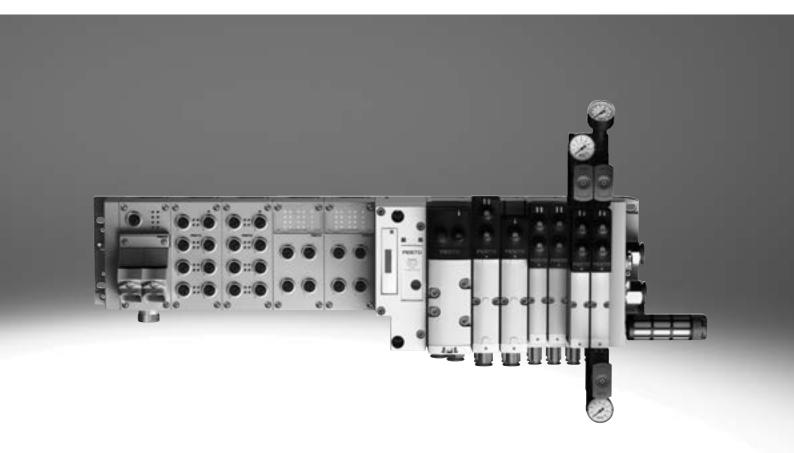
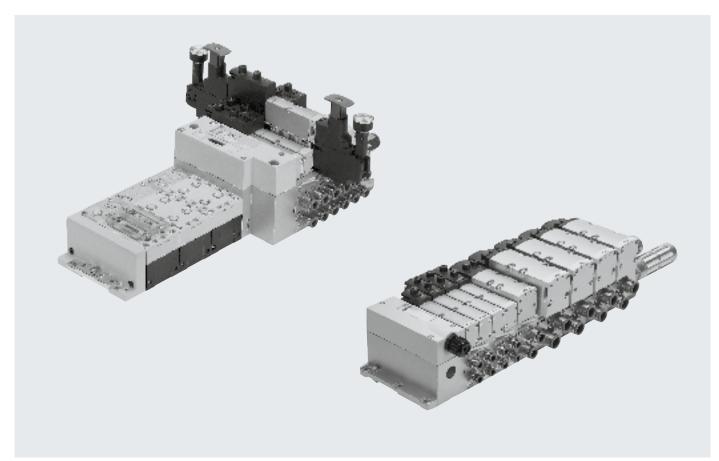
# Valve terminals VTSA







#### 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 to the fieldbus connection 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

#### Flexible

- 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
- A maximum of 7 voltage zones (6 of which via Profisafe shut-off module and one additional voltage zone via Uval)
- Up to 24 solenoid coils per voltage zone
- Up to 96 valve positions and up to 64 interlinking blocks per valve terminal

#### Reliable

- Sturdy and durable metal components
  - Valves
  - Manifold sub-bases
    Seals
- Seals
- Fast troubleshooting with LEDs on the valves and diagnostics via fieldbus
- 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

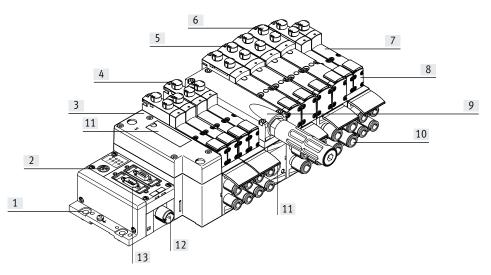
# - Note

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

→ page 226.

### Easy to install

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



- [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 18 mm, 26 mm, 42 mm and 52 mm can be combined on one valve terminal without an adapter

### **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] Reduced downtimes: on-site LED diagnostics
- [6] Safe operation: manual override non-detenting, non-detenting/detenting or concealed
- [7] Versatile: 32 valve positions/32 solenoid coils
   One valve series for a wide range of flow rates
- [8] Comprehensive range of valve functions

• 5/2-way solenoid valve

- Double solenoid

signal

output

Reversing

single solenoid

- Mechanical spring

- Single solenoid, pneumatic

spring/mechanical spring

- Double solenoid with dominant

• 5/2-way valves for special functions,

- Switching position sensing via in-

ductive sensors with PNP or NPN

- Protection against unexpected

start-up to EN 1037

- Mid-position pressurised

- Mid-position exhausted

5/3-way solenoid valve

- Mid-position closed

- [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

• 5/3-way solenoid valve for special

- Switching position 14 is retained

(switching position 14 is retained

in the event of an emergency off

application/power failure), there

is no spring return to switching

Only for valve terminal (plug-in)

- Mid-position exhausted or

- Pneumatic spring return

- Switching position 14 is retained

functions

position 12.

- [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<sup>®</sup>)
  - Control block via CPX
  - AS-Interface
  - Individual connection
  - IO-Link
  - I-Port
- 5/3-way solenoid valve for special functions
  - Switching position 12 is retained (switching position 12 is retained in the event of an emergency off application/power failure), there is no spring return to switching position 14.
  - Only for valve terminal (plug-in)
- Switching position 12 is retainedPneumatic spring return
- Soft-start valve for slow and safe pressure build-up
  - High degree of safety
  - Sensing function provides feedback on switching operation

## - 闄 - Note

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

→ page 226.

# Valve terminals VTSA

# Key features

Connection variants	alug in	Individual value on individual activity	
<ul> <li>Individual valve on individual sub-base.</li> <li>Electrical connection via standardised 4-pin M12 plug or via 4-pin spring-loaded terminal for</li> </ul>	<ul> <li>Available with internal/external pilot air supply</li> </ul>	<ul> <li>Individual valve on individual sub-base</li> <li>With integrated switching position sensing</li> <li>Electrical connection to</li> </ul>	<ul> <li>, square plug or plug-in</li> <li>For configuration by the user via 4-pin spring-loaded terminal or</li> <li>Cable with open end</li> </ul>
configuration by the user		EN 175301-803 type C (square plug) or	
Fieldbus interface CPX terminal	Fieldbus interface CPX terminal with VT	SA-F-CB	
<ul> <li>Max. 32 valve positions/max. 32 solenoid coils</li> <li>Any compressed air supply</li> <li>Any number of pressure zones</li> </ul>	<ul> <li>Serial communication in the pneumatic part</li> <li>Up to 6 voltage zones for load voltage of the valves in the pneumatic part</li> <li>Flexible shutdown of up to 3 voltage zones in the CPX interfaces, either internally with PROFIsafe or externally by 3x M12</li> </ul>	<ul> <li>Pilot air switching valve with integrated pressure sensor and connection via internal bus</li> <li>Soft-start valve with integrated pressure sensor and connection via internal bus</li> </ul>	• Vacuum generator with 3 perfor- mance settings, air-saving circuit, optional increased ejection rate (power ejector pulse) and connec- tion via internal bus, parameters can be configured via the CPX sys- tem
Valve terminal with individual connection	Valve terminal with multi-pin plug conr	nection	AS-Interface
<ul> <li>Max. 20 valve positions/ max. 20 solenoid coils</li> <li>Any compressed air supply</li> <li>Any number of pressure zones</li> </ul>	<ul> <li>Max. 32 valve positions/ max. 32 solenoid coils</li> <li>Parallel, modular valve linking</li> </ul>	<ul><li>Any compressed air supply</li><li>Any number of pressure zones</li></ul>	<ul> <li>1 to 8 valve positions/max. 8 sole- noid coils</li> <li>Soft-start valve for slow and safe pressure build-up</li> </ul>
I-Port	IO-Link		
<ul> <li>Max. 16 valve positions/ max. 32 solenoid coils</li> <li>Connection to an I-Port master</li> <li>Direct mounting of a bus node</li> </ul>	<ul> <li>Max. 16 valve positions/ max. 32 solenoid coils</li> <li>Connection to an IO-Link master</li> </ul>		
Combinable			
<ul> <li>Valve width 18 mm: flow rate of VTSA up to 550 l/min, VTSA-F up to 700 l/min</li> <li>Width 26 mm: flow rate of VTSA up to 1100 l/min, VTSA-F up to 1350 l/min</li> </ul>	<ul> <li>Valve width 42 mm: flow rate of VTSA up to 1300 l/min, VTSA-F up to 1860 l/min</li> <li>Width 52 mm: valve flow rate up to 2900 l/min</li> </ul>	• Widths 18 mm, 26 mm, 42 mm, 52 mm and 65 mm can be com- bined on a single valve terminal (us- ing an adapter – not for VTSA-F-CB)	<ul> <li>Valve terminal VTSA complies with</li> <li>ISO 15407-2 for width 18 and 26 mm</li> <li>ISO 5599-2 for width 42 and 52 mm</li> </ul>

### Valve terminals VTSA

555566

VTSA-F-ASI

8073100 VTSA-F-CB

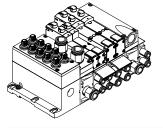
# Key features

Valve terminal configurator General	VTSA	VTSA-F	→ Internet: www.festo.com VTSA-F-CB	
A valve terminal configurator is availa- ble to help you select a suitable VTSA valve terminal, making it much easier to order the right product. The valve terminals are assembled ac- cording to your order specification and are individually checked. This reduces	<ul> <li>Valve terminal to ISO 15407-2 and ISO 5599-2 (flow rate: standard).</li> <li>Parallel communication between CPX module and switching valves VTSA</li> </ul>	<ul> <li>Valve terminal, flow rate-optimised (interlinking blocks) (flow rate: in- creased).</li> <li>Parallel communication between CPX module and switching valves VTSA</li> </ul>	<ul> <li>Valve terminal: optimised in terms of flow rate and communication (flow rate: increased).</li> <li>Serial communication between the CPX module and selected VTSA modules</li> </ul>	
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 valve terminal VTSA-F-CB usi the order code:	
	Ordering system for VTSA → Internet: vtsa	Ordering system for VTSA-F → Internet: vtsa-f	Ordering system for VTSA-F-CB → Internet: vtsa-f-cb	
	Ordering system for CPX → Internet: cpx	Ordering system for CPX → Internet: cpx	Ordering system for CPX → Internet: cpx	
Ordering data – Product options				
	Configurable product This product and all its product op- tions can be ordered using the config- urator.	The configurator can be found at → www.festo.com/catalogue/ Enter the part number or the type.	Part no.         Type           539215         VTSA-MP           547963         VTSA-F-MP           539217         VTSA-FB           547965         VTSA-F-FB           8130719         VTSA-F-FB-AP           555564         VTSA-ASI	

### Individual pneumatic connection



### Valve terminal with individual electrical connection



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

Control signals from the controller to

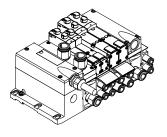
an individual connecting cable.

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.

The valve terminal can be equipped the valve terminal are transmitted via 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



# **AS-Interface connection**

Control signals from the controller to the valve terminal are transmitted via a pre-assembled multi-wire cable or a self-assembled multi-pin plug connection (spring-loaded terminal). This 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 connector for assembly by the user, 37-pin, 24 V DC
- Round plug M23, 19-pin, 24 V DC

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

- With one to eight modular valve positions (max. 8 solenoid coils). This corresponds to one to eight valves VSVA.
- With all available valve functions

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

Further information

→ Internet: as-interface

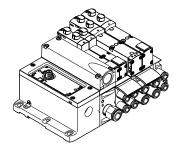
# Note

The valve terminal VTSA/VTSA-F with AS-Interface connection is based on the same electrical links as the valve terminal with multi-pin plug connection. This means a valve terminal with multi-pin plug connection can be converted using an AS-Interface module (→ page 150). The technical specifications of the AS-Interface system must be observed in this case.

→ Page 72

→ Internet: as-interface

### Valve terminal with I-Port/IO-Link connection

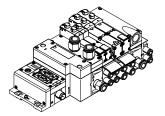


The connection to a higher-order controller can be achieved by:

- Connection to an I-Port master from
- Festo (e.g. CPX-CTEL)
- Direct mounting of a bus node on the I-Port interface
- Connection to an IO-Link master (in IO-Link mode)

The valve terminal can comprise a maximum of 32 solenoid coils or 16 valve positions.

### 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

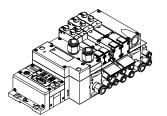
#### VTSA/VTSA-F versions

- PROFIBUS
- DeviceNet
- CANopen
- CC-Link
- EtherNet/IP
- EtherCAT
- Modbus TCP
- PROFINET
- POWERLINK
- Sercos III

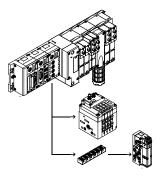
#### VTSA-F-CB versions

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

#### Valve terminal with control block connection from the CPX system



#### CP string extension 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.

The optional CP string extension ena-

bles 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.

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

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 re-

ted via the CP cable, which in turn

needed on the extension module.

means that no further installation is

quired electrical signals are transmit-

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

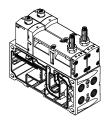
→ Internet: cpx

### 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: cpi

# Key features – Valves

#### Solenoid valve with switching position sensing for VTSA/VTSA-F/VTSA-F-CB, 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 valve with plug-in or individual connection 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.

This control block is suitable for use as

a press safety valve to EN 962.

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

This valve is a safety device in accord-

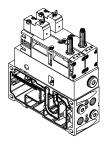
ance with the Machinery Directive

→ Page 155

2006/42/EC.

→ Page 165

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

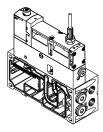


### 5/2-way solenoid valve

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

- Protecting against unexpected startup
- Safe reversing
- Drives in manually loaded machining jigs

#### 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 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.

Switching position sensing is carried out using an inductive PNP proximity switch with cable and 1xM12 push-in connector 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.

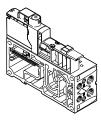
→ Page 172

### - 📲 - Note

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

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

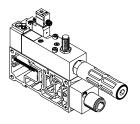
The pilot air switching valve can be supplied with compressed air internally via the valve terminal or externally via duct 2. The hybrid manifold sub-base can be equipped both with an 18 mm and a 26 mm solenoid valve.

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 181

### Soft-start valve for VTSA/VTSA-F, module width 43 mm

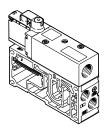


The soft-start valve is separately electrically actuated, independently of the multi-pin plug connection, AS-Interface or fieldbus interface, via a square plug of type C to EN 175301-803 or optionally via an M12 adapter. The valve can optionally be ordered with a sensor that monitors switching of the soft-start valve. The soft-start valve can supply the valve terminal or one or more pressure zones with compressed 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 thus be integrated on one valve terminal.

→ Page 188

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



The soft-start valve pressurises/exhausts duct 1 (supply 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 status of the soft-start valve.

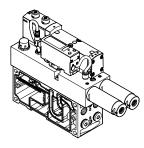
The filling time can be adjusted; the switch-over pressure is set to half the operating pressure. The pressure build-up for each pressure zone can thus be optimised for the application directly at the valve terminal. This valve is not a safety device in accordance with the Machinery Directive 2006/42/EC. It is suitable for use in safety-related parts of control systems to

EN ISO 13849-1.

→ Page 198

# 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. If the electrical or pneumatic supply fails, the valve moves to switching position 12 "generate vacuum".

→ Page 209

**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).

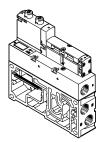
- Possible applications:Using lifting cylinders
- Using rotary cylinders

# For pressureless switching, self-holding, 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 devices (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, gripping and holding the workpiece, and 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 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. → Page 214

# Peripherals

### Modular pneumatic peripherals

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

The system consists of manifold sub-bases and valves.

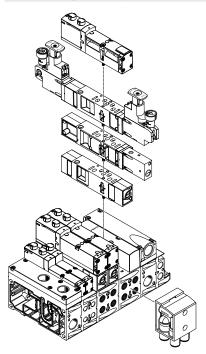
The manifold sub-bases are screwed together and thus form the support system for the valves. Inside the manifold sub-bases are the connection ducts for supplying compressed air to and exhausting the valve terminal as well as the working ports for the pneumatic cylinders for each valve.

Valve modularity

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.

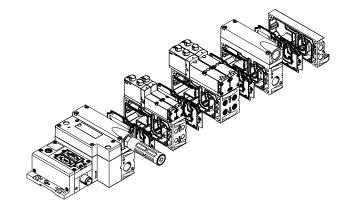
Basic system modularity

Vertical stacking modularity



### - 📱 - Note

See also "Adaptation to width 65 mm", ISO size 3  $\rightarrow$  page 226



# 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 linking enables the following: • Transmission of switching informa-

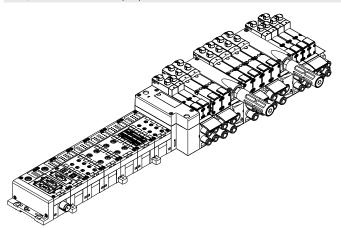
- tion

  Compact design
- Position-based diagnostics
- Separate power supply for valves

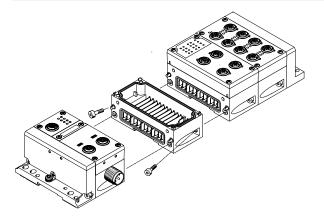
Modularity with electrical peripherals CPX

- 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



CPX terminal in metal design



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

# - Note

The CPX manifold blocks are also available in metal. 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:

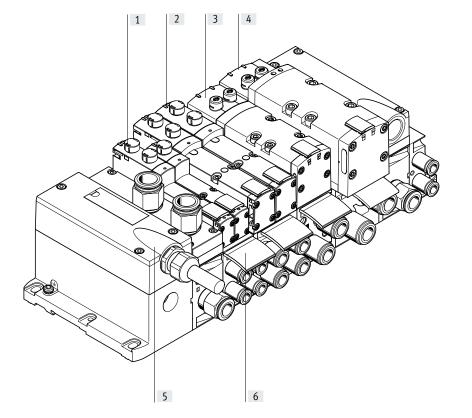
- 18 mm
- 26 mm
- 42 mm
- 52 mm

can be combined without adapters. These four widths can also be used without an 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

→ page 226

The valve terminal VTSA-F-CB is controlled via the 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	106
[2]	Valve	Width 26 mm	115
[3]	Valve	Width 42 mm	124
[4]	Valve	Width 52 mm	132
[5]	Multi-pin plug connection	With 24 V DC multi-pin cable (VTSA/VTSA-F only)	149
[6]	Inscription label	For manifold sub-base, sub-base, 90°-connection plate	154

10

11

# Peripherals – Pneumatic components

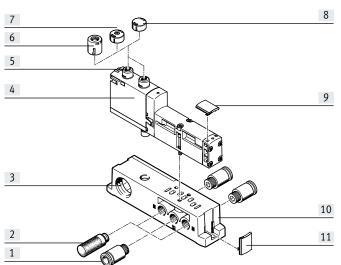
### Individual sub-base, width 18 mm, ISO 15407-2

Order code:

• Using individual part numbers

Individual sub-bases can be equipped with any valve.

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



ble end. Width 18 mm with M12 plug 8 7 6 5 4 9

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 ca-

1			
		Description	→ Page/Internet
[1]	Fitting	G1/8 for supply/exhaust air ports (1, 3, 5) and working ports (2, 4)	259
[2]	Silencers	U-1/8-B for exhaust ports (3, 5)	260
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or M12 plug <sup>1)</sup> , 4-pin	-
[4]	Valve VSVA	Width 18 mm	106
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	153
[7]	Cover cap, coded	For non-detenting manual override (limited function)	153
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	153
[9]	Inscription label holders	For valves	154
[10]	Individual sub-base	For valve VSVA	257
[11]	Inscription label holders	For manifold block	154

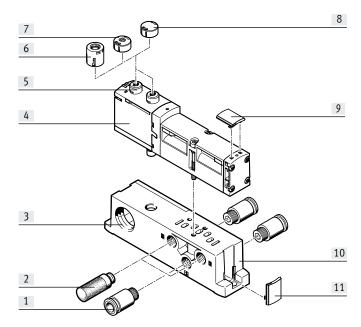
3

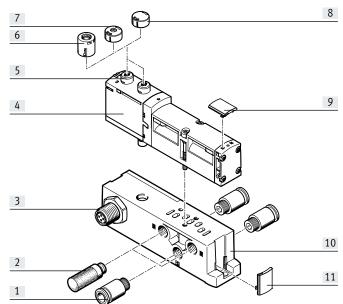
2

1) Only for 24 V DC

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

With spring-loaded terminal or cable (open end)





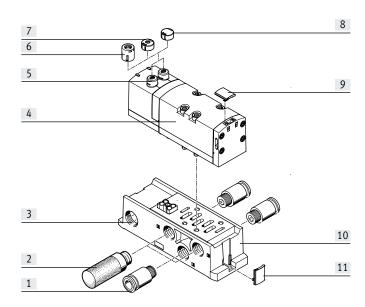
		Description	→ Page/Internet
[1]	Fitting	G1/4 for supply/exhaust air ports (1, 3, 5) and working ports (2, 4)	259
[2]	Silencers	U-1/4-B for exhaust ports (3, 5)	260
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or M12 plug <sup>1)</sup> , 4-pin	-
[4]	Valve VSVA	Width 26 mm	115
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	153
[7]	Cover cap, coded	For non-detenting manual override (limited function)	153
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	153
[9]	Inscription label holders	For valves	154
[10]	Individual sub-base	For valve VSVA	257
[11]	Inscription label holders	For manifold block	154

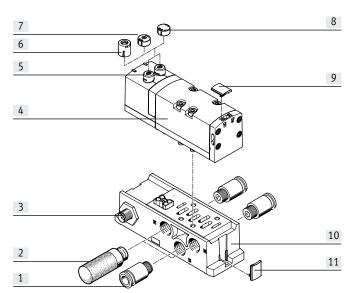
1) Only for 24 V DC

With M12 push-in connector

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

With spring-loaded terminal or cable (open end)





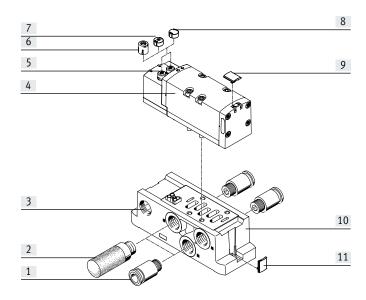
		Description	→ Page/Internet
[1]	Fitting	G3/8 for supply/exhaust air ports (1, 3, 5) and working ports (2, 4)	259
[2]	Silencers	U-3/8-B for exhaust ports (3, 5)	260
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or M12 plug <sup>1)</sup> , 4-pin	-
[4]	Valve VSVA	Width 42 mm	124
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	153
[7]	Cover cap, coded	For non-detenting manual override (limited function)	153
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	153
[9]	Inscription label holders	For valves	154
[10]	Individual sub-base	For valve VSVA	257
[11]	Inscription label holders	For manifold block	154

With M12 plug

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 supply/exhaust air ports (1, 3, 5) and working ports (2, 4)	259
[2]	Silencers	U-1/2-B for exhaust ports (3, 5)	260
[3]	Electrical connection	Spring-loaded terminal, cable (open end) or M12 plug <sup>1)</sup> , 4-pin	-
[4]	Valve VSVA	Width 52 mm	132
[5]	Manual override	Non-detenting/detenting, per solenoid coil	-
[6]	Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	153
[7]	Cover cap, coded	For non-detenting manual override (limited function)	153
[8]	Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	153
[9]	Inscription label holders	For valves	154
[10]	Individual sub-base	For valve VSVA	257
[11]	Inscription label holders	For manifold block	154

1) Only for 24 V DC

With M12 plug

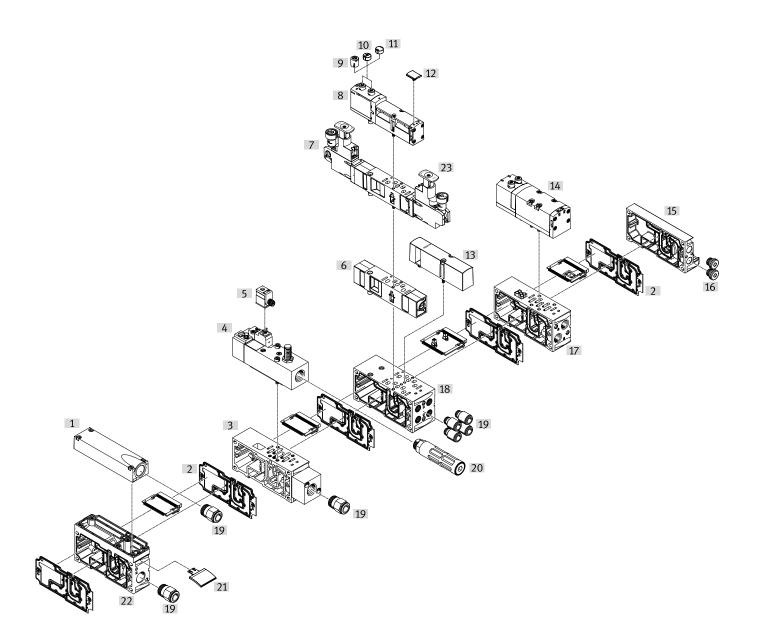
## Pneumatic components of valve terminal VTSA/VTSA-F

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.



### Pneumatic components of valve terminal VTSA/VTSA-F

Description →			
[1] Exhaust port cover	For ducted exhaust air (ports 3 and 5 combined)	141	
[2] Duct separation/seal	-	153	
[3] Manifold sub-base	For soft-start valve	196	
[4] Soft-start valve	For slow and safe pressure build-up	188	
[5] Plug socket	-	197	
[6] Throttle plate	-	147	
[7] Pressure regulator plate	-	142	
[8] Valve	Width 18 mm or 26 mm	106, 115	
[9] Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	153	
[10] Cover cap, coded	For non-detenting manual override (limited function)	153	
[11] Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	153	
[12] Inscription label holders	For valve	154	
[13] Cover plate	For unused valve position (vacant position)	147	
[14] Valve	Width 42 mm or 52 mm	124, 132	
[15] End plate with pilot air selector	-	152	
[16] Blanking plug	-	260	
[17] Manifold sub-base VTSA	For valves with a width of 42 mm or 52 mm	140	
[17] Manifold sub-base VTSA-F	For valves with a width of 42 mm or 52 mm	140	
[18] Manifold sub-base VTSA	For valves with a width of 18 mm or 26 mm	140	
[18] Manifold sub-base VTSA-F	For valves with a width of 18 mm or 26 mm	140	
[19] Fittings	-	259	
[20] Silencers	-	260	
[21] Inscription label holders	For manifold sub-base, sub-base, 90°-connection plate	154	
[22] Supply plate	-	141	
[23] Control element	Regulator knobs in different versions	39	

# - 🌡 - 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  $\rightarrow$  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

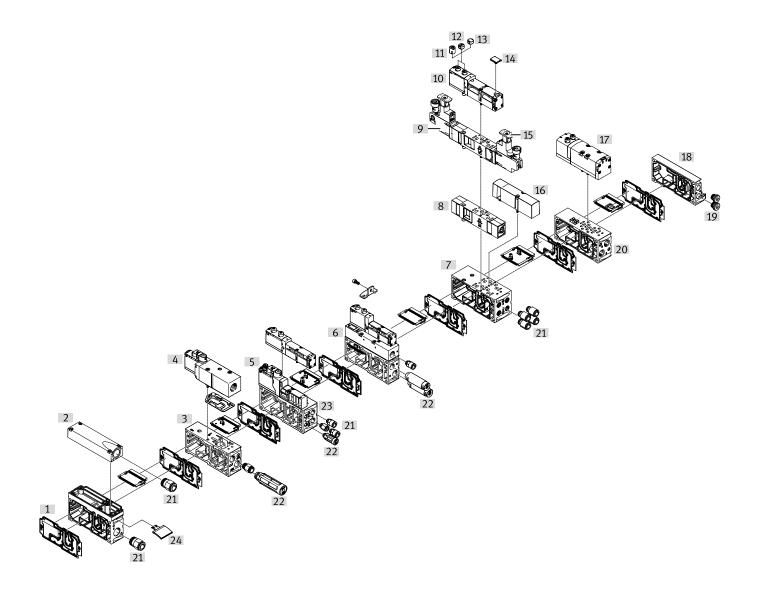
- 2 single solenoid valves or
- 2 double solenoid valves

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 subbase.

- 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.



### Pneumatic components of valve terminal VTSA-F-CB

	Description	→ Page/Internet
1] Duct separation/seal	-	153
2] Exhaust port cover	For ducted exhaust air (ports 3 and 5 combined)	141
3] Manifold sub-base	For soft-start valve	203
4] Soft-start valve for VTSA-F-CB	For slow and safe pressure build-up	198
5] Pilot air switching valve for VTSA-F-CB	-	181
6] Vacuum generator for VTSA-F-CB	For vacuum generation	214
7] Manifold sub-base VTSA-F-CB	For valves with a width of 18 mm or 26 mm with CBUS loop-through	140
8] Throttle plate	-	147
9] Pressure regulator plate	-	142
10] Valve	Width 18 mm or 26 mm	106, 115
11] Cover cap, heavy duty	For manual override, non-detenting heavy duty, detenting via accessory	153
12] Cover cap, coded	For non-detenting manual override (limited function)	153
13] Cover cap, concealed	MO concealed by cover cap – operation of MO prevented	153
14] Inscription label holders	For valve	154
15] Control element	Regulator knobs in different versions	39
16] Cover plate	For unused valve position (vacant position)	147
17] Valve	Width 42 mm or 52 mm	124, 132
18] End plate with pilot air selector	-	152
19] Blanking plug	-	260
20] Manifold sub-base VTSA-F-CB	For valves with a width of 18 mm or 26 mm with CBUS loop-through	140
21] Fittings	-	259
22] Silencers	-	260
23] Manifold sub-base VTSA-F-CB	For pilot air switching valve (hybrid sub-base)	140
24] Inscription label holders	For manifold sub-base, sub-base, 90°-connection plate	154
25] Supply plate/air supply plate	-	141

# - 🌡 - 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 generators

are listed after  $\rightarrow$  Accessories – General

#### Valve terminal with individual electrical connection

- Order code for VTSA:
- 44E-... for the electric components

• 44P-... for the pneumatic components

- Order code for VTSA-F:
- 45E-... for the electric components
- 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.

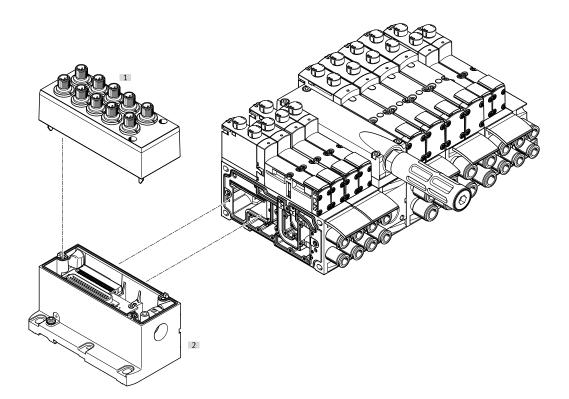
The manifold sub-bases for valves with a width of 18 or 26 mm are suitable for either

• 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
- → Page 226



		Description	→ Page/Internet
[1]	Cover	For individual connection	149
[2]	Multi-pin plug connection	Individual connection with M12, 10-way or 6-way (including cover)	149

#### Valve terminal with electrical multi-pin plug connection

Order code for VTSA:

- 44E-... for the electric components
- 44P-... for the pneumatic components

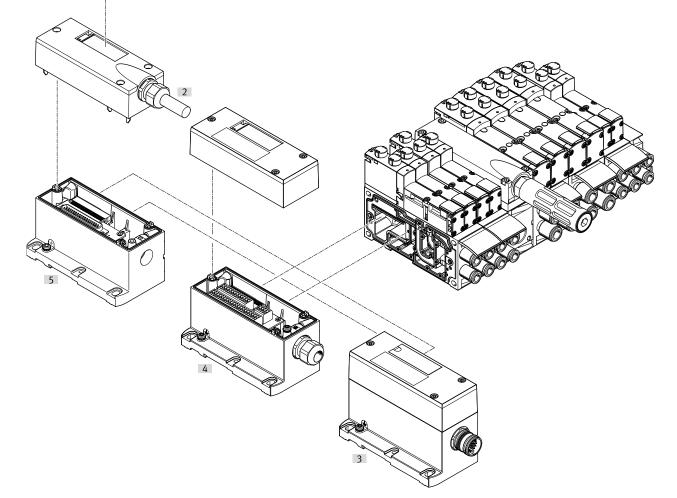
Order code for VTSA-F:

- 45E-... for the electric 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 solenoid coils. The manifold sub-bases for valves with a width of 18 or 26 mm are prepared for

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

- Double solenoid valve positions can be equipped with any valve or a cover plate.
- Single solenoid valve positions can only be equipped with single solenoid valves or a cover plate.
- The following multi-pin plug connections to IP65 are available:
- 37-pin Sub-D connection (24 V DC): the connecting cable can be ordered in lengths of 2.5 m, 5 m and 10 m for max. 8, 22 or 32 solenoid coils respectively.
- Terminal strip (24 V DC), 19-pin round plug (24 V DC)
- Valves with a width of 65 mm cannot be mixed with other widths – these are always at the end of the valve terminal configuration. See "Adaptation to width 65 mm", ISO size 3
- → Page 226



		Description	→ Page/Internet
[1]	Inscription label	Large, for multi-pin plug connection	-
[2]	Multi-pin cable	Connecting cable	152
[3]	Multi-pin plug connection	Via M23 round plug connection, 24 V DC	149
[4]	Multi-pin plug connection	Via terminal strip (CageClamp) 24 V DC	149
[5]	Multi-pin plug connection	Via multi-pin cable, 24 V DC	149

#### Valve terminal with AS-Interface connection

- Order code for VTSA:
- 52E-... for the electric components

• 44P-... for the pneumatic components Order code for VTSA-F:

- 52E-... for the electric components
- 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.

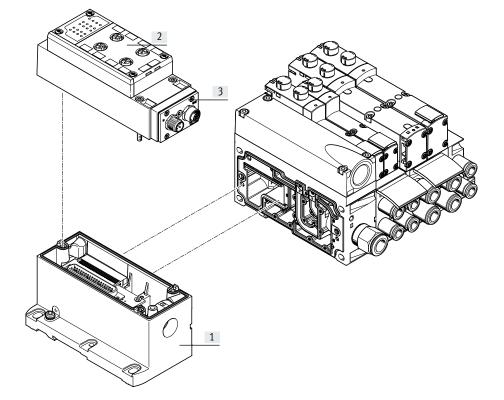
The manifold sub-bases for valves with a width of 18 or 26 mm are suitable for either

- 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
- → Page 226



		Description	→ Page/Internet
[1]	Multi-pin plug connection	Can be ordered together with the AS-Interface module as an electrical connection for AS-Interface	150
[2]	Connection block for AS-Interface	-	150
[3]	AS-Interface module	-	150

#### Valve terminal with I-Port/IO-Link connection

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

Valve terminals VTSA/VTSA-F with I-Port/IO-Link connection can be expanded with up to 16 valves with max. 32 solenoid coils. The manifold sub-bases for valves with a width of 18 or 26 mm are suitable for either

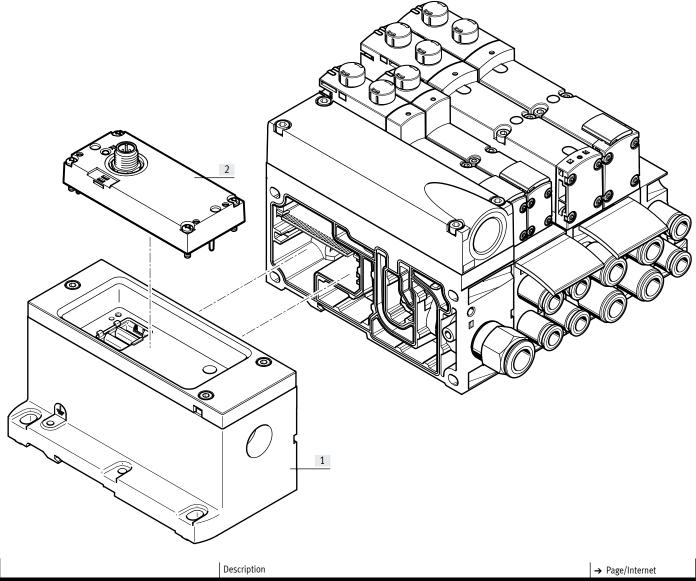
2 single solenoid valves or
2 double solenoid valves and the manifold sub-bases for valves with a width of 42 or 52mm are suitable

for

• 1 single solenoid valve or

• 1 double solenoid valve depending on the size.

- 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.



		Description	→ Page/Internet
[1]	Multi-pin plug connection	-	149
[2]	I-Port/IO-Link connection	Electrical interface IO-Link	150

#### 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.

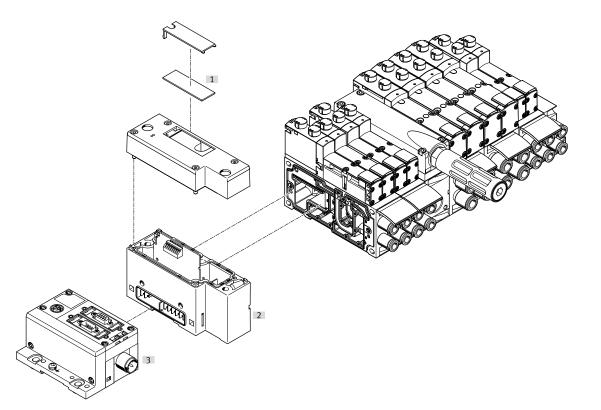
• Single solenoid valve positions can only be equipped with single solenoid valves or a cover plate.

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 CPX.

#### In general:

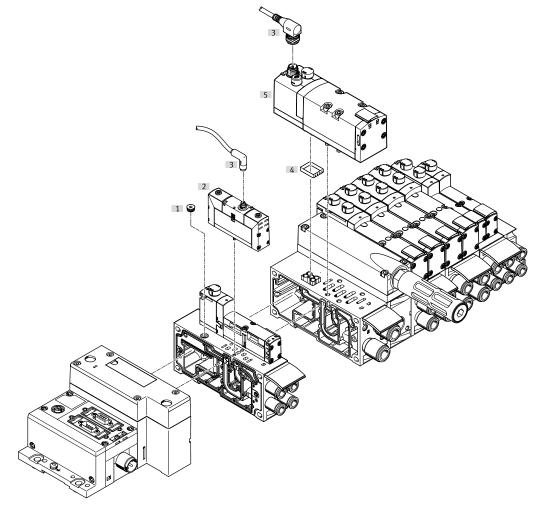
- Max. 10 electrical modules
- Digital inputs/outputs
- Analogue inputs/outputs
- Parameterisation of inputs and outputs
- Integrated, convenient diagnostics
- Preventive maintenance concepts
- Valves with a width of 65 mm cannot be mixed with other widths – these are always at the end of the valve terminal configuration. See "Adaptation to width 65 mm", ISO size 3
- → Page 226



		Description	→ Page/Internet
[1]	Inscription label	Large, for pneumatic interface CPX	-
[2]	Pneumatic interface	-	149
[3]	Fieldbus interface	-	срх

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

In applications with specific emergency off conditions, it may be necessary to switch one or more valves separately from the valve terminal controller. Standard valves (VSVA) with individual electrical connection (round or square plug) are therefore mounted on the valve terminal. In order for degree of protection IP65 to be achieved, the functionless opening in the sub-base for the electrical connection must be sealed. A sealing cap is available for width 18 mm and 26 mm. With manifold or individual sub-bases, valves with width 42 mm and 52 mm must be used with a seal to comply with the IP degree of protection (see  $\rightarrow$  page 147). For centrally controlling the valve terminal via a multi-pin plug connection or fieldbus interface, the occupied valve position acts like a vacant position, i.e. the assigned address in the fieldbus node or the corresponding connection in the multi-pin plug connection is occupied.



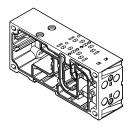
		Description	→ Page/Internet
[1]	Sealing cap	For sealing the electrical connection on the sub-base	147
[2]	Valve	Width 18 mm or width 26 mm	valves vsva
[3]	Connecting cable	-	valves vsva
[4]	Seal	For ensuring the IP degree of protection (with width 42 mm and 52 mm)	148
[5]	Valve	Width 42 mm or width 52 mm	valves vsva

# - 🏮 - Note

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

# Port patterns to ISO 15407-2

Width 18 mm (size 02)

 $\bigcirc$ 

0

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 subbase.

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 electric interlinking module. They can be freely mixed within a valve terminal.

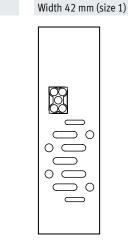
The manifold sub-bases are screwed together and thus form the support system for the valves. Inside the manifold sub-bases are the connection ducts for supplying compressed air to and exhausting the valve terminal as well as the working ports for the pneumatic cylinders for each valve.

Port patterns to ISO 5599-2

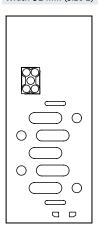
Each manifold sub-base is connected to the next using four screws. Individual valve terminal sections can be isolated and further manifold sub-bases can be inserted by loosening these screws. This ensures that the valve terminal can be rapidly and reliably extended.

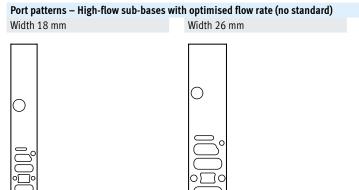
See also "Adaptation to width 65 mm", ISO size 3 → Page 226)

Width 26 mm (size 01) Ο  $\subset$  $\bigcirc$ 



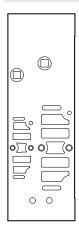
Width 52 mm (size 2)





# Hybrid sub-base for VTSA-F-CB:

Width 18 mm + 26 mm



# - 闄 - 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.

0

Width 42 mm



Code		Туре	Width				No. of valve positions	Working ports (2, 4)	
			18 mm	26 mm	42 mm	52 mm	(solenoid coils) <sup>1)</sup>	Code M Large	Code N Small
Manifol	d sub-base for double solenoid v	alves							
A		VABV-S4-2S-G18-2T2					2 (4)	QS-G1/8-8	-
AK			•	_	_	_		-	QS-G1/8-6
В		VABV-S4-1S-G14-2T2		_			2 (4)	QS-G1/4-10	-
ВК			_	-	_	-		-	QS-G1/4-8
С		VABV-S2-1S-G38-T2					1 (2)	QS-G3/8-12	-
СК			-	-	-	-		-	QS-G3/8-10
D		VABV-S2-2S-G12-T2					1 (2)	QS-G1/2-16	-
DK			-	-	-	-		-	QS-G1/2-12
Manifol	d sub-base for single solenoid va	llves			1				
E		VABV-S4-2S-G18-2T1					2 (2)	QS-G1/8-8	-
EK			•	-	-	-		-	QS-G1/8-6
F		VABV-S4-1S-G14-2T1					2 (2)	QS-G1/4-10	-
FK			-	•	-	-		-	QS-G1/4-8
G		VABV-S2-1S-G38-T1					1 (1)	QS-G3/8-12	-
GK			-	-	-	-		-	QS-G3/8-10
Н		VABV-S2-2S-G12-T1					1 (1)	QS-G1/2-16	-
НК			-	-	-	•			QS-G1/2-12

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

Code	l sub-base variants with QS fitting, 	Type	Width				No. of valve posi-	Working ports (2, 4)		
			18 mm	26 mm	42 mm	52 mm	tions (solenoid coils) <sup>1)</sup>	Code M Large	Code N Small	
Manifolo	l sub-base for double solenoid valv	/es								
A		VABV-S4-2HS-G18-2T2					2 (4)	QS-G1/8-8	-	
AK			•	-	_	-		-	QS-G1/8-6	
В		VABV-S4-1HS-G14-2T2					2 (4)	QS-G1/4-10	-	
BK			-	-	_	-		-	QS-G1/4-8	
2		VABV-S2-1HS-G38-T2					1 (2)	QS-G3/8-12	-	
CK			-	-		-		-	QS-G3/8-10	
D		VABV-S2-2S-G12-T2					1 (2)	QS-G1/2-16	-	
DK			-	-	_	-		-	QS-G1/2-12	
Manifolo	I sub-base for double solenoid valv						1		1	
KA		VABV-S4-12HS-G-2T2	-	position mm	_	_	2 (4)	Left valve position: QS-G1/8-8 QS-G1/8-10	-	
			2nd valve 26	e position mm				Right valve position: QS-G1/4-8 QS-G1/4-10		
KAK		<ul> <li>VABV-S4-12HS-G-2T2</li> <li>1x double solenoid, width 18 mm</li> <li>1x double solenoid,</li> </ul>		e position mm +	_	_	2 (4)	-	Left valve position: QS-G1/8-6 QS-G1/8-8	
		width 26 mm <ul> <li>with small fittings</li> </ul>		e position mm					Right valve position: QS-G1/4-6 QS-G1/4-8	
Manifolo	sub-base for single solenoid valve	25								
-		VABV-S4-2HS-G18-2T1					2 (2)	QS-G1/8-8	-	
EK			-	_	-	_		-	QS-G1/8-6	
F		VABV-S4-1HS-G14-2T1		_			2 (2)	QS-G1/4-10	-	
K			-		_	_		-	QS-G1/4-8	
Ì		VABV-S2-1HS-G38-T1	_	_		_	1 (1)	QS-G3/8-12	-	
ЭК		VABV-S2-2S-G12-T1					1 (1)	-	QS-G3/8-10	
H		VABV-52-25-612-11	_	_	_	•	1 (1)	QS-G1/2-16	-	
НК								-	QS-G1/2-12	

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	42 mm	52 mm	(solenoid coils) <sup>1)</sup>
Manifol	d sub-base for double solenoid va						
A	$\land$	VABV-S4-2HS-G18-CB-2T2	•	-	-	-	2 (4)
В		VABV-S4-1HS-G14-CB-2T2					2 (4)
			-	-	_	_	
С		VABV-S2-1HS-G38-CB-T2					1 (2)
D		VABV-S2-2S-G12-CB-T2				•	1 (2)
	d sub-base for double solenoid va						
YA		VABV-S4-12HS-G-CB-2T2 (external sensor evaluation)					2 (4)
		<ul> <li>1x double solenoid, width 18 mm</li> <li>1x double solenoid, width 26 mm</li> </ul>	•	•	-	-	
Manifol	d sub-base for single solenoid val						
E		VABV-S4-2HS-G18-CB-2T1		-	-	-	2 (2)
F		VABV-S4-1HS-G14-CB-2T1	-		_	_	2 (2)
<u> </u>							1 (1)
G	$\rightarrow$	VABV-S2-1HS-G38-CB-T1	-	-		-	1 (1)
Η		VABV-S2-2S-G12-CB-T1	-	-	-	•	1 (1)

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

#### Manifold sub-base variants with increased flow rate and CBUS loop-through, valve terminal VTSA-F-CB Code Width No. of valve positions Туре 40 mm 18 mm 26 mm 52 mm (solenoid coils)<sup>1)</sup> Manifold sub-base for soft-start valve VABV-S6-1Q-G38-CB1-T5 PV 1 With CBUS loop-through and new voltage zone, for soft-start valve and \_ \_ \_ pressure sensor plug-in PS VABV-S6-1Q-G38-CB-T5 1 With CBUS loop-through in the same voltage zone, for soft-start valve and pressure sensor plug-in Manifold sub-base for pilot air switching valve YB VABV-S4-2HS-G18-CB-2T5 2 (4) (internal sensor evaluation for pilot air switching valve) • 1x CBUS loop-through • 1x double solenoid, with CBUS loop-through YC VABV-S4-12HS-G-CB-2T5 2 (4) (internal sensor evaluation for pilot air switching valve) • 1x CBUS loop-through . • 1x double solenoid, with CBUS loop-through

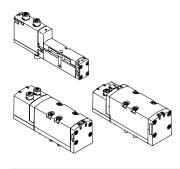
1) Value in brackets is max. number of solenoid coils that can be actuated

#### 90°-connection plate for working ports 2 and 4

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

L

### Sub-base valve



All valves are fitted with piston spool and patented sealing system, which ensures efficient sealing, a broad operating pressure range and long service life. Sub-base valves can be quickly replaced since the tubing connections remain on the sub-base. Irrespective of the valve function there are sub-base valves with one solenoid coil (single solenoid) or with two solenoid coils for double solenoid or double valve functions.

#### Reverse/vacuum operation

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

#### - 📱 - Note

- If a pressure zone is in reverse operation, the supply pressure is connected to port 3/5 and the air is exhausted 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 5/3-way valves are operated in reverse, the mid-position function is changed from exhausted to pressurised and vice versa.

#### Cover plate

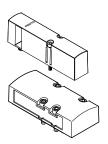


Plate without valve function for reserving valve positions on a valve terminal. Valve and cover plates are attached to the manifold sub-base using screws.

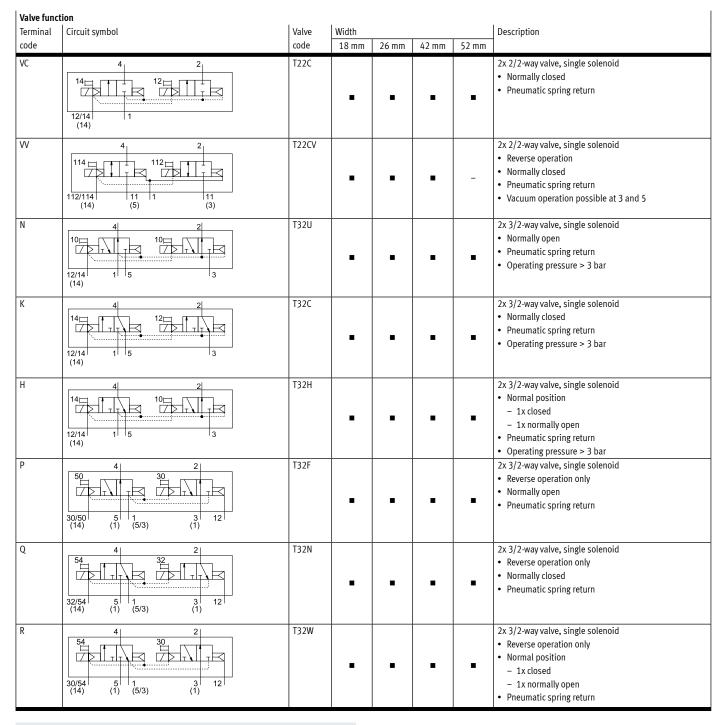
#### Design Valve replacement

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

### Extension

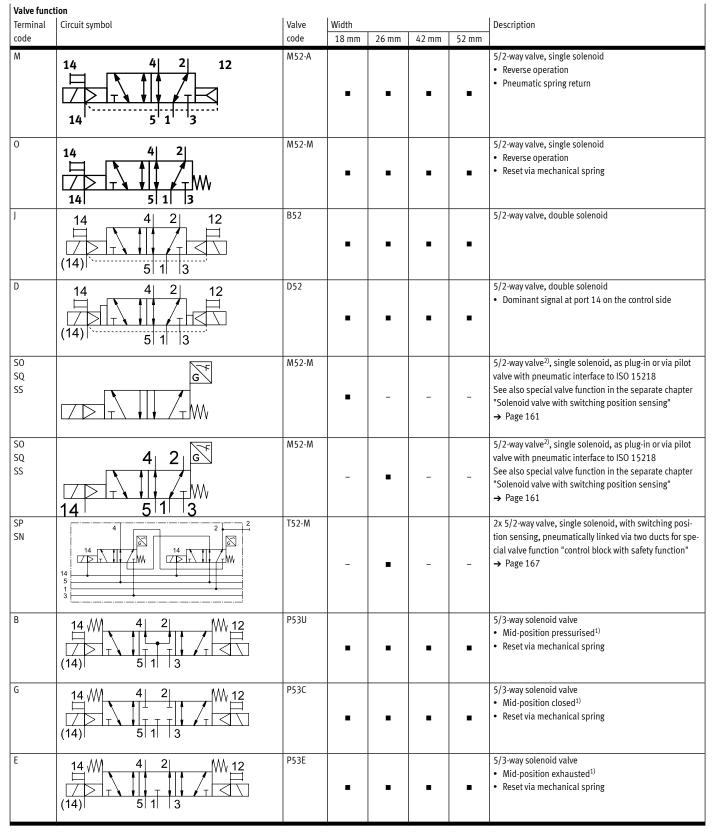
Vacant positions can be fitted with valves at a later date. The dimensions, mounting points and existing pneumatic installations remain unchanged during this process. For more information and technical data on extension, refer to the user documentation:

→ Internet: VTSA/VTSA-F



# - 🌡 - 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).



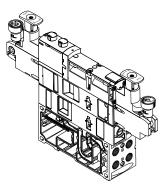
1) If neither solenoid coil is energised, the valve is moved to its mid-position by a mechanical spring. If the two coils are permanently energised one after the other, the valve remains in the switching position of the coil that was activated first.

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

<b>Valve fun</b> Terminal	Circuit symbol	Valve	Width				Description
code		code	18 mm	26 mm	42 mm	52 mm	
SA		P53ED	•		_	_	<ul> <li>5/3-way solenoid valve, for special functions as switchin position 14 is retained</li> <li>Pressureless switching, self-latching loop, pneumatic operation</li> <li>Mid-position exhausted, switching position 14 is retained</li> <li>Reset via mechanical spring</li> </ul>
SB	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	P53AD	-	•	_	-	<ul> <li>5/3-way solenoid valve, for special functions as switchin position 14 is retained</li> <li>Holding, blocking a movement (mechanically)</li> <li>Mid-position: port 2 pressurised, port 4 exhausted, switching position 14 is retained</li> <li>Reset via mechanical spring</li> </ul>
SD		P53BD	-	•	_	_	<ul> <li>5/3-way solenoid valve, for special functions as switchin position 14 is retained</li> <li>Holding, blocking a movement (mechanically)</li> <li>Mid-position: port 4 pressurised, port 2 exhausted, switching position 14 is retained</li> <li>Reset via mechanical spring</li> </ul>
SE		P53EP	-	■	_	_	<ul> <li>5/3-way solenoid valve, for special functions as switchir position 12 is retained</li> <li>Pressureless switching, self-latching loop, pneumatic operation</li> <li>Mid-position exhausted, switching position 12 is retained</li> <li>Reset via mechanical spring</li> </ul>
VG	$ \begin{array}{c ccccccccccccccccccccccccccccccccccc$	P53F	-	_	•		<ul> <li>5/3-way solenoid valve</li> <li>Positioning</li> <li>Mid-position: port 2 pressurised, port 4 closed<sup>1)</sup></li> <li>Reset via mechanical spring</li> </ul>
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 vacant 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

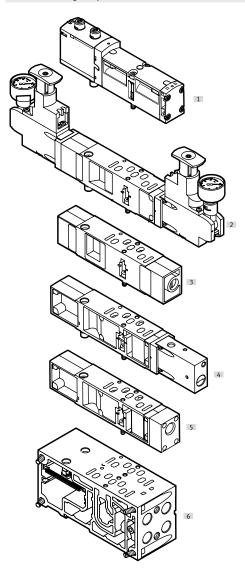


Additional function units can be added to each valve position between the sub-base (manifold sub-base) and the valve. These functions are known as vertical stacking modules and enable special functions or control of an individual valve position. It is possible to link several valve sizes on one valve terminal.

### - Note

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

Vertical stacking components

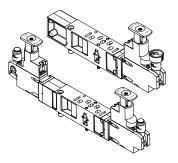


The following component sequence is recommended for valve positions with vertical stacking:

- [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 largely constant output pressure (secondary side) independent of pressure fluctuations (primary side) and air consumption. Also suitable for valves with symmetrical design.

#### 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)

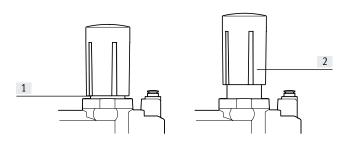
### - 📲 - Note

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

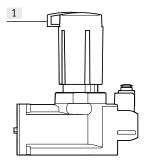
Use the reversible A, B or AB pressure regulators for regulated pressure of less than 2 bar.

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

Setting the pressure



#### 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 pad-lock.

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

#### 📲 - Note

Please note for repeat orders of pressure regulators in sizes 42 mm and 52 mm: The part number printed on the regulator plate refers only to the standard version.

When reordering pressure regulators with additional equipment, such as an extended design, only use the VABF configurator.

- → Internet: vabf-s2
- [1] Pull the rotary knob upwards out of the locking position (1) into the setting position (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 position (1)

### 📲 - 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  $60^\circ$  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

Saving energy 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  $\rightarrow$  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.
- Valves are used that can be operated in reverse mode.

# Advantages of dual-pressure operation:

It is possible to save energy if a valve can be supplied with different pressures. The advantages are:

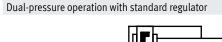
- Saves energy because the return stroke can be carried out using reduced force, e.g. 3 bar instead of 6 bar.
- Just one valve is required, as in the case of vacuum application with ejector pulse for example (e.g. duct 3 for vacuum switching, duct 5 for the ejector pulse).
- A reduction in compressed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

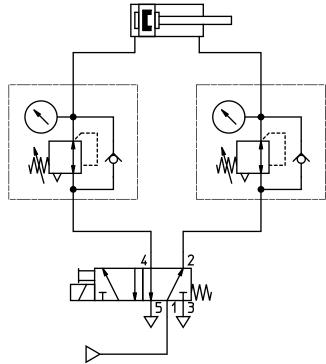
Dual-pressure operation with reversible controller

#### 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
- Can be adjusted very accurately, 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.



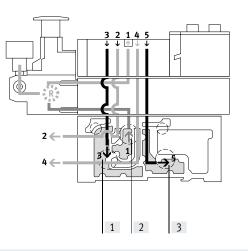


Circuit diagram 2: Pressure is regulated upstream of the valve

Circuit diagram 1: Pressure is regulated downstream of the valve

#### Vertical stacking

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



#### 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.

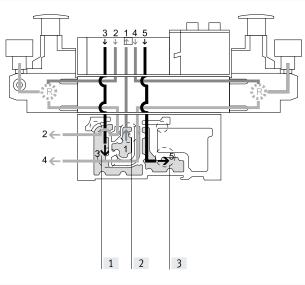
This pressure regulator regulates the pressure upstream of the valve in duct 1. Ducts 2 and 4 thus have the same regulated pressure. During exhausting, the exhaust flow in the valve is from duct 2 to duct 3 and from duct 4 to duct 5.

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

#### 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



#### Constraints

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.

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 supply air flows from duct 1 of the manifold sub-base via the valve to duct 2, it is then regulated and made available at port 2 of the manifold subbase. 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 subbase.

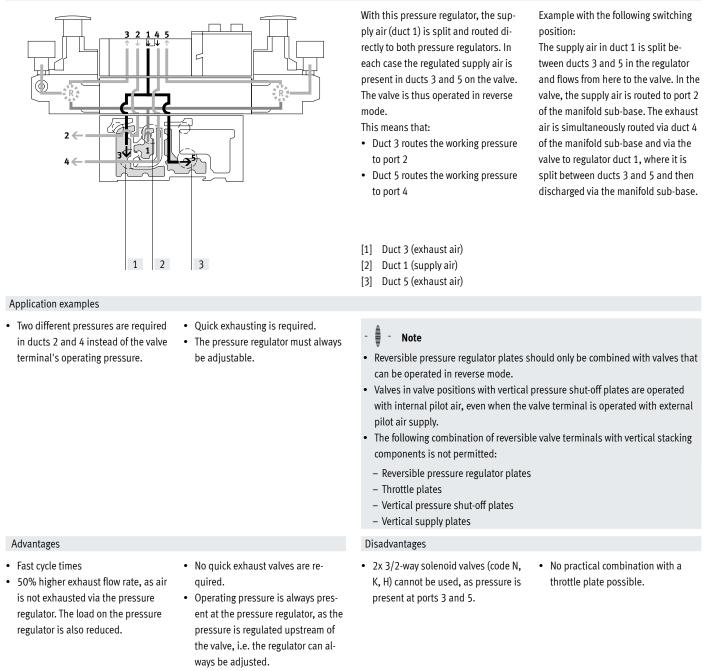
- [1] Duct 3 (exhaust air)
- [2] Duct 1 (supply air)
- [3] Duct 5 (exhaust air)

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



Code		Туре	Width					regulation	Description
				· · · · · ·		1	up to		_
			18 mm	26 mm	42 mm	52 mm	6 bar	10 bar	
	e regulator plate for port 1 (P regulator)	1							
ZA	S 4 2	VABF-SR1C2-C-10			•	•	-	•	Regulates the operating pres-
ZAY <sup>2)</sup>		VABF-SR1C2-C-10E					-	•	sure in duct 1 upstream of the
ZF		VABF-SR1C2-C-6					•	-	solenoid valve
ZFY <sup>2)</sup>		VABF-SR1C2-C-6E							
						-	-	-	
	14 5 1 3 12								
Pressure	e regulator plate for port 2 (B regulator)	I	I			1	1		L
2C		VABF-SR2C2-C-10				•	-		Regulates the operating pres-
ZCY <sup>2</sup> )         4         2           ZH		VABF-SR2C2-C-10E	•	•	•	•	-	•	sure in duct 2 downstream of
	ווווו ≱_ ו ו	VABF-SR2C2-C-6		•	•	•	•	-	the solenoid valve
	┨╽╽╽╽└ <del>╎╎╸╘╕┥</del> ╺┥┐╽	VABF-SR2C2-C-6E							
			_	- I	- I	_	_		
			-	-	-	-	-	-	
	e regulator plate for port 4 (A regulator)								
ZB <sup>2)</sup>	S    4   2	VABF-SR3C2-C-10	•	•	•	•	-	•	Regulates the operating pres-
ZG <sup>2)</sup>		VABF-SR3C2-C-6							sure in duct 4 downstream of
									the solenoid valve
							-	-	
Droccura	e regulator plate for ports 2 and 4 (AB reg	ulator)							
ZD		VABF-SR4C2-C-10					- 1		Regulates the working pressu
ZDY <sup>2)</sup>		VABF-SR4C2-C-10E							in ducts 2 and 4 downstream
			•	•	•		-		the solenoid valve
ZI	<u></u> │┌ <del>┥</del> ╧╡ <del>╿</del> ┼┘│└┼┼╺ <sup>╏</sup> ╧┽┥│	VABF-SR4C2-C-6						-	<b>≜</b>
ZIY <sup>2)</sup>		VABF-SR4C2-C-6E							- 🏺 - Note
									These pressure regulator plat
					l _	_	_		cannot be combined with re-
				•	-		-	-	versible 2x 3/2-way solenoid
									valves (code P, Q, R).
				1	1	1	1	1	

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

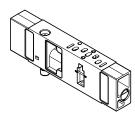
2) Also suitable for valves with symmetrical design

Code		Туре	Width				Pressure up to	regulation	Description
			18 mm	26 mm	42 mm	52 mm	6 bar	10 bar	
ressure	regulator plate for port 2, reversible (B r	egulator)							
L	$\square$	VABF-SR6C2-C-10					-		Reversible pressure regulator
LY <sup>2)</sup>		VABF-SR6C2-C-10E					-		for port 2
N		VABF-SR6C2-C-6	•					-	]
14151 11 31 12		VABF-SR6C2-C-6E	•	-		•	•	_	
ressure	regulator plate for port 4, reversible (A re	egulator)							
(2)	<u></u>	VABF-SR7C2-C-10	•	•			-	•	Reversible pressure regulator
M <sup>2)</sup>		VABF-SR7C2-C-6	•	•	•	•	•	-	for port 4
essure	regulator plate for ports 2 and 4, reversi	ble (AB regulator) VABF-SR5C2-C-10					T -		Reversible pressure regula
ΞΥ <sup>2)</sup>		VABF-SR5C2-C-10E	•	•	•	•	_	•	<ul> <li>for ports 2 and 4</li> <li>Pressure regulation upstree of the solenoid valve</li> <li>Routes the operating pres- sure from duct 1 to ducts 3 and 5</li> <li>Routes the exhaust air from duct 1 to ducts 3 and 5</li> </ul>
		VABF-SR5C2-C-6						-	- 🛔 - Note
JY <sup>2)</sup>		VABF-SR5C2-C-6E		-	-	-	•	-	- <b>Note</b> These pressure regulator plat cannot be combined with star ard 2x 3/2-way solenoid valve (code N, K, H). Reversible 2x 3/2-way soleno valves (code P, Q, R) must not be operated in a separate pre sure zone in combination with these pressure regulators.

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

#### Vertical stacking





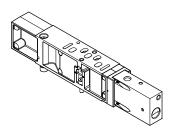
Equipped with two flow control valves at which the exhaust air flow rate at exhaust ports 3 or 5 can be adjusted. This enables the movement of the drive to be initiated and the required speed to be set on the valve terminal using the manual override. Ducts 3 and 5 can be adjusted independently of each other.

#### 📲 - Note

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

Code		Туре	Width			Description	
			18 mm	26 mm	42 mm	52 mm	
Х	4 2 +++++ 14 5 1 3 12	VABF-54F1B1-C		•	•		Controls the flow of exhaust air down- stream of the valve to ducts 3 and 5

Vertical pressure shut-off plate



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 expelled. This takes place via an M5 threaded connection or via duct 3 in the case of width 18 and 26 mm, and via duct 3 in the case of width 42 and 52 mm.

### 📲 - Note

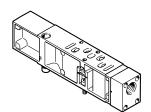
The operating pressure of the valve terminal must lie within the range of the required pilot pressure (i.e. min. 3 bar). When using the end plate with pilot air selector, only the switching position with code W and U can be used.

Code	Туре	Width				Description
		18 mm	26 mm	42 mm	52 mm	
ZT	VABF-S4L1D1-C	•	-	_	_	<ul> <li>3/2-way valve for shutting off the operating pressure at the valve position</li> <li>Blocks ducts 1 and 14 for the valve position</li> <li>Supplies the valve position with interpolicit air</li> </ul>
	VABF-S2L1D1-C	_	-	•	•	<ul> <li>nal pilot air</li> <li>Pressure separation at the valve assembly</li> </ul>
ZS	VABF-SL1D2-C	•	•	-	-	<ul> <li>3/2-way valve for shutting off the operating pressure at the valve position</li> <li>Blocks ducts 1 and 14 for the valve position</li> <li>Supplies the valve position with internal pilot air</li> <li>Pressure separation can be shut off on the valve assembly using a key</li> </ul>

#### - 📲 - Note

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.

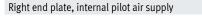
Vertical supply plate



This plate enables a valve to be supplied with individual operating pressure independently of the operating pressure of the valve terminal. As additional pressure supply for a valve. To supply an additional pressure zone.

Code	Туре	Width				Description
		26 mm	18 mm	42 mm	52 mm	
ZU	VABF-SP1A3		•	•	•	• Plate with port 11 for supplying indi- vidual operating pressure to a valve po- sition, duct 1
ZV	VABF-SP1A14	■			•	<ul> <li>Plate with port 11 for supplying indi- vidual operating pressure to a valve po- sition, ducts 1 and 14</li> </ul>

#### Compressed air supply and exhausting



Connection size G1/2 right end plate ducts 1/3/5

Connection size G3/4 right end plate ducts 1/3/5



VTSA/VTSA-F • Code V (port 14 is not available) VTSA-F-CB

• Code V1, V3 (port 14 is sealed with

Code NS

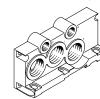
Connection size G1/2 right end plate ducts 1/3/5

- VTSA/VTSA-F • Code X VTSA-F-CB Code NZ

Connection size G3/4 right end plate ducts 1/3/5

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

Right end plate, external pilot air supply

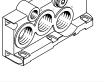


M M

- VTSA/VTSA-F • Code X1, X3 VTSA-F-CB
- Code MZ

VTSA/VTSA-F

• Code X2, for width 65 mm



a blanking plug) VTSA-F-CB

VTSA/VTSA-F

Code MS

VTSA/VTSA-F

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



#### Right 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.

## VTSA/VTSA-F

• Code V2, for width 65 mm

- 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 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-....

VTSA-F-CB • Code YZ: selector position 1, exter-

M

nal pilot air supply • Code YS: selector position 2, internal pilot air supply

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

### Note

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

#### Compressed air supply and exhausting

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





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

- Code U
  - Code UW
  - Code UWS

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



Code L

Supply plates/extension module, pneumatic and electric air supply plate for VT-SA-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 up-

stream or downstream of the manifold

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

**Operation with ducted exhaust air:** With ducted exhaust air, venting can be via a supply plate or a right 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: code SU, TU, RU
- Supply plate with duct separation on the right: code US, UT, UR
- 2 supply plates with intermediate duct separation: code USU, UTU, URU.

Supply plates contain the ports:

• Compressed air supply (1)

sub-bases.

• Exhaust port (3/5) common or separate

	lates for VTSA/VTSA-F		
Code		Туре	Description
U		<ul> <li>Exhaust port 3/5 common (not illustrated)</li> <li>VABF-S6-10-P1A7-G12</li> <li>Exhaust port 3/5 separate</li> <li>VABF-S6-10-P1A6-G12</li> </ul>	Supply plate without duct separation (no R, S or T selected)
SU TU RU			Supply plate with duct separation on the left, if R, S or T is selected
US UT UR			Supply plate with duct separation on the right, if R, S or T is 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 port (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, venting can be via a supply plate or a right end plate (code V or X).

If duct separation is required, there are a number of different options:

- Duct separation 1, 14: code TLDuct 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

upply plates, extension module and pneumatic and electric air supply plate for VTSA-F-CB	

Code		Туре	Description
U	R Contraction of the second se	<ul> <li>Exhaust port 3/5 common</li> <li>VABF-S6-1-P1A7-G12-CB</li> </ul>	Additional pneumatic supply Connecting thread G1/2
UW		<ul> <li>Exhaust port 3/5 common</li> <li>VABF-S6-1-P8A7-G12-CB</li> </ul>	Additional pneumatic and electrical supply Connecting thread G1/2 Generation of 24 additional valve addresses (electrical supply is provided internally from Uval)
UWS		<ul> <li>Exhaust port 3/5 common</li> <li>VABF-S6-1-P8A7-G12-CB1</li> </ul>	Additional pneumatic and electrical supply Connecting thread G1/2 Generation of 24 additional valve addresses (electrical supply is provided from new (safe) voltage zone (internally from S2))
U		<ul> <li>Exhaust port 3/5 separate</li> <li>VABF-S6-1-P1A6-G12-CB</li> </ul>	Additional pneumatic supply Connecting thread G1/2
UW		<ul> <li>Exhaust port 3/5 separate</li> <li>VABF-S6-1-P8A6-G12-CB</li> </ul>	Additional pneumatic and electrical supply Connecting thread G1/2 Generation of 24 additional valve addresses (electrical supply is provided internally from Uval)
UWS		<ul> <li>Exhaust port 3/5 separate</li> <li>VABF-S6-1-P8A6-G12-CB1</li> </ul>	Additional pneumatic and electrical supply Connecting thread G1/2 Generation of 24 additional valve addresses (electrical supply is provided from new (safe) voltage zone (internally from S2))

#### **Right end plate**

Right end plates with different port sizes are available depending on the flow rate required.

With the following right end plates, the outlet direction of the ports is aligned with the horizontal stacking direction. Right end plates with pilot air supply/ pilot exhaust air (VTSA/VTSA-F)

- 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

Right and plate variants

Right end plates with pilot air supply/ pilot exhaust air (VTSA-F-CB)

- Internal pilot air supply: code NS, MS (ducts 1 and 14 are connected)
- External pilot air supply: code NZ, MZ

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.

Code	Code	Blanking plug in duct	Pilot air supply	Ducted pilot exhaust air 1)	Connecting thread	
VTSA/VTSA-F	VTSA-F-CB			Position of seal on solenoid valve (" <del>ISO</del> " is visible)	1, 3, 5	12, 14
V	NS	-	Internal	-	G1/2	G1/4
V1	MS	-		-	G3/4	G1/4
V2	-	-		-	G1	G1/8
V3	-	-		•	G3/4	G1/4
Х	NZ	-	External	-	G1/2	G1/4
X1	MZ	-		-	G3/4	G1/4
Х2	-	-		-	G1	G1/8
Х3	-	-		•	G3/4	G1/4
XP1 <sup>2)</sup>	NZAB	1	External, via soft-start valve	-	G1/2	G1/4
XP2 <sup>3)</sup>	NZABCB	1,14	("gradual pressure build-up")	-	G1/2	G1/4
XP3 <sup>3)</sup>	NZABCBGB	1, 3, 5, 14		-	G1/2	G1/4
XS <sup>4)</sup>	NZCB	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 exhausted (done by turning the seal on the solenoid valve to position "ISO")

2) Not possible in combination with soft-start valve code PQ, PP, PO (with internal pilot air supply)

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 end plate with pilot air selector

ingine ente plac									
Code	Code	Pilot air supply	Selector position	Ducted pilot exhaust air 1)	Connecting thread 12, 14				
VTSA/VTSA-F	VTSA-F-CB			Position of seal on solenoid valve					
				(" <del>ISO</del> " is visible)					
Z	YZ	External	1	-	G1/4				
Υ	YS	Internal	2	-	G1/4				
W	-	External (ducted)	3	•	G1/4				
U	-	Internal (ducted)	4		G1/4				

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

I

Right end pla	te			
Code	Code	Type of compressed air supply and pilot	t air supply	Description
/TSA/VTSA-F	VTSA-F-CB			
Right end pla V V1 V3 V2 (ISO3)	te (graphical re	epresentation)		<ul> <li>Internal pilot air supply</li> <li>Pilot air supply is branched internally from port 1</li> <li>Port 14 is not available with code V</li> <li>Port 14 is sealed with a blanking plug for code V1, V3, V2 (ISO 3)</li> <li>Exhaust air via ports 3 and 5</li> <li>For operating pressure in the range 3 10 bar</li> <li>Pilot exhaust air via port 12 <sup>1)</sup></li> <li>V1 cannot be selected in combination with a soft-start valve in the last pressure zone</li> </ul>
X X1 X3 X2 (ISO3)	NZ MZ - -			<ul> <li>External pilot air supply</li> <li>Pilot air supply between 2 and 10 bar is connected at port 14</li> <li>Exhaust air via ports 3 and 5</li> <li>For operating pressure in the range -0.9 10 bar (suitable for vacuum)</li> <li>Pilot exhaust air via port 12<sup>1)</sup></li> <li>X1 cannot be selected in combination with a soft-start valve in the last pressure zone</li> </ul>
XP1	NZAB	0.00.		<ul> <li>External pilot air supply, compressed air supply via soft-start valve <sup>2</sup>)</li> <li>Port 1 is sealed with a blanking plug</li> <li>Exhaust air via ports 3 and 5</li> <li>Pilot exhaust air via port 12 <sup>1</sup>)</li> </ul>
KP2	NZABCB	0°C0 0.00 0.00		<ul> <li>External pilot air supply, compressed air supply via soft-start valve <sup>2)</sup></li> <li>Internal pilot air supply 14 via soft-start valve</li> <li>Ports 1 and 14 are sealed</li> <li>Exhaust air via ports 3 and 5</li> <li>Pilot exhaust air via port 12 <sup>1)</sup></li> </ul>
KP3	NZABCBGB			<ul> <li>External pilot air supply, compressed air supply via soft-start valve <sup>2)</sup></li> <li>Internal pilot air supply 14 via soft-start valve</li> <li>Ports 1, 3, 5 and 14 are sealed</li> <li>Pilot exhaust air via port 12 <sup>1)</sup></li> </ul>
XS	NZCB	600 0 0		<ul> <li>External pilot air supply via pilot air switching valve <sup>3)</sup></li> <li>Internal pilot air supply 14 via pilot air switching valve</li> <li>Port 14 is sealed</li> <li>Exhaust air via ports 3 and 5</li> <li>Pilot exhaust air via port 12<sup>1)</sup></li> </ul>

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

2) Application with XP1, XP2, XP3 and soft-start valve in combination with valves of width 52 mm: please note the maximum flow rate of the soft-start valve in this pressure zone

3) Application with XS and pilot air switching valve in combination with intermediate plate

### - Note

-

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

→ page 220.

Right end pla	te						
Code <sup>1)</sup> VTSA/VTSA-F	Code VTSA-F-CB	Type of compressed air supply and p	pilot air supply	Description			
End plate wit	h pilot air sele	ector					
Z (1)	YZ			<ul> <li>External pilot air supply</li> <li>Pilot air supply is connected at port 14</li> <li>Port 12 is sealed with a blanking plug</li> <li>Ports 12 and 14 are internally connected</li> <li>Pilot exhaust air unducted via valve housing</li> </ul>			
Y (2)	YS			<ul> <li>Internal pilot air supply</li> <li>Pilot air supply is branched internally from port 1</li> <li>Ports 1, 12 and 14 are internally connected</li> <li>Ports 12 and 14 are sealed with blanking plugs</li> <li>Pilot exhaust air unducted via valve housing</li> </ul>			
W (3)	-			<ul> <li>External pilot air supply, ducted pilot exhaust air</li> <li>Pilot air supply is connected at port 14</li> <li>Pilot exhaust air via port 12<sup>2)</sup></li> <li>Cannot be selected in combination with a soft-start valve in the last pressure zone</li> </ul>			
U (4)	-			<ul> <li>Internal pilot air supply, ducted pilot exhaust air</li> <li>Pilot air supply is branched internally from port 1</li> <li>Ports 1 and 14 are internally connected</li> <li>Port 14 is sealed with a blanking plug</li> <li>Pilot exhaust air via port 12<sup>2)</sup></li> <li>Cannot be selected in combination with a soft-start valve in the last pressure zone</li> </ul>			

1) Selector setting 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.

Configuration Code VTSA/VTSA-F	Code VTSA-F-CB			Connection (duct)	Designation	Code M Push-in connector, large	Code N Push-in connector, small
<b>Right end pla</b> V	te NS	<u>^</u>		1	Push-in fitting	QS-G1/2-16	QS-G1/2-12
V				3 and 5	Silencers or Push-in fitting	U-1/2-B or QS-G1/2-16	U-1/2-B or QS-G1/2-12
				12	Silencers or Push-in fitting	U-1/4 or QS-G1/4-10	U-1/4 or QS-G1/4-8
Х	NZ			1	Push-in fitting	QS-G1/2-16	QS-G1/2-12
				3 and 5	Silencers or Push-in fitting	U-1/2-B or QS-G1/2-16	U-1/2-B or QS-G1/2-12
				12	Silencers or Push-in fitting	U-1/4 or QS-G1/4-10	U-1/4 or QS-G1/4-8
			$\odot \odot$	14	Push-in fitting	QS-G1/4-10	QS-G1/4-8
V1 V3	MS -			1 3 and 5	Barbed hose fitting Silencers or	N-3/4-P-19 <sup>1)</sup> U-3/4-B or	-
				12	Barbed hose fitting Silencers or	N-3/4-P-19 <sup>1)</sup> U-1/4 or	U-1/4 or
				14	Push-in fitting Plug	QS-G1/4-12 B-1/4	QS-G1/4-10 B-1/4
X1 X3	MZ –		3	1 3 and 5	Barbed hose fitting Silencers	N-3/4-P-19 <sup>1)</sup> U-3/4-B	-
					or Barbed hose fitting	or N-3/4-P-19 <sup>1)</sup>	
				12	Silencers or Push-in fitting	U-1/4 or QS-G1/4-12	U-1/4 or QS-G1/4-10
				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

### - 🛔 - Note

The key features, valves and functions of width 65 mm are described separately

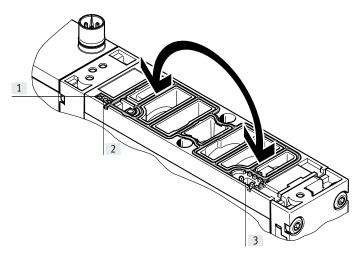
in the chapter "Adaptation to width 65 mm, ISO size 3"

→ page 220.

Code <sup>1)</sup> VTSA/VTSA-F	Code VTSA-F-CB	tic threaded connections		Connection (duct)	Designation	Code M Push-in connector, large	Code N Push-in connector small
	h pilot air sele	ctor	1	1	1	1	
Z (1)	YZ			12	Blanking plug	B-1/4	B-1/4
				14	Push-in fitting	QS-G1/4-10	QS-G1/4-8
Y (2)	YS			12	Blanking plug	B-1/4	B-1/4
				14	Blanking plug	B-1/4	B-1/4
W (3)	-		3 5 12 14	12	Silencers 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)	-			12	Silencers or Push-in fitting	U-1/4 or QS-G1/4-10	U-1/4 or QS-G1/4-8
				14	Blanking plug	B-1/4	B-1/4

1) Selector setting 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 inscription 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 inscription label on the seal surface.

#### [1] Inscription label

- [2] Display window on control side 14 ("ISO" is visible)
- [3] Display window on control side 12 ("<del>ISO</del>" is visible)

Designation	<del>ISO</del>	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 end plate.

#### Internal pilot air supply

Internal pilot air supply can be selected if the working pressure is between 3 and 10 bar. The ports differ for the following types of pilot air supply:

- Internal
- External

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 so that 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 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- $\dots$ .

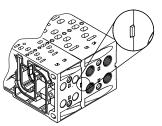
The external pilot air supply for the valves with a width of 65 mm is provided via the right end plate IEPR ....

#### Creating pressure zones and separating exhaust air

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

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

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



Creating Code	<b>pressure zones</b> Separating seal			Width				Description
Coue	Illustrated examples	Coding	Basic representation	18 mm	26 mm	42 mm	52 mm	Description
Т				•				Duct 1 separate
S				•	•	•	•	Ducts 1, 3 and 5 separate
R				•	•	•	•	Ducts 3 and 5 sepa- rate
TL		Colour-coded in red		•		•	■	Duct 1 and 14 sepa- rated
К		Colour-coded in green		•	•	•	■	Ducts 1, 3, 5 and 14 separate
L		Colour-coded in white		•	•	•		Duct 14 separate

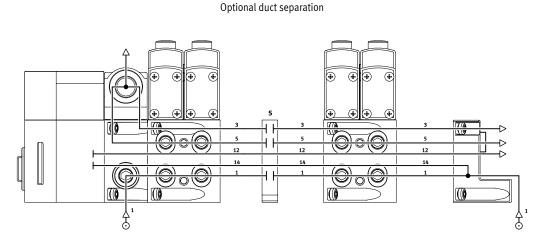
#### Example: Compressed air supply and pilot air supply, right end plate

Internal pilot air supply, silencer/ducted exhaust air

Right 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.

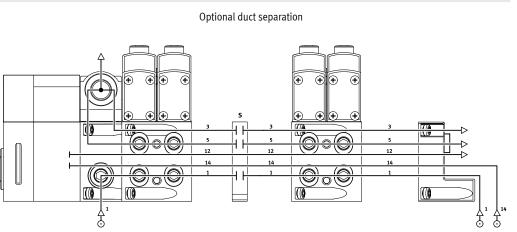


#### **Example: Compressed air supply and pilot air supply, right end plate** External pilot air supply, silencer/ducted exhaust air

Right 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 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.



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

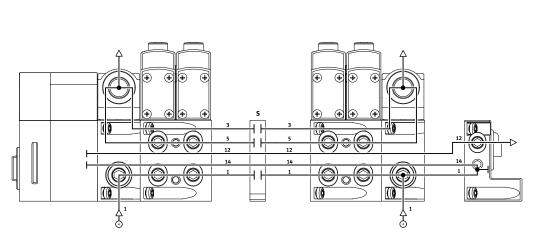
#### Example: Compressed air supply and pilot air supply via end plate with pilot air selector

Internal pilot air supply, ducted exhaust air/silencer

Right end plate: code U

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



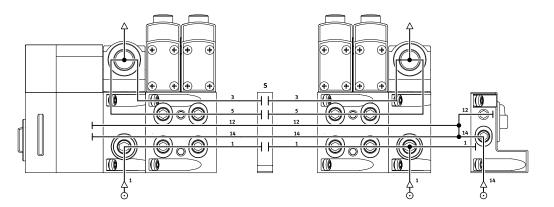
#### **Example: Compressed air supply and pilot air supply via end plate with pilot air selector** External pilot air supply, ducted exhaust air/silencer

Right end plate: code Z

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

Optional duct separation

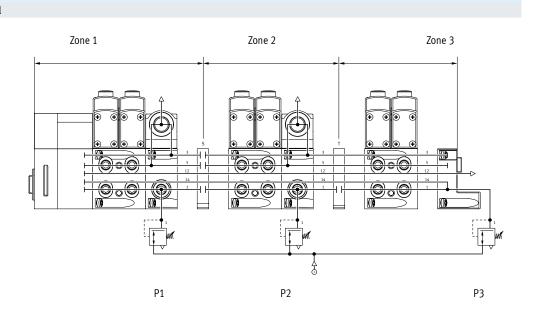


### Key features – Pneumatic components – Compressed air supply and pressure zones, examples

### Examples: Creating pressure zones

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

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



#### - 📲 - Note

Examples with pressure zones and soft-start valve are described separately in the chapter "Soft-start valve" → page 191.

### Key features - Mounting

#### Valve terminal mounting

Wall mounting, general

Sturdy valve terminal mounting thanks to:

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

### - 🕴 - Note

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
- [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 end plate
- Fieldbus, CPX (6 pieces); 2 each on the left (CPX) and right (VTSA/ VTSA-F) end plate and the pneumatic interface
- I-Port/IO-Link (4 pieces); 2 each on the I-Port/IO-Link interface and on the right end plate

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

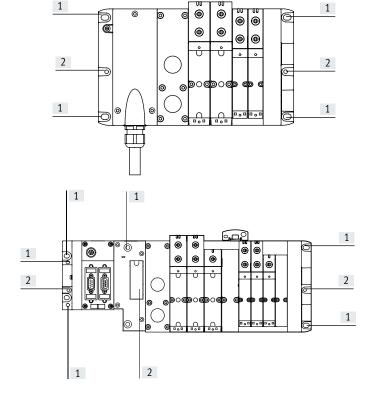
If using CPX components, see: → Internet: cpx

### - 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:

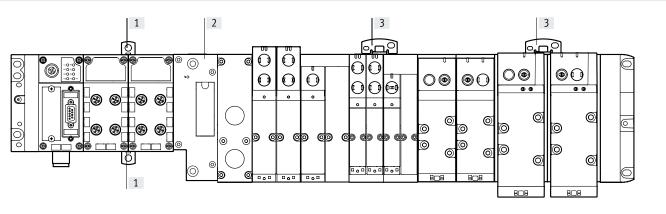
- Additionally use mounting brackets of the type VAME-6-W-M46
- Mount these on each fourth plate (manifold sub-base, supply plate or exhaust plate), counting from left to right, starting after the pneumatic interface.
- No mounting bracket is required next to the right end plate.
- Use the pre-assembled mounting brackets when mounting factory pre-assembled valve terminals on a wall.



### Key features – Mounting

the CPX modules.

Wall mounting with CPX polymer interface



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

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 every

100 ... 150 mm. These mountings are clipped in at the top and bottom between

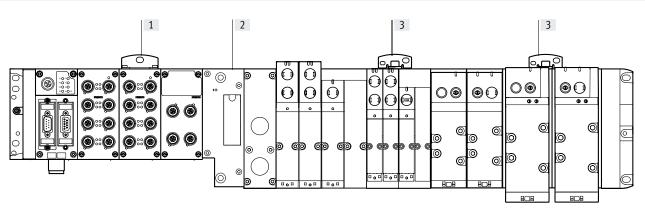
- [3] Additional wall mounting for VTSA/VTSA-F/VTSA-F-CB
- (with drilled hole for M5 and M6 screw)

In the case of the VTSA/VTSA-F/VTSA-F-CB, mounting brackets must be mounted on the wall as indicated 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 met-[2] Pneumatic interface al CPX terminal

In the case of CPX terminals in metal design with 4 and more interlinking blocks,

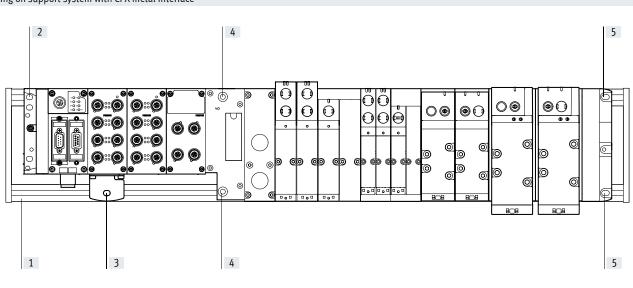
additional wall mountings of the type CPX M BG-RW must be used every

100 ... 150 mm. These wall mountings are screwed in at the top of the corre-

- [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 indicated 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

sponding CPX module.

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

- mounting rail
- mounting bracket CPX-M-BG-VT-2X
- If a metal terminal CPX 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 metal terminal CPX to the DIN mounting rail.

#### Note

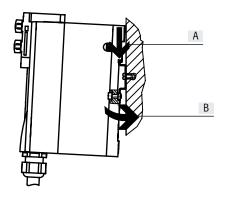
- Only metal CPX modules with VTSA/VTSA-F/VTSA-F-CB modules of width 18 ... 52 mm must be used.
- The number of mounting brackets required depends on the number of CPX modules installed and whether any system feeds are present.

Further information about mounting the valve terminal can be found in the assembly instructions in 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).

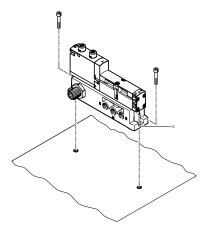
To mount the valve terminal VTSA/VT-SA-F/VTSA-F-CB on an H-rail, you will need the mounting kit CPX-CPA-BG-NRH:

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 a horizontal mounting position is permissible for H-rail mounting.
- Valve terminals VTSA-F-CB with pneumatic interface with voltage zones cannot be used for H-rail mounting.

#### Individual valve mounting



[1] Vertical mounting holes

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

### Key features - Display and operation

#### **Display and operation**

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

- Indicator 12 shows the 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 as non-detenting.
- The cover cap (code V) can be used to secure the manual override against accidental actuation.

### - Note

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

- [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

• 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.

- [11] Inscription label holder for subbase
- [12] Supply port 1 (operating pressure)
- [13] Working ports 2 and 4, per valve position

### - Note

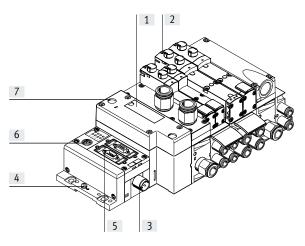
A manually operated valve (manual override) cannot be reset electrically. Conversely, an electrically actuated valve cannot be reset using the mechanical manual override.

#### Pneumatic connection and control elements

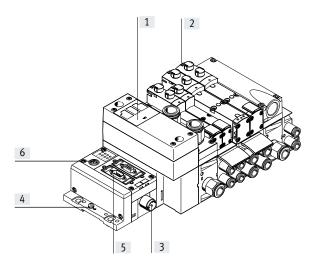
# Key features – Display and operation

#### **Display and operation**

Electrical connection and display elements for VTSA/VTSA-F



Electrical connection and display elements for VTSA-F-CB



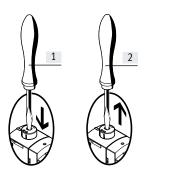
- [1] Inscription area and cover for H-rail mounting
- [2] Yellow LEDs, signal status indication for the pilot solenoid coils
- [3] Power supply connection
- [4] Earthing connection
- [5] Fieldbus interface (bus-specific)
- [6] Service interface for handheld unit, etc.
- [7] Red LED: common error display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

- [1] LED indicators for operating status/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.

### Key features – Display and operation

#### Manual override (MO) - Function

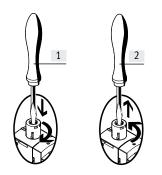
MO with automatic return (non-detenting),



- [1] Press in the plunger of the manual override using a pointed object or screwdriver. The valve is in the switching posi-
- tion. [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 locking (detenting)



[1] Press in the plunger of the manual override using a pointed object or screwdriver until the valve switches and then turn the plunger 90° clockwise until the stop is reached.

Valve remains in switching position.

Turn the plunger 90° anti-clock-[2] wise 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
- [1] Non-detenting: Push in key for MO. The valve is in the switching position.

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

[2] Turn the key 90° anti-clockwise 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).



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

#### Cover cap for MO, concealed

2



When concealed by 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 variants of the VSVA valve with pre-assembled cover caps.

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

### Key features - Display and operation

#### Overview of valve variants and cover caps for manual override (MO) Illustration Manual override Valve code identification on rating Terminal Description of valve terminal order code (MO) plate sticker<sup>1)</sup> code Solenoid valve VSVA without cover cap Without cover cap on MO VSVA-B- ... -MZD- ... Non-detenting, detenting R Solenoid valve VSVA with pre-assembled cover cap on MO MO non-detenting/heavy duty with cover cap, can be used as detent-Non-detenting, detenting via VSVA-B- ... -MZTR- ... ing via accessory (key), as valve variant accessory (key) VSVA-B- ... -MZH- ... С MO can only be used as non-detenting with coded cover cap, as valve Non-detenting variant MO concealed by cover cap - operation of MO prevented, as valve VSVA-B- ... -MZ- ... D Concealed variant Cover caps for MO Ν MO can only be used as non-detenting with coded cover cap Non-detenting VSVA-B- ... -MZD- ... P MO concealed by cover cap - operation of MO prevented VSVA-B- ... -MZD- ... ٧ Concealed А MO non-detenting/heavy duty with cover cap, detenting via accessory Non-detenting, detenting via VSVA-B- ... -MZD- ... (key) accessory Accessories for manual override, heavy duty Coded key (accessory) for actuating the MO, non-detenting/heavy For manual override, detenting duty, for detenting position 6)

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 locking of the cover cap cannot be guaranteed.

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

Illustration	Terminal code	Description of valve terminal order code	Manual override (MO)	Valve code identification on the rating plate sticker <sup>1)</sup>
Solenoid valve VABF, vac	uum generator			
	ZQN	MO can only be used as non-detenting with coded cover cap, as valve variant	Non-detenting	VABF-S4-2-V2B1-G38
	ZQR	Non-detenting MO, can be used as detenting, as valve variant	Non-detenting, detenting with- out accessories	VABF-S4-2-V2B1-G38
	ZQV	MO concealed by cover cap – operation of MO prevented, as valve variant	Concealed	VABF-S4-2-V2B1-G38
	ZQA	MO non-detenting/heavy duty with cover cap, can be used as detent- ing via accessory (key), as valve variant	Non-detenting, detenting via accessory (key)	VABF-S4-2-V2B1-G38
olenoid valve VABF, sof	t-start valve			
	ZQZ	The manual override can be reset in two ways: • manually or • electrically via control signal	Detenting, electrically self-re- setting	VABF-S6-1-P5A4 YE
	ZQX	Manual override, concealed	None	VABF-S6-1-P5A4 S
olenoid valve VSVA, pil	ot air switching valv	۰ ۵	-	-
	-	The manual override can be reset in two ways: <ul> <li>manually or</li> <li>electrically via control signal</li> </ul>	Detenting, electrically self-re- setting	VSVA-BT-M32CS YE
	ZX	Non-detenting manual override	Non-detenting	VSVA-BT-M32CS MH
Ť	ZZ	Manual override, concealed	None	VSVA-BT-M32CS S
ccessories for manual c	override, heavy duty	1	1	I
		Coded key (accessory) for actuating the 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)

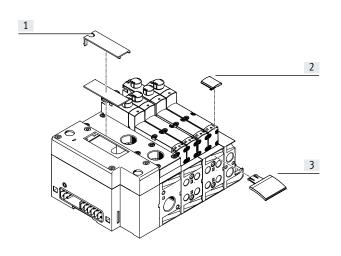
# - 🌡 - Note

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 locking of the cover cap cannot be guaranteed.

### Key features - Electric components

#### Inscription system



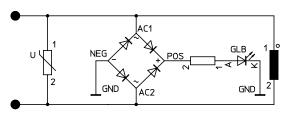
[1] Inscription area (approx. 20 x 45 mm)

- [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

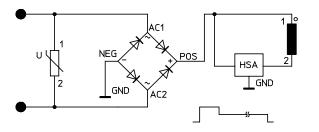
#### Protective circuit

Each solenoid coil VSVA 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 hold-ing 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 or CPX).
- 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.

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 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.

### Key features – Electric components

# Individual valve

Valves on individual sub-bases can be used for actuators that 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 ... 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).

#### 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. 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.

The valve terminal with AS-Interface

connection is based on the same elec-

trical links as the valve terminal with

multi-pin plug connection.

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.

This means a valve terminal with mul-

ti-pin plug connection can be convert-

AS-Interface system must be observed

ed using an AS-Interface module. The technical specifications of the

in this case.

### - 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

### 📲 - Note

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

# Fieldbus interface/control block

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

- 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

#### I-Port/IO-Link

Valve terminals VTSA/VTSA-F with I-Port/IO-Link connection can be expanded with up to 16 valves with max. 32 solenoid coils. The valve terminal with I-Port/IO-Link connection is based on the same electrical interlinking as the valve terminal with multi-pin plug connection. This means a valve terminal with multi-pin plug connection can be converted using an I-Port/IO-Link module. The technical specifications of the I-Port/IO-Link system must be observed in this case.

# - 🌡 - Note

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:

 $\rightarrow$  Internet: i-port, io-link

## Rules for addressing

Address allocation

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

Addresses are assigned 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 assignment 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 plug, Sub-D socket, 24 V DC, electrical control code MP1

	F	Pin <sup>2)</sup>	Address/coil	Wire colour <sup>1)</sup>		Pin <sup>2)</sup>	Address/coil	Wire colour 1)
	$\sim$	1	0	WH		17	16	WH PK
		2	1	BN		18	17	PK BN
PIN 1 -		3	2	GN		19	18	WH BU
	0 0	4	3	YE		20	19	BN BU
		5	4	GY		21	20	WH RD
		6	5	PK		22	21	BN RD
		7	6	BU		23	22	GY GN
		8	7	RD		24	23	YE GY
		9	8	GY PK		25	24	PK GN
		10	9	RD BU		26	25	YE PK
		11	10	WH GN		27	26	GN BU
		12	11	BN GN		28	27	YE BU
		13	12	WH YE		29	28	GN RD
		14	13	YE BN		30	29	YE RD
		15	14	WH GY		31	30	GN BK
PIN 19 -	0 0 PIN 37	16	15	GY BN		32	31	GY BU
		Conduct	or					
- 🍦 - Note		33	0 V <sup>3)</sup>	YE BK		35	0 V <sup>3)</sup>	BN BK
	ws a plan view of the Sub-D	34	0 V <sup>3)</sup>	WH BK		36	0 V <sup>3)</sup>	BK
-	e connecting cable NEBV	Earthing			·	· ·	· ·	
plug socket at th		37	FE	VT		-	-	-

1) To IEC 757

Pin 9 ... 35: not allocated in the case of connecting cable NEBV-...-LE10
 Pin 23 ... 33: not allocated in the case of connecting cable NEBV-...-LE26

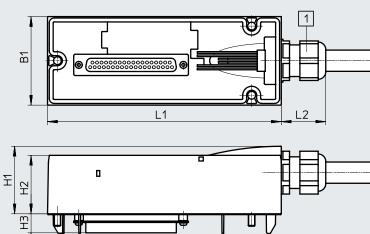
Pin 24 ... 33: not allocated in the case of connecting cable NEBV-...-LE27

3) Connect 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!

## Dimensions

Connecting cable NEBV-...

## Download CAD data $\rightarrow$ <u>www.festo.com</u>



[1]	Cable connector M20x1.5
-----	-------------------------

Туре	B1	H1	H2	H3	L1	L2
NEBV	54	41	36	11.6	142	27

#### Ordering data – Connecting cable, Sub-D, 24 V DC, electrical control code MP1

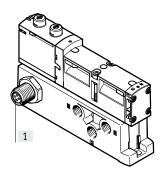
	Cable sheath	Connecting cable	Length [m]	Part no.	Туре
	TPE-U(PUR)	For max. 8 solenoid coils, 10-core	2.5	539240	NEBV-S1W37-E-2.5-LE10
			5	539241	NEBV-S1W37-E-5-LE10
			10	539242	NEBV-S1W37-E-10-LE10
		For max. 22 solenoid coils, 26-core	2.5	539243	NEBV-S1W37-E-2.5-LE26
	"		5	539244	NEBV-S1W37-E-5-LE26
			10	539245	NEBV-S1W37-E-10-LE26
		For max. 32 solenoid coils, 37-core	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-core	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-core	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-core	2.5	543277	NEBV-S1W37-KM-2.5-LE37
			5	543278	NEBV-S1W37-KM-5-LE37
			10	543279	NEBV-S1W37-KM-10-LE37

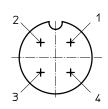
Pin allocation – Multi-pin, terminal strip (Cage Clamp), 24 V DC; electri	Terminal	Coil/address	Terminal	Coil/address
Each solenoid coil is assigned to a specific terminal on the terminal strip		confudareoo		confactoro
n order for the valves to be actuated.				
norder for the valves to be actuated.	1	0	17	16
	2	1	18	10
0 10	3	2	19	18
0 19	4	3	20	19
r	5	4	20	20
	6	5	22	21
	7	6	23	22
	8	7	24	23
	9	8	25	24
	10	9	26	25
t ==== #J t ======== #J	11	10	27	26
	12	11	28	27
<b>0V</b> <sup>1)</sup> 20 31	13	12	29	28
	14	13	30	29
	15	14	31	30
	16	15	32	31
		I	1	
- 🖡 - Note	Conductor			
+ he drawing shows a plan view of the multi-pin terminal strip (Cage	33	0 V	35	0 V
lamp).	34	0 V	36	0 V
	Address	Pin <sup>1)</sup>	Address	Pin <sup>1)</sup>
$\frown$	0	15	8	17
	1	7	9	9
$//_{4_1}^{2_1} + + + + + + + + + + + + + + + + + + +$	2	5	10	2
$\begin{pmatrix} 4 + \frac{1}{4^4} + \frac{1}{4^5} + \frac{1}{4^6} + \frac{1}{4^6} \end{pmatrix}$	3	4	11	13
	4	16	12	11
$\sqrt{2^{2}} + \frac{1}{2} + \frac{1}{2} + \frac{1}{2}$	5	8	13	10
	6	3	14	1
	7	14	15	18
Pin allocation – Multi-pin plug, round plug, 24 V DC; electrical actuatio	1		l p:	
	Pin	Valve position/sole- noid coil	Pin	Valve position/ solenoid coil
				solenoid coll
				1
	1	8/14	10	7/12
	2	8/14 6/14	11	7/14
	2 3	8/14 6/14 4/14	11 12	7/14 FE
10 10 10 10 10 10 10 10 10 10 10 10 10 1	2 3 4	8/14 6/14 4/14 2/12	11 12 13	7/14 FE 6/12
	2 3 4 5	8/14           6/14           4/14           2/12           2/14	11 12 13 14	7/14 FE 6/12 4/12
110 18 13 0 10 170 19 0 3 0 16 0 14 0	2 3 4 5 6	8/14       6/14       4/14       2/12       2/14       0 V <sup>1</sup> )	11 12 13 14 15	7/14 FE 6/12 4/12 1/14
$ \begin{pmatrix} 10 & 10 & 0 & 2 \\ 10 & 17 & 0 & 10 & 3 & 0 \\ 0 & 16 & 0 & 14 & 0 & 0 \\ 9 & 16 & 0 & 14 & 0 & 0 \\ 0 & 0 & 15 & 0 & 4 & 0 \end{pmatrix} $	2 3 4 5 6 7	8/14           6/14           4/14           2/12           2/14           0 V <sup>1</sup> )           1/12	11 12 13 14 15 16	7/14 FE 6/12 4/12 1/14 3/14
	2 3 4 5 6 7 8	8/14         6/14         4/14         2/12         2/14         0 V <sup>1</sup> )         1/12         3/12	11         12         13         14         15         16         17	7/14 FE 6/12 4/12 1/14 3/14 5/14
$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	2 3 4 5 6 7	8/14           6/14           4/14           2/12           2/14           0 V <sup>1</sup> )           1/12	11 12 13 14 15 16	7/14 FE 6/12 4/12 1/14 3/14

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

Pin 19: not allocated

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



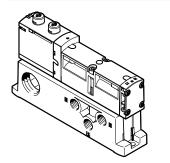


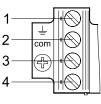
[1] 1xM12 plug, 4-pin to EN 61076-2-101

Pin allocation M12 on individual valve to ISO 20401 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<sub>B</sub> for coil 12 and 14
- Pin4 0 V for coil 14

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

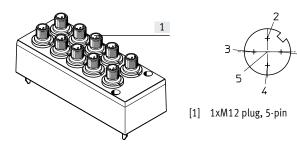




Pin all	ocation for assembly by the user
With p	ositive logic:
Pin1	<ul> <li>Not allocated</li> </ul>
Pin2	– U <sub>B</sub> for coil 12
Pin3	– 0 V for coil 12 and 14
Pin4	– U <sub>B</sub> for coil 14

With negative logic:Pin1- Not allocatedPin2- 0 V for coil 12Pin3- UB for coil 12 and 14Pin4- 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



Pin all	ocation M12						
With p	With positive logic:						
Pin1	<ul> <li>Not allocated</li> </ul>						
Pin2	– U <sub>B</sub> for coil 12						
Pin3	– 0 V for coil 12 and 14 $$						
Pin4	– U <sub>B</sub> for coil 14						
Pin 5	<ul> <li>Functional earth</li> </ul>						

Pin allocation M12 With negative logic: Pin1 – Not allocated Pin2 – 0 V for coil 12 Pin3 – U<sub>B</sub> for coil 12 and 14 Pin4 – 0 V for coil 14

Pin5 - Functional earth

#### 📲 - Note

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

## Instructions for use

#### **Operating materials**

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.

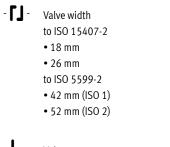
Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalogue (as specified in DIN 51524 HLP32; basic oil viscosity 32 CST at 40°C).

#### 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/m<sup>3</sup> must not be exceeded (see ISO 8573-1:2010 Class 2).

#### Mineral oils

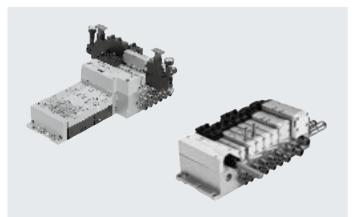
When using mineral oils (e.g. HLP oils to DIN 51524, parts 1 to 3) or similar oils based on poly-alpha-olefins (PAO), the maximum residual oil content of 5 mg/m<sup>3</sup> must not be exceeded (see ISO 8573-1:2010 Class 4). A higher residual oil content is not permitted, regardless of the compressor oil, because permanent lubrication would otherwise be flushed out over a period of time.



- **G** - Voltage 24 V DC

- N - Flow rate<sup>1)</sup> 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 VTSA/VTSA-F

	1						
Terminal type VTSA/VTSA-F		VTSA is the standard version, VTSA-F is the version with optimised flow rate					
Valve sizes		Widths 18 mm, 26 mm, 42 mm, 52 mm, extendable with adapter to 65 mm					
Actuation type		Electrical					
Electrical actuation		With multi-pin plug: multi-pin, IO-Link					
		With fieldbus: integrated controller, fieldbus, Industrial Ethernet					
Pilot air supply		Internal/external					
Exhaust function, can be throttle	ed	Via throttle plate					
Type of mounting		Wall mounting					
		On H-rail to EN 60715					
Mounting position		Any					
Signal status display		LED					
Manual override		Detenting, non-detenting, concealed					
Suitable for vacuum		Yes					
Valve terminal design		Modular, valve sizes can be mixed					
Max. no. of valve positions		32 <sup>1</sup> )					
Pneumatic connections – Three	aded connec	tion					
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

• || • Note: this product conforms to ISO 1179-1 and ISO 228-1.

# Datasheet - 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 rate<sup>1)</sup> 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

#### General technical data for VTSA-F-CB

General technical data for	VIJA-I-CD								
Terminal type CPX/VTSA-F-	CB	Туре 46							
Design		Piston spool valve							
Valve functions		<ul> <li>5/2-way solenoid va</li> </ul>							
		<ul> <li>5/3-way solenoid va</li> </ul>	alve <sup>1)</sup>						
		<ul> <li>2x 3/2-way solenoid</li> </ul>	1 valve						
		• 2x 2/2-way solenoid							
		Integration of vacuum	generation, soft-start/quick ex	haust 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		Electrical							
Electrical actuation		Fieldbus: CPX							
Pilot air supply		Internal/external	Internal/external						
Exhaust function, can be t	hrottled	Via throttle plate							
Type of mounting		Wall mounting							
		On H-rail to EN 60715	On H-rail to EN 60715 (not possible in combination with CPX-FVDA-P2 (safety module))						
Mounting position		Any	,						
Signal status display		LED	LED						
Manual override		Non-detenting/detenting; non-detenting/concealed; non-detenting-heavy duty/detenting with accessories; self-resetting via electrical con-							
		trol signal							
Suitable for vacuum		Yes							
Valve terminal design		Modular, valve sizes can be mixed							
Note on forced checking pr	roce-	Switching frequency min. 1/month							
dure									
Max. no. of valve positions	;	Max. 24 per voltage zone: max. 4 x 24 = 96							
Number of voltage zones		≤ 6							
Pneumatic connection		Via manifold sub-base	!						
Supply port	1	Via right end plate (G1	/2 and G3/4) or supply plate o	r soft-start valve					
Exhaust port	3/5	Via right end plate (G1	/2 and G3/4) or supply plate o	r soft-start valve					
Pilot air port 12		Either ducted							
Working ports	2/4	G1/8	G1/4	G3/8	G1/2				
Tubing size: small	[mm]	6	8	10	12				
Tubing size: large	[mm]	8	10	12	16				
Fittings		OS fittings, tubing dim	fittings, tubing dimensions metric or imperial (hybrid)						

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

T

# Datasheet – Valve terminal

## Standard nominal flow rate of valve/valve terminal [l/min]

Valve function (with valve code)	Terminal Width 18 mm					Width 26 mm			
	code	Valve	Valve on va	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	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 (M52-A)	М	750	550	700	700	1400	1100	1350	1350
5/2-way, single solenoid, mechanical spring (M52-M)	0	750	550	700	700	1400	1100	1350	1350
5/3-way, closed (P53C)	G	700	450	650	650	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, exhausted (P53E)	E	700 <sup>1)</sup> 330 <sup>2)</sup>	450 <sup>1)</sup> 330 <sup>2)</sup>	480 <sup>1)</sup> 330 <sup>2)</sup>	480 <sup>1)</sup> 330 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, pressurised (P53U)	В	700 <sup>1)</sup> 330 <sup>2)</sup>	450 <sup>1)</sup> 330 <sup>2)</sup>	480 <sup>1)</sup> 330 <sup>2)</sup>	480 <sup>1)</sup> 330 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, exhausted, switching position 14 detenting (P53ED) <sup>3)</sup>	SA	-	380 <sup>1)</sup> 310 <sup>2)</sup>	430 <sup>1)</sup> 360 <sup>2)</sup>	430 <sup>1)</sup> 360 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, exhausted, switching position 12 detenting (P53EP) <sup>3)</sup>	SE	-	380 <sup>1)</sup> 300 <sup>2)</sup>	460 <sup>1)</sup> 350 <sup>2)</sup>	460 <sup>1)</sup> 350 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, port 2 pressurised, 4 exhausted, switching po- sition 14 detenting (P53AD) <sup>3)</sup>	SB	-	380 <sup>1)</sup> 350 <sup>2)</sup>	440 <sup>1)</sup> 400 <sup>2)</sup>	440 <sup>1)</sup> 400 <sup>2)</sup>	700 <sup>1)</sup> 700 <sup>2)</sup>	700 <sup>1)</sup> 700 <sup>2)</sup>	700 <sup>1)</sup> 700 <sup>2)</sup>	700 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, port 4 pressurised, 2 exhausted, switching po- sition 14 detenting (P53BD) <sup>3)</sup>	SD	-	370 <sup>1)</sup> 340 <sup>2)</sup>	430 <sup>1)</sup> 360 <sup>2)</sup>	430 <sup>1)</sup> 360 <sup>2)</sup>	-	850 <sup>1)</sup> 820 <sup>2)</sup>	950 <sup>1)</sup> 860 <sup>2)</sup>	950 <sup>1)</sup> 860 <sup>2)</sup>
2x3/2-way, single solenoid, closed (T32C)	К	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)	W	700	500	650	650	1350	1000	1300	1300

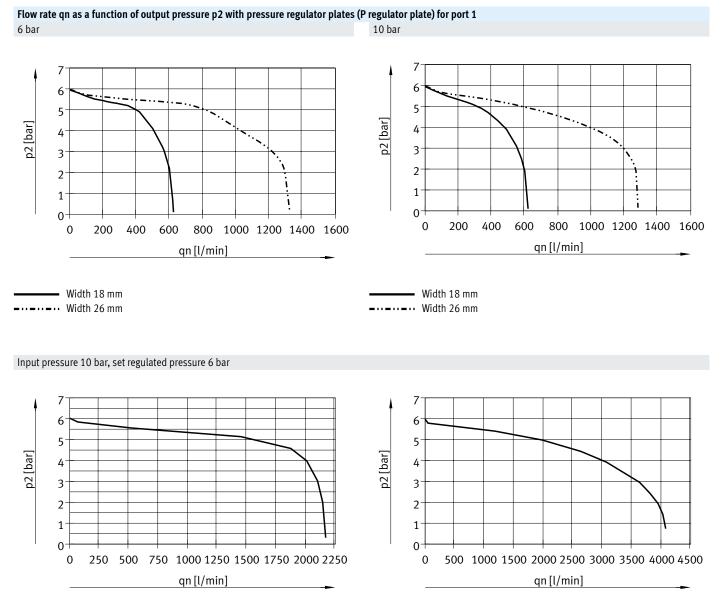
Switching position
 Mid-position
 The valve functions P53ED, P53EP, P53AD and P53BD are only available in the 24 V DC version. Values only apply to 24 V DC.

## Standard nominal flow rate of valve/valve terminal [l/min]

Valve function (with valve code)	Terminal	Width 42 ı	nm			Width 52 mm			
	code	Valve	Valve on va	ve terminal		Valve	Valve on va	lve 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 (M52-A)	M	2000	1300	1860	1860	4000	2900	2900	2900
5/2-way, single solenoid, mechanical spring (M52-M)	0	2000	1300	1860	1860	4000	2900	2900	2900
5/3-way, closed (P53C)	G	1900 <sup>1)</sup>	1200 <sup>1)</sup>	1690 <sup>1)</sup>	1690 <sup>1)</sup>	3600 <sup>1)</sup>	2800 <sup>1)</sup>	28001)	2800 <sup>1)</sup>
		950 <sup>2)</sup>	800 <sup>2)</sup>	830 <sup>2)</sup>	830 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, exhausted (P53E)	E	1900 <sup>1)</sup>	1200 <sup>1)</sup>	1690 <sup>1)</sup>	1690 <sup>1)</sup>	3600 <sup>1)</sup>	2800 <sup>1)</sup>	28001)	28001)
		950 <sup>2)</sup>	800 <sup>2)</sup>	830 <sup>2)</sup>	830 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, pressurised (P53U)	В	1900 <sup>1)</sup>	1200 <sup>1)</sup>	1690 <sup>1)</sup>	1690 <sup>1)</sup>	3600 <sup>1)</sup>	28001)	28001)	28001)
		950 <sup>2)</sup>	800 <sup>2)</sup>	830 <sup>2)</sup>	830 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F) <sup>3)</sup>	VG	17001)	1400 <sup>1)</sup>	17001)	1700 <sup>1)</sup>	3000 <sup>1)</sup>	2300 <sup>1)</sup>	2300 <sup>1)</sup>	2300 <sup>1)</sup>
		700 <sup>2)</sup>	800 <sup>2)</sup>	700 <sup>2)</sup>	700 <sup>2)</sup>	900 <sup>2)</sup>	900 <sup>2)</sup>	900 <sup>2)</sup>	900 <sup>2)</sup>
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	-	-	-	-

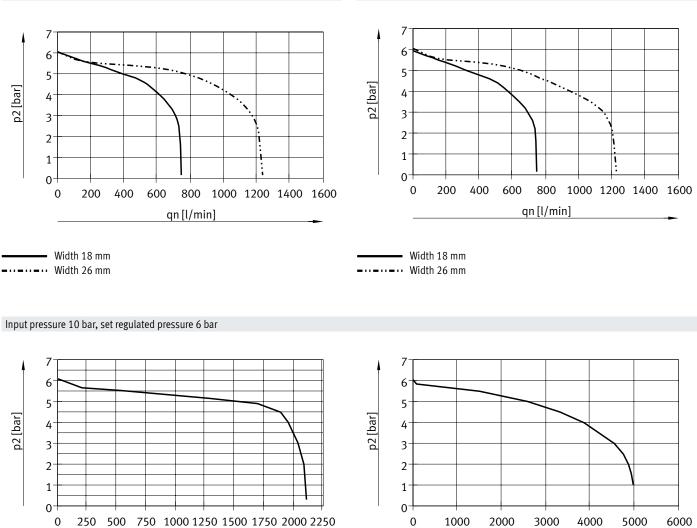
1) Switching position

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



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

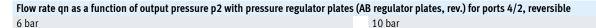
 6 bar
 10 bar

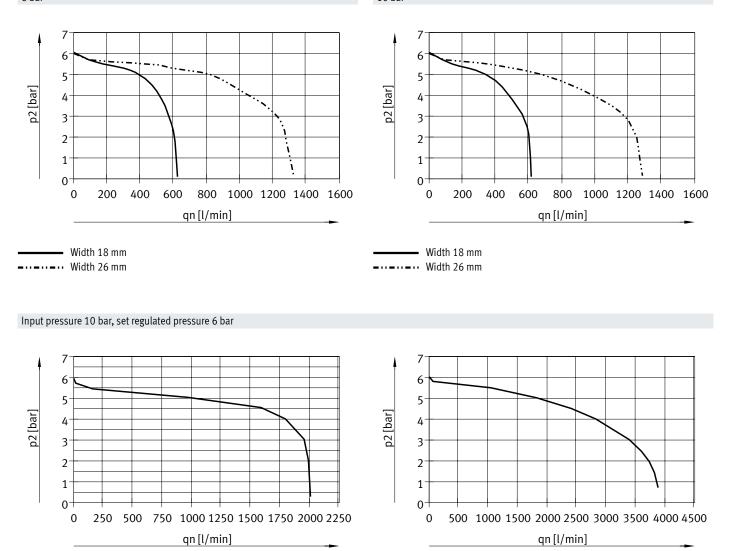
Width 42 mm (ISO 1)

qn [l/min]

Width 52 mm (ISO 2)

qn [l/min]

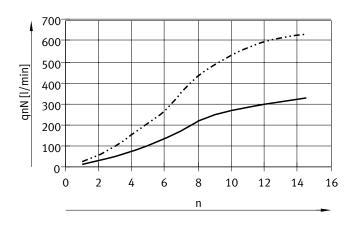


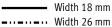


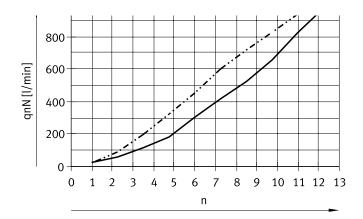
Width 42 mm (ISO 1)

Width 52 mm (ISO 2)

#### Flow rate qn as a function of flow control





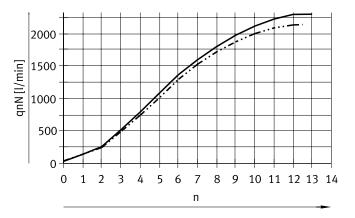


Width 42 mm (ISO 1)

Flow control screw from  $2 \rightarrow 3$ 

**Flow control screw from 4**  $\rightarrow$  5

n = revolutions of the adjusting screw



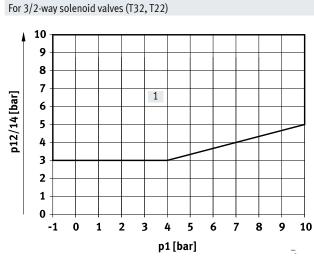
Width 52 mm (ISO 2)

Flow control screw from  $2 \rightarrow 3$ 

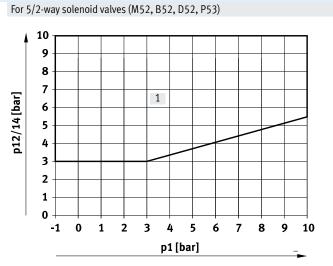
Flow control screw from  $4 \rightarrow 5$ 

n = revolutions of the adjusting screw

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



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



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

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 <sup>1)</sup>	320	-	-	-
VABF-S4-1-L1D1-C	-	800	-	-
VABF-S4-1-L1D2-C <sup>1)</sup>	-	620	-	-
VABF-S2-1-L1D1-C	-	-	1200	-
VABF-S2-2-L1D1-C	-	-	-	1950

1) Lockable with key

## Operating and environmental conditions

Operating and environmental	conditions		
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)	
External	[bar]	-0.9 +10	-0.9 +10
	[MPa]	-0.09 +1	-
Internal	[bar]	3 10	310
	[MPa]	0.3 1	0.3 1
Pilot pressure	[bar]	310	310
	[MPa]	0.3 1	-
Noise 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	090
Certification		BIA	-
		C-Tick	-
		c UL us – Recognized (OL)	-
CE marking (see declaration of o	conformity)	To EU Low Voltage Directive (only for VTSA-MP)	-
		To EU EMC Directive <sup>1)</sup>	To EU EMC Directive <sup>1)</sup>
		To EU Explosion Protection Directive (ATEX, EX1E <sup>3)</sup> )	-
KC marking		KC EMC	KC EMC
ATEX category for gas		II 3G (EX1E <sup>3)</sup> )	-
Type of (ignition) protection for	gas	Ex ec IIC T3 Gc X (EX1E <sup>3)</sup> )	-
Explosion ambient temperature	e [°C]	-5 +50 (EX1E <sup>3)</sup> )	-
Corrosion resistance class CRC4	)	0	0
Corrosion resistance class CRC f	for IO-Link <sup>5)</sup>	2	-

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

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 ... T

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 standards-based parts such as threaded pins, circlips and clamping sleeves which are usually only available on the market in a phosphated or burnished version (and possibly oiled) as well as to ball bearings (for components < CRC 3) and plain bearings.

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

Moderate corrosion stress. Indoor application where condensation may occur. External visible parts with primarily decorative surface requirements that are in direct contact with the surrounding industrial environment.

nnection	
[V DC]	24 ±10%
[A]	10
	100%
	IP65, NEMA 4 (for all types of signal transmission when mounted)
ion	
[V DC]	24 ±10%
[A]	6
	1
[kV]	1.5
	3
	100%
	IP65, NEMA 4 (for all types of signal transmission when mounted)
IV DC1	24 ±10%
	20
[]	
	100%
IV DC1	24 ±10%
	21.6 21.5
	IP65, NEMA 4 (for all types of signal transmission when mounted)
i	Die-cast aluminium
	Die-cast aluminium
	FPM, NBR, HNBR
	Die-cast aluminium
Ilti-nin nlug	PA
ուս-բու բաց	
	RoHS-compliant
	VDMA24364-B2-L
	[A]

Product weight				
Ū.	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				
<ul> <li>With diagnostics for undervoltage of valves</li> </ul>	590			
(VABA-S6-1-X1/X2/X2-D)				
Pneumatic interface CPX for VTSA-F-CB				
<ul> <li>With 3x load supplies</li> </ul>	580			
(VABA-S6-1-X1/X2-3V-CB)				
<ul> <li>For PROFIsafe, with diagnostics for undervoltage, short</li> </ul>	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)				
IO-Link interface	690			
Electrical interface for AS-Interface for	300			
VTSA/VTSA-F	0.50			
AS-Interface module for VTSA/VTSA-F	850			
Supply plate for valve terminal VTSA/VTSA-F <sup>2)</sup>				
Exhaust plate with 3 and 5 common	617			
Exhaust air cover with 3 and 5 separate	597			
Supply plate/extension module for VTSA-F-CB <sup>2)</sup>				
<ul> <li>Exhaust plate with 3 and 5 common</li> </ul>	611			
<ul> <li>Exhaust air cover with 3 and 5 separate</li> </ul>	600			
Right end plate 3)				
With threaded connections	339			336
Selector switch	281			-
Manifold sub-base for VTSA/VTSA-F <sup>4)</sup>	447	634	340, 330 <sup>5)</sup>	610
Manifold sub-base for VTSA-F-CB <sup>4)</sup>	434	579	330	610
90°-connection plate <sup>3)</sup>	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 <sup>3)</sup>	140	191	340	605
Vertical pressure shut-off plate	209	273	600	1030
Vertical pressure shut-off plate (lockable with key)	231	290	-	-
Valves $\rightarrow$ Solenoid valves, widths				
Cover plate	34	73	68	146

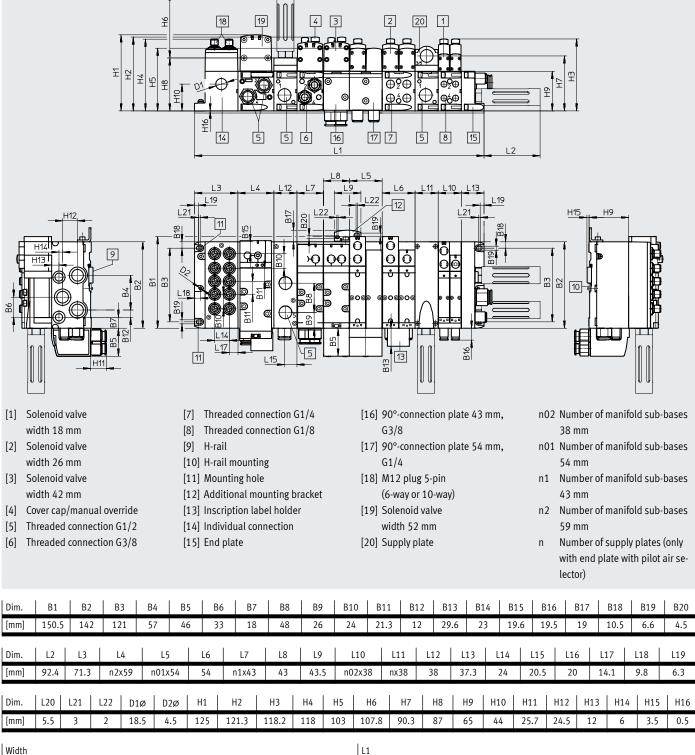
1) With sheet metal seal, printed circuit board

With sneet metal seal, pinted circuit band
 With sheet metal seal and electrical link
 With screws
 With sheet metal seal, electrical link, inscription label holder, 4 screws
 Manifold sub-base optimised for flow rate, HS

#### Dimensions

Download CAD data → <u>www.festo.com</u>

Valve terminal with individual electrical connection

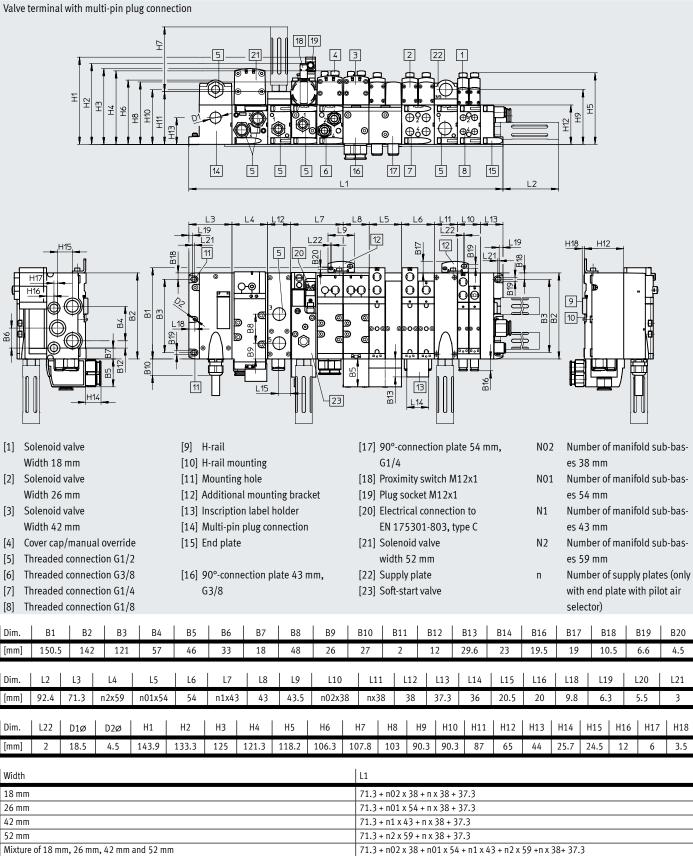


Width	L1
18 mm	71.3 + n02 x 38 + n x 38 + 37.3
26 mm	71.3 + n01 x 54 + n x 38 + 37.3
42 mm	71.3 + n1 x 43 + n x 38 + 37.3
52 mm	71.3 + n2 x 59 + n x 38 + 37.3
Mixture of 18 mm, 26 mm, 42 mm and 52 mm	71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n2x59 + n x 38 + 37.3

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

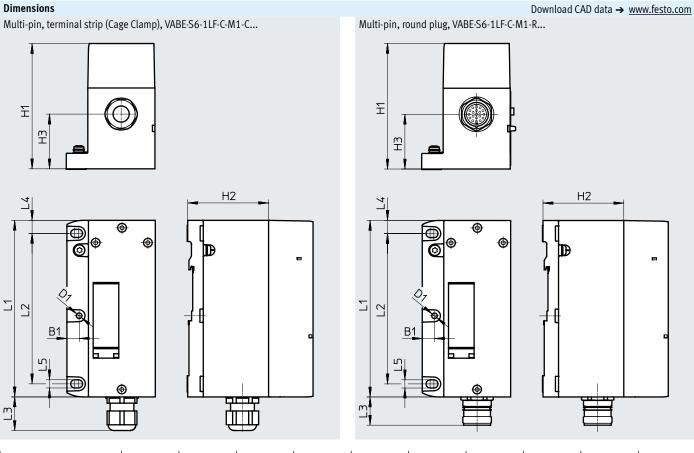
#### Dimensions

Download CAD data → www.festo.com



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

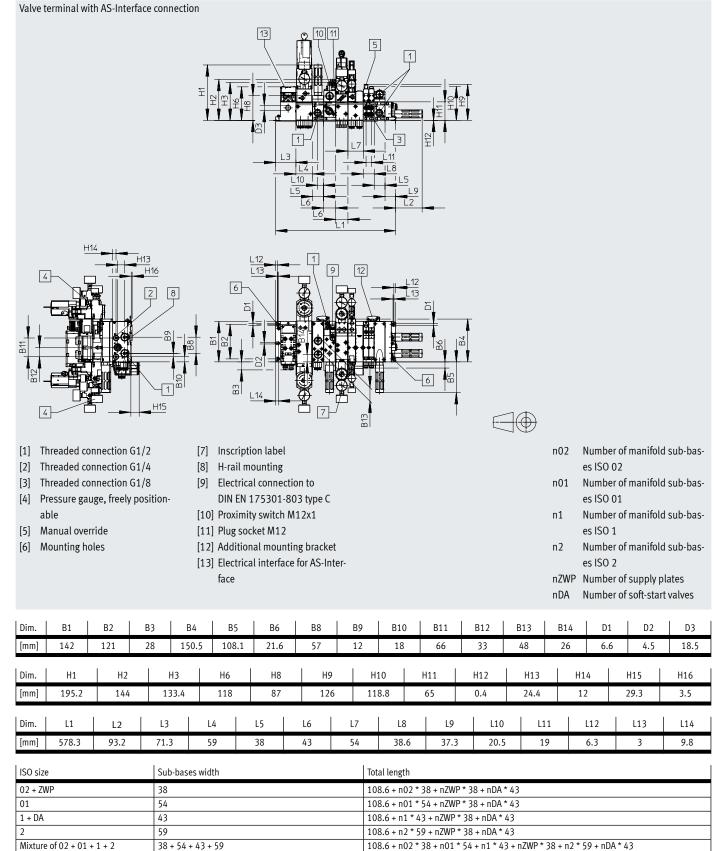
## Dimensions



Туре	H1	H2	H3	D1Ø	L1	L2	L3	L4	L5	B1
VABE-S6-1LF-C-M1-C	106.1	65	44	4.5	142	121	27	10.5	6.6	9.8
VABE-S6-1LF-C-M1-R	101	65	44	4.5	142	121	25	10.5	6.6	9.8

#### Dimensions

Download CAD data → <u>www.festo.com</u>



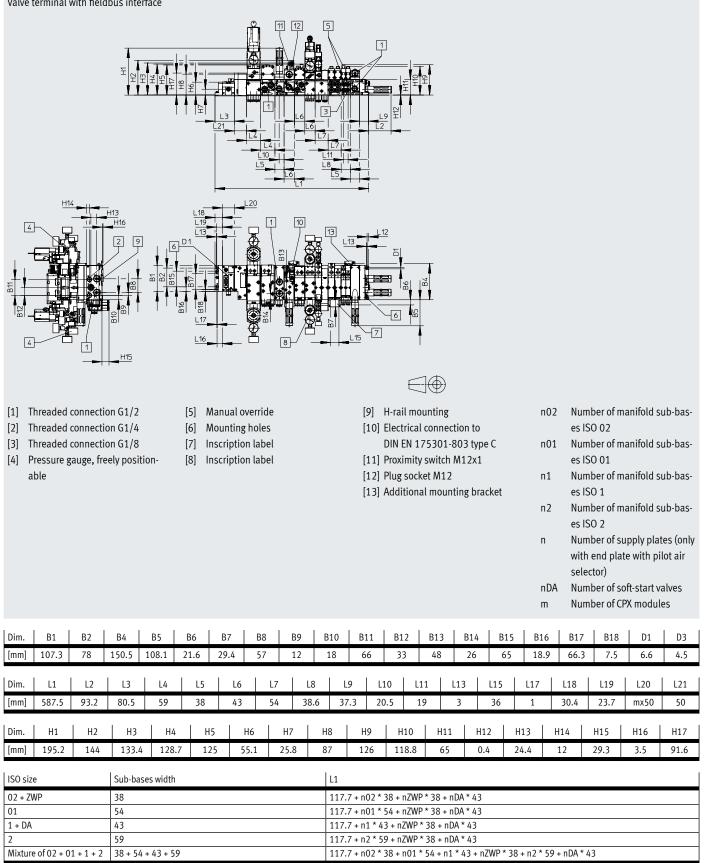
#### Valve terminals VTSA

Download CAD data → www.festo.com

## Datasheet - Valve terminal

#### Dimensions

Valve terminal with fieldbus interface

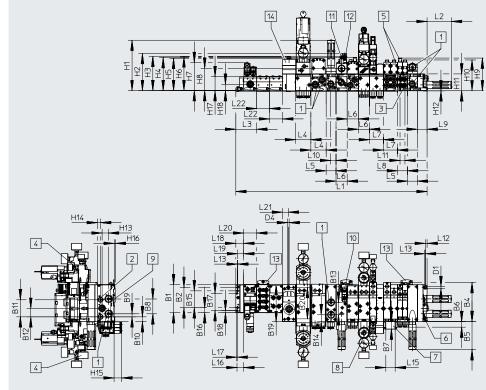


+ Note: this product conforms to ISO 1179-1 and ISO 228-1.

#### Dimensions

Valve terminal VTSA-F-CB with fieldbus interface

Download CAD data → www.festo.com



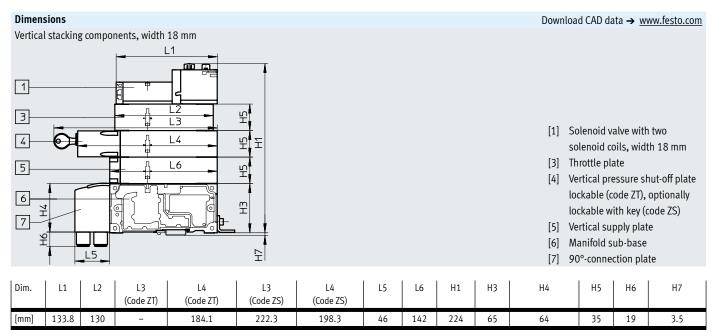


- [1] Threaded connection G1/2
- [2] Threaded connection G1/4
- Threaded connection G1/8 [3]
- Pressure gauge, freely position-[4] able
- [5] Manual override
- [6] Mounting holes
- Inscription label [7]
- Inscription label [8]
- [9] H-rail mounting
- [10] Electrical connection to
- DIN EN 175301-803 type C
- [11] Proximity switch M12x1

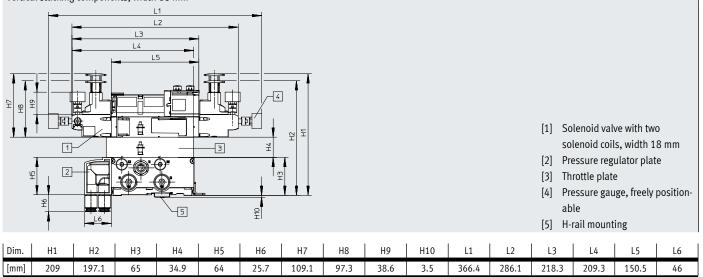
- [12] Plug socket M12
- [13] Additional mounting bracket
- [14] Pneumatic interface CPX
- n02 Number of manifold sub-bases ISO 02
- Number of manifold sub-basn01 es ISO 01
- Number of manifold sub-basn1 es ISO 1
- n2 Number of manifold sub-bases ISO 2
- nZWP Number of supply plates nDA Number of soft-start valves Number of CPX modules m

Dim.	B1	B2	B4	B5	B6	B7	B8	B9	B10	B1	1	B12	B13	B14	B15	B16	B17	B <b>1</b> 8	B19	B20
[mm]	108.1	78	150.5	108.1	21.6	29.4	57	12	18	66		33	48	26	65	19.3	66.3	7.9	142.6	121
			1	1	1	1							1		1	1				
Dim.	D4	H1	H2	H3	H4	H5	H6	H7	H	3   H	9	H10	H11	H12	H13	H14	H15	H16	H17	H18
[mm]	6.6	195.2	103.3	133.4	128.7	125	106.5	i 108.	3 8	7 1	26 3	118.8	65	0.4	24.4	12	29.3	3.5	53.8	24.5
Dim.	L1	L2	L3	L4	L5	L6	L7	L8	L9	L10	L11	L13	3 L15	L16	L17	L18	L19	L20	L21	L22
[mm]	557	93.2	80.3	59	38	43	54	38.6	37.3	20.5	19	1.5	5 36	25.9	1	30.4	23.7	mx50.1	22.3	50.1

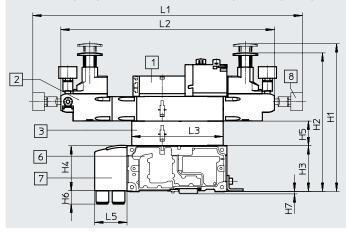
ISO size	Sub-bases width	Total length
02 + ZWP	38	117.7 + n02 * 38 + nZWP * 38 + nDA * 43
01	54	117.7 + n01 * 54 + nZWP * 38 + nDA * 43
1 + DA	43	117.7 + n1 * 43 + nZWP * 38 + nDA * 43
2	59	117.7 + n2 * 59 + nZWP * 38 + nDA * 43
Mixture of 02 + 01 + 1 + 2	38 + 54 + 43 + 59	117.7 + n02 * 38 + n01 * 54 + n1 * 43 + nZWP * 38 + n2 * 59 + nDA * 43



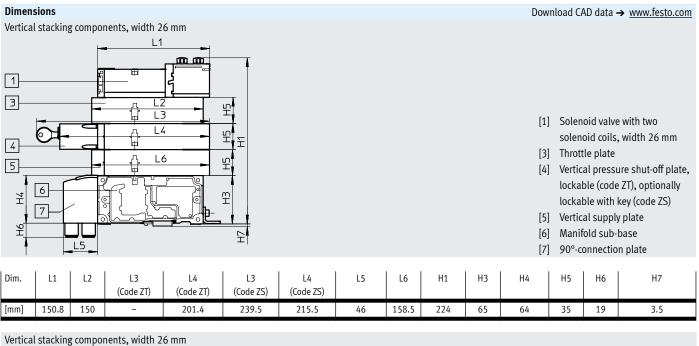
Vertical stacking components, width 18 mm

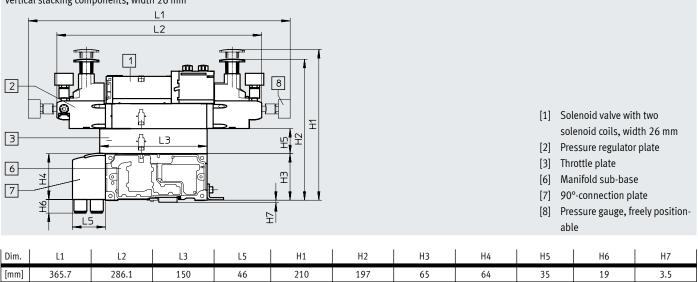


Vertical stacking components, width 18 mm, with the pressure regulator plate also suitable for valves with symmetrical design



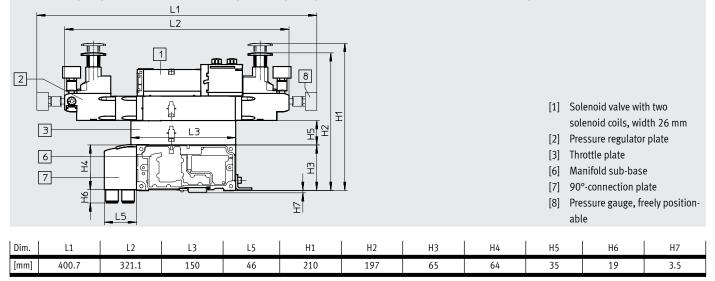
- [1] Solenoid valve with two solenoid coils, width 18 mm
- [2] Pressure regulator plate
- [3] Throttle plate
- [6] Manifold sub-base
- [7] 90°-connection plate
- [8] Pressure gauge, freely positionable





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

→ Internet: www.festo.com/catalogue/...



#### Dimensions

Vertical stacking components, width 42 mm

Download CAD data → www.festo.com

[1]

[3]

[4]

[5]

[6]

[7]

Solenoid valve

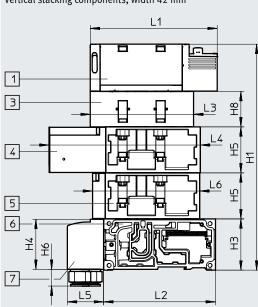
Throttle plate

Vertical supply plate

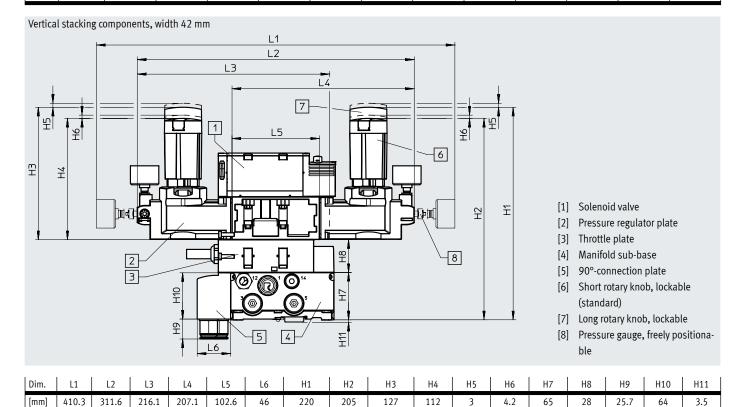
Manifold sub-base

00° connection plate

Vertical pressure shut-off plate



										L	/] 90 -0011	lection plate	
				1			1			1			
Dim.	L1	L2	L3	L4	L5	L6	H1	H3	H4	H5	H6	H7	H8
[mm]	137.8	142	105.3	173.8	46	117.6	236	65	64	45.3	25.7	3.5	28



## - 📲 - Note

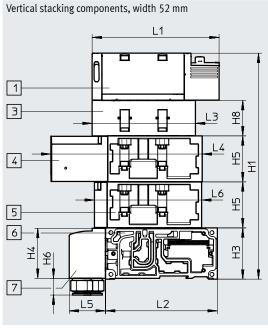
• Pressure regulator plates for symmetrically designed valves with widths of 42 mm and 52 mm can only be ordered via the pressure regulator configurator VABF-S2.

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

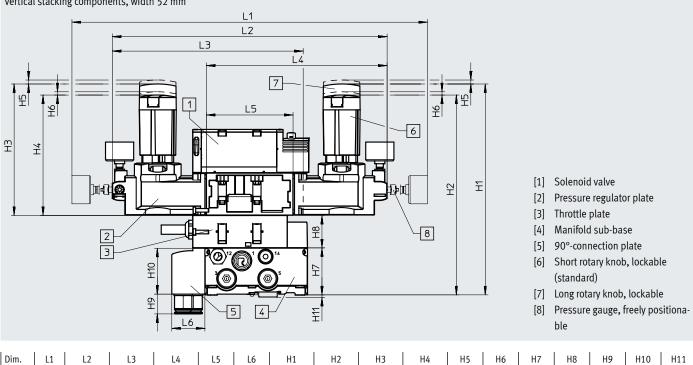
#### Dimensions



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

Download CAD data → www.festo.com

Dim.	L1	L2	L3	L4	L5	L6	H1	H3	H4	H5	H6	H8
[mm]	160.7	142	131	191.2	46	136	287.4	65	63.5	58.7	21.2	45



Vertical stacking components, width 52 mm

## - 📲 - Note

492

380.4

264.2

[mm]

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

250.2

120

45.8

291

276

181

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

65

45

27.4

63.5

3.5

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

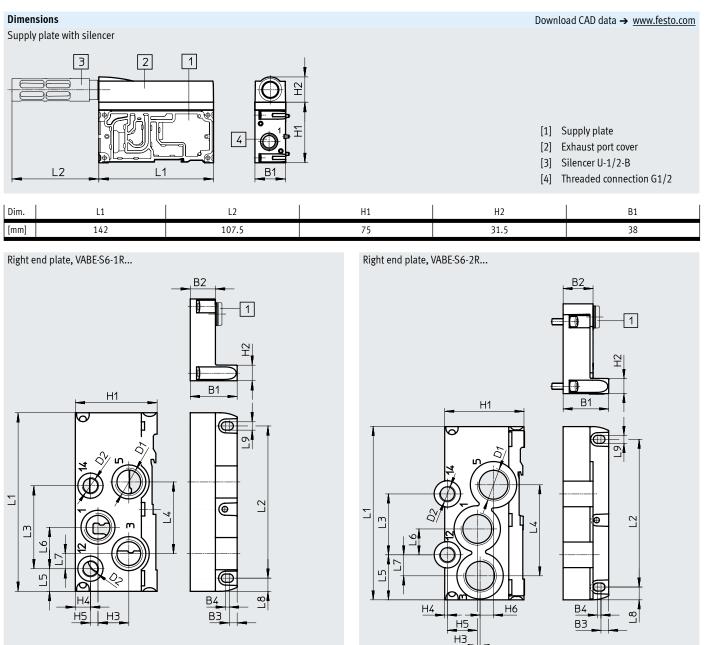
5.5

4.5

• Rotary knob with integrated lock

166

→ Internet: vabf-s2



[1] Blanking plug

[1] Blanking plug

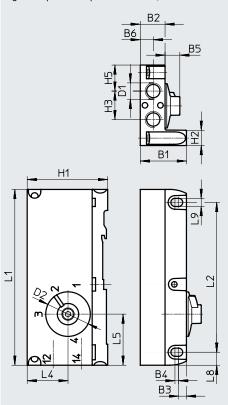
Туре	L1	L2	L3	L4	L5	L6	L7	L8	L9	D1	D2	H1	H2	H3	H4	H5	H6	B1	B2	B3	B4	With <sup>1)</sup>
VABE-S6-1R-G12	142	1 2 1		57	18	22	10	10.5		C1/2	G1/4	65	1 D F	24.5	10	(		373	22	()	2	[1]
VABE-S6-1RZ-G12	142	121	66	57	10	22	12	10.5	6.6	G1/2	61/4	60	12.5	24.5	12	0	-	57.5	22	6.3	2	-
VABE-S6-2R-G34	142	1 2 1	49.9	74.6	36.9	21.2	172	10.5	6.6	G3/4	G1/4	65	125	22	2.2	24.5	11	37.3	24.5	63	2	[1]
VABE-S6-2RZ-G34	142	121	49.9	74.0	50.9	21.2	17.2	10.5	0.0	05/4	01/4	05	12.5	2.5	2.2	24.5	11	ر./ر	24.5	6.3	ر	-

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

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

## Dimensions

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



Туре	L1	L2	L5	L8	L9	D1	D2	H1	H2	H3	H4	H5	B1	B2	B3	B4	B5	B6
VABE-S6-1RZ-G-B1	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

• INote: this product conforms to ISO 1179-1 and ISO 228-1.

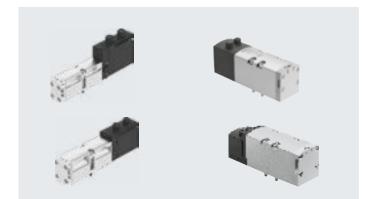
Download CAD data → <u>www.festo.com</u>

# Datasheet - 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)

- **G** - Voltage 24 V DC

- N - Flow rate<sup>1)</sup> 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 and VTSA-F-CB

#### General technical data for solenoid 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 the type used				
Actuation type		Electrical				
Electrical connection		Plug to ISO 15407-2, 2-pin (single solenoid types) or 4-pin (double solenoid and 5/3-way types)				
Type of actuation		Piloted				
Degree of protection to EN 60529	)	IP65, NEMA 4 (for all types of signal transmission when mounted)				
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		Detenting, non-detenting, concealed				
Signal status display		LED (except types with signal status display sensor, and part nos.: 560727 and 560728)				
Sensor signal status indication		Yellow LED				
Duty cycle	[%]	100				
Pollution degree		3				
Surge resistance	[kV]	2.5				
Nominal operating voltage	[V DC]	24 (dependent on valve type)				
Permissible voltage fluctuations	[%]	±10				
Pneumatic connections						
Supply	1	Via the manifold sub-base of the valve terminal or via individual sub-base				
Exhausting	3/5					
Working ports	2/4					
Pilot air supply	1 2/14					
Pilot exhaust air	8 2/84	Either ducted or unducted				

# Datasheet - Solenoid valves

## Pneumatic characteristic data

P Q T32F T32N		M 0 M52-A M5	52-M
	T32W	M52-A M5	52-M
	1		
	-	•	
	• •	-	-
		-	-
	•   ■	•	-
		-	-

Terminal code	J		D	0		54	100	50	JL	140
Valve code	B52	D52	P53U	P53C	P53E	P53ED	P53AD	P53BD	P53EP	P53F
Flow direction										
Any		•	•	•	•	-	•	-	-	•
Reversible only	-	-	-	-	-	-	-	-	-	-
Not reversible	-	-	-	-	-		-			-
Reset method										
Pneumatic spring	-	-	-	-	-	-	-	-	-	-
Mechanical	_	_		_	_		_	_	_	
spring	_	_	-	•			•			

#### Flow direction of solenoid valves

Solenoid valves only with 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 separate pressure 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 end plate with pilot air selector: can be realised via position 1 or 2
- Right 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 must 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.

# Datasheet - Solenoid valves

#### Operating and environmental conditions

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 <sup>2)</sup> [bar]		-0.9 +10 (valves with any flow direction and reversible valves)
		3 10 (non-reversible valves)
	[MPa]	-0.09 +1 (valves with any flow direction and reversible valves)
		0.3 1 (non-reversible valves)
Pilot pressure	[bar]	310
	[MPa]	0.3 1
Pilot air supply		External
		Internal via valve terminal
Ambient temperature	[°C]	-5 +50
Relative humidity	[%]	090
Certification		BIA (for characteristic SP and/or SN only)
Direct voltage 24 V D	C	C-Tick (only size 52 mm and solenoid valves with sensor (position sensing))
		c UL us - Recognized (OL)
CE marking (see Direct voltage 24 V D	C	To EU EMC Directive <sup>1)</sup>
declaration of conformity)		

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

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

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

## Valve terminals VTSA

# Datasheet - Solenoid valve width 18 mm

- **[]** - Valve width to ISO 15407-2 18 mm

> Voltage 24 V DC

- 11 -

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

Flow rate



#### Safety characteristics for valve

Conforms to		EN 13849-1/2
CE marking (see	Direct voltage	To EU EMC Directive <sup>1)</sup> (solenoid valves with sensor only)
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/catalogue/... -> Support/Downloads.

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

#### Safety characteristics for valve, 24 V DC

Valve function (with valve code)	Termi-	Test pulses				
	nal code	Max. positive test pulse with logic 0 $\left[ \mu s \right]$	Max. negative test pulse with logic 1 [µs]			
5/2-way, double solenoid (B52)	J	1500	800			
5/2-way, double solenoid with dominant signal (D52)	D	1700	1200			
5/2-way, single solenoid (M52-A)	М	1500	800			
5/2-way, single solenoid (M52-M)	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 posi- tion 14 detenting (P53AD)	SB	1500	800			
5/3-way, port 4 pressurised, 2 exhausted, switching posi- tion 14 detenting (P53BD)	SD	1500	800			
2x3/2-way, single solenoid, closed (T32C)	К	1700	1200			
2x3/2-way, single solenoid, open (T32U)	N	1700	1200			
2x3/2-way, single solenoid, open/closed (T32H)	Н	1700	1200			
2x3/2-way, single solenoid, closed (T32N)	Q	1700	1200			
2x3/2-way, single solenoid, open (T32F)	Р	1700	1200			
2x3/2-way, single solenoid, open/closed (T32W)	R	1700	1200			
2x2/2-way, single solenoid, closed (T22C)	VC	1700	1200			
2x2/2-way, single solenoid, closed (T22CV)	W	1700	1200			

# Datasheet - Solenoid valve width 18 mm

## Datasheet for valve

Valve function (with valve code)	Termi-	Flow direction			Reset method	Weight	
	nal code	Any	Reversible only	Not 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 (M52-A)	М	•	-	-	•	-	163
5/2-way, single solenoid (M52-M)	0	•	-	-	-	•	163
5/3-way, closed <sup>1)</sup> (P53C)	G		-	-	-	•	191
5/3-way, exhausted <sup>1)</sup> (P53E)	E		-	-	-	•	191
5/3-way, pressurised <sup>1)</sup> (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 posi- tion 14 detenting (P53AD)	SB	•	-	-	-		172
5/3-way, port 4 pressurised, 2 exhausted, switching posi- tion 14 detenting (P53BD)	SD	-	-		-	•	172
2x3/2-way, single solenoid, closed (T32C)	К	-	-		•	-	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)	VV	•	-	-		-	190

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.

# Datasheet - Solenoid valve width 18 mm

## Standard nominal flow rate of valve/valve terminal [l/min]

Valve function (with valve code)	Termi-	Flow rate					
	nal code	Valve	Valve on valve terminal			Valve on individual sub-base	
	locuo		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 (M52-A)	М	750	550	700	700	600	
5/2-way, single solenoid (M52-M)	0	750	550	700	700	600	
5/3-way, closed (P53C)	G	700	450	650	650	550	
5/3-way, exhausted (P53E)	E	7001)	450 <sup>1)</sup>	4801)	4801)	500 <sup>1)</sup>	
		330 <sup>2)</sup>	330 <sup>2)</sup>	330 <sup>2)</sup>	330 <sup>2)</sup>	330 <sup>2)</sup>	
5/3-way, pressurised (P53U)	В	7001)	450 <sup>1)</sup>	480 <sup>1)</sup>	480 <sup>1)</sup>	500 <sup>1)</sup>	
		330 <sup>2)</sup>	330 <sup>2)</sup>	330 <sup>2)</sup>	330 <sup>2)</sup>	330 <sup>2)</sup>	
5/3-way, exhausted, switching position 14 detenting	SA	-	380 <sup>1)</sup>	430 <sup>1)</sup>	430 <sup>1)</sup>	390 <sup>1)</sup>	
(P53ED)			310 <sup>2)</sup>	360 <sup>2)</sup>	360 <sup>2)</sup>	310 <sup>2)</sup>	
5/3-way, exhausted, switching position 12 detenting	SE	-	380 <sup>1)</sup>	460 <sup>1)</sup>	460 <sup>1)</sup>	390 <sup>1)</sup>	
(P53EP)			300 <sup>2)</sup>	350 <sup>2)</sup>	350 <sup>2)</sup>	320 <sup>2)</sup>	
5/3-way, port 2 pressurised, 4 exhausted, switching posi-	SB	-	3801)	4401)	440 <sup>1)</sup>	3801)	
tion 14 detenting (P53AD)			350 <sup>2)</sup>	400 <sup>2)</sup>	400 <sup>2)</sup>	360 <sup>2)</sup>	
5/3-way, port 4 pressurised, 2 exhausted, switching posi-	SD	-	370 <sup>1)</sup>	430 <sup>1)</sup>	430 <sup>1)</sup>	400 <sup>1)</sup>	
tion 14 detenting (P53BD)			340 <sup>2)</sup>	360 <sup>2)</sup>	360 <sup>2)</sup>	350 <sup>2)</sup>	
			360 <sup>3)</sup>	450 <sup>3)</sup>	450 <sup>3)</sup>	390 <sup>3)</sup>	
			360 <sup>4)</sup>	450 <sup>4)</sup>	450 <sup>4)</sup>	3804)	
2x3/2-way, single solenoid, closed (T32C)	К	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	

Switching position
 Mid-position

3) Switching position  $4 \rightarrow 5$ 

4) Mid-position  $2 \rightarrow 3$ 

#### -- Note

When using the solenoid valves VSVA-B-P53AD-...- or

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

### Datasheet - Solenoid valve width 18 mm

Valve	switching	times	in	[ms]

Valve switching times in [ms] Valve function (with valve code)	Termi-	On	Off	Changeover
		011		changeover
	nal code			
5/2-way, double solenoid (B52)	J	-	-	11
5/2-way, double solenoid with dominant signal (D52)	D	_	-	13
5/2-way, single solenoid (M52-A)	M	22	28	-
5/2-way, single solenoid (M52-M)	0	12	38	-
5/3-way, closed (P53C)	G	15	44	-
5/3-way, exhausted (P53E)	E	15	44	-
5/3-way, pressurised (P53U)	В	15	44	_
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	13 for control side 12 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			-	_
Characteristic coil data	Termi- nal code		Characteristic coil data at 24 V DC in [W]	
Characteristic coil data Valve function (with valve code)	Termi- nal		-	_
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52)	Termi- nal		Characteristic coil data at 24 V DC in [W]	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52)	Termi- nal code J		Characteristic coil data at 24 V DC in [W] 1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A)	Termi- nal code J D		Characteristic coil data at 24 V DC in [W] 1.6 1.3	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M)	Termi- nal code J D M		Characteristic coil data at 24 V DC in [W] 1.6 1.3 1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C)	Termi- nal code J D M O		Characteristic coil data at 24 V DC in [W] 1.6 1.3 1.6 1.6 1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E)	Termi- nal code J D M O G		Characteristic coil data at 24 V DC in [W] 1.6 1.3 1.6 1.6 1.6 1.6 1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, pressurised (P53U)	Termi- nal code J D M O G E		1.6           1.3           1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, pressurised (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED)	Termi- nal code J D M O G E B		1.6         1.3         1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, pressurised (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53EP) 5/3-way, port 2 pressurised, 4 exhausted, switching position	Termi- nal code J D M O G G E B SA		1.6         1.3         1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, pressurised (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53EP) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position	Termi- nal code J D M O G E B B SA SE		1.6         1.3         1.6         1.3         1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53ED) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	Termi- nal code J D M O G E B SA SA SE SB		1.6         1.3         1.6         1.3         1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53ED) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD) 2x3/2-way, single solenoid, closed (T32C)	Termi- nal code J D M O G E B SA SA SE SB SD		1.6         1.3         1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53ED) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD) 2x3/2-way, single solenoid, closed (T32C) 2x3/2-way, single solenoid, open (T32U)	Termi- nal code J D M O G E B SA SA SE SB SD K		1.6         1.3         1.6         1.3         1.3	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53E) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53ED) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD) 2x3/2-way, single solenoid, closed (T32C) 2x3/2-way, single solenoid, open/closed (T32H)	Termi- nal code J D M O G E B SA SA SE SB SB SD K K N H		1.6         1.3         1.6	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53ED) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD) 2x3/2-way, single solenoid, closed (T32C) 2x3/2-way, single solenoid, open/closed (T32H) 2x3/2-way, single solenoid, closed (T32N)	Termi- nal code J D M O G E B SA SA SE SB SB SD K N		1.6         1.3         1.6         1.3         1.3         1.3         1.3	
Characteristic coil data Valve function (with valve code) 5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53B) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53ED) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD) 2x3/2-way, single solenoid, closed (T32C) 2x3/2-way, single solenoid, open (T32U) 2x3/2-way, single solenoid, open (T32N) 2x3/2-way, single solenoid, open (T32F)	Termi- nal code J D M O G E B SA SE SA SE SB SD K K N H Q		1.6         1.3         1.6         1.3         1.3         1.3         1.3         1.3         1.3	
Characteristic coil data	Termi- nal code J D M O G E B SA E B SA SE SB SB SD K K N H Q P		1.6         1.3         1.6         1.3         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.3         1.3         1.3         1.3         1.3         1.3	

Materials

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

#### Ordering data – Solenoid valve VSVA, MO non-detenting/detenting (D)

Ordering data – Solenoi	d valve VS	SVA, MO non-detenting/detenting (D)				1	
	Termi-	Valve function	Valve	Width	Part no.	Туре	
	nal code		code				
- I							
olenoid valves, 24 V D	L VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	561155	VSVA-B-T22C-AZD-A2-1T1L	
	VC	normally closed,	1220	10 11111	501155	V3VA-D-122C-A2D-A2-111L	
<b>N</b>		pneumatic spring return					
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	561159	VSVA-B-T22CV-AZD-A2-1T1L	
		normally closed,		-			
		pneumatic spring return,					
		vacuum operation possible at 3 and 5					
	Ν	2x 3/2-way valve, single solenoid,	T32U	18 mm	539178	VSVA-B-T32U-AZD-A2-1T1L	
		normally open					
	К	2x 3/2-way valve, single solenoid,	T32C	18 mm	539176	VSVA-B-T32C-AZD-A2-1T1L	
		normally closed					
	Н	2x 3/2-way valve, single solenoid,	T32H	18 mm	539180	VSVA-B-T32H-AZD-A2-1T1L	
		1x normally open, 1x normally closed					
	Р	2x 3/2-way valve, single solenoid,	T32F	18 mm	539179	VSVA-B-T32F-AZD-A2-1T1L	
		reverse operation,					
	Q	normally open 2x 3/2-way valve, single solenoid,	T32N	18 mm	E20177	VSVA-B-T32N-AZD-A2-1T1L	
	L C	reverse operation,	1321	10 11111	539177	VSVA-D-I32N-AZD-AZ-111L	
		normally closed					
	R	2x 3/2-way valve, single solenoid,	T32W	18 mm	539181	VSVA-B-T32W-AZD-A2-1T1L	
	IN IN	reverse operation,	1,52,00	10 11111	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
		1x normally open, 1x normally closed					
	М	5/2-way valve, single solenoid,	M52-A	18 mm	539184	VSVA-B-M52-AZD-A2-1T1L	
		pneumatic spring return					
	0	5/2-way valve, single solenoid,	M52-M	18 mm	539185	VSVA-B-M52-MZD-A2-1T1L	
		reset via mechanical spring					
	J	5/2-way valve, double solenoid	B52	18 mm	539182	VSVA-B-B52-ZD-A2-1T1L	
			D.5.0	10			
	D	5/2-way valve, double solenoid,	D52	18 mm	539183	VSVA-B-D52-ZD-A2-1T1L	
	В	with dominant signal 5/3-way solenoid valve,	P53U	18 mm	539186	VSVA-B-P53U-ZD-A2-1T1L	
	D	Mid-position pressurised	1,220	10 11111	559180	V3VA-D-F330-ZD-AZ-111L	
	G	5/3-way solenoid valve,	P53C	18 mm	539188	VSVA-B-P53C-ZD-A2-1T1L	
		mid-position closed		10 1111	555100	V3VA-0-1 33C-20-A2-111L	
	E	5/3-way solenoid valve,	P53E	18 mm	539187	VSVA-B-P53E-ZD-A2-1T1L	
	-	Mid-position exhausted		10 1111	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	SA	5/3-way solenoid valve,	P53ED	18 mm	8031814	VSVA-B-P53ED-ZD-A2-1T1L	
		mid-position exhausted, switching position 14 detenting, me-					
		chanical 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, me-					
		chanical 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,					
	SD	reset via mechanical spring 5/3-way solenoid valve,	P53BD	18 mm	8031817	VSVA-B-P53BD-ZD-A2-1T1L	
	50	mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to	עסכנין	10 11111	8051817	V3VA-D-P33DD-2D-A2-111L	
		4, switching position 14 detenting,					
		same function in both switching positions: pressurised from 1 to					
		2 and exhausted from 4 to 5,					
		reset via mechanical spring					
	SS	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	18 mm	573201	VSVA-B-M52-MZD-A2-1T1L-APX-0.5	
$\mathbf{\tilde{\mathbf{x}}}$		tive sensor with PNP output with 0.5 m connecting cable and					
		4-pin sensor push-in connector M12x1					
LINE IS	SO	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	18 mm	573202	VSVA-B-M52-MZD-A2-1T1L-APP	
		tive sensor with PNP output and 3-pin sensor push-in connector					
	1	M8x1					

Ordering data - Solenoid valve VSVA with cover cap for MO non-detenting/heavy duty, detenting via accessory (TR)

Ordering data – Solenoid	VA with cover cap for MO non-detenting/heavy duty, detenting v	a accessor	ry (TR)			
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
Solenoid valves, 24 V DC	T					
	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033457	VSVA-B-T22C-AZTR-A2-1T1L
AD U		normally closed,				
	VV	pneumatic spring return 2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033458	VSVA-B-T22CV-AZTR-A2-1T1L
No and a second	vv	normally closed,	12200	18 mm	8033458	VSVA-B-122CV-AZTR-AZ-TTTL
		pneumatic spring return,				
		vacuum operation possible at 3 and 5				
Ť	N	2x 3/2-way valve, single solenoid,	T32U	18 mm	8033446	VSVA-B-T32U-AZTR-A2-1T1L
		normally open				
	К	2x 3/2-way valve, single solenoid,	T32C	18 mm	8033444	VSVA-B-T32C-AZTR-A2-1T1L
		normally closed				
	н	2x 3/2-way valve, single solenoid,	T32H	18 mm	8033448	VSVA-B-T32H-AZTR-A2-1T1L
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	18 mm	8033447	VSVA-B-T32F-AZTR-A2-1T1L
		reverse operation, 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				
	м	5/2-way valve, single solenoid,	M52-A	18 mm	8033452	VSVA-B-M52-AZTR-A2-1T1L
		pneumatic spring return	MEAN	10	0000/50	
	0	5/2-way valve, single solenoid,	M52-M	18 mm	8033453	VSVA-B-M52-MZTR-A2-1T1L
		reset via mechanical spring 5/2-way valve, double solenoid	B52	18 mm	8033450	VSVA-B-B52-ZTR-A2-1T1L
	1	5/2-way valve, double solenoid		10 1111	0055450	V3VA-D-DJ2-211A-A2-111L
	D	5/2-way valve, double solenoid,	D52	18 mm	8033451	VSVA-B-D52-ZTR-A2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	18 mm	8033454	VSVA-B-P53U-ZTR-A2-1T1L
		Mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	18 mm	8033456	VSVA-B-P53C-ZTR-A2-1T1L
	-	mid-position closed				
	E	5/3-way solenoid valve, Mid-position exhausted	P53E	18 mm	8033455	VSVA-B-P53E-ZTR-A2-1T1L
	SA	5/3-way solenoid valve,	P53ED	18 mm	8039181	VSVA-B-P53ED-ZTR-A2-1T1L
	57	mid-position exhausted, switching position 14 detenting, me-		10 1111	00000101	VSVA-D-1 JJED-ZIK-AZ-IIIE
		chanical spring return				
	SE	5/3-way solenoid valve,	P53EP	18 mm	8039190	VSVA-B-P53EP-ZTR-A2-1T1L
		mid-position exhausted, switching position 12 detenting, me-				
		chanical spring return				
	SB	5/3-way solenoid valve,	P53AD	18 mm	8039184	VSVA-B-P53AD-ZTR-A2-1T1L
		mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to				
		2, switching position 14 detenting, same function in both switching positions: pressurised from 1				
		to 4 and exhausted from 2 to 3,				
		reset via mechanical spring				
	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,				
	SS	reset via mechanical spring	M52-M	10 mm	0033450	
	33	5/2-way valve, single solenoid, mechanical spring return, in- ductive sensor with PNP output with 0.5 m connecting cable	111.52-111	18 mm	8033459	VSVA-B-M52-MZTR-A2-1T1L-APX-0.5
		and 4-pin sensor push-in connector M12x1				
	SO	5/2-way valve, single solenoid, mechanical spring return, in-	M52-M	18 mm	8033460	VSVA-B-M52-MZTR-A2-1T1L-APP
		ductive sensor with PNP output and 3-pin sensor push-in con-				
		nector M8x1				

#### Ordering data – Solenoid valve VSVA with cover cap for MO, non-detenting (H)

idening data – Solenoi	1	SVA with cover cap for MO, non-detenting (H)	1	1		1-	
	Termi-	Valve function	Valve code	Width	Part no.	Туре	
	nal code						
olenoid valves, 24 V D							
	VC	2x 2/2-way valve, single solenoid,	T22C	18 mm	8033475	VSVA-B-T22C-AZH-A2-1T1L	
		normally closed,	1220		000001110		
Ϋ́]		pneumatic spring return					
	W	2x 2/2-way valve, single solenoid,	T22CV	18 mm	8033476	VSVA-B-T22CV-AZH-A2-1T1L	
		normally closed,					
	]	pneumatic spring return,					
		vacuum operation possible at 3 and 5					
	N	2x 3/2-way valve, single solenoid,	T32U	18 mm	8033464	VSVA-B-T32U-AZH-A2-1T1L	
		normally open					
	К	2x 3/2-way valve, single solenoid,	T32C	18 mm	8033462	VSVA-B-T32C-AZH-A2-1T1L	
		normally closed	TOOL	10			
	Н	2x 3/2-way valve, single solenoid,	T32H	18 mm	8033466	VSVA-B-T32H-AZH-A2-1T1L	
	Р	1x normally open, 1x normally closed         2x 3/2-way valve, single solenoid,	T32F	10	0022445		
	P	reverse operation,	1526	18 mm	8033465	VSVA-B-T32F-AZH-A2-1T1L	
		normally open					
	Q	2x 3/2-way valve, single solenoid,	T32N	18 mm	8033463	VSVA-B-T32N-AZH-A2-1T1L	
		reverse operation,	1521	10 1111	0000000		
		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					
	М	5/2-way valve, single solenoid,	M52-A	18 mm	8033470	VSVA-B-M52-AZH-A2-1T1L	
		pneumatic spring return					
	0	5/2-way valve, single solenoid,	M52-M	18 mm	8033471	VSVA-B-M52-MZH-A2-1T1L	
		reset via mechanical spring					
	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	DEDU	10	0022/72		
	В	5/3-way solenoid valve,	P53U	18 mm	8033472	VSVA-B-P53U-ZH-A2-1T1L	
	G	Mid-position pressurised 5/3-way solenoid valve,	P53C	18 mm	8033474	VSVA-B-P53C-ZH-A2-1T1L	
	G	mid-position closed	FSSC	10 11111	8055474	V3VA-D-P33C-2R-A2-111L	
	E	5/3-way solenoid valve,	P53E	18 mm	8033473	VSVA-B-P53E-ZH-A2-1T1L	
		Mid-position exhausted		10 11111	0000470		
	SA	5/3-way solenoid valve,	P53ED	18 mm	8039182	VSVA-B-P53ED-ZH-A2-1T1L	
		mid-position exhausted, switching position 14 detenting, me-		10			
		chanical 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, me-					
		chanical 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,					
	CD	reset via mechanical spring	DEODD	10	00/01/1		
	SD	5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to	P53BD	18 mm	8040111	VSVA-B-P53BD-ZH-A2-1T1L	
		4, switching position 14 detenting,					
		same function in both switching positions: pressurised from 1 to					
		2 and exhausted from 4 to 5,					
		reset via mechanical spring					
<b>A</b>	SS	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	18 mm	8033477	VSVA-B-M52-MZH-A2-1T1L-APX-0.5	
		tive sensor with PNP output with 0.5 m connecting cable and					
		4-pin sensor push-in connector M12x1					
JK & U	SO	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	18 mm	8033478	VSVA-B-M52-MZH-A2-1T1L-APP	
	1	tive sensor with PNP output and 3-pin sensor push-in connector					
	4	M8x1					

Ordering data – Solenoid valve VSVA with cover cap for MO, concealed

Item         Work         Width         Part no.         Type           Solenoid values, 24 V DC         22.27 my value, single solenoid, mornally (closed, mord)), mornally (closed, mornally (closed, mornally (closed, mornal	Time		
ode         Non-         Solanoid values, 24 VUC           Solanoid values, 24 VUC         X2 22-way value, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5         T22C         18 mm         8033493         VSVA-B122CVA2A2           W         2x.2/2-way value, single solenoid, mormally closed, pneumatic spring return, vacuum operation possible at 3 and 5         T22C         18 mm         8033494         VSVA-B132VAZA2.           N         2x.3/2-way value, single solenoid, mormally closed         T32U         18 mm         8033483         VSVA-B132VAZA2.           N         2x.3/2-way value, single solenoid, mormally closed         T32V         18 mm         8033483         VSVA-B132VAZA2.           N         2x.3/2-way value, single solenoid, mormally closed         T32V         18 mm         8033483         VSVA-B132VAZA2.           N         2x.3/2-way value, single solenoid, reverse operation, normally closed         T32V         18 mm         8033483         VSVA-B132V-AZA2.           N         2x.3/2-way value, single solenoid, reverse operation, normally closed         T32V         18 mm         8033483         VSVA-B132V-AZA2.           N         5/2-way value, single solenoid, reverse operation, normally closed         T32V         18 mm         8033483         VSVA-B132V-AZA2.           N         5/2-way value, dubule sol			
Solenoid valves, 24 V DC         2x 2/2-vary valve, single solenoid, promally closed, promally closed, promall			
VC         22.12/2-way valve, single solenoid, pneumatic spring return         T22C         18 mm         8033493         VSVA-B122C-A2A21           VV         27.21/2-way valve, single solenoid, pneumatic spring return         722         18 mm         8033494         VSVA-B122C-VAZA2           VV         arx.21/2-way valve, single solenoid, normally closed, pneumatic spring return         722         18 mm         8033494         VSVA-B132U-VAZA2           N         2x.31/2-way valve, single solenoid, normally closed         732U         18 mm         8033482         VSVA-B132U-VAZA2           N         2x.31/2-way valve, single solenoid, normally closed         732/E         18 mm         8033483         VSVA-B132U-VAZA2           P         2x.31/2-way valve, single solenoid, normally closed         732/E         18 mm         8033483         VSVA-B132U-VAZA2           P         2x.31/2-way valve, single solenoid, normally closed         732W         18 mm         8033483         VSVA-B132W-AZA2           R         2x.31/2-way valve, single solenoid, normally closed         732W         18 mm         8033483         VSVA-B132W-AZA2           R         2x.31/2-way valve, single solenoid, normally closed         732W         18 mm         8033484         VSVA-B132W-AZA2           R         2x.31/2-way valve, single solenoid, normally closed			
VC         22.2/2.wwy.vbws.single solenoid, pnuunatic spring return         T22C         18 mm         8033493         VSVA-B122C-A2A21           VV         22.2/2.wwy.vbws.single solenoid, pnuunatic spring return vacuum operation possible at 3 and 5         T22C         18 mm         8033494         VSVA-B122C-VAZA2           N         22.2/2.wwy.vbws.single solenoid, pnuunatic spring return vacuum operation possible at 3 and 5         T32U         18 mm         8033482         VSVA-B132L-VAZA2           N         23.2/2.wwy.vbws.single solenoid, normally const.         T32U         18 mm         8033483         VSVA-B132L-VAZA2           N         23.2/2.wwy.vbws.single solenoid, normally const.         T32L         18 mm         8033483         VSVA-B132L-VAZA2           N         23.2/2.wwy.vbws.single solenoid, normally const.         T32F         18 mm         8033483         VSVA-B132L-VAZA2           N         23.2/2.wwy.vbws.single solenoid, reverse operation, normally const.         T32W         18 mm         8033483         VSVA-B132L-VAZA2           N         2/2.wwy.vbws.single solenoid, reverse operation, normally const.         T32W         18 mm         8033483         VSVA-B132L-VAZA2           N/2.wwy.single solenoid, reverse operation, normally const.         N/2.Www.single solenoid, reverse operation, normally const.         18 mm         8033484         VSVA-B132L-VAZA2			
pneumatic spring return         T22CV         18 mm         8033494         VSVAB-T22CVAZA2           VV         22.72 way valve, single solenoid, normally closed, pneumatic spring return, vacuum operation possible at 3 and 5         122U         18 mm         8033494         VSVAB-T32CVAZA2           N         22.312 way valve, single solenoid, normally closed         122U         18 mm         8033484         VSVAB-T32C-AZA2           N         22.312 way valve, single solenoid, normally closed         122L         18 mm         8033484         VSVAB-T32C-AZA2           N         23.312 way valve, single solenoid, normally closed         132L         18 mm         8033484         VSVAB-T32C-AZA2-1           P         23.312 way valve, single solenoid, normally closed         132L         18 mm         8033481         VSVAB-T32L-AZA2-1           Q         23.312 way valve, single solenoid, normally closed         132L         18 mm         8033483         VSVAB-T32L-AZA2-1           N         10.25 Way valve, single solenoid, normally closed         132L         18 mm         8033483         VSVAB-T32L-AZA2-1           Q         23.312 way valve, single solenoid, normally closed         M52-A         18 mm         8033483         VSVAB-B32L-AZA2-1           M         5/2 way valve, double solenoid, mormaly closed         M52-A         18 mm <td>-1T1L</td>	-1T1L		
presunatic spring return         T22CV         18 mm         8033494         VSVAB-T22CVAZA2           W         22.22 way volve, single solenoid, normally dosed, portunatic spring return, vacuum operation possible at 3 and 5         T22CV         18 mm         8033494         VSVAB-T32CVAZA2           N         25.372 way volve, single solenoid, normally dosed         T32U         18 mm         8033484         VSVAB-T32C-AZA2           H         25.372 way volve, single solenoid, normally dosed         T32L         18 mm         8033484         VSVAB-T32C-AZA2           P         25.372 way volve, single solenoid, tx normally dosed         T32L         18 mm         8033484         VSVAB-T32C-AZA2-1           P         25.372 way volve, single solenoid, tx normally dosed         T32L         18 mm         8033481         VSVAB-T32C-AZA2-1           Q         25.372 way volve, single solenoid, treverse operation, normally dosed         T32L         18 mm         8033483         VSVAB-T32C-AZA2-1           Q         25.372 way volve, single solenoid, treverse operation, normally closed         T32W         18 mm         8033483         VSVAB-B32C-AZA2-1           Q         27.372 way volve, single solenoid, tw normally closed         M52 A         18 mm         8033484         VSVAB-B32C-AZA2-1           Q         572 way volve, single solenoid, twerese operation			
W         2.2.22 wywhe, single solenoid, normally closed, preumatics spring feturn, vacuum operation possible at 3 and 5         172.U         18 mm         8033494         VS/A-B-T22CV-A2A2           N         2x.32/waywhe, single solenoid, normally open         172.U         18 mm         8033482         VS/A-B-T32C-A2A2-1           K         7x.32/waywhe, single solenoid, normally open         172.U         18 mm         8033483         VS/A-B-T32C-A2A2-1           H         2x.32/waywhe, single solenoid, normally open, 1x normally closed         172.F         18 mm         8033481         VS/A-B-T32C-A2A2-1           P         2x.32/waywhe, single solenoid, normally open, 1x normally closed         172.F         18 mm         8033481         VS/A-B-T32C-A2A2-1           P         2x.32/waywhe, single solenoid, reverse operation, normally open, 1x normally closed         172.W         18 mm         8033481         VS/A-B-T32C-A2A2-1           M         5/2 wywhe, single solenoid, reverse operation, normally closed         172.W         18 mm         8033488         VS/A-B-M52-A2A2-1           M         5/2 wywahe, single solenoid, reverse operation, normally closed         152.A         18 mm         8033488         VS/A-B-M52-A2A2-1           D         5/2 wywahe, single solenoid, preservia mechanical spring reverse operation, normally closed         152.A         18 mm         8033488			
normaly coded, preumatic spring refurn, vacuum operation possible al 3 and 5         732/L         18 mm         8033462         VSVAB-F132U-AZA22           K         2x 3/2-way valve, single solenoid, normally code         132/L         18 mm         8033462         VSVAB-F132U-AZA22           H         2x 3/2-way valve, single solenoid, normally code         132/L         18 mm         8033463         VSVAB-F132U-AZA22           H         2x 3/2-way valve, single solenoid, normally copen, 1x normally coded         132/L         18 mm         8033463         VSVAB-F132U-AZA22           Q         2x 3/2-way valve, single solenoid, reverse operation, normally copen         132/L         18 mm         8033463         VSVAB-F132W-AZA22           Q         2x 3/2-way valve, single solenoid, reverse operation, normally copen         132/L         18 mm         8033468         VSVAB-F132W-AZA22           Q         2x 3/2-way valve, single solenoid, reverse operation, normally copen         152/L         18 mm         8033468         VSVAB-H32W-AZA22           Q         2x 3/2-way valve, single solenoid, preumatic spring return         152/L         18 mm         8033468         VSVAB-H32W-AZA22           Q         5/2-way valve, single solenoid, preumatic spring return         152/L         18 mm         8033468         VSVAB-H32W-AZA22           Q         5/2-way val	2-1T1I		
preumatic spring return, vacuum operation possible al 3 and 5         122U         18 mm         8033482         VSVA.B-132L-AZ.A2: VSVA.B-132L-AZ.A2: 18 mm           K         2x.3/2-way valve, single solenoid, normally open         12/C         18 mm         8033480         VSVA.B-132L-AZ.A2: 18 mm           H         2x.3/2-way valve, single solenoid, normally closed         12/L         18 mm         8033483         VSVA.B-132L-AZ.A2: 18 mm           P         2x.3/2-way valve, single solenoid, normally open         13/L         18 mm         8033483         VSVA.B-132L-AZ.A2: 18 mm           Q         2x.3/2-way valve, single solenoid, normally open         13/L         18 mm         8033485         VSVA.B-132L-AZ.A2: 18 mm         8033485         VSVA.B-132L-AZ.A2: 18 mm         VSVA.B-132L-AZ.A2: 18 mm         8033485         VSVA.B-132L-AZ.A2: 18 mm         VSVA.B-132L-AZ.	2 1112		
vacuum operation possible #3 and 5         res           N         2x 3/2 wayvalve, single solenoid, normally open         172U         18 mm         8033462         VSVA.B-T32U.AZ.A2: 18 mm         18 mm         8033462         VSVA.B-T32U.AZ.A2: 18 mm         18 mm         8033463         VSVA.B-T32U.AZ.A2: 18 mm         18 mm         8033465         VSVA.B-T32U.AZ.A2: 17 mortally open         18 mm         8033465         VSVA.B-T32U.AZ.A2: 18 mm         18 mm         8033466         VSVA.B-T32U.AZ.A2: 18 mm         18 mm         8033466         VSVA.B-T32U.AZ.A2: 18 mm         18 mm         8033466         VSVA.B-T32U.AZ.A2: 17 mortally open, 1x normally closed         15 mm         8033466         VSVA.B-T32U.AZ.A2: 17 mortally open, 1x normally closed         15 mm         8033466         VSVA.B-T32U.AZ.A2: 18 mm         8033466         VSVA.B-M52.AZ.A2: 18 mm         8033466         VSVA.B-M52.AZ.A2: 17 mortally open, 1x normally closed         15 mm         8033467         VSVA.B-D52.			
N2x 3/2.wy valve, single solenoid, normally openT32U18 mm8033462VSVA-B-T32U-AZA2: VSVA-B-T32U-AZA2: NSV			
normally open         result         result <thresult< th=""> <thre< td=""><td>4741</td></thre<></thresult<>	4741		
K         2x 3/2 way value, single solenoid, normally closed         T32C         18 mm         8033460         VSVA-B-T32C-A2-2.1           H         X 3/2 way value, single solenoid, 1x normally open, 1x normally closed         T32H         18 mm         8033463         VSVA-B-T32C-A2-1           P         2x 3/2 way value, single solenoid, reverse operation, normally open         T32H         18 mm         8033463         VSVA-B-T32C-A2-1           Q         2x 3/2 way value, single solenoid, reverse operation, normally closed         T32W         18 mm         8033461         VSVA-B-T32W-A2-A2-1           R         2x 3/2 way value, single solenoid, reverse operation, 1x normally closed         T32W         18 mm         8033468         VSVA-B-T32W-A2-A2-2           M         5/2 way value, single solenoid, reverse operation, 1x normally closed         M52-A         18 mm         8033469         VSVA-B-M52-A2-A2-1           0         5/2 way value, single solenoid, motherautic spring returin         M52-M         18 mm         8033469         VSVA-B-M52-A2-A2-1           1         5/2 way value, double solenoid, with dominant signal         B52         18 mm         8033469         VSVA-B-B52-ZA2-17           2         5/2 way value, double solenoid, with doposition reture         P53U         18 mm         8033490         VSVA-B-B52-ZA2-17           0	-111L		
Inomally closedInomally closedT32H18 mm8033484VSVA-B-T32H-ZA2-2H2x 3/2 way valve, single solenoid, reverse operation, normally openT32F18 mm8033483VSVA-B-T32H-ZA2-2Q2x 3/2 way valve, single solenoid, reverse operation, normally closedT32H18 mm8033481VSVA-B-T32H-ZA2-2Q2x 3/2 way valve, single solenoid, reverse operation, normally closedT32W18 mm8033485VSVA-B-T32H-ZA2-2R2x 3/2 way valve, single solenoid, reverse operation, 1x normally obsetT32W18 mm8033485VSVA-B-T32H-ZA2-2M5/2 way valve, single solenoid, reverse operation, 1x normally obsetM52-A18 mm8033486VSVA-B-M52-ZA2-42-O5/2 way valve, single solenoid, reverse operation, 1x normally obsetM52-M18 mm8033486VSVA-B-M52-ZA2-42-O5/2 way valve, double solenoidB5218 mm8033486VSVA-B-M52-ZA2-17D5/2 way valve, double solenoid, with dominant signalD5218 mm8033480VSVA-B-D52-ZA2-17D5/2 way solenoid valve, Mid-position persurisedP53C18 mm8033490VSVA-B-D52-ZA2-17E5/3 way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53C18 mm8033491VSVA-B-D53E-ZA2-17SA5/3 way solenoid valve, mid-position taketed, switching position 12 detenting, mechani- cal spring returnP53LD18 mm8039183VSVA-B-D53E-ZA2-17SB <td></td>			
H       2x 3/2-wayvalve, single solenoid, 1x normally open, 1x normally closed       T32F       18 mm       8033484       VSVA-B-T32H-AZA2: 18 mm         P       2x 3/2-wayvalve, single solenoid, reverse operation, normally copen       T32F       18 mm       8033481       VSVA-B-T32H-AZA2: 18 mm         Q       2x 3/2-wayvalve, single solenoid, reverse operation, normally closed       T32N       18 mm       8033481       VSVA-B-T32H-AZA2: 20 VSVA-B-T32W-AZA2: 20 VSVA-B-T32W-AZA2: 20 VSVA-B-T32W-AZA2: 20 VSVA-B-T32W-AZA2: 20 VSVA-B-T32W-AZA2: 20 VSVA-B-T32W-AZA2: 20 Particle Solenoid, pneumatic spring       T32N       18 mm       8033485       VSVA-B-T32W-AZA2: 20 VSVA-B-M52-M2ZA2: 20 Particle Solenoid, pneumatic spring         0       5/2-way valve, single solenoid, pneumatic spring       M52-M       18 mm       8033486       VSVA-B-M52-M2ZA2: 20 VSVA-B-M52-M2ZA2: 20 Particle Solenoid         1       5/2-way valve, double solenoid       B52       18 mm       8033486       VSVA-B-F53L-ZA2: 20 PS 20 P	-111L		
Ix normally open, Ix normally closedImage: closed open state op			
P       2x 3/2 way valve, single solenoid, reverse operation, normally open       T32F       18 mm       8033483       VSVA-B-T32F-A2-A2-1         Q       2x 3/2 way valve, single solenoid, reverse operation, normally closed       T32N       18 mm       8033481       VSVA-B-T32N-A2-A2-1         R       2x 3/2 way valve, single solenoid, reverse operation, 1x normally closed       T32W       18 mm       8033485       VSVA-B-T32W-A2-A2-1         M       5/2-way valve, single solenoid, 1x normally closed       M52-A       18 mm       8033488       VSVA-B-T32W-A2-A2-1         0       5/2-way valve, single solenoid, reset via mechanical spring return       M52-A       18 mm       8033488       VSVA-B-M52-A2-A2-1         0       5/2-way valve, double solenoid       M52-A       18 mm       8033486       VSVA-B-B52-A2-A2-1         0       5/2-way valve, double solenoid       B52       18 mm       8033486       VSVA-B-F32-A2-1         0       5/2-way valve, double solenoid       D52       18 mm       8033486       VSVA-B-F32-A2-1         1       5/2-way valve, double solenoid       P53U       18 mm       8033487       VSVA-B-F32-A2-1         0       5/2-way valve, double solenoid       P53C       18 mm       8033480       VSVA-B-F32-A2-1         1       Mid-position resurised	1T1L		
reverse operation, normally openT32N18 mm8033481VSVA-B-T32N-A2-A2- VSVA-B-T32N-A2-A2-Q2, X3/2-way valve, single solenoid, reverse operation, normally closedT32W18 mm8033485VSVA-B-T32N-A2-A2-R2, X3/2-way valve, single solenoid, pneumatic spring returnM52-A18 mm8033488VSVA-B-M52-A2-A2-O5/2-way valve, single solenoid, pneumatic spring returnM52-A18 mm8033489VSVA-B-M52-M2-A2-D5/2-way valve, single solenoid, pneumatic spring returnM52-M18 mm8033486VSVA-B-M52-M2-A2-D5/2-way valve, double solenoid, with dominant signalD5218 mm8033486VSVA-B-M52-M2-A2-11D5/2-way valve, double solenoid, with dominant signalD5218 mm8033490VSVA-B-P53U-ZA2-11B5/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-P53U-ZA2-12G5/3-way solenoid valve, Mid-position closedP53E18 mm8033491VSVA-B-P53E-ZA2-11E5/3-way solenoid valve, Mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-ZA2-12SB5/3-way solenoid valve, mid-position 14 detenting, semetionP53ED18 mm8039186VSVA-B-P53ED-ZA2-12SB5/3-way solenoid valve, mid-position 12 detenting, semetionP53ED18 mm8039186VSVA-B-P53BD-ZA2-12SB5/3-way solenoid valve, mid-position 14 detenting, semetionP53B			
normally opennormally constraint132N18 mm8033481VSVA-B-T32N-A2-2:Q2x 3/2-way valve, single solenoid, normally closedT32N18 mm8033481VSVA-B-T32N-A2-2:R2x 3/2-way valve, single solenoid, normally open, 1x normally closedM52-A18 mm8033488VSVA-B-T32W-A2-A2-1:M5/2-way valve, single solenoid, neumatic spring returnM52-A18 mm8033488VSVA-B-M52-A2-A2-1:O5/2-way valve, single solenoid, reset via mechanical springM52-M18 mm8033486VSVA-B-M52-A2-A2-1:D5/2-way valve, double solenoidB5218 mm8033486VSVA-B-M52-A2-A2-1:D5/2-way valve, double solenoidD5218 mm8033487VSVA-B-D52-Z-A2-1T:D5/2-way valve, double solenoidD5218 mm8033480VSVA-B-P53U-Z-A2-1T:D5/2-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-P53U-Z-A2-1T:D5/3-way solenoid valve, Mid-position chausted, synthenid valve, Mid-position chaustedP53C18 mm8033492VSVA-B-P53C-Z-A2-1T:SA5/3-way solenoid valve, mid-position chausted, synthing position 14 detenting, mechani- cal spring returnP53E18 mm8033492VSVA-B-P53ED-Z-A2-12:SE5/3-way solenoid valve, mid-position xausted, switching position 12 detenting, mechani- cal spring returnP53E18 mm8039183VSVA-B-P53ED-Z-A2-12:SE5/3-way solenoid valve, mid-position 14 detenting, same function in bo	-1T1L		
Q2x 3/2-way valve, single solenoid, reverse operation, normally closedT32N18 mm8033481VSVA-B-T32N-A2-A2- valve, single solenoid, reverse operation, 1x normally open, 1x normally closedT32W18 mm8033485VSVA-B-T32W-A2-A2- valve, solenoid, pneumatic spring returnO5/2-way valve, single solenoid, pneumatic spring returnM52-A18 mm8033486VSVA-B-M52-A2-A2-1 VSVA-B-M52-A2-A2-1D5/2-way valve, single solenoid, reset via mechanical spring reset via mechanical springM52-M18 mm8033486VSVA-B-M52-A2-A2-1 VSVA-B-M52-A2-1T:D5/2-way valve, double solenoidB5218 mm8033487VSVA-B-M52-A2-2-1T:D5/2-way valve, double solenoid, with dominant signalD5218 mm8033480VSVA-B-P532-ZA2-1T:D5/2-way valve, double solenoid, Mid-position ressurisedD5218 mm8033490VSVA-B-P532-ZA2-1T:D5/3-way solenoid valve, Mid-position ressurisedP53U18 mm8033490VSVA-B-P53C-ZA2-1T:G5/3-way solenoid valve, mid-position closedP53E18 mm8033491VSVA-B-P53E-ZA2-1E5/3-way solenoid valve, mid-position closedP53E18 mm8033183VSVA-B-P53E-ZA2-1SA5/3-way solenoid valve, mid-position closedP53E18 mm8039192VSVA-B-P53ED-ZA2-1SA5/3-way solenoid valve, mid-position 12 detenting, mechani- cal spring returnP53ED18 mm8039186VSVA-B-P53ED-ZA2-1SB5/3-way solenoid val			
reverse operation, normally closed132W18 mm8033485VSVA-B-T32W-AZ-A2- VSVA-B-T32W-AZ-A2- VSVA-B-T32W-AZ-A2- Texerse operation, 1x normally open, 1x normally closed132 mm8033485VSVA-B-T32W-AZ-A2- VSVA-B-T32W-AZ-A2- Texerse vanechanical spring return05/2-way valve, single solenoid, pneumatic spring returnM52-M18 mm8033489VSVA-B-M52-AZ-A2-1 VSVA-B-M52-AZ-A2-105/2-way valve, single solenoid, pneumatic spring returnM52-M18 mm8033480VSVA-B-M52-AZ-A2-1 VSVA-B-M52-AZ-A2-1T05/2-way valve, double solenoidB5218 mm8033486VSVA-B-D52-Z-A2-1T VSVA-B-D52-Z-A2-1T05/2-way valve, double solenoid, with dominant signalD5218 mm8033480VSVA-B-D52-Z-A2-1T VSVA-B-D52-Z-A2-1T With-position resurtised15/3-way solenoid valve, mid-position resurtisedP53U18 mm8033490VSVA-B-P53U-ZA2-1 VSVA-B-P53ED-Z-A2-1T Mid-position exhausted25/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53ED-Z-A2-11 Mid-position exhausted3S5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2- VSVA-B-P53ED-Z-A2-3S5/3-way solenoid valve, mid-position 14 detenting, same function in both switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039186VSVA-B-P53ED-Z-A2- VSVA-B-P53ED-Z-A2-3S5/3-way solenoid valve, mid-posi			
reverse operation, normally closed132W18 mm8033485VSVA-B-T32W-AZ-A2- VSVA-B-T32W-AZ-A2- VSVA-B-T32W-AZ-A2- Texerse operation, 1x normally open, 1x normally closed132 mm8033485VSVA-B-T32W-AZ-A2- VSVA-B-T32W-AZ-A2- Texerse vanechanical spring return05/2-way valve, single solenoid, pneumatic spring returnM52-M18 mm8033489VSVA-B-M52-AZ-A2-1 VSVA-B-M52-AZ-A2-105/2-way valve, single solenoid, pneumatic spring returnM52-M18 mm8033480VSVA-B-M52-AZ-A2-1 VSVA-B-M52-AZ-A2-1T05/2-way valve, double solenoidB5218 mm8033486VSVA-B-D52-Z-A2-1T VSVA-B-D52-Z-A2-1T05/2-way valve, double solenoid, with dominant signalD5218 mm8033480VSVA-B-D52-Z-A2-1T VSVA-B-D52-Z-A2-1T With-position resurtised15/3-way solenoid valve, mid-position resurtisedP53U18 mm8033490VSVA-B-P53U-ZA2-1 VSVA-B-P53ED-Z-A2-1T Mid-position exhausted25/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53ED-Z-A2-11 Mid-position exhausted3S5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2- VSVA-B-P53ED-Z-A2-3S5/3-way solenoid valve, mid-position 14 detenting, same function in both switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039186VSVA-B-P53ED-Z-A2- VSVA-B-P53ED-Z-A2-3S5/3-way solenoid valve, mid-posi	-1T1L		
normally closednormally close			
R       2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed       T32W       18 mm       8033485       VSVA-B-T32W-AZ-A2- 18 mm         M       5/2-way valve, single solenoid, pneumatic spring return       M52-A       18 mm       8033489       VSVA-B-M52-AZ-A2-1         O       5/2-way valve, single solenoid, reset via mechanical spring       M52-M       18 mm       8033489       VSVA-B-M52-AZ-A2-1         J       5/2-way valve, double solenoid       B52       18 mm       8033486       VSVA-B-M52-AZ-2-1T:         D       5/2-way valve, double solenoid, with dominant signal       D52       18 mm       8033480       VSVA-B-D52-Z-A2-1T:         B       5/3-way solenoid valve, mid-position pressurised       P53U       18 mm       8033490       VSVA-B-P53U-ZA2-1T:         G       5/3-way solenoid valve, mid-position exhausted       P53C       18 mm       8033491       VSVA-B-P53U-ZA2-1T:         SA       5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring return       P53ED       18 mm       8033491       VSVA-B-P53ED-Z-A2-11         SA       5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring return       P53ED       18 mm       8033491       VSVA-B-P53ED-Z-A2-12         SE       5/3-way solenoid valve, mid-positio			
reverse operation, 1x normally open, 1x normally closedM52-A18 mm8033488VSVA-B-M52-AZ-A2-1M5/2-way valve, single solenoid, pneumatic spring returnM52-M18 mm8033488VSVA-B-M52-AZ-A2-105/2-way valve, single solenoid, reset via mechanical springM52-M18 mm8033488VSVA-B-M52-AZ-A2-1TD5/2-way valve, double solenoidB5218 mm8033487VSVA-B-D52-ZA2-1TD5/2-way valve, double solenoidD5218 mm8033487VSVA-B-D52-ZA2-1TD5/2-way valve, double solenoid, with dominant signalD5218 mm8033487VSVA-B-D52-ZA2-1TB5/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033492VSVA-B-D53U-ZA2-1G5/3-way solenoid valve, Mid-position cksedP53E18 mm8033492VSVA-B-P53U-ZA2-1E5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53E18 mm8033491VSVA-B-P53E-ZA2-1SA5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039182VSVA-B-P53EP-Z-A2-1SB5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: pressurised from 1 to 2, switching position 14 detenting, same function in both switching positions: pressurised from 1 to 2, switching position 14 detenting, same function in both switching position: pressurised from 1 to 4, and exhausted from 2 to 3, reset via mechanical springP53BD1	2-1T1I		
1x normally open, 1x normally closedMSVSVA-B-MS2-AZ-24M5/2-way vake, single solenoid, pneumatic spring returnMS2-A18 mm8033488VSVA-B-MS2-AZ-2405/2-way vake, single solenoid, reset via mechanical springMS2-M18 mm8033480VSVA-B-MS2-AZ-A2-115/2-way vake, double solenoidB5218 mm8033480VSVA-B-B52-Z-A2-1T: B033488VSVA-B-B52-Z-A2-1T: B033488D5/2-way vake, double solenoid, with dominant signalD5218 mm8033480VSVA-B-D52-Z-A2-1T: B033490B5/3-way solenoid valve, mid-position pressurisedP53U18 mm8033490VSVA-B-D52-Z-A2-1T: B033490G5/3-way solenoid valve, mid-position cknaustedP53C18 mm8033491VSVA-B-D53E-Z-A2-1T: B033491SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53E18 mm8033491VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039182VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to 2, switching position 12 detenting, same function in both switching positions: pressurised from 1 to 2, switching position 14 detenting, same function in both switching position: pressurised from 1 to 4, and exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-po	-1111		
M5/2-way valve, single solenoid, pneumatic spring returnM52-A18 mm8033488VSVA-B-M52-AZ-A2-105/2-way valve, single solenoid, reset via mechanical springM52-M18 mm8033489VSVA-B-M52-MZ-A2-115/2-way valve, double solenoidB5218 mm8033486VSVA-B-B52-Z-A2-1T05/2-way valve, double solenoid, with dominant signalD5218 mm8033487VSVA-B-D52-Z-A2-1T05/2-way valve, double solenoid, with dominant signalD5218 mm8033490VSVA-B-D52-Z-A2-1T1Mid-position pressurisedP53U18 mm8033490VSVA-B-P53U-Z-A2-165/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53U-Z-A2-185/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-115A5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53E18 mm8033492VSVA-B-P53ED-Z-A2-115B5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-115B5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: pressurised from 1 to 2, switching position 14 detenting, same function in both switching positions: 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, trapesurised from 1 to 4, switching p			
pneumatic spring returnModelModel05/2-way valve, single solenoid, reset via mechanical springM52-M18 mm8033486VSVA-B-M52-M2-A2- VSVA-B-M52-M2-A2-1T15/2-way valve, double solenoidB5218 mm8033486VSVA-B-B52-Z-A2-1T05/2-way valve, double solenoid, with dominant signalD5218 mm8033487VSVA-B-D52-Z-A2-1T05/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-P53U-Z-A2-165/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53U-Z-A2-11Mid-position closedP53E18 mm8033491VSVA-B-P53E-Z-A2-115A5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53E18 mm8033491VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-11SB5/3-way solenoid valve, mid-position 14 detenting, same function in both switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039186VSVA-B-P53AD-Z-A2-11SD5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: pressurised from 1 to 2, switching position 14 detenting, same function in both switching positions: pressurised from 1 to 4, switching position 12 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSWA-B-P	4741		
05/2-way valve, single solenoid, reset via mechanical springM52-M18 mm8033489VSVA-B-M52-M2-A2- valve, double solenoid15/2-way valve, double solenoid, with dominant signalB5218 mm8033486VSVA-B-B52-Z-A2-1T:D5/2-way valve, double solenoid, with dominant signalD5218 mm8033487VSVA-B-D52-Z-A2-1T:B5/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-D52-Z-A2-1T:G5/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53U-Z-A2-1E5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53E18 mm8033491VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: pressurised from 1 to 2, switching position 14 detenting, same function in 4 to 5, 1x pressurised from 1 to 4, and exhausted from 2 to 3, reset via mechanical springP53BD18 mm8039180VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14	-111L		
reset via mechanical springooooJ5/2-way valve, double solenoidB5218 mm8033486VSVA-B-B52-Z-A2-1T:D5/2-way valve, double solenoid, with dominant signalD5218 mm8033487VSVA-B-D52-Z-A2-1T:B5/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-P53U-Z-A2-1G5/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53U-Z-A2-11E5/3-way solenoid valve, mid-position closedP53E18 mm8033491VSVA-B-P53E-Z-A2-11E5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039182VSVA-B-P53ED-Z-A2-11SB5/3-way solenoid valve, mid-position exhausted from 4 to 5, 1x pressurised from 1 to 2, switching position 14 detenting, same function in bott switching positions: pressurised from 1 to 2, switching position 14 detenting, same function in bott switching positions: pressurised from 1 to 4, and exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting, switching position 14 detenting, <b< td=""><td></td></b<>			
J5/2-way valve, double solenoidB5218 mm8033486VSVA-B-B52-Z-A2-1T.D5/2-way valve, double solenoid, with dominant signalD5218 mm8033487VSVA-B-D52-Z-A2-1T.B5/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-D52-Z-A2-1G5/3-way solenoid valve, mid-position closedP53C18 mm8033490VSVA-B-P53U-Z-A2-1E5/3-way solenoid valve, mid-position exhaustedP53C18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53E18 mm8039183VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039182VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-position 14 etenting, same function in both switching positions: pressurised from 1 to 4, and exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2- <td>-1T1L</td>	-1T1L		
D5/2-way valve, double solenoid, with dominant signalD5218 mm8033487VSVA-B-D52-Z-A2-1T:B5/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-P53U-Z-A2-1G5/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53U-Z-A2-1E5/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039192VSVA-B-P53ED-Z-A2-12SB5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: 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, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-			
with dominant signalwith dominant signalP53U18 mm8033490VSVA-B-P53U-Z-A2-11B5/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53C-Z-A2-11G5/3-way solenoid valve, mid-position closedP53C18 mm8033491VSVA-B-P53E-Z-A2-11E5/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhaustedP53E18 mm8039183VSVA-B-P53ED-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039192VSVA-B-P53ED-Z-A2-11SB5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53BD-Z-A2-11SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting, same function in both switching positions: pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-11SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-11 <td>T1L</td>	T1L		
with dominant signalwith dominant signalP53U18 mm8033490VSVA-B-P53U-Z-A2-11B5/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53C-Z-A2-11E5/3-way solenoid valve, mid-position closedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhaustedP53E18 mm8039183VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039192VSVA-B-P53ED-Z-A2-11SB5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53BD-Z-A2-11SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting, same function in both switching positions: pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-11SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-11 </td <td></td>			
B\$/3-way solenoid valve, Mid-position pressurisedP53U18 mm8033490VSVA-B-P53U-Z-A2-1G5/3-way solenoid valve, mid-position closedP53C18 mm8033491VSVA-B-P53C-Z-A2-11E5/3-way solenoid valve, Mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-1SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-1SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039192VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position 12 detenting, same function in both switching positions: 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, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-1SD5/3-way solenoid valve, mid-position 14 etenting, switching position 14 detenting, same function in both switching positions: pressurised from 1 to 4, and exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-1	T1L		
Mid-position pressurisedMid-position closedP53C18 mm8033492VSVA-B-P53C-Z-A2-11G5/3-way solenoid valve, mid-position chaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11E5/3-way solenoid valve, mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53BD-Z-A2-11SD5/3-way solenoid valve, mid-position 14 edtenting, switching position 14 detenting, same function in both switching positions: pressurised from 1 to 4, and exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-			
Mid-position pressurisedMid-position closedP53C18 mm8033492VSVA-B-P53C-Z-A2-11G5/3-way solenoid valve, mid-position chaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11E5/3-way solenoid valve, Mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-11SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53ED-Z-A2-11SB5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53BD-Z-A2-11SD5/3-way solenoid valve, mid-position 14 etenting, switching position 14 detenting, same function in both switching positions: pressurised from 1 to 4, switching position 14 detenting, same function 1 x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-11	1T1L		
G5/3-way solenoid valve, mid-position closedP53C18 mm8033492VSVA-B-P53C-Z-A2-11E5/3-way solenoid valve, Mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-1SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53ED18 mm8039192VSVA-B-P53ED-Z-A2-1SB5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: 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, 1x pressurised from 1 to 4, switching position 12 adtenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-1SD5/3-way solenoid valve, mid-position 14 detenting, same function in both switching positions: pressurised from 1 to 4, switching position 14 detenting, same function 14 detenting, same function 14 detenting, same function 1 to 2, switching position 14 detenting, same function 1 to 2, switching position 14 detenting, same function 1 to 4 and exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting, switching position 14 detenting,P53BD <t< td=""><td></td></t<>			
mid-position closedmid-position closedVSVA-B-P53E-Z-A2-11E5/3-way solenoid valve, Mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2-3SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53ED-Z-A2-3SB5/3-way solenoid valve, mid-position 14 detenting, same function 14 detenting, same function in both switching positions: 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, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-3SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-3	1T11		
E5/3-way solenoid valve, Mid-position exhaustedP53E18 mm8033491VSVA-B-P53E-Z-A2-11SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53E18 mm8039183VSVA-B-P53ED-Z-A2-1SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53ED-Z-A2-1SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53EP-Z-A2-1SB5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53BD-Z-A2-1SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-1			
Mid-position exhaustedImage: model of the second secon	1T11		
SA5/3-way solenoid valve, mid-position exhausted, switching position 14 detenting, mechani- cal spring returnP53ED18 mm8039183VSVA-B-P53ED-Z-A2- ConstructionSE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53EP-Z-A2- ConstructionSB5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53AD-Z-A2- ConstructionSD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2- ConstructionSD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-	1111		
mid-position exhausted, switching position 14 detenting, mechanical spring returnP53EP18 mm8039192VSVA-B-P53EP-Z-A2-3SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechanical spring returnP53EP18 mm8039192VSVA-B-P53EP-Z-A2-3SB5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53AD-Z-A2-3SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-3SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-3			
cal spring returncal spring returnP53EP18 mm8039192VSVA-B-P53EP-Z-A2-3SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53EP-Z-A2-3SB5/3-way solenoid valve, 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, reset via mechanical springP53BD18 mm8039186VSVA-B-P53AD-Z-A2-3SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-3SD5/3-way solenoid valve, mid-position 14 detenting, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-3	-111L		
SE5/3-way solenoid valve, mid-position exhausted, switching position 12 detenting, mechani- cal spring returnP53EP18 mm8039192VSVA-B-P53EP-Z-A2-3SB5/3-way solenoid valve, 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 2, same function in both switching positions: pressurised from 1 to 4 and exhausted from 2 to 3, reset via mechanical springP53BD18 mm8039186VSVA-B-P53AD-Z-A2-3SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-3			
mid-position exhausted, switching position 12 detenting, mechanical spring returnP53AD18 mm8039186VSVA-B-P53AD-Z-A2-SB5/3-way solenoid valve, 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, reset via mechanical springP53AD18 mm8039186VSVA-B-P53AD-Z-A2-SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-			
cal spring returncalSB5/3-way solenoid valve, 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, reset via mechanical springP53AD18 mm8039186VSVA-B-P53AD-Z-A2-SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, reset via mechanical springP53BD18 mm8040112VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-	1T1L		
SB5/3-way solenoid valve, 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, reset via mechanical springP53AD18 mm8039186VSVA-B-P53AD-Z-A2-SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-			
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, reset via mechanical springPS3BD18 mm8040112VSVA-B-P53BD-Z-A2-SD5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-			
switching position 14 detenting, same function in both switching positions: pressurised from 1 to 4 and exhausted from 2 to 3, reset via mechanical spring       switching position 1 to 4         SD       5/3-way solenoid valve, mid-position 1 x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,       P53BD       18 mm       8040112       VSVA-B-P53BD-Z-A2-	2-1T1L		
same function in both switching positions: pressurised from 1 to 4 and exhausted from 2 to 3, reset via mechanical spring       Image: same function in both switching positions: pressurised from 1 to 4, switching position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,       P53BD       18 mm       8040112       VSVA-B-P53BD-Z-A2-			
same function in both switching positions: pressurised from 1 to 4 and exhausted from 2 to 3, reset via mechanical spring       Image: same function in both switching positions: pressurised from 1 to 4, switching position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,       P53BD       18 mm       8040112       VSVA-B-P53BD-Z-A2-			
and exhausted from 2 to 3, reset via mechanical spring       image: spring       image: spring         SD       5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,       P53BD       18 mm       8040112       VSVA-B-P53BD-Z-A2-			
reset via mechanical spring       odd         SD       5/3-way solenoid valve, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,       P53BD       18 mm       8040112       VSVA-B-P53BD-Z-A2-			
SD5/3-way solenoid value, mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,P53BD18 mm8040112VSVA-B-P53BD-Z-A2-			
mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to 4, switching position 14 detenting,	2-1T1I		
switching position 14 detenting,			
I came trunction in both civitching positions, procertified from 1 to 1			
same function in both switching positions: pressurised from 1 to 2 and exhausted from 4 to 5,			
reset via mechanical spring			
SS 5/2-way valve, single solenoid, mechanical spring return, inductive M52-M 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 sen-			
sor push-in connector M12x1			
SO 5/2-way valve, single solenoid, mechanical spring return, inductive M52-M 18 mm 8033496 VSVA-B-M52-MZ-A2-	-1T1L-APP		
sensor with PNP output and 3-pin sensor push-in connector M8x1			

### Ordering data – Solenoid valve 24 V DC – for VTSA-F-CB

#### Ordering data – Solenoid valve VSVA with central plug, 3-pin, M12x1, round design

	Termi- nal	Valve function	Valve code	Width	Part no.	Туре
	code					
Solenoid valves, 24 V DC	QN	2x 3/2-way valve, single solenoid,	T32U	18 mm	546775	VSVA-B-T32U-AZH-A2-1R5L
		normally open	1520	10 1111	540775	V3VA-D-1320-A211-A2-1K3E
	QK	2x 3/2-way valve, single solenoid, normally closed	T32C	18 mm	546774	VSVA-B-T32C-AZH-A2-1R5L
	QH	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	T32H	18 mm	546776	VSVA-B-T32H-AZH-A2-1R5L
	QM	5/2-way valve, single solenoid, pneumatic spring return	M52-A	18 mm	546777	VSVA-B-M52-AZH-A2-1R5L
	QO	5/2-way valve, single solenoid, reset via mechanical spring	M52-M	18 mm	546778	VSVA-B-M52-MZH-A2-1R5L
	QJ	5/2-way valve, double solenoid	B52	18 mm	546779	VSVA-B-B52-ZH-A2-1R5L
	QD	5/2-way valve, double solenoid, with dominant signal	D52	18 mm	546780	VSVA-B-D52-ZH-A2-1R5L
	QB	5/3-way solenoid valve, Mid-position pressurised	P53U	18 mm	546783	VSVA-B-P53U-ZH-A2-1R5L
	QG	5/3-way solenoid valve, mid-position closed	P53C	18 mm	546781	VSVA-B-P53C-ZH-A2-1R5L
	QE	5/3-way solenoid valve, Mid-position exhausted	P53E	18 mm	546782	VSVA-B-P53E-ZH-A2-1R5L

### - 🛔 - Note

Additional information about solenoid valves with central plug can be found in the existing catalogue documentation at:

www.festo.com/catalogue/...  $\rightarrow$  Support Portal:

Standards-based valve VSVA to ISO 15407-1 and ISO 5599-1 with M8 or M12 central plug  $% \mathcal{M} = \mathcal{M} = \mathcal{M} + \mathcal{M}$ 

T

### Datasheet - Solenoid valve width 26 mm

- **[]** - Valve width to ISO 15407-2 26 mm

Voltage

24 V DC

- N - 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 characteristics for valve

Conforms to		EN 13849-1/2
CE marking (see	Direct voltage	To EU EMC Directive <sup>1)</sup> (solenoid valves with sensor only)
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/catalogue/... -> Support/Downloads.

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

#### Safety characteristics for valve, 24 V DC

Valve function (with valve code)		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 (M52-A)	М	1200	1100
5/2-way, single solenoid (M52-M)	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)	К	1500	1200
2x3/2-way, single solenoid, open (T32U)	Ν	1500	1200
2x3/2-way, single solenoid, open/closed (T32H)	Н	1500	1200
2x3/2-way, single solenoid, closed (T32N)	Q	1500	1200
2x3/2-way, single solenoid, open (T32F)	Р	1500	1200
2x3/2-way, single solenoid, open/closed (T32W)	R	1500	1200
2x2/2-way, single solenoid, closed (T22C)	VC	1500	1200
2x2/2-way, single solenoid, closed (T22CV)	W	1500	1200

### Datasheet - Solenoid valve width 26 mm

#### Datasheet for valve

Valve function (with valve code)	Termi-	Flow direction		Reset method	Weight		
	nal code	Any	Reversible only	Not 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 (M52-A)	М	•	-	-		-	293
5/2-way, single solenoid (M52-M)	0		-	-	-	-	293
5/3-way, closed <sup>1)</sup> (P53C)	G		-	-	-	-	320
5/3-way, exhausted <sup>1)</sup> (P53E)	E	•	-	-	-	-	320
5/3-way, pressurised <sup>1)</sup> (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)	К	-	-	•	•	-	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

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.

T

### Datasheet - Solenoid valve width 26 mm

#### Standard nominal flow rate of valve/valve terminal [l/min]

Valve function (with valve code)	Termi-	Flow rate	ow rate					
		Valve	/alve Valve on valve terminal					
	code		VTSA	VTSA-F	VTSA-F-CB	sub-base		
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 (M52-A)	М	1400	1100	1350	1350	1200		
5/2-way, single solenoid (M52-M)	0	1400	1100	1350	1350	1200		
5/3-way, closed (P53C)	G	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>		
5/3-way, exhausted (P53E)	E	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>		
5/3-way, pressurised (P53U)	В	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>		
5/3-way, exhausted, switching position 14 detenting (P53ED)	SA	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>		
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	1400 <sup>1)</sup> 700 <sup>2)</sup>	1000 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1350 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>		
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	700 <sup>1)</sup> 700 <sup>2)</sup>						
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	-	850 <sup>1)</sup> 820 <sup>2)</sup>	950 <sup>1)</sup> 860 <sup>2)</sup>	950 <sup>1)</sup> 860 <sup>2)</sup>	900 <sup>1)</sup> 840 <sup>2)</sup>		
2x3/2-way, single solenoid, closed (T32C)	К	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)	VV	1350	1000	1300	1300	1100		

1) Switching position

2) 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 2 or 4 from G1/4 to G1/8).

### Datasheet - Solenoid valve width 26 mm

#### Valve switching times in [ms]

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 (M52-A)	М	25	45	_
5/2-way, single solenoid (M52-M)	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 9 for control side 14	49 for control side 12	33
5/3-way, exhausted, switching position 12 detenting (P53EP)	SE	10 for control side 12 22 for control side 14	50 for control side 14	40
5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	SB	19 for control side 12 9 for control side 14	36 for control side 12	32
5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	SD	16 for control side 12 9 for control side 14	26 for control side 12 36 for control side 14	-
2x3/2-way, single solenoid, closed (T32C)	К	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	_
<b>Characteristic coil data</b> Valve function (with valve code)	Termi- nal	(	Characteristic coil data at 24 V DC in [W]	
۹	code			
5/2-way, double solenoid (B52)			1.6	
5/2-way, double solenoid (B52) 5/2-way, double solenoid with dominant signal (D52)				
5/2-way, double solenoid with dominant signal (D52)	code J		1.6	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A)	code J D		1.6 1.3	
5/2-way, double solenoid with dominant signal (D52)	code J D M		1.6 1.3 1.6	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M)	code J D M O		1.6 1.3 1.6 1.6	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C)	code J D M O G		1.6           1.3           1.6           1.6           1.6           1.6	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E)	code J D M O G E		1.6         1.3         1.6         1.6         1.6         1.6         1.6         1.6         1.6	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, pressurised (P53U)	code J D M O G E B		1.6         1.3         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53EP) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)	code J D M O G E B SA SA SE SB		1.6         1.3         1.6	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, pressurised (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53EP) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)	code J D M O G E B SA SA SE SB		$     \begin{array}{r}       1.6 \\       1.3 \\       1.6 \\       $	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, pressurised (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53EP) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD) 2x3/2-way, single solenoid, closed (T32C)	code J D M O G E B SA SA SE SB		$     \begin{array}{r}       1.6 \\       1.3 \\       1.6 \\       $	
<ul> <li>5/2-way, double solenoid with dominant signal (D52)</li> <li>5/2-way, single solenoid (M52-A)</li> <li>5/2-way, single solenoid (M52-M)</li> <li>5/3-way, closed (P53C)</li> <li>5/3-way, exhausted (P53B)</li> <li>5/3-way, exhausted, (P53U)</li> <li>5/3-way, exhausted, switching position 14 detenting (P53ED)</li> <li>5/3-way, exhausted, switching position 12 detenting (P53EP)</li> <li>5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)</li> <li>5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)</li> <li>2x3/2-way, single solenoid, closed (T32C)</li> <li>2x3/2-way, single solenoid, open (T32U)</li> </ul>	code J D M O G E B SA SA SE SB SD		$     \begin{array}{r}       1.6 \\       1.3 \\       1.6 \\       $	
<ul> <li>5/2-way, double solenoid with dominant signal (D52)</li> <li>5/2-way, single solenoid (M52-A)</li> <li>5/2-way, single solenoid (M52-M)</li> <li>5/3-way, closed (P53C)</li> <li>5/3-way, exhausted (P53B)</li> <li>5/3-way, exhausted, (P53U)</li> <li>5/3-way, exhausted, switching position 14 detenting (P53ED)</li> <li>5/3-way, exhausted, switching position 12 detenting (P53EP)</li> <li>5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)</li> <li>5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)</li> <li>2x3/2-way, single solenoid, closed (T32C)</li> <li>2x3/2-way, single solenoid, open (T32U)</li> <li>2x3/2-way, single solenoid, open/closed (T32H)</li> </ul>	code J D M O G E B SA SA SE SB SD K		$     \begin{array}{r}       1.6 \\       1.3 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.3 \\     \end{array} $	
<ul> <li>5/2-way, double solenoid with dominant signal (D52)</li> <li>5/2-way, single solenoid (M52-A)</li> <li>5/2-way, single solenoid (M52-M)</li> <li>5/3-way, closed (P53C)</li> <li>5/3-way, exhausted (P53E)</li> <li>5/3-way, exhausted, (P53U)</li> <li>5/3-way, exhausted, switching position 14 detenting (P53ED)</li> <li>5/3-way, exhausted, switching position 12 detenting (P53EP)</li> <li>5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)</li> <li>5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)</li> <li>2x3/2-way, single solenoid, closed (T32C)</li> <li>2x3/2-way, single solenoid, open (T32U)</li> </ul>	code J D M O G E B S A S E S B S S B S D K N		$     \begin{array}{r}       1.6 \\       1.3 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.3 \\       1.5 \\       $	
<ul> <li>5/2-way, double solenoid with dominant signal (D52)</li> <li>5/2-way, single solenoid (M52-A)</li> <li>5/2-way, single solenoid (M52-M)</li> <li>5/3-way, closed (P53C)</li> <li>5/3-way, exhausted (P53B)</li> <li>5/3-way, exhausted, (P53U)</li> <li>5/3-way, exhausted, switching position 14 detenting (P53ED)</li> <li>5/3-way, exhausted, switching position 12 detenting (P53EP)</li> <li>5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD)</li> <li>5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD)</li> <li>2x3/2-way, single solenoid, closed (T32C)</li> <li>2x3/2-way, single solenoid, open (T32U)</li> <li>2x3/2-way, single solenoid, open/closed (T32H)</li> </ul>	code J D M O G E B B SA SA SE SB SD K N H		$     \begin{array}{r}       1.6 \\       1.3 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.6 \\       1.3 \\       1.5 \\      1$	
5/2-way, double solenoid with dominant signal (D52) 5/2-way, single solenoid (M52-A) 5/2-way, single solenoid (M52-M) 5/3-way, closed (P53C) 5/3-way, exhausted (P53E) 5/3-way, exhausted (P53U) 5/3-way, exhausted, switching position 14 detenting (P53ED) 5/3-way, exhausted, switching position 12 detenting (P53EP) 5/3-way, port 2 pressurised, 4 exhausted, switching position 14 detenting (P53AD) 5/3-way, port 4 pressurised, 2 exhausted, switching position 14 detenting (P53BD) 2x3/2-way, single solenoid, closed (T32C) 2x3/2-way, single solenoid, open (T32U) 2x3/2-way, single solenoid, closed (T32H) 2x3/2-way, single solenoid, closed (T32N)	code J D M O G E B B SA SA SE SB SD K N H Q		1.6         1.3         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.3         1.3         1.3         1.3         1.3         1.3	
5/2-way, double solenoid with dominant signal (D52)5/2-way, single solenoid (M52-A)5/2-way, single solenoid (M52-M)5/3-way, closed (P53C)5/3-way, exhausted (P53E)5/3-way, pressurised (P53U)5/3-way, exhausted, switching position 14 detenting (P53ED)5/3-way, exhausted, switching position 12 detenting (P53EP)5/3-way, port 2 pressurised, 4 exhausted, switching position 14detenting (P53AD)5/3-way, port 4 pressurised, 2 exhausted, switching position 14detenting (P53BD)2x3/2-way, single solenoid, closed (T32C)2x3/2-way, single solenoid, open (T32U)2x3/2-way, single solenoid, closed (T32N)2x3/2-way, single solenoid, closed (T32F)	code J D M G E B SA SA SE SB SD K N H Q P		1.6         1.3         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.6         1.3         1.3         1.3         1.3         1.3         1.3         1.3         1.3	

#### Materials

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

Ordering data – Solenoid valve VSVA, MO non-detenting/detenting (D)

ordening data Solenoid	Termi-   Valve function		Valve	Width	Part no.	Туре	
	nal		code	Width	i urt no.	Type	
	code						
Solenoid valves, 24 V DC					1		
	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	561149	VSVA-B-T22C-AZD-A1-1T1L	
		normally closed,					
		pneumatic spring return					
	VV	2x 2/2-way valve, single solenoid,	T22CV	26 mm	561153	VSVA-B-T22CV-AZD-A1-1T1L	
		normally closed,					
		pneumatic spring return,					
		vacuum operation possible at 3 and 5					
	N	2x 3/2-way valve, single solenoid,	T32U	26 mm	539152	VSVA-B-T32U-AZD-A1-1T1L	
		normally open					
	К	2x 3/2-way valve, single solenoid,	T32C	26 mm	539150	VSVA-B-T32C-AZD-A1-1T1L	
		normally closed	Table	24	520454		
	Н	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	T32H	26 mm	539154	VSVA-B-T32H-AZD-A1-1T1L	
	Р	2x 3/2-way valve, single solenoid,	T32F	26 mm	520152		
	P	reverse operation,	1526	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,	1921	20 1111	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
		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					
	М	5/2-way valve, single solenoid,	M52-A	26 mm	539158	VSVA-B-M52-AZD-A1-1T1L	
		pneumatic spring return					
	0	5/2-way valve, single solenoid,	M52-M	26 mm	539159	VSVA-B-M52-MZD-A1-1T1L	
		reset via mechanical spring					
	J	5/2-way valve, double solenoid	B52	26 mm	539156	VSVA-B-B52-ZD-A1-1T1L	
	-						
	D	5/2-way valve, double solenoid,	D52	26 mm	539157	VSVA-B-D52-ZD-A1-1T1L	
		with dominant signal	DEQU	24	520170		
	В	5/3-way solenoid valve,	P53U	26 mm	539160	VSVA-B-P53U-ZD-A1-1T1L	
	G	Mid-position pressurised 5/3-way solenoid valve,	P53C	26 mm	539162	VSVA-B-P53C-ZD-A1-1T1L	
	6	mid-position closed	FSSC	20 11111	559102	VSVA-D-F55C-ZD-AI-IIIL	
	E	5/3-way solenoid valve,	P53E	26 mm	539161	VSVA-B-P53E-ZD-A1-1T1L	
	-	Mid-position exhausted		20 1111	,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,		
	SA	5/3-way solenoid valve,	P53ED	26 mm	560727	VSVA-B-P53ED-ZD-A1-1T1L	
		mid-position exhausted, switching position 14 detenting, me-		-			
		chanical 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, me-					
		chanical 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, reset via mechanical spring					
	SD	5/3-way solenoid valve,	P53BD	26 mm	8031816	VSVA-B-P53BD-ZD-A1-1T1L	
	50	mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to		20 11111	8051810	V3VA-D-F 33DD-2D-A1-111L	
		4, switching position 14 detenting,					
		same function in both switching positions: pressurised from 1 to					
		2 and exhausted from 4 to 5,					
		reset via mechanical spring					
	SS	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	26 mm	570850	VSVA-B-M52-MZD-A1-1T1L-APX-0.5	
		tive sensor with PNP output with 0.5 m connecting cable and					
		4-pin sensor push-in connector M12x1					
	SO	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	26 mm	560724	VSVA-B-M52-MZD-A1-1T1L-APP	
		tive sensor with PNP output and 3-pin sensor push-in connector					
		M8x1					
*							

#### Ordering data - Solenoid valve VSVA with cover cap for MO non-detenting/heavy duty, detenting via accessory (TR)

		VA with cover cap for MO non-detenting/heavy duty, detenting vi		1	Dart	Time
	Termi- nal	Valve function	Valve code	Width	Part no.	Туре
	code		coue			
olenoid valves, 24 V DC		1	I			
	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033032	VSVA-B-T22C-AZTR-A1-1T1L
		normally closed,				
		pneumatic spring return				
	VV	2x 2/2-way valve, single solenoid,	T22CV	26 mm	8033033	VSVA-B-T22CV-AZTR-A1-1T1L
		normally closed,				
		pneumatic spring return,				
$\checkmark$		vacuum operation possible at 3 and 5	TOOL			
	Ν	2x 3/2-way valve, single solenoid,	T32U	26 mm	8033015	VSVA-B-T32U-AZTR-A1-1T1L
	K	normally open 2x 3/2-way valve, single solenoid,	T32C	26 mm	8033013	VSVA-B-T32C-AZTR-A1-1T1L
	ĸ	normally closed	1520	20 11111	8055015	VSVA-D-IS2C-AZIR-AI-IIIL
	Н	2x 3/2-way valve, single solenoid,	T32H	26 mm	8033017	VSVA-B-T32H-AZTR-A1-1T1L
		1x normally open, 1x normally closed	19211	20 1111	0055017	
	Р	2x 3/2-way valve, single solenoid,	T32F	26 mm	8033016	VSVA-B-T32F-AZTR-A1-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	8033014	VSVA-B-T32N-AZTR-A1-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	8033018	VSVA-B-T32W-AZTR-A1-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	М	5/2-way valve, single solenoid,	M52-A	26 mm	8033021	VSVA-B-M52-AZTR-A1-1T1L
	0	pneumatic spring return	MED M	26	0022022	
	0	5/2-way valve, single solenoid, reset via mechanical spring	M52-M	26 mm	8033022	VSVA-B-M52-MZTR-A1-1T1L
		5/2-way valve, double solenoid	B52	26 mm	8033019	VSVA-B-B52-ZTR-A1-1T1L
	J	5/2-way valve, double solenoid	572	20 11111	8055019	VSVA-D-DJZ-ZIN-AI-IIIL
	D	5/2-way valve, double solenoid,	D52	26 mm	8033020	VSVA-B-D52-ZTR-A1-1T1L
	_	with dominant signal				
	В	5/3-way solenoid valve,	P53U	26 mm	8033023	VSVA-B-P53U-ZTR-A1-1T1L
		Mid-position pressurised				
	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				
	SA	5/3-way solenoid valve,	P53ED	26 mm	8033028	VSVA-B-P53ED-ZTR-A1-1T1L
		mid-position exhausted, switching position 14 detenting, me-				
	65	chanical spring return	DECED	24		
	SE	5/3-way solenoid valve,	P53EP	26 mm	8033035	VSVA-B-P53EP-ZTR-A1-1T1L
		mid-position exhausted, switching position 12 detenting, me- chanical spring return				
	SB	5/3-way solenoid valve,	P53AD	26 mm	8033029	VSVA-B-P53AD-ZTR-A1-1T1L
	20	mid-position 1x exhausted from 4 to 5, 1x pressurised from 1 to		20 11111	8055029	VSVA-D-F55AD-ZIR-AI-IIIL
		2, switching position 14 detenting,				
		same function in both switching positions: pressurised from 1				
		to 4 and exhausted from 2 to 3,				
		reset via mechanical spring				
	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, switching position 14 detenting,				
		same function in both switching positions: pressurised from 1				
		to 2 and exhausted from 4 to 5,				
	cc	reset via mechanical spring	MEDM	26	0000001	
	SS	5/2-way valve, single solenoid, mechanical spring return, in- ductive sensor with PNP output with 0.5 m connecting cable	M52-M	26 mm	8033034	VSVA-B-M52-MZTR-A1-1T1L-APX-0.5
		and 4-pin sensor push-in connector M12x1				
	SO	5/2-way valve, single solenoid, mechanical spring return, in-	M52-M	26 mm	8033027	VSVA-B-M52-MZTR-A1-1T1L-APP
	50	ductive sensor with PNP output and 3-pin sensor push-in con-	111-20	20 1111	5053027	
		nector M8x1				

Ordering data – Solenoid valve VSVA with cover cap for MO, non-detenting (H)

	Termi-	VA with cover cap for MO, non-detenting (H) Valve function	Valve	Width	Part no.	Туре
	nal		code	Witti	raitilo.	Туре
	code		couc			
alanaid valvas 24 V DC						
olenoid valves, 24 V DC	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033055	VSVA-B-T22C-AZH-A1-1T1L
	VC	normally closed,	1220	20 11111	8033055	VSVA-D-122C-A2R-A1-111L
		pneumatic spring return				
here and here	VV	2x 2/2-way valve, single solenoid,	T22CV	26 mm	8033056	VSVA-B-T22CV-AZH-A1-1T1L
	vv	normally closed,	12200	20 11111	8055050	V3VA-D-122CV-A2R-A1-111L
		pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	26 mm	8033038	VSVA-B-T32U-AZH-A1-1T1L
	IN	normally open	1520	20 11111	8033038	VSVA-D-1320-AZH-A1-111L
	К	2x 3/2-way valve, single solenoid,	T32C	26 mm	8033036	VSVA-B-T32C-AZH-A1-1T1L
	ĸ	normally closed	1520	20 11111	8055050	V3VA-D-132C-AZH-A1-111L
	Н	2x 3/2-way valve, single solenoid,	T32H	26 mm	8033040	VSVA-B-T32H-AZH-A1-1T1L
	н		132H	26 mm	8033040	VSVA-B-I32H-AZH-AI-IIIL
		1x normally open, 1x normally closed	70.05			
	Р	2x 3/2-way valve, single solenoid,	T32F	26 mm	8033039	VSVA-B-T32F-AZH-A1-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	8033037	VSVA-B-T32N-AZH-A1-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	26 mm	8033041	VSVA-B-T32W-AZH-A1-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	М	5/2-way valve, single solenoid,	M52-A	26 mm	8033044	VSVA-B-M52-AZH-A1-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52-M	26 mm	8033045	VSVA-B-M52-MZH-A1-1T1L
		reset via mechanical spring				
	J	5/2-way valve, double solenoid	B52	26 mm	8033042	VSVA-B-B52-ZH-A1-1T1L
	D	5/2-way valve, double solenoid,	D52	26 mm	8033043	VSVA-B-D52-ZH-A1-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	26 mm	8033046	VSVA-B-P53U-ZH-A1-1T1L
		Mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	26 mm	8033048	VSVA-B-P53C-ZH-A1-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	26 mm	8033047	VSVA-B-P53E-ZH-A1-1T1L
		Mid-position exhausted				
	SA	5/3-way solenoid valve,	P53ED	26 mm	8033051	VSVA-B-P53ED-ZH-A1-1T1
		mid-position exhausted, switching position 14 detenting, me-				
		chanical spring return				
	SE	5/3-way solenoid valve,	P53EP	26 mm	8033058	VSVA-B-P53EP-ZH-A1-1T1L
		mid-position exhausted, switching position 12 detenting, me-		-		
		chanical 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,				
		reset via mechanical spring				
	SD	5/3-way solenoid valve,	P53BD	26 mm	8039188	VSVA-B-P53BD-ZH-A1-1T1L
	50	mid-position 1x exhausted from 2 to 3, 1x pressurised from 1 to	1 5500	20 1111	0000000	
		4, switching position 14 detenting,				
		same function in both switching positions: pressurised from 1 to				
		2 and exhausted from 4 to 5,				
		reset via mechanical spring				
	SS	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	26 mm	8033057	VSVA R MED M7H A1 1T1L ADV OF
E	33		111.22-111	20 IIIM	8033057	VSVA-B-M52-MZH-A1-1T1L-APX-0.5
		tive sensor with PNP output with 0.5 m connecting cable and				
		4-pin sensor push-in connector M12x1	MEDIN	26	0000000	
LINK 🧼	SO	5/2-way valve, single solenoid, mechanical spring return, induc-	M52-M	26 mm	8033050	VSVA-B-M52-MZH-A1-1T1L-APP
	1	tive sensor with PNP output and 3-pin sensor push-in connector	1	1		
		M8x1				

#### Ordering data – Solenoid valve VSVA with cover cap for MO, concealed

	Termi-	5VA with cover cap for MO, concealed Valve function	Valve	Width	Part no.	Туре	
	nal		code			.,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,,	
	code						
enoid valves, 24 V D	с						
	VC	2x 2/2-way valve, single solenoid,	T22C	26 mm	8033078	VSVA-B-T22C-AZ-A1-1T1L	
		normally closed,					
		pneumatic spring return					
	W	2x 2/2-way valve, single solenoid,	T22CV	26 mm	8033079	VSVA-B-T22CV-AZ-A1-1T1L	
	]	normally closed,					
	°	pneumatic spring return,					
	N	vacuum operation possible at 3 and 5 2x 3/2-way valve, single solenoid,	T32U	26 mm	8033061	VSVA-B-T32U-AZ-A1-1T1L	
	IN	normally open	1520	20 11111	8033061	V3VA-D-132U-AZ-A1-111L	
	К	2x 3/2-way valve, single solenoid,	T32C	26 mm	8033059	VSVA-B-T32C-AZ-A1-1T1L	
		normally closed	1920	20			
	Н	2x 3/2-way valve, single solenoid,	T32H	26 mm	8033063	VSVA-B-T32H-AZ-A1-1T1L	
		1x normally open, 1x normally closed					
	Р	2x 3/2-way valve, single solenoid,	T32F	26 mm	8033062	VSVA-B-T32F-AZ-A1-1T1L	
		reverse operation,					
		normally open					
	Q	2x 3/2-way valve, single solenoid,	T32N	26 mm	8033060	VSVA-B-T32N-AZ-A1-1T1L	
		reverse operation,					
	R	normally closed 2x 3/2-way valve, single solenoid,	T32W	26 mm	8022064	VSVA-B-T32W-AZ-A1-1T1L	
	ĸ	reverse operation,	15200	26 mm	8033064	V3VA-D-132W-AZ-A1-111L	
		1x normally open, 1x normally closed					
	м	5/2-way valve, single solenoid,	M52-A	26 mm	8033067	VSVA-B-M52-AZ-A1-1T1L	
		pneumatic spring return				-	
	0	5/2-way valve, single solenoid,	M52-M	26 mm	8033068	VSVA-B-M52-MZ-A1-1T1L	
		reset via mechanical spring					
	J	5/2-way valve, double solenoid	B52	26 mm	8033065	VSVA-B-B52-Z-A1-1T1L	
	D	5/2-way valve, double solenoid,	D52	26 mm	8033066	VSVA-B-D52-Z-A1-1T1L	
		with dominant signal	DEDU	24	0000000		
	В	5/3-way solenoid valve, Mid-position pressurised	P53U	26 mm	8033069	VSVA-B-P53U-Z-A1-1T1L	
	G	5/3-way solenoid valve,	P53C	26 mm	8033071	VSVA-B-P53C-Z-A1-1T1L	
		mid-position closed		20 1111	0055071		
	E	5/3-way solenoid valve,	P53E	26 mm	8033070	VSVA-B-P53E-Z-A1-1T1L	
		Mid-position exhausted					
	SA	5/3-way solenoid valve,	P53ED	26 mm	8033074	VSVA-B-P53ED-Z-A1-1T1L	
		mid-position exhausted, switching position 14 detenting, mechani-					
		cal 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, mechani-					
	SB	cal spring return 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,		20 1111	8055075	VSVA-D-F JSAD-Z-AT-TITL	
		switching position 14 detenting,					
		same function in both switching positions: pressurised from 1 to 4					
		and exhausted from 2 to 3,					
		reset via mechanical spring					
	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,					
		reset via mechanical spring					
2	SS	5/2-way valve, single solenoid, mechanical spring return, inductive	M52-M	26 mm	8033080	VSVA-B-M52-MZ-A1-1T1L-APX-0.5	
		sensor with PNP output with 0.5 m connecting cable and 4-pin sen-					
		sor push-in connector M12x1					
IN SA UA	SO	5/2-way valve, single solenoid, mechanical spring return, inductive	M52-M	26 mm	8033073	VSVA-B-M52-MZ-A1-1T1L-APP	
	1	sensor with PNP output and 3-pin sensor push-in connector M8x1					
	6		1	1			

## Ordering data – Solenoid valve 24 V DC – for VTSA-F-CB

#### Ordering data – Solenoid valve VSVA with central plug, 3-pin, M12x1, round design

-	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
Solenoid valves, 24 V	DC					
	QN	2x 3/2-way valve, single solenoid, normally open	T32U	26 mm	534543	VSVA-B-T32U-AZH-A1-1R5L
	QK	2x 3/2-way valve, single solenoid, normally closed	T32C	26 mm	534542	VSVA-B-T32C-AZH-A1-1R5L
	QH	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	ТЗ2Н	26 mm	534544	VSVA-B-T32H-AZH-A1-1R5L
•	9 QM	5/2-way valve, single solenoid, pneumatic spring return	M52-A	26 mm	534545	VSVA-B-M52-AZH-A1-1R5L
	QO	5/2-way valve, single solenoid, reset via mechanical spring	M52-M	26 mm	534546	VSVA-B-M52-MZH-A1-1R5L
	QJ	5/2-way valve, double solenoid	B52	26 mm	534547	VSVA-B-B52-ZH-A1-1R5L
	QD	5/2-way valve, double solenoid, with dominant signal	D52	26 mm	534548	VSVA-B-D52-ZH-A1-1R5L
	QB	5/3-way solenoid valve, Mid-position pressurised	P53U	26 mm	534551	VSVA-B-P53U-ZH-A1-1R5L
	QG	5/3-way solenoid valve, mid-position closed	P53C	26 mm	534549	VSVA-B-P53C-ZH-A1-1R5L
	QE	5/3-way solenoid valve, Mid-position exhausted	P53E	26 mm	534550	VSVA-B-P53E-ZH-A1-1R5L

### - 🛔 - Note

Additional information about solenoid valves with central plug can be found in the existing catalogue documentation at:

www.festo.com/catalogue/...  $\rightarrow$  Support Portal:

Standards-based valve VSVA to ISO 15407-1 and ISO 5599-1 with M8 or M12 central plug  $% \mathcal{M} = \mathcal{M} = \mathcal{M} + \mathcal{M}$ 

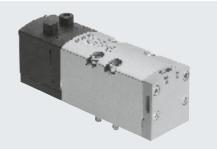
#### Valve terminals VTSA

### Datasheet - Solenoid valve width 42 mm

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

Voltage 24 V DC

- 11 -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 characteristics for valve

Conforms to	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 characteristics for valve, 24 V DC

Valve function (with valve code)	Termi-		
	nal	Max. positive test pulse with 0 signal [µs]	Max. negative test pulse with 1 signal [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 (M52-A)	М	1400	900
5/2-way, single solenoid (M52-M)	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

T

### Datasheet - Solenoid valve width 42 mm

#### Datasheet for valve

Valve function (with valve code)	Termi-	Flow direction			Reset method	Weight	
	nal	Any	Reversible only	Not reversible	Pneumatic spring	Mechanical	[g]
	code					spring	
5/2-way, double solenoid (B52)	J	•	-	-	-	-	439
5/2-way, double solenoid with dominant signal (D52)	D		-	-	-	-	439
5/2-way, single solenoid (M52-A)	М	•	-	-	•	-	426
5/2-way, single solenoid (M52-M)	0		-	-	-	•	426
5/3-way, closed <sup>1)</sup> (P53C)	G		-	-	-		456
5/3-way, exhausted <sup>1)</sup> (P53E)	E		-	-	-		456
5/3-way, pressurised <sup>1)</sup> (P53U)	В		-	-	-		456
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG		-	-	-	-	456
2x3/2-way, single solenoid, closed (T32C)	К	-	-	•	•	-	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.

#### Standard nominal flow rate of valve/valve terminal [l/min]

Valve function (with valve code)	Termi-	Flow rate					
	nal	Valve	Valve on valve	Valve on individual			
	code						
			VTSA	VTSA-F	VTSA-F-CB		
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 (M52-A)	Μ	2000	1300	1860	1860	1500	
5/2-way, single solenoid (M52-M)	0	2000	1300	1860	1860	1500	
5/3-way, closed (P53C)	G	1900 <sup>1)</sup>	1200 <sup>1)</sup>	1690 <sup>1)</sup>	1690 <sup>1)</sup>	1400 <sup>1)</sup>	
		950 <sup>2)</sup>	800 <sup>2)</sup>	830 <sup>2)</sup>	830 <sup>2)</sup>	800 <sup>2)</sup>	
5/3-way, exhausted (P53E)	E	1900 <sup>1)</sup>	1200 <sup>1)</sup>	1690 <sup>1)</sup>	1690 <sup>1)</sup>	1400 <sup>1)</sup>	
		950 <sup>2)</sup>	800 <sup>2)</sup>	830 <sup>2)</sup>	830 <sup>2)</sup>	800 <sup>2)</sup>	
5/3-way, pressurised (P53U)	В	1900 <sup>1)</sup>	1200 <sup>1)</sup>	1690 <sup>1)</sup>	1690 <sup>1)</sup>	14001)	
		950 <sup>2)</sup>	800 <sup>2)</sup>	830 <sup>2)</sup>	830 <sup>2)</sup>	800 <sup>2)</sup>	
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	1700 <sup>1)</sup>	1400 <sup>1)</sup>	1700 <sup>1)</sup>	1700 <sup>1)</sup>	1400 <sup>1)</sup>	
		700 <sup>2)</sup>	800 <sup>2)</sup>	700 <sup>2)</sup>	700 <sup>2)</sup>	700 <sup>2)</sup>	
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)	W	1600	1400	1500	1500	1400	

1) Switching position

2) Mid-position

### Datasheet - Solenoid valve width 42 mm

#### Valve switching times in [ms]

Valve switching times in [ms]							
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 (M52-A)	M	27	45	-			
5/2-way, single solenoid (M52-M)	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)	К	20	38	_			
2x3/2-way, single solenoid, open (T32U)	N	20	38	_			
2x3/2-way, single solenoid, open/closed (T32H)	H	20	38				
2x3/2 way, single solenoid, closed (T32N)	Q	34	28	_			
2x3/2-way, single solenoid, closed (1921) 2x3/2-way, single solenoid, open (T32F)	P	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 (T22C) 2x2/2-way, single solenoid, closed (T22CV)	VC VV	20	38	_			
Characteristic coil data	1	l					
Valve function (with valve code)	Termi-		Characteristic coil data at 24 V DC in [V	/]			
	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 (M52-A)	М		1.6				
5/2-way, single solenoid (M52-M)	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)	К		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)	P		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				
Max. current consumption per solenoid coil							
Туре	T22, T32		B52, D52, M52, P53				
At nominal voltage 24 V DC (valves with holding current	reduction)						
Nominal pick-up current [mA]	60		72				
Nominal current following current reduction [mA]	-	-					
Time until current reduction [ms]	30		30				
Materials							
Housing	Die-cast :	aluminium, PA					
Seals	FPM, NBR						
Screws	Galvanise						
Note on materials							
NOLE ON MALEMALS	1003-000	ompliant					

Ordering data - Solenoid valve VSVA, MO non-detenting/detenting (D)

Ordering data – Solend		/SVA, MO non-detenting/detenting (D)	1	1	1 -	1-	
	Termi-	Valve function	Valve	Width	Part no.	Туре	
	nal		code				
	code						
olenoid valves, 24 V I	DC						
	VC	2x 2/2-way valve, single solenoid,	T22C	42 mm	561340	VSVA-B-T22C-AZD-D1-1T1L	
		Normally closed,					
		pneumatic spring return					
	a w	2x 2/2-way valve, single solenoid,	T22CV	42 mm	561344	VSVA-B-T22CV-AZD-D1-1T1L	
	•	normally closed,					
	4	pneumatic spring return,					
$\checkmark$		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					
	К	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					
	Р	2x 3/2-way valve, single solenoid,	T32F	42 mm	543693	VSVA-B-T32F-AZD-D1-1T1L	
		reverse operation,				_	
		normally open					
	Q	2x 3/2-way valve, single solenoid,	T32N	42 mm	543691	VSVA-B-T32N-AZD-D1-1T1L	
	1	reverse operation,					
		normally closed					
	R	2x 3/2-way valve, single solenoid,	T32W	42 mm	543695	VSVA-B-T32W-AZD-D1-1T1L	
		reverse operation,	.,,2.1	12	5.5000		
		1x normally open, 1x normally closed					
	М	5/2-way valve, single solenoid,	M52-A	42 mm	543698	VSVA-B-M52-AZD-D1-1T1L	
		pneumatic spring return					
	0	5/2-way valve, single solenoid,	M52-M	42 mm	543699	VSVA-B-M52-MZD-D1-1T1L	
	ľ	reset via mechanical spring		12	5.5077		
		5/2-way valve, double solenoid	B52	42 mm	543696	VSVA-B-B52-ZD-D1-1T1L	
	'		552	42	545656		
	D	5/2-way valve, double solenoid,	D52	42 mm	543697	VSVA-B-D52-ZD-D1-1T1L	
		with dominant signal	552	12	545057		
	В	5/3-way solenoid valve,	P53U	42 mm	543700	VSVA-B-P53U-ZD-D1-1T1L	
		Mid-position pressurised	1 550	42 11111	545700		
	G	5/3-way solenoid valve,	P53C	42 mm	543702	VSVA-B-P53C-ZD-D1-1T1L	
		mid-position closed		42 0001	545702		
	E	5/3-way solenoid valve,	P53E	42 mm	543701	VSVA-B-P53E-ZD-D1-1T1L	
	<sup>L</sup>	Mid-position exhausted		42 1111	545701	V3VA-D-F 33L-2D-D1-111L	
	VG	5/3-way solenoid valve,	DEDE	42 mm	8000464	VSVA-B-P53F-ZD-D1-1T1L	
	VG	mid-position pressurised 1 to 2, 4 to 5 closed	P53F	42 11111	8000464	V3VA-D-P33F-2U-U1-111L	

#### Ordering data - Solenoid valve VSVA with cover cap for MO non-detenting/heavy duty, detenting via accessory (TR)

Termi- nal	Valve function	Valve code	Width	Part no.	Туре
code					
DC					
VC	2x 2/2-way valve, single solenoid,	T22C	42 mm	8034781	VSVA-B-T22C-AZTR-D1-1T1L
	normally closed,				
	pneumatic spring return				
W	2x 2/2-way valve, single solenoid,	T22CV	42 mm	8034782	VSVA-B-T22CV-AZTR-D1-1T1
•	normally closed,				
	pneumatic spring return,				
N	vacuum operation possible at 3 and 5	T	() mm	002/770	
IN	2x 3/2-way valve, single solenoid,	T32U	42 mm	8034770	VSVA-B-T32U-AZTR-D1-1T1
К	normally open 2x 3/2-way valve, single solenoid,	T32C	42 mm	8034768	VSVA-B-T32C-AZTR-D1-1T1L
ĸ	normally closed	1520	42 11111	6054706	V3VA-D-152C-AZIR-D1-111L
Н	2x 3/2-way valve, single solenoid,	ТЗ2Н	42 mm	8034772	VSVA-B-T32H-AZTR-D1-1T1
"	1x normally open, 1x normally closed	1,5211	42 1111	0054772	V3VA-D-19211-A2110-01-1111
Р	2x 3/2-way valve, single solenoid,	T32F	42 mm	8034771	VSVA-B-T32F-AZTR-D1-1T1L
	reverse operation,	1921	42 1111	0004771	
	normally open				
Q	2x 3/2-way valve, single solenoid,	T32N	42 mm	8034769	VSVA-B-T32N-AZTR-D1-1T1
	reverse operation,				
	normally closed				
R	2x 3/2-way valve, single solenoid,	T32W	42 mm	8034773	VSVA-B-T32W-AZTR-D1-1T1
	reverse operation,				
	1x normally open, 1x normally closed				
Μ	5/2-way valve, single solenoid,	M52-A	42 mm	8034776	VSVA-B-M52-AZTR-D1-1T1L
	pneumatic spring return				
0	5/2-way valve, single solenoid,	M52-M	42 mm	8034777	VSVA-B-M52-MZTR-D1-1T1
	reset via mechanical spring				
J	5/2-way valve, double solenoid	B52	42 mm	8034774	VSVA-B-B52-ZTR-D1-1T1L
D	5/2-way valve, double solenoid,	D52	42 mm	8034775	VSVA-B-D52-ZTR-D1-1T1L
	with dominant signal				
В	5/3-way solenoid valve,	P53U	42 mm	8034778	VSVA-B-P53U-ZTR-D1-1T1L
	Mid-position pressurised				
G	5/3-way solenoid valve,	P53C	42 mm	8034780	VSVA-B-P53C-ZTR-D1-1T1L
	mid-position closed				
E	5/3-way solenoid valve,	P53E	42 mm	8034779	VSVA-B-P53E-ZTR-D1-1T1L
	Mid-position exhausted				
VG	5/3-way solenoid valve,	P53F	42 mm	8034783	VSVA-B-P53F-ZTR-D1-1T1L
	mid-position pressurised 1 to 2, 4 to 5 closed				

.

 $\Big|$  Ordering data – Solenoid valve VSVA with cover cap for MO, non-detenting (H)

-	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
olenoid valves, 24 \	/ DC					
~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~ ~	VC	2x 2/2-way valve, single solenoid,	T22C	42 mm	8034812	VSVA-B-T22C-AZH-D1-1T1L
		normally closed,				
		pneumatic spring return				
	W	2x 2/2-way valve, single solenoid,	T22CV	42 mm	8034813	VSVA-B-T22CV-AZH-D1-1T1L
	•	normally closed,				
		pneumatic spring return,				
		vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	42 mm	8034801	VSVA-B-T32U-AZH-D1-1T1L
		normally open				
	К	2x 3/2-way valve, single solenoid,	T32C	42 mm	8034799	VSVA-B-T32C-AZH-D1-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	42 mm	8034803	VSVA-B-T32H-AZH-D1-1T1L
		1x normally open, 1x normally closed				
	P	2x 3/2-way valve, single solenoid,	T32F	42 mm	8034802	VSVA-B-T32F-AZH-D1-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	42 mm	8034800	VSVA-B-T32N-AZH-D1-1T1L
		reverse operation,				
		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
		reset via mechanical spring				
	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				
	В	5/3-way solenoid valve,	P53U	42 mm	8034809	VSVA-B-P53U-ZH-D1-1T1L
		Mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	42 mm	8034811	VSVA-B-P53C-ZH-D1-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	42 mm	8034810	VSVA-B-P53E-ZH-D1-1T1L
		Mid-position exhausted				
	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				

#### Ordering data – Solenoid valve VSVA with cover cap for MO, concealed

	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
lenoid valves, 2	24 V DC					
	VC	2x 2/2-way valve, single solenoid,	T22C	42 mm	8034843	VSVA-B-T22C-AZ-D1-1T1L
		normally closed,				
	à l	pneumatic spring return				
A all	W W	2x 2/2-way valve, single solenoid,	T22CV	42 mm	8034844	VSVA-B-T22CV-AZ-D1-1T1L
		normally closed,				
le la		pneumatic spring return,				
	Ť	vacuum operation possible at 3 and 5				
	N	2x 3/2-way valve, single solenoid,	T32U	42 mm	8034832	VSVA-B-T32U-AZ-D1-1T1L
		normally open				
	К	2x 3/2-way valve, single solenoid,	T32C	42 mm	8034830	VSVA-B-T32C-AZ-D1-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	42 mm	8034834	VSVA-B-T32H-AZ-D1-1T1L
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	42 mm	8034833	VSVA-B-T32F-AZ-D1-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	42 mm	8034831	VSVA-B-T32N-AZ-D1-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	42 mm	8034835	VSVA-B-T32W-AZ-D1-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	М	5/2-way valve, single solenoid,	M52-A	42 mm	8034838	VSVA-B-M52-AZ-D1-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52-M	42 mm	8034839	VSVA-B-M52-MZ-D1-1T1L
		reset via mechanical spring				
	J	5/2-way valve, double solenoid	B52	42 mm	8034836	VSVA-B-B52-Z-D1-1T1L
	D	5/2-way valve, double solenoid,	D52	42 mm	8034837	VSVA-B-D52-Z-D1-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	42 mm	8034840	VSVA-B-P53U-Z-D1-1T1L
		Mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	42 mm	8034842	VSVA-B-P53C-Z-D1-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	42 mm	8034841	VSVA-B-P53E-Z-D1-1T1L
		Mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	42 mm	8034845	VSVA-B-P53F-Z-D1-1T1L
		mid-position pressurised 1 to 2, 4 to 5 closed				

T

## Ordering data – Solenoid valve 24 V DC – for VTSA-F-CB

#### Ordering data – Solenoid valve VSVA with central plug, 3-pin, M12x1, round design

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
Solenoid valves, 24 V	DC					
	QN	2x 3/2-way valve, single solenoid, normally open	T32U	42 mm	561370	VSVA-B-T32U-AZD-D1-1R5L
	QK ≥	2x 3/2-way valve, single solenoid, Normally closed	T32C	42 mm	561369	VSVA-B-T32C-AZD-D1-1R5L
	QH	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	42 mm	561371	VSVA-B-T32H-AZD-D1-1R5L
	QM	5/2-way valve, single solenoid, pneumatic spring return	M52-A	42 mm	561372	VSVA-B-M52-AZD-D1-1R5L
	QO	5/2-way valve, single solenoid, reset via mechanical spring	M52-M	42 mm	561373	VSVA-B-M52-MZD-D1-1R5L
	QJ	5/2-way valve, double solenoid	B52	42 mm	561374	VSVA-B-B52-ZD-D1-1R5L
	QD	5/2-way valve, double solenoid, with dominant signal	D52	42 mm	561375	VSVA-B-D52-ZD-D1-1R5L
	QB	5/3-way solenoid valve, Mid-position pressurised	P53U	42 mm	561378	VSVA-B-P53U-ZD-D1-1R5L
	QG	5/3-way solenoid valve, mid-position closed	P53C	42 mm	561376	VSVA-B-P53C-ZD-D1-1R5L
	QE	5/3-way solenoid valve, Mid-position exhausted	P53E	42 mm	561377	VSVA-B-P53E-ZD-D1-1R5L

#### - 🗍 - Note

Additional information about solenoid valves with central plug can be found in the existing catalogue documentation at:

www.festo.com/catalogue/... → Support Portal:

Standards-based valve VSVA to ISO 15407-1 and ISO 5599-1 with M8 or M12 central plug  $% \mathcal{M} = \mathcal{M} = \mathcal{M} + \mathcal{M}$ 

#### Valve terminals VTSA

### Datasheet - Solenoid valve width 52 mm

- **[]** - Valve width to ISO 5599-2 52 mm (ISO 2)

Voltage

24 V DC

- 11 -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 characteristics for valve

Conforms to		EN 13849-1/2
CE marking (see	Direct voltage	To EU EMC Directive <sup>1)</sup>
declaration of conformity)	24 V DC	
KC marking		KC EMC
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/catalogue/...  $\rightarrow$  Support/Downloads.

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

#### Safety characteristics for valve, 24 V DC

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	1000	3500			
5/2-way, double solenoid with dominant signal (D52)	D	1000	3500			
5/2-way, single solenoid (M52-A)	М	1000	3500			
5/2-way, single solenoid (M52-M)	0	1000	3500			
5/3-way, closed (P53C)	G	1000	3500			
5/3-way, exhausted (P53E)	E	1000	3500			
5/3-way, pressurised (P53U)	В	1000	3500			
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	-	-			
2x3/2-way, single solenoid, closed (T32C)	К	1000	3500			
2x3/2-way, single solenoid, open (T32U)	N	1000	3500			
2x3/2-way, single solenoid, open/closed (T32H)	Н	1000	3500			
2x3/2-way, single solenoid, closed (T32N)	Q	1000	3500			
2x3/2-way, single solenoid, open (T32F)	Р	1000	3500			
2x3/2-way, single solenoid, open/closed (T32W)	R	1000	3500			
2x2/2-way, single solenoid, closed (T22C)	VC	1000	3500			

I

T

### Datasheet - Solenoid valve width 52 mm

#### Datasheet for valve

Valve function (with valve code)	Termi-	ermi- Flow direction			Reset method	Weight	
	nal	Any	Reversible only	Not reversible	Pneumatic	Mechanical	[g]
	code				spring	spring	
5/2-way, double solenoid (B52)	J		-	-	-	-	732
5/2-way, double solenoid with dominant signal (D52)	D		-	-	-	-	732
5/2-way, single solenoid (M52-A)	М		-	-	•	-	702
5/2-way, single solenoid (M52-M)	0		-	-	-	•	702
5/3-way, closed <sup>1)</sup> (P53C)	G		-	-	-		780
5/3-way, exhausted <sup>1)</sup> (P53E)	E		-	-	-		780
5/3-way, pressurised <sup>1)</sup> (P53U)	В		-	-	-		780
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG		-	-	-	-	780
2x3/2-way, single solenoid, closed (T32C)	К	-	-	•		-	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

#### Standard nominal flow rate of valve/valve terminal [l/min]

Valve function (with valve code)	Termi-	Flow rate				
	nal	Valve	Valve on valve t	Valve on individual		
	code			sub-base		
			VTSA	VTSA-F	VTSA-F-CB	
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 (M52-A)	M	4000	2900	2900	2900	3400
5/2-way, single solenoid (M52-M)	0	4000	2900	2900	2900	3400
5/3-way, closed (P53C)	G	3600 <sup>1)</sup>	28001)	28001)	28001)	3200 <sup>1)</sup>
		1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, exhausted (P53E)	E	3600 <sup>1)</sup>	2800 <sup>1)</sup>	2800 <sup>1)</sup>	28001)	3200 <sup>1)</sup>
		1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, pressurised (P53U)	В	3600 <sup>1)</sup>	28001)	28001)	28001)	3200 <sup>1)</sup>
		1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F)	VG	30001)	2300 <sup>1)</sup>	2300 <sup>1)</sup>	2300 <sup>1)</sup>	26001)
		900 <sup>2)</sup>	900 <sup>2)</sup>	900 <sup>2)</sup>	900 <sup>2)</sup>	900 <sup>2)</sup>
2x3/2-way, single solenoid, closed (T32C)	К	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

1) Switching position

2) Mid-position

### Datasheet - 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 (M52-A)	Μ	40	45	_
5/2-way, single solenoid (M52-M)	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)		14	35	-

#### 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	4.6
5/2-way, double solenoid with dominant signal (D52)	D	4.6
5/2-way, single solenoid (M52-A)	M	4.6
5/2-way, single solenoid (M52-M)	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 current reduction)						
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

I

Ordering data - Solenoid valve VSVA, MO non-detenting/detenting (D)

Ordering data – S		/SVA, MO non-detenting/detenting (D)	i			
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
Solenoid valves, 2	24 V DC					
× 1235	VC	2x 2/2-way valve, single solenoid,	T22C	52 mm	560831	VSVA-B-T22C-AZD-D2-1T1L
		normally closed,				
R.		pneumatic spring return				
	N	2x 3/2-way valve, single solenoid,	T32U	52 mm	560827	VSVA-B-T32U-AZD-D2-1T1L
		normally open				
~1	Г К	2x 3/2-way valve, single solenoid,	T32C	52 mm	560825	VSVA-B-T32C-AZD-D2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	52 mm	560829	VSVA-B-T32H-AZD-D2-1T1L
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	52 mm	560828	VSVA-B-T32F-AZD-D2-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	52 mm	560826	VSVA-B-T32N-AZD-D2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	52 mm	560830	VSVA-B-T32W-AZD-D2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	M	5/2-way valve, single solenoid,	M52-A	52 mm	560820	VSVA-B-M52-AZD-D2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52-M	52 mm	560821	VSVA-B-M52-MZD-D2-1T1L
		reset via mechanical spring				
	J	5/2-way valve, double solenoid	B52	52 mm	560818	VSVA-B-B52-ZD-D2-1T1L
	D	5/2-way valve, double solenoid,	D52	52 mm	560819	VSVA-B-D52-ZD-D2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	52 mm	560822	VSVA-B-P53U-ZD-D2-1T1L
		Mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	52 mm	560824	VSVA-B-P53C-ZD-D2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	52 mm	560823	VSVA-B-P53E-ZD-D2-1T1L
		Mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	52 mm	8000465	VSVA-B-P53F-ZD-D2-1T1L
		mid-position pressurised 1 to 2, 4 to 5 closed				

#### Ordering data - Solenoid valve VSVA with cover cap for MO non-detenting/heavy duty, detenting via accessory (TR)

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
enoid 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
2	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
	М	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, reset via mechanical spring	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

 $\Big|$  Ordering data – Solenoid valve VSVA with cover cap for MO, non-detenting (H)

ordering data – S		/SVA with cover cap for MO, non-detenting (H)	1	1		1-
	Termi-	Valve function	Valve	Width	Part no.	Туре
	nal		code			
	code					
olenoid valves, 2	24 V DC					
	VC	2x 2/2-way valve, single solenoid,	T22C	52 mm	8034982	VSVA-B-T22C-AZH-D2-1T1L
		normally closed,				
		pneumatic spring return				
A Y	N	2x 3/2-way valve, single solenoid,	T32U	52 mm	8034978	VSVA-B-T32U-AZH-D2-1T1L
		normally open				
~	Г К	2x 3/2-way valve, single solenoid,	T32C	52 mm	8034976	VSVA-B-T32C-AZH-D2-1T1L
		normally closed				
	Н	2x 3/2-way valve, single solenoid,	T32H	52 mm	8034980	VSVA-B-T32H-AZH-D2-1T1LL
		1x normally open, 1x normally closed				
	Р	2x 3/2-way valve, single solenoid,	T32F	52 mm	8034979	VSVA-B-T32F-AZH-D2-1T1L
		reverse operation,				
		normally open				
	Q	2x 3/2-way valve, single solenoid,	T32N	52 mm	8034977	VSVA-B-T32N-AZH-D2-1T1L
		reverse operation,				
		normally closed				
	R	2x 3/2-way valve, single solenoid,	T32W	52 mm	8034981	VSVA-B-T32W-AZH-D2-1T1L
		reverse operation,				
		1x normally open, 1x normally closed				
	м	5/2-way valve, single solenoid,	M52-A	52 mm	8034971	VSVA-B-M52-AZH-D2-1T1L
		pneumatic spring return				
	0	5/2-way valve, single solenoid,	M52-M	52 mm	8034972	VSVA-B-M52-MZH-D2-1T1L
		reset via mechanical spring				
	J	5/2-way valve, double solenoid	B52	52 mm	8034969	VSVA-B-B52-ZH-D2-1T1L
	D	5/2-way valve, double solenoid,	D52	52 mm	8034970	VSVA-B-D52-ZH-D2-1T1L
		with dominant signal				
	В	5/3-way solenoid valve,	P53U	52 mm	8034973	VSVA-B-P53U-ZH-D2-1T1L
		Mid-position pressurised				
	G	5/3-way solenoid valve,	P53C	52 mm	8034975	VSVA-B-P53C-ZH-D2-1T1L
		mid-position closed				
	E	5/3-way solenoid valve,	P53E	52 mm	8034974	VSVA-B-P53E-ZH-D2-1T1L
		Mid-position exhausted				
	VG	5/3-way solenoid valve,	P53F	52 mm	8034983	VSVA-B-P53F-ZH-D2-1T1L
		mid-position pressurised 1 to 2, 4 to 5 closed				

#### Ordering data – Solenoid valve VSVA with cover cap for MO, concealed

	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
Solenoid valves, 24 \	V DC					
	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
	Р	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, reset via mechanical spring	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
	E	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

T

## Ordering data – Solenoid valve 24 V DC – for VTSA-F-CB

#### Ordering data – Solenoid valve VSVA with central plug, 3-pin, M12x1, round design

-	Termi- nal code	Valve function	Valve code	Width	Part no.	Туре
Solenoid valves, 24 V	DC					
	QN	2x 3/2-way valve, single solenoid, normally open	T32U	52 mm	567001	VSVA-B-T32U-AZD-D2-1R5L
	QK	2x 3/2-way valve, single solenoid, normally closed	T32C	52 mm	567000	VSVA-B-T32C-AZD-D2-1R5L
	QH	2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed	Т32Н	52 mm	567002	VSVA-B-T32H-AZD-D2-1R5L
	QM	5/2-way valve, single solenoid, pneumatic spring return	M52-A	52 mm	567003	VSVA-B-M52-AZD-D2-1R5L
	QO	5/2-way valve, single solenoid, reset via mechanical spring	M52-M	52 mm	567004	VSVA-B-M52-MZD-D2-1R5L
	QJ	5/2-way valve, double solenoid	B52	52 mm	567005	VSVA-B-B52-ZD-D2-1R5L
	QD	5/2-way valve, double solenoid, with dominant signal	D52	52 mm	567006	VSVA-B-D52-ZD-D2-1R5L
	QB	5/3-way solenoid valve, Mid-position pressurised	P53U	52 mm	567009	VSVA-B-P53U-ZD-D2-1R5L
	QG	5/3-way solenoid valve, mid-position closed	P53C	52 mm	567007	VSVA-B-P53C-ZD-D2-1R5L
	QE	5/3-way solenoid valve, Mid-position exhausted	P53E	52 mm	567008	VSVA-B-P53E-ZD-D2-1R5L

#### - 🗍 - Note

Additional information about solenoid valves with central plug can be found in the existing catalogue documentation at:

www.festo.com/catalogue/... → Support Portal:

Standards-based valve VSVA to ISO 15407-1 and ISO 5599-1 with M8 or M12 central plug  $% \mathcal{M} = \mathcal{M} = \mathcal{M} + \mathcal{M}$ 

Ordering data – Mani	fold sub-bas	e			
-	Code	Description	Width	Part no.	Туре
VTSA, port pattern to	ISO 15407-2	and ISO 5599-2			
$\overline{\frown}$	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
	C	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	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			-	
	A	2 valve positions, 4 addresses, for double solenoid valves	18 mm	546215	VABV-S4-2HS-G18-2T2
	В	2 valve positions, 4 addresses, for double solenoid valves	26 mm	546211	VABV-S4-1HS-G14-2T2
	XA	2 valve positions, 4 addresses, for double solenoid valves	18/26 mm	8190411	VABV-S4-12HS-G-2T2
	С	1 valve position, 2 addresses, for double solenoid valves	42 mm	546219	VABV-S2-1HS-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	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
	Н	1 valve position, 1 address, for single solenoid valves	52 mm	560842	VABV-S2-2S-G12-T1
			52 mm	500042	VADV 52 25 012 11
TSA-F-CB, with CBUS	loop-throug	-			
$\frown$	A	2 valve positions, 4 addresses, for double solenoid valves <sup>1)</sup>	18 mm	8067932	VABV-S4-2HS-G18-CB-2T2
	В	2 valve positions, 4 addresses, for double solenoid valves <sup>1)</sup>	26 mm	8067940	VABV-S4-1HS-G14-CB-2T2
	C	1 valve position, 2 addresses, for double solenoid valves <sup>1)</sup>	42 mm	8068154	VABV-S2-1HS-G38-CB-T2
	D	1 valve position, 2 addresses, for double solenoid valves <sup>1)</sup>	52 mm	8068146	VABV-S2-2S-G12-CB-T2
	E	2 valve positions, 2 addresses, for single solenoid valves <sup>1)</sup>		8067934	VABV-S4-2HS-G18-CB-2T1
	F	2 valve positions, 2 addresses, for single solenoid valves <sup>1)</sup>	26 mm	8067942	VABV-S4-1HS-G14-CB-2T1
	G	1 valve position, 1 address, for single solenoid valves <sup>1)</sup>	42 mm	8068156	VABV-S2-1HS-G38-CB-T1
	Н	1 valve position, 1 address, for single solenoid valves <sup>1)</sup>	52 mm	8068148	VABV-S2-2S-G12-CB-T1
ISA-F-CB, with CBUS		h for pilot air switching valve	10	00(0010	
	YB	2 valve positions, for pilot air switching valve	18 mm	8068913	VABV-S4-2HS-G18-CB-2T5
		<ul> <li>1 valve position, width 18 mm, with CBUS communication</li> <li>1 valve position, width 18 mm, double solenoid</li> </ul>			
		Sensor evaluation: internal			
			10/07		
	YA	2 valve positions, 4 addresses, for double solenoid valves <sup>1)</sup>	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			
			10/06		
$\sim$	YC	2 valve positions, for pilot air switching valve	18/26 mm	8068912	VABV-S4-12HS-G-CB-2T5
		• 1 valve position, width 18 mm, with CBUS communication			
		<ul> <li>1 valve position, width 26 mm, double solenoid</li> <li>Sensor evaluation: internal</li> </ul>			
TSA-F-CB, with CBUS	loop-throug	h for soft-start valve			
	PV	With CBUS loop-through and new voltage zone	41 mm	8068609	VABV-S6-1Q-G38-CB1-T5
		Pressure sensor plug-in			
		Sensor evaluation: internal			
		(Ports 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
		Pressure sensor plug-in			
		Sensor evaluation: internal			
		(Ports 2 and 4 are combined),			
	1	pneumatic connection G3/8, M5			

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

Ordering data – S	upply plate/exte	ension module				
	Code	Description		Width	Part no.	Туре
VTSA/VTSA-F, sup	ply plate					
	L	With exhaust plate, 3/5 common, G1/2 3			539231	VABF-S6-1-P1A7-G12
	K	With exhaust air cover, 3/5 separated (for dua	ıl-pressure operation), G1/2	38 mm	539230	VABF-S6-1-P1A6-G12
VTSA-F-CB extens	sion module nn	eumatic and electric air supply plate				
		Additional air supply		38 mm	8092506	VABF-S6-1-P1A7-G12-CB
		With exhaust plate, 3/5 common, G1/2				
	UW	Additional pneumatic and electrical supply With exhaust plate, 3/5 common, G1/2 Generation of 24 additional valve addresses (electrical supply is provided internally from Uval)			8104042	VABF-S6-1-P8A7-G12-CB
	USW	Additional pneumatic and electrical supply With exhaust plate, 3/5 common, G1/2 Generation of 24 additional valve addresses (electrical 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 dua	38 mm	8092502	VABF-S6-1-P1A6-G12-CB	
	UW	Additional pneumatic and electrical supply With exhaust air cover, 3/5 separated (for dua Generation of 24 additional valve addresses (electrical supply is provided internally from L	38 mm	8104041	VABF-S6-1-P8A6-G12-CB	
Ŷ	USW	Additional pneumatic and electrical supply With exhaust air cover, 3/5 separated (for dual-pressure operation), G1/2 Generation of 24 additional valve addresses (electrical supply is provided from new (safe) voltage zone (internally from S2))			8104043	VABF-S6-1-P8A6-G12-CB1
90°-connection p	late for VTSA/VT	SA-F				
			ecting thread G1/8	18 mm	539719	VABF-S4-2-A2G2-G18
88			ecting thread G1/4	26 mm	539721	VABF-S4-1-A2G2-G14
			ecting thread G3/8	20 mm	539721	VABF-S2-1-A1G2-G38
			• ·	-	546097	VABF-S2-1-A1G2-G38
÷ .		Conn	ecting thread G1/2	52 mm	555/02	VADT-52-2-A102-012

Ordering data – Vertica	I <b>l stacking</b> Code	Description			Width	Part no.	Туре
Vertical supply plate							
	ZU	Individual compressed air supply,	Connecting thread G1/8		18 mm	540173	VABF-S4-2-P1A3-G18
$\langle \langle \rangle$		duct 1	Connecting thre	,	26 mm	540171	VABF-S4-1-P1A3-G14
			Connecting thre	ad G3/8	42 mm	546093	VABF-S2-1-P1A3-G38
			Connecting thre	ad G1/2	52 mm	555786	VABF-S2-2-P1A3-G12
- UKG	ZV	Individual compressed air supply,	Connecting thre		18 mm	8000693	VABF-S4-2-P1A14-G18
		ducts 1 and 14	Connecting thre		26 mm	8000689	VABF-S4-1-P1A14-G14
			Connecting thre	ad G3/8	42 mm	8000536	VABF-S2-1-P1A14-G38
			Connecting thre	ad G1/2	52 mm	8000549	VABF-S2-2-P1A14-G12
Vertical supply plate for	valves with	central plug, VTSA-F-CB					
$\sim$	ZU	Individual compressed air supply,	Connecting thre	ad G1/8	18 mm	544435	VABF-S3-2-P1A3-G18
A Com		duct 1	Connecting thre	ad G1/4	26 mm	544434	VABF-S3-1-P1A3-G14
			Connecting thre	ad G3/8	42 mm	549100	VABF-S1-1-P1A3-G38
			Connecting thre		52 mm	555785	VABF-S1-2-P1A3-G12
Regulator plate, width 1	Code 8 mm ZA	Pressure regulation for port	Control range [bar] 0.5 8.5	[MPa]	Width	Part no. 540153	Type VABF-S4-2-R1C2-C-10
	ZF	1	0.5 6	0.05 0.6	18 mm	540155	VABF-S4-2-R1C2-C-6
	ZC	2	28.5	0.2 0.85	18 mm	540161	VABF-S4-2-R2C2-C-10
No. 8	ZH	2	26	0.2 0.6	18 mm	540159	VABF-S4-2-R2C2-C-10
	ZB	4	28.5	0.2 0.85	18 mm	540155	VABF-S4-2-R3C2-C-10
	ZG	4	26	0.2 0.6	18 mm	540155	VABF-S4-2-R3C2-C-6
*	ZD	2 and 4	28.5	0.2 0.85	18 mm	540165	VABF-S4-2-R4C2-C-10
	ZI	2 and 4	2 6	0.2 0.6	18 mm	540163	VABF-S4-2-R4C2-C-6
	ZE	2 and 4, reversible	0.5 8.5	0.05 0.85	18 mm	540169	VABF-S4-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.5 6	0.05 0.6	18 mm	540167	VABF-S4-2-R5C2-C-6
	ZL	2, reversible	0.5 8.5	0.05 0.85	18 mm	546252	VABF-S4-2-R6C2-C-10
	ZN	2, reversible	0.5 6	0.05 0.6	18 mm	546248	VABF-S4-2-R6C2-C-6
	ZK	4, reversible	0.5 8.5	0.05 0.85	18 mm	546254	VABF-S4-2-R7C2-C-10
	ZM	4, reversible	0.5 6	0.05 0.6	18 mm	546250	VABF-S4-2-R7C2-C-6
Regulator plate, width 2	6 mm		•				
	ZA	1	0.5 8.5	0.05 0.85	26 mm	540154	VABF-S4-1-R1C2-C-10
	ZF	1	0.5 6	0.05 0.6	26 mm	540152	VABF-S4-1-R1C2-C-6
	ZC	2	2 8.5	0.2 0.85	26 mm	540162	VABF-S4-1-R2C2-C-10
	ZH	2	2 6	0.20.6	26 mm	540160	VABF-S4-1-R2C2-C-6
The A							
	ZB	4	2 8.5	0.2 0.85	26 mm	540158	VABF-S4-1-R3C2-C-10
	ZB ZG	4 4		0.20.6	26 mm 26 mm	540158 540156	VABF-S4-1-R3C2-C-10 VABF-S4-1-R3C2-C-6
	ZB ZG ZD	4 4 2 and 4	2 8.5 2 6 2 8.5	0.20.6 0.2 0.85	26 mm 26 mm	540156 540166	VABF-S4-1-R3C2-C-6 VABF-S4-1-R4C2-C-10
	ZB ZG ZD ZI	4 4 2 and 4 2 and 4	2 8.5 2 6 2 8.5 2 6	0.20.6 0.2 0.85 0.20.6	26 mm 26 mm 26 mm	540156 540166 540164	VABF-S4-1-R3C2-C-6 VABF-S4-1-R4C2-C-10 VABF-S4-1-R4C2-C-6
	ZB ZG ZD ZI ZE	4 4 2 and 4 2 and 4 2 and 4, reversible	2 8.5 2 6 2 8.5 2 6 0.5 8.5	0.20.6 0.2 0.85 0.20.6 0.05 0.85	26 mm 26 mm 26 mm 26 mm	540156 540166 540164 540170	VABF-S4-1-R3C2-C-6 VABF-S4-1-R4C2-C-10 VABF-S4-1-R4C2-C-6 VABF-S4-1-R5C2-C-10
	ZB ZG ZD Zl ZE ZJ	4 4 2 and 4 2 and 4 2 and 4, reversible 2 and 4, reversible	2 8.5 2 6 2 8.5 2 6 0.5 8.5 0.5 6	0.20.6           0.20.85           0.20.6           0.050.85           0.050.6	26 mm 26 mm 26 mm 26 mm 26 mm	540156 540166 540164 540170 540168	VABF-S4-1-R3C2-C-6 VABF-S4-1-R4C2-C-10 VABF-S4-1-R4C2-C-6 VABF-S4-1-R5C2-C-10 VABF-S4-1-R5C2-C-6
	ZB ZG ZD Z1 ZE ZJ ZL	4 4 2 and 4 2 and 4 2 and 4, reversible 2 and 4, reversible 2, reversible	2 8.5 2 6 2 8.5 2 6 0.5 8.5 0.5 6 0.5 8.5	0.20.6           0.20.85           0.20.6           0.050.85           0.050.6           0.050.85	26 mm 26 mm 26 mm 26 mm 26 mm 26 mm	540156 540166 540164 540170 540168 546251	VABF-S4-1-R3C2-C-6 VABF-S4-1-R4C2-C-10 VABF-S4-1-R4C2-C-6 VABF-S4-1-R5C2-C-10 VABF-S4-1-R5C2-C-6 VABF-S4-1-R6C2-C-10
Regulator plate, width 2	ZB           ZG           ZD           Z1           ZE           ZJ           ZL           ZN	4 4 2 and 4 2 and 4 2 and 4, reversible 2 and 4, reversible	2 8.5 2 6 2 8.5 2 6 0.5 8.5 0.5 6	0.20.6           0.20.85           0.20.6           0.050.85           0.050.6	26 mm 26 mm 26 mm 26 mm 26 mm	540156 540166 540164 540170 540168	VABF-S4-1-R3C2-C-6 VABF-S4-1-R4C2-C-10 VABF-S4-1-R4C2-C-6 VABF-S4-1-R5C2-C-10 VABF-S4-1-R5C2-C-6
	ZB ZG ZD Z1 ZE ZJ ZL	4 4 2 and 4 2 and 4 2 and 4, reversible 2 and 4, reversible 2, reversible	2 8.5 2 6 2 8.5 2 6 0.5 8.5 0.5 6 0.5 8.5	0.20.6           0.20.85           0.20.6           0.050.85           0.050.6           0.050.85	26 mm 26 mm 26 mm 26 mm 26 mm 26 mm	540156 540166 540164 540170 540168 546251	VABF-S4-1-R3C2-C-6 VABF-S4-1-R4C2-C-10 VABF-S4-1-R4C2-C-6 VABF-S4-1-R5C2-C-10 VABF-S4-1-R5C2-C-6 VABF-S4-1-R6C2-C-10

	Code	Pressure regulation for port	Control range		Width	Part no.	Туре
			[bar]	[MPa]			
gulator plate, width	42 mm						
0	ZA	1	0.5 8.5	0.05 0.85	42 mm	546084	VABF-S2-1-R1C2-C-10
L	ZF	1	0.5 6	0.05 0.6	42 mm	546083	VABF-S2-1-R1C2-C-6
	ZC	2	1.0 10	0.1 1	42 mm	546088	VABF-S2-1-R2C2-C-10
	ZH	2	1.0 6	0.1 0.6	42 mm	546087	VABF-S2-1-R2C2-C-6
	B ZB	4	1.0 10	0.1 1	42 mm	546086	VABF-S2-1-R3C2-C-10
	ZG	4	0.5 6	0.05 0.6	42 mm	546085	VABF-S2-1-R3C2-C-6
	ZD	2 and 4	1.0 10	0.1 1	42 mm	546090	VABF-S2-1-R4C2-C-10
	ZI	2 and 4	1.0 6	0.1 0.6	42 mm	546089	VABF-S2-1-R4C2-C-6
	ZE	2 and 4, reversible	0.5 10	0.05 1	42 mm	546092	VABF-S2-1-R5C2-C-10
	ZJ	2 and 4, reversible	0.5 6	0.05 0.6	42 mm	546091	VABF-S2-1-R5C2-C-6
	ZL	2, reversible	0.5 10	0.05 1	42 mm	546832	VABF-S2-1-R6C2-C-10
	ZN	2, reversible	0.5 6	0.05 0.6	42 mm	546831	VABF-S2-1-R6C2-C-6
	ZK	4, reversible	0.5 10	0.05 1	42 mm	546834	VABF-S2-1-R7C2-C-10
	ZM	4, reversible	0.5 6	0.05 0.6	42 mm	546833	VABF-S2-1-R7C2-C-6
ulator plate, width	52 mm						
$\square$	ZA	1	0.5 10	0.05 1	52 mm	555772	VABF-S2-2-R1C2-C-10
ī,	ZF	1	0.5 6	0.05 0.6	52 mm	555771	VABF-S2-2-R1C2-C-6
	ZC	2	1.0 10	0.1 1	52 mm	555774	VABF-S2-2-R2C2-C-10
	ZH	2	1.0 6	0.1 0.6	52 mm	555773	VABF-S2-2-R2C2-C-6
	B ZB	4	1.0 10	0.1 1	52 mm	555776	VABF-S2-2-R3C2-C-10
	ZG	4	1.0 6	0.1 0.6	52 mm	555775	VABF-S2-2-R3C2-C-6
	ZD	2 and 4	1.0 10	0.1 1	52 mm	555778	VABF-S2-2-R4C2-C-10
	ZI	2 and 4	1.0 6	0.1 0.6	52 mm	555777	VABF-S2-2-R4C2-C-6
	ZE	2 and 4, reversible	0.5 10	0.05 1	52 mm	555780	VABF-S2-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.5 6	0.05 0.6	52 mm	555779	VABF-S2-2-R5C2-C-6
	ZL	2, reversible	0.5 10	0.05 1	52 mm	555782	VABF-S2-2-R6C2-C-10
	ZN	2, reversible	0.5 6	0.05 0.6	52 mm	555781	VABF-S2-2-R6C2-C-6
	ZK	4, reversible	0.5 10	0.05 1	52 mm	555784	VABF-S2-2-R7C2-C-10
	ZM	4, reversible	0.5 6	0.05 0.6	52 mm	555783	VABF-S2-2-R7C2-C-6

#### Valve terminals VTSA

# Accessories – Pneumatic components

Code	Pressure regulation for port	Control range		Width	Part no.	Туре
			1		r art no.	Type
		[bar]	[MPa]			
	etrical design, width 18 mm					-
ZAY	1	0.5 8.5	0.05 0.85	18 mm	560756	VABF-S4-2-R1C2-C-10E
		0.5 6	0.05 0.6	18 mm	560758	VABF-S4-2-R1C2-C-6E
ZCY		2 8.5	0.2 0.85	18 mm	560763	VABF-S4-2-R2C2-C-10E
ZHY	2	2 6	0.2 0.6	18 mm	560765	VABF-S4-2-R2C2-C-6E
ZDY	2 and 4	2 8.5	0.2 0.85	18 mm	560767	VABF-S4-2-R4C2-C-10E
ZIY	2 and 4	2 6	0.2 0.6	18 mm	560769	VABF-S4-2-R4C2-C-6E
ZEY	2 and 4, reversible	0.5 8.5	0.05 0.85	18 mm	560771	VABF-S4-2-R5C2-C-10E
ZJY	2 and 4, reversible	0.5 6	0.05 0.6	18 mm	560773	VABF-S4-2-R5C2-C-6E
ZLY	2, reversible	0.5 8.5	0.05 0.85	18 mm	560775	VABF-S4-2-R6C2-C-10E
ZNY	2, reversible	0.5 6	0.05 0.6	18 mm	560777	VABF-S4-2-R6C2-C-6E
with symm	etrical design width 26 mm					
· · ·	• ·	0.58.5	0.050.85	26 mm	560757	VABF-S4-1-R1C2-C-10E
				-		VABF-S4-1-R1C2-C-6E
						VABF-S4-1-R2C2-C-10E
						VABI-54-1-R2C2-C-10L
						VABI-54-1-R2C2-C-0E
						VABI-54-1-R4C2-C-10L
						VABF-S4-1-R5C2-C-10E
	,					VABF-S4-1-R5C2-C-6E
						VABF-S4-1-R6C2-C-10E
						VABF-S4-1-R6C2-C-6E
		0.9 0	0.09 0.0	20 1111	500770	
with symm	etrical design, width 42 mm <sup>1)</sup>					
ZAY	1	0.5 10	0.05 1	42 mm	-	VABF-S2-1-R1C2-C-10E
		0.5 6	0.05 0.6	42 mm	-	VABF-S2-1-R1C2-C-6E
		0.5 10	0.05 1	42 mm	-	VABF-S2-1-R2C2-C-10E
	2	0.5 6	0.05 0.6	42 mm	-	VABF-S2-1-R2C2-C-6E
					-	VABF-S2-1-R3C2-C-10E
					-	VABF-S2-1-R3C2-C-6E
					-	VABF-S2-1-R4C2-C-10E
		0.5 6		42 mm	-	VABF-S2-1-R4C2-C-6E
	2 and 4, reversible	0.5 10	0.05 1	42 mm	-	VABF-S2-1-R5C2-C-10E
		0.5 6			-	VABF-S2-1-R5C2-C-6E
ZLY	2, reversible	0.5 10	0.05 1	42 mm	-	VABF-S2-1-R6C2-C-10E
ZNY	2, reversible	0.5 6	0.05 0.6	42 mm	-	VABF-S2-1-R6C2-C-6E
ZKY	4, reversible	0.5 10	0.05 1	42 mm	-	VABF-S2-1-R7C2-C-10E
ZMY	4, reversible	0.5 6	0.05 0.6	42 mm	-	VABF-S2-1-R7C2-C-6E
with symm	etrical design, width 52 mm <sup>1)</sup>		· · · · · · · · · · · · · · · · · · ·			
ZAY	1	0.5 10	0.05 1	52 mm	-	VABF-S2-2-R1C2-C-10E
ZFY	1			52 mm	-	VABF-S2-2-R1C2-C-6E
ZCY	2				-	VABF-S2-2-R2C2-C-10E
ZHY	2				-	VABF-S2-2-R2C2-C-6E
	4		0.05 1	52 mm	-	VABF-S2-2-R3C2-C-10E
ZGY	4				-	VABF-S2-2-R3C2-C-6E
ZDY	2 and 4			52 mm	-	VABF-S2-2-R4C2-C-10E
ZIY	2 and 4		0.05 0.6		-	VABF-S2-2-R4C2-C-6E
				52 mm	_	VABF-S2-2-R5C2-C-10E
				_		VABF-S2-2-R5C2-C-6E
						VABF-S2-2-R6C2-C-10E
ZNY	2, reversible	0.5 6	0.05 0.6	52 mm	_	VABF-S2-2-R6C2-C-6E
		0.5 10	0.05 1	52 mm	_	VABF-S2-2-R7C2-C-10E
ZKY	4, reversible	10.5	10.031			
	ZFY ZCY ZHY ZCY ZIY ZIY ZIY ZIY ZIY ZIY ZIY ZY	ZFY1ZCY2ZHY2ZDY2 and 4ZIY2 and 4, reversibleZIY2 and 4, reversibleZIY2 and 4, reversibleZIY2 and 4, reversibleZIY2, reversibleZNY2, reversibleWith symetrical design, width 26 mmZAY1ZFY1ZCY2ZHY2ZDY2 and 4ZIY2 and 4ZIY2 and 4ZIY2 and 4, reversibleZIY2 and 4, reversibleZIY2 and 4, reversibleZIY2 and 4, reversibleZIY2, reversibleZIY2, reversibleZIY2, reversibleZIY1ZCY2ZHY1ZCY2ZHY1ZFY1ZCY2ZHY2ZBY4ZGY4ZDY2 and 4, reversibleZIY2 and 4, reversibleZIY2 and 4, reversibleZIY2, reversibleZIY2, reversibleZIY4, reversibleZIY2ZHY1ZCY2ZHY1ZCY2ZHY2, reversibleZIY2, reversibleZIY2, reversibleZIY2, and 4, reversibleZIY2, and 4ZIY2, and 4ZIY<	ZFY       1       0.5 6         ZCY       2       2 8.5         ZHY       2       2 6         ZDY       2 and 4       2 8.5         ZIY       2 and 4, reversible       0.5 6         ZIY       2, reversible       0.5 6         ZIY       2, reversible       0.5 6         ZIY       1       0.5 6         ZIY       1       0.5 6         ZIY       1       0.5 6         ZIY       2       2 6         ZDY       2 and 4       2 8.5         ZIY       2 and 4, reversible       0.5 6         ZIY       2 and 4, reversible       0.5 6         ZIY       2 and 4, reversible       0.5 6         ZIY       2, reversible       0.5 6         ZIY       2, reversible       0.5 6         ZIY       2, reversible       0.5 6         ZIY       2 and 4, reversible       0.5 6         ZIY       2 and 4, reversible	ZPY         1         0.56         0.050.6           ZCY         2         28.5         0.20.85           ZHY         2 and 4         26         0.20.6           ZDY         2 and 4         26         0.20.6           ZEY         2 and 4, reversible         0.58.5         0.20.6           ZEY         2 and 4, reversible         0.56         0.050.85           ZIY         2 and 4, reversible         0.56         0.050.6           ZIY         2, reversible         0.56         0.050.6           ZYY         1         0.56         0.050.6           ZY         1         0.56         0.050.6           ZY         2 and 4         26         0.20.6           ZYY         2 and 4, reversible         0.58.5         0.050.6           ZY         2 and 4, reversible         0.56         0.050.6           ZY         2 and 4, reversible         0.56         0	ZPY         1         0.5         6         0.05         0.6         18 mm           ZCY         2         2         8.5         0.2         0.06         18 mm           ZHY         2         2         6         0.2         0.6         18 mm           ZHY         2 and 4         2         8.5         0.2         0.05         18 mm           ZIY         2 and 4, reversible         0.5         8.5         0.05         0.05         18 mm           ZIY         2 reversible         0.5         6         0.05         0.06         18 mm           ZIY         2 reversible         0.5         6         0.05         0.06         18 mm           ZIY         2 reversible         0.5         6         0.05         0.66         18 mm           ZIY         2 reversible         0.5         6         0.05         0.66         18 mm           ZIY         2 reversible         0.5         6         0.05         0.66         26 mm           ZY         2 and 4         2         8.5         0.2         0.62         6 mm           ZIY         2 and 4, reversible         0.5         6         0.05	ZPY         1         0.5        6         0.05        0.6         18 mm         560758           ZCY         2        8.5         0.2        0.85         18 mm         560763           ZIY         2

1) These functions are only 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	Pressure regulation for port	Control range		Pressure regulation for port Control range Width	idth Part no.	Туре
			[bar]	[MPa]			
egulator plate, width 1	18 mm						
$\sim$	ZA	1	0.5 8.5	0.05 0.85	18 mm	543526	VABF-S3-2-R1C2-C-10
	ZF	1	0.5 6	0.05 0.6	18 mm	543524	VABF-S3-2-R1C2-C-6
	ZC	2	2 8.5	0.2 0.85	18 mm	543534	VABF-S3-2-R2C2-C-10
and the second	ZH	2	2 6	0.2 0.6	18 mm	543532	VABF-S3-2-R2C2-C-6
	ZB	4	2 8.5	0.2 0.85	18 mm	543530	VABF-S3-2-R3C2-C-10
*	ZG	4	2 6	0.2 0.6	18 mm	543528	VABF-S3-2-R3C2-C-6
	ZD	2 and 4	2 8.5	0.2 0.85	18 mm	543538	VABF-S3-2-R4C2-C-10
	ZI	2 and 4	2 6	0.2 0.6	18 mm	543536	VABF-S3-2-R4C2-C-6
	ZE	2 and 4, reversible	0.5 8.5	0.05 0.85	18 mm	543542	VABF-S3-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.5 6	0.05 0.6	18 mm	543540	VABF-S3-2-R5C2-C-6
	ZL	2, reversible	0.5 8.5	0.05 0.85	18 mm	546788	VABF-S3-2-R6C2-C-10
	ZN	2, reversible	0.5 6	0.05 0.6	18 mm	546786	VABF-S3-2-R6C2-C-6
	ZK	4, reversible	0.5 8.5	0.05 0.85	18 mm	546792	VABF-S3-2-R7C2-C-10
	ZM	4, reversible	0.5 6	0.05 0.6	18 mm	546790	VABF-S3-2-R7C2-C-6
	26			•			
gulator plate, width 2		1			26	542527	VABF-S3-1-R1C2-C-10
èr 🛞	ZA	1	0.5 8.5	0.05 0.85	26 mm	543527	-
	ZF ZC		0.5 6		26 mm	543525	VABF-S3-1-R1C2-C-6
	<b>9</b>	2	2 8.5	0.2 0.85	26 mm	543535	VABF-S3-1-R2C2-C-10
A A A A A A A A A A A A A A A A A A A	ZH	2	26	0.2 0.6	26 mm	543533	VABF-S3-1-R2C2-C-6
	ZB	4	2 8.5	0.2 0.85	26 mm	543531	VABF-S3-1-R3C2-C-10
	ZG	4	26	0.2 0.6	26 mm	543529	VABF-S3-1-R3C2-C-6
	ZD	2 and 4	2 8.5	0.2 0.85	26 mm	543539	VABF-S3-1-R4C2-C-10
	ZI	2 and 4	2 6	0.2 0.6	26 mm	543537	VABF-S3-1-R4C2-C-6
	ZE	2 and 4, reversible	0.5 8.5	0.05 0.85	26 mm	543543	VABF-S3-1-R5C2-C-10
	ZJ	2 and 4, reversible	0.5 6	0.05 0.6	26 mm	543541	VABF-S3-1-R5C2-C-6
	ZL	2, reversible	0.5 8.5	0.05 0.85	26 mm	546789	VABF-S3-1-R6C2-C-10
	ZN	2, reversible	0.5 6	0.05 0.6	26 mm	546787	VABF-S3-1-R6C2-C-6
	ZK	4, reversible	0.5 8.5	0.05 0.85	26 mm	546793	VABF-S3-1-R7C2-C-10
	ZM	4, reversible	0.5 6	0.05 0.6	26 mm	546791	VABF-S3-1-R7C2-C-6
ulator plate, width 4	42 mm						
$\sim$	ZA	1	0.5 10	0.05 1	42 mm	546818	VABF-S1-1-R1C2-C-10
	ZF	1	0.5 6	0.05 0.6	42 mm	546817	VABF-S1-1-R1C2-C-6
	ZC	2	1.0 10	0.1 1	42 mm	546822	VABF-S1-1-R2C2-C-10
	ת ZH	2	1.0 6	0.1 0.6	42 mm	546821	VABF-S1-1-R2C2-C-6
	ZB	4	1.0 10	0.1 1	42 mm	546820	VABF-S1-1-R3C2-C-10
	ZG	4	0.5 6	0.05 0.6	42 mm	546819	VABF-S1-1-R3C2-C-6
	ZD	2 and 4	1.0 10	0.1 1	42 mm	546824	VABF-S1-1-R4C2-C-10
	ZI	2 and 4	1.0 6	0.1 0.6	42 mm	546823	VABF-S1-1-R4C2-C-6
	ZE	2 and 4, reversible	0.5 10	0.05 1	42 mm	546826	VABF-S1-1-R5C2-C-10
	ZJ	2 and 4, reversible	0.5 6	0.05 0.6	42 mm	546825	VABF-S1-1-R5C2-C-6
	ZL	2, reversible	0.5 10	0.05 1	42 mm	546828	VABF-S1-1-R6C2-C-10
	ZN	2, reversible	0.5 6	0.05 0.6	42 mm	546827	VABF-S1-1-R6C2-C-6
	ZK	4, reversible	0.5 10	0.05 1	42 mm	546830	VABF-S1-1-R7C2-C-10
	ZM	4, reversible	0.5 6	0.05 0.6	42 mm	546829	VABF-S1-1-R7C2-C-6

### Ordering data – Vertical stacking for valves with central plug, VTSA-F-CB

U U U	Code	Pressure regulation for port	Control range		Width	Part no.	Туре
			[bar]	[MPa]			
Regulator plate, width 52	mm						
	ZA	1	0.5 10	0.05 1	52 mm	555758	VABF-S1-2-R1C2-C-10
	ZF	1	0.5 6	0.05 0.6	52 mm	555757	VABF-S1-2-R1C2-C-6
	ZC	2	1.0 10	0.1 1	52 mm	555760	VABF-S1-2-R2C2-C-10
	ZH	2	1.0 6	0.1 0.6	52 mm	555759	VABF-S1-2-R2C2-C-6
	ZB	4	1.0 10	0.1 1	52 mm	555762	VABF-S1-2-R3C2-C-10
Ý	ZG	4	1.0 6	0.1 0.6	52 mm	555761	VABF-S1-2-R3C2-C-6
	ZD	2 and 4	1.0 10	0.1 1	52 mm	555764	VABF-S1-2-R4C2-C-10
	ZI	2 and 4	1.0 6	0.1 0.6	52 mm	555763	VABF-S1-2-R4C2-C-6
	ZE	2 and 4, reversible	0.5 10	0.05 1	52 mm	555766	VABF-S1-2-R5C2-C-10
	ZJ	2 and 4, reversible	0.5 6	0.05 0.6	52 mm	555765	VABF-S1-2-R5C2-C-6
	ZL	2, reversible	0.5 10	0.05 1	52 mm	555768	VABF-S1-2-R6C2-C-10
	ZN	2, reversible	0.5 6	0.05 0.6	52 mm	555767	VABF-S1-2-R6C2-C-6
	ZK	4, reversible	0.5 10	0.05 1	52 mm	555770	VABF-S1-2-R7C2-C-10
	ZM	4, reversible	0.5 6	0.05 0.6	52 mm	555769	VABF-S1-2-R7C2-C-6

	Code	Description		Width	Part no.	Туре
Pressure gauge						
$\sim$	Т	With cartridge connection for	Scale in bar/psi,	18 mm	543487	PAGN-26-16-P10
		regulator, 10 bar dis		26 mm		
			for regulator plate code ZA, ZB, ZC, ZD, ZE,	42 mm	548010	PAGN-40-16-P10
Ŭ				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	563735	PAGN-26-1.6M-P10
	re	regulator, 10 bar	for regulator plate code ZA, ZB, ZC, ZD, ZE,	26 mm		
				42 mm	563737	PAGN-40-1.6M-P10
			ZK, ZL	52 mm		
	WU	regulator, 6 bar display range 016 bar/01 MPa 2	display range 016 bar/01 MPa	18 mm	563736	PAGN-26-1M-P10
				26 mm		
			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	1	
			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	10	0090970	
			aishiay lange oto pai	26 mm		

Cartridge for regulator pla	Code	Lioccription			1-
I Cartridge for regulator pla		Description	:	Part no.	Туре
	ite	Frankling O.D. ( mar	4	470070	05040 /
	-	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 car- tridge connection)	6 pieces	565811	QSP10-G1/8
Throttle plate					
	Х	controls the flow of exhaust air downstream of the valve to ducts 3 and 5	18 mm	540176	VABF-S4-2-F1B1-C
			26 mm	540175	VABF-S4-1-F1B1-C
Ne -		42 mm	546095	VABF-S2-1-F1B1-C	
			52 mm	555789	VABF-S2-2-F1B1-C
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					
Throttle plate for valves w					
	Х	For port pattern to ISO 15407-2 and ISO 5599-2,	18 mm	543603	VABF-S3-2-F1B1-C
1 Stor		controls the flow of exhaust air downstream of the valve to ducts 3 and 5	26 mm	543604	VABF-S3-1-F1B1-C
			42 mm	549102	VABF-S1-1-F1B1-C
			52 mm	555788	VABF-S1-2-F1B1-C
Vertical pressure shut-off	plate				
	ZT	T 3/2-way valve for shutting off the operating pressure at the valve position	18 mm	542884	VABF-S4-2-L1D1-C
A Constant	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
Vertical pressure shut-off	plate for va	alves with central plug, VTSA-F-CB			
	ZT	3/2-way valve for shutting off the operating pressure at the valve position	18 mm	543601	VABF-S3-2-L1D1-C
		Pressure separation can be shut off on the valve assembly	26 mm	543602	VABF-S3-1-L1D1-C
			42 mm	549103	VABF-S1-1-L1D1-C
			52 mm	555790	VABF-S1-2-L1D1-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 links (with individual connection), size 18 mm and 26 mm	10 pieces	547713	VABD-S4-E-C
	-	Seal (with individual connection), Width 42 mm and 52 mm	2 pieces	571343	VABD-S2-1-S-C

### Ordering data – Accessories for valves with central plug, VTSA-F-CB

	Description		Part no.	Туре
<b>~</b>	Cover plate to seal spare or vacant valve positions	18 mm	161114	NDV-02-VDMA
		26 mm	161107	NDV-01-VDMA
	Sealing cap for electrical links (with individual connection), size 18 mm and 26 mm	10 pieces	547713	VABD-S4-E-C
$\gg$	Seal (with individual connection), Width 42 mm and 52 mm	2 pieces	571343	VABD-S2-1-S-C

# Accessories – Electric components

	Code	Description		Width	Part no.	Туре
ulti-pin node for VTS	A/VTSA-F					
<u> </u>	Т	Terminal strip, 36-pin	- Î - Note	-	543412	VABE-S6-1LF-C-M1-C36M
	MP1	Sub-D plug, 37-pin	- 闄 - Note	-	543414	VABE-S6-1LT-C-M1-S37
	MP4	Round plug, 19-pin	Multi-pin node supplied without cover.	-	543415	VABE-S6-1LF-C-M1-R19
			Please order appropriate cover with ca-			
			ble separately.			
dividual electrical co		-		1		1
	MP2	Multi-pin node with individu		-	549046	VABE-S6-LT-C-S6-R5
	MP3	Multi-pin node with individu	al connection M12, 10-way	-	549047	VABE-S6-LT-C-S10-R5
	-	Cover for individual connecti		-	549048	VAEM-S6-C-S6-R5
	-	Cover for individual connecti	on M12, 10-way	-	549049	VAEM-S6-C-S10-R5
$\checkmark$						
eumatic interface fo	r VTSA/VTSA	-F				
	-	For electrical terminal CPX in	polymer	50 mm	543416	VABA-S6-1-X1
	-	For electrical terminal CPX in	metal	50 mm	550663	VABA-S6-1-X2
	-	For electrical terminal CPX in		50 mm	573613	VABA-S6-1-X2-D
		with changed diagnostic fun	ction			
* \/						
eumatic interface fo	r VTSA-F-CB				-	
• • • • • • • • • • • • • • • • • • •	RA	For electrical terminal CPX in		50 mm	8082877	VABA-S6-1-X1-CB
			ort circuit and undervoltage of valves, wire			
		break per solenoid coil)				
		For electrical terminal CPX in		50 mm	8082876	VABA-S6-1-X2-CB
			ort circuit and undervoltage of valves, wire			
<u>~</u>	RD	break per solenoid coil)	nterface for PROFIsafe only) in metal with	50 mm	8068241	VABA-S6-1-X2-F2-CB
		2 safe voltage zones and	nenace for ENGLISHER UNITY IN MELAL WILL		0008241	VADA-30-1-AZ-FZ-CD
		<ul> <li>1 safe output (connection)</li> </ul>	: M12)			
			ort circuit and undervoltage of valves, wire			
		break per solenoid coil)				
	RC		nterface for PROFIsafe only) in metal with	50 mm	8068240	VABA-S6-1-X2-F1-CB
		• 3 safe voltage zones				
			ort circuit and undervoltage of valves, wire			
		break per solenoid coil)				
	RB	For electrical terminal CPX (in	nterface for fieldbus only) in polymer	50 mm	8082879	VABA-S6-1-X1-3V-CB
		With 3 voltage zones			0002077	
		With external power supp	ly 3xM12			
		Integrated diagnostics (sh	ort circuit and undervoltage of valves, wire			
		break per solenoid coil)				
	RB	For electrical terminal CPX (ir	nterface for fieldbus only) in metal	50 mm	8082878	VABA-S6-1-X2-3V-CB
		• With 3 voltage zones	~			
		With external power supp				
			ort circuit and undervoltage of valves, wire			
		break per solenoid coil)				
	1					

# Accessories – Electric components

Ordering data	1		1	1
	Code	Description	Part no.	Туре
lectrical interface IO	)-Link	1		
		Interfaz IO-Link, for 16 valve positions	8152353	VABA-S6-1-PT
neumatic interface f				
	XB	CPX pneumatic interface with adapter plate on left, for expansion with 3 external power sup-	8152438	VABA-S6-1-X2-3V-CB-AL
		plies for the zones	6152456	VADA-30-1-A2-3V-CD-AL
	XC	CPX pneumatic interface with adapter plate on left, for expansion with 3 safe internal zones (PROFIsafe)	8152437	VABA-S6-1-X2-F1-CB-AL
	XD	CPX pneumatic interface with adapter plate on left, for expansion with 2 safe internal zones + 1 safe output (PROFIsafe)	8152436	VABA-S6-1-X2-F2-CB-AL
	PC	CPX pneumatic interface with adapter plate on left and additional power supply, for expan-	8152435	VABA-S6-1-X2-F1-CB2-AL
		sion with 3 safe internal zones (PROFIsafe)	01)24))	TADA-30-1-A2-(1-CD2-AL
	PD	CPX pneumatic interface with adapter plate on left and additional power supply, for exten-	8152434	VABA-S6-1-X2-F2-CB2-AL
		sion with 2 safe internal zones + 1 safe output (PROFIsafe)	0152454	
lectrical interface fo	r AS-Interface		5/00/0	
	-	4 inputs/4 outputs 8 inputs/8 outputs	549042 549043	VABE-S6-1LF-C-A4-E VABE-S6-1LF-C-A8-E
			347043	VADE-30-1LF-C-AO-E
S-Interface module	for VTSA/VTSA	<b>₩</b> F		
	-	4 inputs/4 outputs	549044	VAEM-S6-S-FAS-4-4E
	- 0	8 inputs/8 outputs	549045	VAEM-S6-S-FAS-8-8E
Connection block for	AS-Interface 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
		8x spring-loaded terminal, Cage Clamp <sup>®</sup> , 4-pin	195708	CPX-AB-8-KL-4POL
	В	Sub-D, 25-pin, socket	525676	CPX-AB-1-SUB-BU-25POL

# Accessories – Electric components

	Description		Part no.	Туре
Connecting cable for	electrical connection of individual valves with central plug, VSTA-F-CB			
OF MARS	<ul> <li>Straight socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	5 m	541328	NEBU-M12G5-K-5-LE4
	<ul> <li>Straight socket, 1xM8, 3-pin</li> <li>Straight plug 1xM12, 3-pin</li> <li>With 2x inscription label holders</li> </ul>	0.5 m	8000209	NEBU-M8G3-K-0.5-M12G3
AT IN COLOR	<ul> <li>Straight socket, 1xM8, 3-pin</li> <li>Straight plug 1xM12, 3-pin</li> <li>Without inscription label holder</li> </ul>	1 m	8091512	NEBU-M8G3-K-1-N-M12G3
A THE TE	Modular system for a choice of connecting cables	-	-	NEBU → Internet: nebu

### Accessories – General

	Code	Description		Part no.	Туре
onnecting cable, Sul	b-D (TPE-U(PU	IR), IP65)			
<u> </u>	GA	Connecting cable for max. 8 solenoid coils, 10-core	2.5 m	539240	NEBV-S1W37-E-2.5-LE10
	GB		5 m	539241	NEBV-S1W37-E-5-LE10
	GC	7	10 m	539242	NEBV-S1W37-E-10-LE10
- Alexandre - Alex	GD	Connecting cable for max. 22 solenoid coils, 26-core	2.5 m	539243	NEBV-S1W37-E-2.5-LE26
$\checkmark$	GE	7	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-core	2.5 m	539246	NEBV-S1W37-K-2.5-LE37
	GH	7	5 m	539247	NEBV-S1W37-K-5-LE37
	GI	7	10 m	539248	NEBV-S1W37-K-10-LE37
onnecting cable, Sul					
	GK	Connecting cable for max. 8 solenoid coils, 10-core	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-core	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-core	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
over for multi-pin plu	ug for VTSA/V	TSA-F			
• ``	-	For configuration by the user		545974	NECV-S1W37
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					

	Code	Description	Part no.	Туре
Right, with threaded	d connection			
600	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
	X	With working air/exhaust air, external pilot air supply, G1/2	539236	VABE-S6-1RZ-G12
	X1	With working air/exhaust air, external pilot air supply, G3/4	560839	VABE-S6-2RZ-G34
With pilot air select		Internal nilat air sunnlu	520220	VABE-S6-1RZ-G-B1
	Y <sup>1)</sup> U <sup>1)</sup>	Internal pilot air supply	539238	VADE-30-1KZ-U-B1
	Z <sup>1)</sup>	Internal pilot air supply, ducted pilot exhaust air		
	W <sup>1)</sup>	External pilot air supply		
	W <sup>1</sup>	External pilot air supply, ducted pilot exhaust air		

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

## Accessories – General

	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
	К	Seal between sub-bases, duct 1, 3, 5 blocked, port 14 blocked (colour cod- ing: green)	57 g	8034612	VABD-S6-1-P6-C
dering data					
	Code	Description		Part no.	Туре

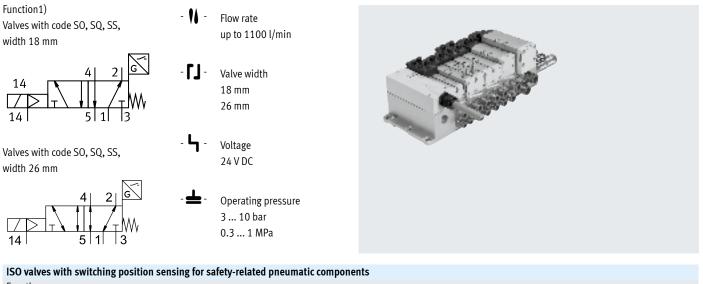
	Code	Description		Part no.	Туре			
Cover caps								
	N	Cover cap for manual override, non-detenting	10 pieces	541010	VAMC-S6-CH			
P	V	Cover cap for manual override, concealed	10 pieces	541011	VAMC-S6-CS			
	A	Cover cap, heavy duty, for manual override, non-detenting heavy duty, de- tenting via accessory (key) (The cover cap is provided for one-off mounting only)	10 pieces	4105147	VAMC-B-S6-CTR			
Accessories for manual o	verride, h	eavy duty						
	-	Coded key (accessory) for actuating the cover cap, heavy duty, for detenting position (VAMC-B-S6-CTR)	1 piece	1662543	АНВ-МЕВ-В			

# - 🌡 - 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.

### Accessories – General

	Code	Description		Part no.	Туре
cription label holders	/inscripti	on 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 text fields	4 pieces	8106532	ASCF-T-S6-Z
		(electrical and pneumatic zone separation)			
<u> </u>					
$\sim$	Т	Inscription label holder for manifold blocks/manifold sub-bases	5 pieces	540889	ASCF-M-S6
		VTSA/VTSA-F			
-	TD	Inscription label holder for manifold blocks/manifold sub-bases	5 pieces	562577	ASCF-M-S2-2
		VTSA/VTSA-F, size 52 mm			
$\sim$		Identification clip for manifold blocks/manifold sub-bases		8110689	ASCF-M-S6-1
		VTSA-F-CB (code A, B, C, E, F, G, PV, PS)			
	-	Inscription label for ISO 15407 valves with individual electrical connec-	20 pieces	18182	IBS-9x20
11100	[ <sup>-</sup>	tion (20 labels in frames)	20 pieces	10102	103-9820
ŰŰ	-	Inscription label for pressure zone separation	3x4 pieces	8003303	ASLR-L-S6-2016
V of		<ul> <li>4 inscription labels, duct 1/3/5 blocked</li> </ul>	JA4 pieces	0005505	A5ER-250-2010
		<ul> <li>4 inscription labels, duct 1 / ) 9 blocked</li> <li>4 inscription labels, duct 1 blocked</li> </ul>			
		<ul> <li>4 inscription labels, duct 1 blocked</li> <li>4 inscription labels, duct 3/5 blocked</li> </ul>			
		• 4 inscription tables, duct 5/5 blocked			
ail mounting					
	-	VTSA and VTSA-F	3 pieces	526032	CPX-CPA-BG-NRH
l mounting					
A <b>A</b>	-	Mounting bracket with a mounting hole for M5 screw	5 pieces	539214	VAME-S6-10-W
곗븝					
$\sim$					
×					
	U	Mounting bracket with a mounting hole for M4 screw and a mounting hole	1 piece	567038	VAME-S6-W-M46
		for M6 screw			
Ś					
~	A\A/	Manuation has distingting at a surgery of the state of CDV of the state	1		
0	AW	Mounting bracket for length compensation on the CPX side when mount-	1 piece	2721419	CPX-M-BG-VT-2X
人间	1	ing using support system			
		Set comprising 1 angle bracket and 2 screws			
- A					
<b>e</b>					
r documentation					
	D	User documentation for valve terminal VTSA/VTSA-F	German	538922	VTSA/VTSA-F-DE
	E		English	538922	VTSA/VTSA-F-EN
Theread >>	S		Spanish	538923	VTSA/VTSA-F-EN
<	F		French		
$\sim$		-		538925	VTSA/VTSA-F-FR
			Italian	538926	VTSA/VTSA-F-IT
umatic connection a	ccessories	5			
		anking plugs, silencers and			
		be found in the chapter <b>Accessories</b> → page 259			
n the website via the	individua	al search terms:			



# 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 valve with plug-in or individual connection 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 in accordance with 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

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

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.

Variant for valve terminal VTSA/VTSA-F



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

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

## Note

Pilot exhaust air port 12 is exhausted 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 doesn't conform to the ISO standard.

### Safety characteristics

-	
Conforms to	EN 13849-1/2
CE marking (see declaration of conformity)	To EU EMC Directive <sup>1)</sup>
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  $\rightarrow$  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.

#### Safety characteristics

Valve function 5/2-way, single solenoid	Test pulses	ulses		
	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	1800	800		

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	ISO 15407-2	I	ISO 15407-1
Design	Piston spool valve		1
Sealing principle	Soft		
Actuation type	Electrical		
Type of actuation	Piloted		
Exhaust function, can be throttled	Via individual sub-base, via throttle p	late	
Lubrication	Lifetime lubrication		
Type of mounting	Via through-hole, on manifold sub-ba	se	
Mounting position	Any		
Manual override	Concealed		
Individual sub-base			→ Page 245
Valve terminal			→ Page 79

#### Standard nominal flow rate [l/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			

T

Valve switching times [ms] Valve		VSVA-B-M52-MZD-A2-1T1L	VSVA-B-M52-MZD-A1-1T1L	VSVA-B-M52-MZ-A1-1C1	
valve		VSVA-B-M52-MZD-A2-111L	VSVA-B-M52-MZD-A1-111L	VSVA-B-M52-M2-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 tr	ansmission when mounted)		
Signal status display		LED		Via accessories	
Electrical data for sensor					
Electrical connection		Cable, 3-core			
		1xM8 plug, 3-pin			
Cable length	[m]	2.5			
Switching output		PNP or NPN			
Switching element function		N/C			
Switching status indication		Yellow LED			
Operating voltage range	[V DC]	10 30			
Residual ripple	[%]	±10			
Sensor no-load supply current	[mA]	≤10			
Max. output current	[mA]	200			
Voltage drop	[M]	≤2			
Max. switching frequency	[Hz]	5000			
Short circuit current rating		Clocked			
Reverse polarity protection for ser	ISOr	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]	Compressed air to ISO 8573-1:2010 [7:4:4]		
Notes on operating/		Lubricated operation possible (in which case lubricate	d operation will always be required)		
Pilot medium					
Operating pressure	[bar]	-0.9 10	-0.9 16		
	[MPa]	-0.09 1	-0.09 1.6		
Operating pressure for valve termi-	[bar]	3 10			
nal with internal pilot air supply	[MPa]	0.3 1			
Pilot pressure	[bar]	3 10			
	[MPa]	0.3 1			
Ambient temperature	[°C]	-5 +50			
Temperature of medium	[°C]	-5 +50			
Note on materials		RoHS-compliant			
Noise level LpA	[dB(A)]	85			
CE marking (see declaration of confo	rmity)	To EU EMC Directive <sup>1)</sup>			
UKCA marking (see declaration of conformity)		To UK instructions for EMC <sup>1)</sup>			
KC marking		KC EMC			
Certification		C-Tick	C-Tick		
		c UL us - Recognized (OL)	-		

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

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 weight [g]

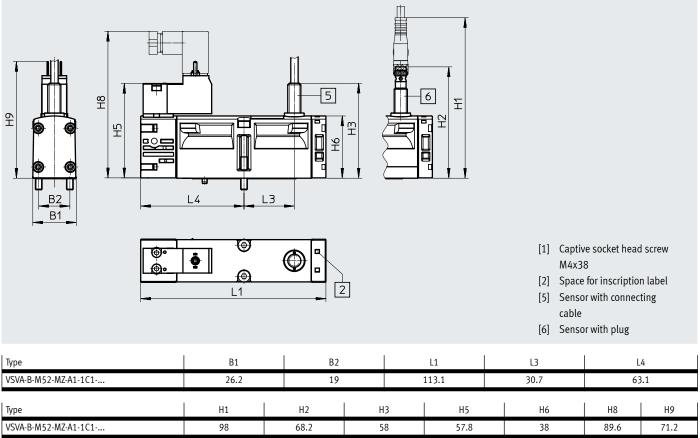
Product weight [g]		Product weight [g]					
Width	18 mm	26 mm					
5/2-way solenoid valve type							
VSVA-B-M52-MA2-1T1L-APX-0.5	157	-					
VSVA-B-M52-MA2-1T1L-APP	140	-					
VSVA-B-M52-MA2-1T1L-ANP	140	-					
VSVA-B-M52-MA1-1T1L-APC	-	307					
VSVA-B-M52-MA1-1T1L-APP	-	264					
VSVA-B-M52-MA1-1C1-APC	-	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					

#### Dimensions Download CAD data → <u>www.festo.com</u> Solenoid valve with sensor, width 26 mm 5 6 Ξ 0 0 HZ 7 Ħ HZ Ĥ Ϋ́Ε Ĥ -1 D2 BЗ F L2 L3 B2 [1] Captive socket head screw B1 M4x38 4 3 2 Space for inscription label [2] Manual override 锄 [3] ٢ с [4] Light emitting diode Sensor with connecting [5] L1 cable [6] Sensor with plug D2 Туре B1 B2 B3 L1 L2 L3 VSVA-B-M52-MZD-A1-1T1L-... 26.2 19 7.4 8 128.9 58 30.7 VSVA-B-M52-MZD-A1-1T1L-APX-0.5 Туре H1 H2 H3 H4 H5 H6 H7 VSVA-B-M52-MZD-A1-1T1L-... 98 68.2 58 52.5 45.3 38 9.2 VSVA-B-M52-MZD-A1-1T1L-APX-0.5

#### Dimensions

Download CAD data → <u>www.festo.com</u>

Solenoid valve with sensor, with plug type C, width 26 mm



# Ordering data - Solenoid valve with switching position sensing

	Code	Valve function	Width	Part no.	Туре
2-way solenoid valve	e, 24 V DC, p	lug-in design for valve terminal VTSA/VTSA-F with proximity switch			
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with PNP output and cable, 3-core, 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-core, 2.5 m	26 mm	560742	VSVA-B-M52-MZD-A1-1T1L-ANC
n ř	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	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

Ordering data – Solenoi	Ordering data — Solenoid valve VSVA with cover cap for MO non-detenting/heavy duty, detenting via accessory (TR)								
	Code	Valve function	Width	Part no.	Туре				
5/2-way solenoid valve, 24 V DC, plug-in design for valve terminal VTSA/VTSA-F with proximity switch									
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with PNP output and cable, 3-core, 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-core, 2.5 m	26 mm	8033030	VSVA-B-M52-MZTR-A1-1T1L-ANC				
<u>j</u>	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				
		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

#### Ordering data - Solenoid valve VSVA with cover cap for MO, non-detenting (H) Width Part no. Valve function Type Code 5/2-way solenoid valve, 24 V DC, plug-in design for valve terminal VTSA/VTSA-F with proximity switch 5/2-way valve, single solenoid, mechanical spring return, inductive 26 mm 8033049 VSVA-B-M52-MZH-A1-1T1L-APC sensor with PNP output and cable, 3-core, 2.5 m VSVA-B-M52-MZH-A1-1T1L-ANC 5/2-way valve, single solenoid, mechanical spring return, inductive 26 mm 8033053 sensor with NPN output and cable, 3-core, 2.5 m 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 26 mm 8033057 VSVA-B-M52-MZH-A1-1T1L-APX-0.5 push-in connector M12x1 S0 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 S0 5/2-way valve, single solenoid, mechanical spring return, inductive 8033479 VSVA-B-M52-MZH-A2-1T1L-ANP 18 mm sensor with NPN output and 3-pin sensor push-in connector M8x1 8033054 VSVA-B-M52-MZH-A1-1T1L-ANP 26 mm

#### Ordering data - Solenoid valve VSVA with cover cap for MO, concealed Width Part no. Type Valve function Code 5/2-way solenoid valve, 24 V DC, plug-in design for valve terminal VTSA/VTSA-F with proximity switch 5/2-way valve, single solenoid, mechanical spring return, inductive 26 mm 8033072 VSVA-B-M52-MZ-A1-1T1L-APC sensor with PNP output and cable, 3-core, 2.5 m 5/2-way valve, single solenoid, mechanical spring return, inductive 26 mm 8033076 VSVA-B-M52-MZ-A1-1T1L-ANC sensor with NPN output and cable, 3-core, 2.5 m VSVA-B-M52-MZ-A2-1T1L-APX-0.5 SS 8033495 5/2-way valve, single solenoid, mechanical spring return, inductive 18 mm sensor with PNP output with 0.5 m connecting cable and 4-pin sensor 26 mm 8033080 VSVA-B-M52-MZ-A1-1T1L-APX-0.5 push-in connector M12x1 S0 5/2-way valve, single solenoid, mechanical spring return, inductive 8033496 VSVA-B-M52-MZ-A2-1T1L-APP 18 mm 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 DO	, with pne	umatic interface to ISO 15218 for individual sub-base			
	-	5/2-way valve, single solenoid, mechanical spring return, inductive sensor with PNP output and cable, 3-core, 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-core, 2.5 m, electrical connec- tion 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.

# Accessories - Solenoid valve with switching position sensing

dividual sub-base, por	t pattern to	ISO 15407-2, electrical connection via plug M12 Threaded connection, internal pilot air supply,				
	-					
10000		meaueu comocion, meanar phot an suppri,	G1/8	18 mm	541070	VABS-S4-2S-G18-B-R3
S		lateral connections	G1/4	26 mm	541069	VABS-S4-1S-G14-B-R3
	-	Threaded connection, external pilot air supply,	G1/8	18 mm	541064	VABS-S4-2S-G18-R3
		lateral connections	G1/4	26 mm	541063	VABS-S4-1S-G14-R3
lividual sub-base, por	t pattern to	ISO 15407-2, electrical connection via cable terminals				
$\wedge$	-	Threaded connection, internal pilot air supply,	G1/8	18 mm	541067	VABS-S4-2S-G18-B-K2
		lateral connections	G1/4	26 mm	541065	VABS-S4-1S-G14-B-K2
	-	Threaded connection, external pilot air supply,	G1/8	18 mm	539723	VABS-S4-2S-G18-K2
		lateral connections	G1/4	26 mm	539725	VABS-S4-1S-G14-K2
ig socket for the elect	rical connec	tion of individual valves, type C	I			
$\frac{1}{\sqrt{2}}$	-	Angled socket, type C, 3-pin			151687	MSSD-EB
		Straight plug, PG7				
		• 230 V AC				
		<ul><li>Angled socket, type C, 3-pin</li><li>Straight plug, M12x1</li></ul>			539712	MSSD-EB-M12
uminating seal for con	nection pat	tern to EN 175301-803, type C			Datasheet -	→ Internet: meb-ld
		For plug socket MSSD, 12 24 V DC			151717	MEB-LD-12-24DC
		··· p.05 500,00 11500, 12 11 24 4 DC			1,1,1,1	
	GG GH	<ul><li>Angled socket, type C, 3-pin, with LED</li><li>Open end, 3-core</li></ul>		2.5 m 5 m	151688 151689	KMEB-1-24-2.5-LED KMEB-1-24-5-LED
A Company		• 24 V DC, PVC				
	GJ			10 m	193457	KMEB-1-24-10-LED
>						
onnecting cable for the	electrical c	onnection of sensors for switching position sensing				
	GM	Straight socket, 1xM8, 3-pin		2.5 m	541333	NEBU-M8G3-K-2.5-LE3
		Open end, 3-core				
a lan	GN	• Straight socket, 1xM8, 3-pin		5 m	541334	NEBU-M8G3-K-5-LE3
		Open end, 3-core				
$\sim$	GO	Angled socket, 1xM8, 3-pin		2.5 m	541338	NEBU-M8W3-K-2.5-LE3
es Marine	CP	Open end, 3-core		E	E/13/4	
х <b>сб</b>	GP	<ul><li>Angled socket, 1xM8, 3-pin</li><li>Open end, 3-core</li></ul>		5 m	541341	NEBU-M8W3-K-5-LE3
	-	Angled socket, rotatable, 1xM8, 3-pin		2.5 m	8001660	NEBU-M8R3-K-2.5-LE3
		Open end, 3-core		2.2	0001000	
	-	Angled socket, rotatable, 1xM8, 3-pin		5 m	8001661	NEBU-M8R3-K-5-LE3
		Open end, 3-core		<b>_</b>		
	GQ	Straight socket, 1xM8, 3-pin		2.5 m	554037	NEBU-M8G3-K-2.5-M8G4
5°		• Straight plug 1xM8, 4-pin				
The second						
	-	Modular system for a choice of connecting cables		-	_	NEBU
				-		→ Internet: nebu
						7 Internet: nebd
		1				

or on the website via the individual search terms:

**Internet**  $\rightarrow$  connection technology, silencer, blanking plug

- 11 -Flow rate on valve terminal: 830 l/min
- **[**]-Solenoid valve width 26 mm
- Voltage 24 V DC

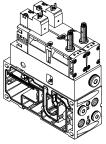
Operating pressure 3 ... 10 bar 0.3 ... 1 MPa

### 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 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

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

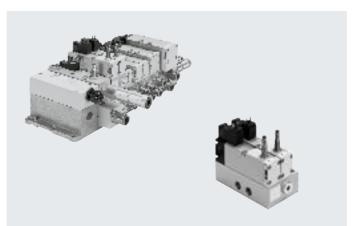
for valve terminal VTSA/VTSA-F need to

be supplied with power regardless of

the type of electrical actuation (indi-

trol block connection).

vidual, multi-pin plug or fieldbus/con-



The requirements of EN ISO 13849-1 and EN ISO 13849-2 (e.g. CCF, DC) must be taken into consideration when installing and operating the component and when using it 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 switch is via a push-in connector 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

Pneumatic/electrical links Function

The safety function is achieved by linking two pneumatic ducts of two 5/2way single solenoid valves within the control block: port (4) is only pressurised if both solenoid valves are switched to the switching position (14).

Port (2) is always supplied with compressed air if at least one of the two solenoid valves is in normal position.

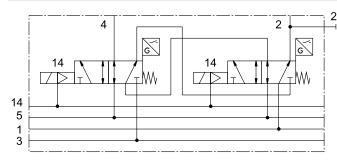
#### Circuit symbol<sup>1)</sup>

The valves are reset via a mechanical spring.

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

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

L



For the control block with safety function VOFA-B26-T52-... for the valve terminal, two 5/2-way solenoid valves of width 26 mm are pneumatically linked via two ducts, using an intermediate plate as vertical stacking element (output 2 is switched in parallel, output 4 is switched in series).

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

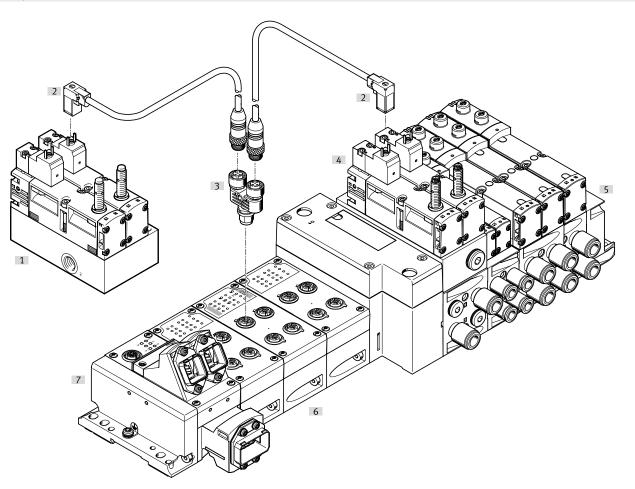
#### Safety characteristics

Salety characteristics		
Conforms to	EN 13849-1	
Safety function	Protection against manipulation, prevention of unexpected start-up	
	Reversing a movement	
Performance level (PL)	Protection against manipulation, prevention of unexpected start-up/up to category 4, Performance Level e	
	Reversing a movement/up to category 4, Performance Level e	
Note on forced checking procedure	Switching frequency min. 1/week	
Certificate-issuing authority	IFA 1001179	
CE marking (see declaration of conformity)	To EU EMC Directive <sup>1)</sup>	
	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	

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

#### Peripherals overview

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



#### 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-FV- DA-P2 (safety module)	kmeb
[3]	Push-in T-connector NEDU	For simultaneously actuating 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	-

### General technical data

General technical data		
Design		Piston spool valve
-	[l/min]	830
Reset method		Mechanical spring
Sealing principle		Soft
Exhaust function		Can be throttled
Actuation type		Electrical
Overlap		Positive overlap
Type of actuation		Piloted
Flow direction		Not reversible
Exhaust 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
	3/5	
Working ports	2/4	
Pilot air supply	14	
Pressure gauge		G1/4

#### Operating and environmental conditions

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	[bar]	010	
	[MPa]	01	
Operating pressure for valve ter-	[bar]	310	
minal with internal pilot air sup- [MPa]		0.3 1	
ply			
Pilot pressure	[bar]	310	
	[MPa]	0.3 1	
Noise level LpA	[dB(A)]	85	
Ambient temperature	[°C]	-5+50	
Temperature of medium [°C]		-5+50	
CE marking (see declaration of conformity)		To EU EMC Directive <sup>1)</sup>	
		To EU Machinery Directive	

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

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 control block

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 disruption field [mT]		[mT]	60
Switching position sensing			Normal position via sensor
Duty cycle		[%]	100
Degree of protection to EN 60529		)	IP65, NEMA 4 (for all types of signal transmission when mounted)
Protection against direct and in-			PELV
direct contact			Protection class to EN 60950/IEC 950
Valve switching time	On	[ms]	22
	Off	[ms]	59
Valve sensor switch-	On	[ms]	60
ing time <sup>1)</sup>	Off	[ms]	11

1) Valve sensor switching time off: period of time from the coil being energised to the 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.

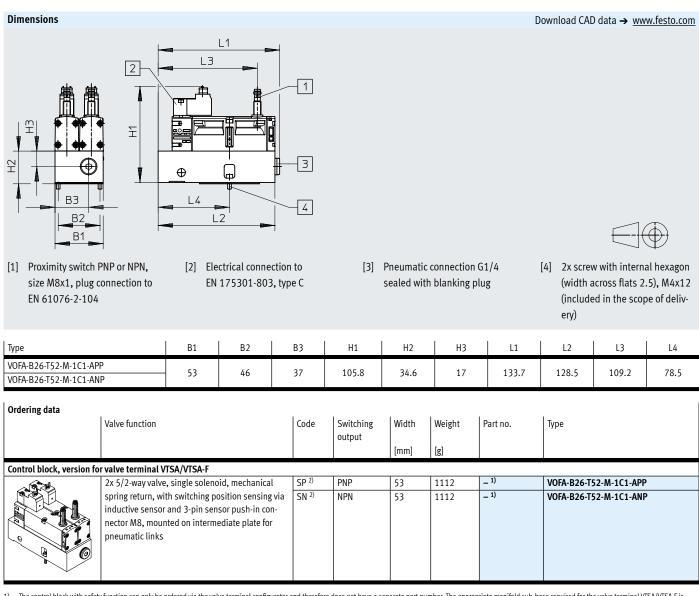
#### -- Note

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

#### Flectrical data – Sensor (to FN -60947-5-2)

Electrical data – Sensor (to EN -	60947-5-2)	
Electrical connection		Cable, 3-core
		1xM8 plug, 3-pin
Cable length	[m]	2.5
Switching output		PNP or NPN
Switching element function		N/C
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		Clocked
Reverse polarity protection for se	nsor	For all electrical connections
Measuring principle		Inductive

Materials	Aaterials			
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			



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

# - 🌡 - Note

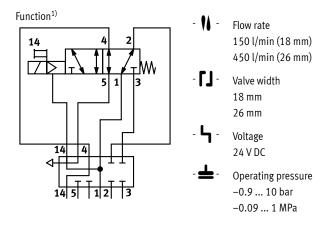
The sensors integrated in the valves must not be replaced by the customer. Incorrect assembly can result in malfunctions or damage to the valve. Please contact Festo in the event of a malfunction.

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

Ordering data					
	Code	Description		Part no.	Туре
lug socket for the elec	trical conne	ction of individual valves, type C			
	-	Angled socket, type C, 3-pin		151687	MSSD-EB
		Straight plug, PG7			
		• 230 V AC			
$\checkmark$	-	Angled socket, type C, 3-pin		539712	MSSD-EB-M12
		Straight plug, M12x1			
uminating seal for co	nnection pa	ttern to EN 175301-803, type C		Datasheet -	→ Internet: meb-ld
	-	For plug socket MSSD, 12 24 V DC		151717	MEB-LD-12-24DC
onnecting cable for el	ectrical con	Inection 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-core	5 m	151689	KMEB-1-24-5-LED
		• 24 V DC, PVC			
e jan	GJ	• 24 V DC, FVC	10 m	193457	KMEB-1-24-10-LED
$\square$					
>					
	e electrical	connection of sensors for switching position sensing			
<u></u>	GM	Straight socket, 1xM8, 3-pin	2.5 m	541333	NEBU-M8G3-K-2.5-LE3
		Open end, 3-core	2.5 11	512555	
C Laure	GN	Straight socket, 1xM8, 3-pin	5 m	541334	NEBU-M8G3-K-5-LE3
		Open end, 3-core	5.00	541554	
-	_	Angled socket, rotatable, 1xM8, 3-pin	2.5 m	8001660	NEBU-M8R3-K-2.5-LE3
	-	Open end, 3-core	2.5 11	8001000	NEDU-MORJ-R-2.3-LEJ
		Angled socket, rotatable, 1xM8, 3-pin	5 m	8001661	
Y K	-		5 111	8001661	NEBU-M8R3-K-5-LE3
		Open end, 3-core			
	GQ	Straight socket, 1xM8, 3-pin	2.5 m	554037	NEBU-M8G3-K-2.5-M8G4
30		• Straight plug 1xM8, 4-pin			
	-	Modular system for a choice of connecting cables	-	_	NEBU
~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~~					→ Internet: nebu
a la					
onnecting cable for th	e electrical	connection of PROFIsafe shut-off module CPX-FVDA-P2 to the control block			
	-	For the easy 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)			
		Angled socket, type C, 3-pin, with LED			
V.		• Straight plug 1xM12, 5-pin			
		• 24 V DC, PUR			
ish-in T-connector for	dual electri	ical connection of PROFIsafe shut-off module CPX-FVDA-P2 to the control bl			
	-	For dual connection of two control block valves (power supply via PROFI	safe shut-off	2839867	NEDU-L2R1-V10-M12G5-M12G5
		module CPX-FVDA-P2)			
		• Straight plug, 1xM12, 5-pin (A-coded)			
		• 2x straight socket, 1xM12, 5-pin (A-coded)			
		Operating voltage range 0 30 V DC			
neumatic connection	accessories				
selection of possible	fittings, bla	nking plugs, silencers and			
		e found in the chapter <b>Accessories</b> → page: 259			
r on the website via th					
		y, silencer, blanking plug			
		,, shencer, blanking plug			

### Valve terminals VTSA

### Datasheet - Pilot air switching valve for VTSA/VTSA-F

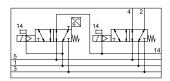


#### Description

The pilot air switching valve is essentially a combination of a 5/2-way solenoid This valve is suitable for use in safety-related parts of control systems to valve with switching position sensing and the intermediate plate VABF-S4-...-S. It EN ISO 13849-1. This valve is designed for installation in machines and automaenables the pilot air supply to be verifiably switched on and off (sensing function) tion systems and must only be used in industrial applications (high-demand from duct 1 to 14 for the entire pressure zone or valve terminal. mode). This valve is not a safety device in accordance with the Machinery Directive More information and technical data 2006/42/EC. When used in higher categories, the sensor signal from the valve → Internet: User documentation must be evaluated by the control system. Alternative switching position sensing with pressure switch As an alternative to the sensing function in the solenoid valve, a pressure switch An ISO solenoid valve without a sensor can therefore be mounted on the intermecan be mounted (in place of the blanking plug) on the intermediate plate VABFdiate plate to give the same function. S4-...-S. With this pressure switch, the switching on and off (sensing function) of → Internet: spba the pilot air supply can be verified. Note The pilot air switching valve can only be operated on the valve terminal VTSA/VT-SA-F in combination with a right end plate for external pilot air type VABE-S6-1RZ-.... Port 14 on the right 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 This module is supplied pre-assem-Switching position sensing is carried position sensing in plug-in design for bled together with the valve terminal out using an inductive PNP proximity valve terminal VTSA/VTSA-F can be VTSA/VTSA-F. No other assembly steps switch with cable and 1xM12 push-in used regardless of the type of electriare required before installation. connector to EN 61076-2-104. cal actuation (individual, multi-pin Alternatively, combinations with a plug or fieldbus/control block connecpressure switch in the intermediate tion). plate and ISO solenoid valves are possible. Note All solenoid valves VSVA to ISO 15407-1 can be used. → Internet: vsva

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

#### Function of pneumatic/electrical links



The function for switching off the pilot air is essentially achieved by combining the intermediate plate type VABF-S4-...-S with the 5/2-way single solenoid valve type VSVA-B-M52-MZD-...-1T1L-APX-0.5.

The valve terminal is not supplied with any pilot air via the right 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 sensed using the proximity switch on the solenoid valve (or pressure switch in the intermediate plate VABF...). By connecting the control signal and the switching signal of the proximity switch it is possible to check if the piston 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 (overlap).

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

#### 📲 - Note

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 VA-BF-S4-...-S.

#### Alternative switching position sensing with pressure switch

As an alternative to the pilot air switching valve with integrated switching position sensing, it is possible to combine an ISO solenoid valve and a pressure switch in the intermediate plate. To do this, various 5/2-way solenoid valves in combination with a pressure switch SPBA-... are available.

#### Safety characteristics

Conforms to	EN 13849-1/2
CE marking (see declaration of conformity)	To EU EMC Directive <sup>1)</sup>
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/catalogue/... → Support/Downloads.

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

#### Safety characteristics

Valve function 5/2-way, single solenoid	Test pulses	
	Max. positive test pulse with logic 0 [µs]	Max. negative test pulse with logic 1 $[\mu s]$
VSVA-B-M52-MZA1-1T1L	1200	1100
VSVA-B-M52-MZA2-1T1L	1500	800
VSVA-B-M52-MZ-A1-1C1	1800	800

### General technical data

General technical data					
		Intermediate plate type VABF-S4-2-S and solenoid valve type VSVA-B-M52-MZD-A2-1T1L-APX-0.5 mounted on valve terminal VTSA/VTSA-F	Intermediate plate type VABF-S4-1-S and solenoid valve type VSVA-B-M52-MZD-A1-1T1L-APX-0.5 mounted on valve terminal VTSA/VTSA-F		
Width		18 mm	26 mm		
Design		Piston spool valve			
Sealing principle		Soft			
Overlap		Positive overlap			
Actuation type		Electrical			
Type of actuation		Piloted			
Type of mounting:					
Solenoid valve on intermed	diate	M3	M4		
plate					
Intermediate plate on man	ifold	M3x12 (captive)	M4x12 (captive)		
sub-base					
Mounting position		Any			
Pneumatic connections					
Supply	1 Via the manifold sub-base of the valve terminal				
Exhausting	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 s	witch	G1/8	61/8		

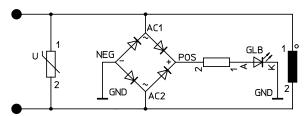
Switching times [ms]							
Width		18 mm	5 mm				
Valve type		5/2	5/2				
Identifier		MZD-A2	MZD-A1	MZ-A1			
Valve switching time	On	12	20	21			
	Off	38	54	41			
Valve sensor switching time <sup>1)</sup>	On	32	60	60			
	Off	9	11	11			

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

#### Protective circuit

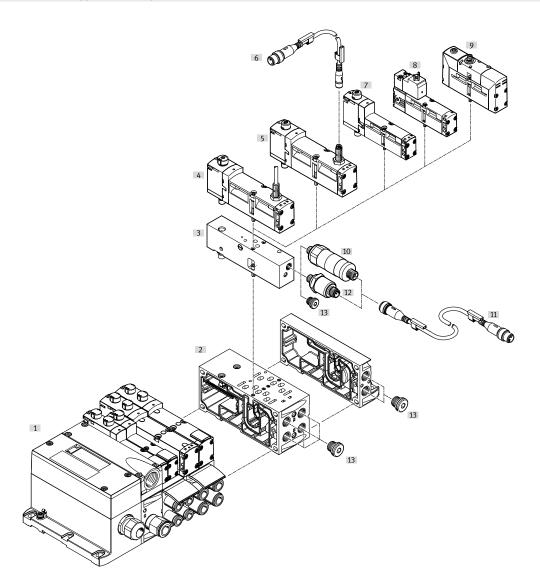
Each solenoid coil VSVA is protected with a spark arresting protective circuit as well as against polarity reversal.

#### 24 V DC version



#### Peripherals overview

Pilot air switching valve with switching position sensing



#### Peripherals overview – Pilot air switching valve

		Description	→ Page/Internet
[1]	Valve terminal VTSA/VTSA-F	Valve terminal with multi-pin plug interface	vtsa
[2]	Manifold sub-base VABF	Width 18 mm or 26 mm	140
[3]	Intermediate plate VABF-S4	For pilot air switching valve	178
[4]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with sensor and integrated cable 0.5 m	178
[5]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with sensor for external connecting cable	178
[6]	Connecting cable NEBU-M8	For connection to sensor	179
[7]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm <sup>1)</sup>	178
[8]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with plug to EN 175301, type C <sup>1)</sup>	178
[9]	Solenoid valve VSVA-B-M52	Width 18 mm or 26 mm, with round plug <sup>1)</sup>	vsva
[10]	Pressure switch SPBA	Mechanically actuated	179
[11]	Connecting cable NEBU-M12G5	For connection to pressure switch	179
[12]	Pressure switch SPBA	Electrically actuated	179
[13]	Blanking plug	-	260

1) The switching position is sensed by pressure switches when the solenoid valves used have no integrated sensor.

The pressure switch is screwed into the intermediate plate in place of the blanking plug.

### Electrical data for pilot air switching valve

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 disruption 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 when mounted)		

### Electrical data for sensor

Sensor identifier		APP	ANP	APC	ANC	APX
Switching output		PNP	NPN	PNP	NPN	PNP
Sensor connection		Plug, 1xM8, 3-pin	•	With fixed cable and open	end	With fixed cable and plug
						M12x1,
						4-pin
Cable length	[m]	0.5 (with 1xM8 socket, 1xM	M12 plug)	2.5		0.5
Switching element function		N/C				
Signal status display		Yellow LED (on sensor)				
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		Clocked				
Reverse polarity protection		For all electrical connectior	IS			
Measuring principle		Inductive				
Switching position sensing		Valve normal position via s	ensor			

Operating and environment	al 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		
	[MPa]	-0.09 1	-0.09 1		-0.09 1		
Noise 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		
KC marking		KC EMC	KC EMC		-		
UKCA marking		To UK instructions for EMC	To UK instructions for	EMC	-		
Certification		C-Tick	C-Tick		-		
		c UL us Recognized (OL)	-		c UL us Recognized (OL)		
Materials				· · · · · · · · · · · · · · · · · · ·			
Sub-base/manifold sub-base	9	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 weight [g]							
Width		18 mm		26 mm			
5/2-way solenoid valve type	·						
VSVA-B-M52-MA1-1T1L-AF	PC	-		307			
VSVA-B-M52-MA1-1T1L-AF	Р	-		264			
VSVA-B-M52-MA1-1C1-AP				264			
VSVA-B-M52-MA1-1C1-APP		-		332			
VSVA-B-M52-MA1-1C1-AP							
VSVA-B-M52-MA1-1C1-AP VSVA-B-M52-MA1-1T1L-AI	Р			332			
	P NC	-		332 289			
VSVA-B-M52-MA1-1T1L-AI	P NC NP	- -		332 289 307			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI	P NC NP C	- - -		332 289 307 264			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN	P NC NP C P	- - - -		332 289 307 264 332			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1C1-AN	P NC NP C P X-0.5	- - - - - -		332         289         307         264         332         289			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI	P NC NP C P X-0.5 X-0.5	- - - - - - - - -		332         289         307         264         332         289         281			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA2-1T1L-AI	P NC NP C P X-0.5 X-0.5 P	- - - - - - 157		332         289         307         264         332         289         281         -			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA2-1T1L-AI	P NC NP C P X-0.5 X-0.5 P	- - - - - - 157 140		332         289         307         264         332         289         281         -         -			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA2-1T1L-AI	P NC NP C P X-0.5 X-0.5 P	- - - - - 157 140 140		332         289         307         264         332         289         281         -         -         -         -         -			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA1-1T1L VSVA-B-M52-MA2-1T1L	P NC NP C P X-0.5 X-0.5 P	- - - - - 157 140 140 -		332         289         307         264         332         289         281         -         -         293			
VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1C1-AN VSVA-B-M52-MA1-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA2-1T1L-AI VSVA-B-M52-MA1-1T1L	P NC NP C P X-0.5 X-0.5 P	- - - - - 157 140 140 -		332         289         307         264         332         289         281         -         -         293			

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

Ordering data								
	Code	Valve function			Part no.	Туре		
5/2-way solenoid valve, 2	5/2-way solenoid valve, 24 V DC, plug-in design with proximity switch							
	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 con- nector 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		
<u>AB</u>	SO	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	1	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		
Notes n		with plug to EN 175301, type C, with 2.5 m connecting cable	NPN	26 mm	560745	VSVA-B-M52-MZ-A1-1C1-ANP		
<u>.</u>	-	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, 2	24 V DC. plu	ug-in design						
<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 pil	ot air switc	hing valve						
$\sim$	ZO	Intermediate plate, for switching the pilot air from duct 1 to 14	Ļ	18 mm	573200	VABF-S4-2-S		
00000000000000000000000000000000000000				26 mm	570851	VABF-S4-1-S		

### - 🗍 - Note

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

 $\rightarrow$  Solenoid valve with switching position sensing, page 161

### 📲 - 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. Please contact Festo in the event of a malfunction.

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

Ordering data	امن				1-
	Code	Description		Part no.	Туре
Pressure switch for inte		late for pilot air switching valve	1		
	WL	Mechanical pressure switch for switchable pilot air supply (only in co intermediate plate ZO), with plug M12x1, 4-pin	mbination with	8000033	SPBA-P2R-G18-W-M12-0.25X
	WH	Electrical pressure switch for switchable pilot air supply, switching o (only in combination with intermediate plate ZO), with 1xM12 plug,		8000210	SPBA-P2R-G18-2P-M12-0.25X
Connecting cable for co	nnection of	pressure switches			
al mit a	GE	<ul> <li>Straight socket, 1xM12, 5-pin</li> <li>Straight plug 1xM12, 4-pin</li> </ul>	0.5 m	8000208	NEBU-M12G5-K-0.5-M12G4
Connecting cable for th	e electrical	connection of sensors for switching position sensing		<u></u>	
STREET STREET	-	<ul> <li>Straight socket, 1xM8, 3-pin</li> <li>Straight plug 1xM12, 3-pin</li> </ul>	0.5 m	8000209	NEBU-M8G3-K-0.5-M12G3
	GM	<ul> <li>Straight socket, 1xM8, 3-pin</li> <li>Open end, 3-core</li> </ul>	2.5 m	541333	NEBU-M8G3-K-2.5-LE3
OF Line	GN	<ul> <li>Straight socket, 1xM8, 3-pin</li> <li>Open end, 3-core</li> </ul>	5 m	541334	NEBU-M8G3-K-5-LE3
	GO	<ul> <li>Angled socket, 1xM8, 3-pin</li> <li>Open end, 3-core</li> </ul>	2.5 m	541338	NEBU-M8W3-K-2.5-LE3
	GP	Angled socket, 1xM8, 3-pin     Open end, 3-core	5 m	541341	NEBU-M8W3-K-5-LE3
÷	-	<ul><li>Angled socket, rotatable, 1xM8, 3-pin</li><li>Open end, 3-core</li></ul>	2.5 m	8001660	NEBU-M8R3-K-2.5-LE3
	-	<ul><li>Angled socket, rotatable, 1xM8, 3-pin</li><li>Open end, 3-core</li></ul>	5 m	8001661	NEBU-M8R3-K-5-LE3
A THE REAL PROPERTY OF	GQ	<ul> <li>Straight socket, 1xM8, 3-pin</li> <li>Straight plug 1xM8, 4-pin</li> </ul>	2.5 m	554037	NEBU-M8G3-K-2.5-M8G4
A DECEMBER OF	-	Modular system for a choice of connecting cables	-	-	NEBU → Internet: nebu

### Valve terminals VTSA

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

Ordering data						
	Code	Description		Part no.	Туре	
Covering						
Ĩ	N	Cover cap for manual override, non-detenting	10 pieces	541010	VAMC-S6-CH	
P	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	
Accessories for manual o	verride, he	eavy duty				
	-	Coded key (accessory) for actuating the cover cap, heavy duty, for de- tenting position (VAMC-B-S6-CTR)	1 piece	1662543	AHB-MEB-B	
Pneumatic connection ac	Pneumatic connection accessories					
	-	nking plugs, silencers and				
		e found in the chapter <b>Accessories</b> → page: 259				
or on the website via the						
<b>Internet</b> → connection	technolog	y, shencer, blanking plug				

# - 闄 - 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.

- Flow rate 125 l/min
- **[]** Pilot air switching valve width 18 mm
  - Voltage
    - Operating pressure 0.3 ... 1 MPa

#### 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 (sensor function) from duct 1 to 14 for the entire pressure zone or valve terminal. This valve is not a safety device in accordance with 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

# - 🖡 - 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. This information applies only for a single pressure zone.

## Safety data

Safety data		
Max. positive test pulse	[µs]	2000
with logic 0		
Max. negative test pulse	[µs]	1200
with logic 1		
Shock resistance		Shock test with severity level 2, to EN 60068-2-27
Vibration resistant		Transport application test with severity level 2, to EN 60068-2-6



# 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		Electrical		
Overlap		Negative overlap		
Type of control		Piloted		
Mounting position		Any		
Flow direction		Not 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		
MTTF subcomponent		443 years, pressure switch		
Width, manifold sub-base	[mm]	38 (for additional valve 18 mm)		
	[mm]	46 (for additional valve 26 mm)		
Pneumatic connections, pilot air s	witching va	llve		
Supply	1	Via the manifold sub-base of the valve terminal		
Exhausting	3/5	Via the manifold sub-base of the valve terminal		
Supply port (external)	2	G1/8		
Exhaust air/exhaust	4	G1/8		
Pilot air supply	14	Via the manifold sub-base of the valve terminal		
Pneumatic connections, additiona	al valve pos	ition		
Supply	1	Via the manifold sub-base of the valve terminal		
Exhausting	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	G1/4		
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/		Lubricated operation not possible
pilot medium		
Operating pressure <sup>2)</sup>	[bar]	310
	[MPa]	0.3 1
Pilot pressure	[bar]	310
	[MPa]	0.3 1
Ambient temperature <sup>2)</sup>	[°C]	-5+50
Temperature of medium <sup>2)</sup>	[°C]	-5+50
Corrosion resistance class CRC <sup>1)</sup>		0

More information: www.festo.com/x/topic/crc
 With an ambient temperature and a temperature of the medium from -5°C to +5°C and +40°C to +50°C, the maximum permissible operating pressure is 8 bar.

# Electrical data – Pilot air switching valve

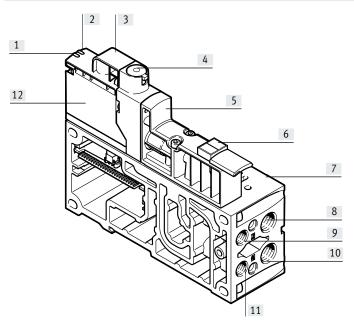
Electrical data – Pilot air switching valve				
Nominal operating voltage	[V DC]	24		
Permissible voltage fluctuations	[%]	±10		
Electrical connection		Plug-in		
Power consumption	[W]	1.6		
Switching element function		N/C		
Switching position sensing		Via pressure switch, exhausted status		
Signal status display		Yellow LED, valve control		
		Green LED, pressure switch, exhausted status		
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 components

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



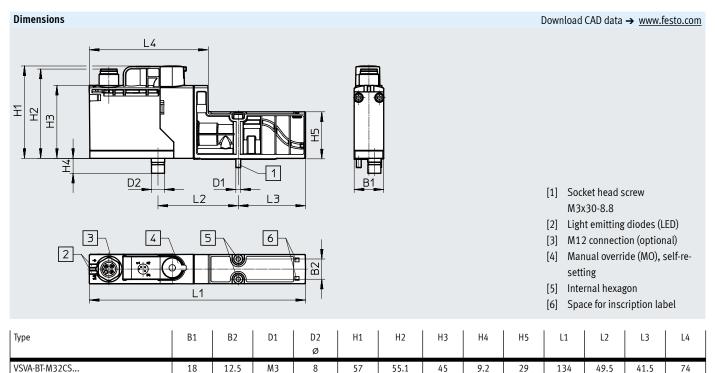
#### Status LED for solenoid coil [1]

- [2] Status LED for pressure switch
- [3] M12 connection (optional)
- [4] Manual override (MO) (optional)
- [5] Solenoid valve housing
- Inscription label holder with addi-[6] tional fields for marking (ASCF-T-S6-Z)
- [7] Additional valve position
- [8] Working port (2) of the additional valve position
- [9] External 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.

Valve fun	ction	
Termi- nal	Circuit symbol	Description
code CT		Pilot air supply via duct 2 (external pilot air) of manifold sub-base
	(14)2	Without manual override (MO)
СТ	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	<ul> <li>Pilot air supply via duct 2 (external pilot air) of manifold sub-base</li> <li>With manual override (MO)</li> </ul>
AT	(14)2	<ul> <li>Pilot air supply via duct 2 (external pilot air) of manifold sub-base</li> <li>Without manual override (MO)</li> </ul>
AT	$\begin{array}{cccccccccccccccccccccccccccccccccccc$	<ul> <li>Pilot air supply via duct 2 (external pilot air) of manifold sub-base</li> <li>With manual override (MO)</li> </ul>
CS	(14)2	<ul> <li>Pilot air supply via duct 1 (internal pilot air) for the valve terminal's pressure zone (end plate/additional supply plate)</li> <li>Without manual override (MO)</li> </ul>
CS	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	<ul> <li>Pilot air supply via duct 1 (internal pilot air) for the valve terminal's pressure zone (end plate/additional supply plate)</li> <li>With manual override (MO)</li> </ul>
AS	(14)2	<ul> <li>Pilot air supply via duct 1 (internal pilot air) for the valve terminal's pressure zone (end plate/additional supply plate)</li> <li>Without manual override (MO)</li> </ul>
AS	$ \begin{array}{cccccccccccccccccccccccccccccccccccc$	<ul> <li>Pilot air supply via duct 1 (internal pilot air) for the valve terminal's pressure zone (end plate/additional supply plate)</li> <li>With manual override (MO)</li> </ul>



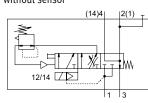
	Code	Description	Operating pres- sure <sup>1)</sup> Standard nominal flo	nominal flow	Wt. <sup>3)</sup> [g]	Part no.	Туре			
					[bar]	[l/min]	Exhausting [l/min]			
ay solenoi	d valve,	24 V DC, plug-in design								
<b>à</b>	3/2-wa	ay solenoid valve NC, external pi	ilot air sup		valve termi	nal				
	СТ	Control plug-in, pressure sensor plug-in, manual override (MO) self-resetting	18 mm	0.3 1	3 10	150	150	110	8066573	VSVA-BT-M32CS2-MYE-A2-1T5L-PA
	СТ	Control plug-in, external pressure sensor M12, manual override (MO) self-resetting	18 mm	0.3 1	3 10	150	150	110	8066572	VSVA-BT-M32CS2-MYE-A2-1T1L-PZ
	СТ	Control plug-in, pressure sensor plug-in, manual override (MO) con- cealed	18 mm	0.3 1	310	150	150	110	8066575	VSVA-BT-M32CS2-MS-A2-1T5L-PA
	СТ	Control plug-in, external pressure sensor M12, manual override (MO) con- cealed	18 mm	0.3 1	310	150	150	110	8066574	VSVA-BT-M32CS2-MS-A2-1T1L-PZ
	AT	Control plug-in, pressure sensor plug-in, manual over- ride (MO) non-detenting	18 mm	0.3 1	3 10	125	125	110	8171467	VSVA-BT-M32CS2-MH-A2-1T5L-PA
	AT	Control plug-in, pressure sensor plug-in, manual over- ride (MO) non-detenting	18 mm	0.3 1	3 10	125	125	110	8171469	VSVA-BT-M32CS2-MH-A2-1T1L-PZ
	3/2-wa	ay solenoid valve NC, internal pi	lot air sup	ply for the	/alve termi	nal				
	CS	Control plug-in, pressure sensor plug-in, manual override (MO) self-resetting	18 mm	0.3 1	3 10	150	150	110	8066569	VSVA-BT-M32CS1-MYE-A2-1T5L-PA
	CS	Control plug-in, external pressure sensor M12, manual override (MO) self-resetting	18 mm	0.3 1	310	150	150	110	8066568	VSVA-BT-M32CS1-MYE-A2-1T1L-PZ
	CS	Control plug-in, pressure sensor plug-in, manual override (MO) con- cealed	18 mm	0.3 1	3 10	150	150	110	8066571	VSVA-BT-M32CS1-MS-A2-1T5L-PA
	CS	Control plug-in, external pressure sensor M12, manual override (MO) con- cealed	18 mm	0.3 1	3 10	150	150	110	8066570	VSVA-BT-M32CS1-MS-A2-1T1L-PZ
	AS	Control plug-in, external pressure sensor M12, man- ual override (MO) non-de- tenting	18 mm	0.3 1	3 10	125	125	110	8171468	VSVA-BT-M32CS1-MH-A2-1T5L-PA
	AS	Control plug-in, external pressure sensor M12, man- ual override (MO) non-de- tenting	18 mm	0.3 1	3 10	125	125	110	8171470	VSVA-BT-M32CS1-MH-A2-1T1L-PZ

1) With ambient temperature and temperature of medium of from -5°C to +5°C and 40°C to 50°C, the maximum permissible operating pressure is 0.8 MPA or 8 bar.

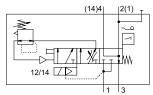
\*/- 15% to FN 942032
 Weight of pilot air switching valve without manifold sub-base

Ordering data						
	Code	Description		Weight [g]	Part no.	Туре
Manifold sub-ba	ase for p	ilot air switching 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	Hybrid manifold sub-base, width 18 and 26mm For 2 valve positions (4 addresses) 1x valve position with CBUS communication, 1x double solenoid valve, high flow (with CBUS loop-through)	18 mm/26 mm	512	8068912	VABV-S4-12HS-G-CB-2T5

#### Function without sensor



#### With sensor

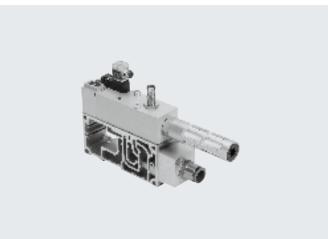


Description Function

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

- Flow rate Pressurisation:
  - 3000 l/min Exhausting: 3300 l/min
  - Module width
     43 mm
  - Temperature range
     -5 ... +50°C
    - Operating pressure 2 ... 12 bar 0.2 ... 1.2 MPa



 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 at duct 14 (pilot air) at all times. This pressure causes the valves on the valve terminal to immediately move to the required switching position, so an unspecified position is not 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.

# - 🏺 - Note

When using "Protection against unexpected start-up": Protection against unexpected activation of the manual override (MO) must be guaranteed in all operating modes.

## Diagnostics

The piston position of the soft-start valve can be monitored by a sensor with integrated LED display. This sensor registers whether the valve has switched and thus whether the valve terminal is being supplied with compressed air.

#### Pilot air supply

The valve terminal can either be supplied with internal pilot air via the softstart valve or with internal or external pilot air via the various end plate variants. Pressure sensing via a pressure gauge (optional) is also possible.

The soft-start valve can also be ordered with a sensor. A sensor cannot be retrofitted at a later date due to the calibration that is required. Connecting cables with integrated LED display are provided for displaying the signal status.

The pilot air supply for the valve terminal (internal/external) is determined by the seal between the manifold subbase and the soft-start valve. The scope of delivery of the soft-start valve includes both the seal for internal pilot air supply (with drilled hole) and the seal for external pilot air supply (no drilled hole). The soft-start valve itself is always supplied with internal pilot air.

#### Description

#### Creating pressure zones with a soft-start valve

The soft-start valve can be used for the pneumatic compressed air supply of the valve terminal or of a pressure zone. The soft-start valve can only be used as the sole 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 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 discharged via the right end plate.

#### Constraints Pilot air supply Reverse operation Compressed air supply Exhaust air There must be no other elements sup-Exhaust air cannot be expelled via the If the soft-start valve is used for inter-The soft-start valve is not approved for plying compressed air in the pressure soft-start valve. If it is being used in a nal pilot air supply (duct 14), there reverse operation. zone in which the soft-start valve is bepressure zone with duct 3/5 separate, must be no other pilot air supply withing used. an exhaust plate is required. in the valve terminal.

## - 🛛 - Note

Setting options as well as drawings with descriptions of the components for the soft-start valve can be found in the user documentation. The adjusting screws are freely accessible once they are fitted.

#### Safety characteristics

Salety characteristics		
Conforms to		ISO 5599-2
Note on forced checking procedure		Switching frequency min. 1/month
Max. positive test pulse	[µs]	2500 <sup>1)</sup>
with logic 0		
Max. negative test pulse	[µs]	1400 <sup>1)</sup>
with logic 1		
Shock resistance		Shock test with severity level 2, to EN 60068-2-27
Vibration resistance		Transport application test with severity level 2, to EN 60068-2-6

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

#### General technical data

Design	Piston spool
Actuation type	Electrical
Sealing principle	Soft
Type of mounting	On sub-base, ISO size 1 to ISO 5599-2
Mounting position	Any
Valve function	Soft-start function
Manual override	Detenting, self-resetting via electrical control signal, normal position on top, $\rightarrow$ page 195
Reset method	Mechanical spring
Type of actuation	Piloted
Pilot air supply	Internal, external
Flow direction	Not reversible
Switching position sensing	Switching position with sensor

#### Standard nominal flow rate [l/min]

Pressurisation	3000
Exhausting	3300

## Operating and environmental conditions

Operating and environmental conditions					
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]			
Notes on operating/		Lubricated operation possible (in which case lubricated operation will always be required)			
pilot medium					
Operating pressure	[bar]	212			
	[MPa]	0.2 1.2			
Switchover pressure presetting	[bar]	4			
	[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 6052	29	IP65, NEMA 4 (for all types of signal transmission when mounted)

## Electrical data for sensor

Electrical data for Sensor		1			
Туре		SIEN-M12B-PS-S-L	SIEN-M12B-NS-S-L		
Electrical connection		1xM12 plug to EN 60947-5-2, 4-pin			
Switching output		PNP	NPN		
Switching element function		N/O	N/O		
Signal status display		Yellow LED			
Operating voltage range	[V DC]	10 30			
Residual ripple	[%]	±10			
Rated operating voltage	[V DC]	24			
Max. no-load supply current for	[mA]	10			
sensor					
Max. output current	[mA]	200			
Max. voltage drop	[V]	2			
Max. switching frequency	[Hz]	3000			
Short circuit current rating		Clocked			
Reverse polarity protection for sensor		For all electrical connections			
Measuring principle		Inductive			
Switching position sensing		Switching position with sensor			

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

L

2

# Datasheet - Soft-start valve for VTSA/VTSA-F

#### Example 1: Pressure zone with soft-start valve and pilot air supply Internal, external pilot air supply

# Requirements

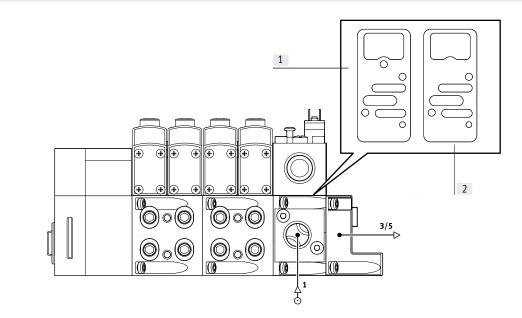
- Compressed air supply via soft-start valve
- Right end plate<sup>1)</sup>: Blanking plug in duct 1

#### For internal pilot air supply:

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

For external pilot air supply:

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



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

1) With this configuration, a right end plate with pilot air selector cannot be used, as it doesn't allow the exhaust air to be discharged

#### Example 2: Pressure zone with soft-start valve, supply plate and pilot air supply Internal, external pilot air supply

#### Requirements

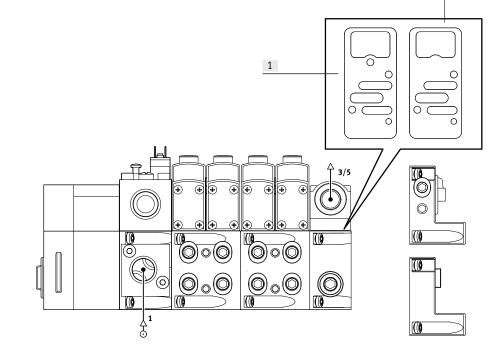
- Compressed air supply via soft-start valve
- Supply plate: Blanking plug in duct 1
- Right end plate: blanking plug in duct 1, 3, 5 or
- Right end plate with pilot air selector

For internal pilot air supply:

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

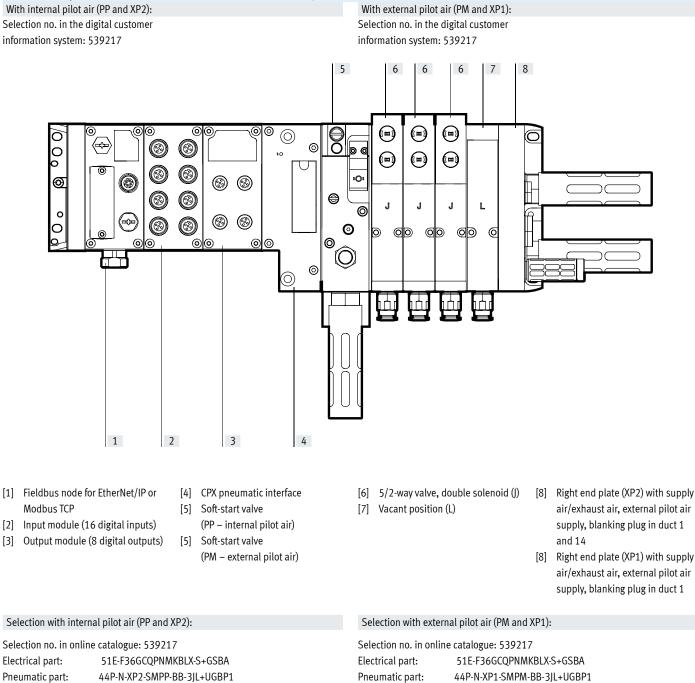
For external pilot air supply:

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



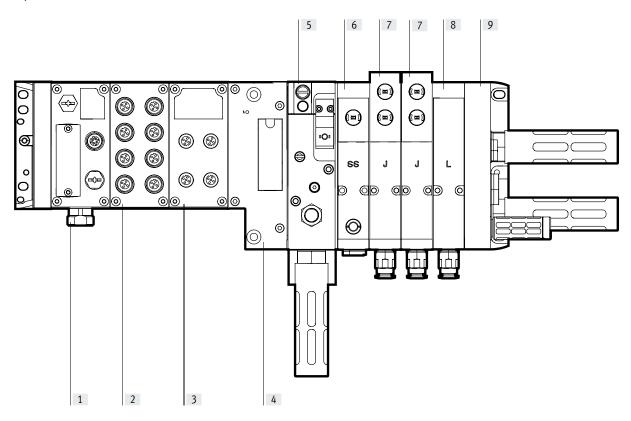
- [1] Seal for internal pilot air supply
- [2] Seal for external pilot air supply

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



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 the digital customer information system: 539217



- [1] Fieldbus node for EtherNet/IP or Modbus TCP
- [4] CPX pneumatic interface
- [5] SUIT-Statt valve
- [2] Input module (16 digital inputs)[3] Output module (8 digital outputs)
- [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 end plate (XP2) with supply air/exhaust air, external pilot air supply, blanking plug in duct 1 and 14

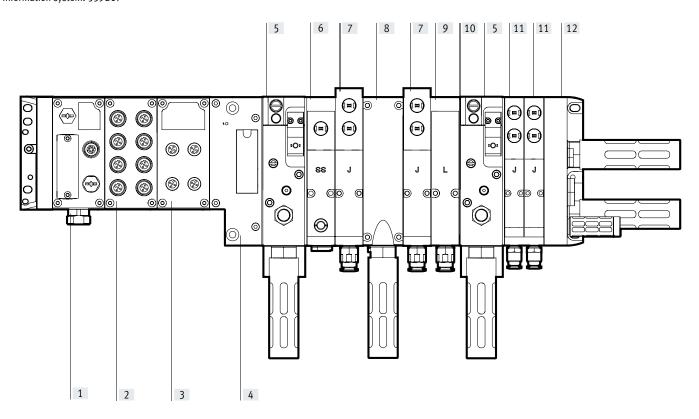
Selection with external pilot air (PM and XP2), solenoid valve with switching position sensing (SS) and intermediate plate for switchable pilot air supply (ZO)

Selection no. in online catalogue: 539217

Electrical part:51E-F36GCQPNMKBLX-S+GSBAPneumatic part:44P-N-XP2-SMPM-BB-SSZOJJL+UGCGBP1

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 the digital customer information system: 539217



- [1] Fieldbus 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)

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

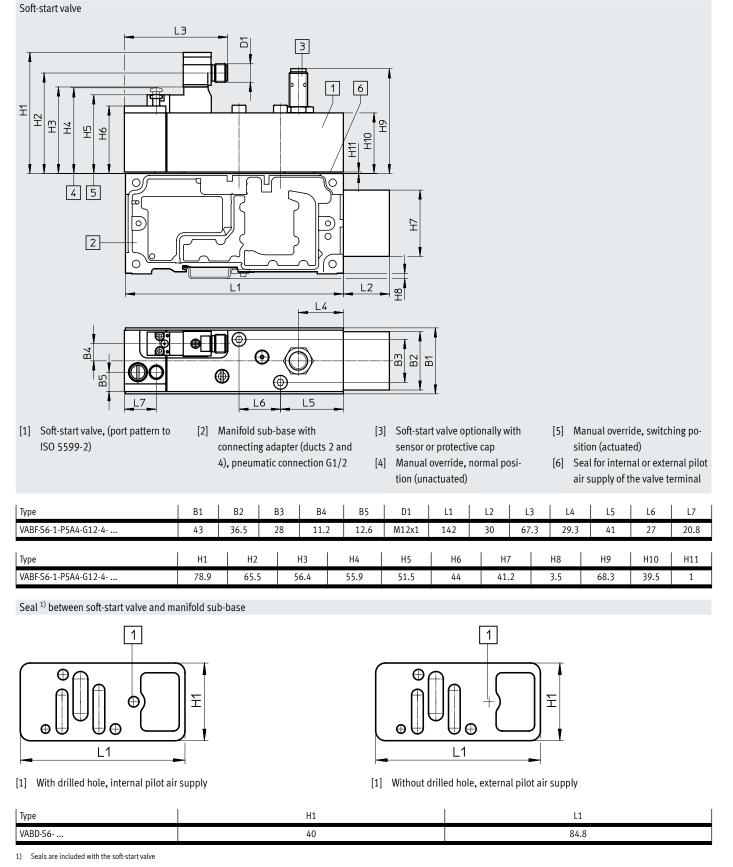
The solenoid valve with switching position sensing (SS), with sensor connection M12 is connected to the CPX input module using an appropriate connecting cable in order to link the sensor signal to the CPX system. The soft-start valve (PM – with sensor PNP) is connected to the CPX input module using an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

- [7] 5/2-way double solenoid valve (), 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 end plate (XP2) with supply air/exhaust air, external pilot air supply, blanking plug in duct 1 and 14

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

## Dimensions

Download CAD data → <u>www.festo.com</u>



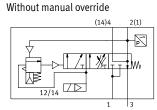
Ordering data	Terminal code	Description	Weight [g]	Part no.	Туре
Soft-start valve, 24 V I			151		
	-	Without sensor output, pneumatic connection G1/2 (with seals for internal and external pilot air)	590	558230	VABF-S6-1-P5A4-G12-4-1
	PN	Seal for external pilot air (without drilled hole)			
- Bir	PQ	Seal 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)			
-BE	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
	РК	Seal for external pilot air (without drilled hole)			
<u>~</u>	РО	Seal for internal pilot air (with drilled hole)	1		
Aanifold sub-base					
	-	Suitable for a soft-start valve (ports for ducts 2 and 4 are combined), pneumatic connection G1/2	570	556989	VABV-56-1Q-G12

# Accessories – Soft-start valve for VTSA/VTSA-F

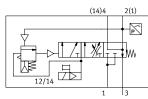
signation	Code	Description		Part no.	Туре
ver cap				1	7
	-	M12, for sealing the sensor opening	10 pieces	165592	ISK-M12
lectrical connectior	n for soft-start va	lve			
	P1	<ul> <li>Angled socket, type C, 2-pin, with LED</li> <li>Straight plug, 1xM12, 2-pin</li> <li>24 V DC</li> </ul>		188024	MSSD-EB-M12-MONO
M. March	GB	<ul> <li>Straight socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	5 m	541328	NEBU-M12G5-K-5-LE4
AND	-	<ul> <li>Angled socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	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-core	5 m	151689	KMEB-1-24-5-LED
•	GJ	• 24 V DC, PVC	10 m	193457	KMEB-1-24-10-LED
T and the second s	GK	Angled socket, type C, 3-pin	2.5 m	151690	KMEB-1-230AC-2.5
\$	GL	• Open end, 3-core	5 m	151691	KMEB-1-230AC-5
<u> </u>		• 230 V AC, PVC			
onnecting cable for	electrical conne	ction of the proximity switch			
	-	<ul> <li>Straight socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	5 m	541328	NEBU-M12G5-K-5-LE4
- MA	GC	<ul> <li>Angled socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	5 m	541329	NEBU-M12W5-K-5-LE4
A THE SE	) -	Modular system for a choice of connecting cables		-	NEBU → Internet: nebu
ilencer					
The second second	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 connectio	on accessories				
		ing plugs, silencers and			
		found in the chapter <b>Accessories</b> → page: 259			

# Datasheet – Soft-start valve for VTSA-F-CB

## Function



## With manual override



- Flow rate
  - Pressurisation: 3000 l/min Exhausting: 3300 l/min
- **[]** Module width 41 mm
  - Temperature range
     -5 ... +50°C
    - Operating pressure
       2 ... 10 bar
       0.2 ... 1 MPa



### 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 position
- A revised design of the manual override with protection against unintended actuation, as well as an 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 at duct 14 (pilot air) at all times. This pressure causes the valves on the valve terminal to immediately move to the required switching position, so an unspecified position is not 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.

T

## Safety characteristics

Salety characteristics		
Max. positive test pulse with logic 0	[µs]	2000
Max. negative test pulse with logic 1	[µs]	1200
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

# Datasheet – Soft-start valve for VTSA-F-CB

# General technical data

General technical data		
Design		Piston spool valve
Grid dimension	[mm]	41
Valve size	[mm]	40
Overlap		Negative overlap
Actuation type		Electrical
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 $\rightarrow$ page 203
Manual override		None (part numbers 8067411 and 8067409)
Reset method		Mechanical spring
Type of actuation		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		Not reversible
Pneumatic connection 3		G1/2
MTTF, subcomponent		452 years, pressure switch

#### Standard nominal flow rate [l/min]

Pressurisation	3000
Exhausting	3300

## Operating and environmental conditions

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/		Lubricated operation not possible		
pilot medium				
Operating pressure	[bar]	310	210	
	[MPa]	0.3 1	0.2 1	
Ambient temperature	[°C]	-5 +50		
Temperature of medium	[°C]	-5 +50		
Corrosion resistance class CRC <sup>1)</sup>		0		

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

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

## Electrical data for soft-start valve

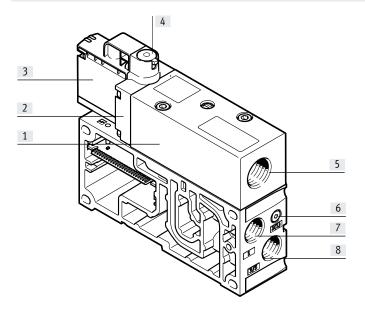
Electrical data for soft-start valve	
Electrical actuation	Fieldbus
Electrical connection	Plug-in
Nominal operating voltage [V]	24 DC
Operating voltage range [V]	24 DC ±10%
Characteristic coil data	24 V DC: 1.6 W
Permissible voltage fluctuations [%]	±10%
Degree of protection to EN 60529	IP65 (for all types of signal transmission when mounted)
Pressure sensor	Integrated (plug-in)
Sensor evaluation	Internal
Switching element function	N/C
Switching position sensing	Via pressure switch, exhausted status
Signal status display	Yellow LED, valve control
	Green LED, pressure switch, exhausted status
Duty cycle [%]	100

### Materials

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 components**

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

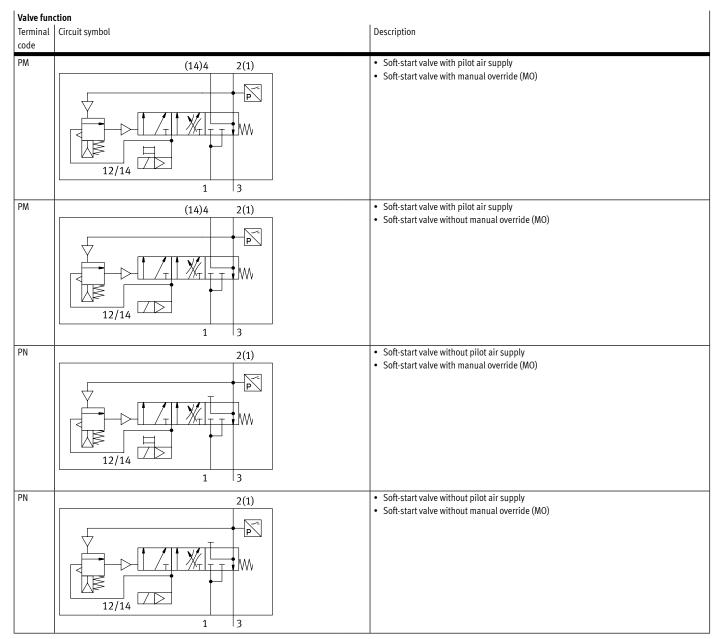


#### Note

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

→ Internet: User documentation

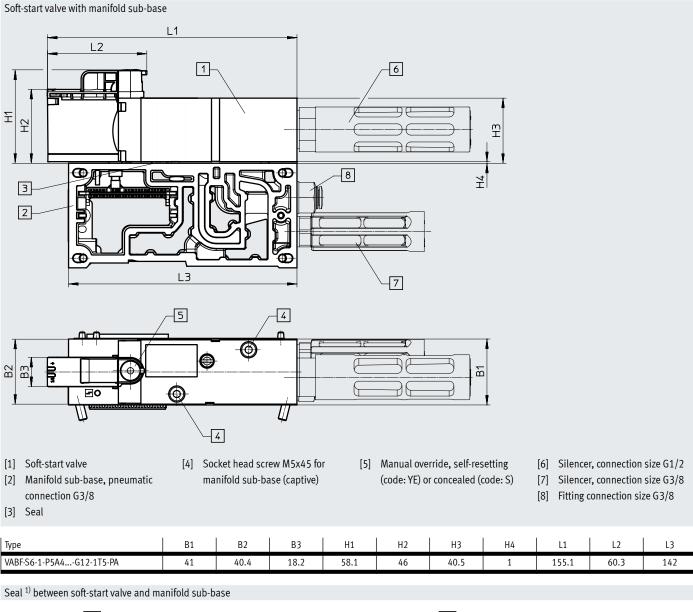
- [1] Basic valve housing
- [2] Intermediate plate [3] Pilot control
- [4] Manual override (MO) (optional)
- [5] Exhaust air port for duct 1
- [6] Pressure sensing for duct 1
- [7] Compressed air supply port
- [8] Exhaust air port for duct 3/5

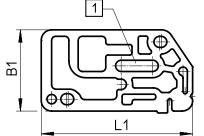


# Datasheet – Soft-start valve for VTSA-F-CB

## Dimensions

Download CAD data → <u>www.festo.com</u>





## [1] With elongated hole, internal pilot air supply

[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

# Accessories – Soft-start valve for VTSA-F-CB

Ordering data	Code	Description		Operating	pressure	Standard nor rate <sup>1)</sup>	ninal flow	Wt. [g]	Part no.	Туре
				[MPa]	[bar]	Pressurisa- tion [l/min]	Exhausting [l/min]	151		
Soft-start valve, wi	thout ma	nifold sub-base								
	PM	Pilot pressure build-up from duct 1 (S1)	Manual override (MO), self-reset- ting	0.3 1	3 10	3000	3300	466	8067407	VABF-S6-1-P5A4S1YE-G12-1T5-PA
			Manual override (MO), con- cealed	0.3 1	3 10	3000	3300	466	8067411	VABF-S6-1-P5A4S1S-G12-1T5-PA
	PN	No pilot pres- sure build-up from duct 1 (S2)	Manual override (MO), self-reset- ting	0.2 1	2 10	3000	3300	466	8067405	VABF-S6-1-P5A4S2YE-G12-1T5-PA
			Manual override (MO), con- cealed	0.2 1	2 10	3000	3300	466	8067409	VABF-S6-1-P5A4S2S-G12-1T5-PA

1) +/- 15% to FN 942032

Ordering data									
	Code	Description	Wt. [g]	Part no.	Туре				
Manifold sub-base	Manifold sub-base for soft-start valve								
		<ul> <li>With CBUS loop-through</li> <li>Sensor evaluation: internal</li> <li>Duct 3/5 combined</li> <li>Only in combination with pneumatic interface with voltage zone</li> <li>Pneumatic connection G3/8</li> </ul>	421	8068609	VABV-S6-1Q-G38-CB1-T5				

## Valve terminals VTSA

# Datasheet – Pneumatic interface for VTSA-F-CB





## Description

Up to three safe voltage zones can be formed in the pneumatic part of the valve terminal using the pneumatic interface. There is also a variant available which uses a safe voltage zone as an external output. The pneumatic interfaces (zone extensions) can be placed centrally in the pneumatic section of a valve terminal VTSA-F-CB and they extend the valve terminal by up to 3 additional (safe) voltage zones.

#### Function

Two different equipment levels:

- Formation of up to three safe internal voltage zones
- Formation of up to two safe internal voltage zones and one safe external voltage zone
- Integrated driver levels for addressing up to 24 valves within the first safe voltage zone
- Integrated diagnostics on short circuit and overload of the controlled valve coils
- Integrated diagnostics for load voltage undervoltage

# Datasheet – Pneumatic interface for VTSA-F-CB

General technical data		
Туре		VABA-S6-1-X2-3V-CB-AL
Max. no. of valve positions		12 with double solenoid valves
		24 with single solenoid valves
Product weight	[g]	1388

## Electrical data

Туре		VABA-S6-1-X2-3V-CB-AL
Electrical connection		3x M12x1, A-coded
		5-pin
		Plug
		Via CPX
Operating voltage range	[V DC]	21.6 26.4
Intrinsic current consumption at	[mA]	Typically 11 (operating voltage supply for electronics)
nominal operating voltage		Typically 45 (load voltage supply for valves)
Max. power supply per channel	[A]	0.2
Max. aggregate current per module	[A]	6
Nominal operating voltage	[V DC]	24
Degree of protection		IP65
		NEMA 4

Operating and environmental conditions					
Туре		VABA-S6-1-X2-3V-CB-AL			
Ambient temperature	[°C]	-5 50			

# Materials Type VABA-S6-1-X2-3V-CB-AL Note on materials RoHS-compliant Information on materials: Housing Die-cast aluminium Information on materials: Cover PA Corrosion resistance class CRC 0<sup>1</sup> LABS (PWIS) conformity VDMA24364-B1/B2-L

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.

# Datasheet – Pneumatic interface for VTSA-F-CB

General technical data						
Туре		VABA-S6-1-X2-F1-CB-AL	VABA-S6-1-X2-F1-CB2-AL			
Max. no. of valve positions		12 with double solenoid valves	12 with double solenoid valves			
		24 with single solenoid valves	24 with single solenoid valves			
Product weight	[g]	1542	1576			

#### Electrical data

Туре		VABA-S6-1-X2-F1-CB-AL	VABA-S6-1-X2-F1-CB2-AL
I/O output, function		-	Power supply, valve
I/O output, connection type		-	Plug
I/O output, connection technology		-	7/8" round plug connector
I/O output, number of pins		-	5
Electrical connection		Via CPX	Via CPX
Operating voltage range	[V DC]	21.6 26.4	21.6 26.4
Intrinsic current consumption at	[mA]	Typically 15 El. w/o CPX-FVDA-P2	Typically 15 El. w/o CPX-FVDA-P2
nominal operating voltage		Typically 25 El. with CPX-FVDA-P2	Typically 25 El. with CPX-FVDA-P2
Max. power supply per channel	[A]	0.2	0.2
Max. aggregate current per module	[A]	2	2
Nominal operating voltage	[V DC]	24	24
Degree of protection		IP65	IP65

Operating and environmental conditions						
Туре		VABA-S6-1-X2-F1-CB-AL	VABA-S6-1-X2-F1-CB2-AL			
Storage temperature	[°C]	-20 60	-			
Ambient temperature	[°C]	-	-5 50			
Vibration resistant		Transport application test with severity level 2 to FN 942017-4 and	Transport application test with severity level 2 to FN 942017-4 and			
		EN 60068-2-6	EN 60068-2-6			
Shock resistance		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27			

Materials			
Туре	VABA-S6-1-X2-F1-CB-AL	VABA-S6-1-X2-F1-CB2-AL	
Note on materials	RoHS-compliant		
Information on materials: Sub-base	Die-cast aluminium		
Information on materials: Cover	PA		
Information on materials: Screws	Steel		
Information on materials: Seals	NBR		
Corrosion resistance class CRC	0 <sup>1)</sup>		
CE marking	To EU EMC Directive <sup>2)</sup>		
	To EU RoHS Directive <sup>2)</sup>		

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) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... -> Support/Downloads.

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.

# Datasheet – Pneumatic interface for VTSA-F-CB

General technical data						
Туре		VABA-S6-1-X2-F2-CB-AL	VABA-S6-1-X2-F2-CB2-AL			
Max. no. of valve positions		12 with double solenoid valves	12 with double solenoid valves			
		24 with single solenoid valves	24 with single solenoid valves			
Product weight	[g]	1562	1596			

## Electrical data

Licenteur dutu				
Туре		VABA-S6-1-X2-F2-CB-AL	VABA-S6-1-X2-F2-CB2-AL	
I/O output, function		Safe digital output		
I/O output, connection type		Socket		
I/O output, connection technology		M12x1, A-coded to EN 61076-2-101		
I/O output, number of pins		5		
I/O valve, function		-	Power supply, valve	
I/O valve, connection type		-	Plug	
I/O valve, connection technology		-	7/8" round plug connector	
I/O valve, number of pins		-	5	
Electrical connection		Via CPX		
Operating voltage range	[V DC]	21.6 26.4		
Intrinsic current consumption at	[mA]	Typically 15 El. w/o CPX-FVDA-P2		
nominal operating voltage		Typically 25 El. with CPX-FVDA-P2		
Max. power supply per channel [A]		0.2		
Max. aggregate current per module	[A]	2		
Nominal operating voltage [V DC]		24		
Degree of protection		IP65		

Operating and environmental conditions					
Туре		VABA-S6-1-X2-F2-CB-AL	VABA-S6-1-X2-F2-CB2-AL		
Storage temperature	[°C]	-	-20 60		
Ambient temperature	[°C]	-5 50			
Vibration resistant		Transport application test with severity level 2 to FN 942017-4 and	Transport application test with severity level 2 to FN 942017-4 and		
		EN 60068-2-6	EN 60068-2-6		
Shock resistance		Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27		

## Materials

Materials		
Туре	VABA-S6-1-X2-F2-CB-AL	VABA-S6-1-X2-F2-CB2-AL
Note on materials	RoHS-compliant	
Information on materials: Sub-base	Die-cast aluminium	
Information on materials: Cover	PA	
Information on materials: Screws	Steel	
Information on materials: Seals	NBR	
Corrosion resistance class CRC	01)	
CE marking	To EU EMC Directive <sup>2)</sup>	
	To EU RoHS Directive <sup>2)</sup>	

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) For information about the area of use, see the EC declaration of conformity at: www.festo.com/catalogue/... → Support/Downloads.

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.

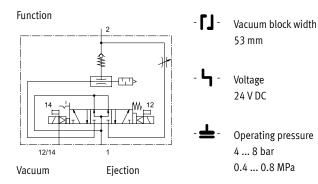
#### Ordering data

Code	Description	Part no.	Туре
ХВ	Pneumatic interface for extending by 3 external voltage zones	8152438	VABA-S6-1-X2-3V-CB-AL
XC	Pneumatic interface for extending by 3 safe internal zones (PROFIsafe)	8152437	VABA-S6-1-X2-F1-CB-AL
XD	Pneumatic interface for extending by 2 safe internal zones + 1 safe output (PROFIsafe)	8152436	VABA-S6-1-X2-F2-CB-AL
PC	Pneumatic interface with additional power supply for extending by 3 safe internal zones (PROFIsafe)	8152435	VABA-S6-1-X2-F1-CB2-AL
PD	Pneumatic interface with additional power supply for extending by 2 safe internal zones + 1 safe output (PROFIsafe)	8152434	VABA-S6-1-X2-F2-CB2-AL

ī

## Valve terminals VTSA

# Datasheet – Vacuum block for VTSA/VTSA-F



#### Description

The vacuum block can be integrated into the existing valve terminal VTSA/ VTSA-F. To do this, the vacuum block is screwed to a manifold sub-base for 2 valve positions, width 26 mm. The vacuum block is used in conjunction with a suction gripper to pick up, hold and place components. Picking up and holding is carried out by a suction gripper using a vacuum. Once the component has been positioned, it is released by an ejector pulse. This ejector pulse is created by pressurising the vacuum system so that the vacuum briefly collapses. The ejector pulse can be set.

## - Note

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

#### Function

The vacuum block VABF-S4-1-V2B1 is used to generate a vacuum. The gener- ated vacuum and a suction gripper produce a force which is used to grip and transport a workpiece. The supply of compressed air for vacuum genera- tion 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 out- put). Vacuum generation reverts to a self-holding phase after reaching the setpoint value. The vacuum block con- trols the vacuum generation process independently within the range of the set switching points (air saving func- tion).	The integrated solenoid valve is used to generate an ejector pulse by activat- ing coil 14. The workpiece is thus safe- ly released from the suction cup with connector and the vacuum is rapidly reduced. The length of the ejector pulse can be influenced by the dura- tion of the electrical pulse. The strength of the ejector pulse is influ- enced by the adjustable flow control.	- Dote If the electrical or pneumatic supply fails while the valve is in the "gener- ate vacuum" or "air saving" state, the valve moves to the "generate vacu- um" position.
Operating mode of the air saving function	on (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 au- tomatically.	Vacuum is generated until the set threshold value (1) (turn off suction) is reached again.
Threshold value to turn off suction (air s	aving function) (1):	Threshold value to turn on suction (2):	
The vacuum generator is switched off simultaneously when the output Out A is set.	The preset value is -700 mbar.	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.
<b>≜</b>			

# - 🖡 - Note

Setting options and further instructions are described in the operating instructions and/or documentation VABF-S4-1-V2B1... on the Support Portal from Festo.

→ Internet

# Datasheet – Vacuum block for VTSA/VTSA-F

# General technical data

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		Ejector pulse valve, electric
		Flow control valve
		On/off valve, electric
		Air-saving circuit, electric
		Non-return 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
Threshold value setting range	[bar]	-0.999 0 (recommended operating range: -0.950.05)
	[MPa]	-0.0999 0 (recommended operating range: -0.0950.005)
Hysteresis setting range	[bar]	-0.90
	[MPa]	-0.090
Power supply, vacuum block		Via own plug M12
Pneumatic supply for vacuum		Via valve terminal VTSA/VTSA-F
block		
Ejector pulse		Strength adjustable via flow control screw
Actuation type		
Solenoid valve		Electrically actuated
<ul> <li>Vacuum block</li> </ul>		Vacuum generation via Venturi nozzle
Type of actuation for solenoid		Piloted
valve		
Flow direction		Not reversible
Exhaust function		Can be throttled (duct 3 and 5)
Type of mounting		Via through-hole, screwed onto manifold sub-base, width 26 mm
Manual override		Detenting, non-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
Exhausting	3/5	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)		
(vacuum port)		

# Datasheet – Vacuum block for VTSA/VTSA-F

## | Technical data for pressure switch of vacuum block (delivery status)

Technical data for pressure	switch of vacuum	block (delivery status)
Duct A: air saving function		
Switching behaviour		Threshold value comparator
Switching point	[mbar]	-700
	[MPa]	-0.07
Hysteresis	[mbar]	200
	[MPa]	0.02
Switching characteristic		NO (normally open contact)
Duct B: vacuum sensing		
Switching behaviour		Threshold value comparator
Switching point	[mbar]	-400
	[MPa]	-0.04
Hysteresis	[mbar]	5
	[MPa]	0.0005
Switching characteristic		NO (normally open contact)

# - 🎍 - Note

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

## Electrical data

Electrical connection		4-pin plug to ISO 15407-2 (vacuum block supplied with 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
No-load supply 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		Available
Accuracy (full scale)	[% FS]	±3
Degree of protection to EN 60529		IP65, NEMA 4 (for all types of signal transmission when mounted)

### Electrical connection<sup>1)</sup>

1 xM12 plug, 4-pin to EN 61076-2	-101       Pin1       - + 24 V DC (brown (BN))       Supply voltage         Pin2       - Out B (white (WH))       Switching output B (duct B)         Pin3       - 0 V DC (blue (BU))       0 V DC         Pin4       - Out A (black (BK))       Switching output A (duct A)	
----------------------------------	------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------	--

1) Max. permissible signal cable length: 5 m

1

# Valve terminals VTSA

# Datasheet – Vacuum block for VTSA/VTSA-F

## Operating and environmental conditions

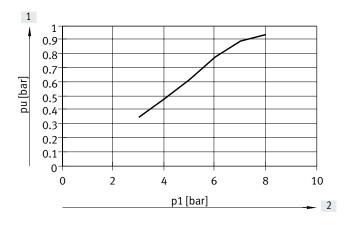
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Notes on the operating medium		Unlubricated operation
Operating pressure	[bar]	48
	[MPa]	0.4 0.8
Nominal operating pressure	[bar]	6
	[MPa]	0.6
Pressure measuring range [bar]		-10
	[MPa]	-0.1 0
Partial vacuum	[bar]	Up to approx. 0.9 (as a function of operating pressure)
	[MPa]	Up to approx. 0.09 (as a function of operating pressure)
Ambient temperature	[°C]	050
Temperature of medium	[°C]	050
Noise level LpA (at nominal oper-	[dB(A)]	78
ating pressure)		

## Materials

Housing, jet nozzleWrought aluminium alloyScrewsGalvanised steelSealsNBRPlug housingNickel-plated die-cast zincPlug contactsGold-plated brassInspection window on pressure sensorPAPressure sensor keypadTPE-UNote on materialsRoHS-compliantPWIS conformityVDMA24364 zone III	materials	
Seals     NBR       Plug housing     Nickel-plated die-cast zinc       Plug contacts     Gold-plated brass       Inspection window on pressure     PA       sensor     Pressure sensor keypad       Pressure sensor keypad     TPE-U       Note on materials     RoHS-compliant	Housing, jet nozzle	Wrought aluminium alloy
Plug housing     Nickel-plated die-cast zinc       Plug contacts     Gold-plated brass       Inspection window on pressure sensor     PA       Pressure sensor keypad     TPE-U       Note on materials     RoHS-compliant	Screws	Galvanised steel
Plug contacts     Gold-plated brass       Inspection window on pressure sensor     PA       Pressure sensor keypad     TPE-U       Note on materials     RoHS-compliant	Seals	NBR
Inspection window on pressure     PA       sensor     Pressure sensor keypad       TPE-U     Note on materials       RoHS-compliant	Plug housing	Nickel-plated die-cast zinc
sensor         Pressure sensor keypad         TPE-U           Note on materials         RoHS-compliant         RoHS-compliant	Plug contacts	Gold-plated brass
Pressure sensor keypad     TPE-U       Note on materials     RoHS-compliant	Inspection window on pressure	PA
Note on materials RoHS-compliant	sensor	
	Pressure sensor keypad	TPE-U
PWIS conformity VDMA24364 zone III	Note on materials	RoHS-compliant
	PWIS conformity	VDMA24364 zone III

#### Pressure ratios, air consumption and volumetric flow rate

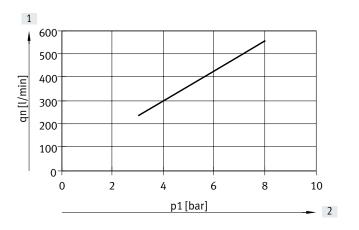
Vacuum as a function of operating pressure



[1] Vacuum

[2] Operating pressure

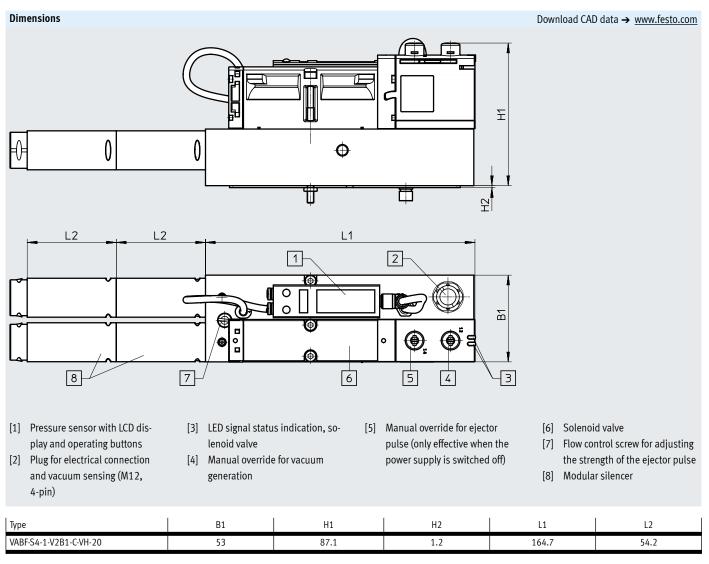
Air consumption as a function of operating pressure



[1] Air consumption

[2] Operating pressure

# Datasheet – Vacuum block for VTSA/VTSA-F



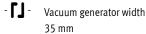
# Datasheet – Vacuum block for VTSA/VTSA-F

Ordering data					
	Code	Description		Part no.	Туре
/acuum block					
	VB	Vacuum block for valve terminal VTSA/VTSA-F with air-saving function and adjustable ejector pulse	1120 g	571425	VABF-S4-1-V2B1-C-VH-20
Aanifold sub-base					
	L <sup>2)</sup>	For vacuum block 2 valve positions, 4 addresses, with 2 blanking plugs in port 4	26 mm	_ 1)	VABV-S4
6 G G	LK <sup>2)</sup>	For vacuum block 2 valve positions, 4 addresses, with 2 blanking plugs in port 4, with small QS fitting	26 mm	_ 1)	VABV-54
connecting cable					
	-	<ul> <li>Straight socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	2.5 m	550326	NEBU-M12G5-K-2.5-LE4
M. Jakes	-	<ul> <li>Straight socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	5 m	541328	NEBU-M12G5-K-5-LE4
C. M. C.	GC	<ul> <li>Angled socket, 1xM12, 5-pin</li> <li>Open end, 4-core</li> </ul>	5 m	541329	NEBU-M12W5-K-5-LE4
NT THE REAL OF	-	Modular system for a choice of connecting cables	<u> </u>	-	NEBU → Internet: nebu
other pneumatic access or on the website via th	fittings, bla ories can b e individua	nking plugs, silencers and be found in the chapter <b>Accessories →</b> page: 259			

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

## Valve terminals VTSA

# Datasheet – Vacuum generator for VTSA-F-CB



- Voltage 24 V DC

Operating pressure 4 ... 8 bar 0.4 ... 0.8 MPa

#### Description

The vacuum generator VABF is designed for generating a vacuum. The vacuum generator can be integrated into the existing valve terminal VTSA-F-CB.

Compressed air as well as power are supplied via the valve terminal.

#### Extended functions with VTSA-F-CB

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.

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.

- 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

Picking up and holding is carried out by a suction gripper using a vacuum. 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 briefly pressurised.

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

- Locking the ejector pulse:
  - When the Uval of the adjacent 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<sub>VAL</sub>), the vacuum generator VABF remains in vacuum generation mode with air-saving function.

If there is a complete power failure (bus shutdown, U<sub>SEN</sub>) when the vacuum generator is in "Generate vacuum" mode, the valve switches to the "Permanent suction" position.

## Vacuum generation

The vacuum is generated according to 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 applied for at least 50 ms. Since the vacuum generation is pulse-controlled, vacuum is also generated after the output signal is deactivated.



• Evacuation or pressurisation time

exceeded

# Datasheet – Vacuum generator for VTSA-F-CB

Pressurisation time t<sub>B</sub>

Process guality

From ation	1 overview
FUNCTION	Inverview

- Monitoring process parameters
- Pressure value at vacuum port
- Limit values

• Evacuation time t <sub>E</sub>		<ul><li> Fault on air-saving function</li><li>Vacuum value not reached</li></ul>	<ul><li> Process quality below limit value</li><li> Teach-in error</li></ul>
Static teach-in Switching points and cycle time can be	Dynamic teach-in Calculating and optimising existing	Air saving function <ul> <li>Is set at the factory.</li> </ul>	Manual override Both solenoid coils, for vacuum gener-
configured using the FMT (Festo Main- tenance Tool).	process sequences. Switching points and monitoring func- tions can be configured during opera- tion.	• Can be switched off for "air-permea- ble workpieces" (otherwise there will be an unnecessarily high num- ber of switching processes).	ation and ejector pulse, can be switched manually using the manual override.
Pressure value (vacuum) Pressure values are measured continu- ously between the vacuum port and fil- ter. If the operating voltage of the vacu- um generator is switched off, the val- ues are reset.	Cycle time The time from the start of the evacua- tion through ejection to the start of the new evacuation.	Evacuation and pressurisation time The evacuation time $t_E$ 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.	Blanking plug A vacuum generator V*20 or V*30 can be converted at a later date to V*14 us- ing 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 vol- umes).
Emergency stop function			
If the emergency stop (switching off the load voltage supply) is triggered during vacuum generation, the vacuum gener- ator remains in vacuum generation mode.	If the air saving function was activated, it remains active. If the parameter "ejector pulse interlock" is activated (set to inactive at the factory), no ejec- tor pulse is triggered in the event of an emergency stop.	If there is a complete power failure (electronic supply voltage) during vacu- um generation, the valve switches to "generate vacuum" position.	When the power supply is switched on again, the valve remains in the "gener- ate vacuum" operating status until an ejection signal is received.
Error state			
If communication between the control- ler and the vacuum generator is inter- rupted, a specific status is set.	The following settings are defined in this state:	<ul> <li>Output bit "vacuum generation" is set to 0.</li> <li>Output bit "ejector pulse" is set to 0.</li> </ul>	<ul> <li>Parameter set is set to 0</li> <li>Air saving function is not affected</li> </ul>
Additional characteristics			
Galvanic isolation between the vac-	• Air-saving ejector pulse with in-	<ul> <li>Integrated air saving function</li> </ul>	Open silencer for reduced noise lev-

- 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 increased ejecting rate (power ejector pulse)
- Flow control screw to adjust the ejector impulse
- Integrated pressure sensor
- Integrated air saving function

Fault detection and diagnostic messages

• Supply voltage not reached

• Evacuation time exceeded

- · 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 lev els
- A check valve prevents purging of the vacuum if vacuum generation is interrupted

# Datasheet – Vacuum generator for VTSA-F-CB

[MPa]

[% FS]

[%]

-0.1 ... 0

±3

IP65

Ш

1

Туре		Functions with type code VABFA	Functions with type code VABFAP	
Valve function		5/3-way, pressurised		
Design		Non-modular		
Mounting position		Any		
Nominal width of Laval nozzle	14 [mm]	1.4		
(vacuum generation)	20 [mm]	2.0		
30 [mm]		3.0		
Ejector characteristics	50 []			
• VABFV2B1VH		High vacuum, standard		
<ul> <li>VABFV2B1VL</li> </ul>		High suction rate, standard		
Integrated functions		Ejector pulse, electrical	Power ejector pulse, electrical	
0		Flow control valve	Flow control valve	
		On/off valve, electric	On/off valve, electric	
		Air-saving circuit, electric	Air-saving circuit, electric	
		Non-return valve	Non-return valve	
		Open silencer	Open silencer	
		Vacuum switch	Vacuum switch	
Silencer design		Open		
Measured variable		Relative pressure		
Measuring principle		Piezoresistive		
Switching function		Window comparator		
J. J		Threshold value comparator		
Reverse polarity protection		For all electrical connections	all electrical connections	
Switching element function		N/O		
Pneumatic supply for vacuum gen		Via valve terminal VTSA-F-CB		
erator				
Ejector pulse		Strength adjustable via flow control screw		
Solenoid valve actuation type		Electrically actuated		
Type of actuation for solenoid valve		Piloted		
Flow direction		Not 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, covered (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)		
Pneumatic connections				
Supply	1	Compressed air is supplied via the valve terminal		
Exhausting	3			
Working port	2	Via silencer (open) G3/8		
(vacuum port)	2	0 טונט		
(				
Electrical data and sensors				
Operating voltage range (UB)	[V DC]	21.6 30		
Nominal operating voltage	[V DC]	24		
Duty cycle	[%]	100		
No-load supply current	[mA]	30		
Electrical actuation		Fieldbus		
Electrical connection		Via CPX		
Pressure measuring range				
	[MPa]			

Accuracy (full scale)

Reproducibility,

switching value FS

Degree of protection to EN 60529

Protection class to DIN EN 61140

# Datasheet – Vacuum generator for VTSA-F-CB

### Display and operation

Display and operation		
Display type		LED display, 2-digit
Threshold value setting range	[kPa]	099
Hysteresis setting range	[kPa]	090
Setting options		Teach-in
		Via parameter sets
Switching status display sensor		LED
Display range start value	[kPa]	0
Display range end value	[kPa]	99
Displayable unit(s)	[kPa]	Vacuum
Signal status indication, solenoid		LED
valve		

#### Operating and environmental conditions

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		Compresse	ed air to ISO 8	573-1:2010	[7:4:4]						
Note on operating/pilot medium		Lubricated	operation no	t possible							
Pilot pressure pS	[bar]	4 10									
	[MPa]	0.4 1									
Operating pressure pB	[bar]	4 8									
	[MPa]	0.4 0.8									
Nominal operating pressure	[bar]	6									
pBnom	[MPa]	0.6									
Operating pressure for max.	[bar]	4		4		6		4		5	
suction rate	[MPa]	0.4		0.4		0.6		0.4		0.5	
Operating pressure for max.	[bar]	4		4		6		-		-	
vacuum pumax	[MPa]	0.4		0.4	0.6			-		-	
Max. vacuum pVmax	[kPa]	92						-		-	
Max. suction rate with respect to atmosphere	[l/min]	51		99		167		91		179	
Pressurisation time at nominal op- erating pressure	[s]	0.2	0.3	0.2	0.3	0.2	0.25	0.2	0.25	0.2	0.25
Noise level LpA (at nominal operat- ing pressure)	[dB(A)]	70		73	•	75		62		61	
Ambient temperature tamb	[°C]	-5 +50									
Temperature of medium tmed	emperature of medium tmed [°C] -5 +50										
CE marking (see declaration of confo	ormity)	To EU EMC	To EU EMC Directive								
Certification		RCM									
Corrosion resistance class CRC <sup>1)</sup>		0									

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

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

#### Materials

Materials	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				
Collector nozzle	РОМ				
Silencers	PU foam, POM				
Note on materials	RoHS-compliant (vacuum generator and blanking plug)				
Corrosion resistance class CRC <sup>1)</sup>	2 (blanking plug)				

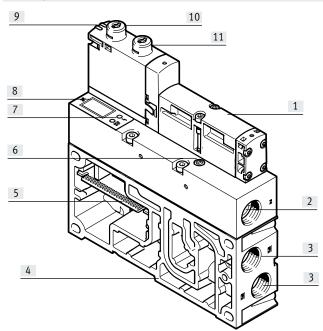
1) Corrosion resistance class CRC 2 to Festo standard FN 940070

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

### Datasheet – Vacuum generator for VTSA-F-CB

#### Connection and display components

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 link to valve terminal VTSA-F-CB
- [6] Flow control screw for adjusting the strength 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 malfunctions or faults to be detected at an early stage during operation.

The following diagnostic functions are

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

Definition of diagnostic levels

possible:

Status	Normal operation	Warning	Faults
Definition	Device is OK	Outside the specification	Malfunction

#### Operating statuses of the vacuum generator

Actuation			
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
		Generating vacuum	Operating status after failure of the pilot air supply or the electrical supply of the vacuum generator (self-latching loop)
1	0	Generating vacuum	Pulse actuation with self-latching loop
0	1	Pressurising (ejector pulse)	Accelerated vacuum reduction
1	1	Saving air (air saving function)	Maintain vacuum (valve mid-position)

1

# Datasheet – 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	Generating vacuum	Generating vacuum
or the pilot air supply of the vacuum generator		(The valve spool remains in the "generate vacuum" position)
	Saving air	Generating vacuum
		(The mechanical spring pushes the valve spool into the "generate vacuum"
		position)
	Pressurising	Normal position <sup>1)</sup>
	Normal position <sup>1)</sup>	Normal position <sup>1)</sup>
Emergency stop/switch-off of the load voltage	Generating vacuum	Generating vacuum
supply	Saving air	Generating vacuum
		(vacuum is maintained)
	Pressurising	Normal position or function is interrupted <sup>2)</sup>
	Normal position <sup>1)</sup>	Normal position <sup>1)</sup>

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

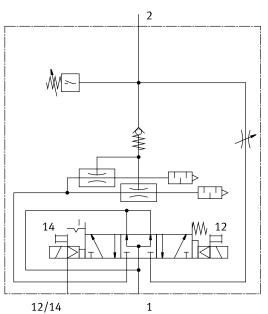
### - 🖡 - Note

If the compressed air or power supply to the valve terminal fails, this will result

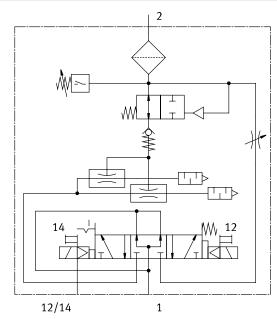
- in the following statuses:
- 1. Compressed air failure:
- No vacuum can be generated, even if the valve is in the "generate vacuum" position.
- No ejector pulse can be generated, even if the valve is in the "ejection" position.
- 2. Power supply failure to the valve terminal:
- If both solenoid coils are de-energised 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



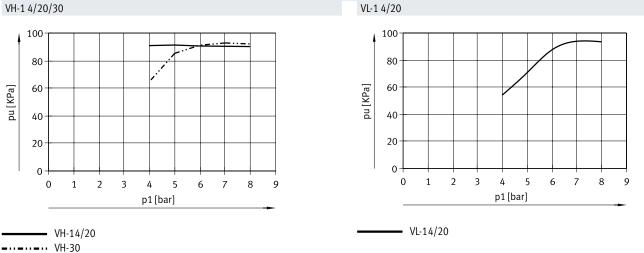




The vacuum generator is supplied internally via duct 1 of the manifold sub-base of the valve terminal. The pilot air is supplied internally via duct 12/14 of the manifold sub-base of the valve terminal.

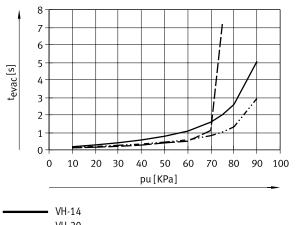
# Datasheet - Vacuum generator for VTSA-F-CB

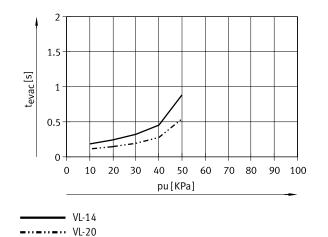
Pressure ratios, negative pressure  $p_u$  as a function of operating pressure  $p_1$ VH-1 4/20/30



#### Pressure ratios, evacuation time tevac as a function of negative pressure pu and operating pressure 4 bar for 1 l volume VL-1 4/20: t<sub>evac(p1)</sub>

VH-1 4/20/30: t<sub>evac(p1)</sub>

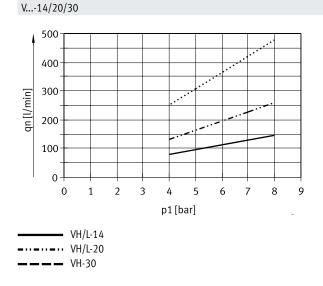




VH-20 ----

VH-30

# Pressure ratios, air consumption $q_n$ as a function of operating pressure $p_1$



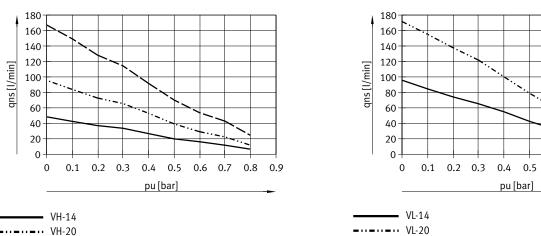
۰.

•

0.6 0.7 0.8 0.9

# Datasheet – 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 VL-1 4/20



**----** VH-20

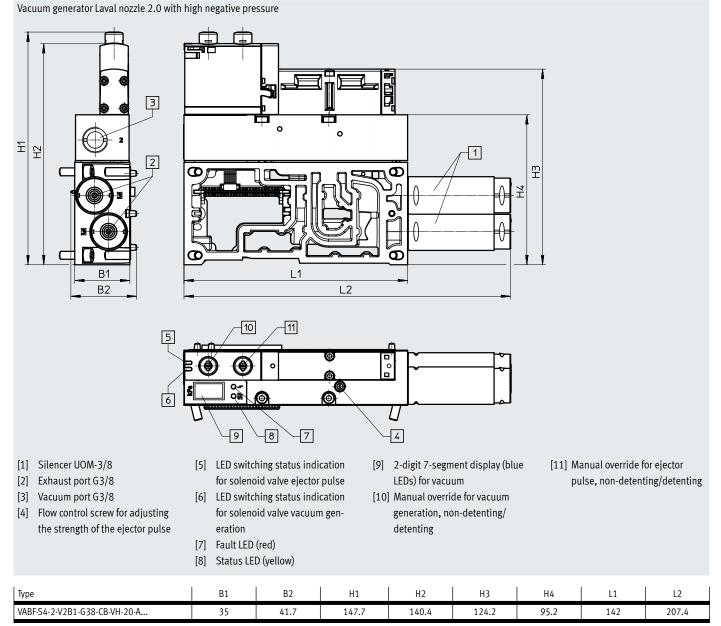
**\_\_\_\_** VH-30

2023/11 - Subject to change

# Datasheet – Vacuum generator for VTSA-F-CB

#### Dimensions

Download CAD data → <u>www.festo.com</u>



# - 闄 - 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.

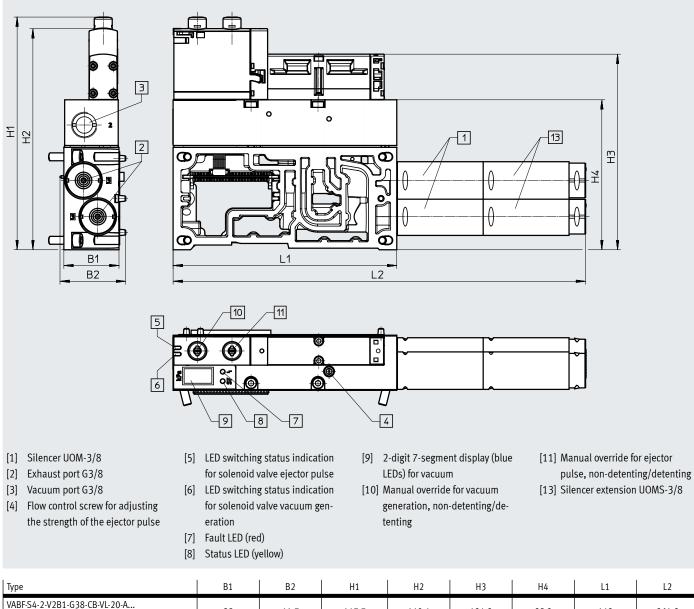
If required, the silencer extension UOMS-3/8 can be ordered separately.

### Datasheet - Vacuum generator for VTSA-F-CB

#### Dimensions

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

Download CAD data → www.festo.com



÷			
Í			
1	-	Note	

VABF-S4-2-V2B1-G38-CB-VH-30-A..

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

35

41.7

147.7

140.4

124.2

95.2

142

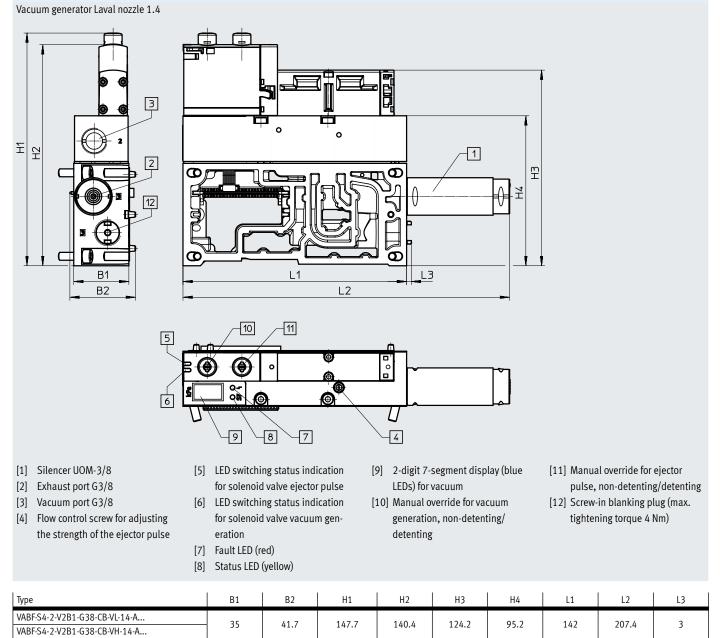
261.9

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

# Datasheet - Vacuum generator for VTSA-F-CB

#### Dimensions

Download CAD data → <u>www.festo.com</u>



### - 📲 - 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.

rdering data	Terminal code	Description		Part no.	Туре
acuum generator fo	r VTSA-F-CB, wi	th integrated sensor			
S.	With hig	n suction rate			
	Ш	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 1 vacuum			
	1	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
		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 secured in place.	17.5 g	538437	UOMS-3/8
Blanking plug					
DI C	-	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	in accessories				· · · · · · · · · · · · · · · · · · ·
		king plugs, silencers and			
	-	found in the chapter <b>Accessories</b> $\rightarrow$ page: 259			
or on the website via					
		, silencer, blanking plug			

# Datasheet – Vacuum generator for VTSA-F-CB

### Valve terminals VTSA

### Adaptation to width 65 mm

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

- N - Flow rate up to 4000 l/min

Operating pressure
 -0.9 ... 10 bar
 -0.09 ... 1 MPa

#### Description

Function

By adapting valves, regulator plates and throttle plates for width 65 mm, ISO size 3, the scope of application of the valve terminal VTSA/VTSA-F can be further expanded:

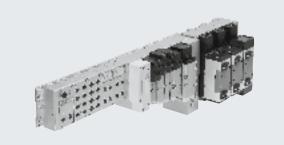
#### Constraints

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. Temperature range
 -5 ... +50°C

Voltage

24 V DC



- 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.

#### Pilot air supply via adapter plate

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

#### Pressure zones

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

# Key features - Adaptation to width 65 mm

### **Equipment options**

Valve functions for width 65 mm, ISO size 3

- 5/2-way valve
  - Single solenoid, pneumatic spring/mechanical spring
  - Double solenoid
  - Double signal

<ul> <li>Double solenoid</li> <li>Double solenoid with dominant signal</li> </ul>	– Mid-position exhausted	
Special features		
Fieldbus interface/CPX terminal	Multi-pin plug connection	AS-Interface

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

- Mid-position pressurised

- Mid-position closed

• Any compressed air supply

• 5/3-way valve

- Any number of pressure zones
- 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
- Widths 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/VT-SA-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, making it much easier to order the right product.

The valve terminals are 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

Ordering system for CPX

→ Internet: cpx

### → Internet: www.festo.com

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

Ordering system for VTSA-F → Internet: vtsa-f

Ordering system for CPX

### → Internet: cpx

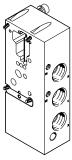
### Note

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



#### Pneumatics

Pneumatic modules

Manifold sub-base for ISO valves

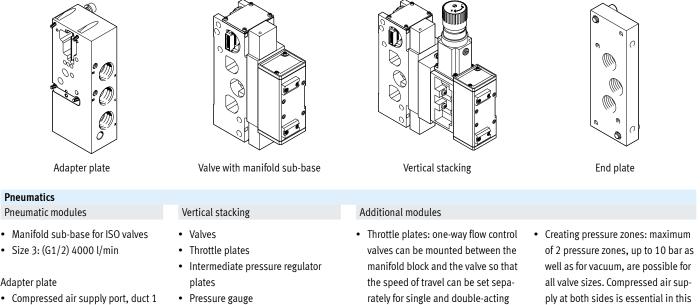
#### Adapter plate

- Compressed air supply port, duct 1
- Exhaust connection duct 3/5 (separated)
- External pilot air supply connection (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

ISO 5599-2 size 3



cvlinders

٠

tor

• Creating pressure zones with 10 bar or vacuum (with external pilot air supply only)

Information on valve activation 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 and supplied externally.

Flexible compressed air supply

or shared by 2 and 4.

• Compressed air supply via the adapter plate or the right end plate

• Pressure regulators: intermediate

pressure regulator plates for setting

the contact pressure of a cylinder,

either separately on duct 1, 2 or 4,

Pressure gauge on pressure regula-

· With large valve terminals, compressed air can be supplied at both sides

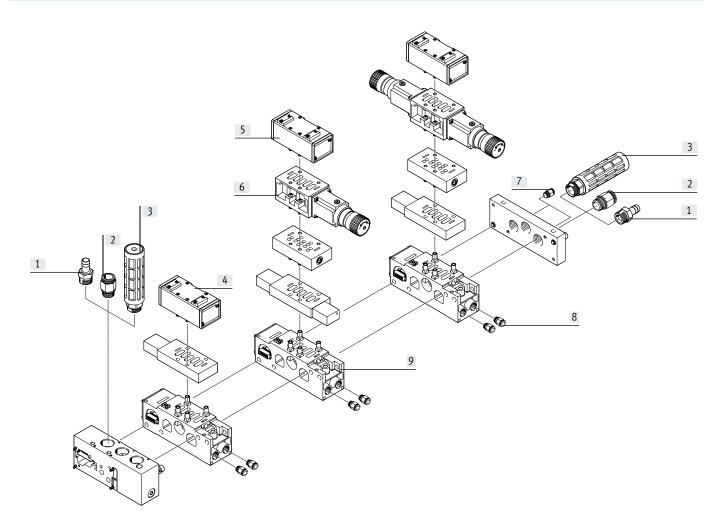
- case
- Regulated external pilot air supply should be used for pressures < 3 bar.

#### 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"	-	259
[2]	Fitting	For compressed air supply	259
[3]	Silencers	For exhaust air	260
[4]	Valve	Pneumatically actuated standards-based valve	243
[5]	Throttle plate	For exhaust air flow control	244
[6]	Intermediate pressure regulator plate	-	244
[7]	Fitting	For pilot air	259
[8]	Fitting	For supply air (QS 16, QS 12)	259
[9]	Manifold sub-base	For linking the valve terminal	-

# Key features – Pneumatic components, width 65 mm

### Key features – Pneumatic components

Adapter plate VABA ...

Adapter plate wib/			
	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 sup- plies the valve terminal with valve widths 18 52 mm, to the left of the adapter.	The external pilot air supply for the valves with a width of 65 mm, ISO size 3, is provided via the end plate IEPR
Cover plates			
000	Cover plates are used to seal off vacant valve positions.	No intermediate solenoid plate is mounted underneath the cover plate.	This depends on the valve used and must be ordered with the valve if the terminal is expanded at a later date.
Valves and pilot control			
	The valves used are pneumatically ac- tuated standards-based valves that are controlled via an intermediate so- lenoid plate.		
Valves and flow lines			
The pilot air supply is selected at the intermediate solenoid plate by config- uring two plungers.	Air can be taken from the supply air, or from a separate air supply.	A separate pilot air supply is required in principle if the supply pressure is less than 3 bar (including vacuum).	In this case, it is advisable to restrict the pilot air supply to max. 10 bar with a suitable regulator.

# Key features - Pneumatic components, width 65 mm

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

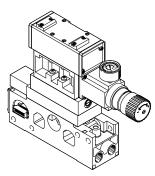
Valve func	tion		
Terminal code	Circuit symbol	Width 65 mm	Description
0		•	5/2-way valve, single solenoid • With intermediate solenoid plate • Mechanical spring
-		•	5/2-way valve, single solenoid • With intermediate solenoid plate • Pneumatic spring
M		•	<ul> <li>5/2-way valve, single solenoid</li> <li>With intermediate solenoid plate</li> <li>Pneumatic spring, air spring supplied by external pilot air</li> </ul>
J		•	<ul><li>5/2-way valve, double solenoid</li><li>With intermediate solenoid plate</li></ul>
D		•	<ul><li>5/2-way valve, double solenoid</li><li>With intermediate solenoid plate</li><li>With dominant signal</li></ul>
G		•	5/3-way valve • With intermediate solenoid plate • Mid-position closed
E	$\begin{array}{c ccccccccccccccccccccccccccccccccccc$	•	5/3-way valve • With intermediate solenoid plate • Mid-position exhausted
В			5/3-way valve • With intermediate solenoid plate • Mid-position pressurised
L	000	•	Cover plate

### - 🕴 - Note

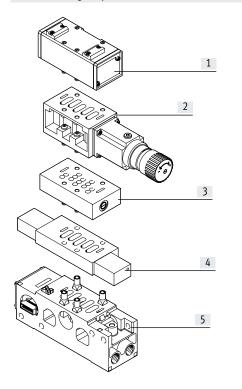
A filter must be installed upstream of valves operated in vacuum mode. This prevents any foreign matter in the intake air getting into the valve (e.g. when operating a suction cup).

# Key features - Pneumatic components, width 65 mm





Vertical stacking components



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.

- [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.

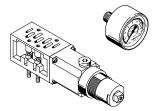
# Key features – Pneumatic components, width 65 mm

### 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



Ind pressure gauge, for width 65 mm Intermediate plate with integrated pressure regulator for regulating pres-

- sure atPorts 2 and 4 (B, A)
- Port 4 (A)
- FUIL 4 (A)
- Port 2 (B)
- Port 1 (P)

#### Easy pressure setting

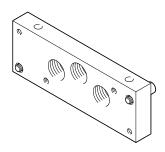
Pressure gauges can be screwed directly into the intermediate pressure regulator plate for setting the pressure.

Functions		1	
Code	Circuit symbol	Width 65 mm	Description
Х	-	•	Throttle plate (with two one-way flow control valves for exhaust air flow control)
ZA		•	Intermediate pressure regulator plate, port 1
ZB			Intermediate pressure regulator plate, port 4
ZC		•	Intermediate pressure regulator plate, port 2
ZD		•	Intermediate pressure regulator plate, ports 2 and 4
S T R	$\mathcal{O}$	•	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

### Valve terminals VTSA

### Key features - Pneumatic components, width 65 mm

Compressed air supply and exhausting



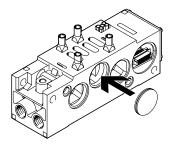
With the adaptation to width 65 mm ISO size 3, compressed air is supplied via the right end plate and/or the adapter plate VABA ... Exhausting is either via silencers or ports for ducted exhaust air on the adapter plate VABA ... and/or on the right end plate. The external pilot air supply for the valves of width 65 mm, ISO size 3, is provided via the end plate IEPR ....

#### Pilot air supply

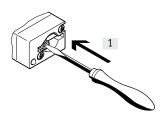
When using valves with a width of 65 mm, the internal/external pilot air supply for the valves with a width of 18 ... 52 mm is provided via the adapter plate VABA-... .

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

#### Creating pressure zones



Manual override (MO) MO with automatic return (non-detenting),



#### 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 end plate should be sealed with a blanking plug.

It is possible to have different supply pressures in the area containing valves with a width of 65 mm by installing isolating discs between two manifold blocks. Please note that the isolating disc is inserted into the manifold subbase from the right.

#### External pilot air supply

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

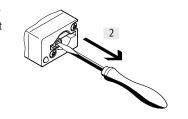
The air is supplied and exhausted via the left side via the adapter plate VABA ... and via the right end plate.

# 🖡 - Note

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

Normally only duct 1 has to be isolated. In special cases, isolating discs can also be inserted into exhaust ducts 3 and 5.

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



 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 – Electric components, width 65 mm

#### **Electrical connection concept** Replacing the solenoid coil fuse

Changing the solenoid coil fuse

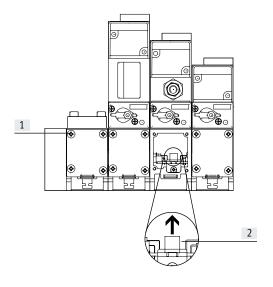
Each solenoid coil is protected with a (fast-blowing) 0.315 A fuse.

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

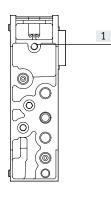
Make sure that there is sufficient clearance for maintenance purposes.



- [1] Loosen the retaining screws in the cover
- [2] Carefully remove the fuse from its base.Right fuse for valve solenoid 14 Left fuse for valve solenoid 12

# Key features – Mounting, width 65 mm

#### Mounting at the rear



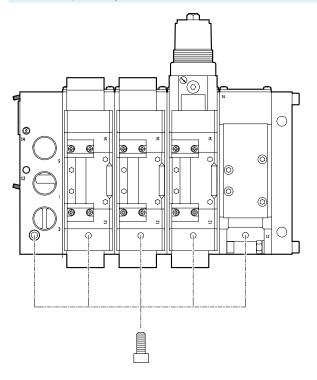
[1] Blind hole for mounting at the rear

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

• Drilled hole (through-hole) in the

adapter plate

#### 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

# - 🛔 - Note

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

# Datasheet – 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	r plate	With through-holes on the manifold sub-base
Mounting position		Any
Manual override		Non-detenting
Pneumatic connections – Threaded	d connection	
Supply air	1	61
Exhaust air	3/5	61
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	Not reversible	Pneumatic spring	Mechanical spring	
5/2-way, double solenoid	J	-	-	8		-	-	-	4500
5/2-way, double solenoid with dominant sig- nal	D	29	36	-		-	-	-	4500
5-2-way single solenoid, pneumatic spring supplied by external pilot air	M	29	36	-		-	-	-	4500
5/2-way, single solenoid	-	29	36	-	-	•	•	-	4500
5/2-way, single solenoid	0	17	61	-		-	-		4500
5/3-way, closed <sup>1)</sup>	G	17	61	-		-	-		3600
5/3-way, exhausted <sup>1)</sup>	E	18	63	-		-	-		3800
5/3-way, pressurised <sup>1)</sup>	В	16	60	-		-	-		3800
Intermediate plate									
For single solenoid valves (MUH-ZP-D-3-24G)	-	-	-	-	-		-	•	-
For double solenoid, 5/3-way and valves with dominant signal (MUHX2-ZP-D-3-24G)	-	-	-	-	-	•	-	•	_
For single solenoid valves, pneumatic 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	-	-	-	-	-	-	-	-

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.

# Datasheet - General technical data, width 65 mm

### Operating and environmental conditions

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 term	inal	
<ul> <li>With ext. pilot air supply</li> </ul>	[bar]	-0.9 +10
	[MPa]	-0.09 +1
With int. pilot air supply	[bar]	310
	[MPa]	0.3 1
Pilot pressure for valve terminal	[bar]	310
	[MPa]	0.3 1
Operating pressure for valves		
<ul> <li>With ext. pilot air supply</li> </ul>	[bar]	-0.9 +10 (for reversible valves, for non-reversible valves 2 10)
	[MPa]	-0.09 +1 (for reversible valves, for non-reversible valves 0.2 1)
With int. pilot air supply	[bar]	3 10 (for mechanically reset valves, for pneumatically reset valves 2 10)
	[MPa]	0.3 1 (for mechanically reset valves, for pneumatically reset valves 0.2 1)
Pilot pressure for valves	[bar]	3 10 (for mechanically reset valves, for pneumatically reset valves 2 10)
	[MPa]	0.3 1 (for mechanically reset valves, for pneumatically reset valves 0.2 1)
Pressure regulation range	[bar]	0 12 (for intermediate pressure regulator plate)
	[MPa]	0 1.2 (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) - (does not apply to valve J-5/2-D-3-C with part no. 151865)
CE marking (see		To EU EMC Directive <sup>1)</sup> (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/catalogue/... -> Support/Downloads.

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		Through PELV power supply unit
against direct and indirect contact	to	
EN 60204-1/IEC 204)		
Operating voltage	[V]	24 DC ±10%
Power consumption per coil	[W]	3.1 (130 mA at 24 V DC)
Duty cycle		100% (50% concurrence)
Degree of protection to EN 60529		IP65 (when mounted)
Relative humidity	[%]	90% at 40 °C, non-condensing

Electrical data – 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 when mounted)

T

# Datasheet – General technical data, width 65 mm

### Materials

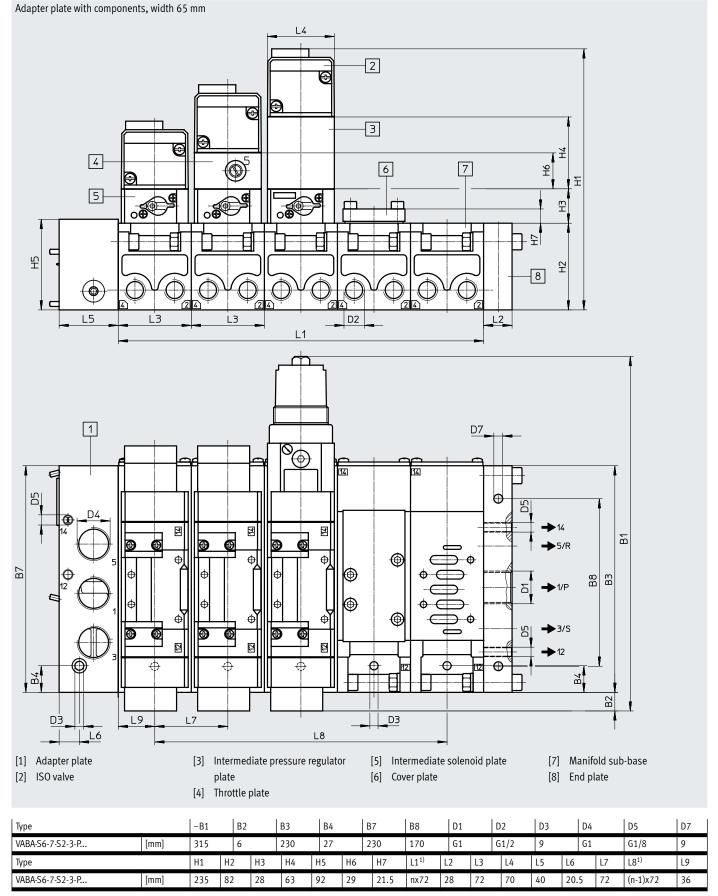
Materials							
Valves		Die-cast aluminium, steel					
Adapter plate		Wrought aluminium alloy					
Seals		NBR					
Throttle plate		Anodised aluminium, brass					
Intermediate pressure regulator plate		Die-cast aluminium, steel					
Piston spool, screws		teel					
Note on materials		RoHS-compliant					
Product weight Approx. weights	[g]						
Adapter plate		2600					
Manifold sub-base		1120					
Right end plate		1120					
		500					
Intermediate solenoid plate		500					
Intermediate solenoid plate Valves		500					

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

# Datasheet - Adaptation to width 65 mm

#### Dimensions

Download CAD data → <u>www.festo.com</u>



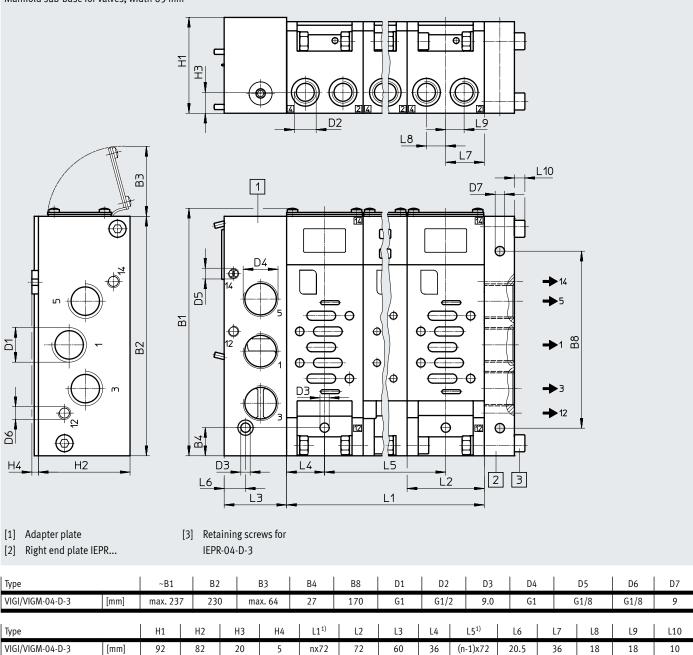
1) n = number of valves

# Datasheet - Dimensions width 65 mm

### Dimensions

Download CAD data → <u>www.festo.com</u>

Manifold sub-base for valves, width 65 mm

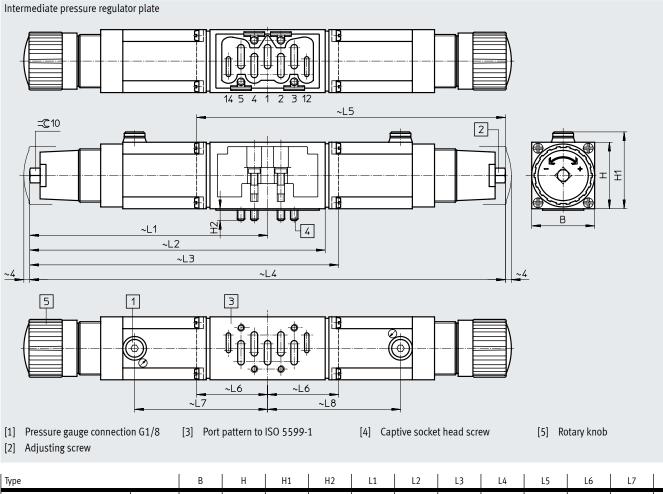


1) n = number of valves

# Datasheet – Dimensions width 65 mm

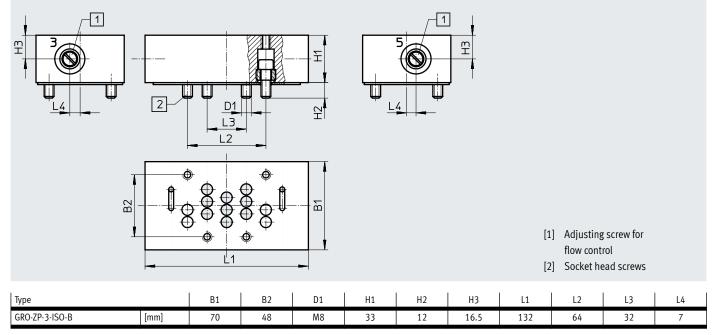
### Dimensions

Download CAD data → <u>www.festo.com</u>



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 b	e ordered	individually)		
	-	5/2-way valve, monostable,	151863	VL-5/2-D-3-FR-C
		mechanical spring return		
	-	5/2-way valve, monostable,	151864	VL-5/2-D-3-C
		pneumatic spring return		
	-	5/2-way valve, bistable	151865	J-5/2-D-3-C
	-	5/2-way valve, bistable,	151866	JD-5/2-D-3-C
		with 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

# Accessories – Adaptation to width 65 mm

Ordering data				1-
Designation	Code	Description	Part no.	Туре
Throttle plate				
	X	Throttle plate (with two one-way flow control valves for exhaust air flow control)	119674	GRO-ZP-3-ISO-B
Intermediate pressu	re regulator	plate		
	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
Pressure gauge				
	Т	For regulator, max. 10 bar	162835	MA-40-10-1/8-EN
Ø	-	For regulator, max. 16 bar	529046	MA-40-16-1/8-EN-DPA

- <b>[ ]</b> -	Valve width	- 11 -	Flow rate
	to ISO 15407-2		Width 18 mm:
	• 18 mm		up to 600 l/min
	• 26 mm		Width 26 mm:
	to ISO 5599-2		up to 1200 l/min
	• 42 mm (ISO 1)		Width 42 mm:
	• 52 mm (ISO 2)		up to 1500 l/min
			Width 52 mm
. <b>L</b> .	Voltage		up to 3400 l/min
	24 V DC		

#### General technical data

110 V AC

Centerat teenmeat data					
Design		Piston spool valve			
Sealing principle		Soft			
Actuation type		Electrical			
Type of actuation		Piloted			
Exhaust function, can be throttl	ed	Via individual sub-base			
Lubrication		Lifetime lubrication			
Type of mounting		Screwed onto sub-base			
• Valve		Screwed via through-hol	e		
<ul> <li>Individual sub-base</li> </ul>					
Mounting position		Any			
Manual override		Detenting, non-detenting	g, concealed		
Pneumatic connections – Three	aded conne	ction			
Width		18 mm	26 mm	42 mm	52 mm
Pneumatic connection		Via sub-base		·	·
Supply port	1	G1/8	G1/4	G3/8	G1/2
Exhaust port	3/5	G1/8	G1/4	G3/8	G1/2
Working 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

Compressed air to ISO 8573-1:2010 [7:4:4]
Lubricated operation possible (in which case lubricated operation will always be required)
-0.9 +10
-0.09 +1
-5+50
c UL us - Recognized (OL)
To EU Low Voltage Directive (only for 110 V AC coils, not for variants with round plug M12)
To EU Explosion Protection Directive (ATEX, EX1E <sup>1</sup> ) (for variants with round plug M12 only)
To EU RoHS Directive
To UK instructions for EMC
To UK EX instructions
To UK RoHS instructions
II 3G (EX1E <sup>1</sup> )
Ex ec IIC T3 Gc X (EX1E <sup>1</sup> )
-5 +50 (EX1E <sup>1</sup> )
EPL Gc (GB)

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 (M52-A)	750	600	1400	1200
5/2-way, single solenoid, mechanical spring (M52-M)	750	600	1400	1200
5/3-way, closed (P53C)	700	550	1400 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, exhausted (P53E)	700 <sup>1)</sup> 330 <sup>2)</sup>	500 <sup>1)</sup> 330 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, pressurised (P53U)	700 <sup>1)</sup> 330 <sup>2)</sup>	500 <sup>1)</sup> 330 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, exhausted, switching position 14 detenting (P53ED) <sup>3)</sup>	-	390 <sup>1)</sup> 310 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, exhausted, switching position 12 detenting (P53EP) <sup>3)</sup>	-	390 <sup>1)</sup> 320 <sup>2)</sup>	1400 <sup>1)</sup> 700 <sup>2)</sup>	1200 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, port 2 pressurised, 4 exhausted, switching posi- tion 14 detenting (P53AD) <sup>3)</sup>	-	380 <sup>1)</sup> 360 <sup>2)</sup>	700 <sup>1)</sup> 700 <sup>2)</sup>	700 <sup>1)</sup> 700 <sup>2)</sup>
5/3-way, port 4 pressurised, 2 exhausted, switching posi- tion 14 detenting (P53BD) <sup>3)</sup>	-	400	-	900 <sup>1)</sup> 840 <sup>2)</sup>
2x3/2-way, single solenoid, closed (T32C)	600	500	1250	1100
2x3/2-way, single solenoid, open (T32U)	600	500	1250	1100
2x3/2-way, single solenoid, open/closed (T32H)	600	500	1250	1100
2x3/2-way, single solenoid, closed (T32N)	600	500	1250	1100
2x3/2-way, single solenoid, open (T32F)	600	500	1250	1100
2x3/2-way, single solenoid, open/closed (T32W)	600	500	1250	1100
2x2/2-way, single solenoid, closed (T22C)	700	500	1350	1100
2x2/2-way, single solenoid, closed (T22CV)	700	500	1350	1100

Switching position
 Mid-position
 The valve functions P53AD, P53ED, P53ED 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 (M52-A)	2000	1500	4000	3400
5/2-way, single solenoid, mechanical spring (M52-M)	2000	1500	4000	3400
5/3-way, closed (P53C)	1900 <sup>1)</sup>	14001)	3600 <sup>1)</sup>	3200 <sup>1)</sup>
	950 <sup>2)</sup>	800 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, exhausted (P53E)	1900 <sup>1)</sup>	14001)	3600 <sup>1)</sup>	3200 <sup>1)</sup>
	950 <sup>2)</sup>	800 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, pressurised (P53U)	1900 <sup>1)</sup>	1400 <sup>1)</sup>	3600 <sup>1)</sup>	3200 <sup>1)</sup>
	950 <sup>2)</sup>	800 <sup>2)</sup>	1700 <sup>2)</sup>	1700 <sup>2)</sup>
5/3-way, pressurised 1 to 2, 4 to 5 closed (P53F) <sup>3)</sup>	1700 <sup>1)</sup>	1400 <sup>1)</sup>	3000 <sup>1)</sup>	2600 <sup>1)</sup>
	700 <sup>2)</sup>	700 <sup>2)</sup>	900 <sup>2)</sup>	900 <sup>2)</sup>
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	-	-

1) Switching position

2) Mid-position

3) The valve function P53F is only available in the 24 V DC version. Values only apply to 24 V DC.

### Electrical data, individual sub-base

Electrical data, individual su	ıb-base	
Acceptable current load at 40°C	[A]	2 (1 A per coil)
Degree of protection to EN 60	529	IP65, NEMA 4 (for all types of signal transmission when mounted)
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		
Operating voltage range	[V DC]	24 ±10% (for variants with cable terminal VABSK1/C1,K2)
	[VAC]	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%

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

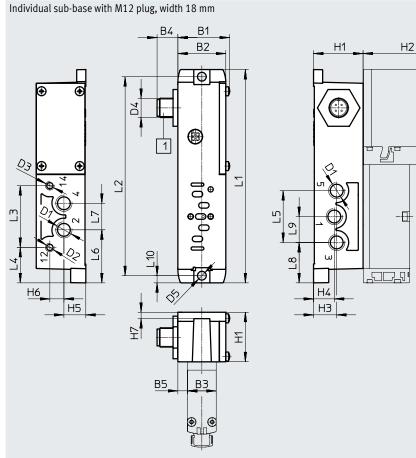
i.

# Datasheet – Valves on individual sub-base

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 weight [g]	l.e.	l.e.	1	
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 → <u>www.festo.com</u>



[1] Plug to

EN 61076-2-101

Туре	B1	B2	B3	Β4	B5	D1	D2	D3	D4	D5ø	H1	H2	H3	H4	H5	H6	H7
VABS-S4-2S-G18-R3 <sup>1)</sup> VABS-S4-2S-G18-B-R3 <sup>2)</sup>	32.4	30	18	13	6	G1/8	M5	M5 -	M12x1	5.5	31	53.4	14.5	13	13.7	8.8	4
Туре	L1		L2		L3		4	L5		L6	L7		L8		L9	L:	10
VABS-S4-2S-G18-R3 <sup>1)</sup> VABS-S4-2S-G18-B-R3 <sup>2)</sup>	133.	5	124.5		38.6	2	2.2	32.	4	33.2	16.	6	25.3		16.2	4	.5

Г

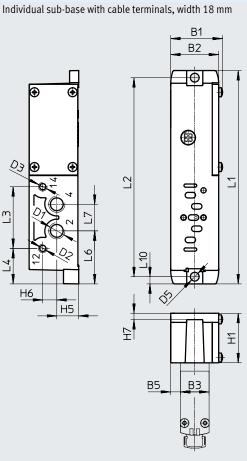
1) External pilot air supply

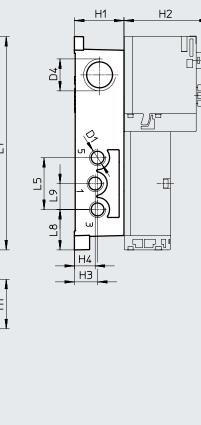
2) Internal pilot air supply

• || • Note: this product conforms to ISO 1179-1 and ISO 228-1.

### Dimensions

Download CAD data → <u>www.festo.com</u>





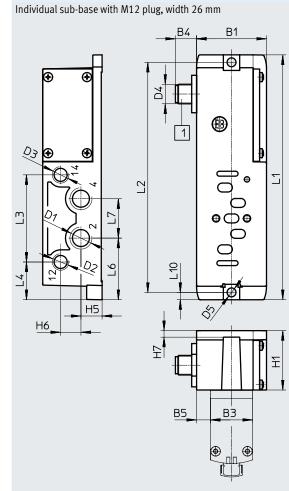
Туре	B1	B2	B3	B5	D1	D2	D3	D4	D5ø	H1	H2	H3	H4	H5	H6	H7
VABS-S4-2S-G18-K2 <sup>1)</sup> VABS-S4-2S-G18-B-K2 <sup>2)</sup>	32.4	30	18	6	G1/8	M5	M5 -	M20x1.5	5.5	31	53.4	14.5	13	13.7	8.8	4
Туре	L1		L2		L3	L4		L5	L6		L7	L8		L9	L1	10
VABS-S4-2S-G18-K2 <sup>1)</sup> VABS-S4-2S-G18-B-K2 <sup>2)</sup>	133.	5	124.5	3	38.6	22.2		32.4	33.2	1	6.6	25.3		16.2	4	.5

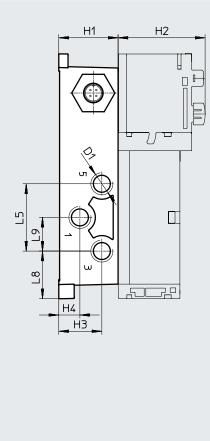
External pilot air supply
 Internal pilot air supply

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

### Dimensions

Download CAD data → <u>www.festo.com</u>





#### [1] Plug to EN 61076-2-101

Туре	B1	B3	B4	B5	D1	D2	D3	D4	D5ø	H1	H2	H3	H4	H5	H6	H7
VABS-S4-1S-G14-R3 <sup>1)</sup> VABS-S4-1S-G14-B-R3 <sup>2)</sup>	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	_3	L4		L5	L6		L7	L8		L9	L1	10
VABS-S4-1S-G14-R3 <sup>1)</sup> VABS-S4-1S-G14-B-R3 <sup>2)</sup>	150.6		141.5	5	3.6	23.2		41.4	37.9		24.2	29.3		20.7	4.	.5

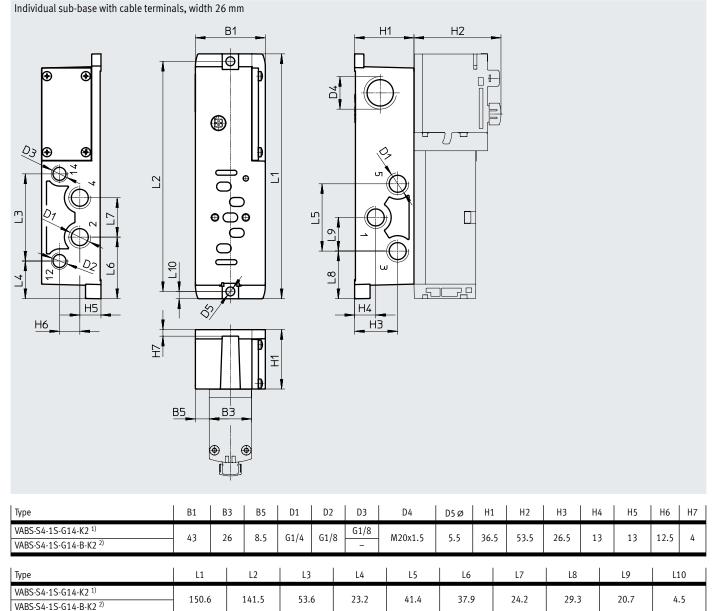
1) External pilot air supply

2) Internal pilot air supply

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

### Dimensions

Download CAD data → <u>www.festo.com</u>

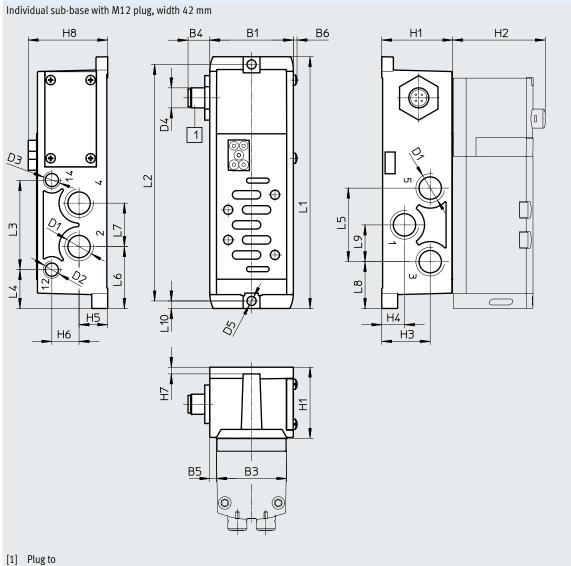


1) External pilot air supply

2) Internal pilot air supply

### Dimensions

Download CAD data → <u>www.festo.com</u>



EN 61076-2-101

Туре	B1	B3	B4	B5	B6	D1	D2	D3	D4	D5ø	H1	H2	H3	H4	H5	H6	H7	H8
VABS-S2-1S-G38-R3 <sup>1)</sup> VABS-S2-1S-G38-B-R3 <sup>2)</sup>	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
Туре	I	.1		L2		L3	L2	4	L5	L6		L7	1	L8		L9	Li	10
VABS-S2-1S-G38-R3 <sup>1)</sup> VABS-S2-1S-G38-B-R3 <sup>2)</sup>	15	0.6	1	41.5		53.6	23	.2	44	37		26		28		22	4	.5

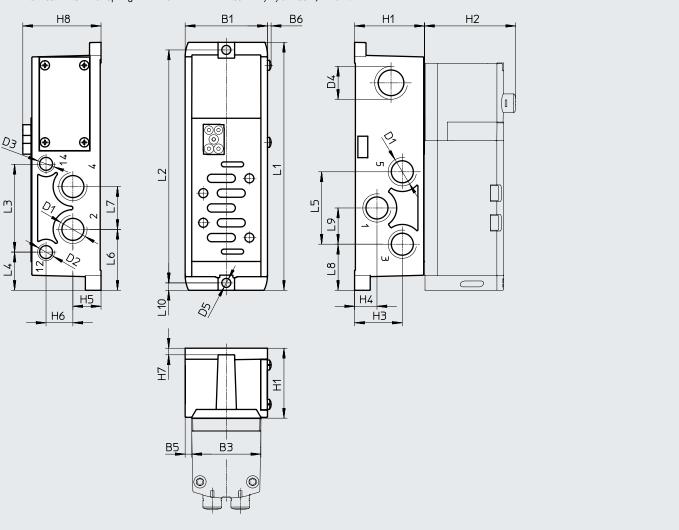
External pilot air supply
 Internal pilot air supply

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

### Dimensions

Individual sub-base with spring-loaded terminal or for assembly by the user, width 42 mm

Download CAD data → <u>www.festo.com</u>



Туре	B1	B3	B5	B6	D1	D2	D3	D4	D5ø	H1	H2	H3	H4	H5	H6	H7	H8
VABS-S2-1S-G38-K1 <sup>1)</sup> VABS-S2-1S-G38-C1 <sup>1)</sup> VABS-S2-1S-G38-B-K1 <sup>2)</sup> VABS-S2-1S-G38-B-C1 <sup>2)</sup>	50	42	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
Туре	L	1	L	2	L3		L4	L5		L6	L7		L8		L9	L:	10
VABS-S2-1S-G38-K1 <sup>1)</sup> VABS-S2-1S-G38-C1 <sup>1)</sup> VABS-S2-1S-G38-B-K1 <sup>2)</sup> VABS-S2-1S-G38-B-C1 <sup>2)</sup>	15	0.6	14	1.5	53.0	6	23.2	44		37	26		28		22	4	ı.5

External pilot air supply
 Internal pilot air supply

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

# - 🖡 - Note

- Electrical connection
- VABS-...-K1: open end
- VABS-...-C1: spring-loaded terminal

### Dimensions



Individual sub-base with M12 plug, width 52  $\rm mm$ H8 B1 H1 H2 Β4 <u>B6</u> Φ Ð Ð 10 8 1 2 00 00 ୍ଞ Ð Ð **o** Γ  $\oplus$ 2  $\oplus$ Ľ 61  $\oplus$ ۲<u>۲</u>  $\oplus$ 1 o 0-42 ω Ø H5 19 <u>H4</u> H6 5/ HЗ H Ξ 0 C ð 0 B5 BЗ [1] Plug to EN 61076-2-101

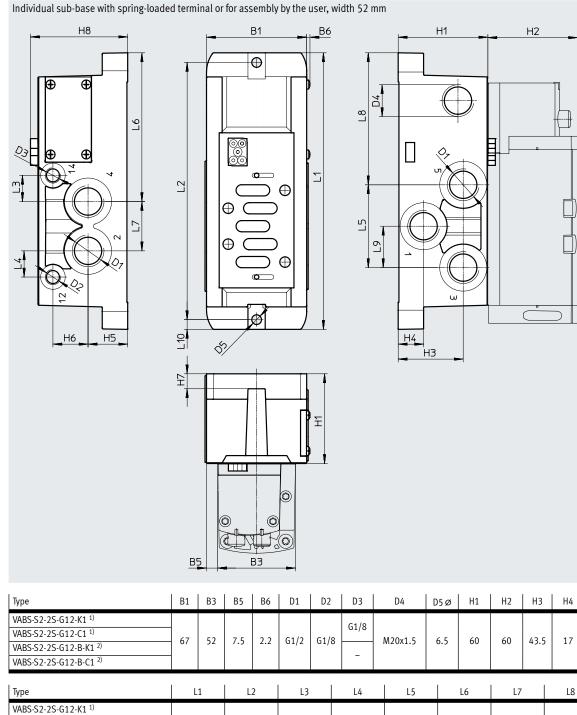
Туре	B1	B3	Β4	B5	B6	D1	D2	D3	D4	D5ø	H1	H2	H3	H4	H5	H6	H7	H8
VABS-S2-2S-G12-R3 <sup>1)</sup> VABS-S2-2S-G12-B-R3 <sup>2)</sup>	67	52	13	7.5	2.2	G1/2	G1/8	G1/8 -	M12x1	6.5	60	60	43.5	17	26.5	23.5	10	65
Туре		L1		L2		L3	1	.4	L5	L6		L7		L8		L9	L:	10
VABS-S2-2S-G12-R3 <sup>1)</sup> VABS-S2-2S-G12-B-R3 <sup>2)</sup>	1	85		172		17.5	17	7.5	55.4	99.	5	33		88.3		27.7	6	.5

External pilot air supply
 Internal pilot air supply

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

### Dimensions

Download CAD data → <u>www.festo.com</u>



VABS-S2-2S-G12-B-C1<sup>2)</sup> 1) External pilot air supply

VABS-S2-2S-G12-C1 1)

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

2) Internal pilot air supply

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

185

172

17.5

17.5

55.4

99.5

### - 🕴 - Note

Electrical connection

- VABS-...-K1: open end
- VABS-...-C1: spring-loaded terminal

Η8

65

L10

6.5

H7

10

H5

26.5

88.3

33

Η6

23.5

L9

27.7

# Accessories - Individual connection

	Description		Width	Part no.	Туре
vidual sub-base,	, electrical connection with plug M12 (without CE marking)				
0 10 000 10 000 10 000	Threaded connection, internal pilot air supply	Connections G1/8	18 mm	541070	VABS-S4-2S-G18-B-R3
				8033156	VABS-S4-2S-G18-B-R3-EX1E
		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
ividual sub-base	electrical 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
· • • • • • • • • • • • • • • • • • • •	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
ividual sub-base.	electrical connection via spring-loaded terminal				-
	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
	electrical connection via cable (open end)		1		
	Threaded connection, internal pilot air supply	Connections G3/8	42 mm	546102	VABS-S2-1S-G38-B-K1
	inteduce connection, internat pilot an supply	Connections G1/2	52 mm	555641	VABS-52-15-058-B-K1
	Threaded connection, external pilot air supply	Connections G3/8	42 mm	535641	VABS-52-25-012-B-K1
	s an supply	Connections G1/2	52 mm	555636	VABS-52-15-058-K1
	1	Connections G1/2	22 11111	00000	AND2-25-52-015-V1

### Valve terminals VTSA

# Accessories - Individual connection

5 m	12956	SIE-WD-TR
15 -	12956	SIE-WD-TR
۲. w.		
۲. m-		
5 M	164258	SIM-M12-4WD-5-PU
5 m	541328	NEBU-M12G5-K-5-LE4
5 m	541329	NEBU-M12W5-K-5-LE4
-	-	NEBU → Internet: nebu
-	5 m	5 m <b>541329</b>

# Accessories

Ordering data	Code	Description	2			Part no.	Туре	PU <sup>1)</sup>
		Description	1			Tart no.	Туре	10
Multi-pin plug distrib	utor	1 [ nin Cuk	Decelet/Qu 2 nin MQ nluge		8 I/Os	177((0		1
P D. Joood	_	15-pin Suc	o-D socket/8x 3-pin M8 plugs		8 1/05	177669	MPV-E/A08-M8	1
6 Deces	-	15-pin Sub-D socket/12x 3-pin M8 plugs			12 I/Os	177670	MPV-E/A12-M8	1
Push-in fitting with co	onnecting t	hread						
	-	G1/8 for	Tubing O.D. 6 mm	Plastic releas	ing ring	186096	QS-G1/8-6	10
	E			Metal releasi	ng ring	558662	NPQM-D-G18-Q6-P10	10
	-		Tubing O.D. 8 mm	Plastic releas	ing ring	186098	QS-G1/8-8	10
	E			Metal releasi	ng ring	558663	NPQM-D-G18-Q8-P10	10
	-	-	Tubing O.D. 10 mm		Plastic releasing ring		QS-G1/8-10	10
	-	G1/4 for	Tubing O.D. 8 mm	Plastic releasing ring		190643 186099	QS-G1/4-8	10
	E			Metal releasi		558665	NPQM-D-G14-Q8-P10	10
	-	-	Tubing O.D. 10 mm	Plastic releas	0 0		QS-G1/4-10	10
	E	-	105115 0.5. 10 mm	Metal releasi		558666	NPQM-D-G14-Q10-P10	10
	-		Tubing O.D. 12 mm	Plastic releas		186350	QS-G1/4-12	10
	E	_		Metal releasi	<u> </u>	558667	NPQM-D-G14-Q12-P10	10
	E	C2/0 fee						
	-	G3/8 for	Tubing O.D. 10 mm	Plastic releas		186102	QS-G3/8-10	10
	E	_		Metal releasi		558669	NPQM-D-G38-Q10-P10	10
	-	_	Tubing O.D. 12 mm	Plastic releas		186114	QS-G3/8-12-I	10
	E	0.100		Metal releasi		558670	NPQM-D-G38-Q12-P10	10
	-	G1/2 for	Tubing O.D. 12 mm	Plastic releas		186104	QS-G1/2-12	1
	E			Metal releasi		558672	NPQM-D-G12-Q12-P10	10
	E		Tubing O.D. 14 mm	Metal releasi	ng ring	570451	NPQM-D-G12-Q14-P10	1
	-		Tubing O.D. 16 mm	Plastic releas	ing ring	186105	QS-G1/2-16	1
	1							
Barbed hose fitting/p	usn-in fitti	ng For right er	nd nlate		G3/4	8040613	QS-G3/4-22	1
$\langle \rangle$			iu plute		R1		N-1-P-19	1
		Fax a da 1				572260		
	-	For adapte	rplate		R1	572260	N-1-P-19	1

1) Packaging unit

# - 🍦 - Note

Metal push-in fittings type NPQM-... should be selected when the highest protection is required for electrical and electronic components (anti-static requirements).

### Valve terminals VTSA

### Accessories

	Code	Description		Part no.	Туре	PU <sup>1</sup>
	coue	Description		Tartno.	type	10
ilencer						
O Star D	U	Standard design, connecting thread	G1/8	2307	U-1/8	1
			G1/4	2316	U-1/4	1
			G3/8	6843	U-3/8-B	1
			G1/2	6844	U-1/2-B	1
			G3/4	6845	U-3/4-B	1
			G1	151990	U-1-B	1
	A	Sintered design, connecting thread	G1/8	1205860	AMTE-M-LH-G18	20
			G1/4	1205861	AMTE-M-LH-G14	20
			G3/8	1205862	AMTE-M-LH-G38	10
			G1/2	1205863	AMTE-M-LH-G12	10
			G3/4	1205864	AMTE-M-LH-G34	10
			G1	1205865	AMTE-M-LH-G1	10
					-	
lanking plug					1	
M	-	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
		·				
ther pneumatic c						
	-	lanking plugs and silencers can be found				
n the website via	the individua	l search terms:				

1) Packaging unit