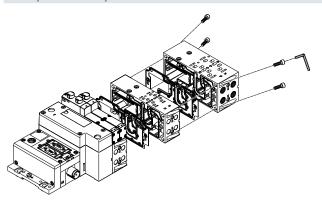
The modular design of the valve terminal VTSA/VTSA-F/VTSA-F-CB enables maximum flexibility right from the planning stage and offers maximum ease of service in operation.

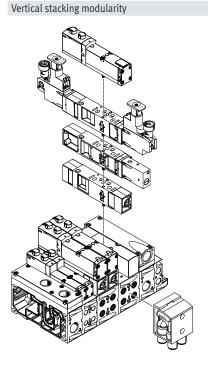
The system consists of manifold sub-bases and valves.

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

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



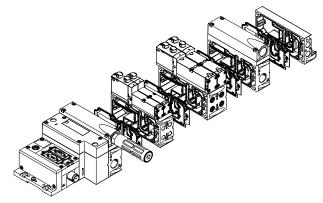


Note

See also "Adaptation to width 65 mm", ISO size 3 (technology type 04)

→ page 209





Peripherals

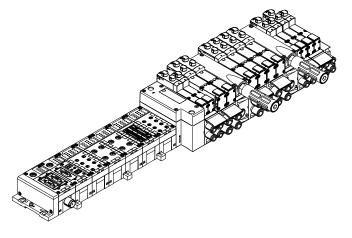
Modular electrical peripherals

How the valves are actuated depends on whether a multi-pin terminal or fieldbus terminal is used. 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.

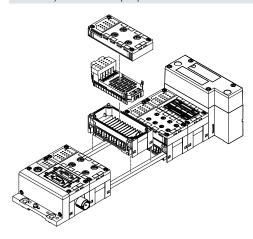
Parallel linkage enables the following:

- Transmission of switching information
- Compact design
- Position-based diagnostics
- Separate power 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

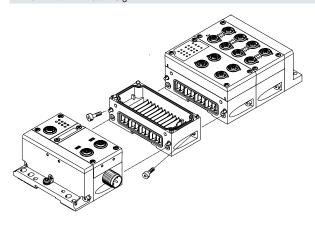
VTSA/VTSA-F with electrical peripherals CPX



Modularity with electrical peripherals CPX



CPX terminal in metal design



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

. Å .

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/VTSA-F-CB in welding environments.

Valve terminal widths

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.
The four widths mentioned can likewise be used without adapter for the valve terminal VTSA-F-CB controlled via CPX.

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 and for the VTSA-F-CB of:
700 l/min to 2900 l/min to be covered on one valve terminal.

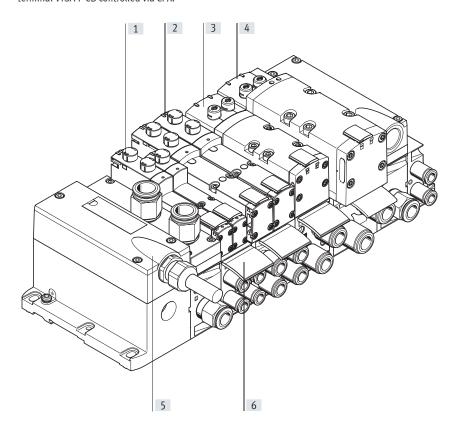
A wide range of valve functions and vertical stacking components are available for all widths.

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 (technology type 04)

→ page 209

The valve terminal VTSA-F-CB is controlled via CPX pneumatic interface with serial communication.

The valve terminal VTSA-F-CB cannot be installed in combination with a valve terminal VTSA/VTSA-F.



		Description	→ Page/Internet
[1]	Valve	Width 18 mm	101
[2]	Valve	Width 26 mm	109
[3]	Valve	Width 42 mm	117
[4]	Valve	Width 52 mm	124
[5]	Multi-pin plug connection	With 24 V DC multi-pin cable (VTSA/VTSA-F only)	138
[6]	Inscription labels	For manifold sub-base, sub-base, 90°-connection plate	142

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

Order code:

• Using individual part number

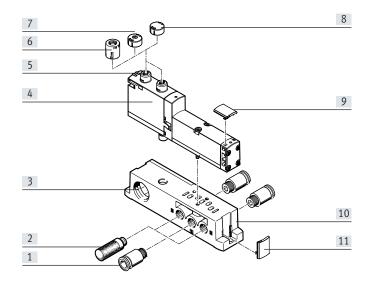
Individual sub-bases can be equipped

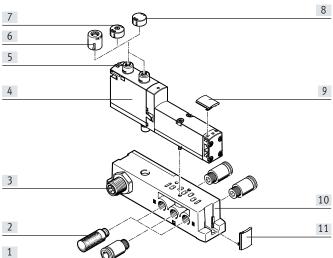
with any valve.

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

Width 18 mm with M12 plug

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





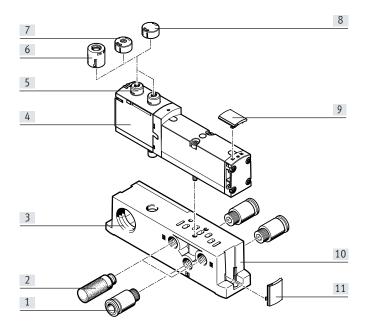
		Description	→ Page/Internet
[1]	Fitting	G1/8 for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	243
[2]	Silencer	U-1/8-B for exhaust ports (3, 5)	244
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or plug M12¹¹, 4-pin	-
[4]	Valve VSVA	Width 18 mm	101
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	141
[7]	Cover cap, coded	For non-detenting manual override (limited function)	141
[8]	Cover cap, concealed	MO covered by cover cap – operation of MO prevented	141
[9]	Inscription label holder	For valves	142
[10]	Individual sub-base	For valve VSVA	241
[11]	Inscription label holder	For manifold block	142

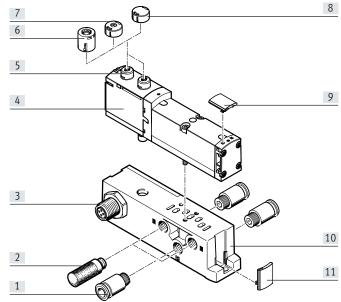
¹⁾ Only for 24 V DC

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

With spring-loaded terminal or cable (open end)

With M12 push-in connector





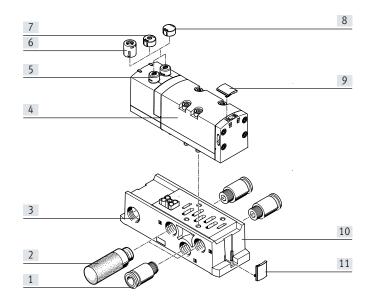
		Description	→ Page/Internet
[1]	Fitting	G1/4 for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	243
[2]	Silencer	U-1/4-B for exhaust ports (3, 5)	244
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or plug M121, 4-pin	-
[4]	Valve VSVA	Width 26 mm	109
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	141
[7]	Cover cap, coded	For non-detenting manual override (limited function)	141
[8]	Cover cap, concealed	MO covered by cover cap – operation of MO prevented	141
[9]	Inscription label holder	For valves	142
[10]	Individual sub-base	For valve VSVA	241
[11]	Inscription label holder	For manifold block	142

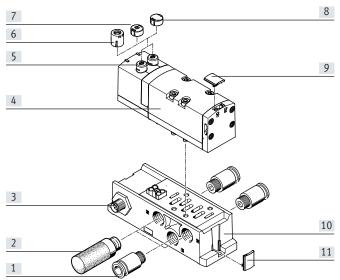
¹⁾ Only for 24 V DC

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

With spring-loaded terminal or cable (open end)







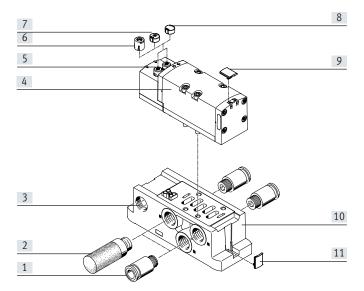
		Description	→ Page/Internet
[1]	Fitting	G3/8 for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	243
[2]	Silencer	U-3/8-B for exhaust ports (3, 5)	244
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or plug M121, 4-pin	-
[4]	Valve VSVA	Width 42 mm	117
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	141
[7]	Cover cap, coded	For non-detenting manual override (limited function)	141
[8]	Cover cap, concealed	MO covered by cover cap – operation of MO prevented	141
[9]	Inscription label holder	For valves	142
[10]	Individual sub-base	For valve VSVA	241
[11]	Inscription label holder	For manifold block	142

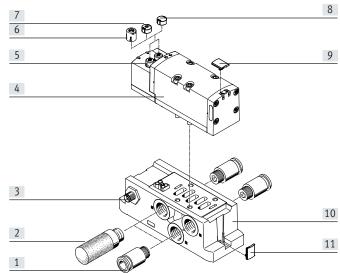
¹⁾ Only for 24 V DC

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

With spring-loaded terminal or cable (open end)







		Description	→ Page/Internet
[1]	Fitting	G1/2 for working air/exhaust ports (1, 3, 5) and working ports (2, 4)	243
[2]	Silencer	U-1/2-B for exhaust ports (3, 5)	244
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or plug M121, 4-pin	-
[4]	Valve VSVA	Width 52 mm	124
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	141
[7]	Cover cap, coded	For non-detenting manual override (limited function)	141
[8]	Cover cap, concealed	MO covered by cover cap – operation of MO prevented	141
[9]	Inscription label holder	For valves	142
[10]	Individual sub-base	For valve VSVA	241
[11]	Inscription label holder	For manifold block	142

¹⁾ Only for 24 V DC

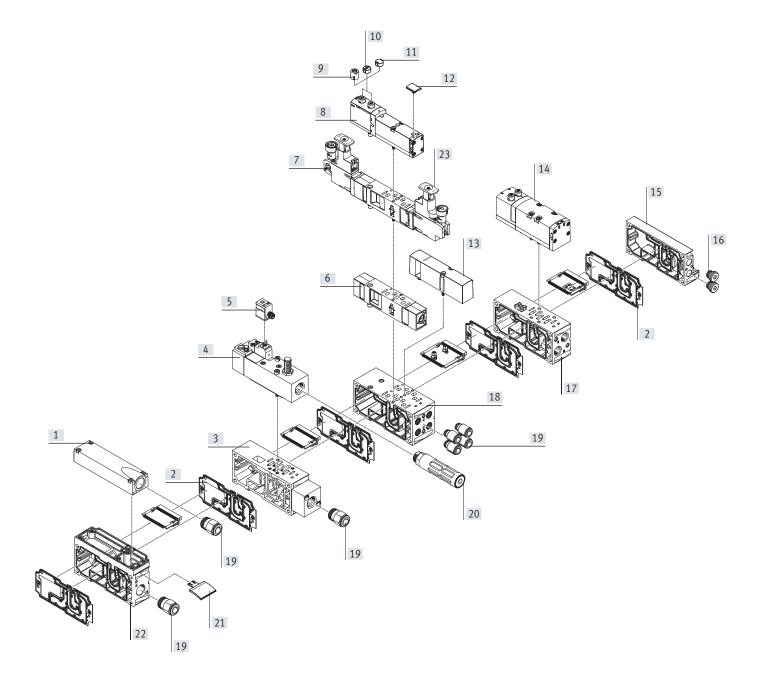
Pneumatic components of valve terminal VTSA/VTSA-F

The conventional 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.



Pneu	Pneumatic components of valve terminal VTSA/VTSA-F				
	Description → Page/Internet				
[1]	Exhaust air cover	For ducted exhaust air (ports 3 and 5 combined)	132		
[2]	Duct separation/seal	-	140		
[3]	Manifold sub-base	For soft start valve	183		
[4]	Soft start valve	For slow and safe pressure build-up	175		
[5]	Plug socket	-	184		
[6]	Throttle plate	-	137		
[7]	Pressure regulator plate	-	133		
[8]	Valve	Width 18 mm or 26 mm	101, 109		
[9]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	141		
[10]	Cover cap, coded	For non-detenting manual override (limited function)	141		
[11]	Cover cap, concealed	MO covered by cover cap – operation of MO prevented	141		
[12]	Inscription label holder	For valve	142		
[13]	Cover plate	For unused valve position (vacant position)	137		
[14]	Valve	Width 42 mm or 52 mm	117, 124		
[15]	End plate with pilot air selector	-	140		
[16]	Blanking plug	-	244		
[17]	Manifold sub-base VTSA	For valves with a width of 42 mm or 52 mm	131		
[17]	Manifold sub-base VTSA-F	For valves with a width of 42 mm or 52 mm	131		
[18]	Manifold sub-base VTSA	For valves with a width of 18 mm or 26 mm	131		
[18]	Manifold sub-base VTSA-F	For valves with a width of 18 mm or 26 mm	131		
[19]	Fittings	-	243		
[20]	Silencer	-	244		
[21]	Inscription label holder	For manifold sub-base, sub-base, 90°-connection plate	142		
[22]	Supply plate	-	132		
[23]	Control element	Regulator knobs in different versions	37		



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

Pneumatic components of valve terminal VTSA-F-CB

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

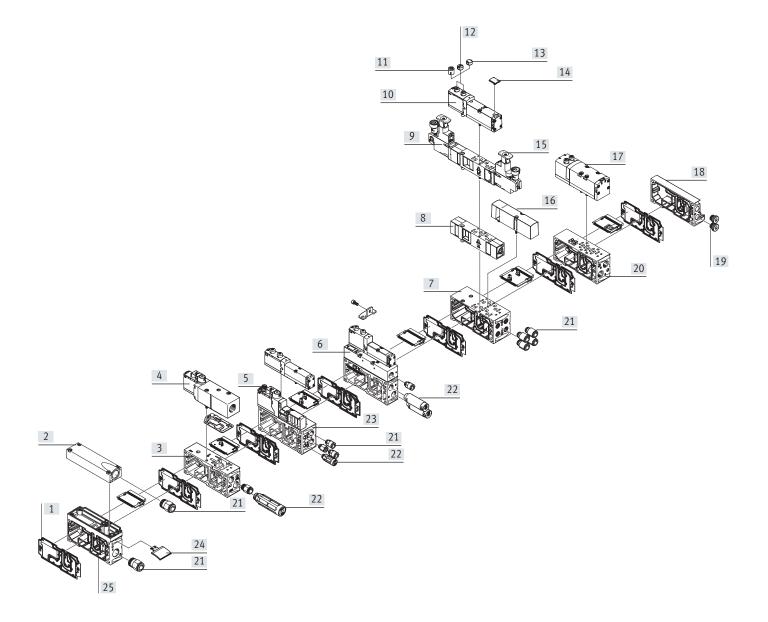
- 2 single solenoid valves or
- 2 double solenoid valves

The hybrid manifold sub-base (with CBUS loop-through) makes it possible to use

- 1 double solenoid valve (18 mm) and
- 1 double solenoid valve (26 mm) together on the same manifold sub-base.

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.



Pneu	Pneumatic components of valve terminal VTSA-F-CB			
		Description	→ Page/Internet	
[1]	Duct separation/seal	-	140	
[2]	Exhaust air cover	For ducted exhaust air (ports 3 and 5 combined)	132	
[3]	Manifold sub-base	For soft start valve	190	
[4]	Soft start valve for VTSA-F-CB	For slow and safe pressure build-up	185	
[5]	Pilot air switching valve for VTSA-F-CB	-	171	
[6]	Vacuum generator for VTSA-F-CB	For vacuum generation	197	
[7]	Manifold sub-base VTSA-F-CB	For valves with a width of 18 mm or 26 mm with CBUS loop-through	131	
[8]	Throttle plate	-	137	
[9]	Pressure regulator plate	-	133	
[10]	Valve	Width 18 mm or 26 mm	101,, 109	
[11]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	141	
[12]	Cover cap, coded	For non-detenting manual override (limited function)	141	
[13]	Cover cap, concealed	MO covered by cover cap – operation of MO prevented	141	
[14]	Inscription label holder	For valve	142	
[15]	Control element	Regulator knobs in different versions	37	
[16]	Cover plate	For unused valve position (vacant position)	137	
[17]	Valve	Width 42 mm or 52 mm	117, 124	
[18]	End plate with pilot air selector	-	140	
[19]	Blanking plug	-	244	
[20]	Manifold sub-base VTSA-F-CB	For valves with a width of 18 mm or 26 mm with CBUS loop-through	131	
[21]	Fittings	-	243	
[22]	Silencer	-	244	
[23]	Manifold sub-base VTSA-F-CB	For pilot air switching valve (hybrid sub-base)	131	
[24]	Inscription label holder	For manifold sub-base, sub-base, 90°-connection plate	142	
[25]	Supply plate/air supply plate	-	132	



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 generator

are listed after → Accessories – General

Peripherals - Electrical components

Valve terminal with individual electrical connection

Order code for VTSA:

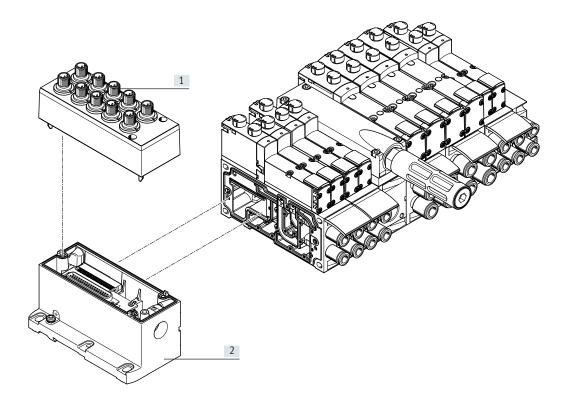
- 44E-... for the electrical components
- 44P-... for the pneumatic components Order code for VTSA-F:
- 45E-... for the electrical components
- $\bullet~$ 45P-... for the pneumatic components

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 suitable for either.

- 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 (technology type 04)
- → Page 209



		Description	→ Page/Internet
[1]	Cover	For individual connection	138
[2]	Multi-pin plug connection	Individual connection with M12, 10-way or 6-way (including cover)	138

Peripherals – Electrical components

Valve terminal with electrical multi-pin plug connection

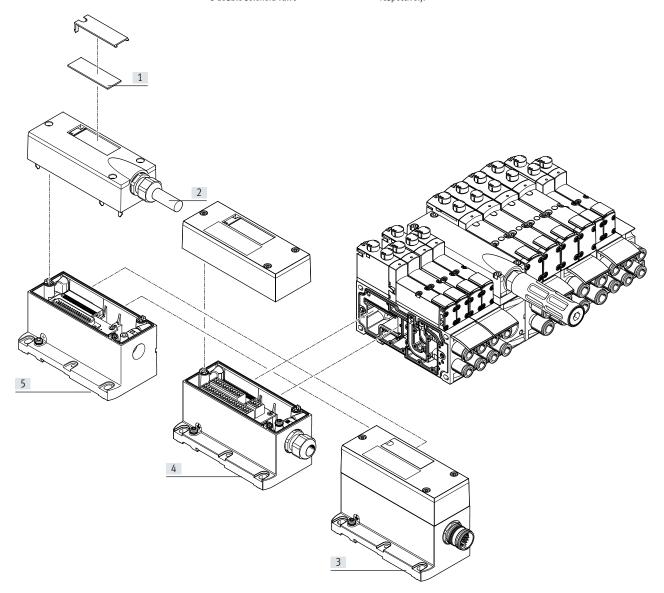
Order code for VTSA:

- 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 (technology type 04)
- → Page 209



		Description	→ Page/Internet
[1]	Inscription labels	Large, for multi-pin plug connection	-
[2]	Multi-pin cable	Connecting cable	139
[3]	Multi-pin plug connection	Via M23 round plug connection, 24 V DC	138
[4]	Multi-pin plug connection	Via terminal strip (CageClamp) 24 V DC	138
[5]	Multi-pin plug connection	Via multi-pin cable, 24 V DC	138

Peripherals - Electrical components

Valve terminal with AS-Interface connection

Order code for VTSA:

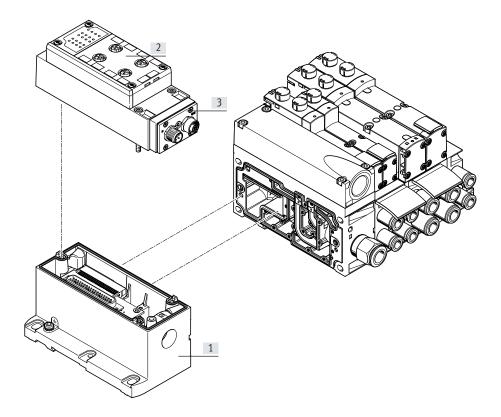
- 52E-... for the electrical components
- 44P-... for the pneumatic components Order code for VTSA-F:
- 52E-... for the electrical components
- $\bullet~$ 45P-... for the pneumatic components

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 suitable for either

- 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 (technology type 04)
- → Page 209



		Description	→ Page/Internet
[1]	Multi-pin plug connection	Can be ordered together with the AS-Interface module as an electrical connection for AS-Interface	139
[2]	Manifold block for AS-Interface	-	139
[3]	AS-Interface module	-	139

Peripherals – Electrical components

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 For VTSA-F-CB:
- 46P-... for the pneumatic components

Valve terminals VTSA/VTSA-F with parallel communication and 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 suitable for either

- 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.

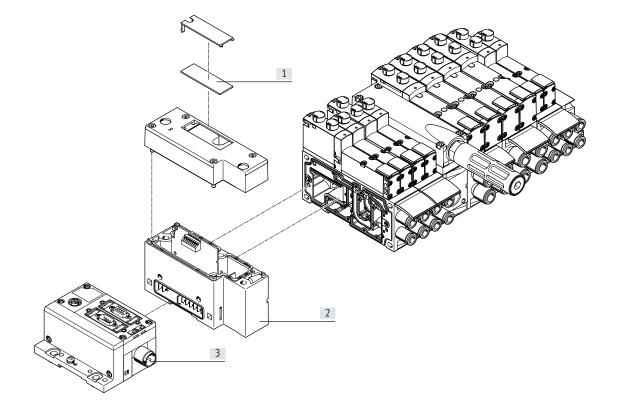
• Single solenoid valve positions can only be equipped with single solenoid valves or a cover plate.

The valve terminal VTSA-F-CB with serial communication can be expanded with up to 96 valves with max. 96 solenoid coils. 4 zones can be equipped with max. 24 valves/solenoid coils.

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

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 (technology type 04)
- → Page 209



		Description	→ Page/Internet
[1]	Inscription labels	Large, for pneumatic interface CPX	=
[2]	Pneumatic interface	-	138
[3]	Fieldbus interface	-	срх

Peripherals – Electrical components

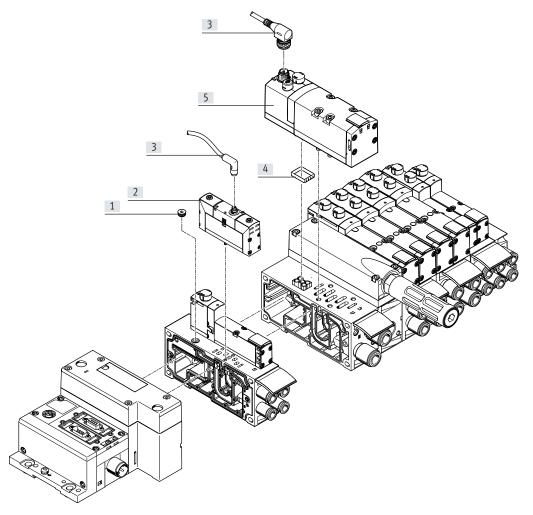
Valve terminal with fieldbus/multi-pin plug connection and individually electrically actuated valve

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 mounted on the valve terminal for this purposes.

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 degree of protection (see → page 137).

For central control of the valve terminal via a multi-pin plug connection or fieldbus interface, 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	137
[2]	Valve	Width 18 mm or width 26 mm	valves vsva
[3]	Connecting cable	-	valves vsva
[4]	Seal	For ensuring the IP degree of protection (with width 42 mm and 52 mm)	137
[5]	Valve	Width 42 mm or width 52 mm	valves vsva

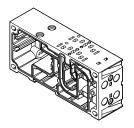
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Note

Standard valves VSVA can be used with/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 with parallel communication is based on a modular system which consists of manifold sub-bases and valves.

The VTSA-F manifold sub-bases are designed to optimise flow.

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 VTSA-F-CB with serial communication, there are manifold sub-bases available for valve widths 18 mm and 26 mm in a double grid, as well as hybrid manifold sub-bases. Valves of width 18 mm and 26 mm can be used together on a hybrid 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 linkage. 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 ducts for supplying and exhausting compressed air to and from the valves on the terminal as well as the working ports for the pneumatic cylinders for each valve.

Each manifold sub-base is connected to the next using four screws. Individual valve terminal sections can be isolated and further manifold sub-bases easily 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 (technology type 04)

→ Page 209

Port patterns to ISO 15407-2

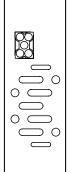
Width 18 mm (size 02)



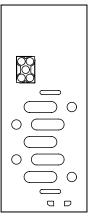
Width 26 mm (size 01)



Port patterns to ISO 5599-2 Width 42 mm (size 1)

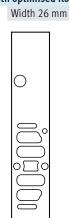


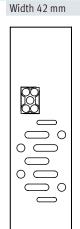
Width 52 mm (size 2)



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

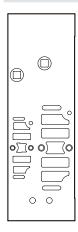
Port patterns – High-flow sub-bases wit Width 18 mm





Hybrid sub-base for VTSA-F-CB:

Width 18 mm + 26 mm





Note

The illustrations shown represent the pneumatic port patterns.

The port patterns on the valve terminal VTSA-F/VTSA-F-CB and the hybrid sub-base do not correspond to the ISO standard.

Code		Туре	Width				No. of valve positions (solenoid coils) ¹⁾	Working ports (2, 4)		
			18 mm	26 mm	42 mm	52 mm		Code M	Code N	
								large	small	
lanifol	d sub-base for double solenoid valv									
		VABV-S4-2S-G18-2T2					2 (4)	QS-G1/8-8	_	
K	100000		•	_	_	_		-	QS-G1/8-6	
		VABV-S4-1S-G14-2T2			_	_	2 (4)	QS-G1/4-10	-	
K				_				-	QS-G1/4-8	
		VABV-S2-1S-G38-T2					1 (2)	QS-G3/8-12	_	
:K			_	_	•	_		-	QS-G3/8-10	
)	5.0	VABV-S2-2S-G12-T2					1 (2)	QS-G1/2-16	-	
K			-	_	_	•		-	QS-G1/2-12	
/\anifolo	d sub-base for single solenoid valve	es								
		VABV-S4-2S-G18-2T1	_				2 (2)	QS-G1/8-8	-	
K	1000000		•	_	_	_		-	QS-G1/8-6	
	000	VABV-S4-1S-G14-2T1					2 (2)	QS-G1/4-10	-	
K	030		_	•	_	-		-	QS-G1/4-8	
i		VABV-S2-1S-G38-T1					1 (1)	QS-G3/8-12	-	
K			-	_	•	_		-	QS-G3/8-10	
		VABV-S2-2S-G12-T1					1 (1)	QS-G1/2-16	-	
		1	1	1	1			1	1	

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

Code		Туре	Width				No. of valve positions	Working ports (2, 4)		
				26 mm	42 mm	52 mm	(solenoid coils) ¹⁾	Code M large	Code N small	
lanifold	sub-base for double solenoid va	lves								
		VABV-S4-2HS-G18-2T2					2 (4)	QS-G1/8-8	_	
K	100000		•	_	_	_		-	QS-G1/8-6	
	200	VABV-S4-1HS-G14-2T2					2 (4)	QS-G1/4-10	-	
K	000		_	•	_	_		-	QS-G1/4-8	
		VABV-S2-1HS-G38-T2					1 (2)	QS-G3/8-12	-	
K			_	_	•	_		_	QS-G3/8-10	
		VABV-S2-2S-G12-T2					1 (2)	QS-G1/2-16	-	
K			_	_	_	•		-	QS-G1/2-12	
Nanifold	sub-base for single solenoid val	ves								
		VABV-S4-2HS-G18-2T1					2 (2)	QS-G1/8-8	-	
K	100000		-	_	_			_	QS-G1/8-6	
	100	VABV-S4-1HS-G14-2T1		_			2 (2)	QS-G1/4-10	-	
<	000		_	•	_	_		_	QS-G1/4-8	
		VABV-S2-1HS-G38-T1	_	_	_	_	1 (1)	QS-G3/8-12	-	
K				_				-	QS-G3/8-10	
		VABV-S2-2S-G12-T1					1 (1)	QS-G1/2-16	-	
K			_	_	_	•		_	QS-G1/2-12	

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

Code		Туре	Width	Width					
			18 mm	26 mm	42 mm	52 mm	(solenoid coils) ¹⁾		
lanifol	d sub-base for double solenoid valv								
A		VABV-S4-2HS-G18-CB-2T2		-	-	-	2 (4)		
В	1000000	VABV-S4-1HS-G14-CB-2T2					2 (4)		
	000		-	-	_	_			
Ĉ	*	VABV-S2-1HS-G38-CB-T2			-		1 (2)		
)		VABV-S2-2S-G12-CB-T2				•	1 (2)		
Manifol YA	d sub-base for double solenoid valv	es, hybrid sub-base VABV-S4-12HS-G-CB-2T2 (external sensor evaluation) 1x double solenoid, width 18 mm 1x double solenoid, width 26 mm		•			2 (4)		
Manifol	d sub-base for single solenoid valve	S VABV-S4-2HS-G18-CB-2T1 VABV-S4-1HS-G14-CB-2T1		_	_	_	2 (2)		
	040		-	•	-	-			
G		VABV-S2-1HS-G38-CB-T1	-	_	-	-	1 (1)		
ł		VABV-S2-2S-G12-CB-T1	-	_	_	•	1 (1)		

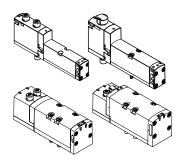
¹⁾ Value in brackets is max. number of solenoid coils that can be actuated

Code		Туре	Width			No. of valve positions		
		18 mm	26 mm	40 mm	52 mm	(solenoid coils) ¹⁾		
Manifol	d sub-base for soft start valve							
PV		VABV-S6-1Q-G38-CB1-T5 with CBUS loop-through and new voltage zone, for soft start valve and pressure sensor plug-in	_	_	-	-	1	
PS		VABV-S6-1Q-G38-CB-T5 with CBUS loop-through in the same voltage zone, for soft start valve and pressure sensor plug-in	-	-	-	-	1	
Manifol	d sub-base for pilot air switching v	ilve						
YB	000	VABV-S4-2HS-G18-CB-2T5 (internal sensor evaluation for pilot air switching valve) 1x CBUS loop-through 1x double solenoid, with CBUS loop-through		-	_	-	2 (4)	
YC		VABV-S4-12HS-G-CB-2T5 (internal sensor evaluation for pilot air switching valve) 1x CBUS loop-through 1x double solenoid, with CBUS loop-through	•		_	_	2 (4)	

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

90°-cc	90°-connection plate for working ports 2 and 4												
Code		Туре	Width				Ports	Working ports (2, 4) on the					
			18 mm	26 mm	42 mm	52 mm		90°-connection plate					
Р		VABF-S4A2G2-G	•	_	-	-	2 and 4	G1/8					
			-	•	-	-		G1/4					
			-	-	•	-		G3/8					
			-	-	-	•		G1/2					

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 manifold 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 these valves must then be operated via a separate pressure zone. 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.



- 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

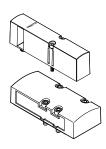


Plate without valve function for reserving valve positions on a valve terminal.

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 func	tion						
Terminal code	Circuit symbol	Valve	Width	26	(2	F2	Description
VC	12/14 1 (14)	code T22C	18 mm	26 mm	42 mm	52 mm	2x 2/2-way valve, single solenoid Normally closed Pneumatic spring return
W	114 11 11 11 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	12/14 1 5 3	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	12/14 1 5 3	Т32Н	•	•	•	•	2x 3/2-way valve, single solenoid Normal position 1x closed 1x open Pneumatic spring return Operating pressure > 3 bar
P	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 30/54 5 1 (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 func	tion							
Terminal	Circuit symbol	Valve	Width				Description	
code M	14 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	code 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	M52-M	•	•	•	•	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	M52-M	•	-	-	-	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 161	
SO SQ SS	4 2 G	M52-M	-	•	-	-	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 161	
SP SN	14 2 2 2 1 14 T T T T T T T T T T T T T T T T T	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 167	
В	14 W 4 2 W 12 (14) 5 1 3	P53U	•	-	-	•	5/3-way solenoid valve • Mid-position pressurised ¹⁾ • 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	
E	14 W 4 2 W 12 (14) 5 1 3	P53E	•	•	•	•	5/3-way solenoid valve • Mid-position exhausted ¹⁾ • Mechanical spring return	

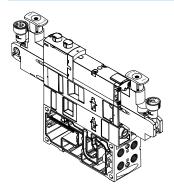
¹⁾ If neither solenoid coil is energised, the valve is moved to its mid-position by a mechanical spring. If the two coils are permanently energised one after the other, the valve remains in the switching position of the coil that was activated first.

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

Valve fund	ction						
	Circuit symbol	Valve	Width				Description
code		code	18 mm	26 mm	42 mm	52 mm	
SA	14 W 4 2 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 \ 4 2 14(12)	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 with retained Mechanical spring return
SD	12 W 4 2 12 12 (14) 5 1 3	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 with 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.

Vertical stacking



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

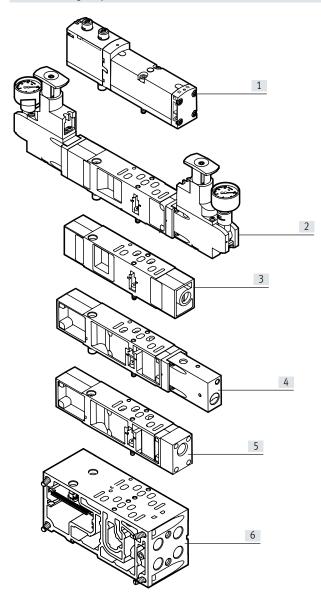
These functions are known as vertical stacking modules and enable special functions or control of an individual valve position. It is possible to link several valve sizes on one valve terminal.



Note

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

Vertical stacking components

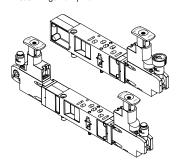


The following component sequence is recommended for valve positions with vertical stacking:

- [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 coil layout.

Standard version:

- 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)

- 🖣 - Note

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.

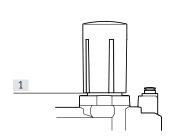
· 🖁 - Note

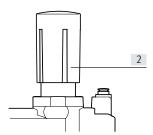
Please note for repeat orders of pressure regulators in sizes 42 mm and 52 mm: The part number on the regulator plate refers only to the standard version. When reordering pressure regulators with additional equipment, such as extended design, only use the VABF configurator.

• → Internet: vabf-s2

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

Setting the pressure

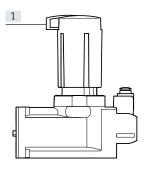




- [1] Pull the rotary knob upward out of the locking level (1) into the setting level (2)
- [2] Set the desired pressure at the setting level (2) using the rotary knob
- [3] After setting the pressure, push the rotary knob back down to the locking level (1)

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

Locking the rotary knob



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 and 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 $60^{\circ}\,\text{or}\,120^{\circ}$ and pushed back on.

Further information:

• → Internet: User documentation

[1] Locking element, pushed out

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 107). 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 that 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).

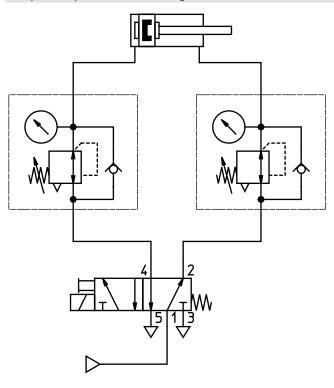
Advantages of reversible operation:

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

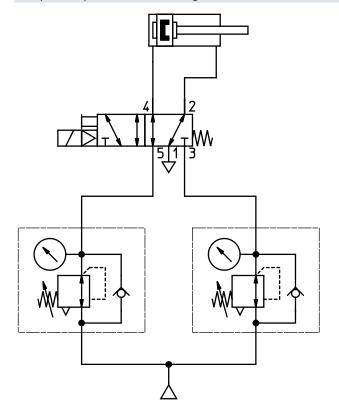
This has the following advantages:

- 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



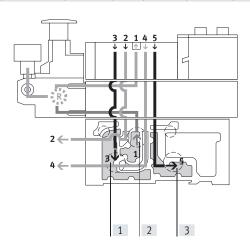
Circuit diagram 1: Pressure is regulated downstream of the valve Dual-pressure operation with reversible regulator



Circuit diagram 2: 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.

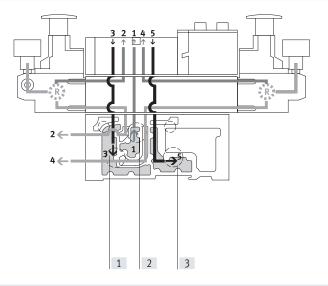
During exhausting, the exhaust flow in the valve is from duct 2 to duct 3 and from duct 4 to duct 5.

- 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 present 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 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.

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.

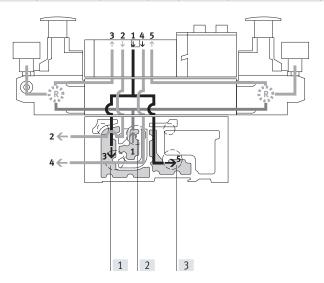
- [1] Duct 3 (exhaust)
- [2] Duct 1 (working air)
- [3] Duct 5 (exhaust)

Application examples

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

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

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.

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

Note

[3] Duct 5 (exhaust)

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.

· 🛔 -

- 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 supply, even when the valve terminal is operated with
 external pilot air supply.
- The following combination of reversible valve terminals with vertical stacking components is not permitted:
 - Reversible pressure regulator plates
 - 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.

Vertical stacking – Pressure regulator pla	Type	Width				Pressure	regulation	Description	
code	Туре	Width				up to	regulation	Description	
		18 mm	26 mm	42 mm	52 mm	6 bar	10 bar		
ressure regulator plate for port 1 (P regu				·					
(A ()	VABF-SR1C2-C-10	•	-	-	-	-	-	Regulates the operating pres-	
ZAY ²)	VABF-SR1C2-C-10E	•		•		-	-	sure in duct 1 upstream of the	
ZF	VABF-SR1C2-C-6	-				-	_	solenoid directional control	
(FY ²⁾	VABF-SR1C2-C-6E							valve	
14 5 1 3 12		•	•	•	•	•	_		
ressure regulator plate for port 2 (B regu	ılator)								
C 💮	VABF-SR2C2-C-10	•	-	•	-	-	-	Regulates the operating pres-	
C(Y ²⁾ 4 2 1	VABF-SR2C2-C-10E	•	•	•	•	-	•	sure in duct 2 downstream of	
(H	VABF-SR2C2-C-6	•	•	•	•	-	-	the solenoid directional contr	
(HY ²)	VABF-SR2C2-C-6E							valve	
14 5 1 3 12		•	•	•	•	•	_		
Pressure regulator plate for port 4 (A regu	ulator)		•	•					
(B ²⁾	VABF-SR3C2-C-10	•	•	-	•	_	-	Regulates the operating pres-	
G ²	VABF-SR3C2-C-6							sure in duct 4 downstream of the solenoid directional contr valve	
14 5 1 3 12		•	•	•	•	•	_		
ressure regulator plate for ports 2 and 4	(AB regulator)								
D N	√ VABF-SR4C2-C-10					_	•	Regulates the working pressu	
(DY ²⁾	VABF-SR4C2-C-10E							in ducts 2 and 4 downstream	
	╧╤┿┐┃┃	•	•	•	•	-	•	the solenoid directional contr valve	
	· L	•	•	-	•	-	-	- 🖺 - Note	
	VABF-SR4C2-C-6E							- 🏺 - Note	
Y ²								These pressure regulator plat	
14 5 1 3 12									
14 5 11 3 12			_	_		_		cannot be combined with	
ZIY ²⁾ 14 5 1 3 12		•	•	-	•	•	_	cannot be combined with reversible 2x 3/2-way sol valves (code P, Q, R).	

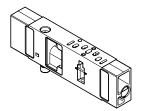
¹⁾ Width variants 42 mm and 52 mm (ISO 5599-2, ISO 1 and ISO 2) can be selected via the pressure regulator configurator VABF-S2 Also suitable for valves with symmetrical coil layout

Code		Туре	Width				Pressure up to	regulation	Description
			18 mm	26 mm	42 mm	52 mm	6 bar	10 bar	
	regulator plate for port 2, reversible (B re								
ZL		VABF-SR6C2-C-10			Reversible pressure regulator				
ZLY ²⁾		VABF-SR6C2-C-10E			•		_	•	for port 2
ZN		VABF-SR6C2-C-6	•	-	•			-	
ZNY ²⁾	14/5 1/3 12	VABF-SR6C2-C-6E	•	•	•	•	•	-	
	regulator plate for port 4, reversible (A re								
K ²⁾	©	VABF-SR7C2-C-10	•	•	•	•	-	•	Reversible pressure regulator
⁽ (M ²⁾	14 5 1 3 12	VABF-SR7C2-C-6	•	-	•	•	•	-	for port 4
ressure E	regulator plate for ports 2 and 4, reversi	ble (AB regulator) VABF-SR5C2-C-10							Reversible pressure regula
EY ²⁾	14 5 11 3 12	VABF-SR5C2-C-10E		•	•	•	-	•	for ports 2 and 4 Pressure regulation upstre of the solenoid directional control valve 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>'</u>]		VABF-SR5C2-C-6	•	-	•	•	•	-	- 🖺 - Note
ZJY ²⁾		VABF-SR5C2-C-6E			•	-	-	-	These pressure regulator platicannot be combined with star ard 2x 3/2-way solenoid valve (code N, K, H). Reversible 2x 3/2-way solenoid valves (code P, Q, R) must not be operated in a separate pressure 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 coil layout

Vertical stacking

Throttle plate



The throttle plate has two flow control valves for adjusting the exhaust flow rate at exhaust ports 3 or 5.

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

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

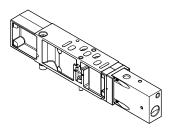


Note

On reversible valve terminals, the flow of 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	
)	(14 5 1 3 12	VABF-S4F1B1-C	•	•	•	•	Controls the flow of exhaust air down- stream of the valve to ducts 3 and 5

Vertical pressure shut-off plate



The vertical pressure shut-off plate is equipped with a switch via which the compressed air supply can be shut off. This enables a 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 even in the case of a cyclical control system.

Following activation of the shut-off, the exhaust air/return air from the actuated valve is discharged. 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.



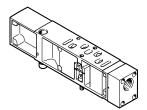
The operating pressure of the valve terminal must lie within the range of the required pilot pressure (i.e. min. 3 bar). When using the end plate with pilot air selector, only the switching position with the code W and U can be used.

Code		Type	Width				Description	
			18 mm	26 mm	42 mm	52 mm		
ZT	33 1 5 14	VABF-S4L1D1-C	•	•	-	-	3/2-way valve for shutting off the ope ating pressure at the valve position Blocks ducts 1 and 14 for the valve position Supplies the valve position with	
	14 5 1 3 12	VABF-S2L1D1-C	-	-			 internal pilot air Pressure separation at the valve assembly 	
ZS	33 12 3 11 15 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 VSVA-...T1L solenoid valves from Festo. In the vertical pressure shut-off plate only ducts 1 and 14 are blocked, and not duct 12.

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.

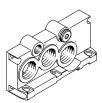
Code		Туре	Width				Description	
			26 mm	18 mm	42 mm	52 mm		
ZU	14 5 1 3 12	VABF-SP1A3	•	•	•	•	Plate with port 11 for supplying individual operating pressure to a valve position, duct 1	
ZV	11 11 11 11	VABF-SP1A14	•	•	•	•	Plate with port 11 for supplying individual operating pressure to a valve position, ducts 1 and 14	

Compressed air supply and exhausting

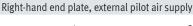
Right-hand end plate, internal pilot air supply



- Code V
- (no port 14)

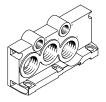


- Code V1, V3
- (port 14 is sealed with a blanking plug)





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

Right-hand end plate with pilot air selector



The valve terminal VTSA/VTSA-F/VTSA-F-CB can be supplied with pressure 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 right-hand 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.

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- 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)).

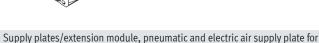
Supply plates for VTSA/VTSA-F, exhaust port 3/5 separate



Code K

Supply plates for VTSA/VTSA-F, exhaust port 3/5 common







- Code U
- Code UW
- Code UWS

Supply plates/extension module, pneumatic and electric air supply plate for VTSA-F-CB, exhaust port 3/5 common



- Code U
- Code UW
- Code UWS

Additional compressed air supply/duct separation, VTSA/VTSA-F

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 air (3/5) common or separate

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

Operation with ducted exhaust air: With ducted exhaust air, exhausting can be via a supply plate or a righthand end plate (code V or X).

If duct separation is required, there are a number of 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 side: code SU, TU, RU
- Supply plate with duct separation on the right side: code US, UT, UR
- 2 supply plates with intermediate duct separation: code USU, UTU, URU.

Code	olates for VTSA/VTSA-F	Туре	Description
U		Exhaust port 3/5 common (not illustrated) VABF-S6-10-P1A7-G12 Exhaust port 3/5 separate VABF-S6-10-P1A6-G12	Supply plate without duct separation (no R, S or T selected)
SU TU RU			Supply plate with duct separation on left, if R, S or T selected
US UT UR			Supply plate with duct separation on right, if R, S or T selected
USU UTU URU			2 supply plates with duct separation in centre, if R, S or T selected

Additional compressed air supply/duct separation, VTSA-F-CB

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 air (3/5) common or separate

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

Operation 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 a number of different options:

- Duct separation 1, 14: code TL
- Duct separation 1, 3, 5, 14: code K
- Duct separation 14: code L
- Duct separation 1, 3, 5: code S
- Duct separation 1: code T
- Duct separation 3, 5: code R

Code	Туре	Description
U	• Exhaust port 3/5 common • VABF-S6-1-P1A7-G12-CB	Additional pneumatic supply Connecting thread G1/2
UW	• Exhaust port 3/5 common • VABF-S6-1-P8A7-G12-CB	Additional pneumatic and electric supply Connecting thread G1/2 Generation of 24 additional valve addresses (electric supply is provided internally from Uval)
UWS	Exhaust port 3/5 commonVABF-S6-1-P8A7-G12-CB1	Additional pneumatic and electric supply Connecting thread G1/2 Generation of 24 additional valve addresses (electric supply is provided from new (safe) voltage zone (internally from S2))
U	Exhaust port 3/5 separate VABF-S6-1-P1A6-G12-CB	Additional pneumatic supply Connecting thread G1/2
UW	• Exhaust port 3/5 separate • VABF-S6-1-P8A6-G12-CB	Additional pneumatic and electric supply Connecting thread G1/2 Generation of 24 additional valve addresses (electric supply is provided internally from Uval)
UWS	• Exhaust port 3/5 separate • VABF-S6-1-P8A6-G12-CB1	Additional pneumatic and electric supply Connecting thread G1/2 Generation of 24 additional valve addresses (electric supply is provided from new (safe) voltage zone (internally from S2))

Right-hand end plate

Right-hand end plates with different port sizes are available depending on the air rate 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

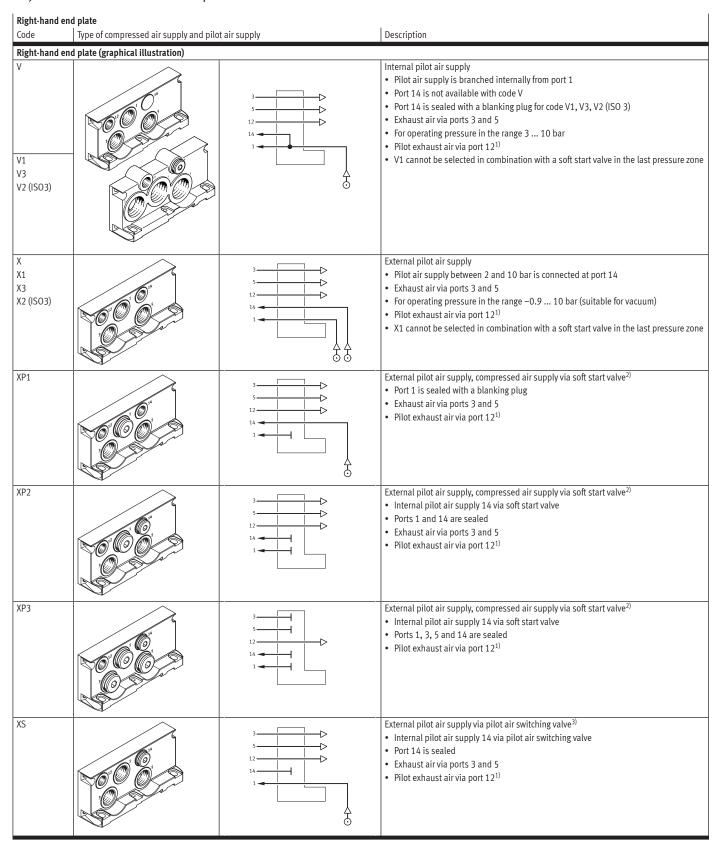
- The end plate with pilot air selector must be used in combination with a supply plate.
- The reversible 3/2-way solenoid valves (code P, Q, R) must only be operated in selector position 1 or 2.
- Ducted pilot exhaust air via port 12 is only possible with rotated seals on the valve.

Right-hand	d end plate, variants Blanking plug in duct	Pilot air supply	Ducted pilot exhaust air ¹⁾	Connecting thread	
			Position of seal on solenoid valve (" ISO " is visible)	1, 3, 5	12, 14
٧	-	Internal	-	G1/2	G1/4
V1	14		_	G3/4	G1/4
V2	14		-	G1	G1/8
V3	14		•	G3/4	G1/4
Х	-	External	-	G1/2	G1/4
X1	-		-	G3/4	G1/4
X2	-		_	G1	G1/8
Х3	-		•	G3/4	G1/4
XP1 ²⁾	1	External, via soft start valve	-	G1/2	G1/4
XP2 ³⁾	1, 14	("gradual pressure build-up")	-	G1/2	G1/4
XP3 ³⁾	1, 3, 5, 14		-	G1/2	G1/4
XS ⁴⁾	14	External, via pilot air switching valve ("switchable pilot air")	-	G1/2	G1/4

- 1) Pilot exhaust air is ducted on the end plate via port 12 and vented (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)
- 3) 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-hand	Right-hand 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	-	G1/4			
Y	External Internal	2	-	G1/4 G1/4			
Y W		2 3	-	·			

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

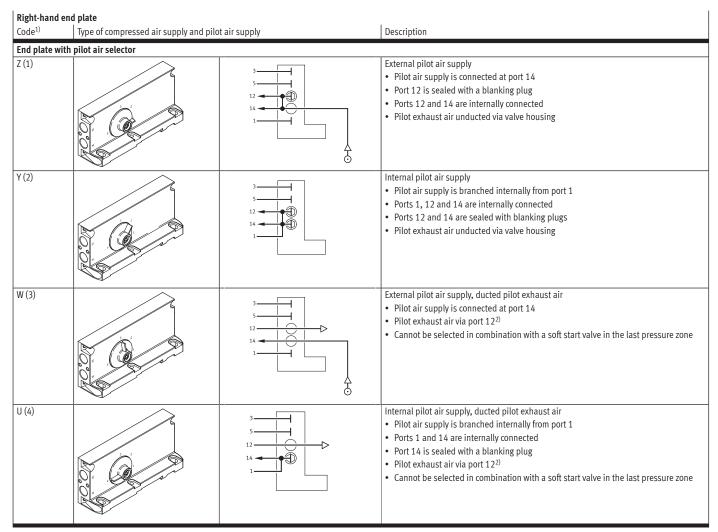


- 1) Ducted pilot exhaust air is only possible with rotated seals on the valve
- Application with XP1, XP2, XP3 and soft start valve in combination with valves of width 52 mm: please note the maximum flow rate of the soft start valve in this pressure zone
- 3) Application with XS and pilot air switching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



The key features, valves and functions of width 65 mm are described separately in the chapter "Adaptation to width 65 mm", ISO size 3 (technology type 04)

→ page 220.



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

- 🖣 - Note

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

Code	,	ions	Connection (duct)	Designation	Code M Push-in connector, large	Code N Push-in connector, small
Right-ha	nd end plate					
V	6000	3 5 12 14	1 3 and 5	Push-in fitting Silencer or push-in fitting	QS-G1/2-16 U-1/2-B or QS-G1/2-16	QS-G1/2-12 U-1/2-B or QS-G1/2-12
			12	Silencer or push-in fitting	U-1/4 or QS-G1/4-10	U-1/4 or QS-G1/4-8
X			1	Push-in fitting	QS-G1/2-16	QS-G1/2-12
		5	3 and 5	Silencer	U-1/2-B	U-1/2-B
		12		or	or	or
		14		push-in fitting	QS-G1/2-16	QS-G1/2-12
		1	12	Silencer	U-1/4	U-1/4
				or push-in fitting	or QS-G1/4-10	or QS-G1/4-8
		$\frac{4}{5}$	14	Push-in fitting	QS-G1/4-10 QS-G1/4-10	QS-G1/4-8 QS-G1/4-8
			14	1 4311-111 11111115	Q3-01/4-10	Q3-01/4-0
V1			1	Barbed hose fitting	N-3/4-P-19 ¹⁾	_
/3		3	3 and 5	Silencer	U-3/4-B	-
		5		or	or	
		14		barbed hose fitting	N-3/4-P-19 1)	
		1-	12	Silencer	U-1/4	U-1/4
				or	or	or
		<u> </u>		push-in fitting	QS-G1/4-12	QS-G1/4-10
		\odot	14	Plug	B-1/4	B-1/4
<u>΄</u>			1	Barbed hose fitting	N-3/4-P-19 ¹⁾	
K3		3	3 and 5	Silencer	U-3/4-B	-
		5		or	or	
		14		barbed hose fitting	N-3/4-P-19 1)	
		1-	12	Silencer	U-1/4	U-1/4
				or	or	or
		<u> </u>		push-in fitting	QS-G1/4-12	QS-G1/4-10
		Ó Ó	14	Push-in fitting	QS-G1/4-12	QS-G1/4-10

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

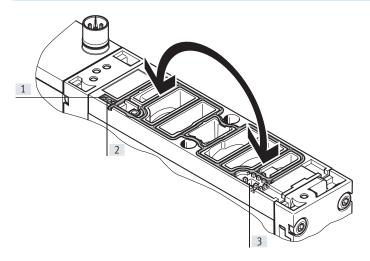


The key features, valves and functions of width 65 mm are described separately in the chapter "Adaptation to width 65 mm", ISO size 3 (technology type 04) → page 220.

Configur Code ¹⁾	ation of all pneumatic threaded connect	ions	Connection (duct)	Designation	Code M Push-in connector, large	Code N Push-in connector, small
End plate	e with pilot air selector		140	In the second	10.44	I. D. 4.4
Z (1)		3 5 12	12	Blanking plug	B-1/4	B-1/4
			14	Push-in fitting	QS-G1/4-10	QS-G1/4-8
Y (2)		3 5 12 14	12	Blanking plug	B-1/4	B-1/4
		;	14	Blanking plug	B-1/4	B-1/4
W (3)		3 5 12	12	Silencer or push-in fitting	U-1/4 or QS-G1/4-10	U-1/4 or QS-G1/4-8
			14	Push-in fitting	QS-G1/4-10	QS-G1/4-8
U (4)		3 5 12 14	12	Silencer or push-in fitting	U-1/4 or QS-G1/4-10	U-1/4 or QS-G1/4-8
		1	14	Blanking plug	B-1/4	B-1/4

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)

Designation	l so	ISO
Pilot exhaust air	Ducted	Unducted (standard)
Display window on	Control side 12	Control side 14
Pilot exhaust port	12	-

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.



Note

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 in full at the point of switch-on.

External pilot air supply

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

The pilot air supply is then supplied via port 14 on the right-hand end plate. This is the case even if the valve terminal is operated with different pressure zones.



Note

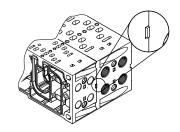
When using valves with a width of 65 mm, ISO size 3, the internal/external pilot air supply for the valves with a width of $18 \dots 52$ mm is provided via the adapter plate VABA-....

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

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/VTSA-F-CB.

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
Code	Illustrated examples	Coding	Basic representation	18 mm	26 mm	42 mm	52 mm	Description
Т			7 3 5 12 14 1	•	•	•	-	Duct 1 separated
S			5 3 5 12 14 1	•	•	•		Ducts 1, 3 and 5 separated
R			8 5 12 14 1	•		-	-	Ducts 3 and 5 separated
TL		Colour-coded in white	7L 3	-	•	-	•	Duct 1 and 14 separate
К	5 1 3	Colour-coded in red	5 12 14 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-	•	•	•	Ducts 1, 3, 5 and 14 separated
L		Colour-coded in green	5 12 14 1 1 1	•	•	•	•	Duct 14 separated

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

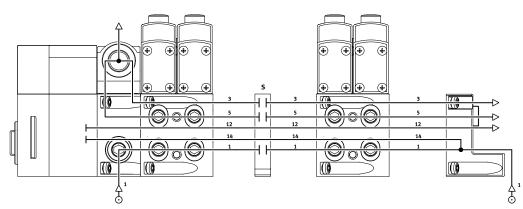
Internal pilot air supply, silencer/ducted exhaust air

Right-hand end plate: code V and V1

The adjacent diagram 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

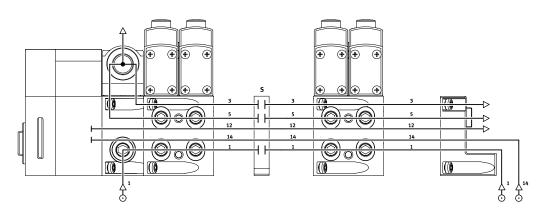
External pilot air supply, silencer/ducted exhaust air

Right-hand end plate: code X and X1

The adjacent diagram 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

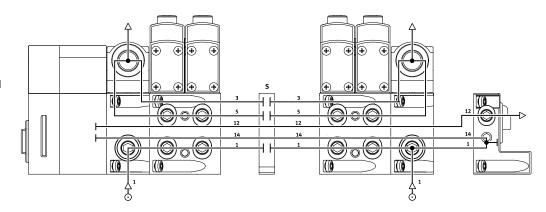
Internal pilot air supply, ducted exhaust air/silencer

Right-hand end plate: code U

Optional duct separation

The adjacent diagram 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

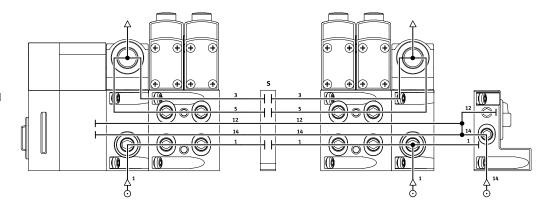
External pilot air supply, ducted exhaust air/silencer

Right-hand end plate: code Z

Optional duct separation

The adjacent diagram 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.

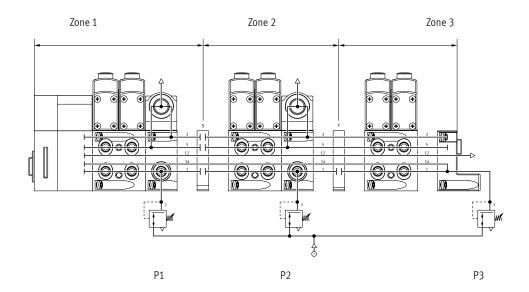


Key features – Pneumatic components – Compressed air supply and pressure zones, examples

Examples: Creating pressure zones

VTSA/VTSA-F/VTSA-F-CB with CPX terminal

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





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

→ page 178.

Key features - Mounting

Valve terminal mounting

Sturdy valve terminal mounting thanks to:

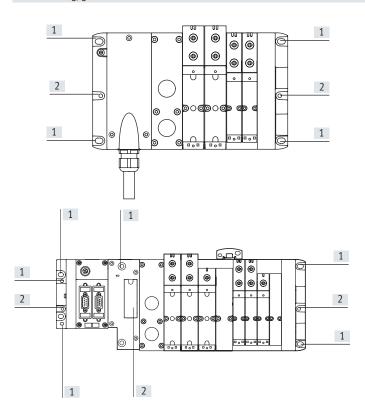
- Through-holes for wall mounting
- · Additional mounting brackets
- H-rail mounting for VTSA/VTSA-F (horizontal mounting position permitted)



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

- → Internet: 2D/3D-CAD
- → www.festo.com/sp

Wall mounting, general



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

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

- Multi-pin plug (4 pieces):
- 2 each on the multi-pin manifold block and the right-hand end plate
- Fieldbus, CPX (6 pieces):
- 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

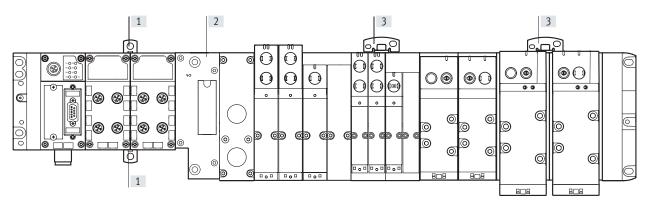
- 🖣 - Note

Wall mounting of the VTSA/VTSA-F/ VTSA-F-CB with more than 5 pneumatic modules

Note the following information to avoid damage to the valve terminal:

- 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 interface



- [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-BG-RW must be used approx. every 100 ... 150 mm. These mountings are clipped in at the top and bottom between the CPX modules.

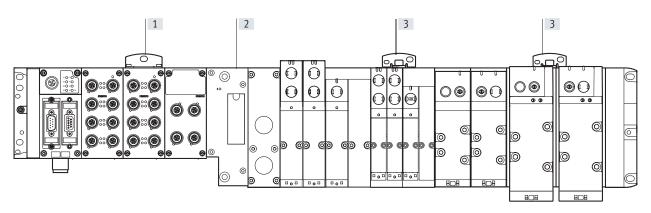
[3] Additional wall mounting for VTSA/VTSA-F/VTSA-F-CB (with drilled hole for M5 and M6 screw)

In the case of the VTSA/VTSA-F/VTSA-F-CB, 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 interface



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

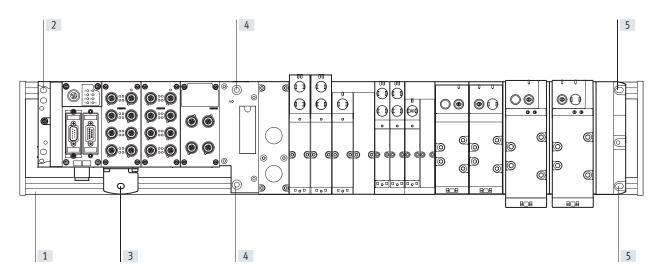
In the case of CPX terminals in metal design with 4 and more interlinking blocks, additional wall mountings of the type CPX-M-BG-RW must be used approx. every $100 \dots 150$ mm. These wall mountings are screwed in at the top on the corresponding CPX module.

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

In the case of the VTSA/VTSA-F/VTSA-F-CB, 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 interface



- [1] Support system (DIN mounting rail)
- [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.



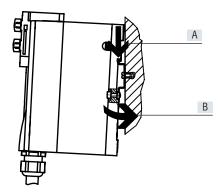
- Only CPX modules (metal version) with VTSA/VTSA-F/VTSA-F-CB modules of width 18 ... 52 mm may be used.
- The number of mounting brackets required depends on the number of CPX modules installed and whether any system feeds are present.

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

- → Internet: 2D/3D-CAD
- → www.festo.com/sp

Key features – Mounting

H-rail mounting (not permitted for all VTSA-F-CB combinations)



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

For H-rail mounting of the valve terminal VTSA/VTSA-F/VTSA-F-CB, you will need the mounting kit CPX-CPA-BG-NRH:

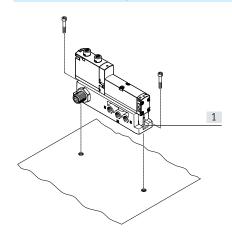
This enables the valve terminal to be mounted on an H-rail to EN 60715.



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.
- Valve terminals VTSA-F-CB with pneumatic interface with voltage zones are not permitted 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.

Display and operation

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

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

Manual override (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.

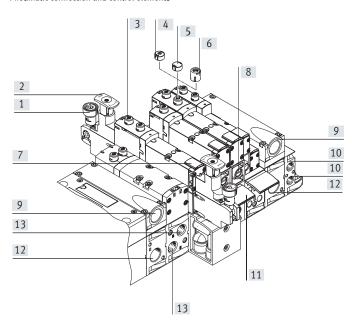
Alternatives:

- 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/VTSA-F-CB.

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)

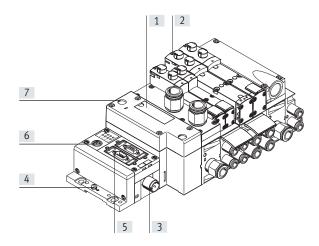
- [10] Pilot ports 12 and 14 for supplying the external pilot air
- [11] Inscription label holder for sub-base
- [12] Supply port 1 for operating pressure
- [13] Working ports 2 and 4, per valve position



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

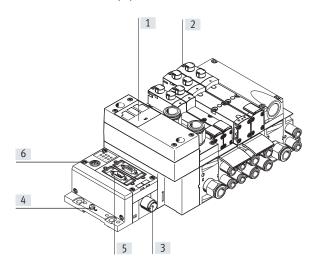
Display and operation

Electrical connection and display elements for VTSA/VTSA-F



- [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 for handheld unit, etc.
- [7] Red LED: common error display for valves

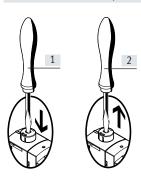
Electrical connection and display elements for VTSA-F-CB



- [1] LED indicators for operating states/diagnostics of the pneumatic interface
- [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 for handheld unit, etc.

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 (locking)



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

Cover caps for manual override

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



[1] Non-detenting:

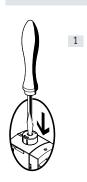
Detenting:

switching position.

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

Push in key for MO. The valve is in

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



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



[2] Turn the key anti-clockwise by 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 the cover cap, the MO can be secured against accidental actuation.



Note

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

Illustrations	Terminal	Description of valve terminal order code	Manual override	Valve code identification on the
	code		(MO)	rating plate sticker ¹⁾
SVA solenoid valve without				
	R	Without cover cap on MO	Non-detenting, detenting	VSVA-BMZD
/SVA solenoid valve with pre	-assembled 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	Covered	VSVA-BMZ
Cover caps for MO				
	N	MO can be used as non-detenting only with coded cover cap	Non-detenting	VSVA-BMZD
	V	MO covered by cover cap – operation of MO prevented	Covered	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 overrid	le, heavy 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 detenting of the cover cap cannot be guaranteed.

Key features – Display and operation, VTSA-F-CB

Illustrations	Terminal code	Description of valve terminal order code	Manual override (MO)	Valve code identification on the rating plate sticker ¹⁾
olenoid valve VABF, vacuum	generator			
	ZQN	MO can be used as non-detenting only with coded cover cap, as valve variant	Non-detenting	VABF-S4-2-V2B1-G38
	ZQR	Non-detenting manual override, can be used as detenting, as valve variant	Non-detenting, detenting without accessories	VABF-S4-2-V2B1-G38
	ZQV	MO concealed by cover cap – operation of MO prevented, as valve variant	Covered	VABF-S4-2-V2B1-G38
	ZQA	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)	VABF-S4-2-V2B1-G38
olenoid valve VABF, soft star	t valve			
	ZQZ	The manual override can be reset in two ways: manually or electrically via control signal	Detenting, electrically self-resetting	VABF-S6-1-P5A4 YE
	ZQX	Manual override, concealed	None	VABF-S6-1-P5A4 S
olenoid valve VSVA, pilot air	switching valv	e		
	-	The manual override can be reset in two ways: manually or electrically via control signal	Detenting, electrically self-resetting (default)	VSVA-BT-M32CS YE
	ZZ	Manual override, concealed	None	VSVA-BT-M32CS S
ccessory for manual override	heavy 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)



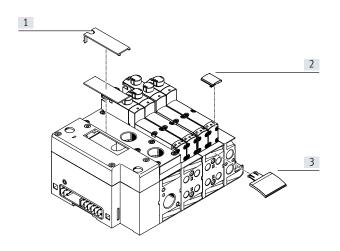
Note

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 detenting of the cover cap cannot be guaranteed.

Key features - Electrical components

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 sub-bases to identify them. These inscription label holders can be ordered by entering the code B or T in the order code for accessories.

Scope of delivery: inscription label holder including inscription label. The following inscription labels can be used as spares:

- Inscription label holder for valve type ASCF-T-S6: part no. 540888
- Inscription label holder with additional fields for marking for valve type ASCF-T-S6-Z: part no. 8106532

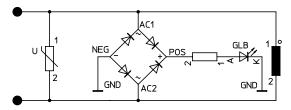
- Inscription label holder for manifold sub-base type ASCF-M-S6: part no. 540889
- Inscription label holder for manifold sub-base (for valve width 52 mm) type ASCF-M-S2-2: part no. 562577
 Large inscription labels can be attached to the pneumatic interface as an alternative or in addition to the smaller labels.

Protective circuit

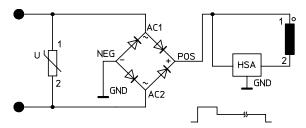
Each VSVA solenoid coil is provided with a spark arresting protective circuit and protected against polarity reversal.

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) is used.
- With the valve terminal VTSA-F-CB, the common load always refers to a common voltage zone.
- A configuration combining VTSA/VTSA-F and VTSA-F-CB is not permitted.

Key features - Electrical components

Individual valve

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

- Electrical connection M12, 4-pin 24 V DC
- 4-pin clamped terminal connection for configuration by the user 24 V DC
- 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:

- M12
- 6-way or 10-way
- 5-pin
- 24 V DC

Electrical multi-pin plug connection

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

- Sub-D multi-pin plug connection (37-pin for 24 V DC): This valve terminal can be equipped with
 - $1\dots 16$ 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 coils.

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 connector

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 linkage 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.

- 🛔 -

AS-i module VAEM-S6-S-FAS-4-4E.
Always operate the AS-i module with additional power supply if max. 4 solenoid coils (width 52 mm) are simultaneously supplied with current.
More information can be found at:

→ Internet: as-interface

Note

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

Key features – Electrical components

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 allocation –	Multi-pin plu	ug, Sub-D socket	i , 24 V DC, Pin ²⁾	Address/coil	ie MP1 Wire colour ¹⁾		Pin ²⁾	Address/coil	Wire colour ¹⁾
	_		1	0	WH		17	16	WH PK
50.4			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
	00		5	4	GY		21	20	WH RD
	000		6	5	PK		22	21	BN RD
	^ ^		7	6	BU		23	22	GY GN
	0 0		8	7	RD		24	23	YE GY
			9	8	GY PK		25	24	PK GN
	000		10	9	RD BU		26	25	YE PK
	0 0		11	10	WH GN		27	26	GN BU
			12	11	BN GN		28	27	YE BU
	000		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	or					
- 🏺 - Note	- Francisco - Note			0 V ³⁾	YE BK		35	0 V ₃₎	BN BK
	ue a nlan via	waftha Cub D	34	0 V ³⁾	WH BK		36	0 V ₃₎	ВК
The drawing sho plug socket at th			Earthing	5					
plug socket at tr	ie connecting	cable NEDV	37	FE	VT	Ĭ	-	1-	_

¹⁾ To IEC 757

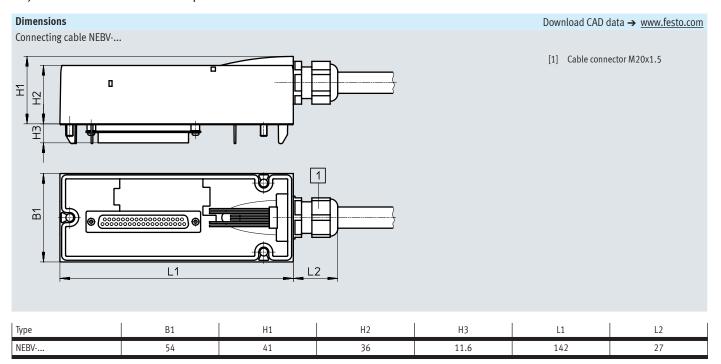
²⁾ Pin 9 ... 35: not allocated in the case of connecting cable NEBV-...-LE10

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

Connect 0 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!

Key features – Electrical components



-	Cable sheath	, 24 V DC, electrical control code MP1 Connecting cable	Length	Part no.	Туре
			[m]		,
√	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
		For max. 22 solenoid coils, 26-wire	2.5	539243	NEBV-S1W37-E-2.5-LE26
\downarrow	\circ		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

Key features – Electrical components

	Terminal	Coil/address	Terminal	Coil/address
ch solenoid coil is assigned to a specific terminal on the terminal order for the valves to be actuated.	l strip			
	1	0	17	16
	2	1	18	17
0 19	3	2	19	18
	4	3	20	19
	5	4	21	20
┠╎ ╢╌║╌║╌║╌╢╌╢╌╢┈╢┈╢┈╢┈╢┈╢┈╢┈╢┈╢┈╢┈ ╢┤╢	6	5	22	21
	7	6	23	22
	8	7	24	23
	9	8	25	24
<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			
e drawing shows a plan view of the multi-pin terminal strip (Cage	33	0 V	35	0 V
amp).	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		
\(\int \frac{4+}{4^4} \frac{45}{10} \frac{4}{6} \frac{1}{8} \right\\\	3	4		11	13		
$\left(\left(\begin{array}{cccccccccccccccccccccccccccccccccc$	4	16		12	11		
	5	8		13	10		
1 ^r + T ₁	6	3		14	1		
	7	14		15	18		

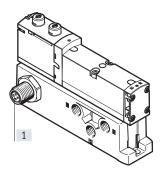
	Pin	Valve position/ solenoid coil	Pin	Valve position/ solenoid coil
	1	8/14	10	7/12
	2	6/14	11	7/14
	3	4/14	12	FE
110 120 10 3	4	2/12	13	6/12
/ //10 170 19 19 10 3	5	2/14	14	4/12
	6	0 V ¹⁾	15	1/14
\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\\	7	1/12	16	3/14
07 O6 O ⁵	8	3/12	17	5/14
	9	5/12	18	8/12
			19	Not allocated

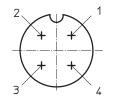
¹⁾ Pin 6: 0 V for positive-switching control signals; connect 24 V for negative-switching control signals; mixed operation is not permitted! Pin 12: earth

Pin 19: not allocated

Key features - Electrical components

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





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

Pin allocation M12 on individual valve to ISO 20401

With positive logic:

Pin1 – Not allocated Pin2 – U_R for coil 12

Pin3 - 0 V for coil 12 and 14

Pin4 - U_B for coil 14

With negative logic:

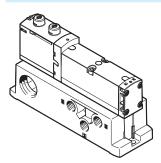
Pin1 - Not allocated

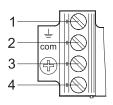
Pin2 - 0 V for coil 12

Pin3 - U_B for coil 12 and 14

Pin4 - 0 V for coil 14

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:

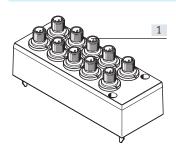
Pin1 - Not allocated

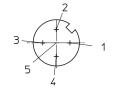
Pin2 - 0 V for coil 12

Pin $3 - U_B$ 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] Connector 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

Instructions for use

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 the permanent lubrication would otherwise be flushed out over a period of time.

- [] - Valve width

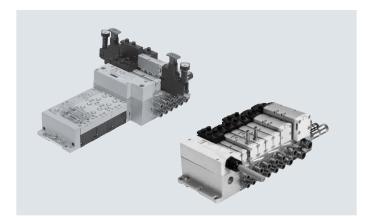
to ISO 15407-2

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

Voltage 24 V DC



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 for VTS	A/VTSA-F								
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		Electric							
Electrical control		With multi-pin: multi-pin							
		With fieldbus: integrated controller, fieldbus, Industrial Ethernet							
Pilot air supply		Internal/external							
Exhaust function, can be thrott	led	Via throttle plate							
Type of mounting		Wall mounting							
		On H-rail to EN 60715							
Mounting position		Any							
Signal status display		LED							
Manual override		Non-detenting, detenting, concealed							
Suitable for vacuum		Yes							
Valve terminal design		Modular, valve sizes can be mixed							
Max. no. of valve positions		321)							
Pneumatic connections – Thre	aded connec	ction							
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	Dependent 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

 $^{| \! \! \}mid \cdot \! \! \! \! \! \mid \cdot$ Note: This product conforms to ISO 1179-1 and ISO 228-1.

Data sheet – Valve terminal VTSA-F-CB

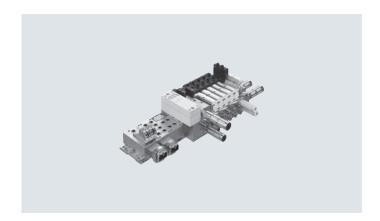
- [] - Valve width

- 18 mm (ISO 02)
- 26 mm (ISO 01)
- 42 mm (ISO 1) to ISO 5599-2
- 52 mm (ISO 2)

Voltage 24 V DC



- N - Flow rate¹⁾ Width 18 mm: up to 700 l/min Width 26 mm: up to 1350 l/min Width 42 mm: up to 1860 l/min Width 52 mm: up to 2900 l/min



1) Flow rates apply to 5/2-way solenoid valve

Terminal type CPX/VTSA-F-	CB	Smart valve terminal w	Smart valve terminal with serial communication CPX/VTSA-F-CB										
Design		Piston spool valve											
Valve functions		5/2-way solenoid va	5/2-way solenoid valve										
		• 5/3-way solenoid va	• 5/3-way solenoid valve ¹⁾										
		• 2x 3/2-way solenoid valve											
		• 2x 2/2-way solenoid valve											
		Integration of vacuum generation, soft start/quick exhaust valve, switchable pilot air											
Valve sizes, width	[mm]	18	26	42	52								
Grid dimension	[mm]	38	54	43	59								
Number of valves/plates		2	2	1	1								
To standard		-	_	_	Standardised								
Actuation type		Electric											
Electrical control		Fieldbus: CPX	Fieldbus: CPX										
Pilot air supply		Internal/external											
Exhaust function, can be t	rottled	Via throttle plate											
Type of mounting		Wall mounting											
		On H-rail to EN 60715 (not possible in combination with CPX-FVDA-P2 (safety module))											
Mounting position		Any											
Signal status display		LED											
Manual override		Non-detenting/detenting; non-detenting/concealed; non-detenting heavy duty/detenting via accessory; self-resetting via electrical control											
		signal	al										
Suitable for vacuum		Yes											
Valve terminal design		Modular, valve sizes can be mixed											
Note on forced checking pr		Switching frequency min. 1/month											
Max. no. of valve positions		Max. 24 per voltage zone: max. 4 x 24 = 96											
No. of voltage zones		Max. 4, including 3 with and 1 without safe shut-off											
Pneumatic connection		Via manifold sub-base											
Supply port	1	Via right-hand end plate (G1/2 and G3/4) or supply plate or soft start valve											
Exhaust port	3/5	Via right-hand end pla	te (G1/2 and G3/4) or supply p	olate or soft start valve									
Working ports	2/4	G1/8	G1/4	G3/8	G1/2								
Tubing size: small	[mm]	6	8	10	12								
Tubing Size. Sinall		8 10 12 16											
Tubing size: large	[mm]	*	10 ensions metric or imperial (hyl		16								

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 terminals VTSA

Valve function (with valve code)	Terminal	Width 18	mm			Width 26 mm				
	code	Valve	Valve on va	lve terminal		Valve	Valve on valve terminal			
			VTSA VTSA-F		VTSA-F-CB		VTSA	VTSA-F	VTSA-F-CB	
5/2-way, double solenoid (B52)	J	750	550	700	700	1400	1100	1350	1350	
5/2-way, double solenoid with dominant signal (D52)	D	750	550	700	700	1400	1100	1350	1350	
5/2-way, single solenoid, pneumatic spring (M52A)	M	750	550	700	700	1400	1100	1350	1350	
5/2-way, single solenoid, mechanical spring (M52M)	0	750	550	700	700	1400	1100	1350	1350	
5/3-way, closed (P53C)	G	700	450	650	650	1400 ¹⁾ 700 ²⁾	1000 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾	1350 ¹⁾ 700 ²⁾	
5/3-way, exhausted (P53E)	E	700 ¹⁾	450 ¹⁾	4801)	480 ¹⁾	1400 ¹⁾	10001)	1350 ¹⁾	1350 ¹⁾	
. ,,		330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	
5/3-way, pressurised (P53U)	В	700 ¹⁾	450 ¹⁾	4801)	480 ¹⁾	14001)	10001)	1350 ¹⁾	1350 ¹⁾	
		330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	
5/3-way, exhausted, switching position 14 detenting	SA	-	380 ¹⁾	430 ¹⁾	430 ¹⁾	14001)	10001)	1350 ¹⁾	1350 ¹⁾	
(P53ED) ³⁾			310 ²⁾	360 ²⁾	360 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	
5/3-way, exhausted, switching position 12 detenting	SE	1-	380 ¹⁾	460 ¹⁾	460 ¹⁾	1400 ¹⁾	10001)	1350 ¹⁾	1350 ¹⁾	
(P53EP) ³⁾			300 ²⁾	350 ²⁾	350 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	
5/3-way, port 2 pressurised, 4 exhausted, switching	SB	-	380 ¹⁾	440 ¹⁾	440 ¹⁾	700 ¹⁾	700 ¹⁾	700 ¹⁾	700 ¹⁾	
position 14 detenting (P53AD) ³⁾			350 ²⁾	4002)	400 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	
5/3-way, port 4 pressurised, 2 exhausted, switching	SD	-	370 ¹⁾	430 ¹⁾	430 ¹⁾	-	850 ¹⁾	950 ¹⁾	950 ¹⁾	
position 14 detenting (P53BD) ³⁾			340 ²⁾	360 ²⁾	360 ²⁾		820 ²⁾	860 ²⁾	860 ²⁾	
2x3/2-way, single solenoid, closed (T32C)	K	600	400	550	550	1250	900	1150	1150	
2x3/2-way, single solenoid, open (T32U)	N	600	400	550	550	1250	900	1150	1150	
2x3/2-way, single solenoid, open/closed (T32H)	Н	600	400	550	550	1250	900	1150	1150	
2x3/2-way, single solenoid, closed (T32N)	Q	600	400	550	550	1250	900	1150	1150	
2x3/2-way, single solenoid, open (T32F)	Р	600	400	550	550	1250	900	1150	1150	
2x3/2-way, single solenoid, open/closed (T32W)	R	600	400	550	550	1250	900	1150	1150	
2x2/2-way, single solenoid, closed (T22C)	VC	700	500	650	650	1350	1000	1300	1300	
2x2/2-way, single solenoid, closed (T22CV)	VV	700	500	650	650	1350	1000	1300	1300	

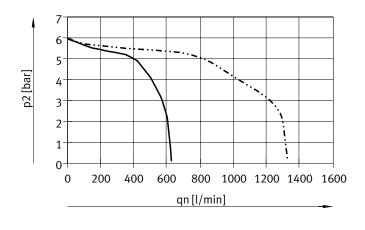
Switching position
 Mid-position
 The valve functions P53ED, P53EP, P53AD and P53BD are only available in the 24 V DC version. Values only apply to 24 V DC.

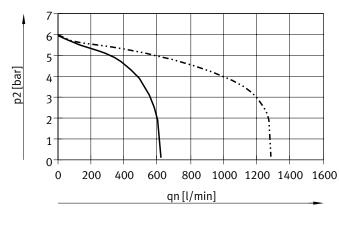
Valve function (with valve code)	Terminal	Width 42	mm			Width 52 mm				
,	code	Valve	Valve on valve terminal			Valve	Valve on valve terminal			
			VTSA	VTSA-F	VTSA-F-CB		VTSA	VTSA-F	VTSA-F-CB	
5/2-way, double solenoid (B52)	J	2000	1300	1860	1860	4000	2900	2900	2900	
5/2-way, double solenoid with dominant signal (D52)	D	2000	1300	1860	1860	4000	2900	2900	2900	
5/2-way, single solenoid, pneumatic spring (M52A)	M	2000	1300	1860	1860	4000	2900	2900	2900	
5/2-way, single solenoid, mechanical spring (M52M)	0	2000	1300	1860	1860	4000	2900	2900	2900	
5/3-way, closed (P53C)	G	1900 ¹⁾	1200 ¹⁾	1690 ¹⁾	1690 ¹⁾	3600 ¹⁾	2800 ¹⁾	2800 ¹⁾	2800 ¹⁾	
		950 ²⁾	800 ²⁾	830 ²⁾	830 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	
5/3-way, exhausted (P53E)	E	1900 ¹⁾	1200 ¹⁾	1690 ¹⁾	1690 ¹⁾	3600 ¹⁾	2800 ¹⁾	2800 ¹⁾	2800 ¹⁾	
		950 ²⁾	800 ²⁾	830 ²⁾	830 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	
5/3-way, pressurised (P53U)	В	1900 ¹⁾	12001)	1690 ¹⁾	1690 ¹⁾	3600 ¹⁾	2800 ¹⁾	2800 ¹⁾	2800 ¹⁾	
		950 ²⁾	800 ²⁾	830 ²⁾	830 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F) ³⁾	VG	1700 ¹⁾	14001)	1700 ¹⁾	1700 ¹⁾	3000 ¹⁾	2300 ¹⁾	2300 ¹⁾	2300 ¹⁾	
		700 ²⁾	800 ²⁾	700 ²⁾	700 ²⁾	900 ²⁾	900 ²⁾	900 ²⁾	900 ²⁾	
2x3/2-way, single solenoid, closed (T32C)	K	1600	1200	1300	1300	3000	2400	2400	2400	
2x3/2-way, single solenoid, open (T32U)	N	1600	1200	1300	1300	3000	2400	2400	2400	
2x3/2-way, single solenoid, open/closed (T32H)	Н	1600	1200	1300	1300	3000	2400	2400	2400	
2x3/2-way, single solenoid, closed (T32N)	Q	1600	1200	1300	1300	3000	2400	2400	2400	
2x3/2-way, single solenoid, open (T32F)	Р	1600	1200	1300	1300	3000	2400	2400	2400	
2x3/2-way, single solenoid, open/closed (T32W)	R	1600	1200	1300	1300	3000	2400	2400	2400	
2x2/2-way, single solenoid, closed (T22C)	VC	1600	1400	1500	1500	4000	2800	2800	2800	
2x2/2-way, single solenoid, closed (T22CV)	W	1600	1400	1500	1500	-	-	_	-	

Switching position
 Mid-position
 The valve function P53F is only available in the 24 V DC version. Values only apply to 24 V DC.

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

6 bar 10 bar

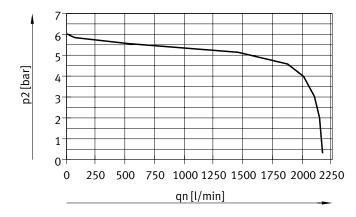


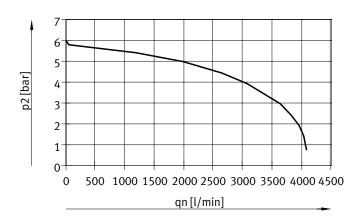


----- Width 18 mm

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

Input pressure 10 bar, set regulated pressure 6 bar



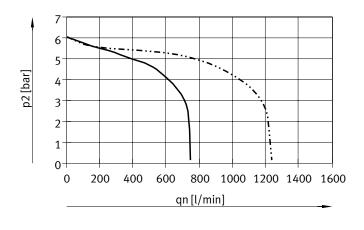


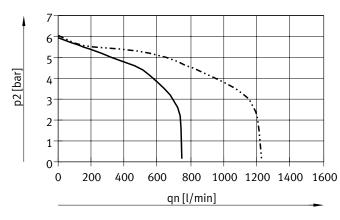
Width 42 mm (ISO 1)

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

5 bar 10 bar

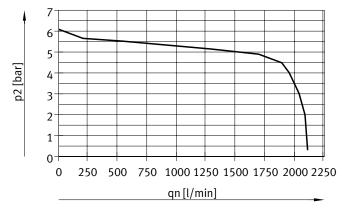


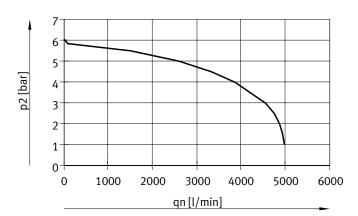


Width 18 mm
Width 26 mm

----- Width 18 mm

Input pressure 10 bar, set regulated pressure 6 bar



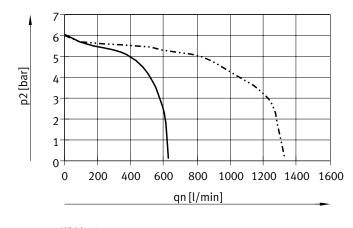


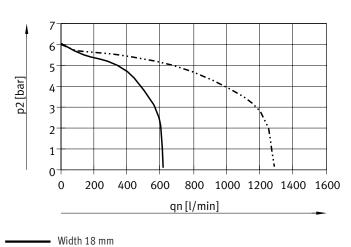
Width 42 mm (ISO 1)

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

6 bar 10 bar

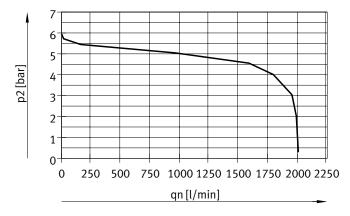


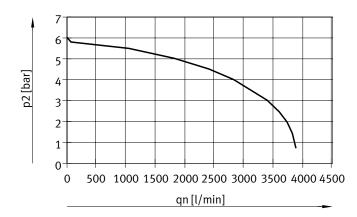


Width 18 mm
Width 26 mm

----- Width 26 mm

Input pressure 10 bar, set regulated pressure 6 bar

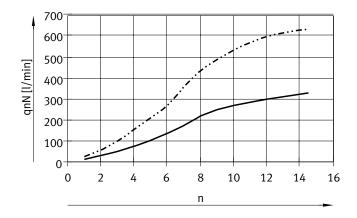




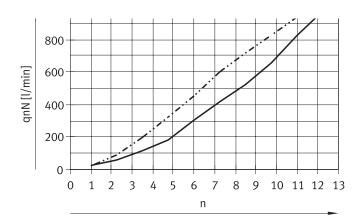
Width 42 mm (ISO 1)

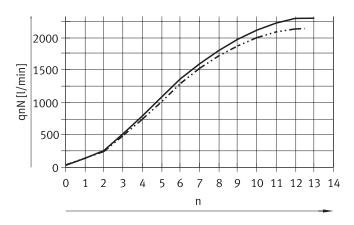
Width 52 mm (ISO 2)

Flow rate qn as a function of flow control



Width 18 mm
Width 26 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)

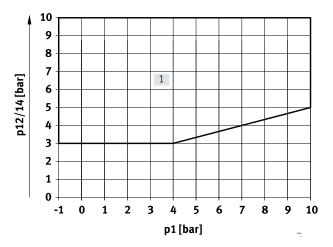
Flow control screw from $2 \rightarrow 3$

Flow control screw from $4 \rightarrow 5$

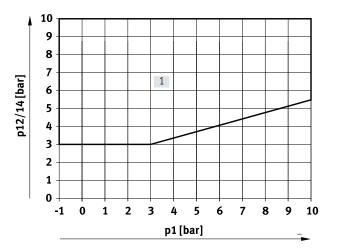
n = revolutions of the adjusting screw

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

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



For 5/2-way solenoid valves (M52, B52, D52, P53)



[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	cal 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				
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 cond	itions		
Туре		VTSA/VTSA-F	VTSA-F-CB
Operating medium	_	Compressed air to ISO 8573-1:2010 [7:4:4]	Compressed air to ISO 8573-1:2010 [7:4:4]
Pilot medium		Compressed air to ISO 8573-1:2010 [7:4:4]	Compressed air to ISO 8573-1:2010 [7:4:4]
Notes on operating/		Lubricated operation possible (in which case lubricated operation	Lubricated operation not possible
pilot medium		will always be required)	
Operating pressure for valve	[bar]		
terminal, pilot air supply ²⁾			
External		-0.9 +10	-0.9 +10
Internal		310	310
Pilot pressure	[bar]	310	310
Sound pressure level LpA	[dB(A)]	85	-
Ambient temperature	[°C]	-5 +50	-5 +50
Temperature of medium	[°C]	-5 +50	-
Storage temperature	[°C]	-20 +60	-20 +60
Relative humidity	[%]	0 90	0 90
Certification		BIA	-
		C-Tick	-
		c UL us - Recognized (OL)	-
CE marking (see		To EU EMC Directive ¹⁾	To EU EMC Directive ¹⁾
declaration of conformity)		To EU Explosion Protection Directive (ATEX, EX1E ³⁾)	-
KC mark		KC EMC	KC EMC
ATEX category gas		II 3G (EX1E ³⁾)	-
Type of ignition protection for gas		Ex nA IIC T3 X Gc (EX1E ³⁾)	-
Explosion-proof ambient	[°C]	-5 +50 (EX1E ³⁾)	-
temperature			
Corrosion resistance class CRC ⁴⁾		0	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.

²⁾ Solenoid valves with code VC (2/2-way type ... T22C), N (3/2-way type ... T32U), K (3/2-way type ... T32U), K (3/2-way type ... T32H) must not be operated with vacuum; the operating pressure here is 3 ... 10 bar 3) Certification is valid for VTSA/vTSA-F-MP, VTSA/vTSA-F-FB

⁴⁾ Corrosion resistance class CRC 0 to Festo standard FN 940070

No corrosion stress. Applies to small, visually unimportant standard 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.

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		100%						
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)						

Electrical data – Multi-pin plug	connection	
Load voltage supply for valves (l	J _{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		100%
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)

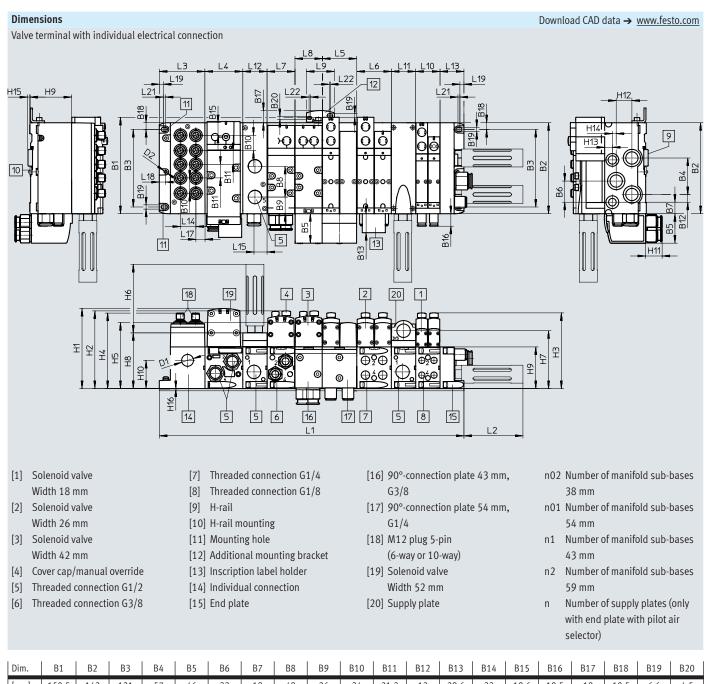
Electrical data — With CPX terminal		
Power supply for electronics (U _{EL/SEN})		
Operating voltage	[V DC]	24 ±10%
Max. intrinsic current consumption at	[mA]	20
24 V DC		
Duty cycle		100%
Load voltage supply for valves (U _{val})		
Operating voltage	[V DC]	24 ±10%
Diagnostic message on undervoltage 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, supply plate cover	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 PA
connection	
Note on materials	RoHS-compliant

Product weights											
	Width										
Approx. weights [g	18 mm	26 mm	42 mm	52 mm							
Multi-pin node with Sub-D or terminal strip for VTSA/VTSA-F 1)	550										
Multi-pin node with M12 individual connection for	760										
VTSA/VTSA-F											
Pneumatic interface CPX for VTSA/VTSA-F											
With diagnostics for undervoltage of valves	590										
(VABA-S6-1-X1/X2/X2-D)											
Pneumatic interface CPX for VTSA-F-CB											
With 3x load supplies	580										
(VABA-S6-1-X1/X2-3V-CB)											
 For PROFIsafe, with diagnostics for undervoltage, short 	734										
circuit of valves, wire break per solenoid coil (VABA-S6-1-X2-F1/F2-CB)											
With diagnostics for undervoltage, short circuit of	560										
valves, wire break per solenoid coil											
(VABA-S6-1-X1/X2-CB)											
Electrical interface for AS-Interface for VTSA/VTSA-F	300										
AS-Interface module for VTSA/VTSA-F	850										
Supply plate for valve terminal VTSA/VTSA-F ²⁾											
Exhaust plate with 3 and 5 common	617										
Exhaust air cover with 3 and 5 separated	597										
Supply plate/extension module for VTSA-F-CB ²⁾											
Exhaust plate with 3 and 5 common	611										
Exhaust air cover with 3 and 5 separated	600										
Right-hand end plate ³⁾											
With threaded connections	339			336							
Selector	281			-							
Manifold sub-base for VTSA/VTSA-F 4)	447	634	340, 330 ⁵⁾	610							
Manifold sub-base for VTSA-F-CB 4)	434	579	330	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	-	-							
Valves → Solenoid valves, widths											
Cover plate	34	73	68	146							

With sheet metal seal, printed circuit board
 With sheet metal seal and electrical linkage

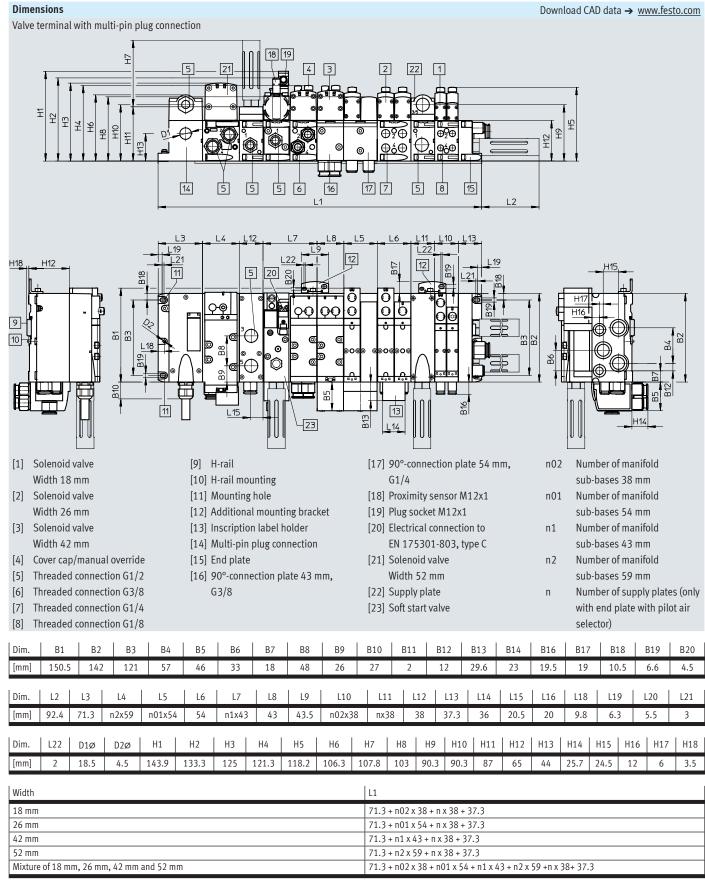
With screws
 With sheet metal seal, electrical linkage, inscription label holder, 4 screws
 Manifold sub-base optimised for flow rate, HS



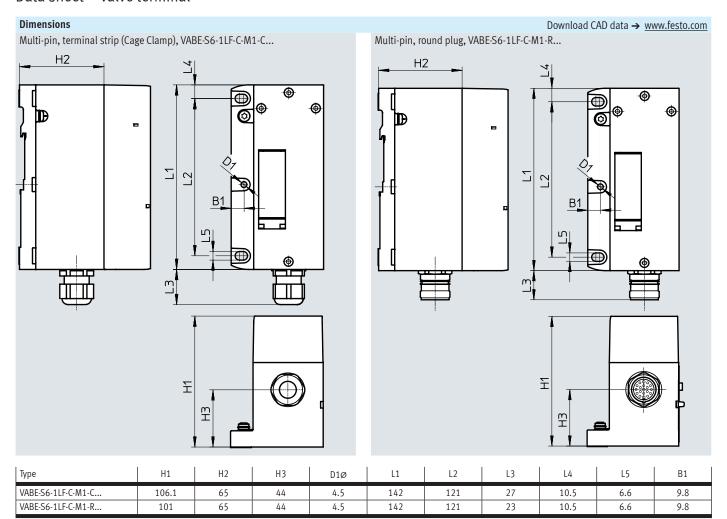
Dim.	B1	B2	B:	3 E	34 B	5 E	66 B	7 B8	B9	B10) B1	.1 B	12 E	313	B14	B15	B1	6 1	B17	B18	B19	B20
[mm]	150.5	142	2 12	1 5	57 4	6 3	3 1	3 48	26	24	21	.3 1	.2 2	9.6	23	19.6	19.	.5	19	10.5	6.6	4.5
Dim.	L2	L3	L	4	L5	L6	L7	L8	L9	L	10	L11	L12	L13	L	14	L15	L10	6	L17	L18	L19
[mm]	92.4	71.3	n2x	(59	n01x54	54	n1x43	3 43	43.5	n02	2x38	nx38	38	37.	3 2	24	20.5	20)	14.1	9.8	6.3
Dim.	L20	L21	L22	D1ø	D2Ø	H1	H2	H3	H4	Н5	Н6	H7	H8	Н9	H1	0 H	11	H12	H13	H14	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	4 2	5.7	24.5	12	6	3.5	0.5

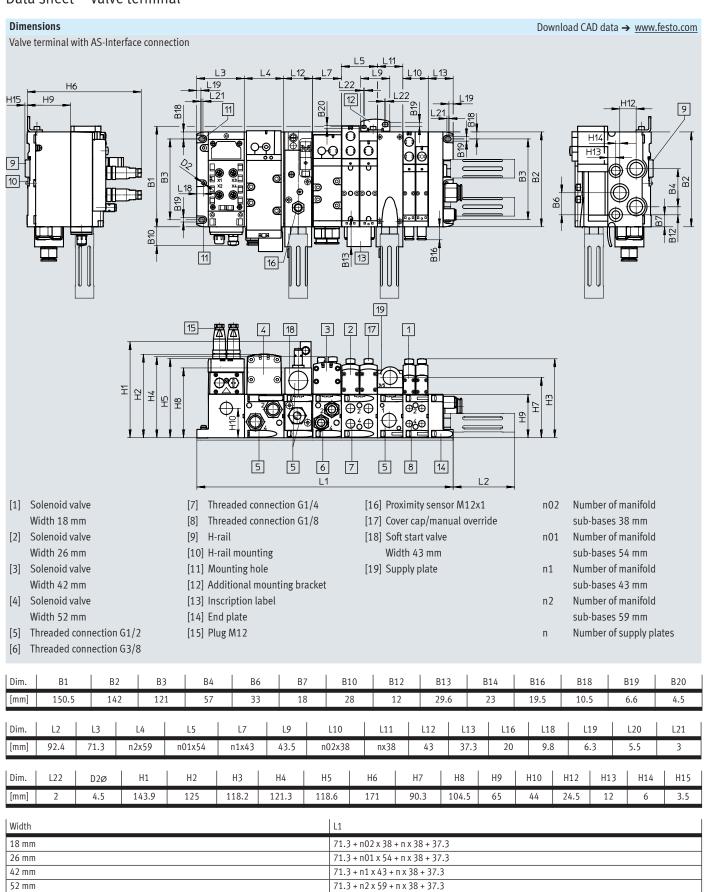
Width	L1
18 mm	71.3 + n02 x 38 + n x 38 + 37.3
26 mm	71.3 + n01 x 54 + n x 38 + 37.3
42 mm	71.3 + n1 x 43 + n x 38 + 37.3
52 mm	71.3 + n2 x 59 + n x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2x59 + n x 38 + 37.3

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



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





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

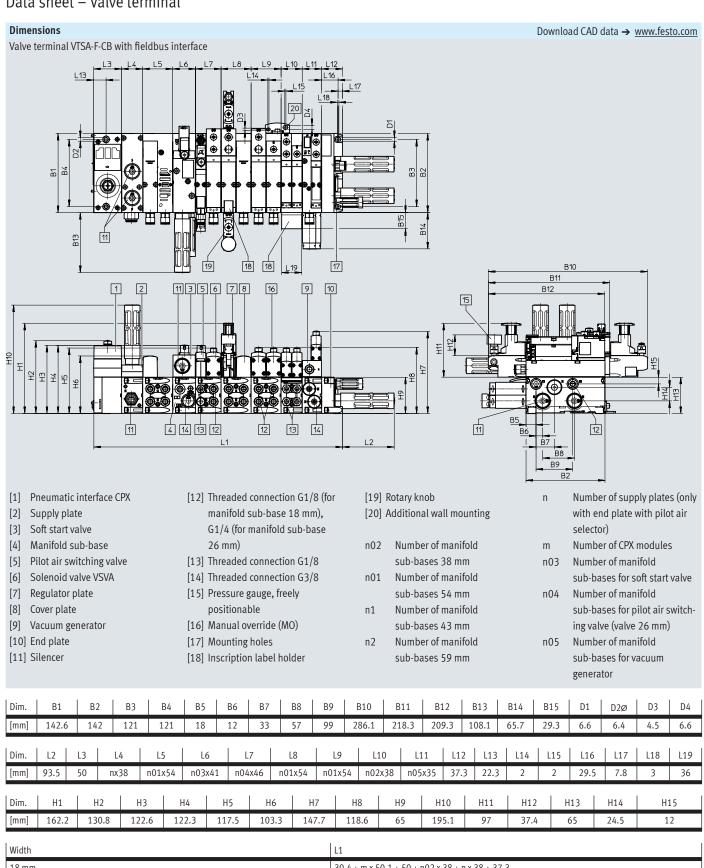
71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2 x 59 + n x 38 + 37.3

Dimensions		1.11	٠, ٢														Do	wnloa	nd CAD	data	a → <u>w</u>	ww.fes	to.com
Valve terminal w	/ith ne	elabus	interra				1.7	1.40	. 7			1.7	1.44	1.40	43								
H18 H12		1 1	B22	L23	25		98 88 88 88 88 88 88 88 88 88 88 88 88 8	\			0 000		22	12 12 12 12 12 12 12 12 12 12 12 12 12 1		9 P P P P P P P P P P P P P P P P P P P	B2 -	B11 B6		H177 -116 1	H15		F B12 B4
E 27	H 44	H10 H2	1_ _		16	14	23	5	19 20 		4 © ©	⊕á		1	15	L2	H12	£ £					
[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 G1/2 [6] Threaded connection G1/4 [7] Threaded connection G1/4 [8] Threaded connection G1/8 [9] H-rail [10] H-rail mounting [11] Mounting hole [12] Additional mounting brace [13] Inscription label holder [14] Pneumatic interface CPX [15] End plate [16] CPX module/bus node [17] 90°-connection plate 43 [17] Threaded connection G1/4 [18] 90°-connection plate 54 mm, G1/4											[20] [21] [22] [23] [24]	Plug so Electric EN 175 Drilled	cal conn 3301-8 hole fo ing, dia id valv 52 mm	nection 03, type or addition neter 6	to : C onal	, 2x		01 1 2	with e select	ases er of ases er of ases er of ases er of ases nd p or)	38 m mani 54 m mani 43 m mani 59 m supp late w	m fold m fold m fold	t air
Dim. B1	B2	В3	В4	B5	В6	B7	B8	В9	B10	B11	B12	B13	B14	B16	B17	B18	B19	В	20 B	21	B22	B23	B24
[mm] 107.3	142	121	57	46	33	18	48	26	78	66	12	29.6	23	19.5	19	10.5	6.6	4	.5	55	18.9	7.5	4.4
Dim. L2	Dim.								L9	L10)	L11	L12	L13	L14	L15		L17	L18	[19	L21	L22
[mm] 92.4	[mm] 92.4 50 n2x59 n01x54 54 n1x43 43 mx								mx50.1	n02x	38	nx38	38	37.3	1	20.5		22	22	6	5.3	3	2
Dim. L23 L	.24	L25	Н1	H2	2 I	13	H4	Н5	H6	H7	Н8	Н9	H10	H11	H12	H13	Н	14	H15	H16	H17	H18	H19
[mm] 30.4 2	3.7	1.5	143.9	133	3.3 1	25 12	21.3	118.2	103	106.8	87	90.3	92.9	55.1	65	25.8	25	5.7	24.5	12	6	3.5	10.8
Width 18 mm 26 mm 42 mm 52 mm Mixture of 18 mm, 26 mm, 42 mm and 52 mm										L1 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 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 + n2 x 59 + n x 38 + 37.3													

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

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

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

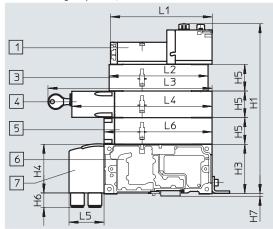


Width	L1
18 mm	30.4 + m x 50.1 + 50 + n02 x 38 + n x 38 + 37.3
26 mm	30.4 + m x 50.1 + 50 + n01 x 54 + n x 38 + 37.3
42 mm	30.4 + m x 50.1 + 50 + n1 x 43 + n x 38 + 37.3
52 mm	30.4 + m x 50.1 + 50 + n2 x 59 + n x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	30.4 + m x 50.1 + 50 + n02 x 38 + n01 x 54 + n1 x 43 + n2x59 + n x 38 + 37.3

Dimensions

Vertical stacking components, width 18 mm

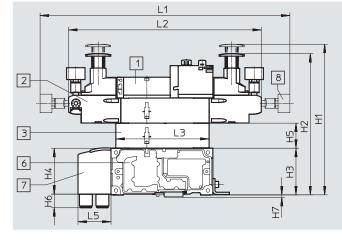
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- [1] Solenoid valve with two solenoid coils, width 18 mm
- [3] Throttle plate
- [4] Vertical pressure shut-off plate lockable (code ZT), optionally lockable with key (code ZS)
- [5] Vertical supply plate
- [6] Manifold sub-base
- [7] 90°-connection plate

Dim.	L1	L2	L3	L4	L3	L4	L5	L6	H1	Н3	H4	H5	Н6	H7
			(Code ZT)	(Code ZT)	(Code ZS)	(Code ZS)								
[mm]	133.8	130	-	184.1	222.3	198.3	46	142	224	65	64	35	19	3.5

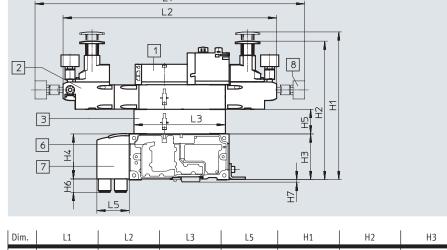
Vertical stacking components, width 18 mm



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

Dim.	L1	L2	L3	L5	H1	H2	Н3	H4	H5	Н6	H7
[mm]	348.2	268.6	130	46	210	197	65	64	35	19	3.5

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



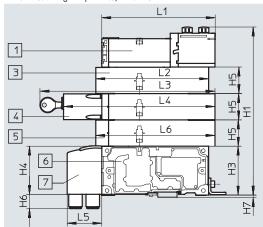
- [1] Solenoid valve with two solenoid coils, width 18 mm
- [2] Pressure regulator plate
- [3] Throttle plate
- [6] Manifold sub-base
- [7] 90°-connection plate
- [8] Pressure gauge, freely positionable

[mm] 383.2 303.6 130 46	210 197	65	64	35	19	3.5

Dimensions

Vertical stacking components, width 26 mm

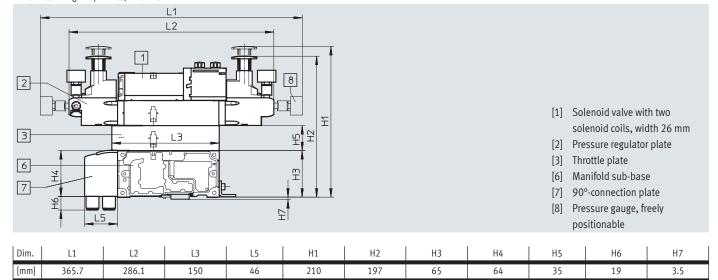
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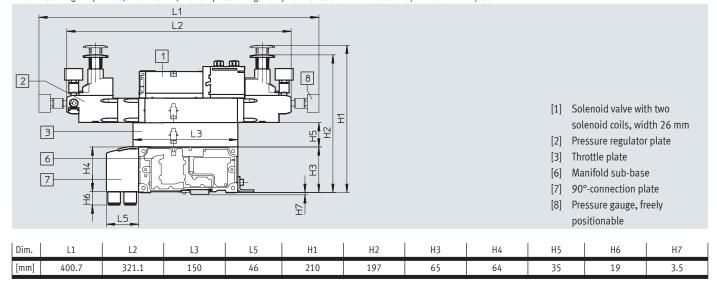
- [1] Solenoid valve with two solenoid coils, width 26 mm
- [3] Throttle plate
- [4] Vertical pressure shut-off plate lockable (code ZT), optionally lockable with key (code ZS)
- [5] Vertical supply plate
- [6] Manifold sub-base
- [7] 90°-connection plate

Dim.	L1	L2	L3 (Code ZT)	L4 (Code ZT)	L3 (Code ZS)	L4 (Code ZS)	L5	L6	H1	Н3	H4	H5	Н6	H7
[mm	150.8	150	-	201.4	239.5	215.5	46	158.5	224	65	64	35	19	3.5

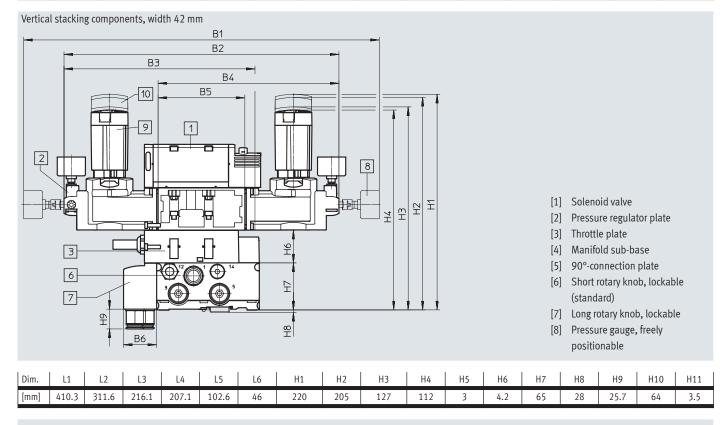
Vertical stacking components, width 26 mm



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



Dimensions Download CAD data → www.festo.com Vertical stacking components, width 42 mm L1 1 3 蛭 L3 5 Solenoid valve 6 Throttle plate [3] 贸 ¥ 4 [4] Vertical pressure shut-off plate Vertical supply plate [5] 7 Manifold sub-base [6] L5 L2 90°-connection plate Dim. Н3 Н5 Н8 L3 L5 L6 Н1 Н6 Н7 236 137.8 142 173.8 46 117.6 65 64 45.3 25.7 28 [mm] 105.3 3.5





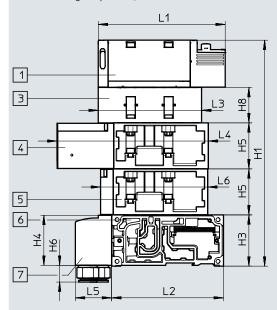
Pressure regulator plates for symmetrical valves with widths of 42 mm and 52 mm can only be ordered via the pressure regulator configurator VABF-S2. The following can be selected using the pressure regulator configurator VABF-S2:

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

→ Internet: vabf-s2

Dimensions

Vertical stacking components, width 52 mm

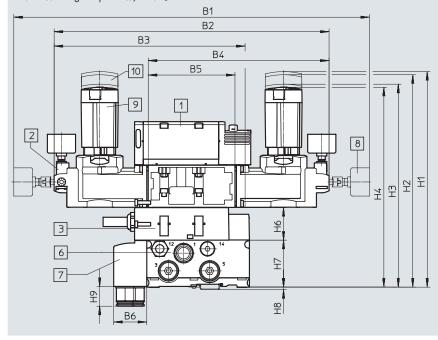


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- [1] Solenoid valve
- [3] Throttle plate
- [4] Vertical pressure shut-off plate
- [5] Vertical supply plate
- [6] Manifold sub-base
- [7] 90°-connection plate

Dim.	L1	L2	L3	L4	L5	L6	H1	Н3	H4	H5	H6	Н8
[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
- [2] Pressure regulator plate
- [3] Throttle plate
- [4] Manifold sub-base
- [5] 90°-connection plate
- [6] Short rotary knob, lockable (standard)
- [7] Long rotary knob, lockable
- [8] Pressure gauge, freely positionable

Dim.	L1	L2	L3	L4	L5	L6	H1	H2	Н3	H4	H5	H6	H7	H8	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



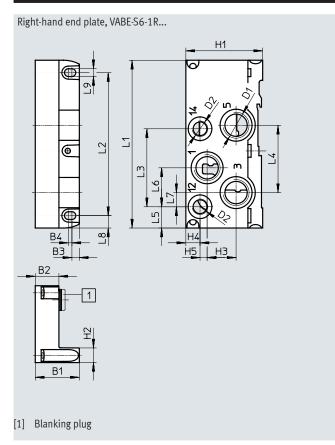
- Pressure regulator plates for symmetrical valves with widths of 42 mm and 52 mm can only be ordered via the pressure regulator configurator VABF-S2.

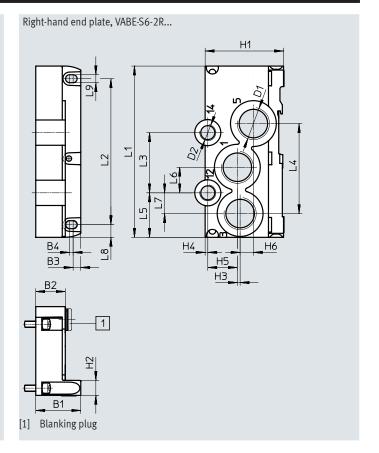
The following can be selected using the pressure regulator configurator VABF-S2:

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

→ Internet: vabf-s2

Dimensions Download CAD data → www.festo.com Supply plate with silencer 1 2 [1] Supply plate [2] Exhaust air cover [3] Silencer U-1/2-B Threaded connection G1/2 Dim. 11 L2 Н1 H2 В1 75 [mm] 142 107.5 31.5 38





Туре	L1	L2	L3	L4	L5	L6	L7	L8	L9	D1	D2	H1	H2	Н3	H4	H5	Н6	B1	B2	В3	В4	With ¹⁾
VABE-S6-1R-G12	142	121		5.7	18	22	12	10 г		G1/2	G1/4	С Г	12.5	24.5	12	(27.2	22	()	2	[1]
VABE-S6-1RZ-G12	142	121	66))/	10	23	1,2	10.5	6.6	01/2	G1/4	65	12.5	24.5	1.2	О	-	3/.3	22	6.3	٥	-
VABE-S6-2R-G34	142	121	49.9	74.6	36.9	21.2	172	10.5	6.6	G3/4	G1/4	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	50.9	21.2	17.2	10.5	0.0	05/4	01/4	0)	12.5	2.5	2.2	24.5	11)/.)	24.5	0.5	,	-

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

Dimensions Download CAD data → www.festo.com Right-hand end plate with pilot air selector, VABE-S6-1RZ-G-B1 B5 L9 L8 D1 D2 Н1 Н2 Н3 Н4 Н5 В5 В6 Туре L2 В1 В2 В3

142

121

41.3

10.5

6.6

G1/4

37

65.4

12.5

23

33

21

37.3

20

6.3

3

12

10.5

VABE-S6-1RZ-G-B1

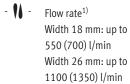
 $[\]cdot \ | \ \cdot$ Note: This product conforms to ISO 1179-1 and ISO 228-1.

Data sheet - Solenoid valves VSVA

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

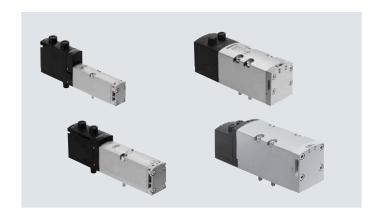
- 18 mm
- 26 mm to ISO 5599-2
- 42 mm (ISO 1)
- 52 mm (ISO 2)

Voltage 24 V DC



Width 42 mm: up to 1300 (1860) l/min Width 52 mm:

width 52 mm: up to 2900 l/min



1) Flow rates in brackets apply to VTSA-F and VTSA-F-CB

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		Electric
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 display		LED (except types with signal status display sensor, and part nos.: 560727 and 560728)
Signal status display sensor		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	1	Via the manifold sub-base of the valve terminal or via individual sub-base
Exhaust	3/5	
Working ports	2/4	
Pilot air supply	1 2/14	
Pilot exhaust air	8 2/84	Either ducted or unducted

Data sheet - Solenoid valves

Pneumatic characterist	ic 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	M52-M
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	Flow direction									
Any	•	-	-	-	-	_	-	_	_	
Only reversible	-	-	-	-	-	_	_	_	-	-
Non-reversible	-	-	-	_	-	-	-	-	•	_
Reset method	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, are suitable for vacuum operation (standard valves such as the 2x 2/2-way solenoid valve with code VC 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/		Lubricated operation possible (in which case lubricated operation will always be required)
pilot medium		
Operating pressure, pilot air supply ²⁾	[bar]	-0.9 +10 (valves with any flow direction and reversible valves)
		3 10 (non-reversible valves)
Pilot pressure	[bar]	310
Pilot air supply		External
		Internal via valve terminal
Ambient temperature	[°C]	-5 +50
Relative humidity	[%]	0 90
Certification		BIA (for characteristic SP and/or SN only)
Direct volta	ge 24 V DC	C-Tick (only size 52 mm and solenoid valves with sensor (position sensing))
		c UL us - Recognized (OL)
		CSA (OL)
		c CSA us (OL) (valves of size 52 mm only)
CE marking (see Direct volta	ge 24 V DC	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 $3 \dots 10$ bar

Data sheet - Solenoid valve, width 18 mm

Valve width to ISO 15407-2

- **** - Voltage 24 V DC

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



Safety data for valve		
Conforms to standard		EN 13849-1/2
CE marking (see	Direct voltage	To EU EMC Directive ¹⁾ (only solenoid valves with sensor)
declaration of conformity)	24 V DC	
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)	Termi-	Test pulses					
	nal	Max. positive test pulse with logic 0 [μs]	Max. negative test pulse with logic 1 [µs]				
	code						
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 (P53ED)	SA	1500	800				
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	1500	800				
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	1500	800				
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	1500	800				
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)	VV	1700	1200				

Data sheet – Solenoid valve, width 18 mm

Valve function (with valve code)	Termi-	Flow direction			Reset method		Weight
	nal 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

Standard nominal flow rate of valve/valve terminal [l/m	- 1	le .				
Valve function (with valve code)	Termi- nal code	Flow rate Valve	Valve on valve ter	Valve on individual sub-base		
			VTSA	VTSA-F	VTSA-F-CB	
5/2-way, double solenoid (B52)	J	750	550	700	700	600
5/2-way, double solenoid with dominant signal (D52)	D	750	550	700	700	600
5/2-way, single solenoid (M52A)	M	750	550	700	700	600
5/2-way, single solenoid (M52M)	0	750	550	700	700	600
5/3-way, closed (P53C)	G	700	450	650	650	550
5/3-way, exhausted (P53E)	E	700 ¹⁾	450 ¹⁾	4801)	4801)	500 ¹⁾
		330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾
5/3-way, pressurised (P53U)	В	700 ¹⁾	450 ¹⁾	4801)	4801)	500 ¹⁾
		330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾	330 ²⁾
5/3-way, exhausted, switching position 14 detenting	SA	-	380 ¹⁾	430 ¹⁾	430 ¹⁾	390 ¹⁾
(P53ED)			310 ²⁾	360 ²⁾	360 ²⁾	310 ²⁾
5/3-way, exhausted, switching position 12 detenting	SE	-	380 ¹⁾	460 ¹⁾	460 ¹⁾	390 ¹⁾
(P53EP)			300 ²⁾	350 ²⁾	350 ²⁾	320 ²⁾
5/3-way, port 2 pressurised, 4 exhausted, switching	SB	-	380 ¹⁾	4401)	4401)	380 ¹⁾
position 14 detenting (P53AD)			350 ²⁾	4002)	4002)	360 ²⁾
5/3-way, port 4 pressurised, 2 exhausted, switching	SD	-	370 ¹⁾	430 ¹⁾	430 ¹⁾	4001)
position 14 detenting (P53BD)			340 ²⁾	360 ²⁾	360 ²⁾	350 ²⁾
			360 ³⁾	450 ³⁾	450 ³⁾	390 ³⁾
			360 ⁴⁾	450 ⁴⁾	450 ⁴⁾	380 ⁴⁾
2x3/2-way, single solenoid, closed (T32C)	K	600	400	550	550	500
2x3/2-way, single solenoid, open (T32U)	N	600	400	550	550	500
2x3/2-way, single solenoid, open/closed (T32H)	Н	600	400	550	550	500
2x3/2-way, single solenoid, closed (T32N)	Q	600	400	550	550	500
2x3/2-way, single solenoid, open (T32F)	Р	600	400	550	550	500
2x3/2-way, single solenoid, open/closed (T32W)	R	600	400	550	550	500
2x2/2-way, single solenoid, closed (T22C)	VC	700	500	650	650	500
2x2/2-way, single solenoid, closed (T22CV)	VV	700	500	650	650	500

¹⁾ Switching position

⁴⁾ Mid-position 2 → 3



When using the solenoid valves VSVA-B-P53AD-...- or VSVA-B-P53BD-...- (terminal code SB or SD) for unobstructed venting (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 doesn't happen if the length of the tubing used at port 2/4 is at least 15 cm.

²⁾ Mid-position

³⁾ Switching position 4 → 5

Data sheet – Solenoid valve, width 18 mm

Valve switching times in [ms]				
Valve function (with valve code)	Termi- nal code	On	Off	Changeover
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)	M	22	28	-
5/2-way, single solenoid (M52M)	0	12	38	-
5/3-way, closed (P53C)	G	15	44	-
5/3-way, exhausted (P53E)	Е	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 10 for control side 14	37 for control side 12	(24)
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	10 for control side 12 13 for control side 14	30 for control side 12	(23)
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	12 for control side 12 9 for control side 14	28 for control side 12	-
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	12 for control side 12 9 for control side 14	28 for control side 12	-
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		
Valve function (with valve code)		Characteristic coil data at 24 V DC in [W]
	nal 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)	Е	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 detenting (P53AD)	SB	1.6
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	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)	W	1.3

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

Ordering data – VSVA so	lenoid va	lve, MO non-detenting/detenting (D)				
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
Solenoid valves, 24 V DO			·			
	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	18 mm	561159	VSVA-B-T22CV-AZD-A2-1T1L
Ay Som	\	normally closed,	1220	10 111111	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
	D.	1x normally open, 1x normally closed	Tabe	10	520470	VCVA D TOOF AZD AD ATAL
	P	2x 3/2-way valve, single solenoid, reverse operation,	T32F	18 mm	539179	VSVA-B-T32F-AZD-A2-1T1L
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	539177	VSVA-B-T32N-AZD-A2-1T1L
		reverse operation,			557277	
		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	M52 M	10	520405	VCVA D MED MED AD ATAL
	0	5/2-way valve, single solenoid, mechanical spring return	M52-M	18 mm	539185	VSVA-B-M52-MZD-A2-1T1L
	1	5/2-way valve, double solenoid	B52	18 mm	539182	VSVA-B-B52-ZD-A2-1T1L
	,	7/2-way valve, double solellold	032	10 111111	337102	V3VA-D-D32-2D-A2-111E
	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
	SA	mid-position exhausted 5/3-way solenoid valve,	P53ED	18 mm	8031814	VSVA-B-P53ED-ZD-A2-1T1L
	JA.	mid-position exhausted, switching position 14 detenting,	FOSED	10 111111	6051614	V3VA-B-F33EU-ZU-AZ-111L
		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,	. 5555	-5	2022017	
		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 sc	olenoid valve	e with cover cap for MO non-detenting/heavy duty, detenting via acc	essory (TR)			
	Terminal	Valve function	Valve	Width	Part no.	Туре
	code		code			
Solenoid valves, 24 V D	C					
	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033457	VSVA-B-T22C-AZTR-A2-1T1L
		normally closed,				
		pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033458	VSVA-B-T22CV-AZTR-A2-1T1L
		normally closed,				
		pneumatic spring return,				
	N	vacuum operation possible at 3 and 5	Table	10	0022446	VCVA D TOOL AZTD AO 4T41
	N	2x 3/2-way valve, single solenoid, normally open	T32U	18 mm	8033446	VSVA-B-T32U-AZTR-A2-1T1L
	K	2x 3/2-way valve, single solenoid,	T32C	18 mm	8033444	VSVA-B-T32C-AZTR-A2-1T1L
	K	normally closed	1320	10 111111	6055444	V3VA-B-132C-AZTR-AZ-111L
	Н	2x 3/2-way valve, single solenoid,		18 mm	8033448	VSVA-B-T32H-AZTR-A2-1T1L
	''	1x normally open, 1x normally closed	T32H	10 111111	0033440	VSVA D 19211 AZIKAZ 111E
	P	2x 3/2-way valve, single solenoid,	T32F	18 mm	8033447	VSVA-B-T32F-AZTR-A2-1T1L
		reverse operation,	1.52.			
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	8033445	VSVA-B-T32N-AZTR-A2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	18 mm	8033449	VSVA-B-T32W-AZTR-A2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	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,	M52-M	18 mm	8033453	VSVA-B-M52-MZTR-A2-1T1L
		mechanical spring return 5/2-way valve, double solenoid	DEO	10	0022450	VCVA D DES 7TD AS 4T41
]	5/2-way valve, double Solelloid	B52	18 mm	8033450	VSVA-B-B52-ZTR-A2-1T1L
	D	5/2-way valve, double solenoid,	D52	18 mm	8033451	VSVA-B-D52-ZTR-A2-1T1L
		with dominant signal	1032	10 111111	5555151	VOWED BY ETHER THE
	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,				
	65	mechanical spring return	D5455	1.0		LIGHT D DECEMBER 1
	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
	30	mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2,	FJJAU	10 111111	8039184	V3VA-D-F 33AD-ZIR-AZ-111L
		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,				
I .	1	mechanical spring return	1	1		

Ordering data – VSVA so	olenoid va	lve with cover cap for MO, non-detenting (H)				
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
Solenoid valves, 24 V D						
PO.	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033475	VSVA-B-T22C-AZH-A2-1T1L
		normally closed, pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033476	VSVA-B-T22CV-AZH-A2-1T1L
My A.		normally closed,	12200	10 111111	8033470	V3VA-D-122CV-AZ11-AZ-111E
		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	Tagu	10	0000166	VCVA D TOOLI AZII AO 4T41
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	T32H	18 mm	8033466	VSVA-B-T32H-AZH-A2-1T1L
	P	2x 3/2-way valve, single solenoid,	T32F	18 mm	8033465	VSVA-B-T32F-AZH-A2-1T1L
	[reverse operation,	1321	10 111111	6033403	V3VA-B-1321-A2-111E
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	8033463	VSVA-B-T32N-AZH-A2-1T1L
		reverse operation,				
		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	IWI JZ /	10 111111	0033470	VOVA D INJE ALII AZ TITE
	0	5/2-way valve, single solenoid,	M52-M	18 mm	8033471	VSVA-B-M52-MZH-A2-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	18 mm	8033468	VSVA-B-B52-ZH-A2-1T1L
	D	5/2-way valve, double solenoid,	D52	18 mm	8033469	VSVA-B-D52-ZH-A2-1T1L
		with dominant signal	032	10 111111	8033409	V3VA-0-032-211-A2-111E
	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
	C A	mid-position exhausted	DESER	10	0020402	VCVA D DESER ZII AS 4741
	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,				
		switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to 2				
		and exhausted from 4 to 5, mechanical spring return				
		meenameat spring return				

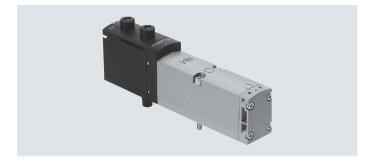
Ordering data – VSVA so	data — VSVA solenoid valve with cover cap for MO, covered					
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
Solenoid valves, 24 V DC						
	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033493	VSVA-B-T22C-AZ-A2-1T1L
		normally closed,				
		pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033494	VSVA-B-T22CV-AZ-A2-1T1L
	l	normally closed,				
	1	pneumatic spring return, 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
	"	normally open	1520	10 111111	8033482	V3VA-D-1320-A2-A2-111L
	K	2x 3/2-way valve, single solenoid,	T32C	18 mm	8033480	VSVA-B-T32C-AZ-A2-1T1L
	"	normally closed	1.520	10	0055,00	101112112112112
	Н	2x 3/2-way valve, single solenoid,	T32H	18 mm	8033484	VSVA-B-T32H-AZ-A2-1T1L
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	18 mm	8033483	VSVA-B-T32F-AZ-A2-1T1L
		reverse operation,				
		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, reverse operation,	T32W	18 mm	8033485	VSVA-B-T32W-AZ-A2-1T1L
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	18 mm	8033488	VSVA-B-M52-AZ-A2-1T1L
	M	pneumatic spring return	IWI JZ-A	10 111111	0077400	V3VA-D-M()2-A2-A2-111E
	0	5/2-way valve, single solenoid,	M52-M	18 mm	8033489	VSVA-B-M52-MZ-A2-1T1L
		mechanical spring return	-			
	J	5/2-way valve, double solenoid	B52	18 mm	8033486	VSVA-B-B52-Z-A2-1T1L
	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	DEAC	10	0022/02	VSVA-B-P53C-Z-A2-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	18 mm	8033492	VSVA-B-P53C-Z-AZ-111L
	E	5/3-way solenoid valve,	P53E	18 mm	8033491	VSVA-B-P53E-Z-A2-1T1L
	-	mid-position exhausted	1 332	10 111111	0055451	V3VA-D-1 33L-2-A2-111E
	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
		mid-position exhausted, switching position 12 detenting,				
		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				
		and exhausted from 4 to 5,				
		mechanical spring return				
						

Data sheet - Solenoid valve, width 26 mm

Valve width to ISO 15407-2 26 mm

Voltage 24 V DC

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



Safety data for valve		
Conforms to standard		EN 13849-1/2
CE marking (see	Direct voltage	To EU EMC Directive ¹⁾ (only solenoid valves with sensor)
declaration of conformity)	24 V DC	
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)	Termi-	Test pulses			
	nal 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 detenting (P53AD)	SB	1200	1100		
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	1200	1100		
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)	VV	1500	1200		

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Data sheet – Solenoid valve, width 26 mm

Valve function (with valve code)	Termi-	Flow direction	า		Reset method	Weight	
	nal code	Any	Only reversible	Non-reversible	Pneumatic spring	Mechanical spring	[g]
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)	M		-		•		293
5/2-way, single solenoid (M52M)	0		-		-	•	293
5/3-way, closed ¹⁾ (P53C)	G	•	-	-	-	•	320
5/3-way, exhausted ¹⁾ (P53E)	Е	•	-	_	-	•	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)	Termi-	Flow rate						
	nal code	Valve	Valve on valve	Valve on individual				
			VTSA	VTSA-F	VTSA-F-CB			
5/2-way, double solenoid (B52)	J	1400	1100	1350	1350	1200		
5/2-way, double solenoid with dominant signal (D52)	D	1400	1100	1350	1350	1200		
5/2-way, single solenoid (M52A)	M	1400	1100	1350	1350	1200		
5/2-way, single solenoid (M52M)	0	1400	1100	1350	1350	1200		
5/3-way, closed (P53C)	G	1400 ¹⁾	1000 ¹⁾	1350 ¹⁾	1350 ¹⁾	1200 ¹⁾		
		700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾		
5/3-way, exhausted (P53E)	E	1400 ¹⁾	1000 ¹⁾	1350 ¹⁾	1350 ¹⁾	1200 ¹⁾		
		700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾		
5/3-way, pressurised (P53U)	В	1400 ¹⁾	1000 ¹⁾	1350 ¹⁾	1350 ¹⁾	1200 ¹⁾		
		700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾		
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	1400 ¹⁾	1000 ¹⁾	1350 ¹⁾	1350 ¹⁾	1200 ¹⁾		
		700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾		
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	1400 ¹⁾	1000 ¹⁾	1350 ¹⁾	1350 ¹⁾	1200 ¹⁾		
		700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾		
5/3-way, port 2 pressurised, 4 exhausted, switching position 14	SB	700 ¹⁾	700 ¹⁾	700 ¹⁾	700 ¹⁾	700 ¹⁾		
detenting (P53AD)		700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾	700 ²⁾		
5/3-way, port 4 pressurised, 2 exhausted, switching position 14	SD	-	850 ¹⁾	950 ¹⁾	950 ¹⁾	900 ¹⁾		
detenting (P53BD)			820 ²⁾	860 ²⁾	860 ²⁾	840 ²⁾		
2x3/2-way, single solenoid, closed (T32C)	K	1250	900	1150	1150	1100		
2x3/2-way, single solenoid, open (T32U)	N	1250	900	1150	1150	1100		
2x3/2-way, single solenoid, open/closed (T32H)	Н	1250	900	1150	1150	1100		
2x3/2-way, single solenoid, closed (T32N)	Q	1250	900	1150	1150	1100		
2x3/2-way, single solenoid, open (T32F)	Р	1250	900	1150	1150	1100		
2x3/2-way, single solenoid, open/closed (T32W)	R	1250	900	1150	1150	1100		
2x2/2-way, single solenoid, closed (T22C)	VC	1350	1000	1300	1300	1100		
2x2/2-way, single solenoid, closed (T22CV)	W	1350	1000	1300	1300	1100		

Switching position
 Mid-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) or these solenoid valves may switch unintentionally (to the mid-position or switching position 14).

At pressures above 6 bar, it is possible to prevent the flow rate from becoming too high by using a flow control valve or orifice (e.g. a reducing nipple on port 2or 4 from G1/4 to G1/8).

Data sheet – Solenoid valve, width 26 mm

Valve switching times in [ms]				
Valve function (with valve code)	Termi-	On	Off	Changeover
	nal			
	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)	VV	20	38	-

Characteristic coil data		
Valve function (with valve code)	Termi-	Characteristic coil data at 24 V DC in [W]
	nal	
	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

Ordering data – VSVA so	lenoid va	lve, MO non-detenting/detenting (D)				
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
Solenoid valves, 24 V Do	Ξ					
(*P)	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	561149	VSVA-B-T22C-AZD-A1-1T1L
		normally closed,				
	10/	pneumatic spring return	T2261/	2.6		VICUA D TOO CLATE AL ATAL
	W	2x 2/2-way valve, single solenoid, normally closed,	T22CV	26 mm	561153	VSVA-B-T22CV-AZD-A1-1T1L
		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
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	26 mm	539154	VSVA-B-T32H-AZD-A1-1T1L
	_	1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid, reverse operation,	T32F	26 mm	539153	VSVA-B-T32F-AZD-A1-1T1L
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	539151	VSVA-B-T32N-AZD-A1-1T1L
	~	reverse operation,	15211	20 111111	333131	VSW B 1921(N2B X1 1112
		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	1450.14	101		NOVA D MED MED AL CELL
	0	5/2-way valve, single solenoid, mechanical spring return	M52-M	26 mm	539159	VSVA-B-M52-MZD-A1-1T1L
	1	5/2-way valve, double solenoid	B52	26 mm	539156	VSVA-B-B52-ZD-A1-1T1L
	,	7/2-way valve, double solellold	0) 2	20 111111	339130	V3VA-0-032-20-A1-1112
	D	5/2-way valve, double solenoid,	D52	26 mm	539157	VSVA-B-D52-ZD-A1-1T1L
		with dominant signal				
	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, mid-position exhausted	P53E	26 mm	539161	VSVA-B-P53E-ZD-A1-1T1L
	SA	5/3-way solenoid valve,	P53ED	26 mm	560727	VSVA-B-P53ED-ZD-A1-1T1L
	JA	mid-position exhausted, switching position 14 detenting,	1 7760	20 111111	300727	V3VA-0-1 35E0-20-A1-111E
		mechanical spring return				
	SE	5/3-way solenoid valve,	P53EP	26 mm	8026638	VSVA-B-P53EP-ZD-A1-1T1L
		mid-position exhausted, switching position 12 detenting,				
		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				
	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				
						<u> </u>

Terminal code Solenoid valves, 24 V DC VC	Valve code T22C T22CV T32U T32C T32H T32F T32N T32N M52-A	26 mm	8033032 8033033 8033015 8033017 8033016 8033014	VSVA-B-T22C-AZTR-A1-1T1L VSVA-B-T22CV-AZTR-A1-1T1L VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
Solenoid valves, 24 V DC VC	T22CV T22CV T32U T32C T32H T32F T32N T32N	26 mm 26 mm 26 mm 26 mm 26 mm 26 mm	8033015 8033015 8033017 8033016 8033014	VSVA-B-T22CV-AZTR-A1-1T1L VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L
Solenoid valves, 24 V DC VC	T22CV T32U T32C T32H T32F T32N T32W	26 mm 26 mm 26 mm 26 mm 26 mm 26 mm	8033015 8033015 8033017 8033016 8033014	VSVA-B-T22CV-AZTR-A1-1T1L VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L
VC 2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return W 2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5 N 2x 3/2-way valve, single solenoid, normally open K 2x 3/2-way valve, single solenoid, normally closed H 2x 3/2-way valve, single solenoid, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally closed M 2x 3/2-way valve, single solenoid, reverse operation, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T22CV T32U T32C T32H T32F T32N T32W	26 mm 26 mm 26 mm 26 mm 26 mm 26 mm	8033015 8033015 8033017 8033016 8033014	VSVA-B-T22CV-AZTR-A1-1T1L VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L
normally closed, pneumatic spring return W 2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5 N 2x 3/2-way valve, single solenoid, normally open K 2x 3/2-way valve, single solenoid, normally closed H 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, meuratic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T22CV T32U T32C T32H T32F T32N T32W	26 mm 26 mm 26 mm 26 mm 26 mm 26 mm	8033015 8033015 8033017 8033016 8033014	VSVA-B-T22CV-AZTR-A1-1T1L VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L
montally closed, pneumatic spring return VV 2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5 N 2x 3/2-way valve, single solenoid, normally open K 2x 3/2-way valve, single solenoid, normally closed H 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32U T32C T32H T32F T32N T32N	26 mm 26 mm 26 mm 26 mm 26 mm	8033015 8033013 8033017 8033016 8033014	VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
VV 2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5 N 2x 3/2-way valve, single solenoid, normally open K 2x 3/2-way valve, single solenoid, normally closed H 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32U T32C T32H T32F T32N T32N	26 mm 26 mm 26 mm 26 mm 26 mm	8033015 8033013 8033017 8033016 8033014	VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
normally closed, pneumatic spring return, vacuum operation possible at 3 and 5 N 2x 3/2-way valve, single solenoid, normally open K 2x 3/2-way valve, single solenoid, normally closed H 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32U T32C T32H T32F T32N T32N	26 mm 26 mm 26 mm 26 mm 26 mm	8033015 8033013 8033017 8033016 8033014	VSVA-B-T32U-AZTR-A1-1T1L VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
pneumatic spring return, vacuum operation possible at 3 and 5 N	T32C T32H T32F T32N T32N	26 mm 26 mm 26 mm 26 mm	8033013 8033017 8033016 8033014	VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
vacuum operation possible at 3 and 5 N	T32C T32H T32F T32N T32N	26 mm 26 mm 26 mm 26 mm	8033013 8033017 8033016 8033014	VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
N 2x 3/2-way valve, single solenoid, normally open K 2x 3/2-way valve, single solenoid, normally closed H 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32C T32H T32F T32N T32N	26 mm 26 mm 26 mm 26 mm	8033013 8033017 8033016 8033014	VSVA-B-T32C-AZTR-A1-1T1L VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
K 2x 3/2-way valve, single solenoid, normally closed H 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32H T32F T32N T32N	26 mm 26 mm 26 mm	8033017 8033016 8033014	VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
normally closed H	T32H T32F T32N T32N	26 mm 26 mm 26 mm	8033017 8033016 8033014	VSVA-B-T32H-AZTR-A1-1T1L VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
H 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32F T32N T32N	26 mm 26 mm	8033016 8033014	VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
1x normally open, 1x normally closed P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32F T32N T32N	26 mm 26 mm	8033016 8033014	VSVA-B-T32F-AZTR-A1-1T1L VSVA-B-T32N-AZTR-A1-1T1L
P 2x 3/2-way valve, single solenoid, reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32N T32W	26 mm	8033014	VSVA-B-T32N-AZTR-A1-1T1L
reverse operation, normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32N T32W	26 mm	8033014	VSVA-B-T32N-AZTR-A1-1T1L
normally open Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32W	26 mm		
Q 2x 3/2-way valve, single solenoid, reverse operation, normally closed R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	T32W	26 mm		
reverse operation, normally closed R	T32W	26 mm		
normally closed R			8033018	VSVA-B-T32W-AZTR-A1-1T1L
R 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal			8033018	VSVA-B-T32W-AZTR-A1-1T1L
1x normally open, 1x normally closed M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	M52-A			
M 5/2-way valve, single solenoid, pneumatic spring return O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	M52-A			
pneumatic spring return 5/2-way valve, single solenoid, mechanical spring return 5/2-way valve, double solenoid 5/2-way valve, double solenoid, with dominant signal	M52-A			
O 5/2-way valve, single solenoid, mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal		26 mm	8033021	VSVA-B-M52-AZTR-A1-1T1L
mechanical spring return J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal				
J 5/2-way valve, double solenoid D 5/2-way valve, double solenoid, with dominant signal	M52-M	26 mm	8033022	VSVA-B-M52-MZTR-A1-1T1L
D 5/2-way valve, double solenoid, with dominant signal	B52	26 mm	9022010	VSVA-B-B52-ZTR-A1-1T1L
with dominant signal	D52	20 111111	8033019	V5VA-B-B52-Z1K-A1-111L
with dominant signal	D52	26 mm	8033020	VSVA-B-D52-ZTR-A1-1T1L
D F/2 way colone id value				
B 5/3-way solenoid valve,	P53U	26 mm	8033023	VSVA-B-P53U-ZTR-A1-1T1L
mid-position pressurised				
G 5/3-way solenoid valve,	P53C	26 mm	8033025	VSVA-B-P53C-ZTR-A1-1T1L
mid-position closed				
E 5/3-way solenoid valve,	P53E	26 mm	8033024	VSVA-B-P53E-ZTR-A1-1T1L
mid-position exhausted	DESER	26	0022020	VCVA D DESERVATOR
SA 5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting,	P53ED	26 mm	8033028	VSVA-B-P53ED-ZTR-A1-1T1L
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,	1.332			
mechanical spring return				
SB 5/3-way solenoid valve,	P53AD	26 mm	8033029	VSVA-B-P53AD-ZTR-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,				
and exnausted 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,		20 111111	5557107	TOTAL STATE OF THE
switching position 14 detenting,				
same function in both switching positions: pressurised from 1 to 2				
and exhausted from 4 to 5,				
mechanical spring return				

	Termi-	New with cover cap for MO, non-detenting (H) Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
noid valves, 24	V DC					
>	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033055	VSVA-B-T22C-AZH-A1-1T1L
		normally closed,				
		pneumatic spring return				
1 6	W	2x 2/2-way valve, single solenoid,	T22CV	26 mm	8033056	VSVA-B-T22CV-AZH-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	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,	.52.	20		10111 2 1921 11211 112
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	8033037	VSVA-B-T32N-AZH-A1-1T1L
		reverse operation,	13211	20 111111	0033037	VSVV D TSERVER NET TITE
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	8033041	VSVA-B-T32W-AZH-A1-1T1L
	I K	reverse operation,	13200	20 111111	8055041	V3VA-D-132W-AZII-AI-111L
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	26 mm	8033044	VSVA-B-M52-AZH-A1-1T1L
	IM		INI 52-A	20 111111	8033044	VSVA-B-M52-AZH-A1-111L
		pneumatic spring return	1452.14	26	0022075	VCVA D MED METH A4 4T41
	0	5/2-way valve, single solenoid,	M52-M	26 mm	8033045	VSVA-B-M52-MZH-A1-1T1L
	-	mechanical spring return	D.5.0	101	2222212	NOVA B BEG THE A ATAL
	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
	١	with dominant signal	032	20 111111	8055045	VSVA-D-D32-ZII-A1-111E
	В	5/3-way solenoid valve,	P53U	26 mm	8033046	VSVA-B-P53U-ZH-A1-1T1L
	D D		17530	20 111111	8033046	VSVA-B-P33U-Zn-A1-111L
	G	mid-position pressurised 5/3-way solenoid valve,	DEGC	26	0022040	VCVA D DEGC 7H A4 4T41
	G		P53C	26 mm	8033048	VSVA-B-P53C-ZH-A1-1T1L
	-	mid-position closed	DESE	26	0022017	VCVA D DESERVITA ATAI
	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,	P53ED	26 mm	8033051	VSVA-B-P53ED-ZH-A1-1T1
		mid-position exhausted, switching position 14 detenting,				
	C.F.	mechanical spring return	DESER	26	0000000	VCVA D DESER THE A 4 TALL
	SE	5/3-way solenoid valve,	P53EP	26 mm	8033058	VSVA-B-P53EP-ZH-A1-1T1L
		mid-position exhausted, switching position 12 detenting,				
		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,				
		mechanical spring return	1	1		
	SD	5/3-way solenoid valve,	P53BD	26 mm	8039188	VSVA-B-P53BD-ZH-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,				
	1	mechanical spring return				

Ordering data – VSVA so	olenoid va	lve with cover cap for MO, covered				
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
Solenoid valves, 24 V D						
	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033078	VSVA-B-T22C-AZ-A1-1T1L
		normally closed,				
	W	pneumatic spring return	Taacy	26	0022070	VCVA D TOOCV AZ A4 4T41
A STATE OF THE STA	l **	2x 2/2-way valve, single solenoid, normally closed,	T22CV	26 mm	8033079	VSVA-B-T22CV-AZ-A1-1T1L
		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				
	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	Tabe	26	0022062	NCMA D TOOL AZ A4 4T41
	P	2x 3/2-way valve, single solenoid, reverse operation,	T32F	26 mm	8033062	VSVA-B-T32F-AZ-A1-1T1L
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	8033060	VSVA-B-T32N-AZ-A1-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	8033064	VSVA-B-T32W-AZ-A1-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	26 mm	8033067	VSVA-B-M52-AZ-A1-1T1L
	0	pneumatic spring return 5/2-way valve, single solenoid,	M52-M	26 mm	9022069	VCVA D ME2 M7 A4 4T41
	0	mechanical spring return	10152-101	20 111111	8033068	VSVA-B-M52-MZ-A1-1T1L
		5/2-way valve, double solenoid	B52	26 mm	8033065	VSVA-B-B52-Z-A1-1T1L
	'	3/2 114, 14115, 454256 551511514	3,2	20		1000.0000000000000000000000000000000000
	D	5/2-way valve, double solenoid,	D52	26 mm	8033066	VSVA-B-D52-Z-A1-1T1L
		with dominant signal				
	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	DESE	26	0022070	VCVA D DEGE 7 A4 4T41
	E	5/3-way solenoid valve, mid-position exhausted	P53E	26 mm	8033070	VSVA-B-P53E-Z-A1-1T1L
	SA	5/3-way solenoid valve,	P53ED	26 mm	8033074	VSVA-B-P53ED-Z-A1-1T1L
		mid-position exhausted, switching position 14 detenting,	. 3323	20		1000 0 1 3522 2 102 2 112
		mechanical spring return				
	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
		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				
		meenameat spring return				

Data sheet - Solenoid valve, width 42 mm

Valve width to ISO 5599-2 42 mm (ISO 1)

- **** - Voltage 24 V DC

Flow rate
Valve width 42 mm:
VTSA up to 1300 l/min
VTSA-F up to 1860 l/min
VTSA-F-CB up to 1860 l/min



Safety data for valve	
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

Safety data for valve, 24 V DC		1				
Valve function (with valve code)	Termi-	Test pulses				
	nal	Max. positive test pulse with logic 0 [µs]	Max. negative test pulse with logic 1 [μs]			
	code					
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)	Termi-	Flow direction			Reset method		Weight
	nal 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)	VV		-	-	-	-	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)	Termi-	Flow rate				
	nal	Valve	Valve on valve	Valve on valve terminal		
	code		VTSA	VTSA-F	VTSA-F-CB	sub-base
5/2-way, double solenoid (B52)	J	2000	1300	1860	1860	1500
5/2-way, double solenoid with dominant signal (D52)	D	2000	1300	1860	1860	1500
5/2-way, single solenoid (M52A)	M	2000	1300	1860	1860	1500
5/2-way, single solenoid (M52M)	0	2000	1300	1860	1860	1500
5/3-way, closed (P53C)	G	1900 ¹⁾	1200 ¹⁾	1690 ¹⁾	1690 ¹⁾	1400 ¹⁾
		950 ²⁾	800 ²⁾	830 ²⁾	830 ²⁾	800 ²⁾
5/3-way, exhausted (P53E)	E	1900 ¹⁾	1200 ¹⁾	1690 ¹⁾	1690 ¹⁾	1400 ¹⁾
		950 ²⁾	800 ²⁾	830 ²⁾	830 ²⁾	800 ²⁾
5/3-way, pressurised (P53U)	В	1900 ¹⁾	1200 ¹⁾	1690 ¹⁾	1690 ¹⁾	1400 ¹⁾
		950 ²⁾	800 ²⁾	830 ²⁾	830 ²⁾	800 ²⁾
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	1700 ¹⁾	1400 ¹⁾	1700 ¹⁾	1700 ¹⁾	1400 ¹⁾
		700 ²⁾	8002)	7002)	7002)	700 ²⁾
2x3/2-way, single solenoid, closed (T32C)	K	1600	1200	1300	1300	1200
2x3/2-way, single solenoid, open (T32U)	N	1600	1200	1300	1300	1200
2x3/2-way, single solenoid, open/closed (T32H)	Н	1600	1200	1300	1300	1200
2x3/2-way, single solenoid, closed (T32N)	Q	1600	1200	1300	1300	1200
2x3/2-way, single solenoid, open (T32F)	Р	1600	1200	1300	1300	1200
2x3/2-way, single solenoid, open/closed (T32W)	R	1600	1200	1300	1300	1200
2x2/2-way, single solenoid, closed (T22C)	VC	1600	1400	1500	1500	1400
2x2/2-way, single solenoid, closed (T22CV)	VV	1600	1400	1500	1500	1400

Switching position
 Mid-position

Data sheet – Solenoid valve, width 42 mm

Valve function (with valve code)	Termi-	24 V DC				
	nal 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		
Valve function (with valve code)	Termi- nal code	Characteristic coil data at 24 V DC in [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

	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
enoid valves,	24 V DC					
	VC	2x 2/2-way valve, single solenoid,	T22C	42 mm	561340	VSVA-B-T22C-AZD-D1-1T1L
		normally closed,				
	a	pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	42 mm	561344	VSVA-B-T22CV-AZD-D1-1T1L
		normally closed,				
8/	1	pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	42 mm	543692	VSVA-B-T32U-AZD-D1-1T1L
		normally open				
	K	2x 3/2-way valve, single solenoid,	T32C	42 mm	543690	VSVA-B-T32C-AZD-D1-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	42 mm	543694	VSVA-B-T32H-AZD-D1-1T1L
		1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid,	T32F	42 mm	543693	VSVA-B-T32F-AZD-D1-1T1L
		reverse operation,				
		normally open	TOOL	1,0		MOMA D TOOM ATD DA 4T41
	Q	2x 3/2-way valve, single solenoid,	T32N	42 mm	543691	VSVA-B-T32N-AZD-D1-1T1L
		reverse operation,				
	-	normally closed	T22W	/2	F/2/0F	VCVA D TOOM AZD DA ATAL
	R	2x 3/2-way valve, single solenoid, reverse operation,	T32W	42 mm	543695	VSVA-B-T32W-AZD-D1-1T1L
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	42 mm	543698	VSVA-B-M52-AZD-D1-1T1L
	I IVI	pneumatic spring return	W32-A	42 111111	545096	V3VA-D-W32-AZD-D1-111L
	0	5/2-way valve, single solenoid,	M52-M	42 mm	543699	VSVA-B-M52-MZD-D1-1T1L
		mechanical Spring return	141.52-141	42 111111	343077	V3VA-D-INI 72-INIZD-D1-111L
		5/2-way valve, double solenoid	B52	42 mm	543696	VSVA-B-B52-ZD-D1-1T1L
	ľ	3/2 way valve, aduble solehold	332	72	343070	131/13 532 25 51 1112
	D	5/2-way valve, double solenoid,	D52	42 mm	543697	VSVA-B-D52-ZD-D1-1T1L
	-	with dominant signal			2,232,	
	В	5/3-way solenoid valve,	P53U	42 mm	543700	VSVA-B-P53U-ZD-D1-1T1L
		mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	42 mm	543702	VSVA-B-P53C-ZD-D1-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	42 mm	543701	VSVA-B-P53E-ZD-D1-1T1L
		mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	42 mm	8000464	VSVA-B-P53F-ZD-D1-1T1L
		mid-position pressurised 1 to 2, 4 to 5 closed		1		

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
oid valves, 24	V DC					
	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
	K	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
	P	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	M52-M	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

	Termi- nal	Valve function	Valve code	Width	Part no.	Туре
	code		Code			
enoid valves,	24 V DC		<u> </u>	'	<u>'</u>	
	VC	2x 2/2-way valve, single solenoid,	T22C	42 mm	8034812	VSVA-B-T22C-AZH-D1-1T1L
		normally closed,				
	a	pneumatic spring return				
\$. AL	W	2x 2/2-way valve, single solenoid,	T22CV	42 mm	8034813	VSVA-B-T22CV-AZH-D1-1T1L
		normally closed,				
8/		pneumatic spring return,				
	N	vacuum operation possible at 3 and 5	TOOL	1.0		
	N	2x 3/2-way valve, single solenoid,	T32U	42 mm	8034801	VSVA-B-T32U-AZH-D1-1T1L
	14	normally open	T226	1/2	002/700	NOVA D TOOK AZU DA AZAL
	K	2x 3/2-way valve, single solenoid,	T32C	42 mm	8034799	VSVA-B-T32C-AZH-D1-1T1L
	Н	normally closed	Tagu	/2	002/002	VCVA D TOOL AZU D4 4T41
	l H	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	T32H	42 mm	8034803	VSVA-B-T32H-AZH-D1-1T1L
	P	2x 3/2-way valve, single solenoid,	T32F	42 mm	8034802	VSVA-B-T32F-AZH-D1-1T1L
		reverse operation,	1325	42 111111	8034802	V3VA-D-132F-AZH-D1-111L
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	42 mm	8034800	VSVA-B-T32N-AZH-D1-1T1L
	*	reverse operation,	13211	72	0034000	VOVA D 1921VALII DI 1112
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	42 mm	8034804	VSVA-B-T32W-AZH-D1-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	42 mm	8034807	VSVA-B-M52-AZH-D1-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52-M	42 mm	8034808	VSVA-B-M52-MZH-D1-1T1L
		mechanical spring return				
	J	5/2-way valve, double solenoid	B52	42 mm	8034805	VSVA-B-B52-ZH-D1-1T1L
	D	5/2-way valve, double solenoid,	D52	42 mm	8034806	VSVA-B-D52-ZH-D1-1T1L
		with dominant signal	032	42 111111	8034800	V3VA-D-D32-ZII-D1-TTTL
	В	5/3-way solenoid valve,	P53U	42 mm	8034809	VSVA-B-P53U-ZH-D1-1T1L
		mid-position pressurised	1,350	72 /////	2034009	15.17.5.75.5.11.51.11.11
	G	5/3-way solenoid valve,	P53C	42 mm	8034811	VSVA-B-P53C-ZH-D1-1T1L
	ľ	mid-position closed	1.350	1.2		
	E	5/3-way solenoid valve,	P53E	42 mm	8034810	VSVA-B-P53E-ZH-D1-1T1L
	-	mid-position exhausted	1.332			
	VG	5/3-way solenoid valve,	P53F	42 mm	8034814	VSVA-B-P53F-ZH-D1-1T1L
		mid-position pressurised 1 to 2, 4 to 5 closed				

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
olenoid valves, 24	V DC				·	
	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
	K	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	M52-M	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
	Е	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)

Voltage 24 V DC

Flow rate
Valve width 52 mm:
VTSA up to 2900 l/min
VTSA-F up to 2900 l/min
VTSA-F-CB up to 2900 l/min



Safety data for valve		
Conforms to standard		EN 13849-1/2
CE marking (see	Direct voltage	To EU EMC Directive ¹⁾
declaration of conformity)	24 V DC	
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 data for valve, 24 V DC	1	I=	
Valve function (with valve code)	Termi- nal code	Test pulses 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
i/3-way, exhausted (P53E)	E	1000	3500
i/3-way, pressurised (P53U)	В	1000	3500
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	-	-
x3/2-way, single solenoid, closed (T32C)	K	1000	3500
x3/2-way, single solenoid, open (T32U)	N	1000	3500
x3/2-way, single solenoid, open/closed (T32H)	Н	1000	3500
2x3/2-way, single solenoid, closed (T32N)	Q	1000	3500
x3/2-way, single solenoid, open (T32F)	P	1000	3500
x3/2-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)	Termi-	Flow direction			Reset method		Weight
	nal 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)	М	•	-	_		-	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

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)	Termi-	Flow rate					
	nal	Valve	Valve on valve	Valve on valve terminal			
	code		VTSA	VTSA VTSA-F		sub-base	
5/2-way, double solenoid (B52)	J	4000	2900	2900	2900	3400	
5/2-way, double solenoid with dominant signal (D52)	D	4000	2900	2900	2900	3400	
5/2-way, single solenoid (M52A)	M	4000	2900	2900	2900	3400	
5/2-way, single solenoid (M52M)	0	4000	2900	2900	2900	3400	
5/3-way, closed (P53C)	G	3600 ¹⁾	28001)	28001)	28001)	3200 ¹⁾	
		1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	
5/3-way, exhausted (P53E)	E	3600 ¹⁾	28001)	28001)	28001)	3200 ¹⁾	
		1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	1700 ²⁾	
5/3-way, pressurised (P53U)	В	3600 ¹⁾	2800 ¹⁾	2800 ¹⁾	2800 ¹⁾	3200 ¹⁾	
		1700 ²⁾	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⁾	2300 ¹⁾	2600 ¹⁾	
		900 ²⁾	900 ²⁾	900 ²⁾	900 ²⁾	900 ²⁾	
2x3/2-way, single solenoid, closed (T32C)	K	3000	2400	2400	2400	2600	
2x3/2-way, single solenoid, open (T32U)	N	3000	2400	2400	2400	2600	
2x3/2-way, single solenoid, open/closed (T32H)	Н	3000	2400	2400	2400	2600	
2x3/2-way, single solenoid, closed (T32N)	Q	3000	2400	2400	2400	2600	
2x3/2-way, single solenoid, open (T32F)	Р	3000	2400	2400	2400	2600	
2x3/2-way, single solenoid, open/closed (T32W)	R	3000	2400	2400	2400	2600	
2x2/2-way, single solenoid, closed (T22C)	VC	4000	2800	2800	2800	3400	

Switching position
 Mid-position

Data sheet – Solenoid valve, width 52 mm

Valve switching times in [ms]						
Valve function (with valve code)	Termi-	24 V DC				
	nal	On	Off	Changeover		
	code					
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		
Valve function (with valve code)	Termi- nal code	Characterístic coil data at 24 V DC in [W]
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

Max. current consumption per solenoid coil		
At nominal voltage 24 V DC (valves with holding	ng current re	luction)
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 RoHS-compliant

	Termi- nal code	alve, MO non-detenting/detenting (D) Valve function	Valve code	Width	Part no.	Туре
Solenoid valves, 2						
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	52 mm	560831	VSVA-B-T22C-AZD-D2-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	52 mm	560827	VSVA-B-T32U-AZD-D2-1T1L
7	K	2x 3/2-way valve, single solenoid, normally closed	T32C	52 mm	560825	VSVA-B-T32C-AZD-D2-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	52 mm	560829	VSVA-B-T32H-AZD-D2-1T1L
	Р	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	52 mm	560828	VSVA-B-T32F-AZD-D2-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	52 mm	560826	VSVA-B-T32N-AZD-D2-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	52 mm	560830	VSVA-B-T32W-AZD-D2-1T1L
	М	5/2-way valve, single solenoid, pneumatic spring return	M52-A	52 mm	560820	VSVA-B-M52-AZD-D2-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52-M	52 mm	560821	VSVA-B-M52-MZD-D2-1T1L
	J	5/2-way valve, double solenoid	B52	52 mm	560818	VSVA-B-B52-ZD-D2-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	52 mm	560819	VSVA-B-D52-ZD-D2-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	52 mm	560822	VSVA-B-P53U-ZD-D2-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	52 mm	560824	VSVA-B-P53C-ZD-D2-1T1L
	E	5/3-way solenoid valve, mid-position exhausted	P53E	52 mm	560823	VSVA-B-P53E-ZD-D2-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	52 mm	8000465	VSVA-B-P53F-ZD-D2-1T1L

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
noid valves, 2						
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	52 mm	8034967	VSVA-B-T22C-AZTR-D2-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	52 mm	8034963	VSVA-B-T32U-AZTR-D2-1T1L
	K	2x 3/2-way valve, single solenoid, normally closed	T32C	52 mm	8034961	VSVA-B-T32C-AZTR-D2-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	52 mm	8034965	VSVA-B-T32H-AZTR-D2-1T1L
	Р	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	52 mm	8034964	VSVA-B-T32F-AZTR-D2-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	52 mm	8034962	VSVA-B-T32N-AZTR-D2-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	52 mm	8034966	VSVA-B-T32W-AZTR-D2-1T1L
	M	5/2-way valve, single solenoid, pneumatic spring return	M52-A	52 mm	8034956	VSVA-B-M52-AZTR-D2-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52-M	52 mm	8034957	VSVA-B-M52-MZTR-D2-1T1L
	J	5/2-way valve, double solenoid	B52	52 mm	8034954	VSVA-B-B52-ZTR-D2-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	52 mm	8034955	VSVA-B-D52-ZTR-D2-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	52 mm	8034958	VSVA-B-P53U-ZTR-D2-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	52 mm	8034960	VSVA-B-P53C-ZTR-D2-1T1L
	E	5/3-way solenoid valve, mid-position exhausted	P53E	52 mm	8034959	VSVA-B-P53E-ZTR-D2-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	52 mm	8034968	VSVA-B-P53F-ZTR-D2-1T1L

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
Solenoid valves, 2						
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	52 mm	8034982	VSVA-B-T22C-AZH-D2-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	52 mm	8034978	VSVA-B-T32U-AZH-D2-1T1L
	K	2x 3/2-way valve, single solenoid, normally closed	T32C	52 mm	8034976	VSVA-B-T32C-AZH-D2-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	52 mm	8034980	VSVA-B-T32H-AZH-D2-1T1LL
	P	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	52 mm	8034979	VSVA-B-T32F-AZH-D2-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	52 mm	8034977	VSVA-B-T32N-AZH-D2-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	52 mm	8034981	VSVA-B-T32W-AZH-D2-1T1L
	М	5/2-way valve, single solenoid, pneumatic spring return	M52-A	52 mm	8034971	VSVA-B-M52-AZH-D2-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52-M	52 mm	8034972	VSVA-B-M52-MZH-D2-1T1L
	J	5/2-way valve, double solenoid	B52	52 mm	8034969	VSVA-B-B52-ZH-D2-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	52 mm	8034970	VSVA-B-D52-ZH-D2-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	52 mm	8034973	VSVA-B-P53U-ZH-D2-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	52 mm	8034975	VSVA-B-P53C-ZH-D2-1T1L
	E	5/3-way solenoid valve, mid-position exhausted	P53E	52 mm	8034974	VSVA-B-P53E-ZH-D2-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	52 mm	8034983	VSVA-B-P53F-ZH-D2-1T1L

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
lenoid valves, 2						
	VC	2x 2/2-way valve, single solenoid, normally closed, pneumatic spring return	T22C	52 mm	8034997	VSVA-B-T22C-AZ-D2-1T1L
	N	2x 3/2-way valve, single solenoid, normally open	T32U	52 mm	8034993	VSVA-B-T32U-AZ-D2-1T1L
	K	2x 3/2-way valve, single solenoid, normally closed	T32C	52 mm	8034991	VSVA-B-T32C-AZ-D2-1T1L
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	52 mm	8034995	VSVA-B-T32H-AZ-D2-1T1L
	P	2x 3/2-way valve, single solenoid, reverse operation, normally open	T32F	52 mm	8034994	VSVA-B-T32F-AZ-D2-1T1L
	Q	2x 3/2-way valve, single solenoid, reverse operation, normally closed	T32N	52 mm	8034992	VSVA-B-T32N-AZ-D2-1T1L
	R	2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed	T32W	52 mm	8034996	VSVA-B-T32W-AZ-D2-1T1L
	М	5/2-way valve, single solenoid, pneumatic spring return	M52-A	52 mm	8034986	VSVA-B-M52-AZ-D2-1T1L
	0	5/2-way valve, single solenoid, mechanical spring return	M52-M	52 mm	8034987	VSVA-B-M52-MZ-D2-1T1L
	J	5/2-way valve, double solenoid	B52	52 mm	8034984	VSVA-B-B52-Z-D2-1T1L
	D	5/2-way valve, double solenoid, with dominant signal	D52	52 mm	8034985	VSVA-B-D52-Z-D2-1T1L
	В	5/3-way solenoid valve, mid-position pressurised	P53U	52 mm	8034988	VSVA-B-P53U-Z-D2-1T1L
	G	5/3-way solenoid valve, mid-position closed	P53C	52 mm	8034990	VSVA-B-P53C-Z-D2-1T1L
	Е	5/3-way solenoid valve, mid-position exhausted	P53E	52 mm	8034989	VSVA-B-P53E-Z-D2-1T1L
	VG	5/3-way solenoid valve, mid-position pressurised 1 to 2, 4 to 5 closed	P53F	52 mm	8034998	VSVA-B-P53F-Z-D2-1T1L

Ordering data – Man	Code	lase Description	Width	Part no.	Туре
			Widtii	rait iiu.	туре
VTSA, port pattern to			140		LVADVS (AS SAS ATA
	A	2 valve positions, 4 addresses, for double solenoid valves	18 mm	539224	VABV-S4-2S-G18-2T2
	В	2 valve positions, 4 addresses, for double solenoid valves	26 mm	539220	VABV-S4-1S-G14-2T2
	С	1 valve position, 2 addresses, for double solenoid valves	42 mm	542458	VABV-S2-1S-G38-T2
	D	1 valve position, 2 addresses, for double solenoid valves	52 mm	560841	VABV-S2-2S-G12-T2
	E	2 valve positions, 2 addresses, for single solenoid valves	18 mm	539226	VABV-S4-2S-G18-2T1
	F	2 valve positions, 2 addresses, for single solenoid valves	26 mm	539222	VABV-S4-1S-G14-2T1
	G H	1 valve position, 1 address, for single solenoid valves	42 mm	542459	VABV-S2-1S-G38-T1
	Н	1 valve position, 1 address, for single solenoid valves	52 mm	560842	VABV-S2-2S-G12-T1
/TSA-F, optimised for	flow rate				
<u></u>	А	2 valve positions, 4 addresses, for double solenoid valves	18 mm	546215	VABV-S4-2HS-G18-2T2
200	В	2 valve positions, 4 addresses, for double solenoid valves	26 mm	546211	VABV-S4-1HS-G14-2T2
	С	1 valve position, 2 addresses, for double solenoid valves	42 mm	546219	VABV-S2-1HS-G38-T2
7	E	2 valve positions, 2 addresses, for single solenoid valves	18 mm	546214	VABV-S4-2HS-G18-2T1
	F	2 valve positions, 2 addresses, for single solenoid valves	26 mm	546210	VABV-S4-1HS-G14-2T1
~	G	1 valve position, 1 address, for single solenoid valves	42 mm	546218	VABV-S2-1HS-G38-T1
TCA E CD with CDII	S loop thro	urah			
TSA-F-CB, with CBUS	A	2 valve positions, 4 addresses, for double solenoid valves ¹⁾	18 mm	8067932	VABV-S4-2HS-G18-CB-2T2
			-		· · · · · · · · · · · · · · · · · · ·
	В	2 valve positions, 4 addresses, for double solenoid valves ¹⁾	26 mm	8067940	VABV-S4-1HS-G14-CB-2T2
	С	1 valve position, 2 addresses, for double solenoid valves ¹⁾	42 mm	8068154	VABV-S2-1HS-G38-CB-T2
	D	1 valve position, 2 addresses, for double solenoid valves ¹⁾	52 mm	8068146	VABV-S2-2S-G12-CB-T2
	E	2 valve positions, 2 addresses, for single solenoid valves ¹⁾	18 mm	8067934	VABV-S4-2HS-G18-CB-2T1
	F	2 valve positions, 2 addresses, for single solenoid valves ¹⁾	26 mm	8067942	VABV-S4-1HS-G14-CB-2T1
	G	1 valve position, 1 address, for single solenoid valves ¹⁾	42 mm	8068156	VABV-S2-1HS-G38-CB-T1
	Н	1 valve position, 1 address, for single solenoid valves ¹⁾	52 mm	8068148	VABV-S2-2S-G12-CB-T1
VTSA-F-CR with CRIS	S loon-thro	ugh for pilot air switching valve			
A With Coo.	YB	2 valve positions, 4 addresses, for pilot air switching valve	18 mm	8068913	VABV-S4-2HS-G18-CB-2T5
	1,2	1 valve position, 4 addresses, for prior an switching valve 1 valve position, width 18 mm, with CBUS communication	10 11111	0000717	VADV 34 2113 010 CD 213
		1 valve position, width 18 mm, double solenoid			
		Sensor evaluation: internal			
$\overline{}$	YA	2 valve positions, 4 addresses, for double solenoid valves ¹⁾	18/26 mm	8068911	VABV-S4-12HS-G-CB-2T2
		1 valve position, width 18 mm			
		1 valve position, width 26 mm			
		Sensor evaluation: external			
	VC	2h. and the second for the singuitable and the	10/26	00/00/2	MADME (42HE C CD 2TF
	YC	2 valve positions, 4 addresses, for pilot air switching valve • 1 valve position, width 18 mm, with CBUS communication	18/26 mm	8068912	VABV-S4-12HS-G-CB-2T5
		1 valve position, width 16 mm, double solenoid			
		Sensor evaluation: internal			
		Sensor evaluations internal			
TCA F CD	7.1			-	
/ ISA-r-CB, With CBUS	·	ough for soft start valve	14	00/0/00	VADV.CC 40 C20 CD4 T5
••	PV	With CBUS loop-through and new voltage zone Pressure space plus in	41 mm	8068609	VABV-S6-1Q-G38-CB1-T5
		Pressure sensor plug-in Sensor evaluation: internal			
		Sensor evaluation: internal (Ports for duct 2 and 4 are combined).			
		pneumatic connection G3/8, M5			
	PS	With CBUS loop-through in the same voltage zone	41 mm	8068610	VABV-S6-1Q-G38-CB-T5
	10	Pressure sensor plug-in	41 111111	0000010	1471-20-17-070-CD-13
		Sensor evaluation: internal			
		(Ports for duct 2 and 4 are combined),			
	1	Carto ioi adot 2 and i are combined);			

¹⁾ When using single solenoid valves on double solenoid sub-bases, one address will be lost!

	Code	Description	Width	Part no.	Туре
SA/VTSA-F, supply	plate				
	L	With exhaust plate, 3/5 common, G1/2	38 mm	539231	VABF-S6-1-P1A7-G12
	K	With exhaust air cover, 3/5 separated (for dual-pressure operation), G1/2	38 mm	539230	VABF-S6-1-P1A6-G12
SA-F-CB, extension		eumatic and electric air supply plate			
	U	Additional air supply With exhaust plate, 3/5 common, G1/2	38 mm	8092506	VABF-S6-1-P1A7-G12-CB
	UW	Additional pneumatic and electric supply With exhaust plate, 3/5 common, G1/2 Generation of 24 additional valve addresses (electric supply is provided internally from Uval)	38 mm	8104042	VABF-S6-1-P8A7-G12-CB
	USW	Additional pneumatic and electric supply With exhaust plate, 3/5 common, G1/2 Generation of 24 additional valve addresses (electric supply is provided from new (safe) voltage zone (internally from S2))	38 mm	8104044	VABF-S6-1-P8A7-G12-CB1
	U	Additional air supply With exhaust air cover, 3/5 separated (for dual-pressure operation), G1/2	38 mm	8092502	VABF-S6-1-P1A6-G12-CB
	UW	Additional pneumatic and electric supply With exhaust air cover, 3/5 separated (for dual-pressure operation), G1/2 Generation of 24 additional valve addresses (electric supply is provided internally from Uval)	38 mm	8104041	VABF-S6-1-P8A6-G12-CB
	USW	Additional pneumatic and electric supply With exhaust air cover, 3/5 separated (for dual-pressure operation), G1/2 Generation of 24 additional valve addresses (electric supply is provided from new (safe) voltage zone (internally from S2))	38 mm	8104043	VABF-S6-1-P8A6-G12-CB1

Ordering data – Vertica	stacking					
	Code	Description		Width	Part no.	Туре
90°-connection plate						
08	Р	Outlet underneath	Connecting thread G1/8	18 mm	539719	VABF-S4-2-A2G2-G18
88			Connecting thread G1/4	26 mm	539721	VABF-S4-1-A2G2-G14
			Connecting thread G3/8	42 mm	546097	VABF-S2-1-A1G2-G38
			Connecting thread G1/2	52 mm	555702	VABF-S2-2-A1G2-G12
~						
Vertical supply plate						
9 8	ZU	Individual compressed air supply,	Connecting thread G1/8	18 mm	540173	VABF-S4-2-P1A3-G18
		duct 1	Connecting thread G1/4	26 mm	540171	VABF-S4-1-P1A3-G14
			Connecting thread G3/8	42 mm	546093	VABF-S2-1-P1A3-G38
			Connecting thread G1/2	52 mm	555786	VABF-S2-2-P1A3-G12
	ZV	Individual compressed air supply,	Connecting thread G1/8	18 mm	8000693	VABF-S4-2-P1A14-G18
		ducts 1 and 14	Connecting thread G1/4	26 mm	8000689	VABF-S4-1-P1A14-G14
*			Connecting thread G3/8	42 mm	8000536	VABF-S2-1-P1A14-G38
			Connecting thread G1/2	52 mm	8000549	VABF-S2-2-P1A14-G12
Ordering data – Vertica	Stacking Code	Pressure regulation for port	Regulation range [bar]	Width	Part no.	Туре
Regulator plate, width 18	3 mm					
	ZA	1	0.510	18 mm	540153	VABF-S4-2-R1C2-C-10
	ZF	1	0.56	18 mm	540151	VABF-S4-2-R1C2-C-6
	ZC	2	210	18 mm	540161	VABF-S4-2-R2C2-C-10
	ZH	2	26	18 mm	540159	VABF-S4-2-R2C2-C-6
	ZB	4	210	18 mm	540157	VABF-S4-2-R3C2-C-10
	ZG	4	26	18 mm	540155	VABF-S4-2-R3C2-C-6
	ZD	2 and 4	210	18 mm	540165	VABF-S4-2-R4C2-C-10
	ZI	2 and 4	26	18 mm	540163	VABF-S4-2-R4C2-C-6
	ZE	2 and 4, reversible	0.510	18 mm	540169	VABF-S4-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	18 mm	540167	VABF-S4-2-R5C2-C-6
	ZL	2, reversible	0.510	18 mm	546252	VABF-S4-2-R6C2-C-10
	ZN	2, reversible	0.56	18 mm	546248	VABF-S4-2-R6C2-C-6
	ZK	4, reversible	0.510	18 mm	546254	VABF-S4-2-R7C2-C-10
	ZM	4, reversible	0.56	18 mm	546250	VABF-S4-2-R7C2-C-6
Regulator plate, width 20	ó mm					
®	ZA	1	0.510	26 mm	540154	VABF-S4-1-R1C2-C-10
	ZF	1	0.56	26 mm	540152	VABF-S4-1-R1C2-C-6
	ZC	2	210	26 mm	540162	VABF-S4-1-R2C2-C-10
	ZH	2	26	26 mm	540160	VABF-S4-1-R2C2-C-6
	ZB	4	210	26 mm	540158	VABF-S4-1-R3C2-C-10
	ZG	4	26	26 mm	540156	VABF-S4-1-R3C2-C-6
	ZD	2 and 4	210	26 mm	540166	VABF-S4-1-R4C2-C-10
	ZI	2 and 4	26	26 mm	540164	VABF-S4-1-R4C2-C-6
	ZE	2 and 4, reversible	0.510	26 mm	540170	VABF-S4-1-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	26 mm	540168	VABF-S4-1-R5C2-C-6
	ZL	2, reversible	0.510	26 mm	546251	VABF-S4-1-R6C2-C-10
	ZN	2, reversible	0.56	26 mm	546247	VABF-S4-1-R6C2-C-6
	1	The state of the s	1	1		
	ZK	4, reversible	0.510	26 mm	546253	VABF-S4-1-R7C2-C-10

	Code	Pressure regulation for port	Regulation range [bar]	Width	Part no.	Туре
gulator plate, width	42 mm					
	ZA	1	0.510	42 mm	546084	VABF-S2-1-R1C2-C-10
	ZF	1	0.56	42 mm	546083	VABF-S2-1-R1C2-C-6
	ZC	2	1.010	42 mm	546088	VABF-S2-1-R2C2-C-10
	ZH	2	1.06	42 mm	546087	VABF-S2-1-R2C2-C-6
	ZB	4	1.010	42 mm	546086	VABF-S2-1-R3C2-C-10
Ų;	ZG	4	0.56	42 mm	546085	VABF-S2-1-R3C2-C-6
	ZD	2 and 4	1.010	42 mm	546090	VABF-S2-1-R4C2-C-10
	ZI	2 and 4	1.06	42 mm	546089	VABF-S2-1-R4C2-C-6
	ZE	2 and 4, reversible	0.510	42 mm	546092	VABF-S2-1-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	42 mm	546091	VABF-S2-1-R5C2-C-6
	ZL	2, reversible	0.510	42 mm	546832	VABF-S2-1-R6C2-C-10
	ZN	2, reversible	0.56	42 mm	546831	VABF-S2-1-R6C2-C-6
	ZK	4, reversible	0.510	42 mm	546834	VABF-S2-1-R7C2-C-10
	ZM	4, reversible	0.56	42 mm	546833	VABF-S2-1-R7C2-C-6
gulator plate, width	52 mm					
0	ZA	1	0.510	52 mm	555772	VABF-S2-2-R1C2-C-10
Ĭ	ZF	1	0.56	52 mm	555771	VABF-S2-2-R1C2-C-6
	ZC	2	1.010	52 mm	555774	VABF-S2-2-R2C2-C-10
	ZH	2	1.06	52 mm	555773	VABF-S2-2-R2C2-C-6
	ZB	4	1.010	52 mm	555776	VABF-S2-2-R3C2-C-10
	ZG	4	1.06	52 mm	555775	VABF-S2-2-R3C2-C-6
	ZD	2 and 4	1.010	52 mm	555778	VABF-S2-2-R4C2-C-10
	ZI	2 and 4	1.06	52 mm	555777	VABF-S2-2-R4C2-C-6
	ZE	2 and 4, reversible	0.510	52 mm	555780	VABF-S2-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.56	52 mm	555779	VABF-S2-2-R5C2-C-6
	ZL	2, reversible	0.510	52 mm	555782	VABF-S2-2-R6C2-C-10
	ZN	2, reversible	0.56	52 mm	555781	VABF-S2-2-R6C2-C-6
	ZK	4, reversible	0.510	52 mm	555784	VABF-S2-2-R7C2-C-10
	ZM	4, reversible	0.56	52 mm	555783	VABF-S2-2-R7C2-C-6

Ordering data – Vertica	stacking					
	Code	Pressure regulation for port	Regulation range [bar]	Width	Part no.	Туре
Regulator plate for valves	s with symn	netrical coil layout, width 18 mm				
_%	ZAY	1	0.510	18 mm	560756	VABF-S4-2-R1C2-C-10E
	ZFY	1	0.56	18 mm	560758	VABF-S4-2-R1C2-C-6E
	ZCY	2	210	18 mm	560763	VABF-S4-2-R2C2-C-10E
	ZHY	2	26	18 mm	560765	VABF-S4-2-R2C2-C-6E
	ZDY	2 and 4	210	18 mm	560767	VABF-S4-2-R4C2-C-10E
	ZIY	2 and 4	26	18 mm	560769	VABF-S4-2-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	18 mm	560771	VABF-S4-2-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	18 mm	560773	VABF-S4-2-R5C2-C-6E
	ZLY	2, reversible	0.510	18 mm	560775	VABF-S4-2-R6C2-C-10E
	ZNY	2, reversible	0.56	18 mm	560777	VABF-S4-2-R6C2-C-6E
Regulator plate for valves	s with symn	netrical coil layout, width 26 mm				
	ZAY	1	0.510	26 mm	560757	VABF-S4-1-R1C2-C-10E
	ZFY	1	0.56	26 mm	549876	VABF-S4-1-R1C2-C-6E
	ZCY	2	210	26 mm	560764	VABF-S4-1-R2C2-C-10E
	ZHY	2	26	26 mm	560766	VABF-S4-1-R2C2-C-6E
	ZDY	2 and 4	210	26 mm	560768	VABF-S4-1-R4C2-C-10E
	ZIY	2 and 4	26	26 mm	560770	VABF-S4-1-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	26 mm	560772	VABF-S4-1-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	26 mm	560774	VABF-S4-1-R5C2-C-6E
	ZLY	2, reversible	0.510	26 mm	560776	VABF-S4-1-R6C2-C-10E
	ZNY	2, reversible	0.56	26 mm	560778	VABF-S4-1-R6C2-C-6E
Regulator plate for valve	s with symn	netrical coil layout, width 42 mm ¹⁾				
O	ZAY	1	0.510	42 mm	_	VABF-S2-1-R1C2-C-10E
	ZFY	1	0.56	42 mm	_	VABF-S2-1-R1C2-C-6E
	ZCY	2	0.510	42 mm	-	VABF-S2-1-R2C2-C-10E
	ZHY	2	0.56	42 mm	-	VABF-S2-1-R2C2-C-6E
	ZBY	4	0.510	42 mm	-	VABF-S2-1-R3C2-C-10E
	ZGY	4	0.56	42 mm	-	VABF-S2-1-R3C2-C-6E
	ZDY	2 and 4	0.510	42 mm	-	VABF-S2-1-R4C2-C-10E
	ZIY	2 and 4	0.56	42 mm	-	VABF-S2-1-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	42 mm	-	VABF-S2-1-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	42 mm	-	VABF-S2-1-R5C2-C-6E
	ZLY	2, reversible	0.510	42 mm	-	VABF-S2-1-R6C2-C-10E
	ZNY	2, reversible	0.56	42 mm	-	VABF-S2-1-R6C2-C-6E
	ZKY	4, reversible	0.510	42 mm	_	VABF-S2-1-R7C2-C-10E
	ZMY	4, reversible	0.56	42 mm	_	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 – Vertical	stacking					
	Code	Pressure regulation for port	Regulation range [bar]	Width	Part no.	Туре
Regulator plate for valve	s with sym	metrical coil layout, width 52 mm	n ¹⁾			
	ZAY	1	0.510	52 mm	-	VABF-S2-2-R1C2-C-10E
	ZFY	1	0.56	52 mm	_	VABF-S2-2-R1C2-C-6E
	ZCY	2	0.510	52 mm	-	VABF-S2-2-R2C2-C-10E
	ZHY	2	0.56	52 mm	_	VABF-S2-2-R2C2-C-6E
	ZBY	4	0.510	52 mm	_	VABF-S2-2-R3C2-C-10E
	ZGY	4	0.56	52 mm	-	VABF-S2-2-R3C2-C-6E
	ZDY	2 and 4	0.510	52 mm	-	VABF-S2-2-R4C2-C-10E
	ZIY	2 and 4	0.56	52 mm	-	VABF-S2-2-R4C2-C-6E
	ZEY	2 and 4, reversible	0.510	52 mm	-	VABF-S2-2-R5C2-C-10E
	ZJY	2 and 4, reversible	0.56	52 mm	-	VABF-S2-2-R5C2-C-6E
	ZLY	2, reversible	0.510	52 mm	_	VABF-S2-2-R6C2-C-10E
	ZNY	2, reversible	0.56	52 mm	_	VABF-S2-2-R6C2-C-6E
	ZKY	4, reversible	0.510	52 mm	_	VABF-S2-2-R7C2-C-10E
	ZMY	4, reversible	0.56	52 mm	-	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
ssure gauge						
~ <u>~</u>	T	With cartridge connection for	Scale in bar/psi,	18 mm	543487	PAGN-26-16-P10
		regulator, 10 bar	display range 016 bar/0240 psi,	26 mm		
			for regulator plate code ZA, ZB, ZC, ZD, ZE,	42 mm	548010	PAGN-40-16-P10
~			ZK, ZL	52 mm		
	U	With cartridge connection for	Scale in bar/psi,	18 mm	543488	PAGN-26-10-P10
		regulator, 6 bar	display range 010 bar/0145 psi,	26 mm		
			for regulator plate code ZF, ZG, ZH, ZI, ZJ,	42 mm	548009	PAGN-40-10-P10
			ZM, ZN	52 mm		
	WT	With cartridge connection for	Scale in MPa,	18 mm 56	563735	PAGN-26-1.6M-P10
		regulator, 10 bar	display range 016 bar/01.6 MPa,	26 mm		
			for regulator plate code ZA, ZB, ZC, ZD, ZE,	42 mm	563737	PAGN-40-1.6M-P10
			ZK, ZL	52 mm		
	WU With cartridge connection for	Scale in MPa,	18 mm	563736	PAGN-26-1M-P10	
		regulator, 6 bar	display range 016 bar/01 MPa	26 mm		
			for regulator plate code ZF, ZG, ZH, ZI, ZJ,	42 mm	563738	PAGN-40-1M-P10
			ZM, ZN	52 mm		
	VT	With cartridge connection for	Scale in psi/bar,	18 mm	563731	PAGN-26-232P-P10
		regulator, 10 bar	display range 016 bar/0232 psi	26 mm		
			for regulator plate code ZA, ZB, ZC, ZD, ZE,	42 mm	563733	PAGN-40-232P-P10
			ZK, ZL	52 mm		
	PS	With cartridge connection for	Scale in psi/bar,	18 mm	563732	PAGN-26-145P-P10
		regulator, 6 bar	display range 010 bar/0145 psi	26 mm		
			for regulator plate code ZF, ZG, ZH, ZI, ZJ,	42 mm	563734	PAGN-40-145P-P10
			ZM, ZN	52 mm		
	SGR	Red-green scale, with cartridge	Scale in bar,	18 mm	8090378	PAGN-26-10-P10-RG
		connection for regulator, 6 bar	display range 010 bar	26 mm		

Ordering data – Vertical	stacking				
	Code	Description		Part no.	Туре
Cartridge for regulator pla	te				
	-	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					
	Χ	Controls the flow of exhaust air downstream of the valve to ducts 3 and 5	18 mm	540176	VABF-S4-2-F1B1-C
9			26 mm	540175	VABF-S4-1-F1B1-C
			42 mm	546095	VABF-S2-1-F1B1-C
			52 mm	555789	VABF-S2-2-F1B1-C
Vertical pressure shut-off	plate 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
	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
Covering					
	L	Cover plate for vacant position	18 mm	539213	VABB-S4-2-WT
			26 mm	539212	VABB-S4-1-WT
			42 mm	543186	VABB-S2-1-WT
			52 mm	560845	VABB-S2-2-WT
	-	Sealing cap for electrical linkage (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

Accessories – Electrical components

Ordering data	Code	Description	Width	Part no.	Туре
Multi-pin node for VTSA	/VTSA-F				
	T	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
Individual electrical con	nection for	VTSA/VTSA-F			
△	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-CS10-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
Pneumatic interface for	VTSA/VTSA-	F			
6	-	For electrical terminal CPX in polymer design	50 mm	543416	VABA-S6-1-X1
	-	For electrical terminal CPX in metal design	50 mm	550663	VABA-S6-1-X2
	-	For electrical terminal CPX in metal design, with changed diagnostic function	50 mm	573613	VABA-S6-1-X2-D
Pneumatic interface for	VTSA-F-CB				
6.3	RA	For electrical terminal CPX in polymer design Integrated diagnostics (short circuit and undervoltage of valves, wire break per solenoid coil)	50 mm	8082877	VABA-S6-1-X1-CB
		For electrical terminal CPX in metal design Integrated diagnostics (short circuit and undervoltage of valves, wire break per solenoid coil)	50 mm	8082876	VABA-S6-1-X2-CB
	RD	For electrical terminal CPX (interface for PROFIsafe only) in metal design with 2 safe voltage zones and 1 safe output (connection: M12) Integrated diagnostics (short circuit and undervoltage of valves, wire break per solenoid coil)	50 mm	8068241	VABA-S6-1-X2-F2-CB
	RC	For electrical terminal CPX (interface for PROFIsafe only) in metal design with 3 safe voltage zones Integrated diagnostics (short circuit and undervoltage of valves, wire break per solenoid coil)	50 mm	8068240	VABA-S6-1-X2-F1-CB
	RB	For electrical terminal CPX (interface for fieldbus only) in polymer design With 3 voltage zones With external power supply 3xM12 Integrated diagnostics (short circuit and undervoltage of valves, wire break per solenoid coil)	50 mm	8082879	VABA-S6-1-X1-3V-CB
**	RB	For electrical terminal CPX (interface for fieldbus only) in metal design With 3 voltage zones With external power supply 3xM12 Integrated diagnostics (short circuit and undervoltage of valves, wire break per solenoid coil)	50 mm	8082878	VABA-S6-1-X2-3V-CB

Accessories – Electrical components

Ordering data					
	Code	Description		Part no.	Туре
Electrical interface for A	S-Interface	for VTSA/VTSA-F			
	-	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 for	VISA/VISA			5/00//	VAFM CC C FAC / /F
	-	4 inputs/4 outputs		549044	VAEM-S6-S-FAS-4-4E
	_	8 inputs/8 outputs		549045	VAEM-S6-S-FAS-8-8E
Manifold block for AS-In	terface for	VTSA/VTSA-F			
	Х	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, bushing		525676	CPX-AB-1-SUB-BU-25POL
Connecting cable, Sub-E) (TPE-U(PU	JR), IP65)			
	GA	Connecting cable for max. 8 solenoid coils, 10-wire	2.5 m	539240	NEBV-S1W37-E-2.5-LE10
	GB	7	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
V0	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
			10 111	337240	NEDY STREET REST
Connecting cable, Sub-E			10.5		NEW CAMPA MAR A LEAD
(E)	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 plug	for VTSA/V				
	_	For configuration by the user		545974	NECV-S1W37

Accessories – General

	Code	Description	Part no.	Туре
Right-hand, with thre	eaded conne	ction		
000	V	With working air/exhaust air, internal pilot air supply, G1/2 (no port 14)	539234	VABE-S6-1R-G12
	V1	With working air/exhaust air, internal pilot air supply, G3/4 (port 14 is sealed with a blanking plug)	560837	VABE-S6-2R-G34
000	X	With working air/exhaust air, external pilot air supply, 61/2	539236	VABE-S6-1RZ-G12
	X1	With working air/exhaust air, external pilot air supply, G3/4	560839	VABE-S6-2RZ-G34
Vith pilot air selecto	r			
	Y ¹⁾	Internal pilot air supply	539238	VABE-S6-1RZ-G-B1
	U ¹⁾	Internal pilot air supply, ducted pilot exhaust air		
	Z ¹⁾	External pilot air supply		
	W ¹⁾	External pilot air supply, ducted pilot exhaust air		

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

Code	Description	Weight	Part no.	Туре
S	Duct separation 1, 3, 5	57 g	539228	VABD-S6-1-P3-C
T	Duct separation 1	43 g	539227	VABD-S6-1-P1-C
R	Duct separation 3, 5	54 g	539229	VABD-S6-1-P2-C
L	Seal between sub-bases, duct 1, 3, 5 open, port 14 blocked (colour coding: white)	40 g	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 g	8060483	VABD-S6-1-P8-C
K	Seal between sub-bases, duct 1, 3, 5 blocked, port 14 blocked (colour coding: green)	57 g	8034612	VABD-S6-1-P6-C

Ordering data					
	Code	Description		Part no.	Туре
Cover caps					
	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
	А	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 ove	rride, heav	y duty			
	-	Coded key (accessory) for actuating cover cap, heavy duty, for detenting position (VAMC-B-S6-CTR)	1 piece	1662543	АНВ-МЕВ-В



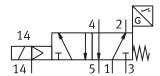
There is a wide range of preconfigured solenoid valves with cover cap for manual override and correct valve type code available to order in the sections on solenoid valves.

Accessories – General

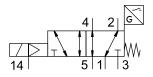
	Code	Description		Part no.	Туре
nscription label holders	/inscriptio	n labels			
	В	Clip-on inscription label holder for valve cap	5 pieces	540888	ASCF-T-S6
	BZ	Clip-on inscription label holder for valve cap with additional marking fields (electrical and pneumatic zone separation)	4 pieces	8106532	ASCF-T-S6-Z
K *\	T	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
jijii	-	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
H-rail mounting					
	_	VTSA and VTSA-F	3 pieces	526032	CPX-CPA-BG-NRH
Wall 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
User 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
Pneumatic connection ac	cessories				
		nking plugs, silencers and			
		e found in the chapter Accessories → page 243			
or on the website via the					
		y, silencer, blanking plug			

Data sheet - Solenoid valve with switching position sensing

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



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

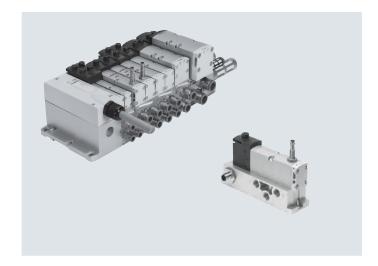


Flow rate up to 1100 l/min

Valve width
18 mm
26 mm

Voltage 24 V DC

Operating pressure3 ... 10 bar



ISO valves with switching position sensing for safety-related 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 sensor.

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.

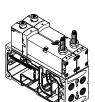
The control block has been developed and manufactured in accordance with the basic and proven safety principles of EN ISO 13849-2.

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



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

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).

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.

Pilot air supply:

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

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



Note

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

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



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.

Data sheet – Solenoid valve with switching position sensing

Safety data	
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

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 data					
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			
VSVA-B-M52-MZA2-1T1L	1500	800			
VSVA-B-M52-MZ-A1-1C1	1000	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 15407-2				
Design	Piston spool valve	Piston spool valve				
Sealing principle	Soft	Soft				
Actuation type	Electric	Electric				
Type of control	Piloted	Piloted				
Exhaust function, can be throttled	Via individual sub-base, via throttle p	Via individual sub-base, via throttle plate				
Lubrication	Lifetime lubrication					
Type of mounting	Via through-hole, on manifold sub-base					
Mounting position	Any					
Manual override	Covered					
Individual sub-base		→ Page 229				
Valve terminal			→ Page 74			

Standard nominal flow rate [I/min]						
Valve function	Flow rate	Flow rate				
	Valve	Valve on valve terminal VTSA	Valve on valve terminal VTSA-F	Valve on individual sub-base		
VSVA-B-M52-MA1-1C1-ANC	1400	1100	-	1100		
VSVA-B-M52-MA1-1C1-ANP	1400	1100	-	1100		
VSVA-B-M52-MA1-1C1-APC	1400	1100	-	1100		
VSVA-B-M52-MA1-1C1-APP	1400	1100	-	1100		
VSVA-B-M52-MA1-1T1L-ANC	1400	1100	1350	1200		
VSVA-B-M52-MA1-1T1L-ANP	1400	1100	1350	1200		
VSVA-B-M52-MA1-1T1L-APC	1400	1100	1350	1200		
VSVA-B-M52-MA1-1T1L-APP	1400	1100	1350	1200		
VSVA-B-M52-MA1-1T1L-APX-0.5	1400	1100	1350	1200		
VSVA-B-M52-MA2-1T1L-ANP	750	550	700	600		
VSVA-B-M52-MA2-1T1L-APP	750	550	700	600		
VSVA-B-M52-MA2-1T1L-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				
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		4-pin plug to ISO 15407-2		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	[%]	100		
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmis	ssion in mounted state)	
Signal status display		LED		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]	≤10
Max. output current	[mA]	200
Voltage drop	[V]	≤2
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

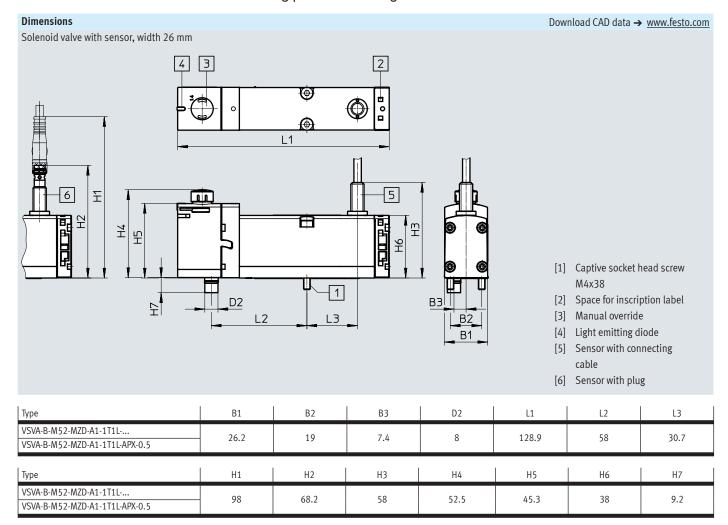
Operating and environmental cond	itions		
Valve		VSVA-B-M521T1L	VSVA-B-M521C1
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]	
Notes on operating/		Lubricated operation possible (in which case lubricated operation wil	l always be required)
pilot medium			
Operating pressure	[bar]	-0.9 10	
Operating pressure for valve termi-	[bar]	310	
nal 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		To EU EMC Directive ¹⁾	
of conformity)			
Certification		C-Tick	C-Tick
		CSA (OL)	-
		c UL us - Recognized (OL)	-

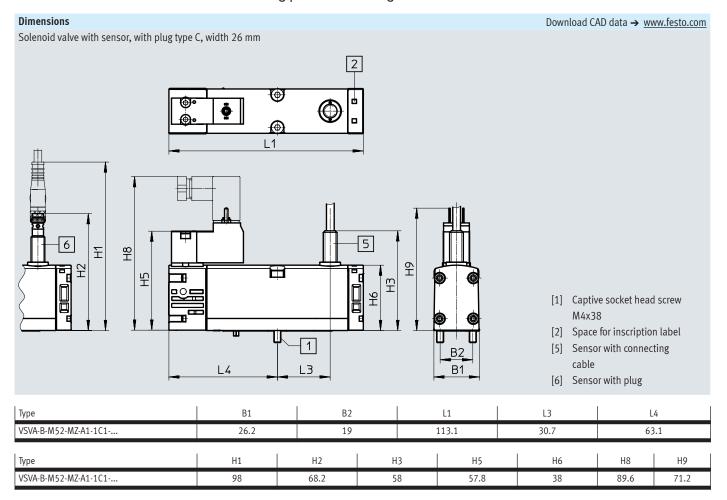
¹⁾ For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

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 [g]		
Width	18 mm	26 mm
5/2-way solenoid valve type		
VSVA-B-M52-MA2-1T1L-APX-0.5	157	-
VSVA-B-M52-MA2-1T1L-APP	140	-
VSVA-B-M52-MA2-1T1L-ANP	140	-
VSVA-B-M52-MA1-1T1L-APC	-	307
VSVA-B-M52-MA1-1T1L-APP	-	264
VSVA-B-M52-MA1-1C1-APC	-	332
VSVA-B-M52-MA1-1C1-APP	-	289
VSVA-B-M52-MA1-1T1L-ANC	-	307
VSVA-B-M52-MA1-1T1L-ANP	-	264
VSVA-B-M52-MA1-1C1-ANC	-	332
VSVA-B-M52-MA1-1C1-ANP	-	289
VSVA-B-M52-MA1-1T1L-APX-0.5	-	281
Individual connection		
Individual sub-base	192	302





Ordering data – Solenoid valve with switching position sensing

Ordering data – VSVA so	lenoid val	ve, MO non-detenting/detenting (D)			
	Code	Valve function	Width	Part no.	Туре
5/2-way solenoid valve, 2	24 V DC, pl	ug-in design for valve terminal VTSA/VTSA-F with proximity sensor			
	_	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	560723	VSVA-B-M52-MZD-A1-1T1L-APC
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	560742	VSVA-B-M52-MZD-A1-1T1L-ANC
P	SS	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	573201	VSVA-B-M52-MZD-A2-1T1L-APX-0.5
		sensor with PNP output with 0.5 m connecting cable and 4-pin sensor push-in connector M12x1	26 mm	570850	VSVA-B-M52-MZD-A1-1T1L-APX-0.5
	SO SO	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	573202	VSVA-B-M52-MZD-A2-1T1L-APP
		sensor with PNP output and 3-pin sensor push-in connector M8x1	26 mm	560724	VSVA-B-M52-MZD-A1-1T1L-APP
	SQ	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	573203	VSVA-B-M52-MZD-A2-1T1L-ANP
		sensor with NPN output and 3-pin sensor push-in connector M8x1	26 mm	560743	VSVA-B-M52-MZD-A1-1T1L-ANP

	Code	Valve function	Width	Part no.	Туре
5/2-way solenoid valve	e, 24 V DC, p	lug-in design for valve terminal VTSA/VTSA-F with proximity sensor			
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	8033026	VSVA-B-M52-MZTR-A1-1T1L-APC
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	8033030	VSVA-B-M52-MZTR-A1-1T1L-ANC
	SS	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033459	VSVA-B-M52-MZTR-A2-1T1L-APX-0.5
		sensor with PNP output with 0.5 m connecting cable and 4-pin sensor push-in connector M12x1	26 mm	8033034	VSVA-B-M52-MZTR-A1-1T1L-APX-0.5
	S0	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033460	VSVA-B-M52-MZTR-A2-1T1L-APP
	il	sensor with PNP output and 3-pin sensor push-in connector M8x1	26 mm	8033027	VSVA-B-M52-MZTR-A1-1T1L-APP
	SQ	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033461	VSVA-B-M52-MZTR-A2-1T1L-ANP
~		sensor with NPN output and 3-pin sensor push-in connector M8x1	26 mm	8033031	VSVA-B-M52-MZTR-A1-1T1L-ANP

Ordering data - Solenoid valve with switching position sensing

	Code	Valve function	Width	Part no.	Туре
5/2-way solenoid valve,	24 V DC , p	lug-in design for valve terminal VTSA/VTSA-F with proximity sensor			
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	8033049	VSVA-B-M52-MZH-A1-1T1L-APC
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	8033053	VSVA-B-M52-MZH-A1-1T1L-ANC
	SS	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033477	VSVA-B-M52-MZH-A2-1T1L-APX-0.5
		sensor with PNP output with 0.5 m connecting cable and 4-pin sensor push-in connector M12x1	26 mm	8033057	VSVA-B-M52-MZH-A1-1T1L-APX-0.5
	SO	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033478	VSVA-B-M52-MZH-A2-1T1L-APP
		sensor with PNP output and 3-pin sensor push-in connector M8x1	26 mm	8033050	VSVA-B-M52-MZH-A1-1T1L-APP
	SQ	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033479	VSVA-B-M52-MZH-A2-1T1L-ANP
		sensor with NPN output and 3-pin sensor push-in connector M8x1	26 mm	8033054	VSVA-B-M52-MZH-A1-1T1L-ANP

	Code	Valve function	Width	Part no.	Туре	
5/2-way solenoid valve,	5/2-way solenoid valve, 24 V DC, plug-in design for valve terminal VTSA/VTSA-F with proximity sensor					
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with PNP output and cable, 3-wire, 2.5 m	26 mm	8033072	VSVA-B-M52-MZ-A1-1T1L-APC	
	_	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with NPN output and cable, 3-wire, 2.5 m	26 mm	8033076	VSVA-B-M52-MZ-A1-1T1L-ANC	
P	SS	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033495	VSVA-B-M52-MZ-A2-1T1L-APX-0.5	
		sensor with PNP output with 0.5 m connecting cable and 4-pin sensor push-in connector M12x1	26 mm	8033080	VSVA-B-M52-MZ-A1-1T1L-APX-0.5	
	SO	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033496	VSVA-B-M52-MZ-A2-1T1L-APP	
		sensor with PNP output and 3-pin sensor push-in connector M8x1	26 mm	8033073	VSVA-B-M52-MZ-A1-1T1L-APP	
	SQ	5/2-way valve, single solenoid, mechanical spring return, inductive	18 mm	8033497	VSVA-B-M52-MZ-A2-1T1L-ANP	
		sensor with NPN output and 3-pin sensor push-in connector 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, 24 V DC	, with port	pattern to ISO 15218 for individual sub-base			
	_	5/2-way valve, single solenoid, mechanical spring return, 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
	-	5/2-way valve, single solenoid, mechanical spring return, 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
	-	5/2-way valve, single solenoid, mechanical spring return, 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
	_	5/2-way valve, single solenoid, mechanical spring return, 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.

Valve terminals VTSA

Accessories – Solenoid valve with switching position sensing

	Code	Description			Part no.	Туре
ndividual sub-base, po	rt pattern t	to ISO 15407-2, electrical connection via plug M12				
	-	Threaded connection, internal pilot air supply,	G1/8	18 mm	541070	VABS-S4-2S-G18-B-R3
600.		connections on the side	G1/4	26 mm	541069	VABS-S4-1S-G14-B-R3
15000	-	Threaded connection, external pilot air supply,	G1/8	18 mm	541064	VABS-S4-2S-G18-R3
		connections on the side	G1/4	26 mm	541063	VABS-S4-1S-G14-R3
ndividual sub-base, po	ort pattern	to ISO 15407-2, electrical connection via cable terminals				
	-	Threaded connection, internal pilot air supply,	G1/8	18 mm	541067	VABS-S4-2S-G18-B-K2
		connections on the side	G1/4	26 mm	541065	VABS-S4-1S-G14-B-K2
15000	-	Threaded connection, external pilot air supply,	G1/8	18 mm	539723	VABS-S4-2S-G18-K2
		connections on the side	G1/4	26 mm	539725	VABS-S4-1S-G14-K2
Plug socket for the elect	trical conne	ection of individual valves, type C				
	-	Angled socket, type C, 3-pin			151687	MSSD-EB
		Straight plug, PG7				
		• 230 V AC				
		Angled socket, type C, 3-pin		539712		MSSD-EB-M12
		Straight plug, M12x1				
Illuminating seal for cor	nection na	attern to EN 175301-803, type C	-		Nata shoot	s → Internet: meb-ld
		For plug socket MSSD, 12 24 V DC			151717	MEB-LD-12-24DC
	-	101 plug socket 181330, 12 24 V DC			131/1/	MLD-LD-12-24DC
\\\\						
Y						

Accessories – Solenoid valve with switching position sensing

•	Code	Description		Part no.	Туре
				rait iiu.	туре
nnecting cable for		nection of individual valves, type C			T
	GG	Angled socket, type C, 3-pin, with LED	2.5 m	151688	KMEB-1-24-2.5-LED
~ <i>B</i>	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
>					
'					
nnecting cable for t	he electrical	connection of sensors for switching position sensing			
	GM	Straight socket, M8x1, 3-pin	2.5 m	541333	NEBU-M8G3-K-2.5-LE3
Mini		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
The state of the s		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 connecting cables	-	-	NEBU
30					→ Internet: nebu

A selection of possible fittings, blanking plugs, silencers and

other pneumatic accessories can be found in the chapter **Accessories** → page: 243

or on the website via the individual search terms:

Internet \rightarrow connection technology, silencer, blanking plug

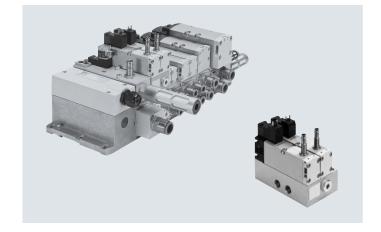
Data sheet - Control block with safety function for VTSA/VTSA-F

Flow rate on valve terminal: 830 l/min

Solenoid valve width 26 mm

- **** - Voltage 24 V DC

Operating pressure3 ... 10 bar

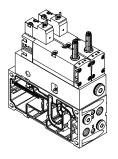


Description

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 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 field-bus/control block connection).

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

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

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 sensor is realised using a push-in connector of size M8x1 to EN 61076-2-104.

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.

More information and technical data

→ Internet: User documentation



- 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

Data sheet - Control block with safety function for VTSA/VTSA-F

Pneumatic/electrical linkage

Function

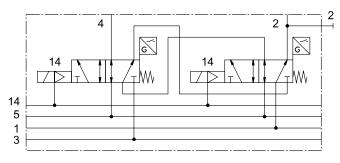
The safety function is achieved by linking two pneumatic ducts of two 5/2-way single solenoid valves within the control block: port (4) is only pressurised if both solenoid valves are switched to switching position (14). Port (2) is always supplied with compressed air if at least one of the two solenoid 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 sensor at the solenoid valves (switching position sensing). By connecting the control signal and the switching signal of the proximity sensor it is possible to check if the piston spools of the solenoid valves have reached or left the normal position (expectations). The piston spools of the solenoid valves are designed so that pneumatic short circuits between the ports (2) and (4) are prevented (positive overlap).

The two solenoid valves must be actuated via two separate channels to achieve the desired 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 interlinked 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 sensor with a N/O switching output signal. To ISO 1219-1, this symbol is used for 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 data	
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	To EU EMC Directive ¹⁾
of conformity)	To EU Machinery Directive
Max. positive test pulse [is]	1000
with logic 0	
Max. negative test pulse [is]	800
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

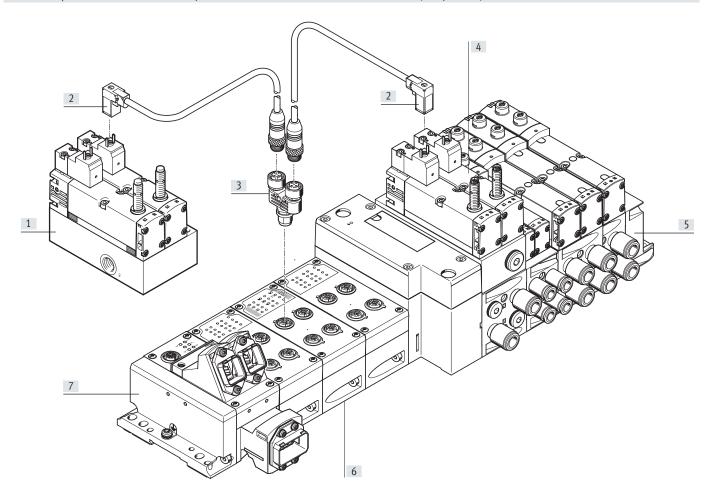
¹⁾ For information about the area of use, see the EC declaration of conformity at: www.festo.com/sp → Certificates.

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.

Data sheet – Control block with safety function for VTSA/VTSA-F

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 CPX-FVDA-P2 (safety module)	kmeb			
[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/ VTSA-F	Pneumatic components of the valve terminal VTSA/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	-			

Data sheet – Control block with safety function for 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		Electric		
Overlap		Positive overlap		
Type of control		Piloted		
Flow direction		Non-reversible		
Exhaust air function		Can be throttled		
Suitable 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 display, valve		With accessories		
Pneumatic connections				
Supply	1	Via the manifold sub-base of the valve terminal		
Exhaust	3/5			
Working ports	2/4			
Pilot air supply	14			
Pressure gauge		G1/4		

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/		Lubricated operation possible (in which case lubricated operation will always be required)
pilot medium		
Operating pressure	[bar]	010
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		To EU EMC Directive ¹⁾
of conformity)		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.

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Data sheet – Control block with safety function for VTSA/VTSA-F

Electrical data for con	trol 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	Max. magnetic interference field [mT]		60
Switching position sensing			Normal position via sensor
Duty cycle [%]		[%]	100
Degree of protection to	EN 60529	1	IP65, NEMA 4 (for all types of signal transmission in mounted state)
Protection against dire	ct and		PELV
indirect contact			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.

- 🖣 - Note

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

Electrical data – Sensor (to EN -	60947-5-2)	
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 display		Yellow LED
Operating voltage range	[V DC]	10 30
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		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			

Data sheet - Control block with safety function for VTSA/VTSA-F

Dimensions Download CAD data → www.festo.com L1 L3 2 王 Э Φ 4 L2 [1] Proximity sensor PNP or NPN, [2] Electrical connection to [3] Pneumatic connection G1/4 [4] 2x screw with internal hexagon size M8x1, plug connection to EN 175301-803, type C sealed with blanking plug (width across flats 2.5), M4x12 EN 61076-2-104 (included in the scope of delivery) L2 В1 В2 В3 Н1 H2 Н3 L1 L3 L4 VOFA-B26-T52-M-1C1-APP 53 46 37 105.8 34.6 17 133.7 128.5 109.2 78.5 VOFA-B26-T52-M-1C1-ANP

Ordering data	Ordering data						
	Valve function	Code	Switching output	Width	Weight	Part no.	Туре
				[mm]	[g]		
Control block, version fo	or valve terminal VTSA/VTSA-F						
	2x 5/2-way valve, single solenoid, mechanical	SP ²⁾	PNP	53	1112	- 1)	VOFA-B26-T52-M-1C1-APP
	spring return, with switching position sensing via inductive sensor and 3-pin sensor push-in connector M8, mounted on an intermediate plate for pneumatic linkage	SN ²⁾	NPN	53	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 manifold sub-base required 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

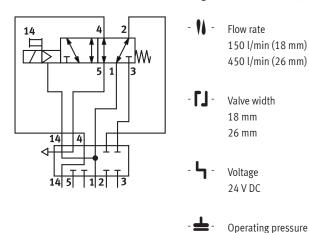


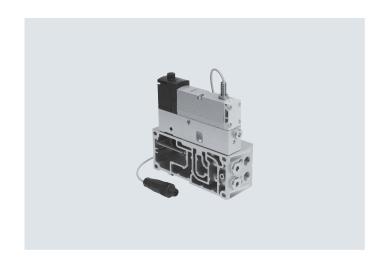
The sensors integrated in the valves must not be replaced by the customer. Incorrect assembly can result in malfunctions or damage to the valve.

Please contact Festo in the event of a fault.

Accessories – Control block with safety function for VTSA/VTSA-F

Ordering data	Code	Description		Part no.	Туре
lug socket for the elect	rical conne	ction of individual valves, type C			
	-	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			
uminating seal for cor	nection pat	tern to EN 175301-803, type C		Data sheets	s → Internet: meb-ld
	-	For plug socket MSSD, 12 24 V DC		151717	MEB-LD-12-24DC
onnecting cable for ele	ectrical conn	ection of individual valves, type C			
	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	• 24 V DC, PVC	10 m	193457	KMEB-1-24-10-LED
>					
nnecting cable for the	e electrical o	connection of sensors for switching position sensing			
	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	-	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
¥Ø		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			
	T-	Modular system for connecting cables	1-	-	NEBU
					→ Internet: nebu
nnecting cable for the	e electrical o	connection of PROFIsafe shut-off module CPX-FVDA-P2 to the control block For single connection of one control block valve (power supply via	0.5 m	177677	KMEB-2-24-M12-0.5-LED
	-	PROFIsafe shut-off module CPX-FVDA-P2)	0.5 111	1//6//	KWEB-2-24-W12-0.5-LED
		· · · · · · · · · · · · · · · · · · ·			
		Angled socket, type C, 3-pin, with LED Straight plug, M12x1, 5-pin			
		• 24 V DC, PUR			
1	1 1 1 1 1 1				
Sri-in i-connector for	auai electri	cal connection of PROFIsafe shut-off module CPX-FVDA-P2 to the control blo For dual connection of two control block valves (power supply via PROFIs		2839867	NEDU-L2R1-V10-M12G5-M12G5
	1-	module CPX-FVDA-P2)	are Silut-Ull	203900/	MFDQ-F5K1-A10-M15G3-M15G3
		Straight plug, M12x1, 5-pin (A-coded) 2x straight socket, M12x1, 5-pin (A-coded)			
-					
	1	operating vottage range v Jo v DC			
eumatic connection a		sking pluge, ciloneore and			
		nking plugs, silencers and e found in the chapter Accessories → page: 243			
ner pneumatic access on the website via the					
		search terms: silencer, blanking plug			
remer - connection	technology,	onence, pidliking plug			





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 (sensing 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).

More information and technical data

→ Internet: User documentation

Alternative switching position sensing with pressure sensor

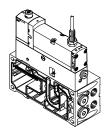
As an alternative to the sensing function in the solenoid valve, a pressure sensor can be mounted (in place of the blanking plug) on the intermediate plate VABF-S4-...-S. With this pressure sensor, the switching on and off (sensing function) of the pilot air supply can be verified.

→ Internet: spba

- 🖣 - Note

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).

–0.9 ... 10 bar

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

The switching position sensing is implemented using an inductive PNP proximity sensor with cable and push-in connector in the size M12x1 to EN 61076-2-104.

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

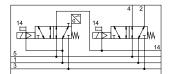
- 🛔 - Note

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

→ Internet: vsva

The circuit symbol represents a valve with a proximity sensor with a N/O switching output signal. To ISO 1219-1, this symbol is used for 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 linkage



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 sensor in the solenoid valve (or pressure sensor in the intermediate plate VABF...).

By connecting the control signal and the switching signal of the proximity sensor it is possible to check if the piston spools of the solenoid valves have reached or left the normal position (expectations).

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

Alternatively, combinations with the pressure sensor 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 sensor

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

A range of 5/2-way solenoid valves in combination with a pressure sensor SPBA-... are available for this purpose.

Safety data					
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 data					
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			
VSVA-B-M52-MZA2-1T1L	1500	800			
VSVA-B-M52-MZ-A1-1C1	1000	800			

General technical data					
		Intermediate plate type VABF-S4-2-S and	Intermediate plate type VABF-S4-1-S and		
		solenoid valve type VSVA-B-M52-MZD-A2-1T1L-APX-0.5	solenoid valve type VSVA-B-M52-MZD-A1-1T1L-APX-0.5		
		mounted on valve terminal VTSA/VTSA-F	mounted on valve terminal VTSA/VTSA-F		
Width		18 mm	26 mm		
Design		Piston spool valve			
Sealing principle		Soft			
Overlap		Positive overlap			
Actuation type		Electric			
Type of control		Piloted			
Type of mounting:					
Solenoid valve on intermediate		M3	M4		
plate					
Intermediate plate on manifold		M3x12 (captive)	M4x12 (captive)		
sub-base					
Mounting position		Any			
Pneumatic connections					
Supply	1	Via the manifold sub-base of the valve terminal			
Exhaust	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 sensor		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		

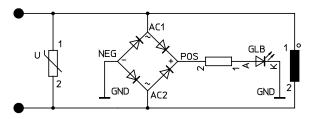
¹⁾ Valve sensor switching time off: period of time from the coil being energised to sensor being switched off when using a PNP sensor.

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

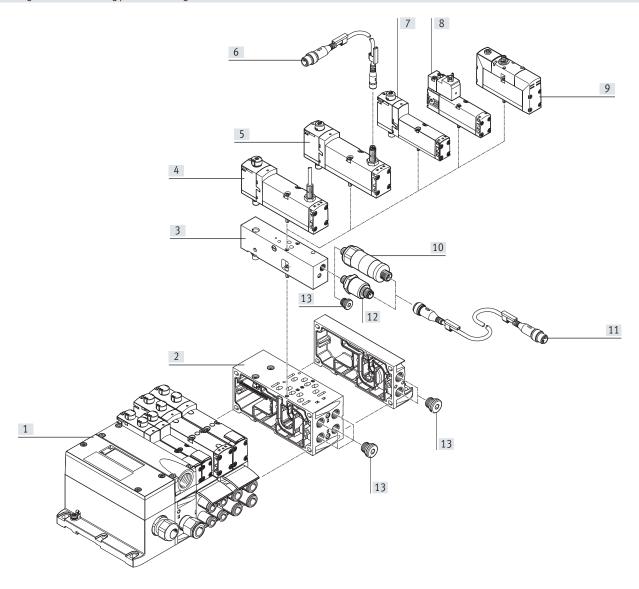
Each VSVA solenoid coil is provided with a spark arresting protective circuit and protected against polarity reversal.

24 V DC version



Peripherals overview

Pilot air switching valve with switching position sensing



Perip	herals overview for 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	131
[3]	Intermediate plate VABF-S4	For pilot air switching valve	167
[4]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with sensor and integrated cable 0.5 m	167
[5]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with sensor for external connecting cable	167
[6]	Connecting cable NEBU-M8	For connection to sensor	168
[7]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm ¹⁾	167
[8]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with plug to EN 175301, type C ¹⁾	167
[9]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with round plug ¹⁾	vsva
[10]	Pressure sensor SPBA	Mechanically actuated	168
[11]	Connecting cable NEBU-M12G5	For connection to pressure sensor	168
[12]	Pressure sensor SPBA	Electrically actuated	168
[13]	Blanking plug	-	244

The switching position is sensed by pressure sensors when the solenoid valves used have no integrated sensor.
 The pressure sensor is screwed into the intermediate plate instead 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 (M52-MZD), 1.8 (M52-MZ)		
Max. magnetic interference field	[mT]	60		
Switching position sensing		Normal position via sensor		
Duty cycle	[%]	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-pin		With fixed cable	and open end	With fixed cable and plug
						M12x1,
						4-pin
Cable length	[m]	0.5 (with bushing	M8x1, plug M12x1)	2.5		0.5
Switching element function		N/C contact				
Signal status display		Yellow LED (on sen	sor)			
Operating voltage range	[V DC]	10 30				
Residual ripple	[%]	±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 co	nnections			
Measuring principle		Inductive				
Switching position sensing		Valve normal posit	ion via sensor			

Operating and environmental conditions					
Valve		VSVA-B-M521T1L	VSVA-B-M521C1	Without sensor	
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	-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 [g]	Product weights [g]					
Width	18 mm	26 mm				
5/2-way solenoid valve type	5/2-way solenoid valve type					
VSVA-B-M52-MA1-1T1L-APC	-	307				
VSVA-B-M52-MA1-1T1L-APP	-	264				
VSVA-B-M52-MA1-1C1-APC	-	332				
VSVA-B-M52-MA1-1C1-APP	-	289				
VSVA-B-M52-MA1-1T1L-ANC	-	307				
VSVA-B-M52-MA1-1T1L-ANP	-	264				
VSVA-B-M52-MA1-1C1-ANC	-	332				
VSVA-B-M52-MA1-1C1-ANP	-	289				
VSVA-B-M52-MA1-1T1L-APX-0.5	-	281				
VSVA-B-M52-MA2-1T1L-APX-0.5	157	-				
VSVA-B-M52-MA2-1T1L-APP	140	-				
VSVA-B-M52-MA2-1T1L-ANP	140	-				
VSVA-B-M52-MA1-1T1L	-	293				
VSVA-B-M52-MA2-1T1L	163	-				
Intermediate plate	Intermediate plate					
VABF-S4-2-S	203.5	-				
VABF-S4-1-S	-	295				

Ordering data – Pilot air switching valve for VTSA/VTSA-F

Ordering data						
	Code	Valve function			Part no.	Туре
5/2-way solenoid valve,	24 V DC, pli	ug-in design with proximity sensor				
r e	SS	5/2-way valve, single solenoid, mechanical spring return,	PNP	18 mm	573201	VSVA-B-M52-MZD-A2-1T1L-APX-0.5
		with 0.5 m connecting cable and 4-pin sensor push-in connector M12x1		26 mm	570850	VSVA-B-M52-MZD-A1-1T1L-APX-0.5
	-	5/2-way valve, single solenoid, mechanical spring return,	PNP	26 mm	560723	VSVA-B-M52-MZD-A1-1T1L-APC
		with 2.5 m connecting cable	NPN	26 mm	560742	VSVA-B-M52-MZD-A1-1T1L-ANC
P	S0	5/2-way valve, single solenoid, mechanical spring return,	PNP	18 mm	573202	VSVA-B-M52-MZD-A2-1T1L-APP
		with 3-pin sensor push-in connector M8x1		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
	-	5/2-way valve, single solenoid, mechanical spring return,	PNP	26 mm	560725	VSVA-B-M52-MZ-A1-1C1-APC
		with plug to EN 175301, type C, with 2.5 m connecting cable	NPN	26 mm	560745	VSVA-B-M52-MZ-A1-1C1-ANP
(A)	-	5/2-way valve, single solenoid, mechanical spring return,	PNP	26 mm	560726	VSVA-B-M52-MZ-A1-1C1-APP
		with plug to EN 175301, type C, with 3-pin sensor push-in connector M8x1	NPN	26 mm	560744	VSVA-B-M52-MZ-A1-1C1-ANC
5/2-way solenoid valve,	24 V DC, pli	ug-in design				
A.	<u> </u> -	5/2-way valve, single solenoid, mechanical spring return		26 mm	539159	VSVA-B-M52-MZD-A1-1T1L
				18 mm	539185	VSVA-B-M52-MZD-A2-1T1L
Intermediate plate for pi	lot air switc	hing valve				
	ZO	Intermediate plate, for switching the pilot air from duct 1 to 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 MO cover caps.

ightarrow Solenoid valve with switching position sensing, page 149



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 for VTSA/VTSA-F

Ordering data	Code	Description	Pa	art no.	Туре
Pressure sensor for inter	rmediate pl	ate for pilot air switching valve			
	WL	Mechanical pressure sensor for switchable pilot air supply (only in combination intermediate plate ZO), with plug M12x1, 4-pin	ion with	8000033	SPBA-P2R-G18-W-M12-0.25X
	WH	Electrical pressure sensor for switchable pilot air supply, switching output 2xl (only in combination with intermediate plate ZO), with plug M12x1, 4-pin	(PNP	8000210	SPBA-P2R-G18-2P-M12-0.25X
Connecting cable for cor	nection of i	nressure sensors			
	GE		5 m	8000208	NEBU-M12G5-K-0.5-M12G4
Connecting cable for the	electrical c	connection of sensors for switching position sensing			
	_	The state of the s	5 m	8000209	NEBU-M8G3-K-0.5-M12G3
	GM	Straight socket, M8x1, 3-pin Open end, 3-wire	5 m	541333	NEBU-M8G3-K-2.5-LE3
	GN	• Straight socket, M8x1, 3-pin • Open end, 3-wire	m	541334	NEBU-M8G3-K-5-LE3
	GO	Angled socket, M8x1, 3-pin Open end, 3-wire	5 m	541338	NEBU-M8W3-K-2.5-LE3
	GP	Angled socket, M8x1, 3-pin Open end, 3-wire	m	541341	NEBU-M8W3-K-5-LE3
	_	Open end, 3-wire	5 m	8001660	NEBU-M8R3-K-2.5-LE3
	-	Angled socket, rotatable, M8x1, 3-pin Open end, 3-wire		8001661	NEBU-M8R3-K-5-LE3
	GQ	Straight socket, M8x1, 3-pin Straight plug M8x1, 4-pin 2.5	5 m	554037	NEBU-M8G3-K-2.5-M8G4
	-	Modular system for connecting cables –		-	NEBU → Internet: nebu

Ordering data - Pilot air switching valve for VTSA/VTSA-F

Ordering data					
	Code	Description		Part no.	Туре
Covering					
	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 ov	erride, heav	vy duty			
	_	Coded key (accessory) for actuating cover cap, heavy duty, for detenting position (VAMC-B-S6-CTR)	1 piece	1662543	AHB-MEB-B
Pneumatic connection accessories					
A selection of possible fittings, blanking plugs, silencers and					
other pneumatic accessories can be found in the chapter Accessories → page: 243 or on the website via the individual search terms:					
Internet → connection technology, silencer, blanking plug					



- Note

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.

- N - Flow rate 150 l/min

Pilot air switching valve width

- **** - Voltage 24 V DC

Operating pressure3 ... 10 bar

Description

Duct 14 of the valve terminal is supplied with pilot air via the pilot air switching valve. This can be used to realise the safety function "Protection against unexpected start-up". The pilot air switching valve is always supplied with internal pilot air from the valve terminal.

The valve terminal can be operated with internal pilot air (from duct 1 of the valve terminal) or with external pilot air (external compressed air supply via duct 2).

The pilot air switching valve is actuated via an electromagnetic pilot control. It can be switched on and off manually using the manual override. The manual override can be shut off manually or using the electrical pilot control.

The pilot air switching valve enables the pilot air supply to be verifiably switched on and off (sensing function) from duct 1 to duct 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). More information and technical data

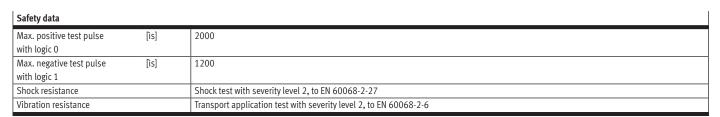
→ Internet: User documentation



The pilot air switching valve can only be operated on the valve terminal VTSA-F-CB 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. This information applies only for a single pressure zone.

For several pressure zones, see:

→ Internet: User documentation





General technical data		
Design		Poppet valve
Valve function		3/2-way closed, single solenoid
Standard nominal flow rate	[l/min]	125
Standard nominal flow rate for	[l/min]	125
exhaust		
Reset method		Mechanical spring and pneumatic spring
Sealing principle		Soft
Actuation type		Electric
Overlap		Negative overlap
Type of control		Piloted
Mounting position		Any
Flow direction		Non-reversible
Manual override		None (no code, part nos.: 8066575, 8066574, 8066571, 8066570)
		Detenting, self-resetting via electrical control signal (with code YE, part nos.: 8066573, 8066572, 8066569, 8066568)
Pilot air supply		For pilot air switching valve: internal via valve terminal
		For the valve terminal: internal via valve terminal (duct 1) – (part nos.: 8066569, 8066568, 8066571, 8066570)
		For the valve terminal: external via compressed air supply (duct 2) – (part nos.: 8066573, 8066572, 8066575, 8066574)
Type of mounting		Via through-hole, on manifold sub-base
Signal status display,		With LED
valve		
Width, manifold sub-base	[mm]	38 (for additional valve 18 mm)
	[mm]	46 (for additional valve 26 mm)
Pneumatic connections, pilot air s	switching valve	
Supply	1	Via the manifold sub-base of the valve terminal
Exhaust	3/5	Via the manifold sub-base of the valve terminal
Compressed air supply port	2	G1/8
(external)		
Exhaust air/exhaust	4	G1/8
Pilot air supply	14	Via the manifold sub-base of the valve terminal
Pneumatic connections, additiona	al valve positio	
Supply	1	Via the manifold sub-base of the valve terminal
Exhaust	3/5	Via the manifold sub-base of the valve terminal
Working ports (for valve 18 mm)	2/4	G1/8
Working ports (for valve 26 mm)	2/4	61/4
Pilot air supply	14	Via the manifold sub-base of the valve terminal

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/		Operation with lubricated medium not possible	
pilot medium			
Operating pressure ²⁾	[bar]	310	
Pilot pressure	[bar]	310	
Ambient temperature ²⁾	[°C]	_5 ÷50	
Temperature of medium ²⁾	[°C]	_5 +50	
Corrosion resistance class CRC ¹⁾		0	

¹⁾ Corrosion resistance class CRC 0 to Festo standard FN 940070

No corrosion stress. Applies to small, visually unimportant standard 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.

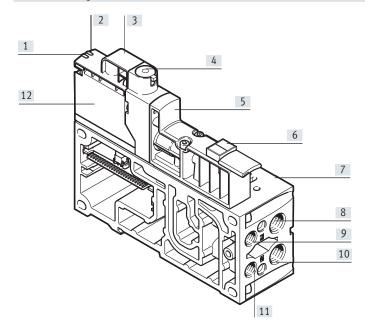
²⁾ With ambient temperature and temperature of medium of from -5° C to $+5^{\circ}$ C and $+40^{\circ}$ C to $+50^{\circ}$ C, the maximum permissible operating pressure is 8 bar.

Electrical data for pilot air switching valve		
Nominal operating voltage	[V DC]	24
Permissible voltage fluctuations	[%]	±10
Electrical connection		Plug-in
Power consumption	[W]	1.6
Switching element function		N/C contact
Switching position sensing		Switching position via sensor
Duty cycle	[%]	100
Degree of protection		IP65

Materials	
Housing	Reinforced PA
Seals	NBR, HNBR
Screws	Galvanised steel
Note on materials	RoHS-compliant

Connection and display elements

Pilot air switching valve VSVA-BT-M32CS... with manifold sub-base



- [1] Status LED for solenoid coil
- [2] Status LED for pressure sensor
- [3] M12 connection (optional)
- [4] Manual override (MO) (optional)
- [5] Solenoid valve housing
- [6] Inscription label holder with additional fields for marking (ASCF-T-S6-Z)
- [7] Additional valve position
- [8] Working port (2) of the additional valve position
- [9] External compressed air supply port
- [10] Working port (4) of the additional valve position
- [11] Exhaust port
- [12] Pilot control

- 🖣 - Note

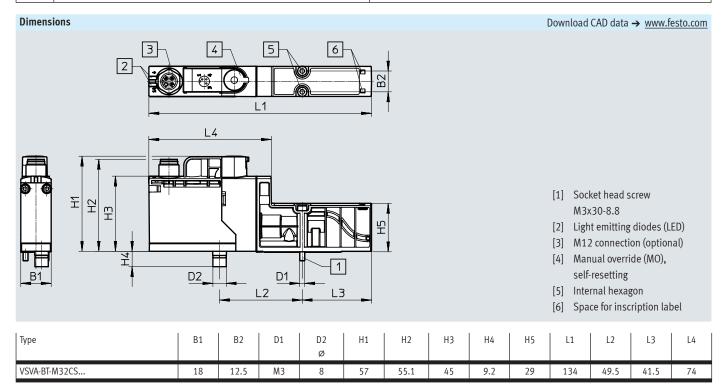
Detailed information on the manual override can be found in the user documentation.

→ Internet: User documentation

NEW Valve terminals VTSA

Data sheet – Pilot air switching valve for VTSA-F-CB

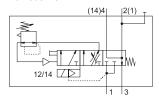
Valve fur Termi- nal code	nction Circuit symbol	Description
СТ	(14)2 (2)1 3(4)	Pilot air supply via duct 2 (external pilot air) of manifold sub-base Without manual override (MO)
СТ	12 (14)2 P (2)1 3(4)	Pilot air supply via duct 2 (external pilot air) of manifold sub-base With manual override (MO)
CS	(14)2 T W 1 3(4)	Pilot air supply via duct 1 (internal pilot air) for the valve terminal pressure zone (end plate/additional supply plate) Without manual override (MO)
CS	12 (14)2 P	Pilot air supply via duct 1 (internal pilot air) for the valve terminal pressure zone (end plate/additional supply plate) With manual override (MO)



Ordering data	Code	e Description Weight ¹⁾ Part no. Type								
	Code	Description		[g]	Pail IIO.	Туре				
3/2-way solenoid valve, 24 V DC, plug-in design										
	3/2-way solenoid valve NC, external pilot air supply for the valve terminal									
	СТ	Control plug-in, pressure sensor plug-in,	18 mm	110	8066573	VSVA-BT-M32CS2-MYE-A2-1T5L-PA				
	CT	manual override (MO) self-resetting	10	110	00//572	VCVA DT M22CC2 MVF A2 4T41 D7				
	CI	Control plug-in, pressure sensor external M12, manual override (MO) self-resetting	18 mm	110	8066572	VSVA-BT-M32CS2-MYE-A2-1T1L-PZ				
	СТ	Control plug-in, pressure sensor plug-in, manual override (MO) covered	18 mm	110	8066575	VSVA-BT-M32CS2-MS-A2-1T5L-PA				
	СТ	Control plug-in, pressure sensor external M12, manual override (MO) covered	18 mm	110	8066574	VSVA-BT-M32CS2-MS-A2-1T1L-PZ				
	3/2-way	ray solenoid valve NC, internal pilot air supply for the valve terminal								
	CS	Control plug-in, pressure sensor plug-in, manual override (MO) self-resetting	18 mm	110	8066569	VSVA-BT-M32CS1-MYE-A2-1T5L-PA				
	CS	Control plug-in, pressure sensor external M12, manual override (MO) self-resetting	18 mm	110	8066568	VSVA-BT-M32CS1-MYE-A2-1T1L-PZ				
	CS	Control plug-in, pressure sensor plug-in, manual override (MO) covered	18 mm	110	8066571	VSVA-BT-M32CS1-MS-A2-1T5L-PA				
	CS	Control plug-in, pressure sensor external M12, manual override (MO) covered	18 mm	110	8066570	VSVA-BT-M32CS1-MS-A2-1T1L-PZ				
Nanifold sub-base for	nilot air sw	vitching valve								
	YB	For 2 valve positions (4 addresses) 1x valve position, 1x double solenoid valve, high flow	18 mm	434	8068913	VABF-S4-2HS-G18-CB-2T5				
	YC	For 2 valve positions (4 addresses) 1x valve position with CBUS communication, 1x double solenoid valve, high flow (with CBUS loop-through)	26 mm	512	8068912	VABV-S4-12HS-G-CB-2T5				

¹⁾ Weight of pilot air switching valve without manifold sub-base

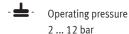
Function without sensor



Flow rate
Pressurisation:
3000 l/min
Exhaust: 3300 l/min









Description

12/14

with sensor

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 QS 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 actuation 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 sub-base and the soft start valve.

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

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

Description

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 for 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, this pressure zone must have a supply plate with a blanking plug in duct 1 (code W). 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 removed via the right-hand end plate.

Restrictions

Compressed air supply

There must be no other compressed air supply elements in the pressure zone in which the soft start valve is being used.

Exhaust air

Exhaust air cannot be expelled via the soft start valve. If the valve 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.

- 🏻 - Not

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 built-in state.

Safety data

Juiloty duta		
Conforms to standard		ISO 5599-2
Note on forced checking procedure		Switching frequency min. 1/month
Max. positive test pulse	[ìs]	2500 ¹⁾
with logic 0		
Max. negative test pulse	[ìs]	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	Electric
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 182
Reset method	Mechanical spring
Type of control	Piloted
Pilot air supply	Internal, external
Flow direction	Non-reversible Non-reversible
Switching position sensing	Switching position via sensor

Standard nominal flow rate [l/min]

- The state of the		
Pressurisation	3000	
Exhaust	3300	

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	[MPa]	0.2 1.2	
	[bar]	212	
Switch-over pressure presetting	[MPa]	0.4	
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%
Characteristic coil data		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 display		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	Manifold sub-base
Housing	Wrought aluminium alloy	Die-cast aluminium
Seals	NBR, HNBR	-
Screws	Galvanised steel	-

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

Internal, external pilot air supply

Requirements

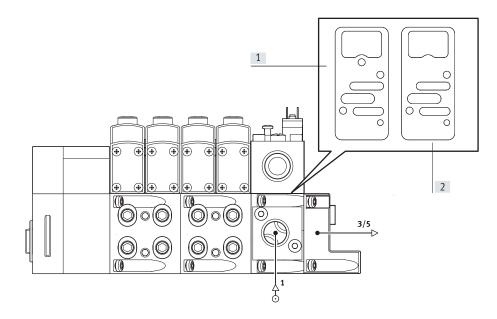
- Compressed air supply via soft start valve
- Right-hand end plate¹⁾:
 Blanking plug in duct 1

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

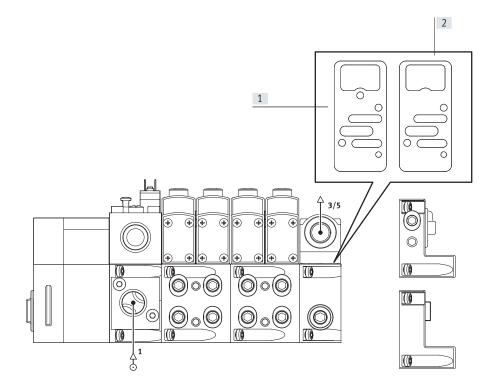
- Compressed air supply via soft start valve
- Supply plate:Blanking plug in duct 1
- Right-hand end plate: blanking plug in duct 1, 3, 5 or
- Right-hand end plate with pilot air selector

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

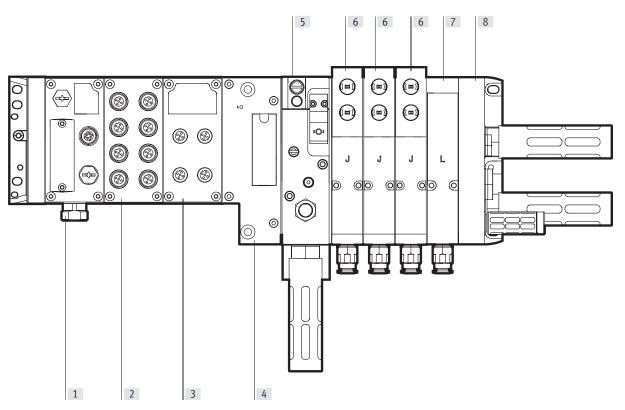
Practical example 1: Valve terminal VTSA with CPX terminal (metal design) and soft start valve

With internal pilot air (PP and XP2):

With external pilot air (PM and XP1):

Selection no. in digital customer information system: 539217

Selection no. in digital customer information system: 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)
 - (PP IIILEIIIAI PILOL AII)
- [5] Soft start valve (PM – external pilot air)
- [6] 5/2-way double solenoid valve (J)
- [7] Vacant position (L)
- [8] Right-hand end plate (XP2) with supply air/exhaust air, external pilot air supply, blanking plug in
- [8] Right end plate (XP1) with supply air/exhaust air, external pilot air supply, blanking plug in duct 1

duct 1 and 14

Selection with internal pilot air (PP and XP2):

Selection no. in online catalogue: 539217

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

Selection with external pilot air (PM and XP1):

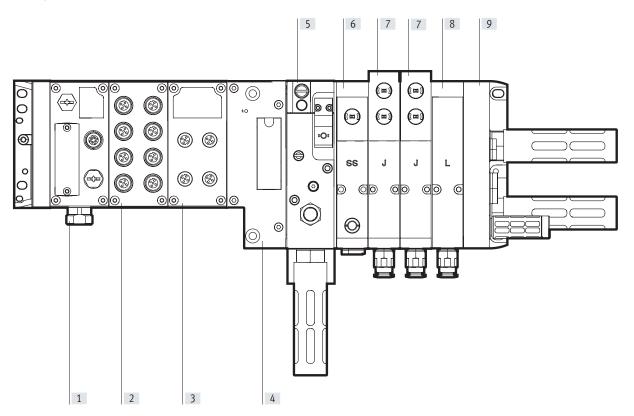
Selection no. in online catalogue: 539217

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

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. in digital customer information system: 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 supply 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 part: 51E-F36GCQPNMKBLX-S+GSBA

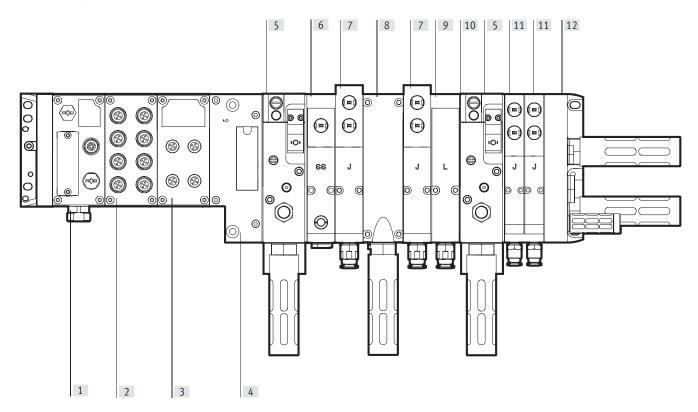
Pneumatic part: 44P-N-XP2-SMPM-BB-SSZOJJL+UGCGBP1

Data sheet - Soft start valve for VTSA/VTSA-F

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. in digital customer information system: 539217



- 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 supply 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 part: 51E-F36GCQPNMKBLX-S+GSBA

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

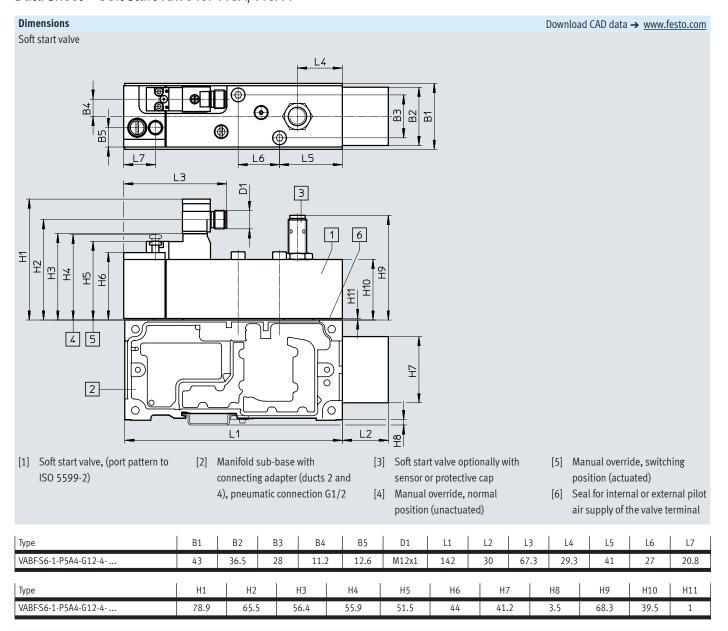
Electrical connection of pneumatic components

The solenoid valve with switching position sensing (SS) and 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.

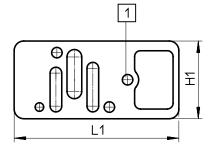
The soft start valve (PM – with sensor PNP) is connected to the CPX input module using an appropriate connecting cable (GC) in order to integrate the sensor signal into the CPX system.

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

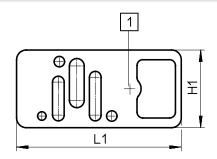
Data sheet - Soft start valve for VTSA/VTSA-F



Seal¹⁾ between soft start valve and manifold sub-base



[1] With hole, internal pilot air supply



[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 for VTSA/VTSA-F

Ordering data						
	Terminal code	Description	Weight	Part no.	Туре	
Soft start valve, 24 V D	<u> </u>		[g]			
Soft Staft Valve, 24 v D	-	Without sensor output, pneumatic connection G1/2 (with seals for internal and external pilot air)	590	558230	VABF-S6-1-P5A4-G12-4-1	
	PN	Seal for external pilot air (without drilled hole)				
	PQ	Seal for internal pilot air (with drilled hole)				
	-	With sensor output PNP, pneumatic connection G1/2 (with seals for internal and external pilot air)	605	557377	VABF-S6-1-P5A4-G12-4-1-P	
	PM	Seal for external pilot air (without drilled hole)				
	PP	Seal for internal pilot air (with drilled hole)				
	-	With sensor output NPN, pneumatic connection G1/2 (with seals for internal and external pilot air)	605	558233	VABF-S6-1-P5A4-G12-4-1-N	
	PK	Seal for external pilot air (without drilled hole)				
	PO	Seal for internal pilot air (with drilled hole)				
Manifold sub-base		I				
	-	Suitable for a soft start valve (ports for ducts 2 and 4 combined), pneumatic connection G1/2	570	556989	VABV-S6-1Q-G12	

Accessories – Soft start valve for VTSA/VTSA-F

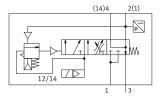
Ordering data Designation	Code	Description		Part no.	Туре
over cap					
	-	M12, for sealing the sensor opening	10 pieces	165592	ISK-M12
lectrical connectior	for soft start val		-		
	P1	 Angled socket, type C, 2-pin, with LED Straight plug, M12x1, 2-pin 24 V DC 		188024	MSSD-EB-M12-MONO
	GB	Straight socket, M12x1, 5-pin Open end, 4-wire	5 m	541328	NEBU-M12G5-K-5-LE4
	-	Angled socket, M12x1, 5-pinOpen end, 4-wire	5 m	541329	NEBU-M12W5-K-5-LE4
	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
<i>-</i>	GJ	• 24 V DC, PVC	10 m	193457	KMEB-1-24-10-LED
	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
~		• 230 V AC, PVC			
Connecting cable for	electrical conne	ction of the proximity sensor			
	-	Straight socket, M12x1, 5-pinOpen end, 4-wire	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 connecting cables		-	NEBU → Internet: nebu
Pressure gauge					
	_	0 10 bar, pneumatic connection M5		526323	MA-27-10-M5
Silencer					
	U	Standard design, connecting thread (1 piece)	G1/2	6844	U-1/2-B
	A	Sintered design, connecting thread (10 pieces)	G1/2	1205863	AMTE-M-LH-G12
neumatic connection	on accessories		I		
		ing plugs, silencers and			
	essories can be f	found in the chapter Accessories → page: 243			
i on the website via	ı me mulviduäl S	earth terms:			

NEW Valve terminals VTSA

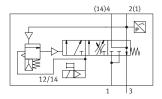
Data sheet - Soft start valve for VTSA-F-CB

Function

Without manual override



With manual override





Flow rate
Pressurisation:
3000 l/min
Exhaust: 3300 l/min



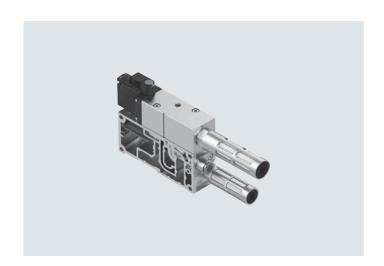
41 mm



Temperature range −5 ... +50°C



Operating pressure 2 ... 10 bar



Description

Smart valve functions

The basic functions are the same as for the familiar soft start valve.

There is a variant with internal pilot air supply (code PM) and a variant without internal pilot air supply (code PN). In addition, the new smart soft start valve has:

- An integrated pressure sensor for sensing the exhausted state
- A revised design of the manual override with protection against unintended actuation, as well as automatic reset

Like the familiar soft start valve, its purpose 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 half the operating pressure, the soft start valve switches to full operating pressure at duct 1 of the valve terminal.

The switching point is permanently set at 50% of the operating pressure. 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 fittings for compressed air tubing with standardised O.D. or using a silencer. A detenting manual override with self-reset via an electrical control signal is available for maintenance and service purposes.

Safety data		
Max. positive test pulse with logic 0	[µs]	2000
Max. negative test pulse	[µs]	1200
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

Data sheet – Soft start valve for VTSA-F-CB

General technical data		
Design		Piston spool valve
Grid dimension	[mm]	41
Valve size	[mm]	40
Overlap		Negative overlap
Actuation type		Electric
Sealing principle		Soft
Type of mounting		On sub-base
Mounting position		Any
Valve function		Soft start and exhaust function
Manual override		Detenting, self-resetting via electrical control signal (part numbers 8067407 and 8067405), normal position on top → page 202
Manual override		None (part numbers 8067411 and 8067409)
Reset method		Mechanical spring
Type of control	·	Piloted
Pilot air supply		For soft start valve: always internal via valve terminal
		For valve terminal: internal via soft start valve (part nos. 8067407, 8067411)
		For valve terminal: internal, not via soft start valve (part nos. 8067405, 8067409)
Flow direction		Non-reversible
Pneumatic connection 3		G1/2

Standard nominal flow rate [l/min]		
Pressurisation	3000	
Exhaust	3300	

Operating and environmental conditions				
Туре		VABF-S6-1-P5A4S1	VABF-S6-1-P5A4S2	
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/		Operation with lubricated medium not possible		
pilot medium				
Operating pressure	[bar]	310	2 10	
Ambient temperature	[°C]	-5 +50		
Temperature of medium	[°C]	-5 +50		
Corrosion resistance class CRC ¹⁾		0		

¹⁾ Corrosion resistance class CRC 0 to Festo standard FN 940070

No corrosion stress. Applies to small, visually unimportant standard 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.

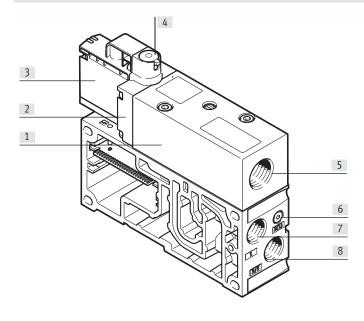
Data sheet – Soft start valve for VTSA-F-CB

Electrical data for soft start valve		
Electrical control		Fieldbus
Electrical connection		Plug-in
Nominal operating voltage	[V]	24 DC
Operating voltage range	[V]	24 DC ±10%
Characteristic coil data		24 V DC: 1.6 W
Permissible voltage fluctuations	[%]	±10%
Degree of protection to EN 60529		IP65 (for all types of signal transmission in mounted state)
Pressure sensor		Integrated (plug-in)
Sensor evaluation		Internal
Switching element function		N/C contact
Duty cycle	[%]	100

Materials		
	Soft start valve	Manifold sub-base
Housing	Wrought aluminium alloy	Die-cast aluminium
Seals	NBR, HNBR	_
Screws	Galvanised steel	-
Note on materials	RoHS-compliant	

Connection and display elements

Soft start valve VABF-S6-1-P5A4-... with manifold sub-base



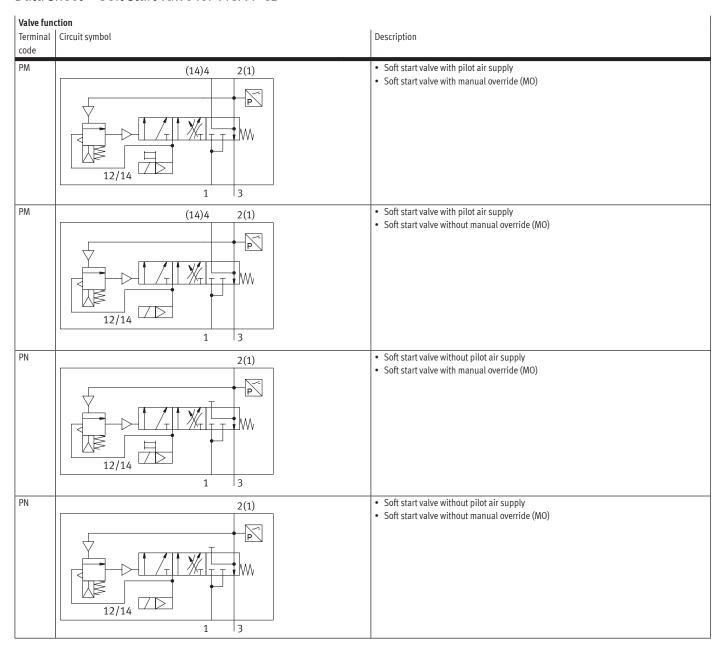
- [1] Basic valve housing
- 2] Intermediate plate
- 3] Pilot control
- [4] Manual override (MO) (optional)
- [5] Exhaust air port for duct 1
- [6] Pressure sensing for duct 1
- [7] Compressed air supply port[8] Exhaust air port for duct 3/5

- - Note

Detailed information on the manual override can be found in the user documentation.

→ Internet: User documentation

Data sheet – Soft start valve for VTSA-F-CB



NEW Valve terminals VTSA

Data sheet - Soft start valve for VTSA-F-CB

Dimensions Download CAD data → www.festo.com Soft start valve with manifold sub-base 5 **B** 4 L1 L2 6 1 Ξ HZ 8 3 2 L3 7 [1] Soft start valve [5] Manual override, self-resetting Silencer (accessory) [3] Seal [6] [2] Manifold sub-base (ports for [4] Socket head screw M5x45 for (code: YE) or concealed (code: S) [7] Silencer (accessory) duct 2 and 4 combined), manifold sub-base (captive) [8] Fitting (accessory) pneumatic connection G3/8

Seal¹⁾ between soft start valve and manifold sub-base

В1

41

B2

40.4

В3

18.2

Н1

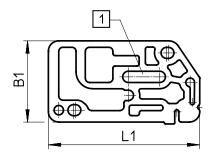
58.1

H2

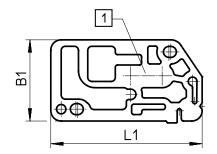
46

Туре

VABF-S6-1-P5A4...-G12-1T5-PA



[1] With elongated hole, internal pilot air supply



Н3

40.5

Н4

1

L1

155.1

L2

60.3

13

142

[1] Without elongated hole, external pilot air supply

Туре	B1	L1
VABF-S6-1-P5A4Z	39	72.7

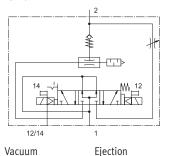
¹⁾ Seals are included with the soft start valve

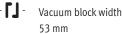
NEW

Accessories – Soft start valve for VTSA-F-CB

Ordering data						
	Code	Description		Weight [g]	Part no.	Туре
Soft start valve, without n	nanifold su	b-base				
	PM	Pilot pressure build-up from duct 1 (S1)	Manual override (MO), self-resetting	471	8067407	VABF-S6-1-P5A4S1YE-G12-1T5-PA
			Manual override (MO), covered	471	8067411	VABF-S6-1-P5A4S1S-G12-1T5-PA
	PN	No pilot pressure build-up from duct 1 (S2)	Manual override (MO), self-resetting	471	8067405	VABF-S6-1-P5A4S2YE-G12-1T5-PA
			Manual override (MO), covered	471	8067409	VABF-S6-1-P5A4S2S-G12-1T5-PA
Manifold sub-base for so	ft start valv	re				
	PV	With CBUS loop-through Sensor evaluation: internal Duct 3/5 combined Only in combination with pne zone Pneumatic connection G3/8	eumatic interface with voltage	471	8068609	VABV-S6-1Q-G38-CB1-T5

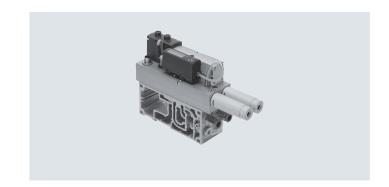
Function











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. A suction gripper uses vacuum to pick up and hold workpieces/components.

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 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 with connector 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" state, the valve reverts to the "generate vacuum" position.

Mode of operation of the air saving function (LS)

If the desired 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 (2) (turn on suction), vacuum generation is switched on automatically. Vacuum is generated until the set threshold value (1) (turn off suction) is reached again.

Threshold value to turn off suction (air saving function) (1):

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 (2):

The threshold value (2) should always be above the switching point of duct B (3) "vacuum sensing".

The gap between (2) and (3) should be at least 50 mbar.



- Note

Setting options and further instructions can be found on the Festo Support Portal in the operating instructions and/or documentation VABF-S4-1-V2B1...

→ Internet

General technical data				
Valve function		5/3-way, pressurised		
Design		Non-modular		
Mounting position		Any		
Nominal width of Laval nozzle	[mm]	2.0		
(vacuum generation)				
Ejector characteristics		High vacuum, standard		
Integrated functions		Electric ejector pulse valve		
_		• Flow restrictor		
		On/off valve, electric		
		Electrical air saving circuit		
		Check valve		
		Open silencer		
		Vacuum switch		
Silencer design		Open		
Measured variable		Relative pressure		
Measuring principle		Piezoresistive		
Switching function		Threshold value comparator		
Short circuit current rating		Yes		
Reverse polarity protection		For all electrical connections		
Inductive protective circuit		Adapted to MZ, MY, ME coils		
Switching element function		N/O contact		
Threshold value setting range	[bar]	-0.999 0 (recommended operating range: -0.950.05)		
Hysteresis setting range	[bar]	-0.9 0		
Power supply, vacuum block		Via own plug M12		
Pneumatic supply, vacuum block		Via valve terminal VTSA/VTSA-F		
Ejector pulse		Intensity adjustable via flow control screw		
Actuation type				
Solenoid valve		Electrically activated		
Vacuum block		Vacuum generation via Venturi nozzle		
Solenoid valve control type		Piloted		
Flow direction		Non-reversible		
Exhaust air function		Can be throttled (duct 3 and 5)		
Type of mounting		Via through-hole, screwed onto manifold sub-base, width 26 mm		
Manual override		Non-detenting, detenting, concealed		
For vacuum generation		Yes, solenoid coil 12 (holding)		
for ejector pulse		Yes, solenoid coil 14 (spring return), (only effective when power supply is switched off)		
Signal status display, valve		LED		
Pneumatic connections				
Supply 1, 3		Via the manifold sub-base of the valve terminal, width 26 mm		
111		Via the modular silencer for vacuum block		
Working port	2	Via the manifold sub-base of the valve terminal (QS push-in fitting – vacuum), G1/4		
(vacuum port)				
Connection	4	Via the manifold sub-base of the valve terminal (sealed with blanking plug type B-1/4)		

Technical data for pressure sensor 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 can be found on the Festo Support Portal in the operating instructions and/or documentation VABF-S4-1-V2B1...

→ Internet

Electrical data		
Electrical connection		4-pin plug to ISO 15407-2 (vacuum block supplied with power separately, not via valve terminal)
Nominal operating voltage	[V DC]	24
Operating voltage range	[V DC]	21.6 26.4
Duty cycle	[%]	100
Max. output current	[mA]	50
Voltage drop	[V]	≤1.5
Idle current	[mA]	50 150 (dependent on the switching status of the solenoid coils)
Characteristic coil data	[V DC]	24
Power consumption	[W]	1.3
(characteristic coil data)		
Overload protection		Present
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	Connector plug M12x1, 4-pin to EN 61076-2-101	Pin1 Pin2 Pin3 Pin4	– + 24 V DC (brown (BN)) – Out B (white (WH)) – 0 V DC (blue (BU)) – Out A (black (BK))	Supply voltage Switching output B (duct B) 0 V DC Switching output A (duct A)						

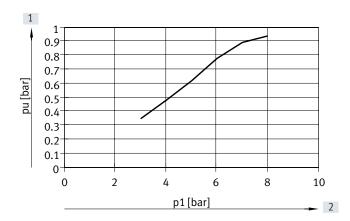
1) Max. permissible signal cable length: 5 m

Operating and environmental of	conditions	
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Notes about the operating medi	um	Unlubricated operation
Operating pressure	[bar]	4 8
Nominal operating pressure	[bar]	6
Pressure measuring range	[bar]	<u>-10</u>
Negative pressure	[bar]	Up to approx. 0.9 (as a function of operating pressure)
Ambient temperature	[°C]	050
Temperature of medium	[°C]	050
Sound pressure level LpA (at	[dB(A)]	78
nominal operating pressure)		

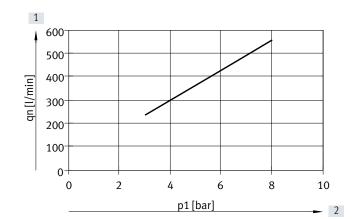
Materials	Naterials						
Housing, jet nozzle	Wrought aluminium alloy						
Screws	Galvanised steel						
Seals	NBR						
Plug housing	Nickel-plated die-cast zinc						
Plug contacts	Gold-plated brass						
Inspection window on pressure sensor	PA PA						
Pressure sensor keypad	TPE-U						
Note on materials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

Pressure ratios, air consumption and volumetric flow rate

Vacuum as a function of operating pressure

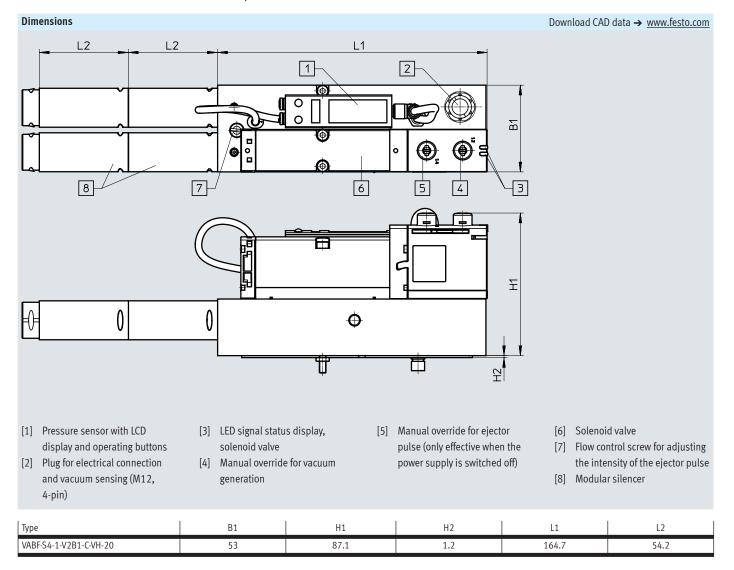


Air consumption as a function of operating pressure



[1] Vacuum

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



	Code	Description		Part no.	Туре
acuum block		·			1.7
	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
lanifold sub-base					
	L ²⁾	For vacuum block 2 valve positions, 4 addresses, with 2 blanking plugs in port 4	26 mm	_ 1)	VABV-S4
oc oc	LK ²⁾	For vacuum block 2 valve positions, 4 addresses, with 2 blanking plugs in port 4, with small QS fitting	26 mm	_ 1)	VABV-S4
onnecting cable					
	-	• Straight socket, M12x1, 5-pin • Open end, 4-wire	2.5 m	550326	NEBU-M12G5-K-2.5-LE4
	-	• Straight socket, M12x1, 5-pin • Open end, 4-wire	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 connecting cables		-	NEBU → Internet: nebu
	fittings, bla	nking plugs, silencers and			
other pneumatic acces or on the website via tl		ne found in the chapter Accessories → page: 243 Il search terms:			

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

NEW Valve terminals VTSA

Data sheet – Vacuum generator for VTSA-F-CB

- 【】 - Vacuum generator width 35 mm

- **** - Voltage 24 V DC

Operating pressure
4 ... 8 bar

Description

The vacuum generator VABF is designed for generating a vacuum. It can be integrated into the existing valve terminal VTSA-F-CB. Compressed air as well as power are supplied via the valve terminal.

A solenoid valve (solenoid coil 12, vacuum generation) controls the compressed air supply. Vacuum is generated using the Venturi principle when the vacuum generator is pressurised with compressed air.

The vacuum generator is used in conjunction with a suction gripper to pick up, hold and place components.

A suction gripper uses vacuum to pick up and hold workpieces/components. Once the component has been positioned, it is released by an ejector pulse. The ejector pulse can be set. The ejector pulse is generated using the solenoid valve (solenoid coil 14, ejector pulse). The vacuum collapses if the vacuum system is pressurised briefly.

The power ejector pulse variant (-AP) of the vacuum generator is a more energy- and air-saving option.



The VTSA-F-CB with serial communication provides the vacuum generator with extended functions:

- Opening and saving of up to four records on a local computer
- Teach-in functionality: recording homing runs, from gripping and holding the workpiece to setting it down. Configuration of switching points and monitoring.
- Preventive maintenance: measurement of all vacuum times, comparison with the homing run, warning message if a definable level of deviation is reached
- Switching air saving function on/off
- Changing the vacuum parameters per record
- Interlocking the ejector pulse:
 - When the Uval of the neighbouring voltage zone is switched off (voltage zone with safe shut-off within the valve terminal)
- When there is a fault with the valve load voltage (e.g. undervoltage)
- Extended diagnostic functions via CBUS and display of status LED (yellow) or error LED (red)



Note

In the event of an "emergency off" of the valve terminal (shutdown U_{VAL}), the vacuum generator VABF remains in vacuum generation mode with air-saving function.

If there is a complete failure of the electrical energy (bus shutdown, U_{SEN}) when the vacuum generator is in "Generate vacuum" mode, the valve switches to the "Permanent suction" switching position.

Vacuum generation

The vacuum is generated using the Venturi principle using the vacuum generator cartridges VN.

For the large sizes 20 and 30, two vacuum generator cartridges are used and connected in parallel.

For size 14, one vacuum generator cartridge is used (the second port is sealed with a blanking plug).

Vacuum generation is activated when the output signal "vacuum generation" is present for at least 50 ms. Since the vacuum generation is pulse-controlled, vacuum is also generated after the output signal is deactivated.

Data sheet - Vacuum generator for VTSA-F-CB

Function overview

Monitoring process parameters

- · Pressure value at vacuum port
- Limit values
- Evacuation time t_F

Static teach-in

Switching points and cycle time can be configured using the FMT (Festo Maintenance Tool).

Pressure value (vacuum)

Pressure values are measured continuously between the vacuum port and filter. If the operating voltage of the vacuum generator is switched off, the values are reset.

Emergency stop function

If the emergency stop (switching off the load voltage supply) is triggered during vacuum generation, the vacuum generator remains in vacuum generation mode.

If communication between the control-

ler and the vacuum generator is interrupted, a defined status is set.

it remains active. If the parameter "ejector pulse interlock" is activated (set to inactive at the factory), no ejector pulse is triggered in the event of an emergency stop.

If the air saving function was activated,

Pressurisation time t_R

Process quality

Dynamic teach-in

operation.

Cycle time

new evacuation.

Calculation and optimisation of

Switching points and monitoring func-

tions can be configured during ongoing

The time from the start of the evacua-

tion through ejection to the start of the

existing process sequences.

The following settings are defined in this error status state:

creased ejecting rate (power ejector

- · Flow control screw for adjusting the eiector pulse
- · Integrated pressure sensor

Fault detection and diagnostic messages

- Supply voltage not reached
- Evacuation time exceeded
- Fault in air saving function
- · Vacuum value not reached

Air saving function

- · Is set at the factory.
- · Can be switched off for "air-permeable workpieces" (otherwise there will be an unnecessarily high number of switching processes).

Evacuation and pressurisation time The evacuation time t_F is measured from the start of the evacuation until the switching point is reached. The pressurisation time t_B is measured from the start of the pressurisation to the time at which the pressure value (vacuum) falls below -5 kPa.

If there is a complete failure of the electrical energy (electronic supply voltage) during vacuum generation, the valve switches to the switching position "generate vacuum".

- Output bit "vacuum generation" is
- Output bit "ejector pulse" is set to

- Evacuation or pressurisation time exceeded
- Process quality below limit value
- Teach-in error

Manual override

Both solenoid coils, for vacuum generation and ejector pulse, can be switched manually using the manual override.

Blanking plug

A vacuum generator V*-20 or V*-30 can be converted subsequently to V*-14 using a blanking plug OASC-V1-P. This makes it possible to reduce the air consumption or reduce the suction rate (e.g. for evacuation of smaller volumes).

When the power supply is switched on again, the valve remains in the "generate vacuum" operating status until an ejection signal is received.

- Parameter set is set to 0.
- · Air saving function is not affected.

Additional features

Error state

- · Galvanic isolation between the vacuum generator VABF and valve terminal VTSA-F-CB
- 3 performance settings for vacuum generation (14, 20, 30)
- Integrated solenoid valve for vacuum generation (solenoid coil 12) and ejector pulse (solenoid coil 14)
- Air saving ejector pulse with inpulse)

- Integrated air saving function
- · Integrated strainer for filtering process air in order to protect the vacuum generator [-AP]
- Switching of the solenoid valve for vacuum generation with mechanical manual override
- Open silencer for reduced noise
- · A check valve prevents purging of the vacuum if vacuum generation is interrupted

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Data sheet – Vacuum generator for VTSA-F-CB

Туре		Functions with type code VABFA	Functions with type code VABFAP				
Valve function	_:	5/3-way, pressurised	7				
Design		Non-modular					
Mounting position		Anv					
Nominal width of Laval nozzle	14 [mm]	1.4					
(vacuum generation)							
(vacuuiii generation)	20 [mm]	2.0					
Et al. 1 and taken	30 [mm]	3.0					
Ejector characteristics VABFV2B1VH		lue i a la l					
		High vacuum, standard					
• VABFV2B1VL		High suction rate, standard					
Integrated functions		Ejector pulse, electrical	Power ejector pulse, electrical				
		Flow restrictor	Flow restrictor				
		On/off valve, electric	On/off valve, electric				
		Electrical air saving circuit	Electrical air saving circuit				
		Check valve	Check valve				
		Open silencer	Open silencer				
011		Vacuum switch	Vacuum switch				
Silencer design		Open					
Measured variable		Relative pressure					
Measuring principle		Piezoresistive					
Switching function		Window comparator					
		Threshold value comparator					
Reverse polarity protection		For all electrical connections					
Switching element function		N/O contact					
Pneumatic supply for vacuum gen	erator	Via valve terminal VTSA-F-CB					
Ejector pulse		Intensity adjustable via flow control screw					
Solenoid valve actuation type		Electrically activated					
Solenoid valve control type		Piloted					
Flow direction		Non-reversible Non-reversible					
Type of mounting		Via through-hole, screwed onto manifold sub-base, width 35 mm					
Manual override		Non-detenting (only non-detenting: with accessories), detenting, concealed (with accessories)					
For vacuum generation		Yes, solenoid coil 12 (holding)					
for ejector pulse		Yes, solenoid coil 14 (spring return), (only effective when power supply is switched off)					
Danimati anno etiana							
Pneumatic connections Supply	1	Compressed air is supplied via the valve terminal					
Exhaust Supply	3	Compressed air is supplied via the valve terminal					
	2	Via silencer (open)					
Working port	2	G3/8					
(vacuum port)	_						
Electrical data and sensors							
Operating voltage range (UB)	[V DC]	21.6 30					
Nominal operating voltage	[V DC]	24					
Duty cycle	[%]	100					
Idle current	[mA]	30					
Electrical control		Fieldbus					
Electrical connection		Via CPX					

Electrical data and sensors		
Operating voltage range (UB)	[V DC]	21.6 30
Nominal operating voltage	[V DC]	24
Duty cycle	[%]	100
Idle current	[mA]	30
Electrical control		Fieldbus
Electrical connection		Via CPX
Pressure measuring range	[bar]	-10
Accuracy (full scale)	[% FS]	±3
Reproducibility,	[%]	1
switching value FS		
Degree of protection to EN 60529)	IP65
Protection class to DIN EN 61140	1	liii

Data sheet – Vacuum generator for VTSA-F-CB

Display and operation	Display and operation						
Display type		LED display, 2-digit					
Threshold value setting range	[kPa]	0 99					
Hysteresis setting range	[kPa]	0 90					
Setting options		Teach-in					
		Via parameter sets					
Sensor switching status indication		LED					
Display range start value	[kPa]	0					
Display range end value	[kPa]	99					
Displayable unit(s)	[kPa]	Vacuum					
Signal status display, solenoid valve	!	LED					

Operating and environmental con	ditions										
Type VABF		VH-14-A	VH-14-AP	VH-20-A	VH-20-AP	VH-30-A	VH-30-AP	VL-14-A	VL-14-AP	VL-20-A	VL-20-AP
Operating medium		Compress	ed air to ISO 8	573-1:2010	[7:4:4]						
Note on operating/pilot medium		Lubricated	d operation no	t possible							
Pilot pressure pS	[bar]	4 10									
Operating pressure pB	[bar]	4 8									
Nominal operating pressure pBnom	[bar]	6	6								
Operating pressure for max. suction rate	[bar]	4		4		6		4		5	
Operating pressure for max. vacuum pumax	[bar]	4		4		6		-		-	
Max. vacuum pVmax	[kPa]	92		•				-		-	
Max. suction rate with respect to atmosphere	[l/min]	51		99		167		91		179	
Pressurisation time at nominal operating pressure	[s]	0.2	0.3	0.2	0.3	0.2	0.25	0.2	0.25	0.2	0.25
Sound pressure level LpA (at nominal operating pressure)	[dB(A)]	70		73 75		62			61		
Ambient temperature tamb	[°C]	-5 +50	-5 +50					•			
Temperature of medium tmed	[°C]	-5 +50	−5 +50								
CE marking (see declaration of conf	formity)		To EU EMC Directive								
Certification		RCM comp	liance mark								
Corrosion resistance class CRC ¹⁾		0									

¹⁾ Corrosion resistance class CRC 0 to Festo standard FN 940070

No corrosion stress. Applies to small, visually unimportant standard 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.

Materials	
Housing, jet nozzle, blanking plug	Wrought aluminium alloy
Adjusting screw	High-alloy stainless steel
Screws	Steel
Vacuum generator seals	NBR, HNBR
Blanking plug seals	NBR
Plate	Die-cast aluminium
Female nozzle	POM
Silencer	PU foam, POM
Note on materials	RoHS-compliant (vacuum generator and blanking plug)
Corrosion resistance class CRC ¹⁾	2 (blanking plug)

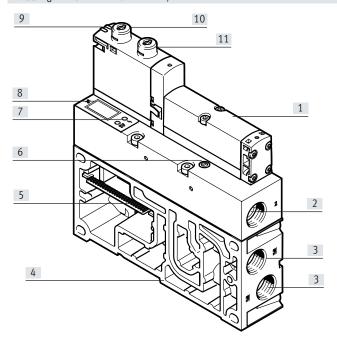
¹⁾ Corrosion resistance class CRC 2 to Festo standard FN 940070

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

Data sheet - Vacuum generator for VTSA-F-CB

Connection and display elements

Vacuum generator VABF-S4-... - CB-VH/VL-...



- [1] Solenoid valve VSVA
- [2] Vacuum port G3/8
- [3] Port for silencer UOM-3/8 [VH/L-14 (1x) and VH-20 (2x)]
- [4] Manifold sub-base for valve terminal VTSA-F-CB (pneumatic and electric)
- [5] Electrical linkage to valve terminal VTSA-F-CB
- [6] Flow control screw for adjusting the intensity of the ejector pulse
- [7] The status LED (yellow) indicates the operating status of the vacuum generator and displays warnings in the event of a process fault
- [7] The error LED (red) indicates the status of the CBUS connection and displays errors
- [8] The 7-segment display (2-digit blue LED display) shows the pressure value (vacuum) in kPa
- [9] LED switching status indication for solenoid valve
- [10] Manual override for vacuum generation
- [11] Manual override for ejector pulse

Diagnostics and monitoring

The vacuum generator has monitoring functions that enable early detection of malfunctions or faults during operation.

The following diagnostic functions are possible:

- Monitoring of tE (evacuation time), reference via teach-in
- Monitoring of tB (pressurisation time), reference via teach-in
- Monitoring of air consumption via vacuum drop rate VDR (process quality) when air saving function is active (tLS)

Definition of diagnostic levels

remittion of diagnostic tevels									
Status	Normal operation	Warning	Error						
Definition	Device is OK	Outside the specification	Malfunction						

Operating statuses of the vacuum generator							
Control							
Solenoid coil 12	Solenoid coil 14	Function/operating status	Comment				
0	0	Normal position	No actuation or status after the end of the "ejection" signal/the "pressurisation" function				
		Generate vacuum	Operating status after failure of the pilot air supply or the electric supply of the vacuum generator (self-latching loop)				
1	0	Generate vacuum	Pulse actuation with self-latching loop				
0	1	Pressurisation (ejector pulse)	Accelerated vacuum reduction				
1	1	Air saving (air saving function)	Maintain vacuum (valve mid-position)				

Data sheet - Vacuum generator for VTSA-F-CB

Electrical and pneumatic status changes		
Status change	Operating status before status change	Operating status after status change
Failure/deactivation of the electronics supply	Generate vacuum	Generate vacuum
or the pilot air supply of the vacuum generator		(the valve slide remains in "generate vacuum" position)
	Air saving	Generate vacuum
		(through the mechanical spring, the valve slide goes into the "generate vacuum"
		position)
	Pressurisation	Normal position ¹⁾
	Normal position ¹⁾	Normal position ¹⁾
Emergency stop/switch-off of the load voltage	Generate vacuum	Generate vacuum
supply	Air saving	Generate vacuum
		(vacuum is maintained)
	Pressurisation	Normal position or function is interrupted ²⁾
	Normal position ¹⁾	Normal position ¹⁾

- 1) Normal position means the vacuum block is not in the "generate vacuum", "air saving" or "ejection" operating status
- 2) Parameter "ejector pulse interlock" must be active

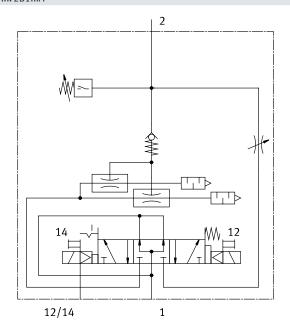
- 🖥 - Note

A failure of the working air or electrical supply of the valve terminal will result in the following statuses:

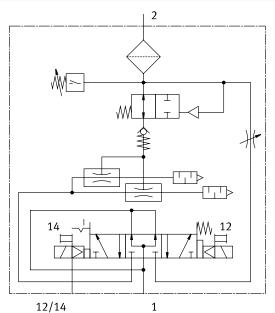
- 1. Working air failure:
- No vacuum can be generated, even if the valve is in the "generate vacuum" position.
- No ejector pulse can be generated, even if the valve is in the "ejection" position.
- 2. Failure of the electrical supply to the valve terminal:
- If both solenoid coils drop at the same time, the valve switches to permanent suction because of the pilot air volume still present and remains in this state.

Circuit symbols, vacuum generator

VABF...V2B1...A



VABF...V2B1...AP



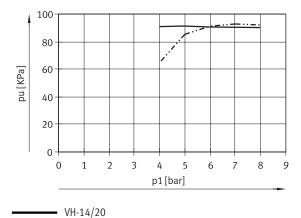
The vacuum generator is supplied internally via duct 1 of the manifold sub-base of the valve terminal. The pilot air is supplied internally via duct 12/14 of the manifold sub-base of the valve terminal.

NEW Valve terminals VTSA

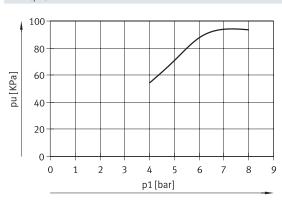
Data sheet - Vacuum generator for VTSA-F-CB

Pressure ratios, negative pressure $\boldsymbol{p}_{\boldsymbol{u}}$ as a function of operating pressure \boldsymbol{p}_1

VH-1 4/20/30



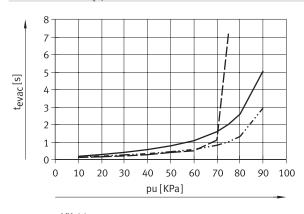
VL-1 4/20



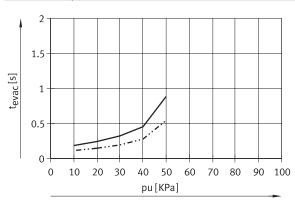
Pressure ratios, evacuation time t_{evac} as a function of negative pressure p_u and operating pressure 6 bar for 1 l volume

VH-1 4/20/30: t_{evac(p1)}

---- VH-30



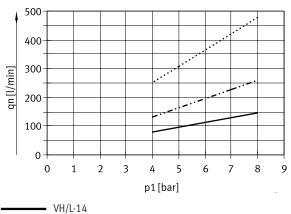
VL-1 4/20: t_{evac(p1)}



 VL-14 VL-20

Pressure ratios, air consumption $\boldsymbol{q}_{\,n}$ as a function of operating pressure $\boldsymbol{p}_{\,1}$

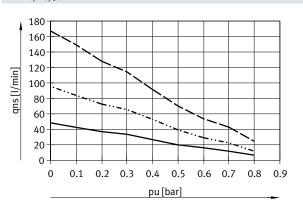
V...-14/20/30

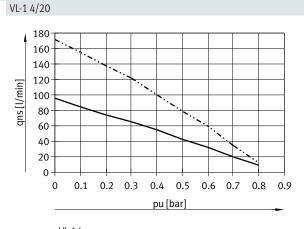


Data sheet – Vacuum generator for VTSA-F-CB

Pressure ratios, suction rate q_{ns} as a function of negative pressure p_u , p_1 and operating pressure 6 bar

VH-1 4/20/30





VH-14 VH-20 VH-30 NEW Valve terminals VTSA

Data sheet – Vacuum generator for VTSA-F-CB

Dimensions Download CAD data → www.festo.com Vacuum generator Laval nozzle 2.0 with high negative pressure 10 -11 Q-F Q器 4 [3] 되 £ L1 **B**1 L2 В2 [1] Silencer UOM-3/8 [5] LED switching status indication [9] 2-digit 7-segment display (blue [11] Manual override for ejector [2] Exhaust, port G3/8 for solenoid valve ejector pulse LEDs) for vacuum pulse, non-detenting/detenting Vacuum port G3/8 [6] LED switching status indication [10] Manual override for vacuum [4] Flow control screw for adjusting for solenoid valve vacuum generation, non-detenting/ the intensity of the ejector pulse generation detenting Error LED (red) [8] Status LED (yellow)

Туре	B1	B2	H1	H2	Н3	H4	L1	L2
VABF-S4-2-V2B1-G38-CB-VH-20-A	35	41.7	147.7	140.4	124.2	95.2	142	207.4

- 🖣 - Note

Silencer UOM-3/8, seal VABD-S6-1-C and screws for manifold sub-base are included with the order for the vacuum generator.

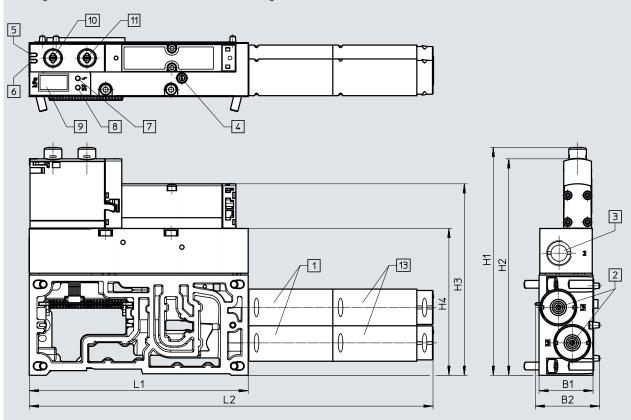
If required, the silencer extension UOMS-3/8 can be ordered separately.

Data sheet - Vacuum generator for VTSA-F-CB

Dimensions

Download CAD data $\rightarrow \underline{\text{www.festo.com}}$

Vacuum generator Laval nozzle 3.0 and Laval nozzle 2.0 with high suction rate



- [1] Silencer UOM-3/8
- [2] Exhaust, port G3/8
- [3] Vacuum port G3/8
- [4] Flow control screw for adjusting the intensity of the ejector pulse
- [5] LED switching status indication for solenoid valve ejector pulse
- [6] LED switching status indication for solenoid valve vacuum generation
- [7] Error LED (red)
- [8] Status LED (yellow)
- [9] 2-digit 7-segment display (blue LEDs) for vacuum
- [10] Manual override for vacuum generation, non-detenting/detenting
- [11] Manual override for ejector pulse, non-detenting/detenting
- [13] Silencer extension UOMS-3/8

Туре	B1	B2	H1	H2	Н3	H4	L1	L2
VABF-S4-2-V2B1-G38-CB-VL-20-A	25	41.7	1477	140.4	127.2	95.2	1/2	261.0
VABF-S4-2-V2B1-G38-CB-VH-30-A)))	41.7	147.7	140.4	124.2	95.2	142	261.9



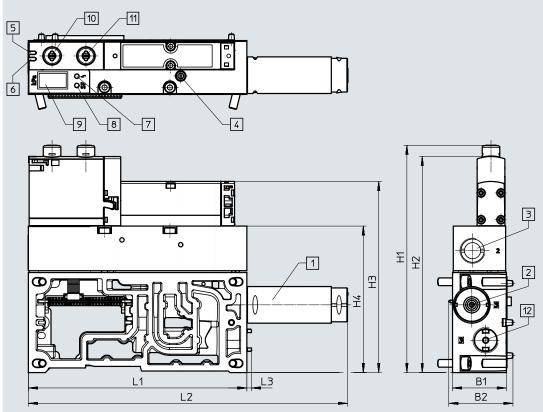
Silencer UOM-3/8, seal VABD-S6-1-C and screws for manifold sub-base are included with the order for the vacuum generator.

If required, the silencer extension UOMS-3/8 can be ordered separately.

NEW Valve terminals VTSA

Data sheet - Vacuum generator for VTSA-F-CB

Vacuum generator Laval nozzle 1.4



- [1] Silencer UOM-3/8
- Exhaust, port G3/8
- [3] Vacuum port G3/8
- [4] Flow control screw for adjusting the intensity of the ejector pulse
- [5] LED switching status indication for solenoid valve ejector pulse
- [6] LED switching status indication for solenoid valve vacuum generation
- [7] Error LED (red)
- [8] Status LED (yellow)
- [9] 2-digit 7-segment display (blue LEDs) for vacuum
- [10] Manual override for vacuum generation, non-detenting/ detenting
- [11] Manual override for ejector pulse, non-detenting/detenting

Download CAD data → www.festo.com

[12] Screw-in blanking plug (max. tightening torque 4 Nm)

Туре	B1	B2	H1	H2	Н3	H4	L1	L2	L3
VABF-S4-2-V2B1-G38-CB-VL-14-A	25	41.7	147.7	140.4	124.2	05.2	142	207.4	2
VABF-S4-2-V2B1-G38-CB-VH-14-A)))	41./	147.7	140.4	124.2	95.2	142	207.4)



Silencer UOM-3/8, seal VABD-S6-1-C and screws for manifold sub-base are included with the order for the vacuum generator.

If required, the silencer extension UOMS-3/8 can be ordered separately.

NEW

Data sheet – Vacuum generator for VTSA-F-CB

Ordering data					
	Terminal code	Description		Part no.	Туре
Vacuum generator for	VTSA-F-CB, w	ith integrated sensor			
Ø _B	With hig	h suction rate			
	II	Laval nozzle, 1.4 mm	915 g	8088779	VABF-S4-2-V2B1-G38-CB-VL-14-A
	IIPH	Laval nozzle, 1.4 mm with power ejector pulse	930 g	8088781	VABF-S4-2-V2B1-G38-CB-VL-14-AP
	IV	Laval nozzle, 2.0 mm	955 g	8067141	VABF-S4-2-V2B1-G38-CB-VL-20-A
	IVPH	Laval nozzle, 2.0 mm with power ejector pulse	970 g	8067144	VABF-S4-2-V2B1-G38-CB-VL-20-AP
	With hig	l h vacuum			
	I	Laval nozzle, 1.4 mm	915 g	8088778	VABF-S4-2-V2B1-G38-CB-VH-14-A
	IPH	Laval nozzle, 1.4 mm with power ejector pulse	930 g	8088780	VABF-S4-2-V2B1-G38-CB-VH-14-AP
	III	Laval nozzle, 2.0 mm	920 g	8067140	VABF-S4-2-V2B1-G38-CB-VH-20-A
	IIIPH	Laval nozzle, 2.0 mm with power ejector pulse	940 g	8067143	VABF-S4-2-V2B1-G38-CB-VH-20-AP
	V	Laval nozzle, 3.0 mm	955 g	8067142	VABF-S4-2-V2B1-G38-CB-VH-30-A
	VPH	Laval nozzle, 3.0 mm with power ejector pulse	970 g	8067145	VABF-S4-2-V2B1-G38-CB-VH-30-AP
Silencer extension		-			
	-	Can be attached to enclosed silencer UOM and latched.	17.5 g	538437	UOMS-3/8
Blanking plug					
	-	With connecting thread G3/8 (The blanking plug can be used to subsequently convert an existing vacuum generator V20 to a vacuum generator V14, or a vacuum generator V30 to a vacuum generator V20.)	23 g	8068144	OASC-V1-P
Pneumatic connection	accessories				
·	ssories can b	nking plugs, silencers and e found in the chapter Accessories → page: 243			
		, silencer, blanking plug			
	- 071	2. 2			

Adaptation to width 65 mm

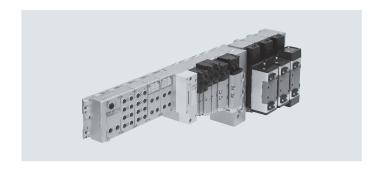
- 【】- Valve width 65 mm ISO size 3

Voltage 24 V DC

Flow rate up to 4000 l/min

Temperature range -5 ... +50°C





Description

Function

The adaptation of valves, regulator plates and throttle plates for width 65 mm, ISO size 3 in type 04 technology 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 side of the adapter plate (electrical 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 linkage
- · 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

- 🖣 - Note

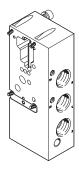
Please note that despite the basic configuration for ISO size 3 valves

- 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.

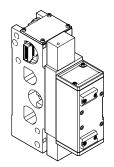
Peripherals – Pneumatic components, width 65 mm

Overview of modules for width 65 mm, ISO size 3

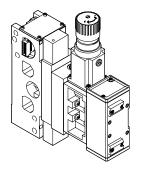
ISO 5599-2 size 3



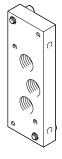
Adapter plate



Valve with manifold sub-base



Vertical stacking



End plate

Pneumatic components

Pneumatic modules

- · Manifold sub-base for ISO valves
- Size 3: (G1/2) 4000 l/min

Adapter plate

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

- 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

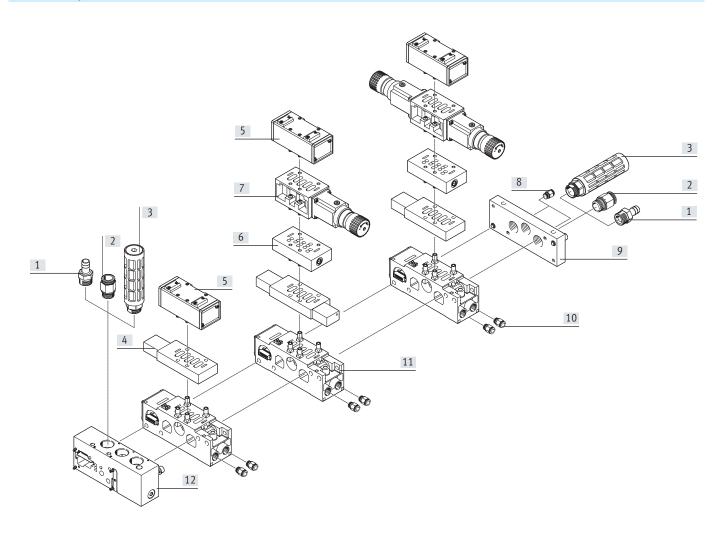
- Creation of pressure zones: maximum 2 pressure zones, up to 10 bar as well as for vacuum, are possible for all valve sizes. Compressed air supply at both sides is essential in this case.
- Regulated external pilot air supply should be used for pressures
 3 bar.

Options

- Vacant positions for subsequent extensions
- All pneumatic connections can also be supplied with an NPT thread

Peripherals – Pneumatic components, width 65 mm

Pneumatic components of width 65 mm, ISO size 3



		Description	→ Page/Internet
[1]	Barbed hose fitting 1"	-	243
[2]	Fitting	For compressed air supply port	243
[3]	Silencer	For exhaust air	244
[4]	Intermediate solenoid plate	For pneumatically actuated standards-based valves	227
[5]	Valve	Pneumatically actuated standards-based valve	227
[6]	Throttle plate	For exhaust air flow control	228
[7]	Intermediate pressure regulator plate	-	228
[8]	Fitting	For pilot air	243
[9]	End plate	Right-hand end plate	228
[10]	Fitting	For working air (QS 16, QS 12)	243
[11]	Manifold sub-base	For linking the valve terminal	228
[12]	Adapter plate VABA	For adapting ISO size 3 components to valve terminal VTSA/VTSA-F	228

Key features - Pneumatic components, width 65 mm

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.

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.

The cover plate matches the valve used and must be ordered with the valve if the terminal is to be 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.

Valves and flow lines

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 the pilot air supply is to be restricted to 10 bar with a suitable regulator.

Key features - Pneumatic components, width 65 mm

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

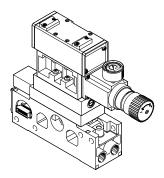
Valve fund	Valve function							
	Circuit symbol	Width 65 mm	Description					
0	14 4 2 14 5 1 3	-	5/2-way valve, single solenoid • With intermediate solenoid plate • Mechanical spring					
_	14 4 2 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1	-	5/2-way valve, single solenoid • With intermediate solenoid plate • 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 valve, single solenoid With intermediate solenoid plate Pneumatic spring, pneumatic spring supplied by external pilot air					
J	14 4 2 12 12 14 5 1 3 12	-	5/2-way valve, double solenoid • With intermediate solenoid plate					
D	14 4 2 12 12 14 5 1 3 12	•	5/2-way valve, double solenoid 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 14 14 5 1 1 3 12	•	5/3-way valve • With intermediate solenoid plate • Mid-position exhausted					
В	14 W 4 2 W 12 14 5 1 3 12	•	5/3-way valve With intermediate solenoid plate Mid-position pressurised					
L		•	Cover plate					

- - 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).

Key features – Pneumatic components, width 65 mm

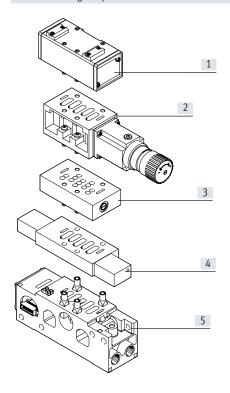
Vertical stacking, width 65 mm



Additional components can be added to each valve position, ISO size 3, between the sub-base (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 ISO size 3
- [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.

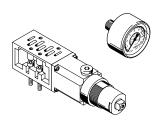
Key features – Pneumatic components, width 65 mm

Throttle plate, width 65 mm



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

Intermediate pressure regulator plate and pressure gauge, for width 65 mm



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)

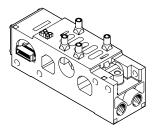
Easy pressure setting

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

Function								
Code	Circuit symbol	Width 65 mm	Description					
X	-	•	Throttle plate (with two one-way flow control valves for exhaust air flow control)					
ZA	14 12 11	•	Intermediate pressure regulator plate, port 1					
ZB	14.5 11 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					
S T R	0	•	Isolating disc for creating pressure zones Duct separation 1, 3, 5 Duct separation 1 Duct separation 3, 5					
Т		-	Pressure gauge for regulator, max. 10 bar					
-		-	Pressure gauge for regulator, max. 16 bar					

Key features – Pneumatic components, width 65 mm

Manifold sub-base for valves, width 65 mm



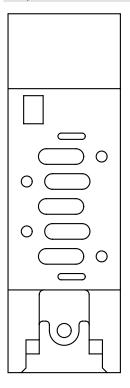
Adaptation to size 65 mm ISO size 3 is based on a modular system which consists of manifold sub-bases and valves. The manifold sub-bases contain a duct seal and an electrical linkage, are screwed together and thus form the support system for the valves.

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

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

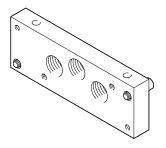
Individual valve terminal sections can be isolated and further manifold sub-bases easily inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended, even for width 65 mm, ISO size 3.

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



Key features – Pneumatic components, width 65 mm

Compressed air supply and exhausting



With the adaptation to width 65 mm ISO size 3, 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, ISO size 3, 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.

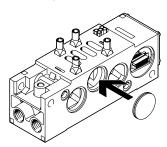
External pilot air supply

If the working pressure is not between 3 ... 10 bar, you must use external pilot air supply to operate valves width 65 mm, ISO size 3. The pilot air supply is then supplied via ports 12 and 14 on the right-hand end plate.



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.

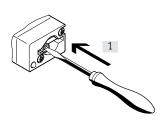
Creation of pressure zones



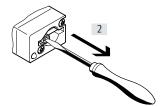
It is possible to have different supply pressures in the area containing valves width 65 mm by installing isolating discs between two manifold blocks. It should be noted that the isolating disc is inserted into the manifold sub-base from the right.

The supply and exhaust is effected on the left side via the adapter plate VABA ... and via the right 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) 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 initial position (not with double solenoid valve code J, D).

Key features – Electrical components, width 65 mm

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 covering of the manifold sub-base on the printed circuit board.

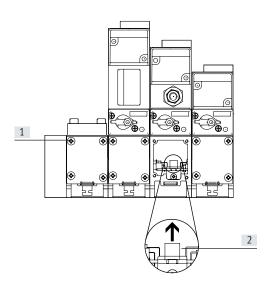
Each single solenoid manifold subbase has one fuse, while each double solenoid manifold sub-base has two fuses



Note

Make sure that there is sufficient clearance for maintenance purposes.

Changing the solenoid coil fuse



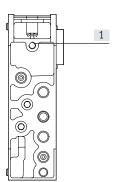
- [1] Loosen the retaining screws in the covering
- [2] Carefully remove the fuse from its base.

Right-hand fuse for valve solenoid 14

Left-hand fuse for valve solenoid 12

Key features – Mounting of width 65 mm

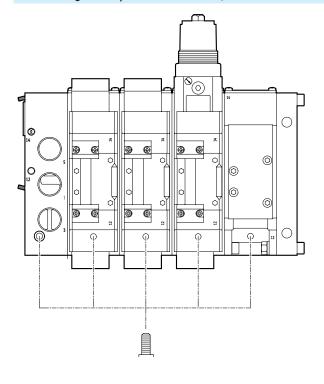
Rear side mounting



[1] Blind hole for rear side mounting

There are drilled holes (blind holes) on the back of the manifold sub-bases 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, ISO size 3



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



- Note

The mounting holes of every second manifold sub-base must be used for mounting a valve terminal VTSA-ASI in size ISO 3 on a wall.

Data sheet – General technical data, 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	l connection						
Working air	1	G1					
Exhaust air	3/5	G1					
Working ports	2/4	G1/2					
Pilot air supply	1 2/14	G1/8					

Technical data									
Valve function	Termi- nal 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 spring 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 spring 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, width 65 mm

Operating and anvisonmental se	nditions	
Operating and environmental co	naitions	
Valve functions, adapter plate		
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	[bar]	
terminal		
With ext. pilot air supply		-0.9 +10
With int. pilot air supply		310
Pilot pressure for valve terminal	[bar]	310
Operating pressure for valves	[bar]	
With ext. pilot air supply		-0.9 +10 (for reversible valves, for non-reversible valves 2 10)
With int. pilot air supply		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)		Through PELV power supply unit			
Operating voltage	V]	24 DC ±10%			
Power consumption per coil [N	W]	3.1 (130 mA at 24 V DC)			
Duty cycle		100% (50% concurrence)			
Degree of protection to EN 60529		IP65 (in mounted state)			
Relative humidity [%]	90 at 40 °C, non-condensing			

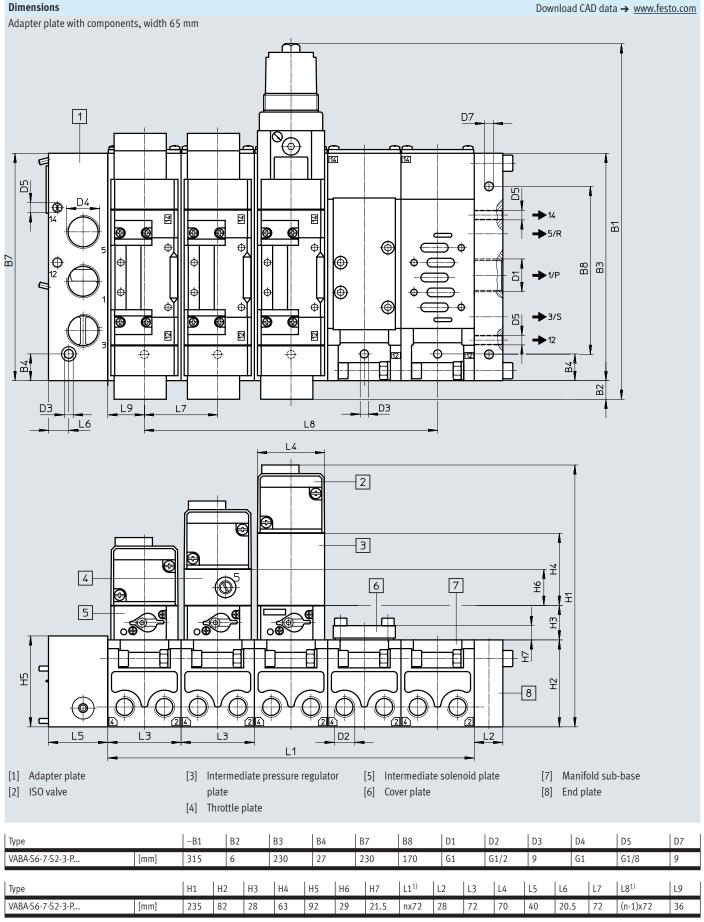
Electrical data for adapter plate					
Width		60 mm			
Operating voltage	[V]	24 DC ±10%			
Max. current rating per signal	[mA]	500			
Duty cycle		100%			
Degree of protection		IP65, NEMA 4 (for all types of signal transmission in mounted state)			

Data sheet – General technical data, 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
Piston spool, screws	Steel
Note on materials	RoHS-compliant

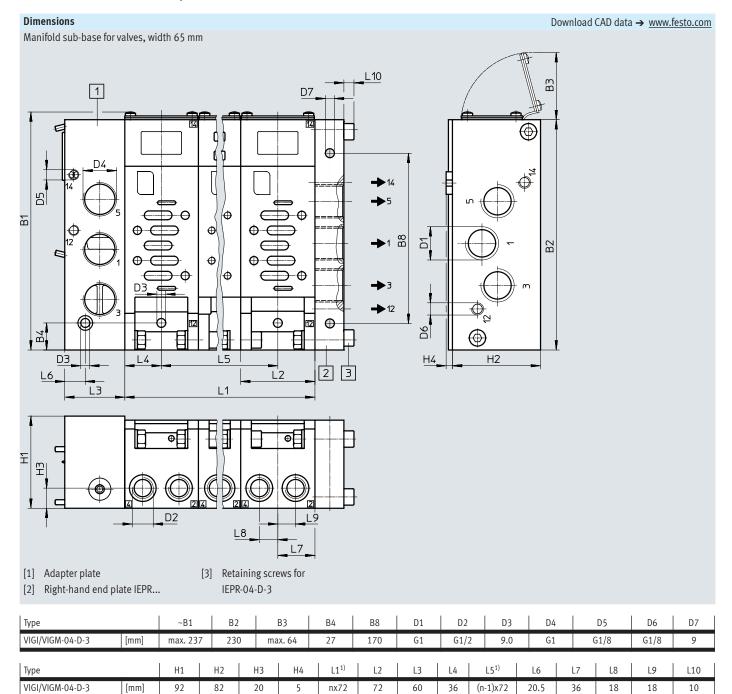
Product weights	
Approx. weights [g	
Adapter plate	2600
Manifold sub-base	1120
Right-hand end plate	1120
Intermediate solenoid plate	500
Valves	
Single solenoid, double solenoid	760
Mid-position	840
Cover plate	180
Throttle plate	850
Intermediate pressure regulator plate	
• P, B, A	1120
• A/B	1770

Data sheet - Adaptation to width 65 mm



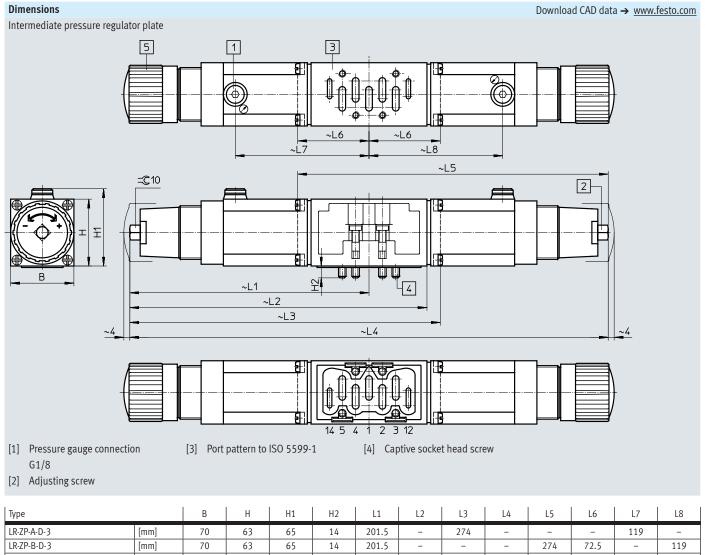
¹⁾ n = number of valves

Data sheet - Dimensions, width 65 m



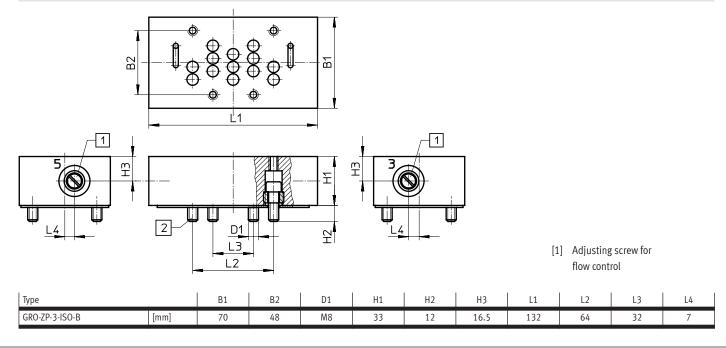
¹⁾ n = number of valves

Data sheet - Dimensions, width 65 m



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

Throttle plate



Ordering data – Individual valve 24 V DC, width 65 mm

Ordering data				
Designation	Code	Description	Part no.	Туре
Pneumatic valve (can	be ordered	individually)		
	-	5/2-way valve, single solenoid,	151863	VL-5/2-D-3-FR-C
		mechanical spring return		
	-	5/2-way valve, single solenoid,	151864	VL-5/2-D-3-C
		pneumatic return		
	-	5/2-way valve, double solenoid	151865	J-5/2-D-3-C
	-	5/2-way valve, double solenoid,	151866	JD-5/2-D-3-C
		dominant signal		
	-	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 solenoid	plate for p	oneumatic valve (can be ordered individually)		
	<u> </u>	For activating a single solenoid, pneumatically actuated directional control valve	34934	MUH-ZP-D-3-24G
	-	For activating a single solenoid, pneumatically actuated directional control valve, air spring	151715	MUH-ZP-D-3-L-24G
Trans.		supplied by external pilot air		
	-	For activating double solenoid, pneumatically actuated directional control valves or 5/3-way	34935	MUHX2-ZP-D-3-24G
X 62		valves		
Tools,				
	1			

Accessories – Adaptation to width 65 mm

Ordering data				
Designation	Code	Description	Part no.	Туре
Adapter plate				
	-	Adapter plate for adapting ISO size 3 components to valve terminal VTSA/VTSA-F (external pilot	1302079	VABA-S6-7-S2-3-P-G1
	-	air)	1202000	VADA 54 7 52 2 D D C1
) -	Adapter plate for adaptation of ISO size 3 components to valve terminal VTSA/VTSA-F (internal	1302090	VABA-S6-7-S2-3-P-B-G1
🧐		pilot air)		
Cover plate				
	L	Cover plate for vacant position	36121	IAP-04-D-3
Manifold sub-base, po				
- P	M ¹⁾	1 valve position, 2 addresses, for double solenoid valves (with QS 16)	18841	VIGI-04-D-3
	MK ¹⁾	1 valve position, 2 addresses, for double solenoid valves (with QS 12)		
	N ¹⁾	1 valve position, 1 address, for single solenoid valves (with QS 16)	18835	VIGM-04-D-3
	NK ¹⁾	1 valve position, 1 address, for single solenoid valves (with QS 12)		
000				
Right-hand end plate				
	-	With working air/exhaust air, internal/external pilot air supply	18880	IEPR-04-D-3
,		(internal/external pilot air is regulated via MUH plate (solenoid valve))		
Throttle plate				
100	Х	Throttle plate (with two one-way flow control valves for exhaust air flow control)	119674	GRO-ZP-3-ISO-B
Intermediate pressure	regulator	plate		
(ii)	ZA	Port 1, pressure regulation range: 0.012 bar	35968	LR-ZP-P-D-3
	ZB	Port 4, pressure regulation range: 0.512 bar	35971	LR-ZP-A-D-3
	ZC	Port 2, pressure regulation range: 0.512 bar	35426	LR-ZP-B-D-3
	ZD	Port 2 and 4, pressure regulation range: 0.512 bar	35429	LR-ZP-A/B-D-3
Isolating disc				
	T1)	Duct separation 1	18910	NSC-04-D-3
(//)	R ¹⁾	Duct separation 3, 5		
	S ¹⁾	Duct separation 1, 3, 5		
Pressure gauge	T-	Franchista m. 10 has	1/2025	MA 40 40 4/0 FM
	1	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)

- **4** - Voltage 24 V DC 110 V AC



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	Electric
Type of control	Piloted
Exhaust function, can be throttled	Via individual sub-base
Lubrication	Lifetime lubrication
Type of mounting	Screwed onto sub-base
Valve	Screwed via through-hole
Individual sub-base	
Mounting position	Any
Manual override	Detenting, non-detenting, concealed

Pneumatic connections – Threaded connection

Fledifiatic Cofficetions - Threaded Cofficetion									
Width		18 mm	26 mm	42 mm	52 mm				
Pneumatic connection		Via sub-base	Via sub-base						
Supply port	1	G1/8	G1/4	G3/8	G1/2				
Exhaust port	3/5	G1/8	G1/4	G3/8	G1/2				
Working ports	2/4	G1/8	G1/4	G3/8	G1/2				
External pilot air supply port	14	M5	G1/8	G1/8	G1/8				
Pilot exhaust air port	12	M5	G1/8	G1/8	G1/8				

Operating and environmental conditions, individual sub-base

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 (only for 110 V AC coils, not for variants with round plug M12)
conformity)	To EU Explosion Protection Directive (ATEX, EX1E ¹) (for variants with round plug M12 only)
ATEX category gas	II 3G (EX1E¹))
Type of ignition protection for gas	Ex nA IICT3 X Gc (EX1E ¹⁾)
Explosion-proof ambient [°C]	−5 +50 (EX1E¹)
temperature	

¹⁾ EX1E certification for installation in a housing

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) ³⁾	-	390 ¹⁾ 310 ²⁾	1400 ¹⁾ 700 ²⁾	1200 ¹⁾ 700 ²⁾
5/3-way, exhausted, switching position 12 detenting (P53EP) ³⁾	-	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) ³⁾	-	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) ³⁾	-	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

¹⁾ Switching position

Mid-position
 The valve functions P53AD, P53BD, P53ED, P53EP are only available in the 24 V DC version. Values only apply to 24 V DC.

Standard nominal flow rate of valve/individual sub-base [l/min]

Valve function (with valve code)	Width 42 mm		Width 52 mm	
	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)	1900 ¹⁾	1400 ¹⁾	3600 ¹⁾	3200 ¹⁾
	950 ²⁾	800 ²⁾	1700 ²⁾	1700 ²⁾
5/3-way, exhausted (P53E)	1900 ¹⁾	1400 ¹⁾	3600 ¹⁾	3200 ¹⁾
	950 ²⁾	800 ²⁾	1700 ²⁾	1700 ²⁾
5/3-way, pressurised (P53U)	1900 ¹⁾	1400 ¹⁾	3600 ¹⁾	3200 ¹⁾
	950 ²⁾	800 ²⁾	1700 ²⁾	1700 ²⁾
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F) ³⁾	1700 ¹⁾	1400 ¹⁾	3000 ¹⁾	2600 ¹⁾
	700 ²⁾	700 ²⁾	900 ²⁾	900 ²⁾
2x3/2-way, single solenoid, closed (T32C)	1600	1200	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)	1600	1200	3000	2600
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	_	-

Switching position
 Mid-position
 The valve function P53F is only available in the 24 V DC version. Values only apply to 24 V DC.

Electrical data, individual su	ıb-base						
Current rating at 40 °C	[A]	2 (1 A per coil)					
Degree of protection to EN 60)529	65, NEMA 4 (for all types of signal transmission in mounted state)					
Variants with round plug M12	2						
Operating voltage range	[V DC]	24 ±10% (for variants with round plug M12 VABSR3)					
Surge resistance	[kV]	0.8					
Pollution degree		3					
Duty cycle	ED	100%					
Variants with cable connector	r						
Operating voltage range	[V DC]	24 ±10% (for variants with cable terminal VABSK1/C1,K2)					
	[V AC]	110 ±10% (50 60Hz) (for variants with cable and spring-loaded terminal VABSK1/C1,K2)					
Surge resistance	[kV]	4					
Pollution degree		3					
Duty cycle	[ED]	100%					



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

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 solenoid valve, double solenoid (B52, D52)	172	276	439	732
5/2-way valve, single solenoid (M52A, M52M)	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 (T32C, T32U, T32H, T32N, T32F, T32W)	190	335	442	740
2x 2/2-way solenoid valve (T22C, T22CV)	190	335	442	740
Individual connection				
Individual sub-base	192	302	386	815

Dimensions Download CAD data → www.festo.com Individual sub-base with M12 plug, width 18 mm Н2 В2 H1 Φ -0 НЗ | [1] Plug to EN 61076-2-101 Н3 Н1 Н4 Н5 Туре В1 B2 В3 В4 В5 D1 D2 D3 D4 D5Ø H2 Н6 Н7 VABS-S4-2S-G18-R3 1) M5 30 18 6 G1/8 M5 M12x1 31 14.5 13 8.8 4 32.4 13 5.5 53.4 13.7

VABS-S4-2S-G18-R3 1)

VABS-S4-2S-G18-B-R3 2)

L1

133.5

L2

124.5

L3

38.6

L4

22.2

L5

32.4

L6

33.2

L7

16.6

L8

25.3

L9

16.2

L10

4.5

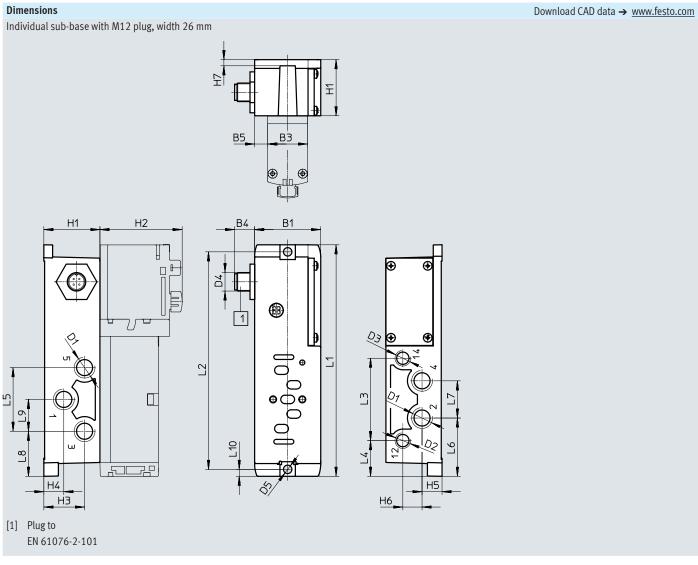
VABS-S4-2S-G18-B-R3 2) External pilot air supply
 Internal pilot air supply

^{· ♦ ·} Note: This product conforms to ISO 1179-1 and ISO 228-1.

Dimensions Download CAD data → www.festo.com Individual sub-base with cable terminals, width 18 mm Н2 H1 В2 $\overline{\bullet}$ 03 Туре В1 B2 В3 В5 D1 D2 D3 D4 Н1 H2 Н3 Н4 Н5 Н6 Н7 D5ø VABS-S4-2S-G18-K2 1) М5 32.4 30 18 6 G1/8 M5 M20x1.5 5.5 31 53.4 14.5 13 13.7 8.8 4 VABS-S4-2S-G18-B-K2 2) Туре L1 L2 L3 L4 L5 L6 L7 L8 L9 L10 VABS-S4-2S-G18-K2 1) 133.5 124.5 38.6 22.2 32.4 33.2 16.6 25.3 16.2 4.5 VABS-S4-2S-G18-B-K2 2)

¹⁾ External pilot air supply

²⁾ Internal pilot air supply



Туре	B1	В3	B4	B5	D1	D2	D3	D4	D5ø	H1	H2	H3	H4	H5	Н6	H7
VABS-S4-1S-G14-R3 ¹⁾ VABS-S4-1S-G14-B-R3 ²⁾	43	26	13	8.5	G1/4	G1/8	G1/8 -	M12x1	5.5	36.5	53.5	26.5	13	13	12.5	4
Туре	L1		L2	1	L3	L4		L5	L6		L7	L8		L9	L1	10
VABS-S4-1S-G14-R3 1)																

¹⁾ External pilot air supply

²⁾ Internal pilot air supply

Dimensions Download CAD data → www.festo.com Individual sub-base with cable terminals, width 26 mm B5_ вз Н2 H1 Ф *D*3 \mathbb{C} НЗ <u>H6</u> Туре В1 D3 D5ø Н3 VABS-S4-1S-G14-K2 1) G1/8 G1/4 4 43 G1/8 M20x1.5 8.5 5.5 36.5 53.5 26.5 13 13 12.5 VABS-S4-1S-G14-B-K2 ²⁾ L9 Туре L1 L2 L3 L4 L5 L6 L7 L8 L10 VABS-S4-1S-G14-K2 1) 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-K2 2)

¹⁾ External pilot air supply

Internal pilot air supply

 $[\]mid$ Note: This product conforms to ISO 1179-1 and ISO 228-1.

Dimensions Download CAD data → www.festo.com Individual sub-base with M12 plug, width 42 mm ВЗ H1 Н2 В6 Н8 Φ <u>D</u>3 H4 H3 Н6 [1] Plug to EN 61076-2-101

Туре	B1	В3	B4	B5	В6	D1	D2	D3	D4	D5ø	H1	H2	Н3	H4	H5	Н6	H7	Н8
VABS-S2-1S-G38-R3 ¹⁾ VABS-S2-1S-G38-B-R3 ²⁾	50	42	13	4	2.2	G3/8	G1/8	G1/8 -	M20x1.5	5.5	42.5	55.3	29	13.6	17.1	16.3	4	47.5
1-																		
Туре		L1		L2		L3	L4		L5	L6		L7		L8		L9	L1	10

¹⁾ External pilot air supply

²⁾ 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 B5 ВЗ H1 H2 В1 Н8 В6 φ D3 7 6] L 19 H5_ НЗ Н6 D2 D3 Н2 Н3 Н4 Н5 Н6 Н7 Н8 В1 В3 В5 В6 D1 D4 Н1 Туре D5Ø VABS-S2-1S-G38-K1 1) G1/8 VABS-S2-1S-G38-C1 1) 50 42 2.2 G3/8 G1/8 M20x1.5 5.5 42.5 55.3 29 13.6 17.1 16.3 47.5 VABS-S2-1S-G38-B-K1 2) VABS-S2-1S-G38-B-C1 2) L9 Type L1 L2 L3 L4 L5 L6 L7 L8 L10 VABS-S2-1S-G38-K1 1) VABS-S2-1S-G38-C1 1) 150.6 141.5 53.6 23.2 44 37 26 28 22 4.5 VABS-S2-1S-G38-B-K1 2) VABS-S2-1S-G38-B-C1 ²⁾

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



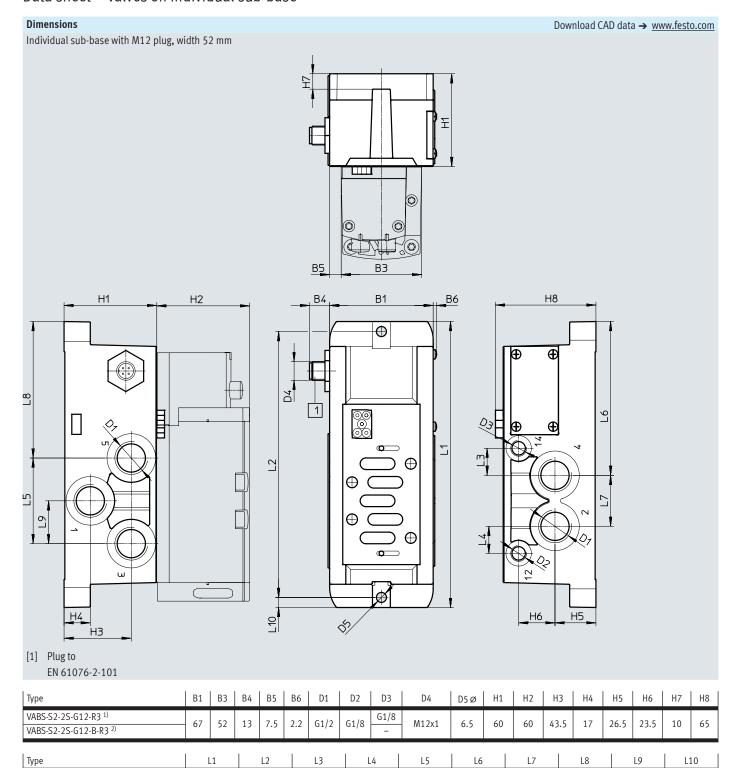
Electrical connection

• VABS-...-K1: open end

• VABS-...-C1: spring-loaded terminal

¹⁾ External pilot air supply

²⁾ Internal pilot air supply



1)	External	pilot	air	supply

VABS-S2-2S-G12-R3 1)

VABS-S2-2S-G12-B-R3 2)

185

172

17.5

17.5

55.4

99.5

33

88.3

27.7

6.5

²⁾ 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 52 mm Ξ H1 Н8 Н2 В1 Φ \oplus H5 _H6 В6 D1 D3 D4 Н1 Н4 Н8 B5 D2 D5ø H2 Н3 Н5 Н6 Н7 VABS-S2-2S-G12-K1 1) G1/8 VABS-S2-2S-G12-C1 1) 67 52 G1/2 G1/8 M20x1.5 6.5 60 26.5 23.5 10 65 7.5 2.2 60 43.5 17 VABS-S2-2S-G12-B-K1 2) VABS-S2-2S-G12-B-C1 2) L9 Туре L2 L3 L4 L5 L6 L7 L8 L10 VABS-S2-2S-G12-K1 1) VABS-S2-2S-G12-C1 1) 185 172 17.5 17.5 99.5 33 88.3 27.7 55.4 6.5 VABS-S2-2S-G12-B-K1 2) VABS-S2-2S-G12-B-C1 2)

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



Electrical connection

• VABS-...-K1: open end

¹⁾ External pilot air supply

²⁾ Internal pilot air supply

[•] VABS-...-C1: spring-loaded terminal

Accessories – Individual connection

Threaded connection, internal pilot air supply

Threaded connection, external pilot air supply

Ordering data					
	Description		Width	Part no.	Туре
ndividual sub-base, e	lectrical connection with plug M12 (without CE marking)				
	Threaded connection, internal pilot air supply	Connections G1/8	18 mm	541070	VABS-S4-2S-G18-B-R3
600				8033156	VABS-S4-2S-G18-B-R3-EX1E
23.00		Connections G1/4	26 mm	541069	VABS-S4-1S-G14-B-R3
				8033158	VABS-S4-1S-G14-B-R3-EX1E
		Connections G3/8	42 mm	546104	VABS-S2-1S-G38-B-R3
				8033160	VABS-S2-1S-G38-B-R3-EX1E
		Connections G1/2	52 mm	555645	VABS-S2-2S-G12-B-R3
				8033162	VABS-S2-2S-G12-B-R3-EX1E
	Threaded connection, external pilot air supply	Connections G1/8	18 mm	541064	VABS-S4-2S-G18-R3
				8033155	VABS-S4-2S-G18-R3-EX1E
		Connections G1/4	26 mm	541063	VABS-S4-1S-G14-R3
				8033157	VABS-S4-1S-G14-R3-EX1E
		Connections G3/8	42 mm	546101	VABS-S2-1S-G38-R3
				8033159	VABS-S2-1S-G38-R3-EX1E
		Connections G1/2	52 mm	555640	VABS-S2-2S-G12-R3
				8033161	VABS-S2-2S-G12-R3-EX1E
ndividual sub-base, e	lectrical connection via cable terminals				
^	Threaded connection, internal pilot air supply	Connections G1/8	18 mm	541067	VABS-S4-2S-G18-B-K2
		Connections G1/4	26 mm	541065	VABS-S4-1S-G14-B-K2
10000	Threaded connection, external pilot air supply	Connections G1/8	18 mm	539723	VABS-S4-2S-G18-K2
		Connections G1/4	26 mm	539725	VABS-S4-1S-G14-K2
ndividual sub-base, e	lectrical connection via spring-loaded terminal	1			
	Threaded connection, internal pilot air supply	Connections G3/8	42 mm	546762	VABS-S2-1S-G38-B-C1
		Connections G1/2	52 mm	555643	VABS-S2-2S-G12-B-C1
	Threaded connection, external pilot air supply	Connections G3/8	42 mm	546760	VABS-S2-1S-G38-C1
		Connections G1/2	52 mm	555638	VABS-S2-2S-G12-C1
 ndividual sub-base_e	lectrical connection via cable (open end)	I			

Connections G3/8

Connections G1/2

Connections G3/8

Connections G1/2

42 mm

52 mm

42 mm

52 mm

546102

555641

546099

555636

VABS-S2-1S-G38-B-K1

VABS-S2-2S-G12-B-K1

VABS-S2-1S-G38-K1

VABS-S2-2S-G12-K1

Accessories – Individual connection

Ordering data				
	Description		Part no.	Туре
Plug socket for elect	trical connection of individual valves			
	Angled socket, M12x1, 4-pin, type A, screw terminal		12956	SIE-WD-TR
Connecting cable fo	or electrical connection of individual valves at the individual electrical con	nection, 6-way or 10-way		
	Angled socket, M12x1, 4-pin Open end, 4-wire	5 m	164258	SIM-M12-4WD-5-Pu
	 Straight socket, M12x1, 5-pin Open end, 4-wire 	5 m	541328	NEBU-M12G5-K-5-LE4
	 Angled socket, M12x1, 5-pin Open end, 4-wire 	5 m	541329	NEBU-M12W5-K-5-LE4
3 3 3 3 3 3 3 3 3 3	Modular system for connecting cables	-	-	NEBU → Internet: nebu
other pneumatic ac or on the website vi	ion accessories ible fittings, blanking plugs, silencers and cessories can be found in the chapter Accessories → page: 243 ia the individual search terms: ction technology, silencer, blanking plug	,		

Accessories

Ordering data								
	Code	Description	1			Part no.	Туре	PU ¹⁾
Multi-pin plug distribu	tor							
	-	15-pin Sub	o-D socket/8x 3-pin M8 plugs		8 I/Os	177669	MPV-E/A08-M8	1
	-	15-pin Sub	o-D socket/12x 3-pin M8 plugs		12 I/Os	177670	MPV-E/A12-M8	1
Push-in fitting with cor	necting th	ıread						
	Ī-	G1/8 for	tubing O.D. 6 mm Plastic releasing ring			186096	QS-G1/8-6	10
	E			Metal releasir	ng ring	558662	NPQM-D-G18-Q6-P10	10
	-	1	tubing O.D. 8 mm	Plastic releasing ring Metal releasing ring		186098	QS-G1/8-8	10
	E					558663	NPQM-D-G18-Q8-P10	10
	_		tubing O.D. 10 mm	Plastic releasi	ng ring	190643	QS-G1/8-10	10
	-	G1/4 for	tubing O.D. 8 mm	Plastic releasi	ng ring	186099	QS-G1/4-8	10
	E	1		Metal releasir	ng ring	558665	NPQM-D-G14-Q8-P10	10
	_	1	tubing O.D. 10 mm	Plastic releasi		186101	QS-G1/4-10	10
	E	1		Metal releasir		558666	NPQM-D-G14-Q10-P10	10
	_		tubing O.D. 12 mm	Plastic releasi		186350	QS-G1/4-12	10
	E			Metal releasir		558667	NPQM-D-G14-Q12-P10	10
	_	G3/8 for	tubing O.D. 10 mm	Plastic releasi		186102	QS-G3/8-10	10
	E	- 35,0101	1025 0.01 10	Metal releasir		558669	NPQM-D-G38-Q10-P10	10
	_	1	tubing O.D. 12 mm	Plastic releasi		186114	QS-G3/8-12-I	10
	E		G	Metal releasir		558670	NPQM-D-G38-Q12-P10	10
	-	G1/2 for	tubing O.D. 12 mm	Plastic releasi		186104	QS-G1/2-12	1
	E	1	G	Metal releasir		558672	NPQM-D-G12-Q12-P10	10
	E	1	tubing O.D. 14 mm	Metal releasir		570451	NPQM-D-G12-Q14-P10	1
	-	1	tubing O.D. 16 mm	Plastic releasi		186105	QS-G1/2-16	1
Barbed hose fitting/pu	sh-in fittin	σ						
Saisea nose nung/pu	_		and end plate		G3/4	8040613	QS-G3/4-22	1
		T OI TISHICIA	and one plate		R1	572260	N-1-P-19	1
	_	For adapte	r nlate		R1	572260	N-1-P-19	1
		Tor adapte	· piace		IV.	372200	11-17	1

¹⁾ Packaging unit



- Note

Where the highest protection is required for electrical and electronic components (antistatic requirements), push-in fittings in a metal design, type NPQM-... should be selected.

Valve terminals VTSA

Accessories

Ordering data	l codo	Description		Dort no	Tuno	L put)
	Code	Description		Part no.	Туре	PU ¹⁾
Silencer						
	U	Standard design, connecting thread	G1/8	2307	U-1/8	1
			G1/4	2316	U-1/4	1
			G1/2	6844	U-1/2-B	1
			G3/4	6845	U-3/4-B	1
			G1	151990	U-1-B	1
	А	Sintered design, connecting thread	G1/8	1205860	AMTE-M-LH-G18	20
			G1/4	1205861	AMTE-M-LH-G14	20
			G1/2	1205863	AMTE-M-LH-G12	10
			G3/4	1205864	AMTE-M-LH-G34	10
			G1	1205865	AMTE-M-LH-G1	10
Blanking plug			1		1	1.0
	-	Connecting thread	M5	3843	B-M5	10
			G1/8	3568	B-1/8	10
			G1/4	3569	B-1/4	10
			G1/2	3571	B-1/2	10
			G3/4	3572	B-3/4	1
			G1	5763	B-1	1
Other pneumatic						
	•	ings, blanking plugs and silencers can be found				
on the website via						
nternet → conn	ection technolo	ogy, silencer, blanking plug				

¹⁾ Packaging unit

Festo - Your Partner in Automation





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