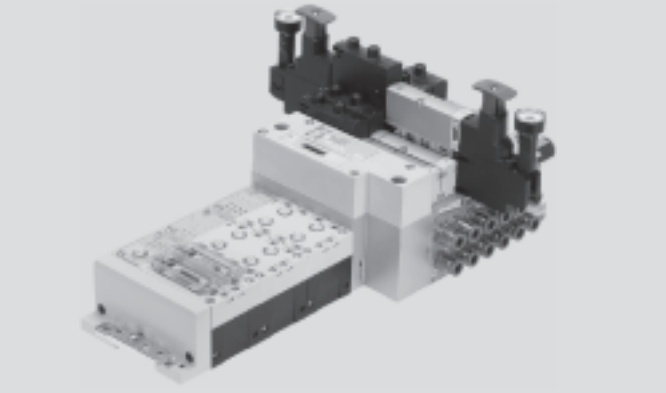
# Valve Manifolds Type 44 VTSA, Type 45 VTSA-F

# Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

FESTO



- Modular multi-functional valve manifold for up to 32 valves:
  – Type 44 VTSA, ISO 15407-2/ISO 5599-2
  – Type 45 VTSA-F with optimized flow
- Different valve sizes on one valve manifold:
  – 18 mm (ISO 02)
  – 26 mm (ISO 01)
  – 42 mm (ISO 1), type 44 VTSA only
- Flow rate: up to 1,500 l/min
- Design suitable for electrical peripherals CPX

**Product Range Overview**

| Electrical connection | Valve types | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5/2-way valve, single solenoid with pneumatic spring return | 5/2-way valve, single solenoid with spring return | 5/2-way valve, double solenoid | 5/2-way valve, double solenoid dominant switching | 2x 3/2-way valve, normally open | 2x 3/2-way valve, normally closed | 2x 3/2-way valve: 1x normally open, 1x normally closed | 5/3-way valve, mid-position pressurised | 5/3-way valve, mid-position closed | 5/3-way valve, mid-position exhausted | 2x 3/2-way valve, normally open, reverse operation | 2x 3/2-way valve, normally closed, reverse operation | 2x 3/2-way valve: 1x normally open, 1x normally closed, reverse operation | Blanking plate for vacant position |
| | M | O | J | D | N | K | H | B | G | E | P | Q | R | L |
| Electrical multi-pin plug connection, CageClamp | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Electrical multi-pin plug connection, Sub-D (37-pin) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Fieldbus connection/control block | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

## Features

**Flexible**

- Easy modification and expansion due to high degree of modularity. Fast connection of the subbases by means of four screws.
- Fully modular system allows the combination of 18 mm (Size 02), 26 mm (Size 01) and 42 mm (Size 1) valves on the same manifold without the need for any transition/adapter plate.
- Change direction of working ports with easy-to-install angle plate.
- Fieldbus valve terminal suitable for CPX electrical peripherals.

**Easily integrated**

- Fieldbus nodes: Interbus, DeviceNet, Profibus DP, CANopen, CC-Link via CPX terminal
- Ethernet: Modbus/TCP, EtherNet/IP, TCP/IP via CPX terminal
- Full complement of CPX I/O modules
- Expandable up to 32 solenoid coils
- Integration of a wide range of function modules possible
- Supply plates permit a flexible air supply and variable pressure zones

**Comprehensive**

- High-performance valves in a sturdy metal housing
- Complete range of vertical sandwich components such as pressure regulators, flow control valve, individual pressure supply, shutoff plate (hot swap).
- Standard air qualities: 40 micron filtration grade. Can be used with lubricated or non-lubricated air, and inert gases.
- Manual override available, with momentary, locking, or hidden (non-accessible) options.

**Installation and maintenance**

- Ready-to-install unit, preassembled and tested
- Durable, low cost identification by label holder on the valve or label holder on the subbase.
- Secure wall mounting or DIN rail mounting
- Fast troubleshooting thanks to LEDs on the valves and diagnosis via fieldbus.
- Reliability of service thanks to valves that can be replaced easily and quickly.
- Easy fault identification using CPX-MMI handheld diagnostic unit.

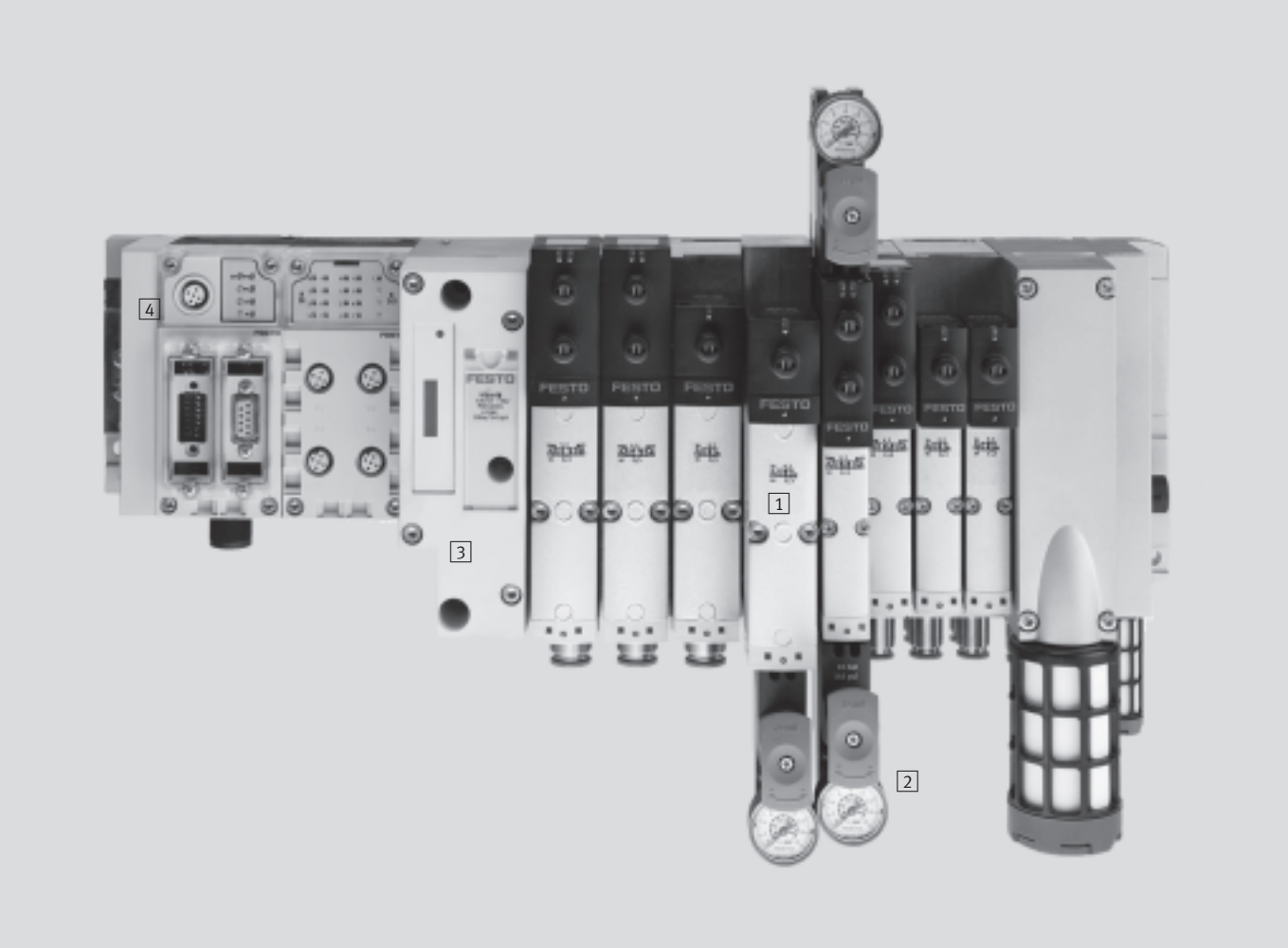
## Contents



→ www.festo.com/catalog/vtsa
→ www.festo.com/catalog/vtsa-f

# Features and Benefits

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series




**1 Combination of sizes**
The flexible combination of different valve sizes on a single valve terminal (18 mm, 26 mm and 42 mm) allows adaptation to different flow requirements. For greater freedom and optimized applications.

**2 Operating efficiency**
Adjustment of regulators without tools. And with the standardized operating direction from above for regulators and valves, this terminal offers the solution to just about every requirement in terms of functionality.

**3 Connection to CPX**
What about fieldbus and modular I/Os? Connection to the modern CPX terminal is an added benefit. This level of freedom, modularity, and versatility is unmatched in any valve manifold solution.

**4 Decentralized intelligence**
The CPX-MMI-1 hand-held device explains errors in plain text and helps expedite troubleshooting, reducing downtimes. Remote maintenance via Ethernet/Internet eliminates the need for servicing at night and over long distances, which can often be very expensive. The on-site intelligence permits CMS (Condition Monitoring Systems) for each valve and statistical error logging with history and timestamp.

## A higher degree of modularity

- Valve manifold type 44 VTSA complies to ISO 15407-2 in width 18 and 26 mm and with ISO 5599-2 in width 42 mm. The VTSA terminal can be used for all applications
- Simple connection of pneumatic and electrical components
- Flow rate up to 1,500 l/min
- 5/2-way, 2x 3/2-way and 5/3-way valve functions
- Voltage options: 24 V DC or 110 V AC
- IP65 rated
- Modular and flexible
- Easy diagnostics and maintenance
- Reliable and durable
- Competitive pricing

# Overview – Key Features

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

## Valve Manifold

Reduced downtimes:
LED diagnosis on the spot

Width 18 mm, 26 mm and 42 mm can be combined on a single manifold without adapter

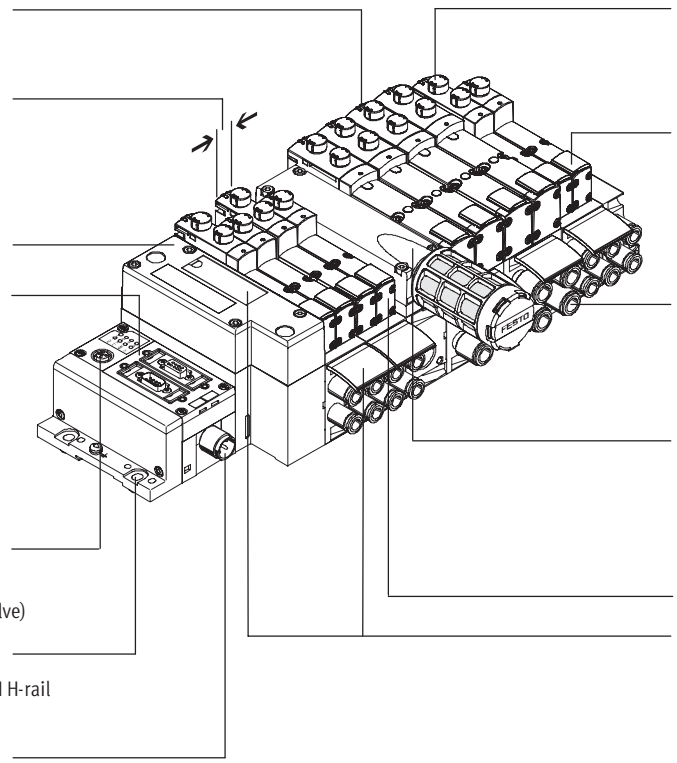
Pneumatic interface to CPX

Straightforward electrical connections
- Fieldbus connection via CPX
- Multi-pin plug connection with pre-assembled cable or manifold strip (Cage Clamp)
- Control block via CPX
- Individual connection

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

Quick mounting:
Direct mounting using screws or DIN H-rail

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



Reliable operation:
Manual override: pushing/detented or with covr

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

Functional:
Large ports, flow-optimized ducts, robust metal thread or pre-assembled QS connections

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

Comprehensive valve functions

Practical:
Large inscription labels

## Valve Functions

- 5/2-way valve
  - Single solenoid valve, pneumatic/spring return
  - Double solenoid valve
  - Double solenoid valve with dominant signal
- 2x 3/2-way valve, single solenoid
  - Normally open
  - Normally open, reversible
  - Normally closed
  - Normally closed, reversible
  - 1x normally open, 1x normally closed
  - 1x normally open, 1x normally closed, reversible
- 5/3-way valve
  - Mid-position pressurized
  - Mid-position closed
  - Mid-position exhausted

## Special Features

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

**Fieldbus manifold/control block**
- Max. 32 valve positions/ max. 32 solenoid coils
- Any compressed air supply
- Any number of pressure zones

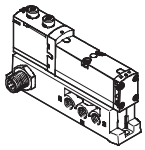
**Individual valve**
- Electrical connection via standardized 4-pin M12 plug or via 4-pin clamped manifold connection for configuration by the user
- Available with internal/external pilot air supply

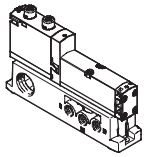
**Combinable**
- Width 18 mm: valve flow rate up to 700 l/min
- Width 26 mm: valve flow rate up to 1,400 l/min
- Width 42 mm: valve flow rate up to 1,500 l/min
- Width 42 mm, 26 mm and 18 mm can be combined on a single valve manifold

# Overview – Electrical Connections

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

## Individual Connection



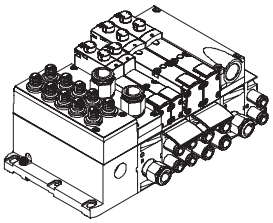


Valves on individual subbases can be used for actuators further away from the valve manifold.

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

or it can be configured by the user with a 4-pin clamped manifold connection 24 V DC or 110 V AC.

## Manifold Connection

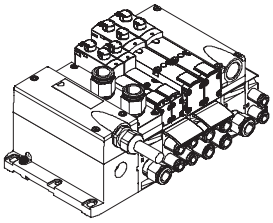


An individual connecting cable carries the control signal between the controller and the valve manifold.

The valve manifolds can be fitted with max. 20 valves and max. 20 solenoid coils.

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

## Multi-pin Plug Connection



Control signals from the controller to the valve manifold are transmitted via a pre-assembled multi-core cable or a self-assembled multi-pin plug connection (Cage Clamp), which substantially reduces installation time.

The valve manifolds can be fitted with max. 32 valves and max. 32 solenoid coils.

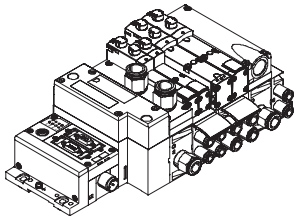
Variants

- Multi-pin plug connection with manifold strip (Cage Clamp) 24 V DC or 110 V AC
- Pre-assembled connecting cable 24 V DC
- Sub-D plug connector for fitting by users, 37-pin

# Overview – Electrical Connections

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

## Fieldbus Connection via the CPX System



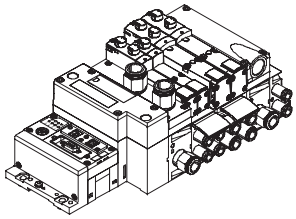
An integrated fieldbus node manages the communication connection to a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Valve manifolds with fieldbus interfaces can be configured with up to 16 manifold subbases. With 2 solenoid coils per connection, up to 32 solenoid coils can thus be actuated.

Variants
- Profibus-DP
- Interbus
- DeviceNet
- CANopen
- CC-Link
- Ethernet/IP
- CPX manifold

  ➔ www.festo.com/catalog/cpx

## Control Block Connection via the CPX System



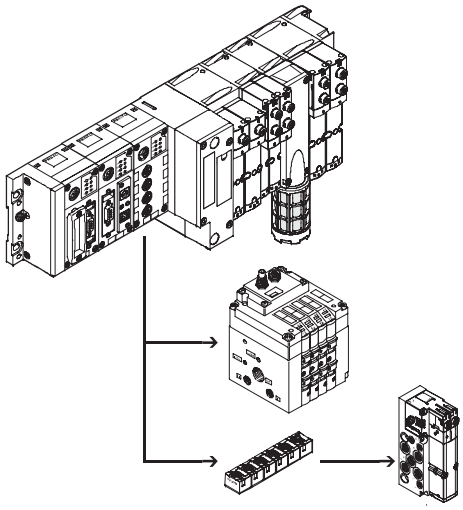
Controllers integrated in the Festo valve manifolds permit the construction of stand-alone control units to IP65, without control cabinets.

Using the slave operation mode, these valve manifolds can be used for intelligent pre-processing and are therefore ideal modules for designing decentralised intelligence.

In the master operation mode, manifold groups can be designed with many options and functions, which can autonomously control a medium-sized machine/system.
- CPX manifold

  ➔ www.festo.com/catalog/cpx

## CP String Extension



The optional string extension allows additional valve manifolds and I/O modules to be connected to the fieldbus node of the CPX manifold. Different input and output modules as well as CPV-SC, CPV and CPA valve manifolds can be connected.
The maximum length of the CP string extension is 10 metres, which means that the extension modules can be mounted directly on site. All of the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

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

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# Overview – Pneumatic Components

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

## Modular Pneumatic Components

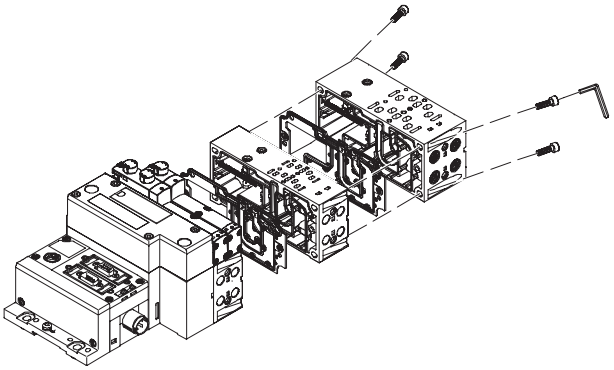
The modular design of the VTSA/ VTSA-F facilitates maximum flexibility right from the planning stage and offers maximum ease of service in operation.

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

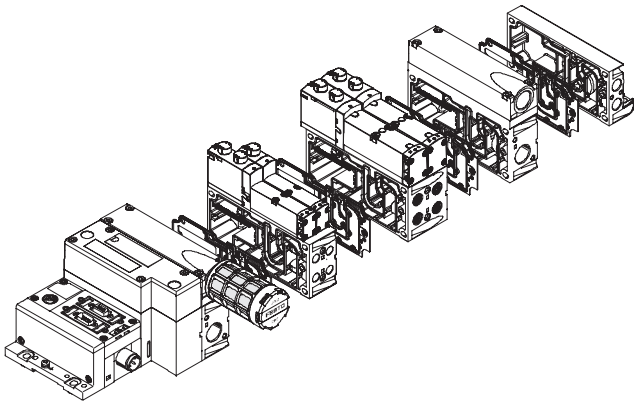
Inside, the manifold subbases contain the connection ducts for supplying compressed air to and venting from the valve manifold as well as the working ports for the pneumatic cylinders from each valve.

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

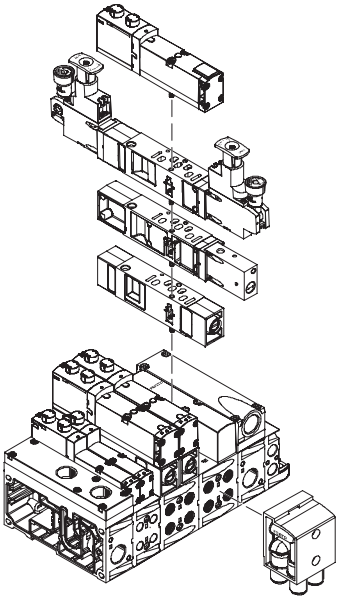
## Modularity in the basic system



## Modularity in the valves



## Modularity in the vertical stacking



# Overview – Electrical Components

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

## Modular Electrical Peripherals

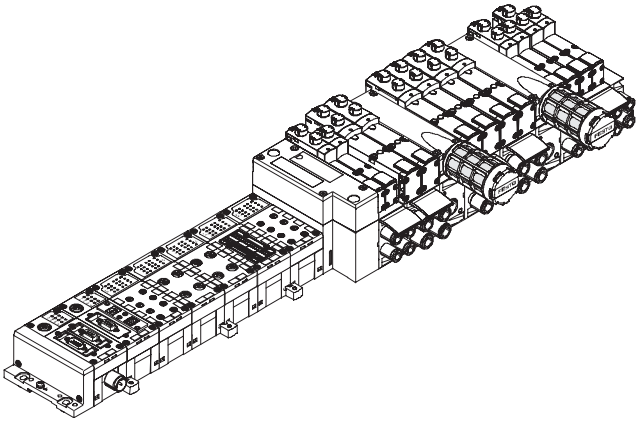
The manner in which the valves are actuated differs according to whether you are using a multi-pin manifold or fieldbus manifold.

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.

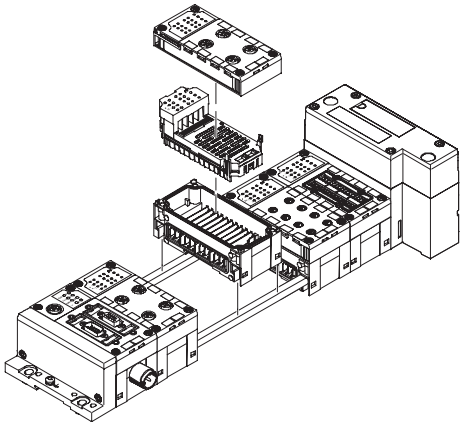
Parallel linking facilitates the following:

- Transmission of switching information
- High valve density
- Compact design
- Position-based diagnosis
- Separate voltage supply for valves
- Flexible conversion without address shifting
- Transmission of status, parameter and diagnostic data

## VTSA with electrical peripherals CPX



## Modularity with electrical peripherals CPX



# Overview – Multi-pin Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

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## Valve Manifold with Multi-pin Plug Connection

Order code:

- 44E for the electrical components
- 44P for the pneumatic components
- 45P... for the pneumatic components. High flow rate with optimized manifold subbases.

Valve manifolds with multi-pin plug connection can be expanded with up to 32 valves with max. 32 solenoid coils. The manifold subbases width 18 and 26 mm are prepared for:

- 2 single solenoid valves
- 2 double solenoid valves

The manifold subbases width 42 mm are prepared for:

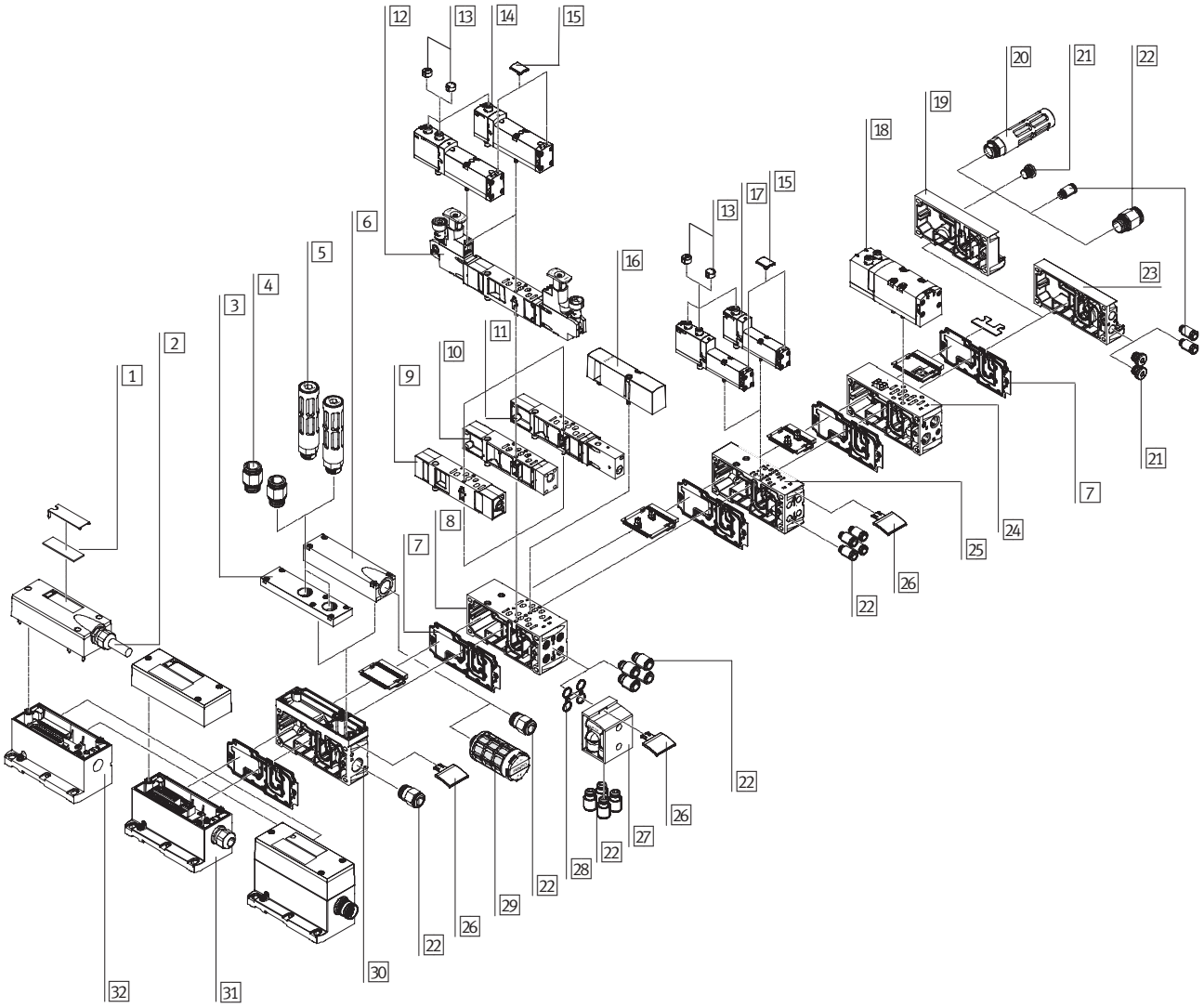
- 1 single solenoid valve
- 1 double solenoid valve

depending on the size.

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

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

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



# Overview – Multi-pin Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

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| Valve Manifold with Multi-pin Plug Connection | | | |
|---|---|---|---|
| | | **Brief description** | **➔ Page** |
| 1 | Inscription labels | Large, for multi-pin plug connection | – |
| 2 | Multi-core cable | | 98 |
| 3 | Exhaust plate | Ports 3 and 5 separated | 95 |
| 4 | Fittings | For supply plate | 99 |
| 5 | Silencer | For supply plate | 99 |
| 6 | Exhaust port cover | For ducted exhaust air (ports 3 and 5 combined) | 95 |
| 7 | Duct separation/seal | | 95 |
| 8 | Manifold subbase | For valves with a width of 26 mm | 95 |
| 9 | Flow control plate | | 97 |
| 10 | Vertical supply plate | | 95 |
| 11 | Vertical shut-off plate | | 97 |
| 12 | Pressure regulator plate | | 96 |
| 13 | Cover cap | For manual override, pushing, covered | 99 |
| 14 | Valve | Width 26 mm | 91 |
| 15 | Inscription label holder | For valve | 99 |
| 16 | Blanking plate | For unused valve position (vacant position) | 99 |
| 17 | Valve | Width 18 mm | 91 |
| 18 | Valve | Width 42 mm (type 44 only) | 91 |
| 19 | Right-hand end plate | | 93 |
| 20 | Silencer | For end plate | 99 |
| 21 | Blanking plugs | | 100 |
| 22 | Fittings | | 99 |
| 23 | End plate with pilot air selector | | 93 |
| 24 | Manifold subbase | For valves with a width of 42 mm (type 44 only) | 93 |
| 25 | Manifold subbase | For valves with a width of 18 mm | 93 |
| 26 | Inscription label holder | For supply plate, subbase, 90° connection plate | 99 |
| 27 | 90° connection plate | | 95 |
| 28 | Seals | | 95 |
| 29 | Silencer | | 99 |
| 30 | Supply plate | | 95 |
| 31 | Multi-pin plug connection | Via manifold strip (CageClamp) 24 V DC or 110 V AC | 97 |
| 32 | Multi-pin plug connection | With multi-core cable 24 V DC | 97 |

**Note**

The choice of silencer to be used depends on the type of vertical stacking of the valve positions to the left and the right of the supply plate.

Exhaust port cover 6 with plastic exhaust air silencer type U-½
- A pressure regulator plate

Exhaust port cover 6 with metal exhaust air silencer type U-½-B
- P pressure regulator plate
- B pressure regulator plate
- AB pressure regulator plate
- Vertical shut-off plate
- Vertical supply plate
- Flow control plate

# Overview – Fieldbus Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

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**Valve Manifold with Fieldbus Connection, Control Block (Electrical Peripherals CPX)**

Order code:

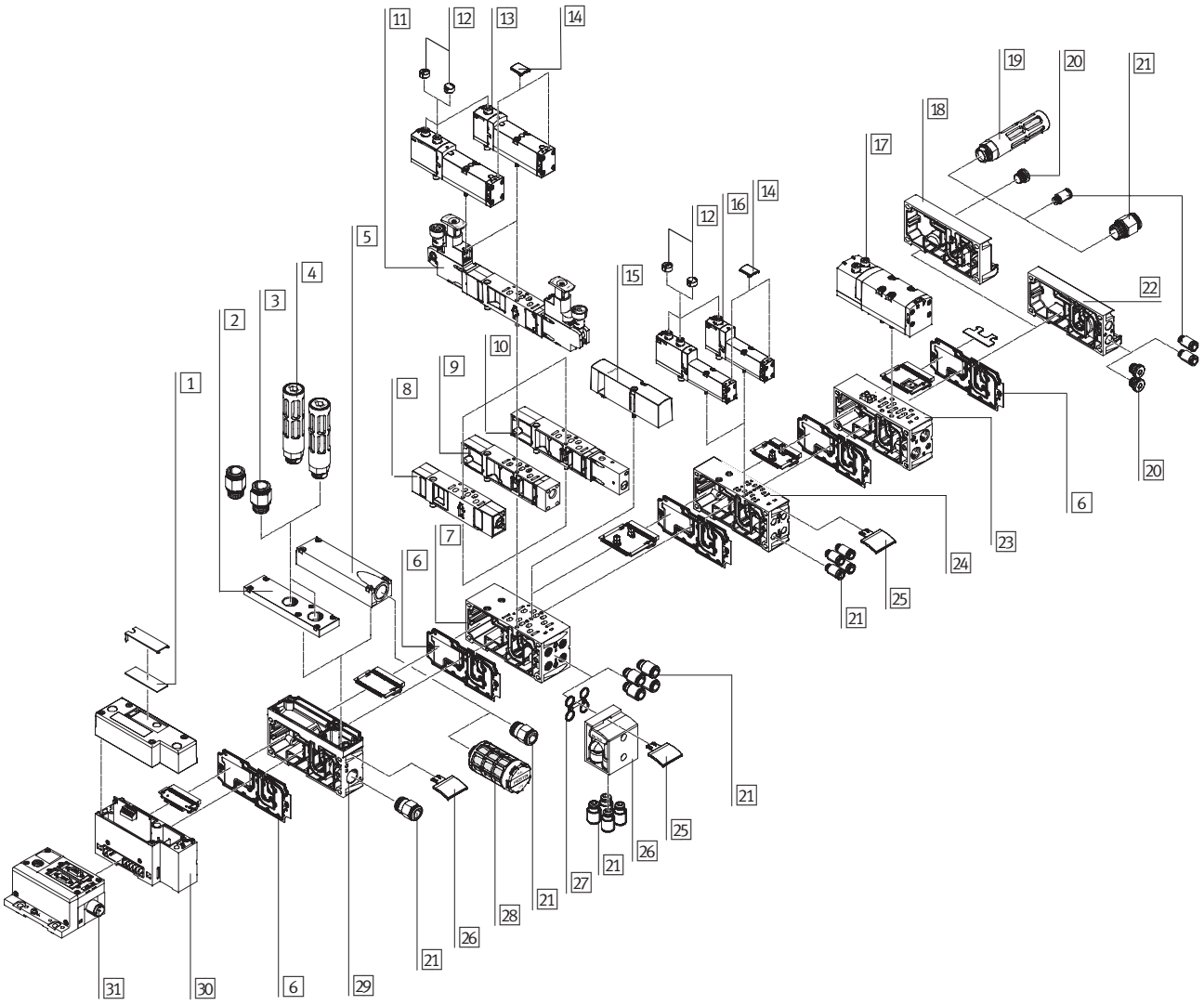
- 50E-... for the electrical peripherals
- 44P for the pneumatic components
- 45P... for the pneumatic components. High flow rate with optimized manifold subbases.

Valve manifolds with fieldbus interface can be expanded with up to 32 valves with max. 32 solenoid coils.
Each valve position can be fitted with any valve or a blanking plate.

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

In general:

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



# Overview – Fieldbus Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

FESTO

| Valve Manifold with Fieldbus Connection, Control Block (Electrical Peripherals CPX) | | | |
|---|---|---|---|
| | | **Brief description** | **➔ Page** |
| 1 | Inscription labels | Large, for pneumatic interface CPX | – |
| 2 | Exhaust plate | Ports 3 and 5 separated | 95 |
| 3 | Fittings | For supply plate | 99 |
| 4 | Silencer | For supply plate | 99 |
| 5 | Exhaust port cover | For ducted exhaust air (ports 3 and 5 combined) | 95 |
| 6 | Duct separation/seal | | 95 |
| 7 | Manifold subbase | For valves with a width of 26 mm | 93 |
| 8 | Flow control plate | | 97 |
| 9 | Vertical supply plate | | 95 |
| 10 | Vertical shut-off plate | | 97 |
| 11 | Pressure regulator plate | | 96 |
| 12 | Cover cap | For manual override, pushing, covered | 99 |
| 13 | Valve | Width 26 mm | 91 |
| 14 | Inscription label holder | For valve | 99 |
| 15 | Blanking plate | For unused valve position (vacant position) | 99 |
| 16 | Valve | Width 18 mm | 91 |
| 17 | Valve | Width 42 mm (type 44 only) | 91 |
| 18 | Right-hand end plate | | 93 |
| 19 | Silencer | For end plate | 99 |
| 20 | Blanking plugs | | 100 |
| 21 | Fittings | | 99 |
| 22 | End plate with pilot air selector | | 93 |
| 23 | Manifold subbase | For valves with a width of 42 mm (type 44 only) | 93 |
| 24 | Manifold subbase | For valves with a width of 18 mm | 93 |
| 25 | Inscription label holder | For supply plate/subbase/90° connection plate | 99 |
| 26 | 90° connection plate | | 95 |
| 27 | Seals | | 95 |
| 28 | Silencer | | 99 |
| 29 | Supply plate | | 95 |
| 30 | Pneumatic interface | | 97 |
| 31 | Fieldbus interface | | – |

**Note**

The choice of silencer to be used depends on the type of vertical stacking of the valve positions to the left and the right of the supply plate.

Exhaust port cover 5 with plastic exhaust air silencer type U-½
- A pressure regulator plate

Exhaust port cover 5 with metal exhaust air silencer type U-½-B
- P pressure regulator plate
- B pressure regulator plate
- AB pressure regulator plate
- Vertical shut-off plate
- Vertical supply plate
- Flow control plate

# Overview – Single Subbases

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

## Individual Subbase

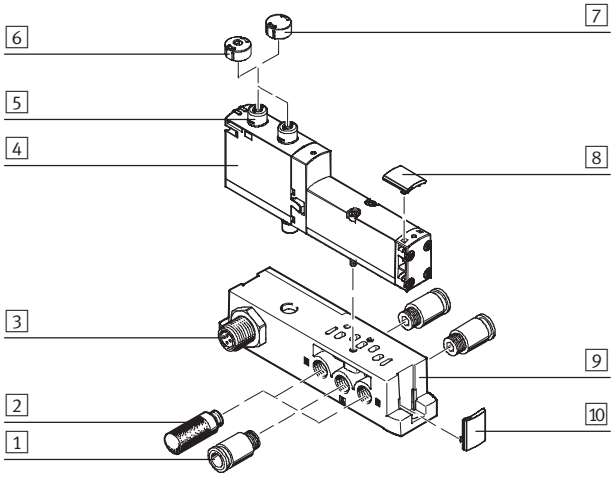
Order code:

- Using individual part numbers

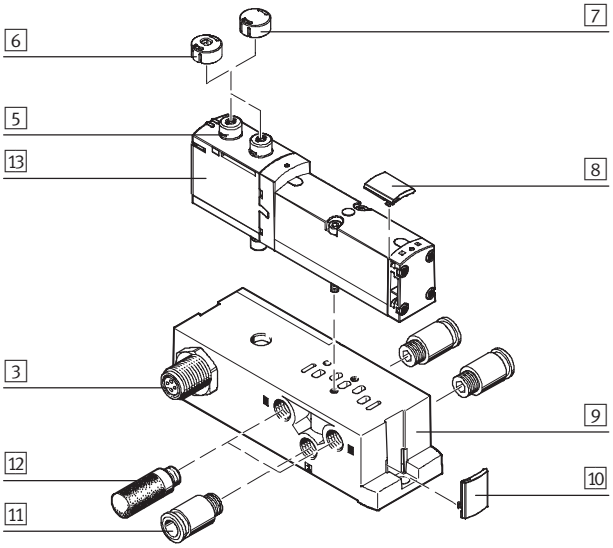
Individual subbases can be equipped with any valve.

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

### Width 18 mm with M12 plug




### Width 26 mm with M12 plug




| | | Brief description | ➔ Page |
|---|---|---|---|
| 1 | Fitting | G⅛ for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 2 | Silencer | G⅛ for supply/exhaust ports (1, 3, 5) | 99 |
| 3 | Electrical connection M12[1)] | 4-pin | – |
| 4 | VSVA valve | Width 18 mm | 91 |
| 5 | Manual override | Non-detenting/detenting, per solenoid coil | – |
| 6 | Cover cap | For manual override, pushing | 99 |
| 7 | Cover cap | For manual override, covered | 99 |
| 8 | Inscription label holder | For valves | 99 |
| 9 | Individual subbase | For valve VSVA | 94 |
| 10 | Inscription label holder | For manifold blocks | 99 |
| 11 | Fitting | G¼ for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 12 | Silencer | G¼ for supply/exhaust ports (1, 3, 5) | 99 |
| 13 | VSVA valve | Width 26 mm | 91 |

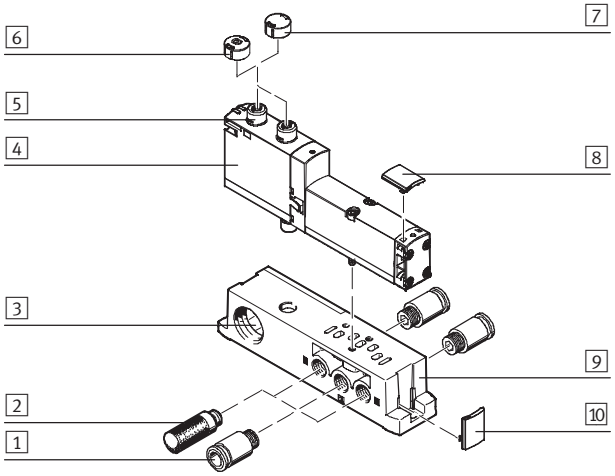
1) Only with 24 V DC

# Overview – Single Subbases

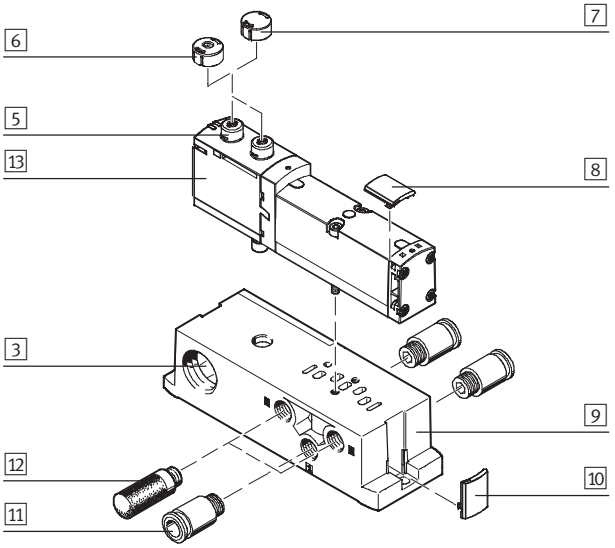
Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

**Individual Subbase**

Width 18 mm with clamped manifold connection




Width 26 mm with clamped manifold connection




| | | Brief description | ➔ Page |
|---|---|---|---|
| 1 | Fitting | G⅛ for aupply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 2 | Silencer | G⅛ for supply/exhaust ports (1, 3, 5) | 99 |
| 3 | Manifold connection[1)] | 4-pin, configured by the user | – |
| 4 | VSVA valve | Width 18 mm | 91 |
| 5 | Manual override | By pushing/detenting, per solenoid coil | – |
| 6 | Cover cap | For manual override, pushing | 99 |
| 7 | Cover cap | For manual override, covered | 99 |
| 8 | Inscription label holder | For valves | 99 |
| 9 | Individual subbase | For valve VSVA | 94 |
| 10 | Inscription label holder | For manifold blocks | 99 |
| 11 | Fitting | G¼ for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 12 | Silencer | G¼ for supply/exhaust ports (1, 3, 5) | 99 |
| 13 | VSVA valve | Width 26 mm | 91 |

1) 24 V DC or 110 V AC

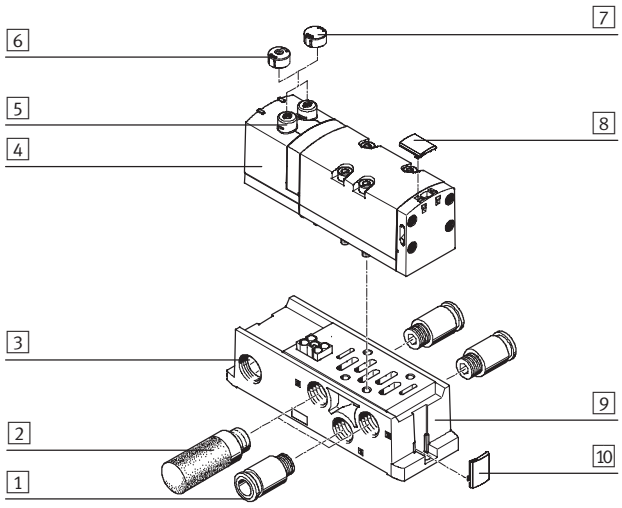
# Overview – Single Subbases

Valve Manifolds Type 44 VTSA – Metric Series

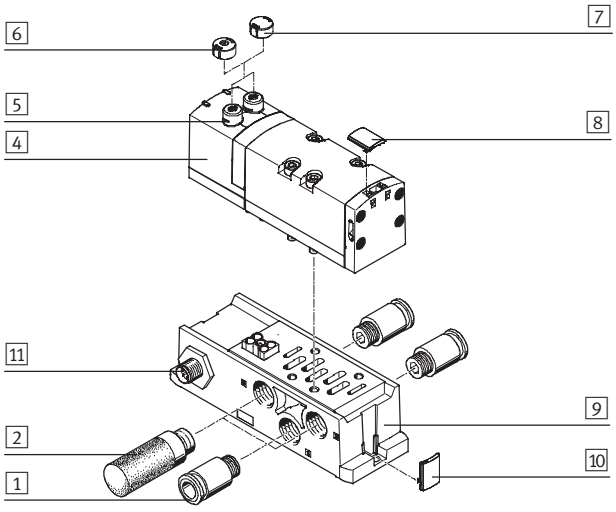
FESTO

**Individual Subbase**

Width 42 mm with spring-loaded manifold/open end




Width 42 mm with M12 plug




| | Brief description | ➔ Page |
|---|---|---|
| 1 Fitting | G3/8 for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 2 Silencer | G3/8 for supply/exhaust ports (1, 3, 5) | 99 |
| 3 Clamped manifold connection/open end[1] | 4-pin, configured by the user | – |
| 4 VSVA valve | Width 42 mm | 91 |
| 5 Manual override | Pushing/detenting, per solenoid coil | – |
| 6 Cover cap | For manual override, pushing | 99 |
| 7 Cover cap | For manual override, covered | 99 |
| 8 Inscription label holder | For valves | 99 |
| 9 Individual subbase | For valve VSVA | 94 |
| 10 Inscription label holder | For manifold blocks | 99 |
| 11 Electrical connection M12[2] | 4-pin | – |

1) 24 V DC or 110 V AC
2) Only for 24 V DC

# Overview – Individual Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

FESTO

## Valve Manifold with Individual Connection

Order code:

- 44E for the electrical components
- 45E for the electrical components
- 44P for the pneumatic components
- 45P for the pneumatic components

Valve manifolds with individual connection can be expanded with up to 20 valves with max. 20 solenoid coils. The manifold subbases width 18 and 26 mm are either prepared for:

- 2 single solenoid valves
- 2 double solenoid valves

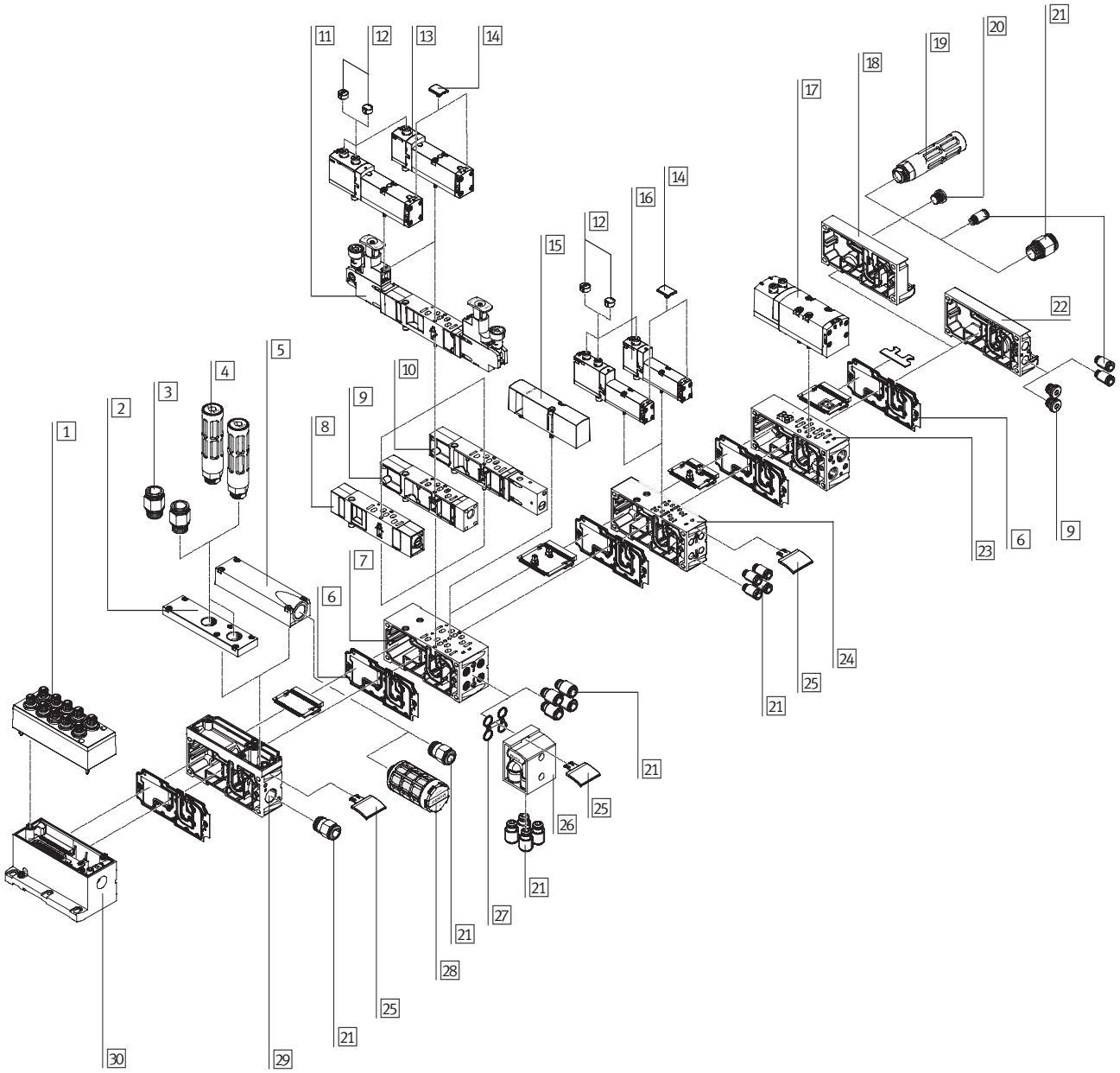
The manifold subbases width 42 mm are prepared for:

- 1 single solenoid valve
- 1 double solenoid valve

depending on the size.

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

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



# Overview – Individual Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

| Valve Manifold with Individual Connection | | | |
|---|---|---|---|
| | | **Brief description** | **➔ Page** |
| 1 | Cover | For individual connection | 97 |
| 2 | Exhaust plate | Ports 3 and 5 separated | 95 |
| 3 | Fittings | For supply plate | 99 |
| 4 | Silencer | For supply plate | 99 |
| 5 | Exhaust port cover | For ducted exhaust air (ports 3 and 5 combined) | 95 |
| 6 | Duct separation/seal | | 95 |
| 7 | Manifold subbase | For valves with a width of 26 mm | 93 |
| 8 | Flow control plate | | 97 |
| 9 | Vertical supply plate | | 95 |
| 10 | Vertical shut-off plate | | 97 |
| 11 | Pressure regulator plate | | 96 |
| 12 | Cover cap | For manual override, pushing, covered | 99 |
| 13 | Valve | Width 26 mm | 91 |
| 14 | Inscription label holder | For valve | 99 |
| 15 | Blanking plate | For unused valve position (vacant position) | 99 |
| 16 | Valve | Width 18 mm | 91 |
| 17 | Valve | Width 42 mm (type 44 only) | 93 |
| 18 | Right-hand end plate | | 93 |
| 19 | Silencer | For end plate | 99 |
| 20 | Blanking plugs | | 100 |
| 21 | Fittings | | 99 |
| 22 | End plate with pilot air selector | | 93 |
| 23 | Manifold subbase | For valves with a width of 42 mm (type 44 only) | 93 |
| 24 | Manifold subbase | For valves with a width of 18 mm | 93 |
| 25 | Inscription label holder | For supply plate, subbase, 90° connection plate | 99 |
| 26 | 90° connection plate | | 95 |
| 27 | Seals | | 95 |
| 28 | Silencer | | 99 |
| 29 | Supply plate | | 95 |
| 30 | Multi-pin plug connection | Individual connection with M12, 10-way or 6-way (including cover) | 97 |

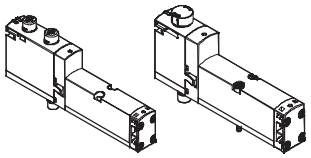
**Note**

The choice of silencer to be used depends on the type of vertical stacking of the valve positions to the left and the right of the supply plate.

Exhaust port cover 5 with plastic exhaust air silencer type U-½
- A pressure regulator plate

Exhaust port cover 5 with metal exhaust air silencer type U-½-B
- P pressure regulator plate
- B pressure regulator plate
- AB pressure regulator plate
- Vertical shut-off plate
- Vertical supply plate
- Flow control plate

## Subbase Valve



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

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

**Reverse operation**
Select reverse operation (code Z) if you wish to operate an actuator (cylinder) with different pressures for the forward and return stroke. It must be noted here that these valves must be operated via a separate pressure zone.

## Blanking Plate

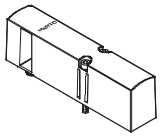
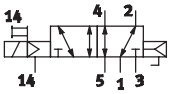
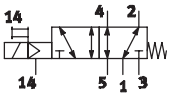
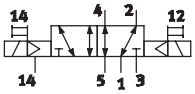
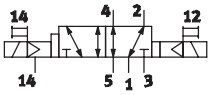
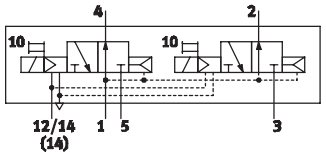
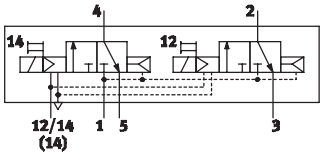
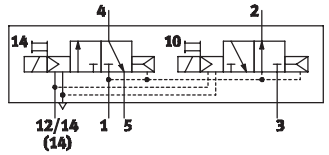
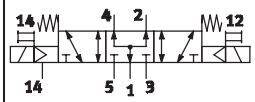
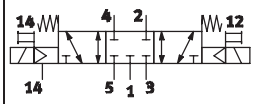
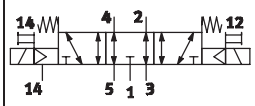
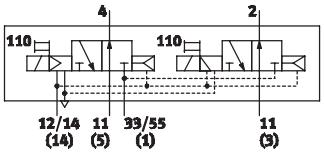
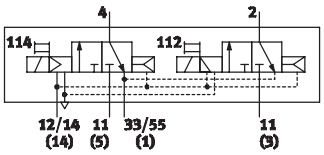
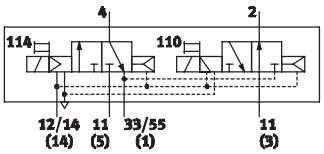


Plate without valve function for reserving valve positions on a valve manifold.

Valves and blanking plates are attached to the manifold subbase using two screws.

**Valve Function**

| Code | Circuit symbol | Width | | | Description |
|---|---|---|---|---|---|
| | | 18 mm | 26 mm | 42 mm | |
| M |  | ■ | ■ | ■ | 5/2-way valve, single solenoid<br>• Pneumatic spring return |
| O |  | ■ | ■ | ■ | 5/2-way valve, single solenoid<br>• Spring return |
| J |  | ■ | ■ | ■ | 5/2-way valve, double solenoid |
| D |  | ■ | ■ | ■ | 5/2-way valve, double solenoid<br>• Dominant signal with port 14 on the control side |
| N |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Normally open<br>• Pneumatic spring return |
| K |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Normally closed<br>• Pneumatic spring return |

| Valve Function | | | | | |
|---|---|---|---|---|---|
| Code | Circuit symbol | Width | | | Description |
| | | 18 mm | 26 mm | 42 mm | |
| H |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Normal position<br>– 1x closed<br>– 1x open<br>• Pneumatic spring return<br>• Operating pressure > 3 bar |
| B |  | ■ | ■ | ■ | 5/3-way valve<br>• Mid-position pressurized[1)]<br>• Spring force return |
| G |  | ■ | ■ | ■ | 5/3-way valve<br>• Mid-position closed[1)]<br>• Spring force return |
| E |  | ■ | ■ | ■ | 5/3-way valve<br>• Mid-position exhausted[1)]<br>• Spring force return |
| P |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Reverse operation<br>• Normally open<br>• Pneumatic spring return |
| Q |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Reverse operation<br>• Normally closed<br>• Pneumatic spring return |
| R |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Reverse operation<br>• Normal position<br>– 1x closed<br>– 1x open<br>• Pneumatic spring return |
| L | | ■ | ■ | ■ | For valve manifold only:<br>Blanking plate for vacant valve position |

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

## Design

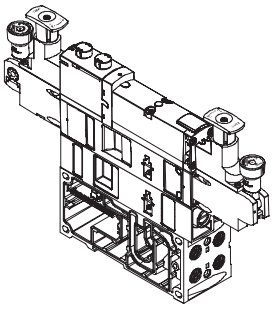
### Valve replacement

The valves are attached to the metal manifold subbase using two screws. This means that they can be easily replaced. The high-quality of the manifold subbase guarantees good long-term sealing tightness.

### Expansion

Vacant positions can be equipped with valves at a later date. The dimensions, mounting points and existing pneumatic installations remain unchanged during this process. The order code VSVA-... is located on the front of the valve beneath the manual override.

## Vertical Stacking

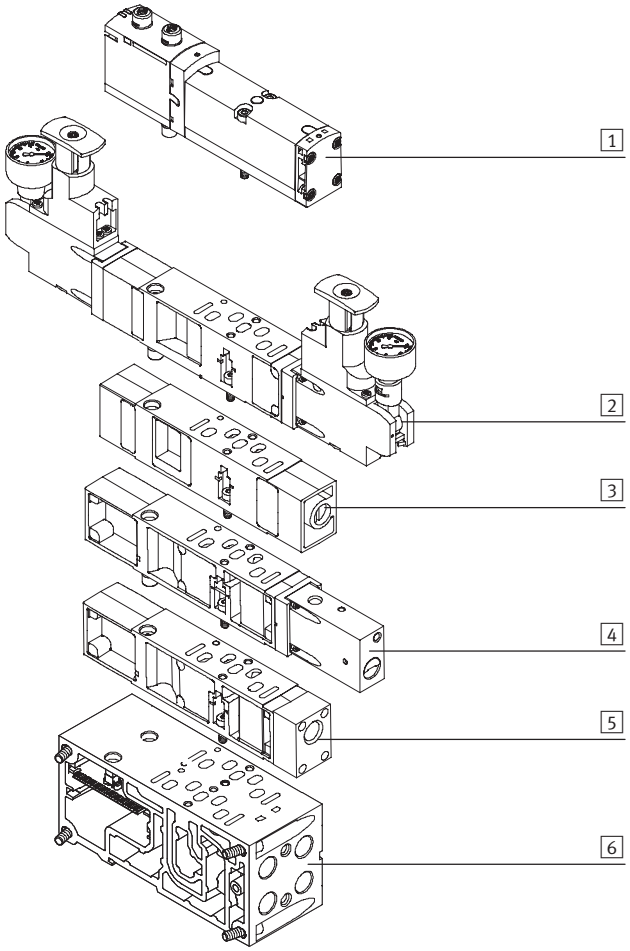


Additional function units can be added to each valve position between the subbase and the valve. These functions, designated as vertical stacking, facilitate special functioning or control of the respective individual valve position.
Combinations of several valve sizes on one valve manifold are possible.

**Note**
The operation of the components should be checked when combining multiple vertical stacking components.

The following combination of reversible valve manifolds with vertical stacking components is not permitted:
- Reversible pressure regulating plates
- Throttle plates
- Vertical isolating plates
- Vertical supply plates

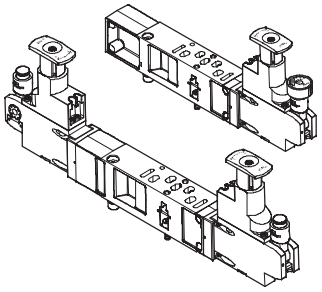
## Vertical stacking components




The following component sequence is recommended for valve positions with vertical stacking:
1. ISO valve
2. Pressure regulator plate
3. Flow control plate
4. Vertical shut-off plate
5. Vertical supply plate
6. Manifold subbase

## Vertical Stacking

### Pressure regulator plate

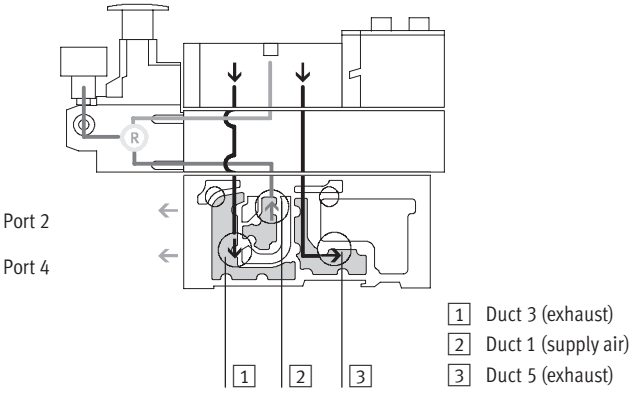


An adjustable pressure regulator can be installed between the subbase and the valve in order to control the force of the respective actuator.

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

Standard version:
- Standard port pattern to ISO 15407-2 or ISO 5599-2 (type 44 only)
- For supply pressure up to 6 bar or up to 10 bar
- Without pressure gauge (optional)
- Regulator knob with 3 positions (locked, reference position, free running)

### Mode of operation of the pressure regulating plate (P regulation) for port 1; code: ZA, ZF




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

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

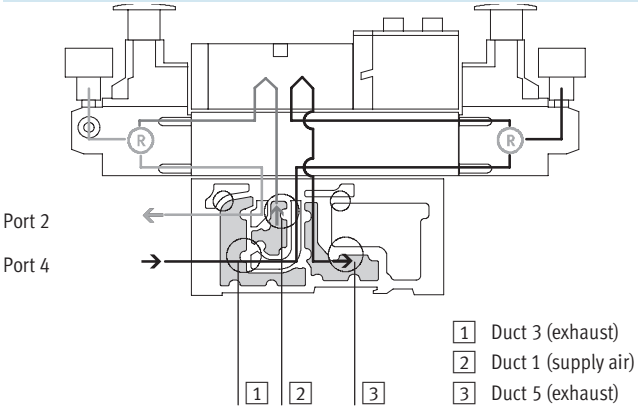
#### Advantages

- The pressure regulator is not affected by venting, as the pressure is regulated before the valve.
- The pressure regulator can always be adjusted, as the pressure from the valve manifold is always present.

#### Application examples

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

### Mode of operation of the pressure regulating plate (A/B regulation) for ports 2 and 4; code: ZD, ZI




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

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

#### Restrictions

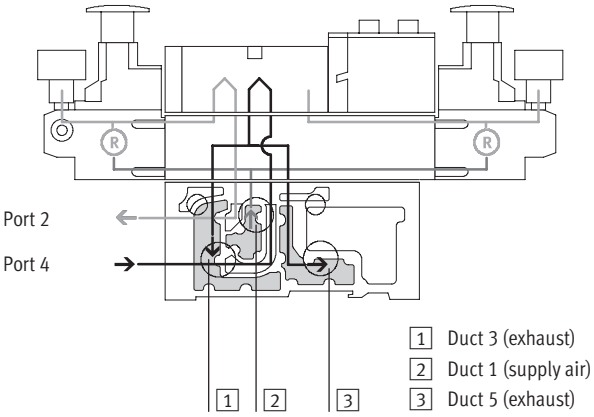
- The pressure regulator cannot be adjusted in the exhaust position. For example, the pressure regulator for duct 4 cannot be adjusted when the valve is pressurized in the switching position from duct 1 to duct 2 and exhausted from duct 4 to duct 5.

#### Application examples

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

## Vertical Stacking

Mode of operation of the pressure regulating plate (A/B regulation, reversible) for ports 2 and 4, reversible; code: ZE, ZJ




With this pressure regulator, the supply air (duct 1) is split and routed directly to both pressure regulators. The regulated compressed air is present in ducts 3 and 5 on the valve. The valve is thus operated in reversible mode.
This means
- Duct 3 routes the working pressure to port 2
- Duct 5 routes the working pressure to port 4

Example with the following switching position:
The supply air in duct 1 is split among ducts 3 and 5 in the regulator and flows from here to the valve. In the valve, the supply air is routed to port 2 of the manifold subbase. The exhaust air is simultaneously routed via duct 4 of the manifold subbase and via the valve to regulator duct 1, where it is split between ducts 3 and 5 and then drawn off via the manifold subbase.

### Application examples

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

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

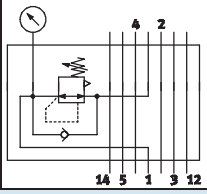
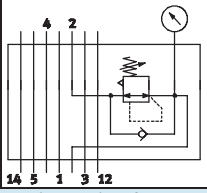
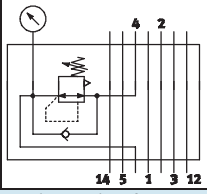
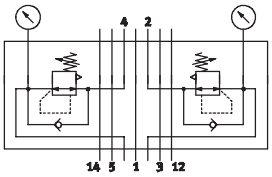
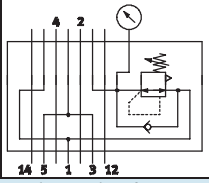
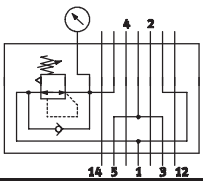
### Advantages

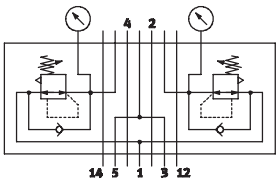
- Fast cycle times.
- 50% higher exhaust flow rate, as air is not exhausted via the pressure regulator. The load on the pressure regulator is also reduced.
- No quick exhaust valves are required.
- Operating pressure is always present at the pressure regulator, as the pressure is regulated before the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

### Disadvantages

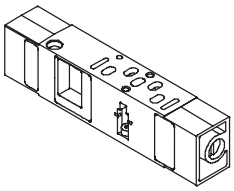
- 2x 3/2-way valves (code N, K, H) not used, as pressure is present at ports 3 and 5.
- No practical combination with a flow control plate possible.

**Vertical Stacking – Pressure Regulating Plate**

| Code | | Type | Width | | | Supply pressure | | Description |
|---|---|---|---|---|---|---|---|---|
| | | | 18 mm | 26 mm | 42 mm | 6 bar | 10 bar | |
| Pressure regulating plate for port 1 (P regulator) | | | | | | | | |
| ZA |  | VABF-S4-...-R1C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in duct 1 before the directional control valve |
| ZF | | VABF-S4-...-R1C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for port 2 (B regulator) | | | | | | | | |
| ZC |  | VABF-S4-...-R2C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in duct 2 after the directional control valve |
| ZH | | VABF-S4-...-R2C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for port 4 (A regulator) | | | | | | | | |
| ZB |  | VABF-S4-...-R3C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in duct 4 after the directional control valve |
| ZG | | VABF-S4-...-R3C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for ports 2 and 4 (AB regulator) | | | | | | | | |
| ZD |  | VABF-S4-...-R4C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in ducts 2 and 4 after the directional control valve |
| ZI | | VABF-S4-...-R4C2-C-6 | ■ | ■ | ■ | ■ | – | **Note** These pressure regulating plates cannot be combined with reversible 2x 3/2-way valves (code P, Q, R). |
| Pressure regulating plate for port 2, reversible (B regulator) | | | | | | | | |
| ZL |  | VABF-S4-...-R6C2-C-10 | ■ | ■ | ■ | – | ■ | • Reversible pressure regulator for port 2 |
| ZN | | VABF-S4-...-R6C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for port 4, reversible (A regulator) | | | | | | | | |
| ZK |  | VABF-S4-...-R7C2-C-10 | ■ | ■ | ■ | – | ■ | • Reversible pressure regulator for port 4 |
| ZM | | VABF-S4-...-R7C2-C-6 | ■ | ■ | ■ | ■ | – | |

| Vertical Stacking – Pressure Regulating Plate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Code | | Type | Width | | | Supply pressure | | Description |
| | | | 18 mm | 26 mm | 42 mm | 6 bar | 10 bar | |
| Pressure regulating plate for ports 2 and 4, reversible (AB regulator) | | | | | | | | |
| ZE |  | VABF-S4-...-R5C2-C-10 | ■ | ■ | ■ | – | ■ | • Reversible pressure regulator for ports 2 and 4<br>• Pressure regulation before the valve<br>• Redirects the operating pressure from duct 1 to ducts 3 and 5<br>• Routes the exhaust air from duct 1 to ducts 3 and 5 |
| ZJ | | VABF-S4-...-R5C2-C-6 | ■ | ■ | ■ | ■ | – | **Note**<br>This pressure regulating plate cannot be combined with standard 2x 3/2-way valves (code N, K, H). Reversible 2x 3/2-way valves (code P, Q, R) must not be operated in a separate pressure zone in combination with these pressure regulators. |

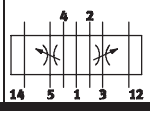
## Vertical Stacking – Flow Control Plate



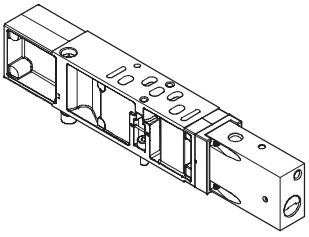
This plate is used for exhaust air flow control in ducts 3 and 5 of a valve in order to adjust the speed of the actuator.

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

**Note**
On reversible valve manifolds, supply air flow control takes place in ducts 3 and 5 before the valve.

| Code | | Type | Width | | | Description |
|---|---|---|---|---|---|---|
| | | | 18 mm | 26 mm | 42 mm | |
| X |  | VABF-S4-...F1B1-C | ■ | ■ | ■ | • Controls the flow of exhaust air after the valve to ducts 3 and 5 |

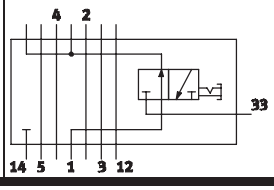
## Vertical Stacking – Vertical Shut-off Plate



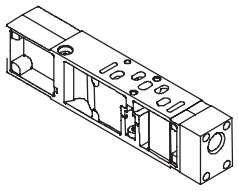
With this plate a valve can be shut off from the supply pressure of the manifold. This means that the valve can be removed without shutting off the pressure.

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

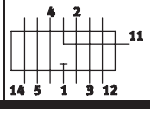
**Note**
It must be ensured that the operating pressure of the valve manifold lies within the range of the required pilot pressure (i.e. min. 3 bar).

| Code | | Type | Width | | | Description |
|---|---|---|---|---|---|---|
| | | | 18 mm | 26 mm | 42 mm | |
| ZT |  | VABF-S4-...L1D1-C | ■ | ■ | ■ | • 2/2-way valve for shutting off the operating pressure at the valve position<br>• Blocks ducts 12 and 14 for the valve position<br>• Supplies the valve position with internal pilot air |

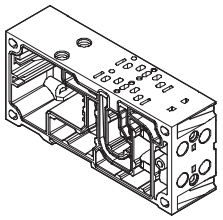
## Vertical Stacking – Vertical Supply Plate



With this plate a valve can be supplied with individual operating pressure independently of the operating pressure of the manifold.

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

## Manifold Subbase



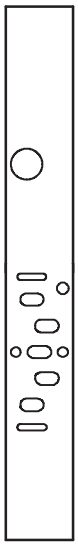
VTSA/VTSA-F is based on a modular system which consists of manifold subbases and valves. Manifold subbases are available for valve width 18 mm and width 26 mm in a double grid, i.e. two valves per manifold subbase. For width 42 mm (type 44 only) there are manifold subbases for one valve per subbase .

The manifold subbase contains a ducting seal and electrical linking. They can be freely mixed within a valve manifold. The manifold subbases are screwed together and thus form the support system for the valves.
Inside the manifold blocks are the connection channels for supplying compressed air to and venting from the valves on the manifold as well as the working lines for the pneumatic cylinders for each valve.
Each manifold subbase is connected to the next using four screws. Individual manifold sections can be isolated and further manifold subbases inserted by loosening these screws. This ensures that the valve manifold can be rapidly and reliably expanded.

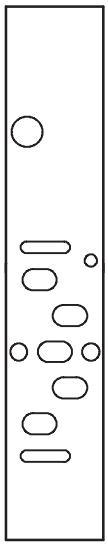
## Port Patterns on the Manifold Subbase

Type 44 VTSA

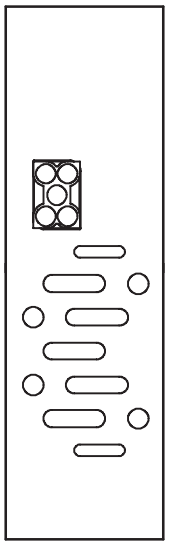
Width 18 mm



Width 26 mm



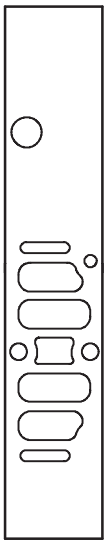
Width 42 mm



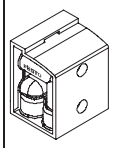
Type 45 VTSA-F

Width 18 mm

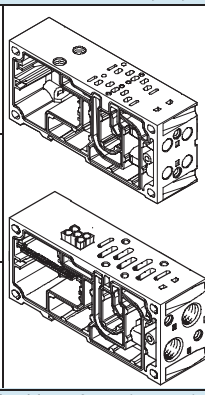
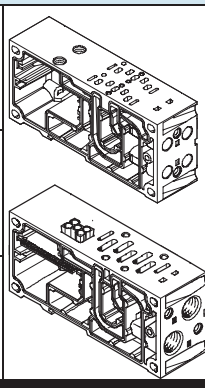
Width 26 mm



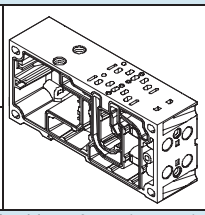
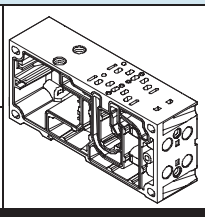
## 90° Connection Plate for Working Ports (2, 4) of the Manifold Subbases

| Code | | Type | Width | | | Ports | Working ports (2, 4) in the 90° connection plate |
|---|---|---|---|---|---|---|---|
| | | | 18 mm | 26 mm | 42 mm | | |
| P |  | Threaded connection: VABF-S4-...-A2G2-G... | ■ | ■ | ■ | 2 and 4 | Outlet at bottom<br>• Connection size for 18 mm width: G1⁄8<br>• Connection size for 26 mm width: G1⁄4<br>• Connection size for 42 mm width: G3⁄8 |

**Manifold Subbase Variants – Type 44 VTSA**

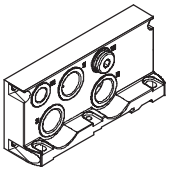
| Code | | Type | Width | | | No. of valve positions/solenoid coils | Working ports (2, 4) on manifold subbase |
|---|---|---|---|---|---|---|---|
| | | | 18 mm | 26 mm | 42 mm | | |
| Manifold subbase for multi-pin plug/fieldbus connection for double solenoid valves | | | | | | | |
| A<br>AK |  | Threaded connection:<br>VABV-S4-2S-G18-2T2 | ■ | – | – | 2/4 | • Connection sizes for 18 mm width:<br>G⅛, QS-G⅛-8, QS-G⅛-6 |
| B<br>BK | | Threaded connection:<br>VABV-S4-1S-G14-2T2 | – | ■ | – | 2/4 | • Connection sizes for 26 mm width:<br>G¼, QS-G¼-10, QS-G¼-8 |
| C<br>CK | | Threaded connection:<br>VABV-S2-1S-G38-2T2 | – | – | ■ | 2/4 | • Connection sizes for 42 mm width:<br>G⅜ QS-G⅜-12, QS-G⅜-10 |
| Manifold subbase for multi-pin plug/fieldbus connection for single solenoid valves | | | | | | | |
| E<br>EK |  | Threaded connection:<br>VABV-S4-2S-G18-2T1 | ■ | – | – | 2/2 | • Connection sizes for 18 mm width:<br>G⅛, QS-G⅛-8, QS-G⅛-6 |
| F<br>FK | | Threaded connection:<br>VABV-S4-1S-G14-2T1 | – | ■ | – | 2/2 | • Connection sizes for 26 mm width:<br>G¼, QS-G¼-10, QS-G¼-8 |
| G<br>GK | | Threaded connection:<br>VABV-S2-1S-G38-2T1 | – | – | ■ | 2/2 | • Connection sizes for 42 mm width:<br>G⅜ QS-G⅜-12, QS-G⅜-10 |

**Manifold Subbase Variants – Type 45 VTSA-F**

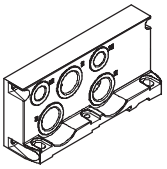
| Code | | Type | Width | | No. of valve positions/solenoid coils | Working ports (2, 4) on manifold subbase |
|---|---|---|---|---|---|---|
| | | | 18 mm | 26 mm | | |
| Manifold subbase for multi-pin plug/fieldbus connection for double solenoid valves | | | | | | |
| A<br>AK |  | Threaded connection:<br>VABV-S4-2HS-G18-2T2 | ■ | – | 2/4 | • Connection sizes for 18 mm width:<br>G⅛, QS-G⅛-8, QS-G⅛-6 |
| B<br>BK | | Threaded connection:<br>VABV-S4-1HS-G14-2T2 | – | ■ | 2/4 | • Connection sizes for 26 mm width:<br>G¼, QS-G¼-10, QS-G¼-8 |
| Manifold subbase for multi-pin plug/fieldbus connection for single solenoid valves | | | | | | |
| E<br>EK |  | Threaded connection:<br>VABV-S4-2HS-G18-2T1 | ■ | – | 2/2 | • Connection sizes for 18 mm width:<br>G⅛, QS-G⅛-8, QS-G⅛-6 |
| F<br>FK | | Threaded connection:<br>VABV-S4-1HS-G14-2T1 | – | ■ | 2/2 | • Connection sizes for 26 mm width:<br>G¼, QS-G¼-10, QS-G¼-8 |

## Compressed Air Supply and Venting

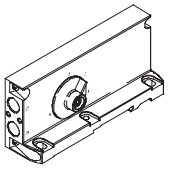
Right-hand end plate
– Code V



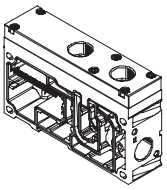
Right-hand end plate
– Code X



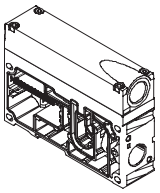
End plate with pilot air selector
– Code Y, U, Z, W



Port configuration for supply plates
Exhaust air 3/5 separated
– Code K



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



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

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

## Pilot air supply

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

- Internal
- External

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

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

**Note**
If a gradual pressure build-up in the system using a pressurized on-off valve is required, external pilot supply air where the control pressure applied during switch-on is already very high should be selected.

## Right-hand End Plate

Different right-hand end plates are available.

With the following two end plates, the outgoing direction of the ports is aligned with the horizontal stacking direction.
Right-hand end plates with supply air/exhaust air
– Internal pilot air supply: Code V
– External pilot air supply: Code X

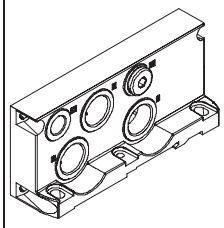
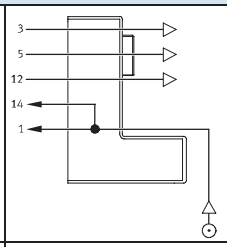
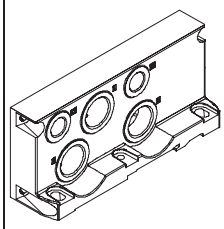
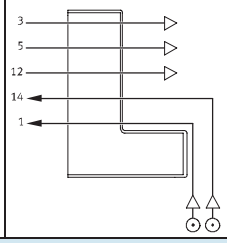
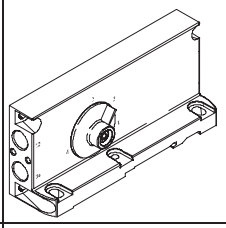
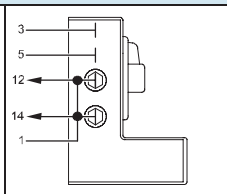
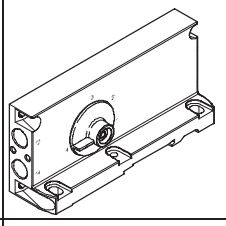
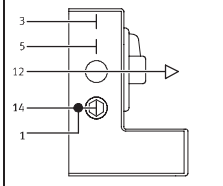
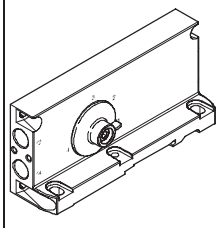
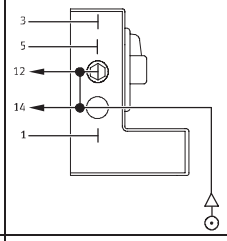
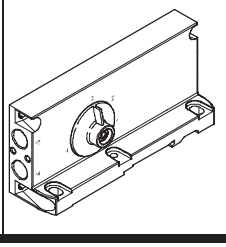
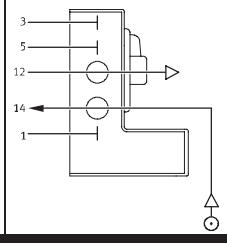
For end plates with pilot air selector, the outgoing direction of the ports is to the front face of the valve manifold. This means that all of the ports on the manifold can be combined in one outgoing direction.
The special feature of the end plates with pilot air selector is the selector switch itself, which has four settings for different pilot air supply/pilot exhaust air.

End plates with pilot air selector switch set at the factory for:
– Internal pilot air supply: Code Y
– External pilot air supply: Code Z
– Internal pilot air supply, ducted pilot exhaust air: Code U
– External pilot air supply, ducted pilot exhaust air: Code W

**Note**
The end plate with pilot air selector must be used in combination with a supply plate.
The reversible 3/2-way valves (code P, Q, R) must only be operated in selector position 1 or 2 (code Z, Y).

**Right-hand End Plate with Coding Cap**

| Code | Selector position |
|---|---|
| Z | 1 |
| Y | 2 |
| W | 3 |
| U | 4 |

| Right-hand End Plate | | | | | | |
|---|---|---|---|---|---|---|
| Code | Type of compressed air supply and pilot air supply | | Width | | | Description |
| | | | 18 mm | 26 mm | 42 mm | |
| | Right-hand end plate | | | | | |
| V |  |  | ■ | ■ | ■ | Supply air/exhaust air, internal pilot air supply, silencer<br>• Pilot air supply is branched internally from port 1<br>• Port 14 is sealed with a blanking plug<br>• Exhaust 3/5 via silencer<br>• For operating pressure in the range 3 ... 10 bar<br>• Pilot exhaust[1)] |
| X |  |  | ■ | ■ | ■ | Supply air/exhaust air, external pilot air supply, silencer<br>• Pilot air supply between 2 and 10 bar is connected at port 14<br>• Exhaust 3/5 via silencer<br>• For operating pressure in the range –0.9 ... 10 bar (suitable for vacuum)<br>• Pilot exhaust[1)] |
| Code[2)] | End plate with pilot air selector | | | | | |
| Y (2) |  |  | ■ | ■ | ■ | Internal pilot air supply<br>• Pilot air supply is branched internally from port 1<br>• Ports 1/12/14 are internally connected<br>• Ports 12/14 are sealed with blanking plugs<br>• Pilot exhaust air is vented via valve housing |
| U (4) |  |  | ■ | ■ | ■ | Internal pilot supply air, ducted exhaust air<br>• Pilot air supply is branched internally from port 1<br>• Ports 1/14 are internally connected<br>• Port 14 is sealed with a blanking plug<br>• Pilot exhaust via port 12 with silencer[1)] |
| Z (1) |  |  | ■ | ■ | ■ | External pilot air supply<br>• Pilot air supply is connected at port 14<br>• Port 12 is sealed with a blanking plug<br>• Ports 12/14 are internally connected<br>• Pilot exhaust air is vented via valve housing |
| W (3) |  |  | ■ | ■ | ■ | External pilot supply air, ducted exhaust air<br>• Pilot air supply is connected at port 14<br>• Pilot exhaust via port 12 with silencer[1)] |

1) Ducted pilot exhaust air is only possible with turned seals on the valve
2) Selector position in brackets

## Compressed Air Supply/Duct Separation

Additional supply plates can be used for larger manifolds or to create pressure zones.
These can be selected at any point before or after manifold subbases.

Supply plates contain the ports:
- Compressed air supply port (1)
- Exhaust port (3/5) common or separated

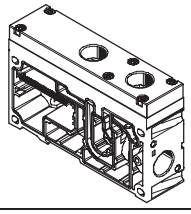
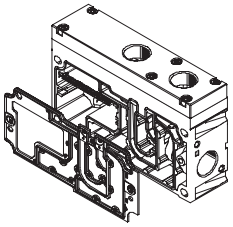
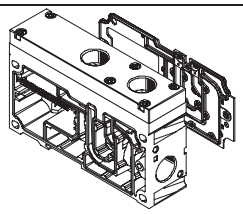
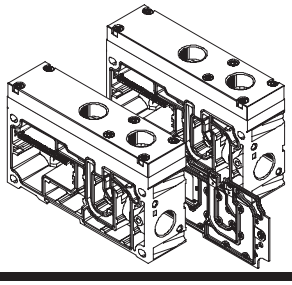
Depending on your order, the exhaust air ducts are either ducted or vented via silencers.

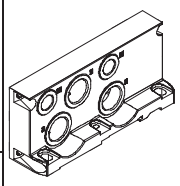
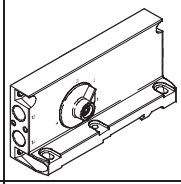
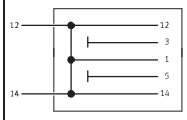
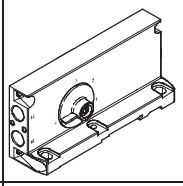
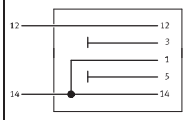
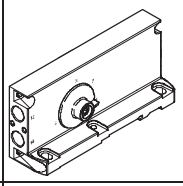
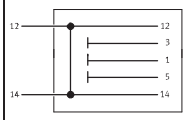
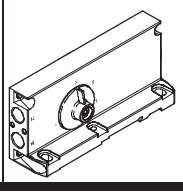
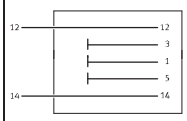
**VTSA/VTSA-F with ducted exhaust air**
With ducted exhaust air, venting can be performed via a supply plate or a right-hand end plate (code V or X).

If a duct separation is required, there are three different options:
- Duct separation 1, 3, 5: Code S
- Duct separation 1: Code T
- Duct separation 3, 5: Code R

If a combination of duct separation (S, T or R) and one or two supply plates is required, the following variants can be selected:
- Supply plate with duct separation on the left-hand side:
  Code SU, TU, RU
- Supply plate with duct separation on the right-hand side:
  Code US, UT, UR
- 2 supply plates with intermediate duct separation:
  Code USU, UTU, URU

**Supply Plates**

| Code | | Type | Width | | | Description |
|---|---|---|---|---|---|---|
| | | | 18 mm | 26 mm | 42 mm | |
| U |  | • Exhaust port 3/5 common<br>For threaded connection:<br>VABF-S6-10-P1A7-G12<br>• Exhaust air 3/5 separated<br>For threaded connection:<br>VABF-S6-10-P1A6-G12 | ■ | ■ | ■ | Supply plate without duct separation<br>(no R, S or T selected) |
| SU<br>TU<br>RU |  | | ■ | ■ | ■ | Supply plate with duct separation on left,<br>if R, S or T selected |
| US<br>UT<br>UR |  | | ■ | ■ | ■ | Supply plate with duct separation on right,<br>if R, S or T selected |
| USU<br>UTU<br>URU |  | | ■ | ■ | ■ | 2 supply plates with duct separation in centre,<br>if R, S or T selected |

| Configuration of All Pneumatic Threaded Connections | | | | | | | |
|---|---|---|---|---|---|---|---|
| Code[1] | | | Connection | | Designation | **Code M** Push-in connector large | **Code N** Push-in connector small |
| V |  | – | Right-hand end plate, internal pilot air supply, silencer | | | | |
| | | | 1 | Compressed air/ vacuum supply | Push-in fitting | QS-G½-16 | QS-G½-12 |
| | | | 3/5 | Exhaust air | Via silencer | U-½-B | U-½-B |
| | | | 14 | Pilot air supply | Blanking plug | B-¼ | B-¼ |
| X | | | Right-hand end plate, external pilot air supply, silencer | | | | |
| | | | 1 | Compressed air/ vacuum supply | Push-in fitting | QS-G½-16 | QS-G½-12 |
| | | | 3/5 | Exhaust air | Via silencer | U-½-B | U-½-B |
| | | | 12 | Pilot exhaust air | Via silencer | U-¼ | U-¼ |
| | | | 14 | Pilot air supply | Push-in fitting | QS-G¼-10 | QS-G¼-8 |
| Y (2) |  |  | End plate with pilot air selector, internal pilot air supply | | | | |
| | | | 12/14 | Pilot air supply/ pilot exhaust air | Blanking plug/push-in fitting | B-¼ / QS-G¼-10 | B-¼ / QS-G¼-8 |
| U (4) |  |  | End plate with pilot air selector, internal pilot air supply, ducted exhaust air | | | | |
| | | | 12/14 | Pilot air supply/ pilot exhaust air | Blanking plug/blanking plug | B-¼ / B-¼ | B-¼ / B-¼ |
| Z (1) |  |  | End plate with pilot air selector, external pilot air supply | | | | |
| | | | 12/14 | Pilot air supply/ pilot exhaust air | Push-in fitting or silencer/push-in fitting | QS-G¼-10 or U-¼ / QS-G¼-10 | QS-G¼-8 or U-¼ / QS-G¼-8 |
| W (3) |  |  | End plate with pilot air selector, external pilot air supply, ducted exhaust air | | | | |
| | | | 12/14 | Pilot air supply/ pilot exhaust air | Push-in fitting or silencer/blanking plug | QS-G¼-10 or U-¼ / B-¼ | QS-G¼-8 or U-¼ / B-¼ |

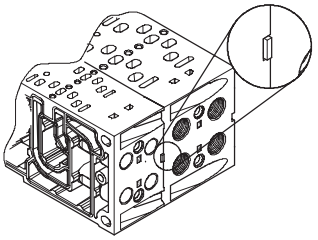
1) Selector position in brackets

## Creation of Pressure Zones and Separation of Exhaust Air

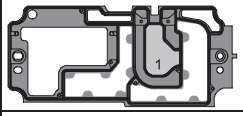
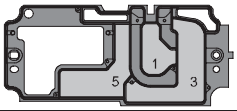
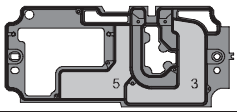
The valve manifold VTSA/VTSA-F offers a number of options for creating pressure zones if different working pressures are required.
Pressure zones are created by isolating the internal supply ducts between the manifold subbases using an appropriate duct separation.

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

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



**Creating Pressure Zones**

| Code | Separating seal | | Width | | | Description |
|---|---|---|---|---|---|---|
| | Pictorial examples | Coding | 18 mm | 26 mm | 42 mm | |
| T |  |  | ■ | ■ | ■ | Duct 1 separated |
| S |  |  | ■ | ■ | ■ | Duct 1 and 3/5 separated |
| R |  |  | ■ | ■ | ■ | Duct 3/5 separated |

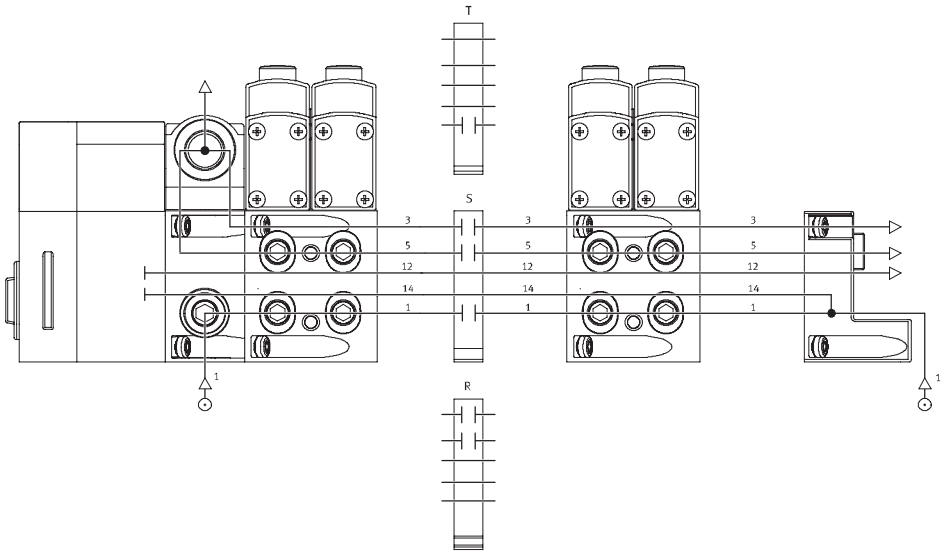
## Examples: Compressed Air Supply and Pilot Air Supply, Right-hand End Plate

### Internal pilot air supply, silencer/ducted exhaust air

Right-hand end plate
Code V

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

Optional
duct separation

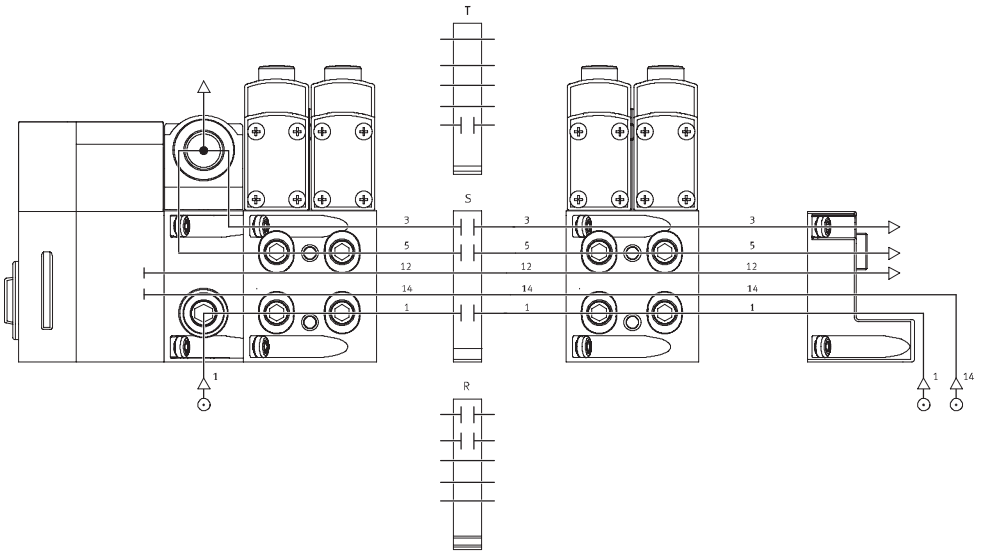



### External pilot air supply, silencer/ducted exhaust air

Right-hand end plate
Code X

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

Optional
duct separation



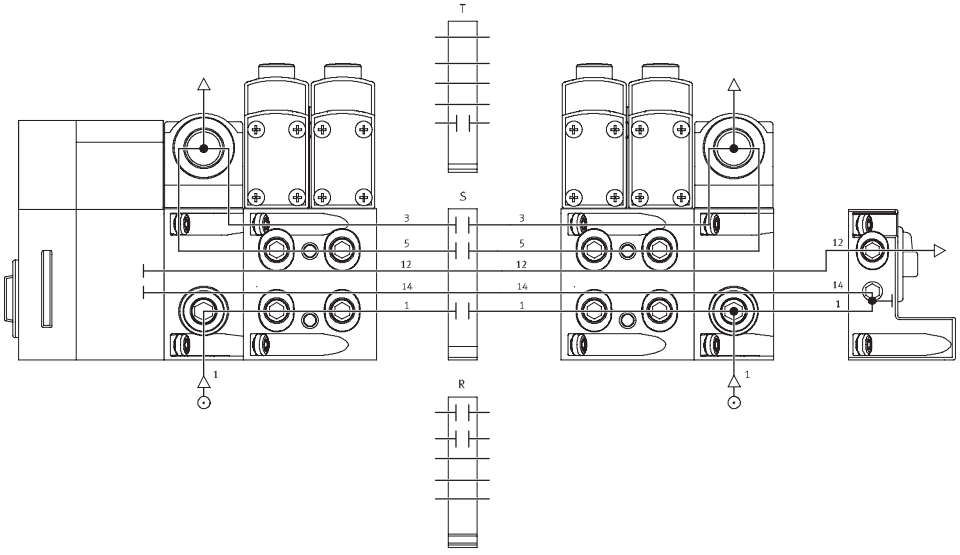
## Examples: Compressed Air Supply and Pilot Air Supply via End Plate with Pilot Air Selector

### Internal pilot air supply, ducted exhaust air/silencer

Right-hand end plate
Code Y, U – code U shown

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

Optional
duct separation

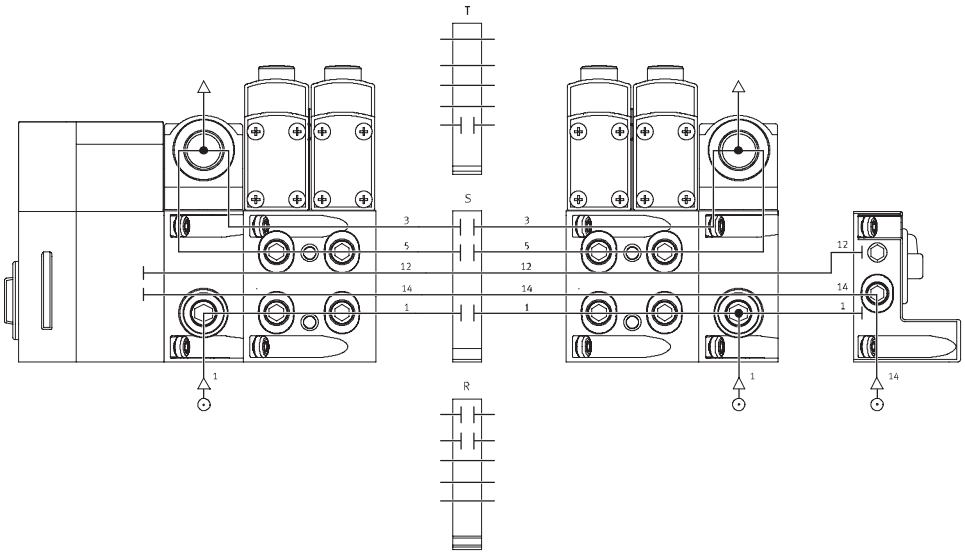



### External pilot air supply, ducted exhaust air/silencer

Right-hand end plate
Code Z, W – code Z shown

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

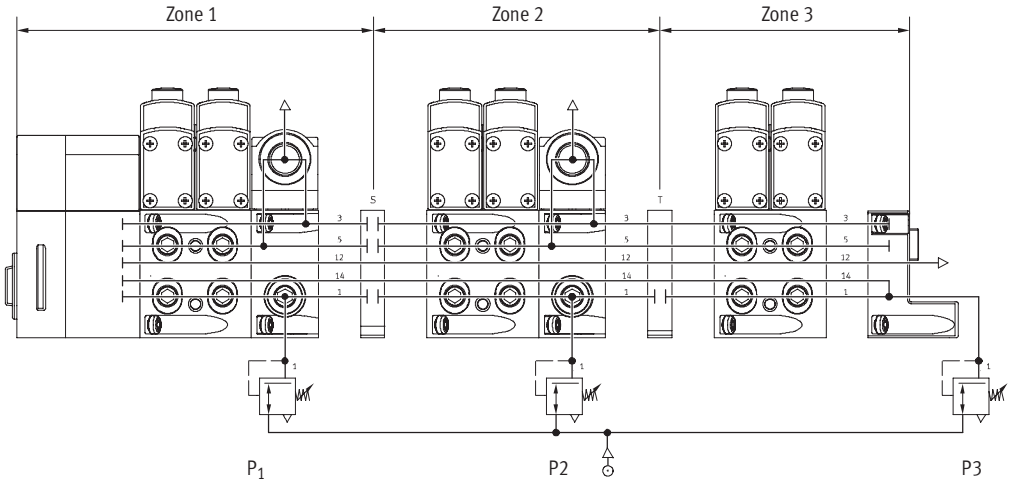
Optional
duct separation



**Examples: Creation of Pressure Zones**

VTSA/VTSA-F with CPX manifold connection

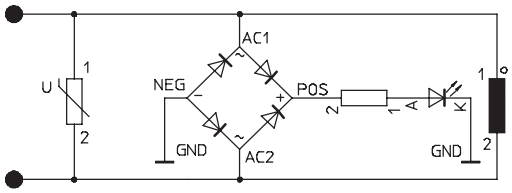
VTSA/VTSA-F allows the creation of up to 16 pressure zones (32 pressure zones if only size 1 (42 mm), ISO 5599-2, is fitted). The diagram shows an example for the configuration and connection of three pressure zones using duct separations – with internal pilot air supply.



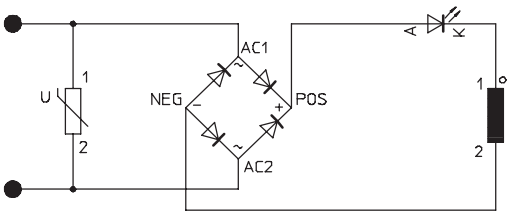
## Protective Circuit

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

### 24 V DC version




### 110 V AC version

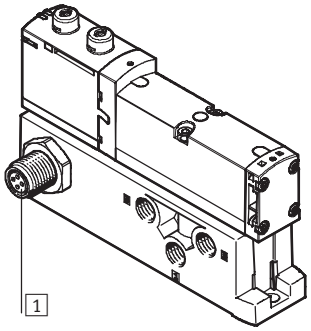


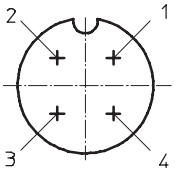

## Individual Valve

Valves can also be used on individual subbases for actuators further away from the valve manifold.

- Electrical M12 connector, 4 pin 24 V DC
- Screw terminal connection for configuration by the user 24 V DC or 110 V AC

## Electrical Connection, Individual Valve 24 V DC



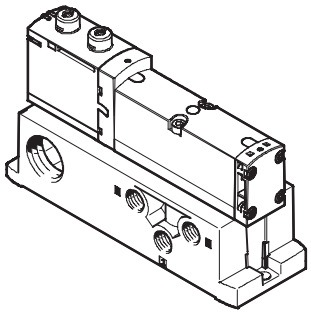



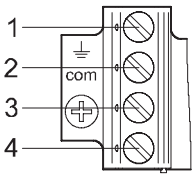

[1] Connector plug M12x1, male, 4-pin to EN 61076-2-101

Pin allocation M12 on individual valve to ISO 20401

| With positive logic: | | With negative logic: | |
|---|---|---|---|
| Pin1 | – Not allocated | Pin1 | – Not allocated |
| Pin2 | – 24 V DC for coil 12 | Pin2 | – 0 V for coil 12 |
| Pin3 | – 0 V for coil 12 and 14 or | Pin3 | – 24 V DC for coil 12 and 14 |
| Pin4 | – 24 V DC for coil 14 | Pin4 | – 0 V for coil 14 |

## Electrical Connection, Individual Valve, 24 V DC or 110 V AC






Terminal allocation for assembly by the user

| With positive logic: | | With negative logic: | |
|---|---|---|---|
| 1 | – Unused (with 110 V AC connection for earthing) | 1 | – Unused |
| 2 | – 24 V DC for coil 12 | 2 | – 0 V for coil 12 |
| 3 | – 0 V for coil 12 and 14 | 3 | – 24 V DC for coil 12 and 14 |
| 4 | – 24 V DC for coil 14 | 4 | – 0 V for coil 14 |

## Fieldbus Connection/Control Block

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

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

**Note**
Further information can be found in
➔ www.festo.com/catalog/cpx

## Electrical Multi-pin Plug Connection

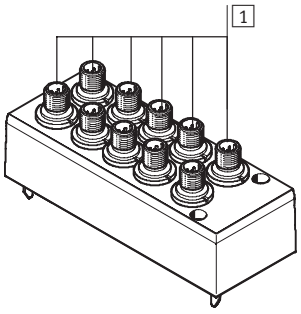
The following multi-pin plug connection variants are offered for the valve manifold VTSA:

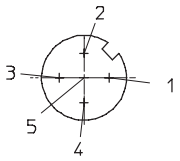
- Individual electrical connection M12 (5-pin M12 for 24 V DC):
  6 or 10 M12 connectors allowing for 2 solenoids to be activated per connection.
- Sub-D multi-pin plug connection (37-pin for 24 V DC):
  A maximum of 32 solenoids can be activated. The manifold is available with up to 32 single solenoid valves, 16 double solenoid valves, or a combination of up to 32 solenoids.
- Terminal box (cage clamp terminal strip for 24 V DC or 110 V AC):
  A maximum of 32 solenoids can be activated. The manifold is available with up to 32 single solenoid valves, 16 double solenoid valves, or a combination of up to 32 solenoids.

Each pin on the Sub-D multi-pin plug or terminal box can activate exactly a single solenoid coil.
If the maximum configurable number of valve positions is 32, this means that 32 valves can be addressed via a single solenoid coil.
With 16 or less valve positions, 2 valve solenoid coils per valve can be addressed.

**Note**
Use the following 37-pin connecting cables from Festo to connect the valve manifold with Sub-D multi-pin plug connection:
- NEBV-S1W37-...-LE10
  for max. 8 solenoid coils
- NEBV-S1W37-...-LE26
  for max. 22 solenoid coils
- NEBV-S1W37-...-LE37
  for max. 32 solenoid coils
- NECV-S1W37
  pre-assembled plug connector

## Individual Electrical Connection, 6-way Code MP2, or 10-way Code MP3, 24 V DC



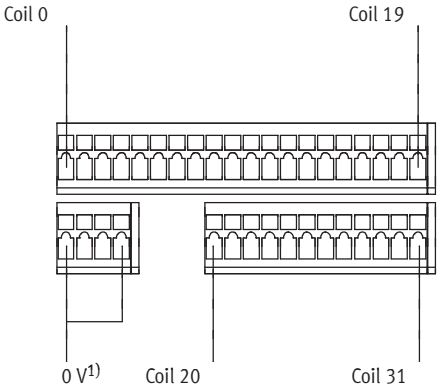

1 Connector plug M12x1, male, 5-pin

Pin allocation M12

| | |
|---|---|
| Pin1 | – Unused |
| Pin2 | – 24 V DC for coil 12 |
| Pin3 | – 0 V for coil 12 and 14 |
| Pin4 | – 24 V DC for coil 14 |
| **Pin5** | **– Functional earth** |

**Pin Allocation – Terminal Box (CageClamp), 24 V DC and 110 V AC; Electrical Connection Code T**

Each solenoid coil must be assigned to a specific terminal on the terminal strip in order for actuation of the valves to take place.




**Note**

The drawing shows the view onto the terminal strip (CageClamp).

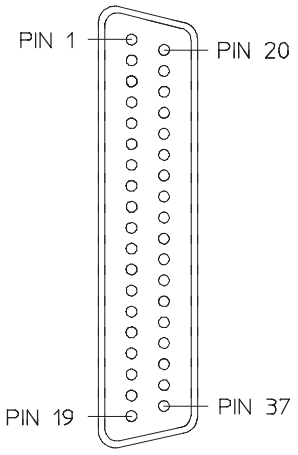
| Manifold | Coil/address | Manifold | Coil/address |
|---|---|---|---|
| 1 | 0 | 17 | 16 |
| 2 | 1 | 18 | 17 |
| 3 | 2 | 19 | 18 |
| 4 | 3 | 20 | 19 |
| 5 | 4 | 21 | 20 |
| 6 | 5 | 22 | 21 |
| 7 | 6 | 23 | 22 |
| 8 | 7 | 24 | 23 |
| 9 | 8 | 25 | 24 |
| 10 | 9 | 26 | 25 |
| 11 | 10 | 27 | 26 |
| 12 | 11 | 28 | 27 |
| 13 | 12 | 29 | 28 |
| 14 | 13 | 30 | 29 |
| 15 | 14 | 31 | 30 |
| 16 | 15 | 32 | 31 |
| Conductor | | | |
| 33 | 0 V | 35 | 0 V |
| 34 | 0 V | 36 | 0 V |

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

**Sub-D plug, 24 V DC; Electrical Connection Code MP1**

| Type | Sheath | Length [m] | Wire x mm² [mm²] | Cable ∅ [mm] | Part No. |
|---|---|---|---|---|---|
| NEBV-S1W37-E2,5-LE10 | Polyurethane (PUR) | 2.5 | 10 x 0.34 | 7.7 | **539240** |
| NEBV-S1W37-E5-LE10 | | 5 | | | **539241** |
| NEBV-S1W37-E10-LE10 | | 10 | | | **539242** |
| NEBV-S1W37-E2,5-LE26 | | 2.5 | 26 x 0.34 | 11.5 | **539243** |
| NEBV-S1W37-E5-LE26 | | 5 | | | **539244** |
| NEBV-S1W37-E10-LE26 | | 10 | | | **539245** |
| NEBV-S1W37-K2,5-LE37 | | 2.5 | 37 x 0.34 | 13 | **539246** |
| NEBV-S1W37-K5-LE37 | | 5 | | | **539247** |
| NEBV-S1W37-K10-LE37 | | 10 | | | **539248** |
| NEBV-S1W37-KM-2,5-LE10 | Polyvinyl chloride (PVC) | 2.5 | 10 x 0.34 | 7.7 | **543271** |
| NEBV-S1W37-KM-5-LE10 | | 5 | | | **543272** |
| NEBV-S1W37-KM-10-LE10 | | 10 | | | **543273** |
| NEBV-S1W37-KM-2,5-LE27 | | 2.5 | 27 x 0.34 | 11.5 | **543274** |
| NEBV-S1W37-KM-5-LE27 | | 5 | | | **543275** |
| NEBV-S1W37-KM-10-LE27 | | 10 | | | **543276** |
| NEBV-S1W37-KM-2,5-LE37 | | 2.5 | 37 x 0.34 | 13 | **543277** |
| NEBV-S1W37-KM-5-LE37 | | 5 | | | **543278** |
| NEBV-S1W37-KM-10-LE37 | | 10 | | | **543279** |

**Pin Allocation – Sub-D Plug Socket, 24 V DC; Electrical Connection Code MP1**



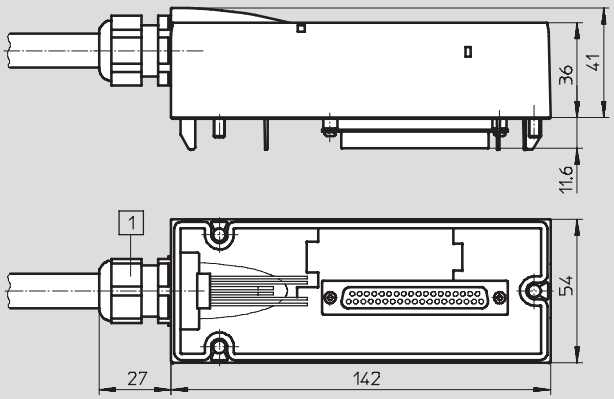

| Pin[2] | Address/coil | Core color[1] | Pin[2] | Address/coil | Core color[1] |
|---|---|---|---|---|---|
| 1 | 0 | WH | 17 | 16 | WH PK |
| 2 | 1 | BN | 18 | 17 | PK BN |
| 3 | 2 | GN | 19 | 18 | WH BU |
| 4 | 3 | YE | 20 | 19 | BN BU |
| 5 | 4 | GY | 21 | 20 | WH RD |
| 6 | 5 | PK | 22 | 21 | BN RD |
| 7 | 6 | BU | 23 | 22 | GY GN |
| 8 | 7 | RD | 24 | 23 | YE GY |
| 9 | 8 | GY PK | 25 | 24 | PK GN |
| 10 | 9 | RD BU | 26 | 25 | YE PK |
| 11 | 10 | WH GN | 27 | 26 | GN BU |
| 12 | 11 | BN GN | 28 | 27 | YE BU |
| 13 | 12 | WH YE | 29 | 28 | GN RD |
| 14 | 13 | YE BN | 30 | 29 | YE RD |
| 15 | 14 | WH GY | 31 | 30 | GN BK |
| 16 | 15 | GY BN | 32 | 31 | GY BU |
| Conductor | | | | | |
| 33 | 0 V[3] | YE BK | 35 | 0 V[3] | BN BK |
| 34 | 0 V[3] | WH BK | 36 | 0 V[3] | BK |
| Earthing | | | | | |
| 37 | FE (earth) | VT | – | – | – |

**Note**
The drawing shows the view onto the Sub-D plug socket at the multi-core cable NEBV-S1W37-....

1) To IEC 757
2) Pin 9 ... 35: Not available with cable NEBV-S1-W37-...-10
Pin 23 ... 33: Not available with cable NEBV-S1-W37-...-26
3) 0 V for positive switching control signals; connect 24 V for negative switching control signals; mixed operation is not permitted.

**Dimensions[4]** Download CAD Data ➔ **www.festo.com/us/cad**

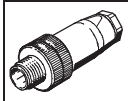
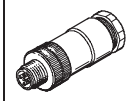
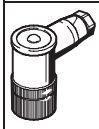
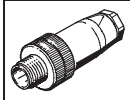
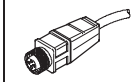
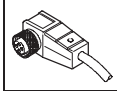
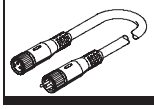
Multi-pin cable NEBV-S1W37-...




1 Cable conduit fitting M20x1.5

The wire colors refer to the following pre-assembled multi-core cables from Festo:
- NEBV-S1W37-...-10 for valve manifold with max. 8 solenoid coils
- NEBV-S1W37-...-26 for valve manifold with max. 22 solenoid coils
- NEBV-S1W37-...-37 for valve manifold with max. 32 solenoid coils

4) Dimensions are in millimeters, unless otherwise noted.

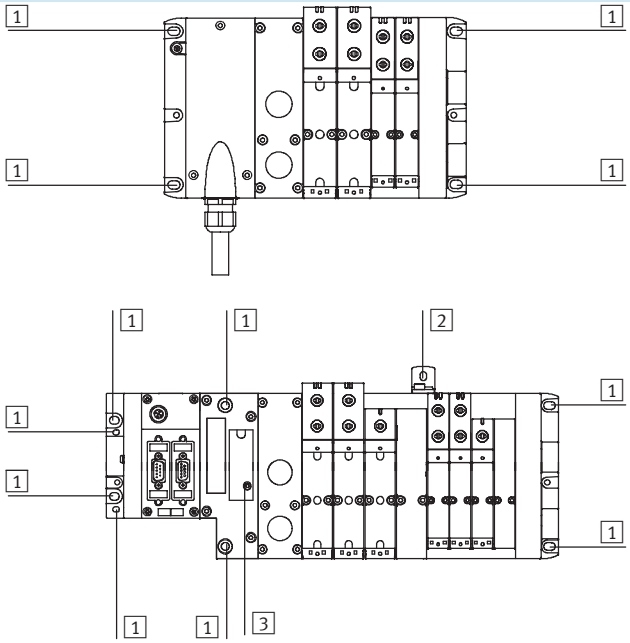
| Electrical Connection Technology | | | | |
|---|---|---|---|---|
| | Electrical connection | Type of mounting/cable length | Type | Part No. |
| Sensor plug/socket for inputs/outputs | | | | |
|  | Straight plug, 4-pin, screw manifold | Threaded connector M12 | **SEA-GS-7** | **18666** |
| | | | **SEA-GS-9** | **18778** |
|  | | | **SEA-GS-11-DUO** | **18779** |
|  | Plug socket, angled, 4-pin, screw manifold | Union nut M12 | **SEA-M12-4WD-PG7** | **185498** |
|  | Straight plug, 4-pin, screw manifold | Threaded connector M12 | **SEA-4GS-7-2,5** | **192008** |
| Plug socket with cable for connecting individual valves or sensors | | | | |
|  | Straight socket, 4-pin, M12 | 5 m | **SIM-M12-4GD-5-PU** | **164259** |
|  | Angled socket, 4-pin, M12 | 5 m | **SIM-M12-4WD-5-PU** | **164258** |
|  | Modular system for connecting cables | – | **NEBU-...**<br>➔ www.festo.com/catalog/nebu | **–** |

## Valve Manifold Assembly

Sturdy manifold attachment thanks to:

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

### Wall mounting



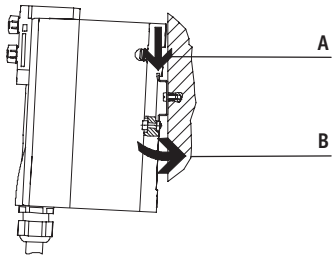

The VTSA/VTSA-F valve manifold is screwed onto the mounting surface using M6 screws. The mounting holes are located at the following points:

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

The fieldbus version additionally provides a bracket for wall mounting (Part No. 665983).
The mounting brackets can be used with very long valve manifolds (6 manifold subbases or more) to improve load capacity during vibration or shocks.

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

### DIN H-rail mounting



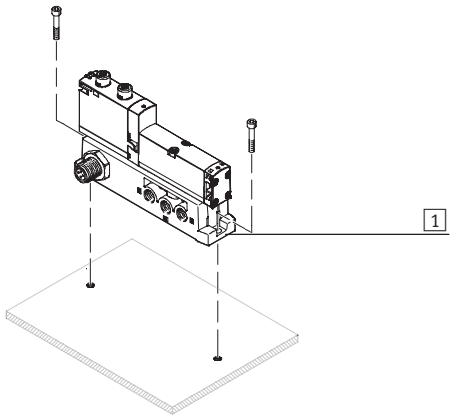

The VTSA/VTSA-F valve manifold is hooked onto the DIN H-rail (see arrow A).
It is then swivelled about the DIN H-rail, then swung into place and secured with the clamping shim (see arrow B).

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

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

This permits mounting of the valve manifold on a DIN H-rail to EN 60715.

## Individual Valve Assembly




1 Vertical mounting holes

The individual manifold block is designed for wall mounting for integration into a system or machine.
It is mounted vertically.

## Display and Operation

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

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

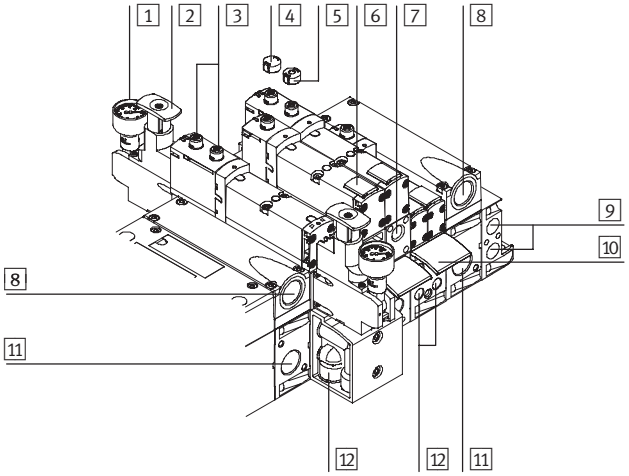
**Manual override**

The manual override allows the valve to be switched when in the electrically non-activated or de-energized status. The valve is actuated by pushing the manual override. The set switching status can also be secured by turning the manual override.

Alternatives:

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

## Pneumatic connection and control elements

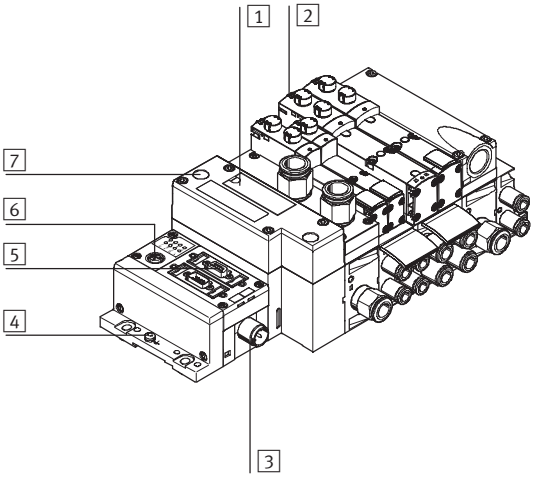



1 Pressure gauge (optional)
2 Adjusting knob of optional pressure regulating plate
3 Manual override (for each pilot solenoid coil, pushing or pushing/detenting)
4 Optional cover cap for manual override (inhibits manual override)
5 Optional cover for manual override with non-detenting pushing function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

**Note**

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

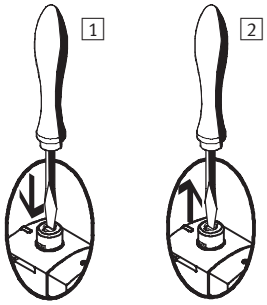
## Electrical connection and display components




1 Inscription area and cover for DIN H-rail mounting
2 Yellow LEDs: Signal status display for pilot solenoid coils
3 Voltage supply connection
4 Earth manifold
5 Fieldbus connection (bus-specific)
6 Service interface for handheld unit, etc.
7 Red LED: Common fault display for valves

## Manual Override (MO)

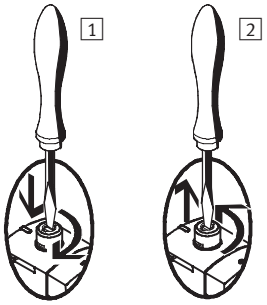
### Manual override with automatic return (pushing)




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

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

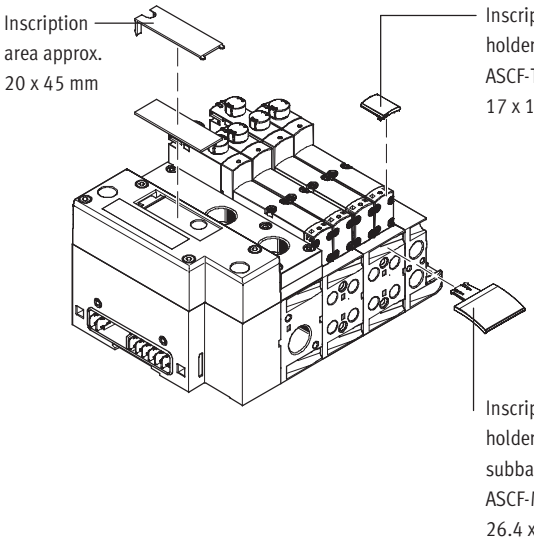
### Manual override set via turning (covered)




1 Press in the stem of the manual override using a pin or screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached. Valve remains actuated.

2 Turn the stem anti-clockwise by 90° until the stop is reached and then remove the screwdriver. Spring force pushes the stem of the manual override back. Valve returns to the initial position (not with double solenoid valve code J and D).

## Inscription System




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

- Inscription label holder for valve type ASCF-T-S6: Part No. 540888
- Inscription label holder for manifold subbase type ASCF-M-S6: Part No. 540889

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

# Instructions for Use

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

Operate your equipment with unlubricated compressed air if possible. Festo valves and cylinders are designed for operation under normal use without any additional lubrication and still have a long service life.
The quality of compressed air downstream from the compressor must correspond to that of unlubricated compressed air. If possible, do not operate all of your equipment with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator used.

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

**Bio-oils**
When using bio-oils (oils which are based upon synthetic or native ester, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m$^3$ must not be exceeded (see ISO 8573-1 Class 2).

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

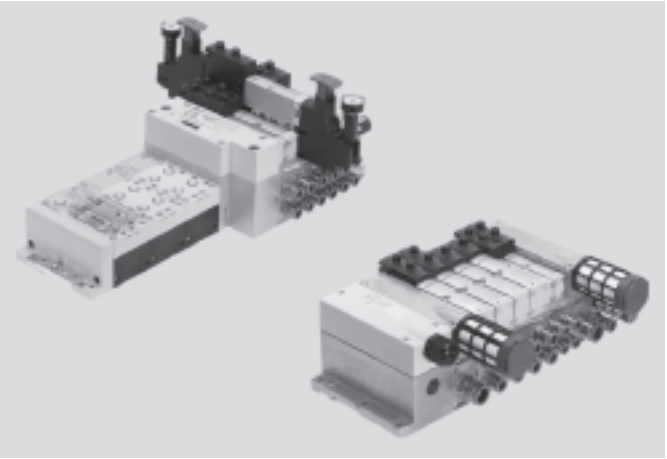
# Technical Data

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

**Flow rate**
- Width 18 mm: Up to 700 l/min
- Width 26 mm: Up to 1,400 l/min
- Width 42 mm: Up to 1,500 l/min

**Valve width**
- 02: 18 mm
- 01: 26 mm
- 1: 42 mm

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



| General Technical Data | | | | |
|---|---|---|---|---|
| Width | | 18 mm | 26 mm | 42 mm (type 44 VTSA only) |
| Design | | Electromagnetically actuated piston spool valve | | |
| Lubrication | | Lubrication for life | | |
| Type of mounting | | Wall mounting | | |
| | | On DIN H-rail to EN 60715 | | |
| Mounting position | | Any | | |
| Manual override | | Pushing, pushing/detenting, covered | | |
| Pneumatic connections | | Threaded connection | Threaded connection | Threaded connection |
| Pneumatic connection | | Via manifold subbase | | |
| Supply port | 1 | G½,<br>QS-G½-12,<br>QS-G½-16 | G½,<br>QS-G½-12,<br>QS-G½-16 | G½,<br>QS-G½-12,<br>QS-G½-16 |
| Exhaust port | 3/5 | G½,<br>QS-G½-12,<br>QS-G½-16 | G½,<br>QS-G½-12,<br>QS-G½-16 | G½,<br>QS-G½-12,<br>QS-G½-16 |
| Working ports | 2/4 | G⅛,<br>QS-G⅛-6,<br>QS-G⅛-8 | G¼,<br>QS-G¼-8,<br>QS-G¼-10 | G⅜,<br>QS-G⅜-12,<br>QS-G⅜-10 |
| Port for external pilot supply air | 14 | G¼ | G¼ | G¼ |
| Pilot exhaust air port | 12 | G¼ | G¼ | G¼ |
| Certification | | CE | | |

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

# Technical Data

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

| Standard Nominal Flow Rate [l/min] – Type 44 VTSA | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| Width 18 mm | | | | | | | | | | | | | |
| Flow rate of valve | 750 | | | | 600 | | | 700[1)]<br>430[2)] | | | 600 | | |
| Flow rate of valve on individual subbase | 600 | | | | 500 | | | 550[1)]<br>360[2)] | | | 500 | | |
| Flow rate of valve on valve manifold | 550 | | | | 400 | | | 450[1)]<br>300[2)] | | | 400 | | |
| Width 26 mm | | | | | | | | | | | | | |
| Flow rate of valve | 1 400 | | | | 1 250 | | | 1 400[1)]<br>1 000[2)] | | | 1 250 | | |
| Flow rate of valve on individual subbase | 1 200 | | | | 1 100 | | | 1 200[1)]<br>850[2)] | | | 1 000 | | |
| Flow rate of valve on valve manifold | 1 100 | | | | 900 | | | 1 000[1)]<br>700[2)] | | | 900 | | |
| Width 42 mm | | | | | | | | | | | | | |
| Flow rate of valve | 1 800 | | | | 1 400 | | | 1 700[1)]<br>750[2)] | | | 1 400 | | |
| Flow rate of valve on individual subbase | 1 300 | | | | 1 200 | | | 1 200[1)]<br>800[2)] | | | 1 200 | | |
| Flow rate of valve on valve manifold | 1 500 | | | | 1 200 | | | 1 400[1)]<br>800[2)] | | | 1 200 | | |

1) Switching position
2) Mid-position

| Standard Nominal Flow Rate [l/min] – Type 45 VTSA-F | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| Width 18 mm | | | | | | | | | | | | | |
| Flow rate of valve | 750 | | | | 600 | | | 500[1)]<br>330[2)] | | | 600 | | |
| Flow rate of valve on valve manifold | 700 | | | | 550 | | | 500[1)]<br>330[2)] | | | 550 | | |
| Width 26 mm | | | | | | | | | | | | | |
| Flow rate of valve | 1 400 | | | | 1 250 | | | 1 400[1)]<br>700[2)] | | | 1 250 | | |
| Flow rate of valve on valve manifold | 1 350 | | | | 1 150 | | | 1 350[1)]<br>700[2)] | | | 1 150 | | |

1) Switching position
2) Mid-position

# Technical Data

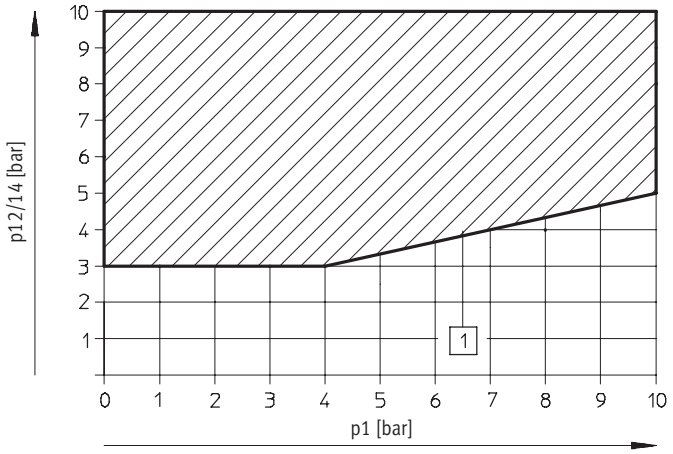
Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

| Operating and Environmental Conditions | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | | | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| Operating medium | | | Filtered compressed air, lubricated or unlubricated, inert gases | | | | | | | | | | | | |
| Grade of filtration | | [µm] | 40 (average pore size) | | | | | | | | | | | | |
| Operating pressure | Pilot pressure | [bar] | 3 ... 10 | | | | | | | | | | | | |
| | With internal pilot air | [bar] | 3 ... 10 | | | | | | | | | | | | |
| | With external pilot air | [bar] | –0.9 ... +10 | | | | 3 ... 10 | | | –0.9 ... +10 | | | | | |
| Ambient temperature | | [°C] | –5 ... +50 | | | | | | | | | | | | |
| Temperature of medium | | [°C] | –5 ... +50 | | | | | | | | | | | | |
| Storage temperature[1)] | | [°C] | –20 ... +40 | | | | | | | | | | | | |
| Relative air humidity | | [%] | 90 | | | | | | | | | | | | |

1) Long-term storage

**Pilot Pressure p12/14 as a Function of Operating Pressure p1**

For 3/2-way valves

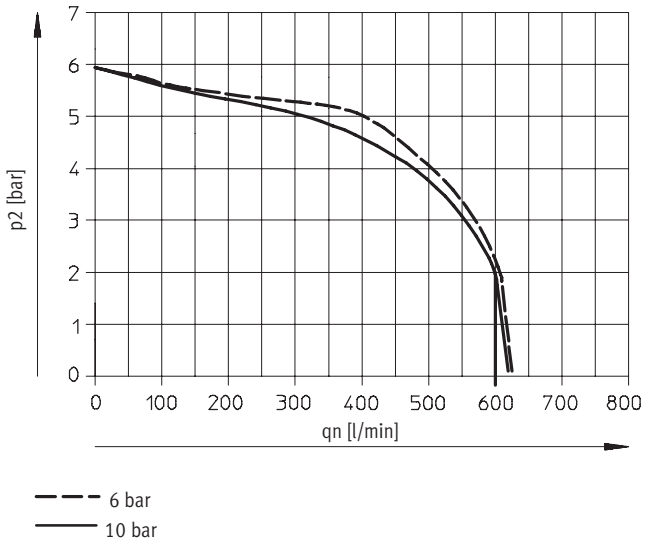



1 Operating range for valves with external pilot air supply

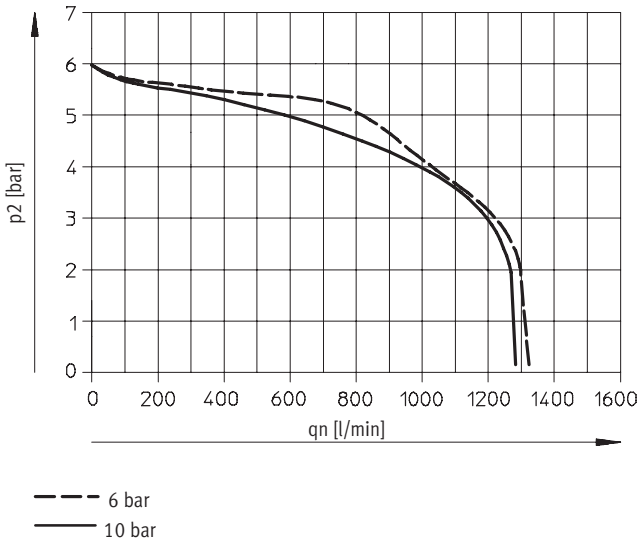
| Valve Response Times [ms] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| 18 mm | | | | | | | | | | | | | | |
| Response times | on | 22 | 12 | – | – | 12 | 12 | 12 | 15 | 15 | 15 | 25 | 25 | 25 |
| | off | 28 | 38 | – | – | 30 | 30 | 30 | 44 | 44 | 44 | 12 | 12 | 12 |
| | changeover | – | – | 11 | 11 | – | – | – | 22 | 22 | 22 | – | – | – |
| 26 mm | | | | | | | | | | | | | | |
| Response times | on | 25 | 20 | – | – | 20 | 20 | 20 | 22 | 22 | 22 | 32 | 32 | 32 |
| | off | 45 | 65 | – | – | 38 | 38 | 38 | 65 | 65 | 65 | 30 | 30 | 30 |
| | changeover | – | – | 18 | 18 | – | – | – | 33 | 33 | 33 | – | – | – |
| 42 mm (type 44 VTSA only) | | | | | | | | | | | | | | |
| Response times | on | 27 | 22 | – | – | 20 | 20 | 20 | 22 | 22 | 22 | 34 | 34 | 34 |
| | off | 45 | 60 | – | – | 38 | 38 | 38 | 65 | 65 | 65 | 28 | 28 | 28 |
| | changeover | – | – | 16 | 16 | – | – | – | – | – | – | – | – | – |

## Flow Rate qn as a Function of Output Pressure p2 with Pressure Regulator Plates (P Regulator Plate) for Port 1

Width 18 mm

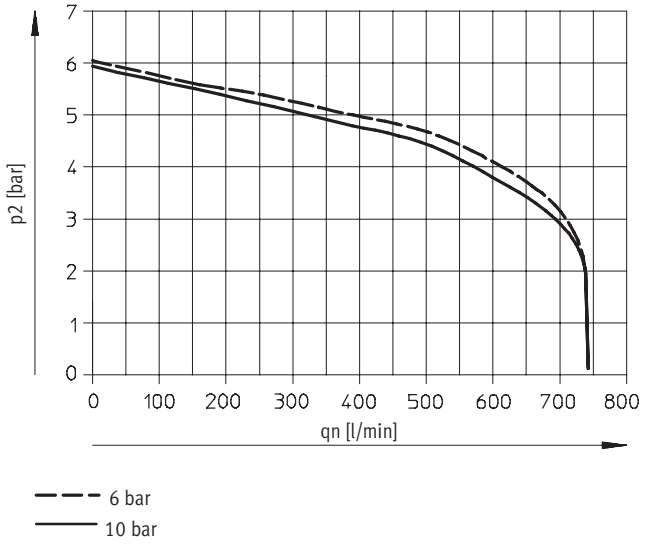



Width 26 mm

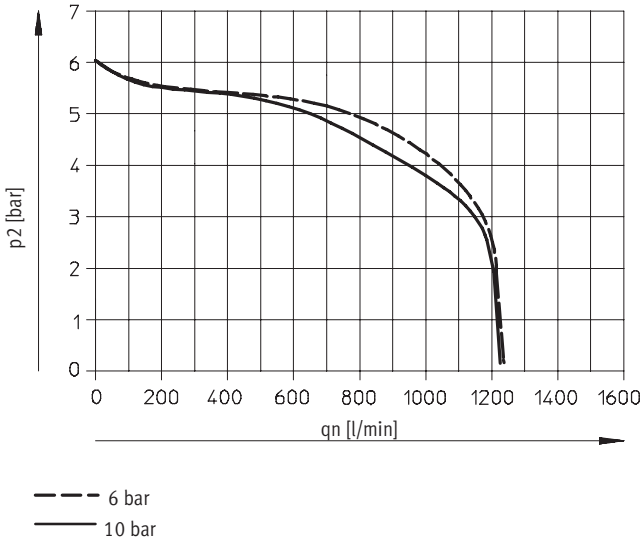



## Flow Rate qn as a Function of Output Pressure p2 with Pressure Regulator Plates (AB Regulator Plates) for Port 2, 4 or Ports 4/2

Width 18 mm

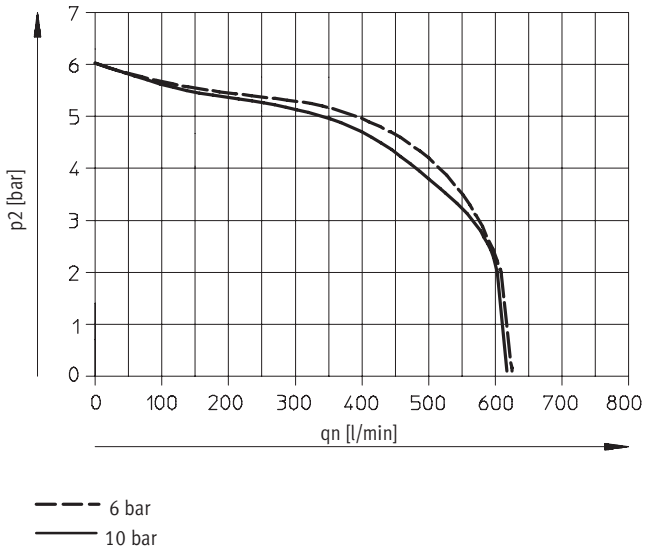



Width 26 mm



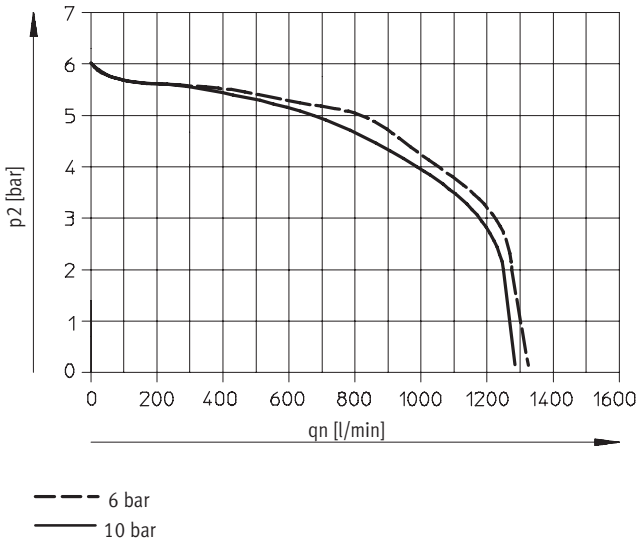
## Flow Rate qn as a Function of Output Pressure p2 with Pressure Regulator Plates (AB Regulator Plates, Rev.) for Ports 4/2, Reversible

Width 18 mm



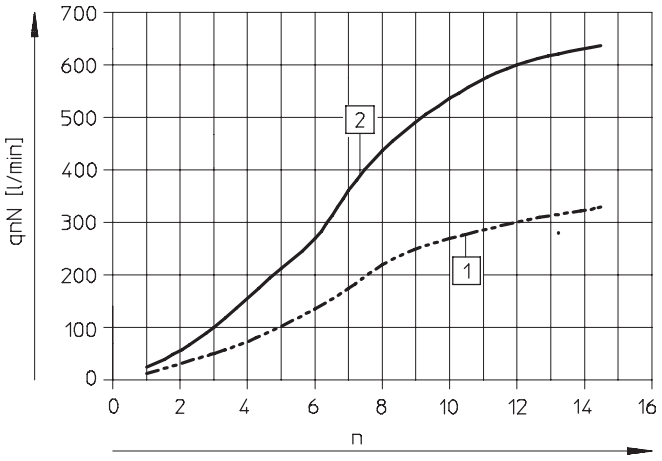

6 bar
10 bar

Width 26 mm




6 bar
10 bar

## Flow Rate qn as a Function of Flow Control




1 Width 18 mm
2 Width 26 mm
n Revolutions of the adjusting screw

| Electrical Data – VTSA/VTSA-F with CPX Manifold | | | | |
|---|---|---|---|---|
| | | 18 mm | 26 mm | 42 mm (type 44 only) |
| Voltage supply for electronics/sensors (pin 1) | | | | |
| Operating voltage | [V] | 24 DC ±10% | | |
| Steady state current consumption at 24 V DC | [mA] | 20 | | |
| Duty cycle | | 100% | | |
| Load voltage supply for valves (pin 2) | | | | |
| Operating voltage | [V] | 24 DC ±10% | | |
| Diagnostic message undervoltage $V_{OFF}$, load voltage outside function range | [V] | 21.6 ... 21.5 | | |
| Protection class to EN 60529 | | IP65 (for all types of signal transmission in assembled state) | | |
| Power consumption at 24 V DC | | | | |
| 2x 3/2-way valve | [W] | 1.3 | | |
| 5/2-way valve, 5/3-way valve | [W] | 1.6 | | |

| Electrical Data – VTSA/VTSA-F with Multi-pin Plug Connection | | | | |
|---|---|---|---|---|
| | | 18 mm | 26 mm | 42 mm |
| Load voltage supply for valves | | | | |
| Operating voltage | [V] | 24 DC ±10%<br>110 AC ±10% (50 ... 60 Hz) | | |
| Duty cycle | | 100% | | |
| Protection class to EN 60529 | | IP65 (for all types of signal transmission in assembled state), NEMA 4 | | |
| Power consumption at 24 V DC | | | | |
| 2x 3/2-way valve | [W] | 1.3 | | |
| 5/2-way valve, 5/3-way valve | [W] | 1.6 | | |
| Power consumption at 110 V AC | | | | |
| 2x 3/2-way valve | [VA] | 1 | | |
| 5/2-way valve, 5/3-way valve | [VA] | 1.6 | | |

# Technical Data

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

| Materials | | | |
|---|---|---|---|
| | 18 mm | 26 mm | 42 mm |
| Manifold subbase | Die-cast aluminum | | |
| Valve | Die-cast aluminum, reinforced polyamide | | |
| Seals | Nitrile rubber, elastomer (support made of steel) | | |
| Supply plate | Die-cast aluminum | | |
| Right-hand end plate | Die-cast aluminum | | |
| Left-hand pneumatic interface | Die-cast aluminum | | |
| Flow control plate | Die-cast aluminum | | |
| Pressure regulator plate | Die-cast aluminum, reinforced polyamide | | |
| Multi-pin connection block | Die-cast aluminum | | |
| Cover for the pneumatic interface and multi-pin plug connection | Wellamid, reinforced polyamide | | |

| Product Weight [g] | | | |
|---|---|---|---|
| | 18 mm | 26 mm | 42 mm (type 44 only) |
| Sub-D multi-pin interface module or manifold strip[1)] | 550 | | |
| Interface module CPX[1)] | 1,470 | | |
| Supply plate[2)] | | | |
| • Exhaust plate with 3 and 5 common | 617 | | |
| • Exhaust port cover with 3 and 5 separated | 597 | | |
| Right-hand end plate[3)] | | | |
| • Axial | 339 | | |
| • Selector | 281 | | |
| Manifold subbase[4)] | 447 | 634 | 340 |
| 90° connection plate[3)] | 170 | 230 | 176 |
| Pressure regulator plate | | | |
| for port 1 | 350 | 402 | 640 |
| for port 4 or 2 | 367 | 448 | 640 |
| for ports 4/2 | 611 | 692 | 920 |
| Flow control plate | 228 | 320 | 220 |
| Vertical supply plate[3)] | 140 | 191 | 340 |
| Vertical shut-off plate | 209 | 273 | 600 |
| Valves | | | |
| • 5/3-way valve (code B, G, E) | 191 | 320 | 456 |
| • 5/2-way valve, single solenoid (code M, O) | 163 | 293 | 426 |
| • 5/2-way valve, double solenoid (code J, D) | 172 | 276 | 439 |
| • 2x 3/2-way valve (code N, K, H, P, Q, R) | 190 | 335 | 442 |
| Blanking plate | 34.4 | 73.3 | 68 |

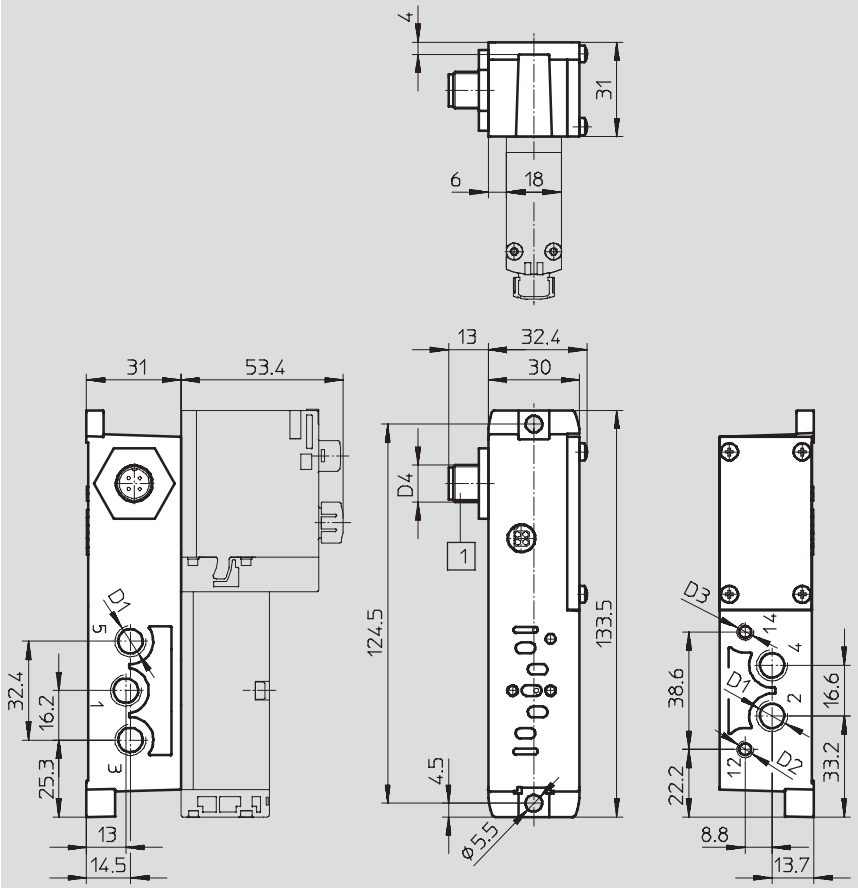
1) With thin metal seal, printed circuit board
2) With thin metal seal and electrical manifold module
3) With screws
4) With thin metal seal, electrical manifold module, inscription label holder, 4 screws

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with M12 plug, width 18 mm




1 Plug to EN 61076-2-101

| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply, M12 plug | | | | |
| VABS-S4-2S-G18-R3 | G1⁄8 | M5 | M5 | M12 |
| Internal pilot air supply, M12 plug | | | | |
| VABS-S4-2S-G18-B-R3 | G1⁄8 | M5 | – | M12 |

1) Dimensions are in millimeters, unless otherwise noted.

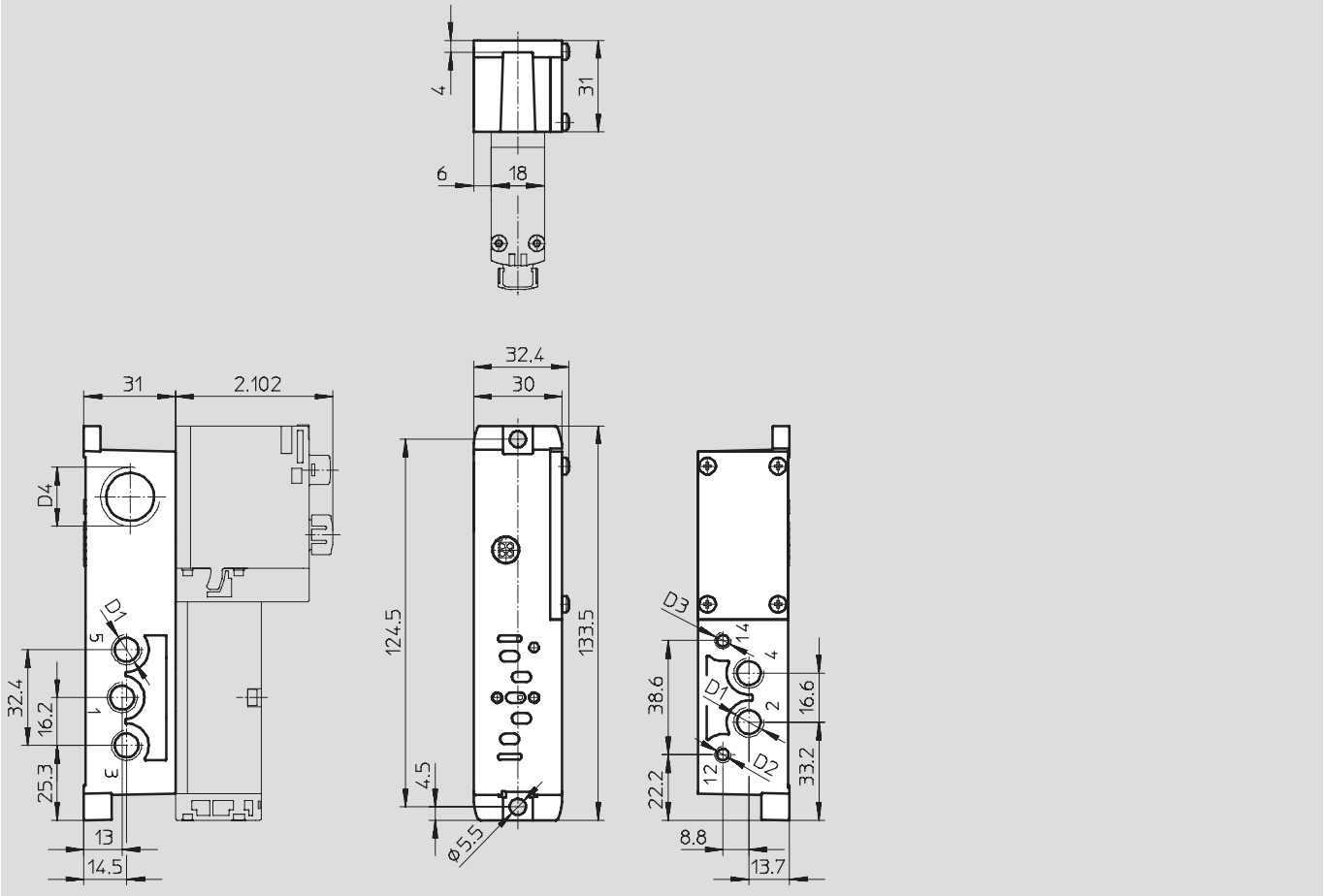
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions[1)]** Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with cable manifolds, width 18 mm




| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply, cable manifolds | | | | |
| VABS-S4-2S-G18-K2 | G1⁄8 | M5 | M5 | M20x1.5 |
| Internal pilot air supply, cable manifolds | | | | |
| VABS-S4-2S-G18-B-K2 | G1⁄8 | M5 | – | M20x1.5 |

1) Dimensions are in millimeters, unless otherwise noted.

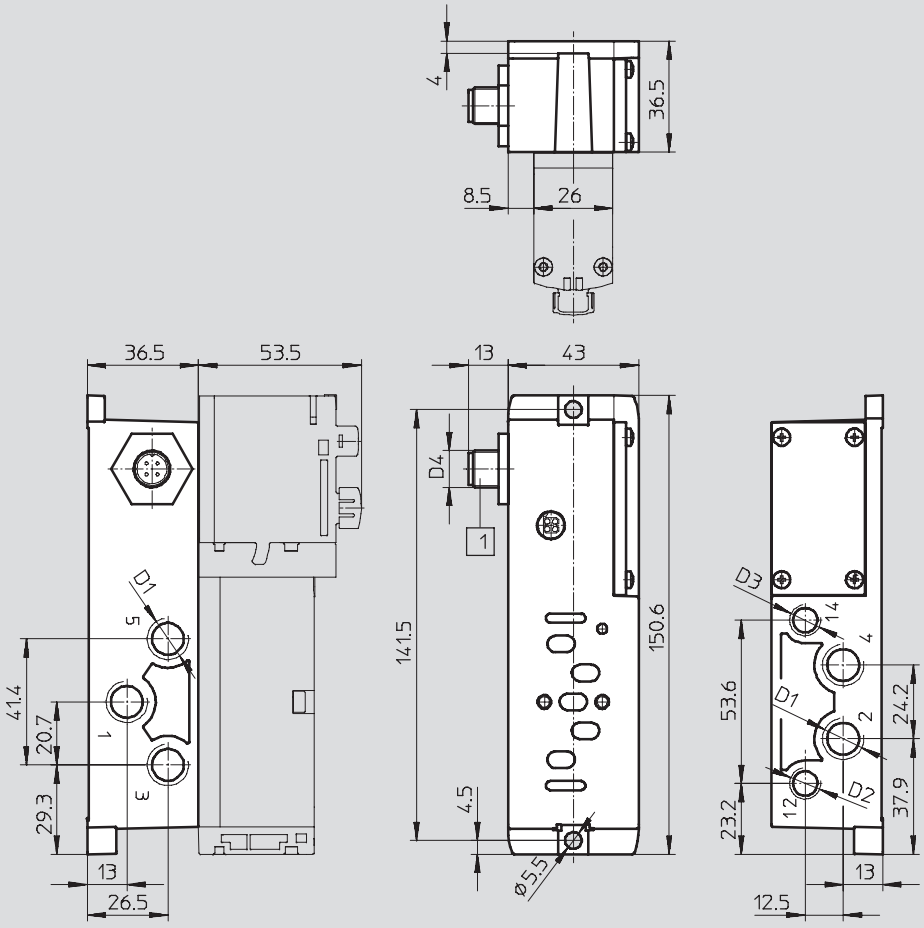
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with M12 plug, width 26 mm




1 Plug to EN 61076-2-101

| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply, M12 plug | | | | |
| VABS-S4-1S-G14-R3 | G¼ | G⅛ | G⅛ | M12 |
| Internal pilot air supply, M12 plug | | | | |
| VABS-S4-1S-G14-B-R3 | G¼ | G⅛ | – | M12 |

1) Dimensions are in millimeters, unless otherwise noted.

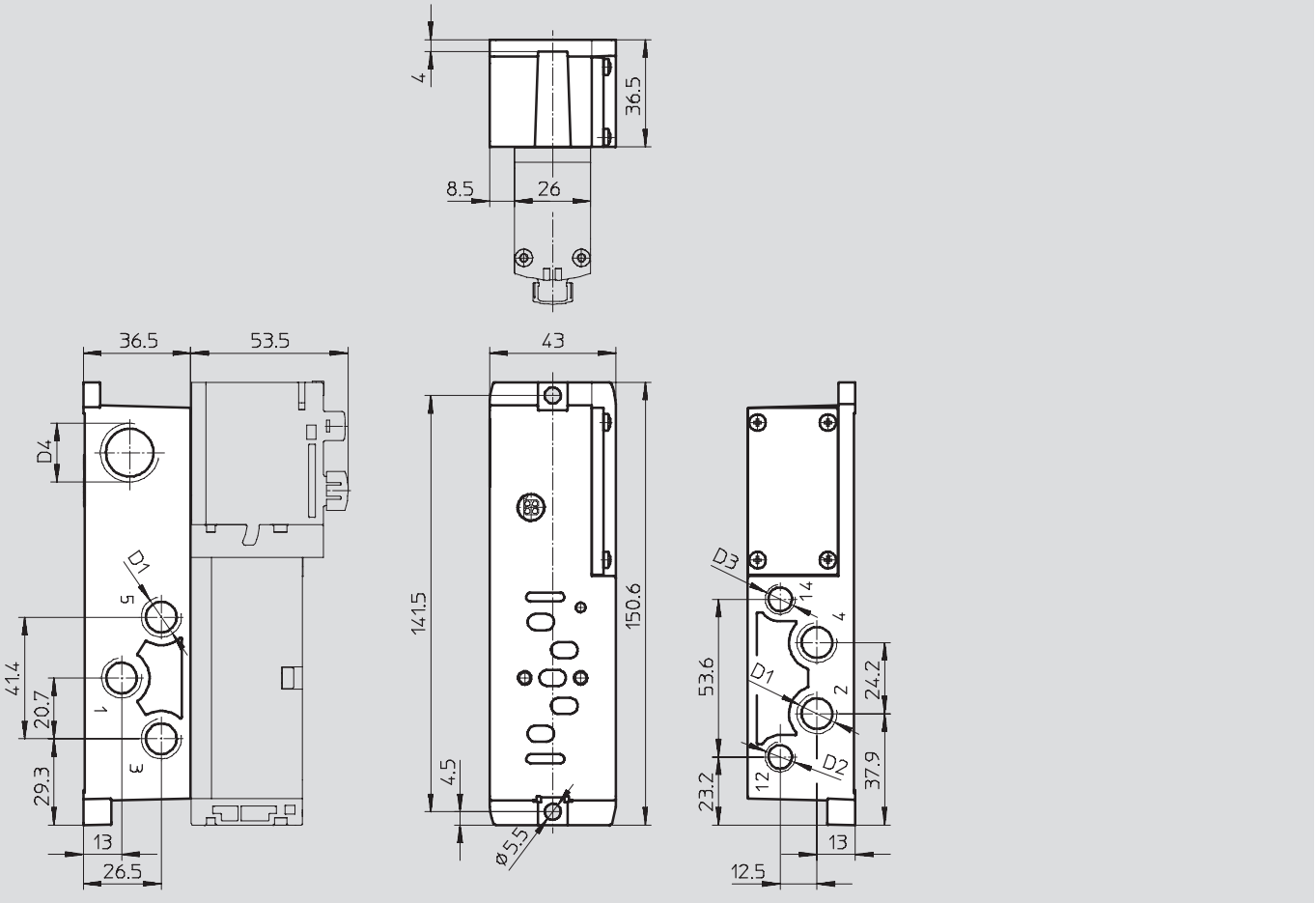
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions[1)]** Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with cable manifolds, width 26 mm




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

1) Dimensions are in millimeters, unless otherwise noted.

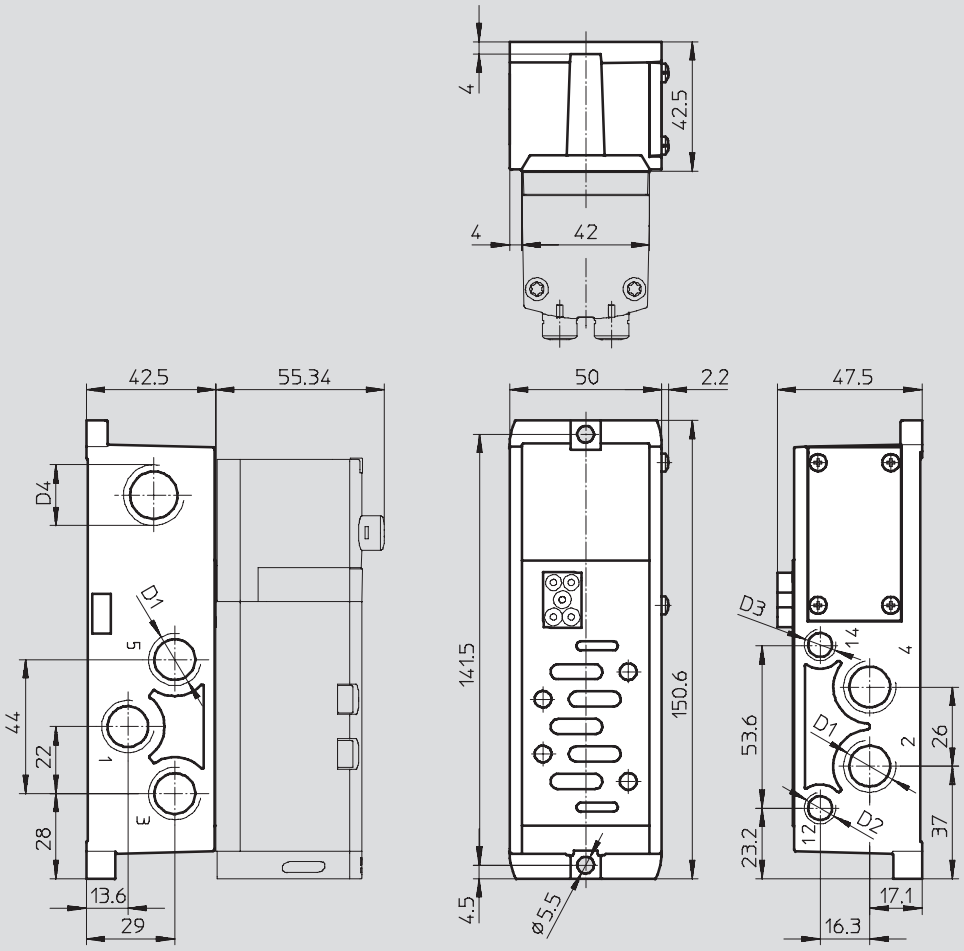
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with spring-loaded manifold (C1) or for self-assembly (K1), width 42 mm




| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply | | | | |
| VABS-S2-1S-G38-K1(C1) | G3⁄8 | G1⁄8 | G1⁄8 | M20x1.5 |
| Internal pilot air supply | | | | |
| VABS-S2-1S-G14-B-K1(C1) | G3⁄8 | G1⁄8 | – | M20x1.5 |

1) Dimensions are in millimeters, unless otherwise noted.

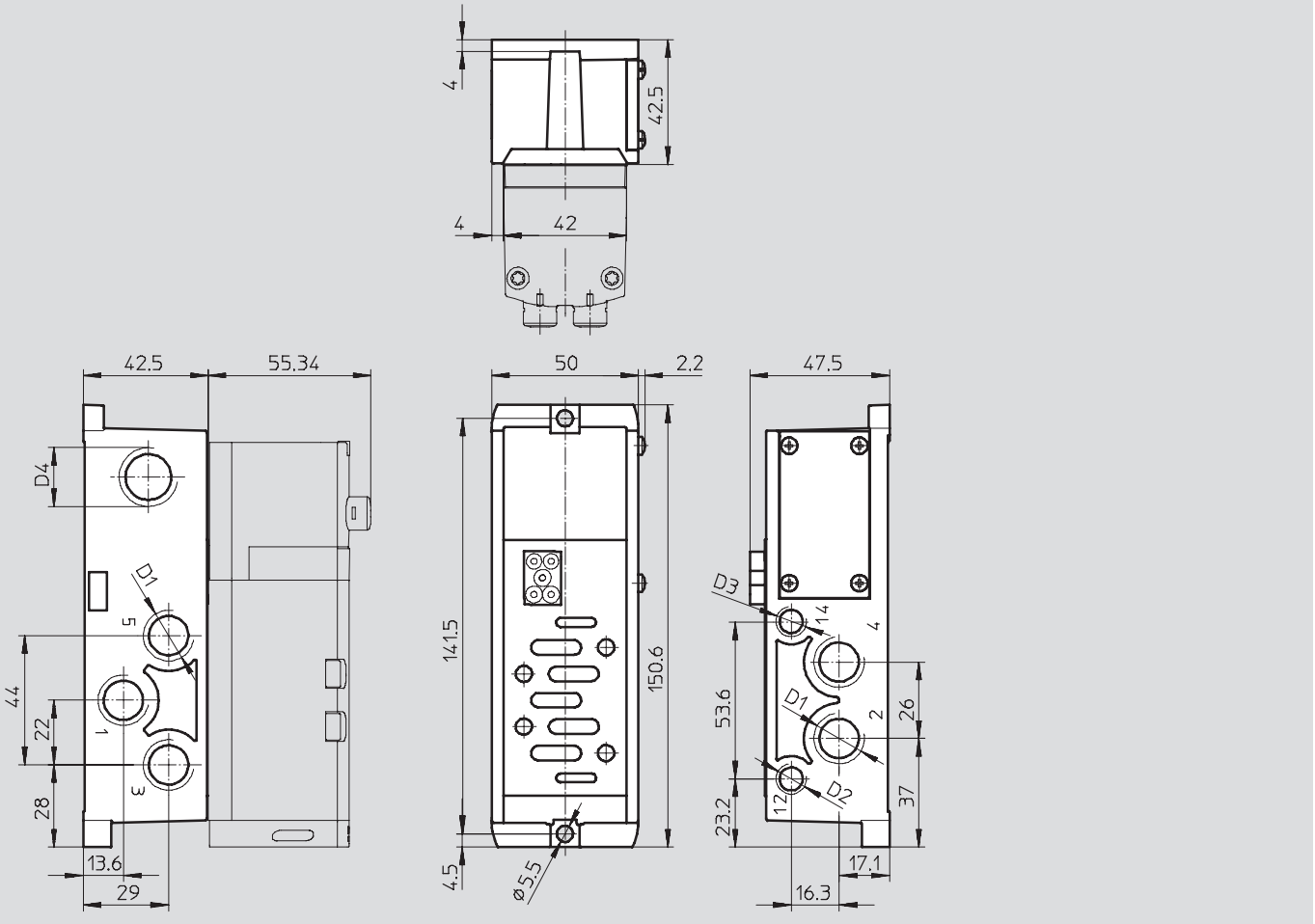
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions[1)]** Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with M12 plug, width 42 mm




| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply | | | | |
| VABS-S2-1S-G38-R3 | G3/8 | G1/8 | G1/8 | M20x1.5 |
| Internal pilot air supply | | | | |
| VABS-S2-1S-G14-B-R3 | G3/8 | G1/8 | – | M20x1.5 |

1) Dimensions are in millimeters, unless otherwise noted.

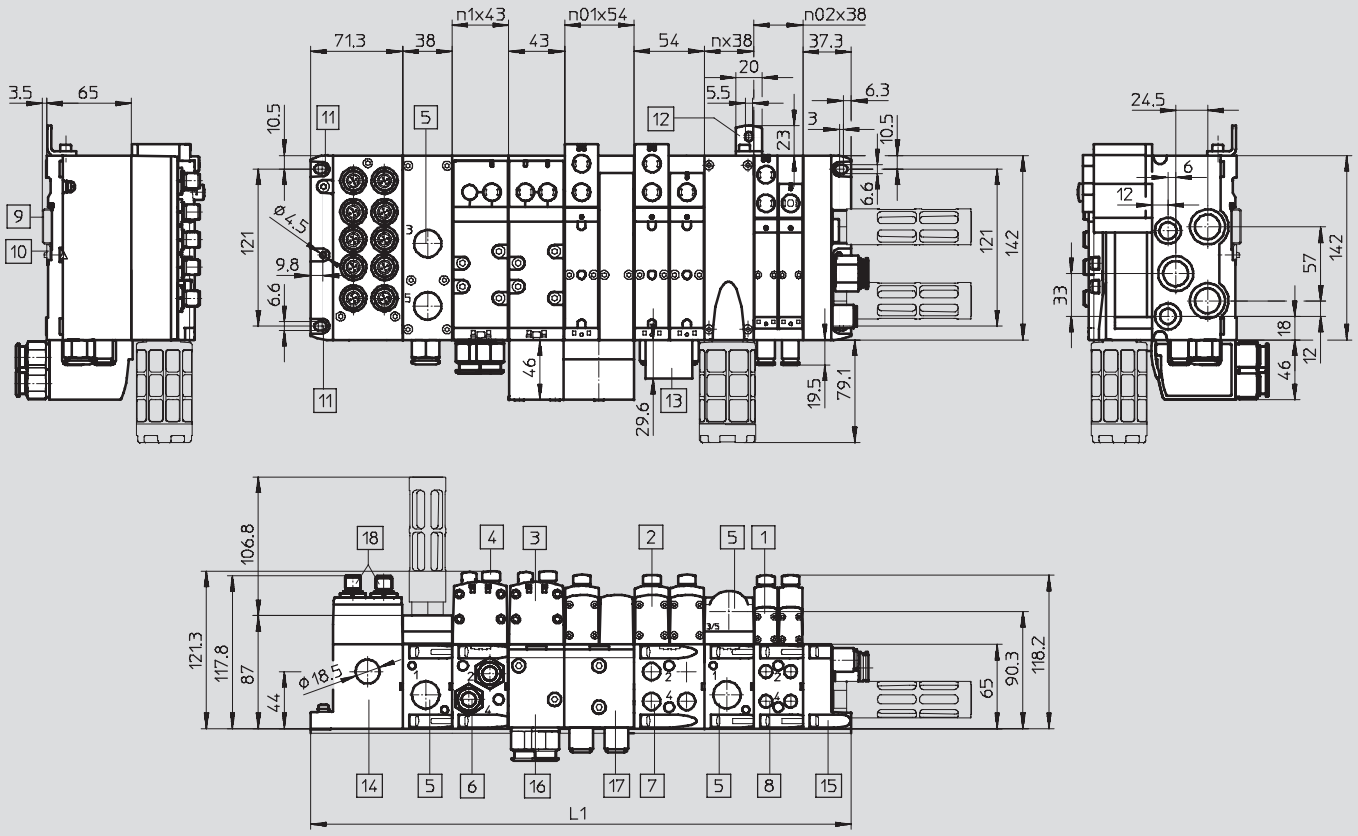
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with individual electrical connection




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

n02 Number of manifold subbases 18 mm
n01 Number of manifold subbases 26 mm
n1 Number of manifold subbases 42 mm
n Number of supply plates (only with end plate with pilot air selector)

| 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 |
| Mixture of 18 mm, 26 mm and 42 mm | 71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n x 38 + 37.3 |

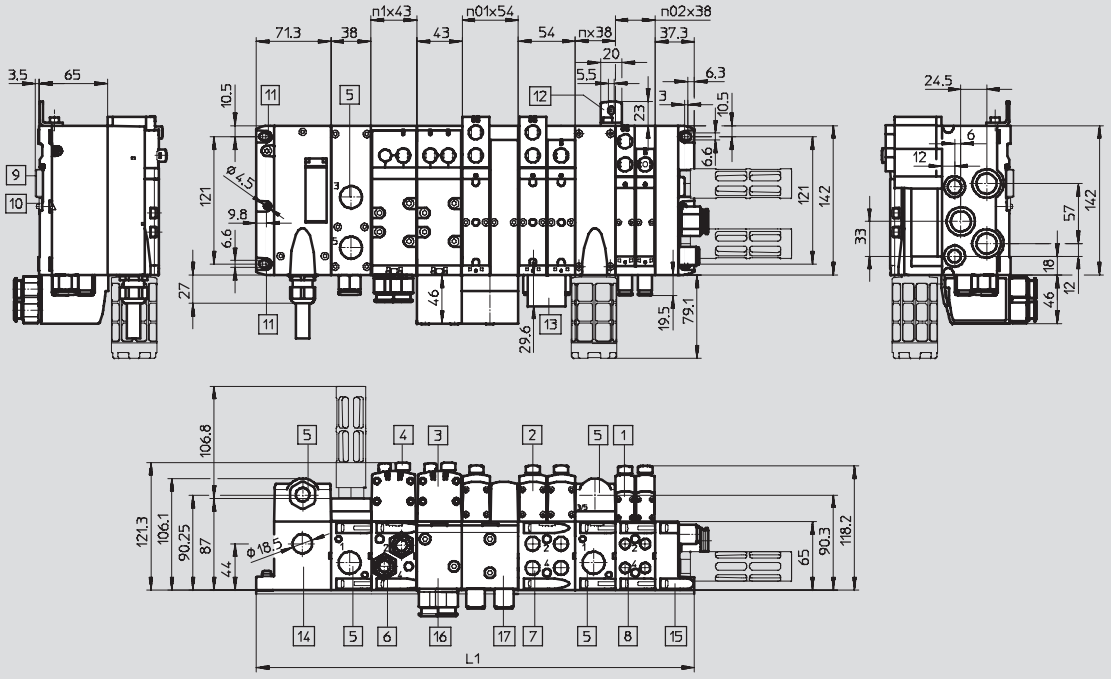
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with multi-pin plug connection

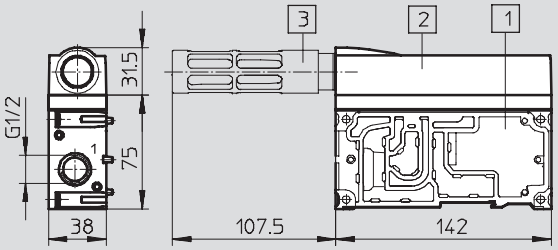



1 Solenoid valve 18 mm
2 Solenoid valve 26 mm
3 Solenoid valve 42 mm
4 Cover cap/manual override
5 Threaded connection G1/2
6 Threaded connection G3/8
7 Threaded connection G1/4
8 Threaded connection G1/8
9 DIN H-rail
10 DIN H-rail mounting kit
11 Mounting hole
12 Additional mounting bracket
13 Inscription label holder
14 Multi-pin plug connection
15 End plate
16 90° connection plate
width 42 mm, G3/8
17 90° connection plate
width 18 mm, G1/8
width 26 mm, G1/4

n02 Number of manifold subbases 18 mm
n01 Number of manifold subbases 26 mm
n1 Number of manifold subbases 42 mm
n Number of supply plates

| 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 |
| Mixture of 18 mm, 26 mm and 42 mm | 71.3 + n02 x 38 + n01 x 54 + n1 x 43 + n x 38 + 37.3 |

Supply plate with silencer




1 Supply plate
2 Exhaust port cover
3 Silencer U-½-B

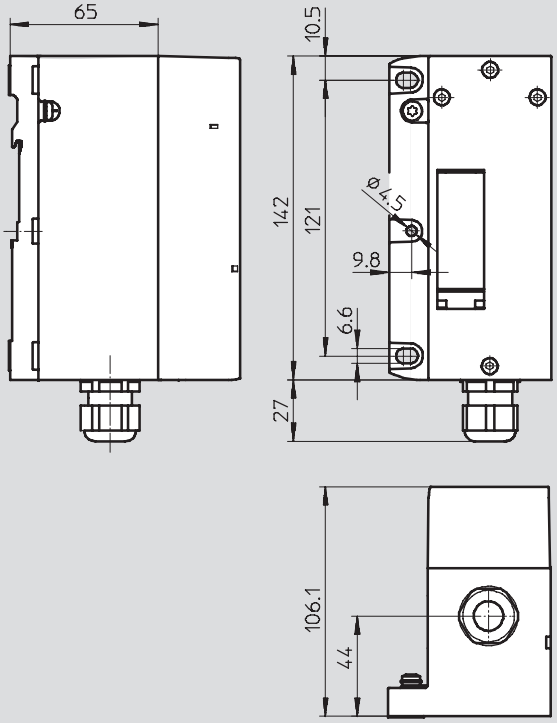
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Multi-pin, manifold strip (CageClamp)




1) Dimensions are in millimeters, unless otherwise noted.

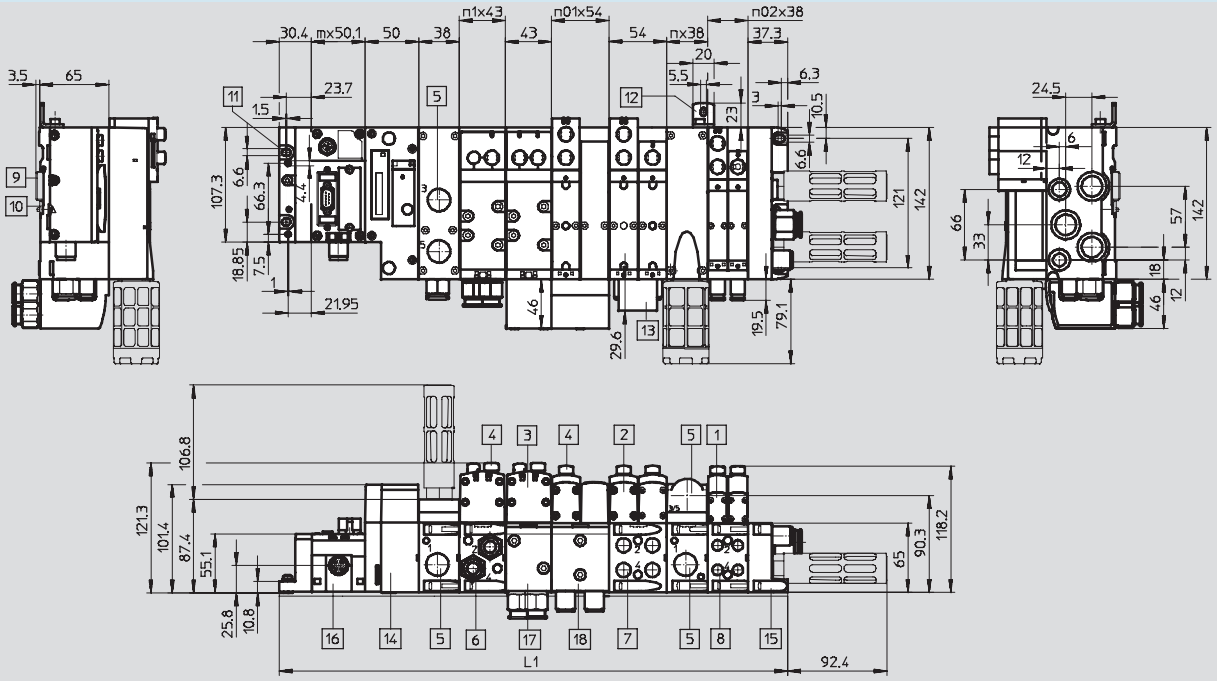
# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

FESTO

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with fieldbus connection

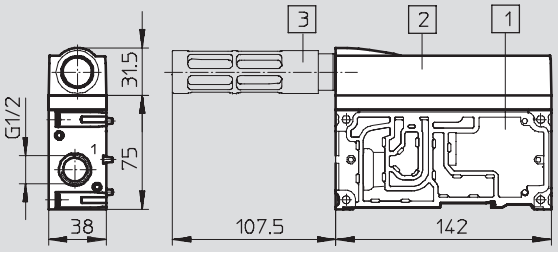



1 Solenoid valve 18 mm
2 Solenoid valve 26 mm
3 Solenoid valve 42 mm
4 Cover cap/manual override
5 Threaded connection G½
6 Threaded connection G⅜
7 Threaded connection G¼
8 Threaded connection G⅛
9 DIN H-rail
10 DIN H-rail mounting kit
11 Mounting hole
12 Additional mounting bracket
13 Inscription label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

n02 Number of manifold subbases 18 mm
n01 Number of manifold subbases 26 mm
n1 Number of manifold subbases 42 mm
n Number of supply plates (only with end plate with pilot air selector)
m Number of CPX modules

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

Supply plate with silencer




1 Supply plate
2 Exhaust port cover
3 Silencer U-½-B

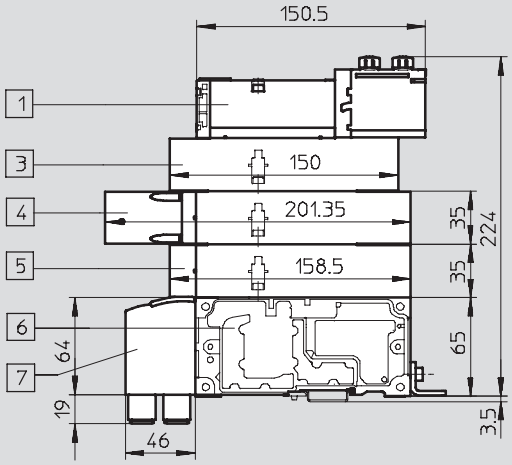
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

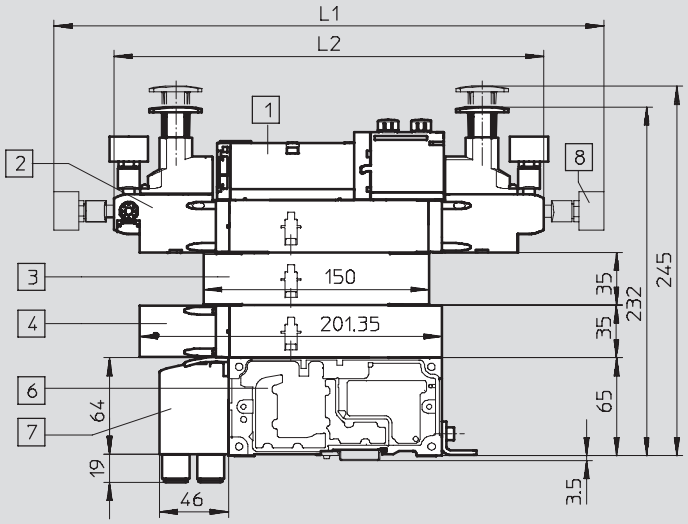
Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Vertical stacking components, width 18 mm




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




1 Solenoid valve
2 Pressure regulator plate
3 Flow control plate
4 Vertical shut-off plate
6 Manifold subbase
7 90° connection plate
8 Pressure gauge, freely positionable

| Width | L1 | L2 |
|---|---|---|
| 18 mm | 348.2 | 268.6 |
| 26 mm | 365.7 | 286.1 |

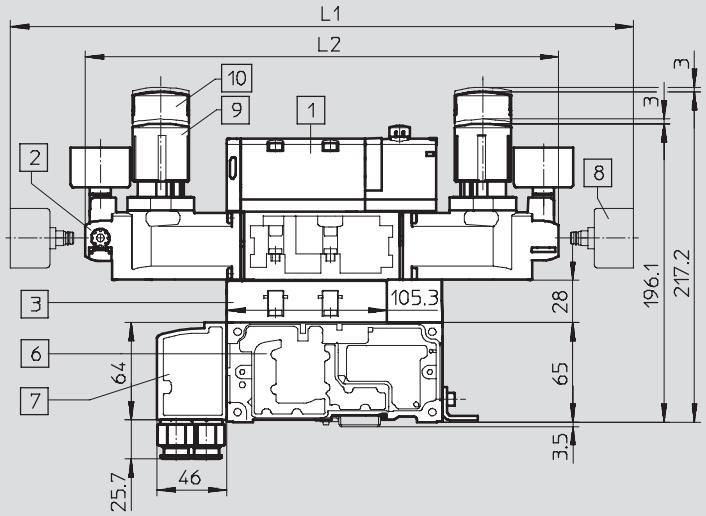
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions[1)]** Download CAD Data ➔ **www.festo.com/us/cad**

Vertical stacking components




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

| Width | L1 | L2 |
|---|---|---|
| 18 mm | 348.2 | 268.6 |
| 26 mm | 365.7 | 286.1 |
| 42 mm | 410.3 | 311.6 |

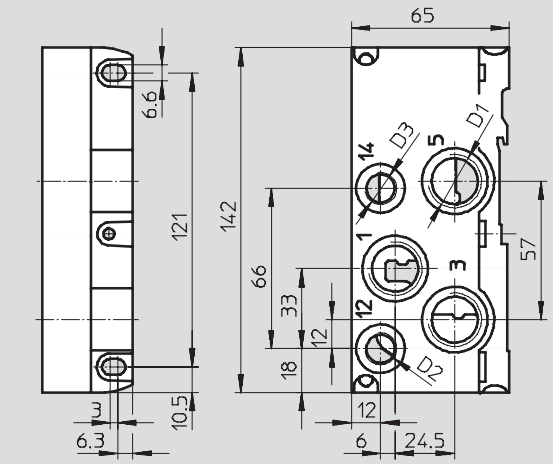
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

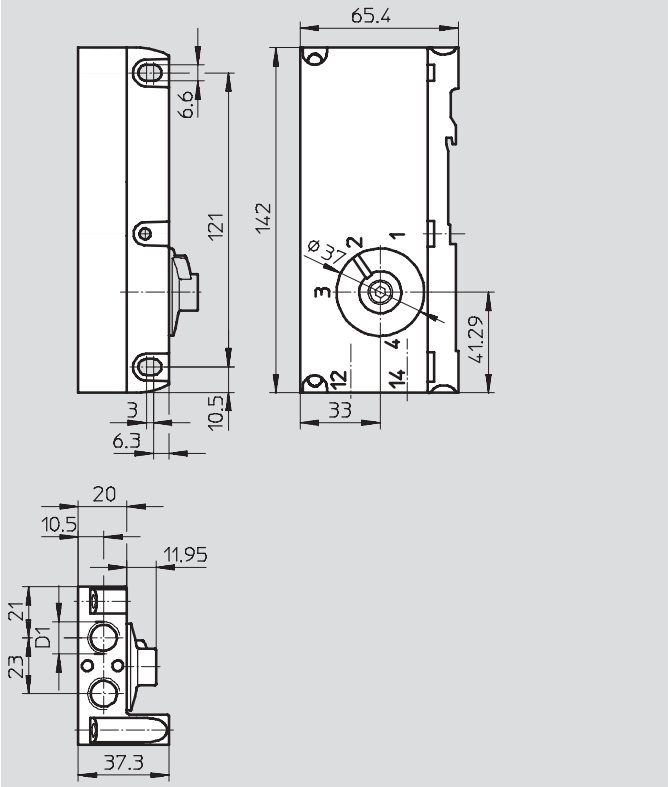
Valve Manifolds Type 44 VTSA – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Right-hand end plate




Right-hand end plate with pilot air selector




| Type | D1 | D2 | D3 |
|---|---|---|---|
| VABE-S6-1R-G12 | G½ | G¼ | G¼ |
| VABE-S6-1RZ-G12 | | | |

| Type | D1 |
|---|---|
| VABE-S6-1RZ-G-B1 | G¼ |

1) Dimensions are in millimeters, unless otherwise noted.

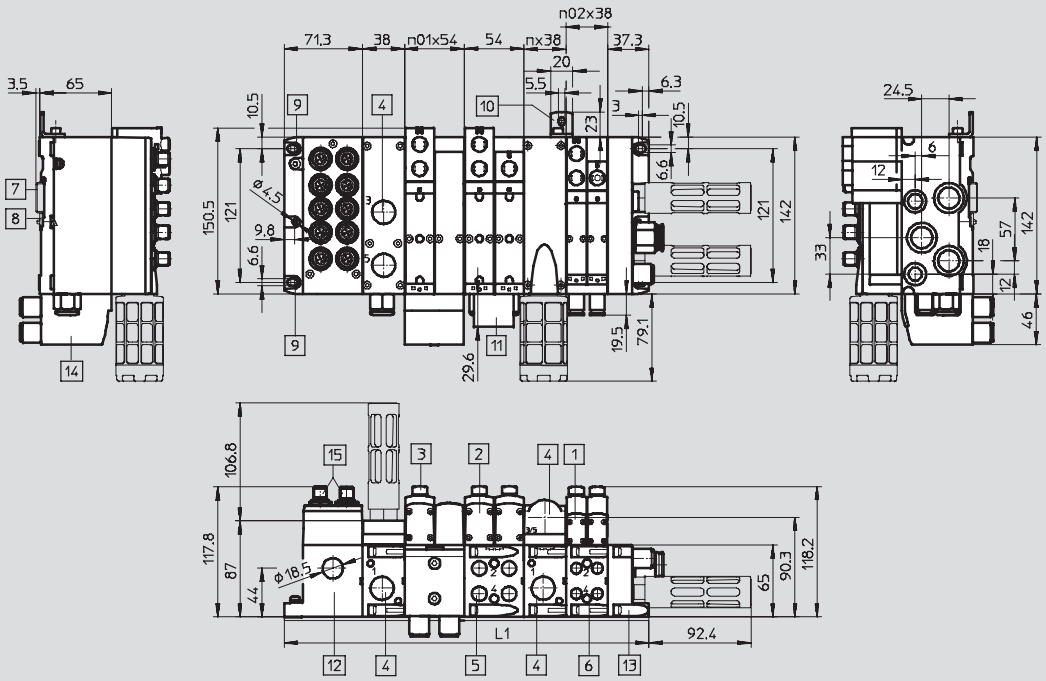
Note: This product conforms with the ISO 1179-1 standard and the ISO 228-1 standard.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with individual electrical connection




1 Solenoid valve 18 mm
2 Solenoid valve 26 mm
3 Cover cap/manual override
4 Threaded connection G1/2
5 Threaded connection G1/4
6 Threaded connection G1/8
7 DIN H-rail
8 DIN H-rail mounting kit
9 Mounting hole
10 Additional mounting bracket
11 Inscription label holder
12 Individual connection
13 End plate
14 90° connection plate
15 M12 plug, 5-pin (6-way or 10-way)

n02 Number of manifold subbases 18 mm
n01 Number of manifold subbases 26 mm
n Number of supply plates

| 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 |
| Mixture of 18 mm and 26 mm | 71.3 + n02 x 38 + n01 x 54 + n x 38 + 37.3 |

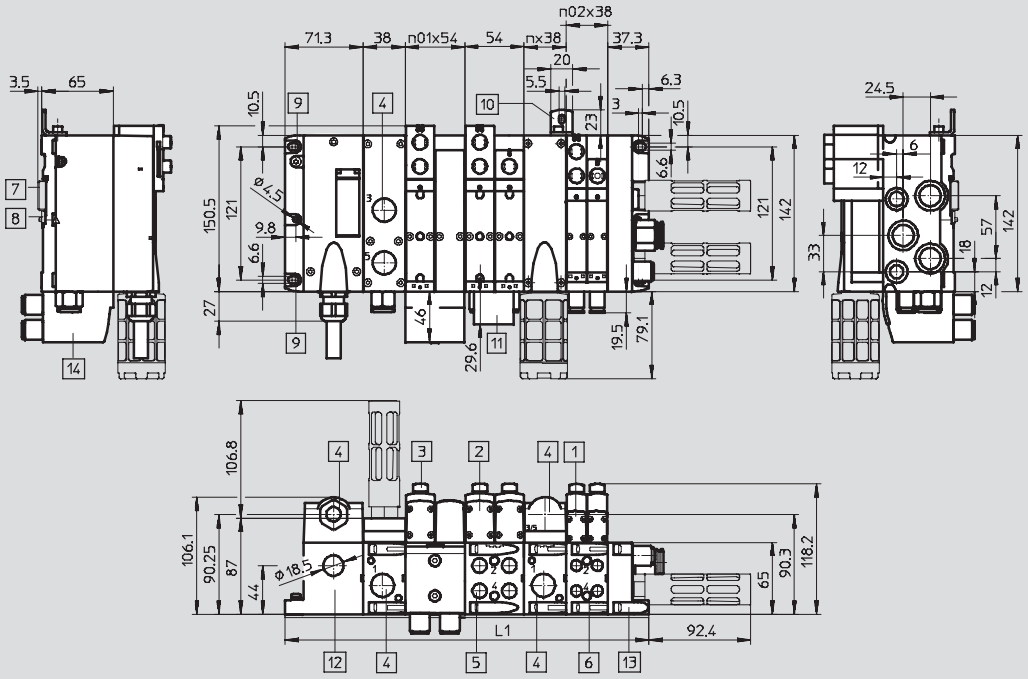
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with multi-pin plug connection

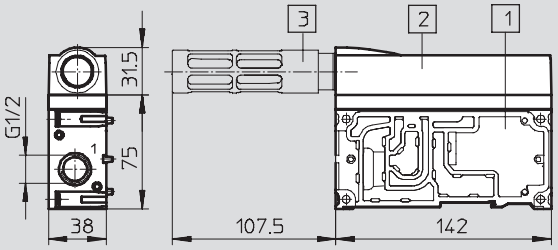



1 Solenoid valve 18 mm
2 Solenoid valve 26 mm
3 Cover cap/manual override
4 Threaded connection G1/2
5 Threaded connection G1/4
6 Threaded connection G1/8
7 DIN H-rail
8 DIN H-rail mounting kit
9 Mounting hole
10 Additional mounting bracket
11 Inscription label holder
12 Multi-pin plug connection
13 End plate
14 90° connection plate

n02 Number of manifold subbases 18 mm
n01 Number of manifold subbases 26 mm
n Number of supply plates

| 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 |
| Mixture of 18 mm and 26 mm | 71.3 + n02 x 38 + n01 x 54 + n x 38 + 37.3 |

Supply plate with silencer




1 Supply plate
2 Exhaust port cover
3 Silencer U-1/2-B

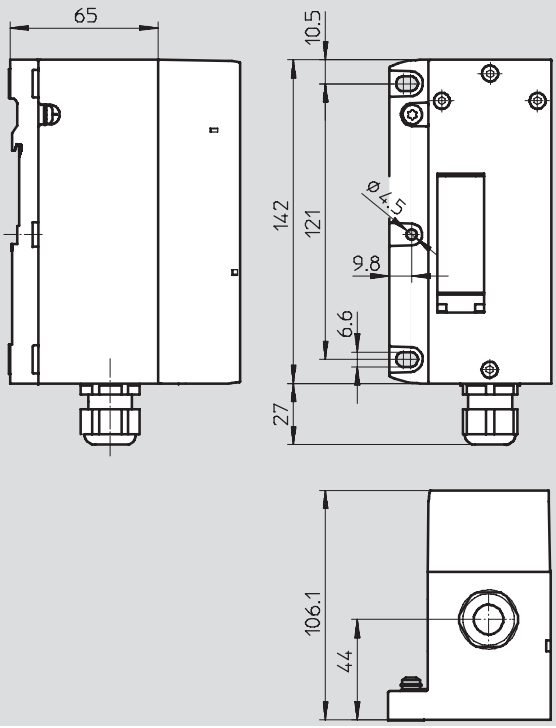
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Multi-pin, manifold strip (CageClamp)



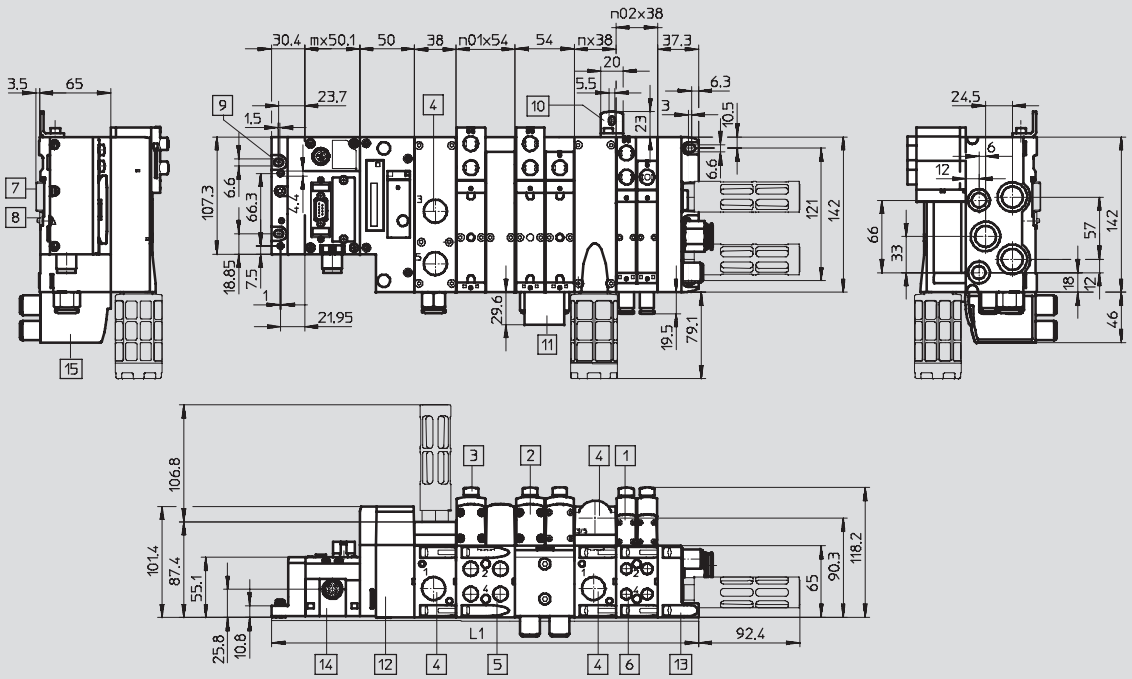

1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with fieldbus connection

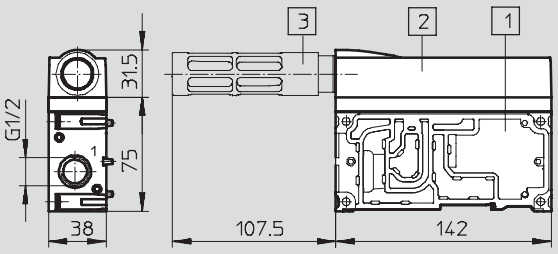



1 Solenoid valve 18 mm
2 Solenoid valve 26 mm
3 Cover cap/manual override
4 Threaded connection G1/2
5 Threaded connection G1/4
6 Threaded connection G1/8
7 DIN H-rail
8 DIN H-rail mounting kit
9 Mounting hole
10 Additional mounting bracket
11 Inscription label holder
12 Pneumatic interface CPX
13 End plate
14 CPX module/fieldbus node
15 90° connection plate
width 18 mm, G1/8
width 26 mm, G1/4

n02 Number of manifold subbases 18 mm
n01 Number of manifold subbases 26 mm
n Number of supply plates
m Number of CPX modules

| Width | L1 |
|---|---|
| 18 mm | 30.4 + m x 50.1 + 50 + n02 x 38 + n x 38 + 37.3 |
| 26 mm | 30.4 + m x 50.1 + 50 + n01 x 54 + n x 38 + 37.3 |
| Mixture of 18 mm and 26 mm | 30.4 + m x 50.1 + 50 + n02 x 38 + n01 x 54 + n x 38 + 37.3 |

Supply plate with silencer




1 Supply plate
2 Exhaust port cover
3 Silencer U-1/2-B

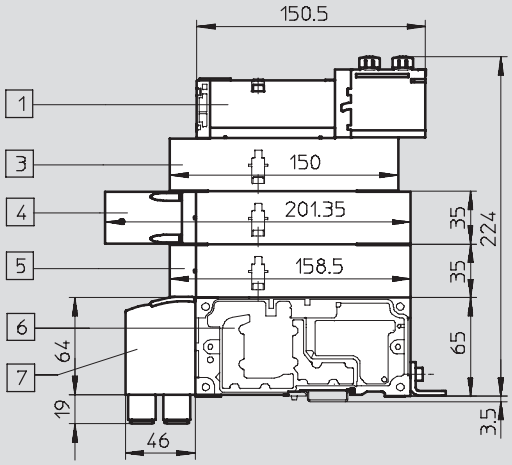
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

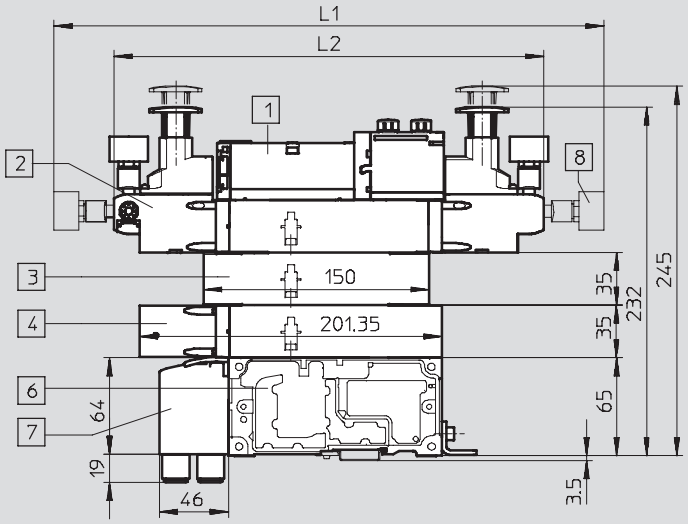
Valve Manifolds Type 45 VTSA-F – Metric Series

**Dimensions[1)]** Download CAD Data ➔ **www.festo.com/us/cad**

Vertical stacking components, width 18 mm




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




1 Solenoid valve
2 Pressure regulator plate
3 Flow control plate
4 Vertical shut-off plate
6 Manifold subbase
7 90° connection plate
8 Pressure gauge, freely positionable

| Width | L1 | L2 |
|---|---|---|
| 18 mm | 348.2 | 268.6 |
| 26 mm | 365.7 | 286.1 |

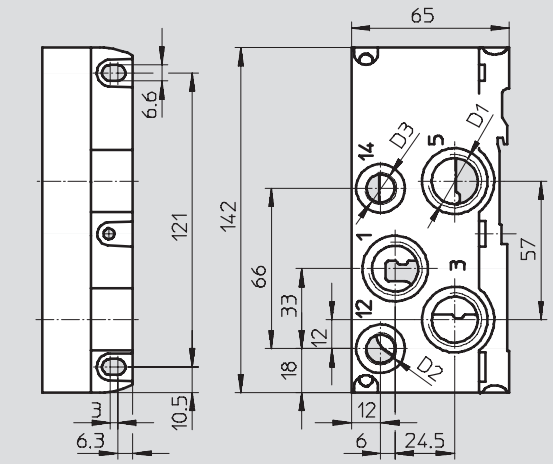
1) Dimensions are in millimeters, unless otherwise noted.

# Dimensional Drawings

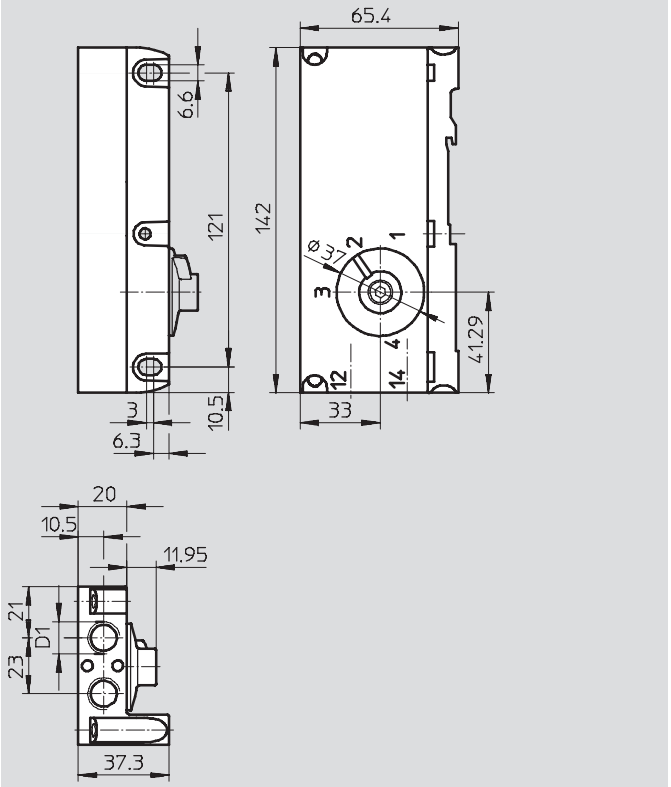
Valve Manifolds Type 45 VTSA-F – Metric Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Right-hand end plate




Right-hand end plate with pilot air selector




| Type | D1 | D2 | D3 |
|---|---|---|---|
| VABE-S6-1R-G12 | G½ | G¼ | G¼ |
| VABE-S6-1RZ-G12 | | | |

| Type | D1 |
|---|---|
| VABE-S6-1RZ-G-B1 | G¼ |

1) Dimensions are in millimeters, unless otherwise noted.

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

# Online Product Configurator

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

**Configuring VTSA Valve Manifolds**

Available via our online catalog at ➔ www.festo.com/catalog/vtsa

A product configurator is available to help you configure a VTSA valve manifold that best fits your needs.

The valve manifolds are fully assembled according to your order specifications and are individually tested. This reduces the amount of assembly and installation time required to a minimum.

Valve terminals are ordered using an order code.

Ordering data for type 44
➔ 71
Ordering data for type 45
➔ 81

Ordering data for CPX
➔ www.festo.com/catalog/cpx

The illustration provides an example of a valve manifold configuration.

**The following steps give a brief explanation of how to use the on-line Festo product configurator to determine an order code**

From the Festo Industrial Automation home page www.festo.com/usa select the “Catalog” link from the “Products” menu at the top of the page; this will bring you directly to the home page for the Pneumatic Catalog.
From this location you may now use the search box, located above the Product Tree on the left hand side of the page, to perform a text based search for your product. Valid search criteria are “Part No.’s” (e.g. 539215, 547963, etc.), “Type” (e.g. VTSA, Type 44/45), or “Article Type” (e.g. valve manifold).
You may also visually navigate the catalog by using the product tree on the left or the product images off to the right.

Once you’ve located the style of VTSA (type 44 or 45, NPT or ISO, etc.) you want, click on the blue shopping basket icon (this does not initiate an order). Confirm the quantity required in the pop-up window and click Ok.
You must now view your shopping basket to configure your manifold; click on the “Basket” link on the far-right side of the page and then on the configuration symbol. You can then configure the valve terminal step by step (from the top down) according to your requirements.

If you already have a complete order code, you may easily input it using the “Insert” button (upper right). The first order code (beginning with 44E or 45E) will specify your electrical configuration and options. The second part of the order code (beginning with 44P or 45P) will specify your pneumatic configuration and options.

As you make selections the product configurator will assist you by showing you various indicators along the way. Incompatible selections are indicated by a red box with an X in it. Incomplete “required” selections are indicated by a light green box. Incomplete “optional” selections are indicated by an empty box. Completed selections are indicated by a light blue box with a check mark in it.

Once you have selected all required components, look for the “Configuration Complete” indicator in the upper-right corner of the page. Press the “Complete” button to add the configured manifold to your basket for on-line order. On-line order is not required; you may also copy down your order code for future reference or phone/fax order.

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for Multi-pin Plug – Electrical Part

FESTO

| M Mandatory Data | | | | | O Options | | |
|---|---|---|---|---|---|---|---|
| **Module No.** | **Valve manifold, electrical part** | **Electrical connection** | **Voltage** | | **Connecting cable for multi-pin plug connection** | **User's manual** | **DIN H-rail mounting** |
| 539215 | 44E | T, MP1, MP2, MP3 | P, Q | | GA, GB, GC, GD, GE, GF, GG, GH ,GI, GK, GL, GM, GN, GO, GP, GQ, GR, GS | D, E, F, I, S, V | H |
| **Order example** | | | | | | | |
| **539215** | **44E** | **MP1** | **P** | | **GE** | **D** | |
| 1 | 2 | 3 | 4 | | 5 | 6 | 7 |

**Ordering Table**

| | | | | | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | | **539215** | | | | |
| | 2 | Valve manifold, electrical part | | Valve manifold type 44, VTSA, electrical multi-pin plug connection/manifold box | | **44E** | | |
| | 3 | Electrical connection | | Multi-pin plug, CageClamp | 1 | **-T** | | |
| | | | | Electrical multi-pin plug connection, Sub-D (37-pin) | 1 | **-MP1** | | |
| | | | | Electrical multi-pin plug connection, individual connection with M12, 6-way | 2 | **-MP2** | | |
| | | | | Electrical multi-pin plug connection, individual connection with M12, 10-way | 3 | **-MP3** | | |
| | 4 | Voltage | | 24 V DC | | **-P** | | |
| | | | | 110 V AC | 5 | **-Q** | | |
| O | 5 | **Electrical accessories** | | | | **+** | | + |
| | | Connecting cable for multi-pin plug connection, pre-assembled, supplied loose | Polyurethane | Connecting cable for Sub-D, 2.5 m, 10-core, 8 solenoid coils | 6 | **GA** | | |
| | | | | Connecting cable for Sub-D, 5 m, 10-core, 8 solenoid coils | 6 | **GB** | | |
| | | | | Connecting cable for Sub-D, 10 m, 10-core, 8 solenoid coils | 6 | **GC** | | |
| | | | | Connecting cable for Sub-D, 2.5 m, 26-core, 22 solenoid coils | 6 | **GD** | | |
| | | | | Connecting cable for Sub-D, 5 m, 26-core, 22 solenoid coils | 6 | **GE** | | |
| | | | | Connecting cable for Sub-D, 10 m, 26-core, 22 solenoid coils | 6 | **GF** | | |
| | | | | Connecting cable for Sub-D, 2.5 m, 37-core, 32 solenoid coils | 6 | **GG** | | |
| | | | | Connecting cable for Sub-D, 5 m, 37-core, 32 solenoid coils | 6 | **GH** | | |
| | | | | Connecting cable for Sub-D, 10 m, 37-core, 32 solenoid coils | 6 | **GI** | | |
| | | | Polyvinyl chloride | Connecting cable for Sub-D, 2.5 m, 10-core, 8 solenoid coils | 6 | **GK** | | |
| | | | | Connecting cable for Sub-D, 5 m, 10-core, 8 solenoid coils | 6 | **GL** | | |
| | | | | Connecting cable for Sub-D, 10 m, 10-core, 8 solenoid coils | 6 | **GM** | | |
| | | | | Connecting cable for Sub-D, 2.5 m, 27-core, 22 solenoid coils | 6 | **GN** | | |
| | | | | Connecting cable for Sub-D, 5 m, 27-core, 22 solenoid coils | 6 | **GO** | | |
| | | | | Connecting cable for Sub-D, 10 m, 27-core, 22 solenoid coils | 6 | **GP** | | |
| | | | | Connecting cable for Sub-D, 2.5 m, 37-core, 32 solenoid coils | 6 | **GQ** | | |
| | | | | Connecting cable for Sub-D, 5 m, 37-core, 32 solenoid coils | 6 | **GR** | | |
| | | | | Connecting cable for Sub-D, 10 m, 37-core, 32 solenoid coils | 6 | **GS** | | |
| | 6 | User's manual | | German | | **-D** | | |
| | | | | English | | **-E** | | |
| | | | | French | | **-F** | | |
| | | | | Italian | | **-I** | | |
| | | | | Spanish | | **-S** | | |
| | | | | Swedish | | **-V** | | |
| | 7 | DIN H-rail mounting | | 1 | | **-H** | | |

1 **T, MP1** Max. 32 addresses can be selected
2 **MP2** Max. 12 addresses can be selected
3 **MP3** Max. 20 addresses can be selected
5 **Q** Only with electrical connection (3) T (multi-pin plug, CageClamp)
6 **G...** Not with electrical connection (3) T, MP2, MP3 and MP4

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

| M Mandatory Data | | | | | O Options | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|
| Module No. | Valve manifold, pneumatic part | | Manual override | Right-hand end plate | Port configuration for supply plates | Pneumatic supply to valve manifold | Configuration of all pneumatic connections | Outgoing direction of all working lines | Left-hand supply plate | Reverse operation |
| 539215 | 44P | | N, R, V | V, X, Y, U, Z, W | K, L | S, V | M, N, G | P | X | Z |
| Order example | | | | | | | | | | |
| 539215 | 44P | – | R | – V | – K | S | M | P | X | |
| 1 | 2 | | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**Ordering Table**

| Width | | | 18 mm | 26 mm | 42 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **539215** | **539215** | **539215** | | | | |
| | 2 | Valve manifold, pneumatic part | Valve manifold type 44, VTSA, modular subbase valves to ISO 15407-2, pneumatic connections with G thread | | | | **44P** | | |
| | 3 | Manual override | Pushing (non-detenting) | | | | **-N** | | |
| | | | Pushing/detenting | | | | **-R** | | |
| | | | Covered | | | | **-V** | | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | | **-V** | | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | | **-X** | | |
| | | | End plate with pilot air selector, internal pilot air supply | | | 1 | **-Y** | | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | | 1 | **-U** | | |
| | | | End plate with pilot air selector, external pilot air supply | | | 1 | **-Z** | | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | | 1 | **-W** | | |
| O | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | | 2 | **-K** | | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | | 2 | **-L** | | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | | **S** | | |
| | | | QS push-in fittings | | | | **V** | | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | | 3 | **M** | | |
| | | | QS push-in fittings, small | | | 3 | **N** | | |
| | | | QS push-in fittings, large and small mixed | | | 3 | **G** | | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | | **P** | | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | | **X** | | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | | 4 | **Z** | | |

1 **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

2 **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

3 **M, N, G** Must be selected if pneumatic valve manifold supply (6) S or V was selected

4 **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic manifold subbases 00 … 15**

**11 Type of interlinking block:** A, B, C, E, F, G, AK, BK, CK, EK, FK, GK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **A** | **B** | **B** | **B S** | **B** | | | | | | | | | | | |
| | **11 + 12 + 13** | | | | | | | | | | | | | | | |

**Ordering Table**

| Width | | | 18 mm | 26 mm | 42 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ | **11** | Pneumatic manifold subbases | | | | 5 | - | | - |
| 0 | | Type of interlinking block 00 … 15 — Manifold subbase | 2 valve positions, 4 addresses | – | – | | **A** | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | – | | **B** | | |
| | | | – | – | 1 valve position, 2 addresses | | **C** | | |
| | | | 2 valve positions, 2 addresses | – | – | 6 | **E** | | |
| | | | – | 2 valve positions, 2 addresses | – | 6 | **F** | | |
| | | | – | – | 1 valve position, 1 address | 6 | **G** | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | – | 7 | **AK** | | |
| | | | – | 2 valve positions, 4 addresses | – | 7 | **BK** | | |
| | | | – | – | 1 valve position, 2 addresses | 7 | **CK** | | |
| | | | 2 valve positions, 2 addresses | – | – | 8 | **EK** | | |
| | | | – | 2 valve positions, 2 addresses | – | 8 | **FK** | | |
| | | | – | – | 1 valve position, 1 address | 8 | **GK** | | |
| | **12** | Compressed air supply/duct separation 00 … 15 | Duct separation 1, 3, 5 | | | 9 10 | **S** | | |
| | | | Duct separation 1 | | | 9 10 | **T** | | |
| | | | Duct separation 3, 5 | | | 9 10 | **R** | | |
| | | | Supply plate | | | | **U** | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | | 9 | **SU** | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | | 9 | **US** | | |
| | | | Supply plate with duct separation 1 at left | | | 9 | **TU** | | |
| | | | Supply plate with duct separation 1 at right | | | 9 | **UT** | | |
| | | | Supply plate with duct separation 3, 5 at left | | | 9 | **RU** | | |
| | | | Supply plate with duct separation 3, 5 at right | | | 9 | **UR** | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | | **USU** | | |
| | | | 2 supply plates with duct separation 1 in centre | | | | **UTU** | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | | **URU** | | |
| ↓ | **13** | Reverse operation 00 … 15 | Subsequent valve positions permitted for reverse operation | | | 11 | **Z** | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F, G** Only with valves (14) M, O and L

7 **AK, BK, CK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK, GK** Only with configuration of all pneumatic connections (7) N or G. Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR** No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU. A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

**19 Vertical supply plate for position 00 ... 31:** ZU

| Valve position | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering Table**

| Width | | | 18 mm | 26 mm | 42 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ | **14** | Pneumatic valve positions 00 ... 31 | | | | | **-** | | - |
| 0 | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | | 12 | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | | 12 | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | | 12 | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | | 13 | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | | 13 | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | | 13 | **R** | | |
| | | | Vacant position | | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 10 bar | Pressure regulator plate for port 1 | | 14 | **ZA** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZB** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZC** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZD** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZE** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZK** | | |
| | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZL** | | |
| | | | Input pressure 6 bar | Pressure regulator plate for port 1 | | 14 | **ZF** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZG** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZH** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZI** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZJ** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZM** | | |
| ↓ | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZN** | | |

12 **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

13 **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

14 **ZA, ZF** Not permitted in zones with reverse operation

15 **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

| | | |
|---|---|---|
| ➔ 0 | **Options** | |
| | **Pneumatic accessories** | |
| | U, ...B, ...T, ...N, ...V | |
| + | **10N** | |
| | **20** | |

**Ordering table**

| | | Width | 18 mm | 26 mm | 42 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ 0 | **16** | Pressure indicator for valve position 00 ... 31 | Pressure gauge, 10 bar | | | 16 | **T** | | Enter equipment **selection** for valve positions in **order code** |
| | | | Pressure gauge, 6 bar | | | 17 | **U** | | |
| | **17** | Flow control valve for valve position 00 ... 31 | Flow control plate | | | 18 | **X** | | |
| | **18** | Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | | 19 | **ZT** | | |
| | **19** | Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | | 18 | **ZU** | | |
| | **20** | **Pneumatic accessories** | | | | | **+** | | + |
| | | Mounting brackets (pack of 5) | Supplied separately | | | 20 | **U** | | |
| | | Inscription label holder for valves | 5 ... 50 | | | | **...B** | | |
| | | Inscription label holder for manifold subbases | 5 ... 50 | | | | **...T** | | |
| | | Cover cap for manual override, pushing | 10 ... 90 | | | | **...N** | | |
| | | Cover cap for manual override, covered | 10 ... 90 | | | | **...V** | | |

16 **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

17 **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

18 **X, ZU** Not with valves with reverse operation (14) P, Q, R

19 **ZT** Not with right-hand end plate (4) Y, Z

20 **U** Can only be selected if there are more than 9 valve positions

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for CPX – Pneumatic Part

FESTO

| M Mandatory Data | | | | O Options → | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Module No.** | **Valve manifold, pneumatic part** | **Manual override** | **Right-hand end plate** | **Port configuration for supply plates** | **Pneumatic supply to valve manifold** | **Configuration of all pneumatic connections** | **Outgoing direction of all working lines** | **Left-hand supply plate** | **Reverse operation** |
| 539217 | 44P | N, R, V | V, X, Y, U, Z, W | K, L | S, V | M, N, G | P | X | Z |
| **Order example** | | | | | | | | | |
| **539217** | **44P** | **R** | **V** | **K** | **S** | **M** | **P** | **X** | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |

**Ordering Table**

| Width | | | 18 mm | 26 mm | 42 mm | Conditions | Code | Enter code |
|---|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **539217** | **539217** | **539217** | | | |
| | 2 | Valve manifold, pneumatic part | Valve manifold type 44, VTSA, modular subbase valves to ISO 15407-2, pneumatic connections with G thread | | | | **44P** | |
| | 3 | Manual override | Pushing (non-detenting) | | | | **-N** | |
| | | | Pushing/detenting | | | | **-R** | |
| | | | Covered | | | | **-V** | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | | **-V** | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | | **-X** | |
| | | | End plate with pilot air selector, internal pilot air supply | | | 1 | **-Y** | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | | 1 | **-U** | |
| | | | End plate with pilot air selector, external pilot air supply | | | 1 | **-Z** | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | | 1 | **-W** | |
| O | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | | 2 | **-K** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | | 2 | **-L** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | | **S** | |
| | | | QS push-in fittings | | | | **V** | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | | 3 | **M** | |
| | | | QS push-in fittings, small | | | 3 | **N** | |
| | | | QS push-in fittings, large and small mixed | | | 3 | **G** | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | | **P** | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | | **X** | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | | 4 | **Z** | |

1 **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

2 **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

3 **M, N, G** Must be selected if pneumatic valve manifold supply (6) S or V was selected

4 **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for CPX – Pneumatic Part

FESTO

**→ 0 Options →**

**Pneumatic manifold subbases 00 ... 15**

**11 Type of interlinking block:** A, B, C, E, F, G, AK, BK, CK, EK, FK, GK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **A** | **B** | **B** | **B S** | **B** | | | | | | | | | | | |
| | **11 + 12 + 13** | | | | | | | | | | | | | | | |

**Ordering Table**

| Width | | | 18 mm | 26 mm | 42 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ | **11** | Pneumatic manifold subbases | | | | 5 | - | | - |
| 0 | | Type of interlinking block 00 ... 15 — Manifold subbase | 2 valve positions, 4 addresses | – | – | | **A** | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | – | | **B** | | |
| | | | – | – | 1 valve position, 2 addresses | | **C** | | |
| | | | 2 valve positions, 2 addresses | – | – | 6 | **E** | | |
| | | | – | 2 valve positions, 2 addresses | – | 6 | **F** | | |
| | | | – | – | 1 valve position, 1 address | 6 | **G** | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | – | 7 | **AK** | | |
| | | | – | 2 valve positions, 4 addresses | – | 7 | **BK** | | |
| | | | – | – | 1 valve position, 2 addresses | 7 | **CK** | | |
| | | | 2 valve positions, 2 addresses | – | – | 8 | **EK** | | |
| | | | – | 2 valve positions, 2 addresses | – | 8 | **FK** | | |
| | | | – | – | 1 valve position, 1 address | 8 | **GK** | | |
| | **12** | Compressed air supply/duct separation 00 ... 15 | Duct separation 1, 3, 5 | | | 9 10 | **S** | | |
| | | | Duct separation 1 | | | 9 10 | **T** | | |
| | | | Duct separation 3, 5 | | | 9 10 | **R** | | |
| | | | Supply plate | | | | **U** | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | | 9 | **SU** | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | | 9 | **US** | | |
| | | | Supply plate with duct separation 1 at left | | | 9 | **TU** | | |
| | | | Supply plate with duct separation 1 at right | | | 9 | **UT** | | |
| | | | Supply plate with duct separation 3, 5 at left | | | 9 | **RU** | | |
| | | | Supply plate with duct separation 3, 5 at right | | | 9 | **UR** | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | | **USU** | | |
| | | | 2 supply plates with duct separation 1 in centre | | | | **UTU** | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | | **URU** | | |
| ↓ | **13** | Reverse operation 00 ... 15 | Subsequent valve positions permitted for reverse operation | | | 11 | **Z** | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F, G** Only with valves (14) M, O and L

7 **AK, BK, CK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK, GK** Only with configuration of all pneumatic connections (7) N or G. Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR** No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU. A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for CPX – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

**19 Vertical supply plate for position 00 ... 31:** ZU

| Valve position | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering Table**

| Width | | | 18 mm | 26 mm | 42 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ | **14** | Pneumatic valve positions 00 ... 31 | | | | | **-** | | - |
| 0 | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | | 12 | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | | 12 | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | | 12 | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | | 13 | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | | 13 | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | | 13 | **R** | | |
| | | | Vacant position | | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 10 bar | Pressure regulator plate for port 1 | | 14 | **ZA** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZB** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZC** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZD** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZE** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZK** | | |
| | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZL** | | |
| | | | Input pressure 6 bar | Pressure regulator plate for port 1 | | 14 | **ZF** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZG** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZH** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZI** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZJ** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZM** | | |
| ↓ | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZN** | | |

12 **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

13 **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

14 **ZA, ZF** Not permitted in zones with reverse operation.

15 **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread for CPX – Pneumatic Part

FESTO

➔ 0 **Options**

| | |
|---|---|
| | **Pneumatic accessories** |
| | U, ...B, ...T, ...N, ...V |
| + | **10N** |
| | **20** |

**Ordering Table**

| Width | | | 18 mm | 26 mm | 42 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ 0 | **16** | Pressure indicator for valve position 00 ... 31 | Pressure gauge, 10 bar | | | 16 | **T** | | Enter equipment **selection** for valve positions in **order code** |
| | | | Pressure gauge, 6 bar | | | 17 | **U** | | |
| | **17** | Flow control valve for valve position 00 ... 31 | Flow control plate | | | 18 | **X** | | |
| | **18** | Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | | 19 | **ZT** | | |
| | **19** | Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | | 18 | **ZU** | | |
| | **20** | **Pneumatic accessories** | | | | | **+** | | + |
| | | Mounting brackets (pack of 5) | Supplied separately | | | 20 | **U** | | |
| | | Inscription label holder for valves | 5 ... 50 | | | | **...B** | | |
| | | Inscription label holder for manifold subbases | 5 ... 50 | | | | **...T** | | |
| | | Cover cap for manual override, pushing | 10 ... 90 | | | | **...N** | | |
| | | Cover cap for manual override, covered | 10 ... 90 | | | | **...V** | | |

16 **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

17 **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

18 **X, ZU** Not with valves with reverse operation (14) P, Q, R

19 **ZT** Not with right-hand end plate (4) Y, Z

20 **U** Can only be selected if there are more than 9 valve positions. Cannot be combined with DIN H-rail

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, G Thread – Pneumatic Part

| Sizes of Pneumatic Connections | | | | | | |
|---|---|---|---|---|---|---|
| | | Code | Duct | Width | | |
| | | | | 18 mm | 26 mm | 42 mm – size 1 |
| **7** | | Configuration of all pneumatic connections | | | | |
| **4** | Right-hand end plate<br>V, X, Y, U, Z, W | **M** | 12, 14 | G¼ (QS-G¼-10) | G¼ (QS-G¼-10) | G¼ (QS-G¼-10) |
| | | **G** | 12, 14 | G¼ (QS-G¼-10) | G¼ (QS-G¼-10) | G¼ (QS-G¼-10) |
| | | **N** | 12, 14 | G¼ (QS-G¼-8) | G¼ (QS-G¼-8) | G¼ (QS-G¼-8) |
| **4** | Right-hand end plate<br>V, X, U | **M** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **G** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **N** | 1, 3, 5 | G½ (QS-G½-12) | G½ (QS-G½-12) | G½ (QS-G½-12) |
| **9** | Left-hand supply plate<br>X | **M** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **G** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **N** | 1, 3, 5 | G½ (QS-G½-12) | G½ (QS-G½-12) | G½ (QS-G½-12) |
| **11** | Type of interlinking block<br>Large<br>A, B, C, E, F, G | **M** | 2, 4 | G⅛ (QS-G⅛-8) | G¼ (QS-G¼-10) | G⅜ (QS-G⅜-12) |
| **11** | Type of interlinking block<br>Small<br>AK, BK, CK, EK, FK, GK | **N** | 2, 4 | G⅛ (QS-G⅛-6) | G¼ (QS-G¼-8) | G⅜ (QS-G⅜-10) |

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for Multi-pin Plug – Electrical Part

FESTO

| M Mandatory Data | | | | O Options | | |
|---|---|---|---|---|---|---|
| **Module No.** | **Valve manifold, electrical part** | **Electrical connection** | **Voltage** | **Connecting cable for multi-pin plug connection** | **User's manual** | **DIN H-rail mounting** |
| 547963 | 45E | T, MP1, MP2, MP3, MP4 | P, Q | GA, GB, GC, GD, GE, GF, GG, GH ,GI, GK, GL, GM, GN, GO, GP, GQ, GR, GS | D, E, F, I, S, V | H |
| **Order example** | | | | | | |
| **547963** | **45E** | **MP1** | **P** | **GE** | **D** | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** |

**Ordering Table**

| | | | | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **547963** | | | | |
| | 2 | Valve manifold, electrical part | Valve manifold type 45, VTSA-F, electrical multi-pin plug connection/manifold box | | **45E** | | |
| | 3 | Electrical connection | Multi-pin plug, CageClamp | 1 | **-T** | | |
| | | | Electrical multi-pin plug connection, Sub-D (37-pin) | 1 | **-MP1** | | |
| | | | Electrical multi-pin plug connection, individual connection with M12, 6-way | 2 | **-MP2** | | |
| | | | Electrical multi-pin plug connection, individual connection with M12, 10-way | 3 | **-MP3** | | |
| | | | Electrical multi-pin plug connection, round plug connector (19-pin), M23 | 4 | **-MP4** | | |
| | 4 | Voltage | 24 V DC | | **-P** | | |
| | | | 110 V AC | 5 | **-Q** | | |
| O | 5 | **Electrical accessories** | | | **+** | | + |
| | | Connecting cable for multi-pin plug connection, pre-assembled, supplied loose – Polyurethane | Connecting cable for Sub-D, 2.5 m, 10-core, 8 solenoid coils | 6 | **GA** | | |
| | | | Connecting cable for Sub-D, 5 m, 10-core, 8 solenoid coils | 6 | **GB** | | |
| | | | Connecting cable for Sub-D, 10 m, 10-core, 8 solenoid coils | 6 | **GC** | | |
| | | | Connecting cable for Sub-D, 2.5 m, 26-core, 22 solenoid coils | 6 | **GD** | | |
| | | | Connecting cable for Sub-D, 5 m, 26-core, 22 solenoid coils | 6 | **GE** | | |
| | | | Connecting cable for Sub-D, 10 m, 26-core, 22 solenoid coils | 6 | **GF** | | |
| | | | Connecting cable for Sub-D, 2.5 m, 37-core, 32 solenoid coils | 6 | **GG** | | |
| | | | Connecting cable for Sub-D, 5 m, 37-core, 32 solenoid coils | 6 | **GH** | | |
| | | | Connecting cable for Sub-D, 10 m, 37-core, 32 solenoid coils | 6 | **GI** | | |
| | | Polyvinyl chloride | Connecting cable for Sub-D, 2.5 m, 10-core, 8 solenoid coils | 6 | **GK** | | |
| | | | Connecting cable for Sub-D, 5 m, 10-core, 8 solenoid coils | 6 | **GL** | | |
| | | | Connecting cable for Sub-D, 10 m, 10-core, 8 solenoid coils | 6 | **GM** | | |
| | | | Connecting cable for Sub-D, 2.5 m, 27-core, 22 solenoid coils | 6 | **GN** | | |
| | | | Connecting cable for Sub-D, 5 m, 27-core, 22 solenoid coils | 6 | **GO** | | |
| | | | Connecting cable for Sub-D, 10 m, 27-core, 22 solenoid coils | 6 | **GP** | | |
| | | | Connecting cable for Sub-D, 2.5 m, 37-core, 32 solenoid coils | 6 | **GQ** | | |
| | | | Connecting cable for Sub-D, 5 m, 37-core, 32 solenoid coils | 6 | **GR** | | |
| | | | Connecting cable for Sub-D, 10 m, 37-core, 32 solenoid coils | 6 | **GS** | | |
| | 6 | User's manual | German | | **-D** | | |
| | | | English | | **-E** | | |
| | | | French | | **-F** | | |
| | | | Italian | | **-I** | | |
| | | | Spanish | | **-S** | | |
| | | | Swedish | | **-V** | | |
| | 7 | DIN H-rail mounting | 1 | | **-H** | | |

1 **T, MP1** Max. 32 addresses can be selected
2 **MP2** Max. 12 addresses can be selected
3 **MP3** Max. 20 addresses can be selected
4 **MP4** Max. 16 addresses can be selected
5 **Q** Only with electrical connection (3) T (multi-pin plug, CageClamp)
6 **G...** Not with electrical connection (3) T, MP2, MP3 and MP4

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

| M Mandatory Data | | | | O Options | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Module No. | Valve manifold, pneumatic part | Manual override | Right-hand end plate | Port configuration for supply plates | Pneumatic supply to valve manifold | Configuration of all pneumatic connections | Outgoing direction of all working lines | Left-hand supply plate | Reverse operation |
| 547963 | 45P | N, R, V | V, X, Y, U, Z, W | K, L | S, V | M, N, G | P | X | Z |
| Order example | | | | | | | | | |
| 547963 | 45P | – R | – V | – K | S | M | P | X | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**Ordering Table**

| | | Width | 18 mm | 26 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **547963** | **547963** | | | | |
| | 2 | Valve manifold, pneumatic part | Valve manifold type 45, VTSA-F, modular subbase valves, optimized for flow rate, pneumatic connections with G thread | | | **45P** | | |
| | 3 | Manual override | Pushing (non-detenting) | | | **-N** | | |
| | | | Pushing/detenting | | | **-R** | | |
| | | | Covered | | | **-V** | | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | **-V** | | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | **-X** | | |
| | | | End plate with pilot air selector, internal pilot air supply | | 1 | **-Y** | | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | 1 | **-U** | | |
| | | | End plate with pilot air selector, external pilot air supply | | 1 | **-Z** | | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | 1 | **-W** | | |
| O | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | 2 | **-K** | | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | 2 | **-L** | | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | **S** | | |
| | | | QS push-in fittings | | | **V** | | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | 3 | **M** | | |
| | | | QS push-in fittings, small | | 3 | **N** | | |
| | | | QS push-in fittings, large and small mixed | | 3 | **G** | | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | **P** | | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | **X** | | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | 4 | **Z** | | |

1 **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

2 **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

3 **M, N, G** Must be selected if pneumatic valve manifold supply (6) S or V was selected

4 **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

**→ 0 Options →**

**Pneumatic manifold subbases 00 ... 15**

**11 Type of interlinking block:** A, B, E, F, AK, BK, EK, FK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **A** | **B** | **B** | **B S** | **B** | | | | | | | | | | | |

**11 + 12 + 13**

**Ordering Table**

| Width | | | 18 mm | 26 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ | **11** | Pneumatic manifold subbases | | | 5 | **-** | | - |
| 0 | | Type of interlinking block 00 ... 15 – Manifold subbase | 2 valve positions, 4 addresses | – | | **A** | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | | **B** | | |
| | | | 2 valve positions, 2 addresses | – | 6 | **E** | | |
| | | | – | 2 valve positions, 2 addresses | 6 | **F** | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | 7 | **AK** | | |
| | | | – | 2 valve positions, 4 addresses | 7 | **BK** | | |
| | | | 2 valve positions, 2 addresses | – | 8 | **EK** | | |
| | | | – | 2 valve positions, 2 addresses | 8 | **FK** | | |
| | **12** | Compressed air supply/duct separation 00 ... 15 | Duct separation 1, 3, 5 | | 9 10 | **S** | | |
| | | | Duct separation 1 | | 9 10 | **T** | | |
| | | | Duct separation 3, 5 | | 9 10 | **R** | | |
| | | | Supply plate | | | **U** | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | 9 | **SU** | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | 9 | **US** | | |
| | | | Supply plate with duct separation 1 at left | | 9 | **TU** | | |
| | | | Supply plate with duct separation 1 at right | | 9 | **UT** | | |
| | | | Supply plate with duct separation 3, 5 at left | | 9 | **RU** | | |
| | | | Supply plate with duct separation 3, 5 at right | | 9 | **UR** | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | **USU** | | |
| | | | 2 supply plates with duct separation 1 in centre | | | **UTU** | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | **URU** | | |
| ↓ | **13** | Reverse operation 00 ... 15 | Subsequent valve positions permitted for reverse operation | | 11 | **Z** | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F** Only with valves (14) M, O and L

7 **AK, BK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK** Only with configuration of all pneumatic connections (7) N or G
Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR**
No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU.
A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

→ [0] **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

Valve position **19 Vertical supply plate for position 00 ... 31:** ZU

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering Table**

| Width | | | 18 mm | 26 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ | **14** | Pneumatic valve positions 00 ... 31 | | | | **-** | | - |
| [0] | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | [12] | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | [12] | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | [12] | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | [13] | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | [13] | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | [13] | **R** | | |
| | | | Vacant position | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 10 bar: Pressure regulator plate for port 1 | | [14] | **ZA** | | |
| | | | Pressure regulator plate for port 4 | | | **ZB** | | |
| | | | Pressure regulator plate for port 2 | | | **ZC** | | |
| | | | Pressure regulator plate for port 4/2 | | | **ZD** | | |
| | | | Pressure regulator plate for port 4/2, reversible | | [15] | **ZE** | | |
| | | | Pressure regulator plate for port 4, reversible | | [15] | **ZK** | | |
| | | | Pressure regulator plate for port 2, reversible | | [15] | **ZL** | | |
| | | | Input pressure 6 bar: Pressure regulator plate for port 1 | | [14] | **ZF** | | |
| | | | Pressure regulator plate for port 4 | | | **ZG** | | |
| | | | Pressure regulator plate for port 2 | | | **ZH** | | |
| | | | Pressure regulator plate for port 4/2 | | | **ZI** | | |
| | | | Pressure regulator plate for port 4/2, reversible | | [15] | **ZJ** | | |
| | | | Pressure regulator plate for port 4, reversible | | [15] | **ZM** | | |
| ↓ | | | Pressure regulator plate for port 2, reversible | | [15] | **ZN** | | |

[12] **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

[13] **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

[14] **ZA, ZF** Not permitted in zones with reverse operation

[15] **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for Multi-pin Plug – Pneumatic Part

FESTO

| | | |
|---|---|---|
| ➔ 0 | **Options** | |
| | **Pneumatic accessories** | |
| | U, ...B, ...T, ...N, ...V | |
| + | **10N** | |
| | **20** | |

**Ordering Table**

| Width | | 18 mm | 26 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|
| ↓ 0 | **16** Pressure indicator for valve position 00 ... 31 | Pressure gauge, 10 bar | | 16 | **T** | | Enter equipment **selection** for valve positions in **order code** |
| | | Pressure gauge, 6 bar | | 17 | **U** | | |
| | **17** Flow control valve for valve position 00 ... 31 | Flow control plate | | 18 | **X** | | |
| | **18** Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | 19 | **ZT** | | |
| | **19** Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | 18 | **ZU** | | |
| | **20** **Pneumatic accessories** | | | | **+** | | + |
| | Mounting brackets (pack of 5) | Supplied separately | | 20 | **U** | | |
| | Inscription label holder for valves | 5 ... 50 | | | **...B** | | |
| | Inscription label holder for manifold subbases | 5 ... 50 | | | **...T** | | |
| | Cover cap for manual override, pushing | 10 ... 90 | | | **...N** | | |
| | Cover cap for manual override, covered | 10 ... 90 | | | **...V** | | |

16 **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

17 **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

18 **X, ZU** Not with valves with reverse operation (14) P, Q, R

19 **ZT** Not with right-hand end plate (4) Y, Z

20 **U** Can only be selected if there are more than 9 valve positions

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for CPX – Pneumatic Part

FESTO

| M Mandatory Data | | | | O Options | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Module No.** | **Valve Manifold, pneumatic part** | **Manual override** | **Right-hand end plate** | **Port configuration for supply plates** | **Pneumatic supply to valve manifold** | **Configuration of all pneumatic connections** | **Outgoing direction of all working lines** | **Left-hand supply plate** | **Reverse operation** |
| 547965 | 45P | N, R, V | V, X, Y, U, Z, W | K, L | S, V | M, N, G | P | X | Z |
| **Order example** | | | | | | | | | |
| **547965** | **45P** | **R** | **V** | **K** | **S** | **M** | **P** | **X** | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |

**Ordering table**

| | | Width | 18 mm | 26 mm | Conditions | Code | Enter code |
|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **547965** | **547965** | | | |
| | 2 | Valve Manifold, pneumatic part | Valve Manifold type 45, VTSA-F, modular subbase valves, optimized for flow rate, pneumatic connections with G thread | | | **45P** | |
| | 3 | Manual override | Pushing (non-detenting) | | | **-N** | |
| | | | Pushing/detenting | | | **-R** | |
| | | | Covered | | | **-V** | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | **-V** | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | **-X** | |
| | | | End plate with pilot air selector, internal pilot air supply | | 1 | **-Y** | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | 1 | **-U** | |
| | | | End plate with pilot air selector, external pilot air supply | | 1 | **-Z** | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | 1 | **-W** | |
| O | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | 2 | **-K** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | 2 | **-L** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | **S** | |
| | | | QS push-in fittings | | | **V** | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | 3 | **M** | |
| | | | QS push-in fittings, small | | 3 | **N** | |
| | | | QS push-in fittings, large and small mixed | | 3 | **G** | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | **P** | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | **X** | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | 4 | **Z** | |

1 **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

2 **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

3 **M, N, G** Must be selected if pneumatic valve manifold supply (6) S or V was selected

4 **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for CPX – Pneumatic Part

FESTO

## 0 Options

**Pneumatic manifold subbases 00 … 15**

**11 Type of interlinking block:** A, B, E, F, AK, BK, EK, FK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | A | B | B | B S | B | | | | | | | | | | | |

**11 + 12 + 13**

**Ordering Table**

| Width | | | 18 mm | 26 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ 11 | Pneumatic manifold subbases | | | | 5 | - | | - |
| 0 | Type of interlinking block 00 … 15 | Manifold subbase | 2 valve positions, 4 addresses | – | | A | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | | B | | |
| | | | 2 valve positions, 2 addresses | – | 6 | E | | |
| | | | – | 2 valve positions, 2 addresses | 6 | F | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | 7 | AK | | |
| | | | – | 2 valve positions, 4 addresses | 7 | BK | | |
| | | | 2 valve positions, 2 addresses | – | 8 | EK | | |
| | | | – | 2 valve positions, 2 addresses | 8 | FK | | |
| | 12 | Compressed air supply/duct separation 00 … 15 | Duct separation 1, 3, 5 | | 9 10 | S | | |
| | | | Duct separation 1 | | 9 10 | T | | |
| | | | Duct separation 3, 5 | | 9 10 | R | | |
| | | | Supply plate | | | U | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | 9 | SU | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | 9 | US | | |
| | | | Supply plate with duct separation 1 at left | | 9 | TU | | |
| | | | Supply plate with duct separation 1 at right | | 9 | UT | | |
| | | | Supply plate with duct separation 3, 5 at left | | 9 | RU | | |
| | | | Supply plate with duct separation 3, 5 at right | | 9 | UR | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | USU | | |
| | | | 2 supply plates with duct separation 1 in centre | | | UTU | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | URU | | |
| ↓ 13 | Reverse operation 00 … 15 | | Subsequent valve positions permitted for reverse operation | | 11 | Z | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F** Only with valves (14) M, O and L

7 **AK, BK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK** Only with configuration of all pneumatic connections (7) N or G
Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR**
No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU.
A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for CPX – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

Valve position **19 Vertical supply plate for position 00 ... 31:** ZU

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering table**

| Width | | | 18 mm | 26 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ | **14** | Pneumatic valve positions 00 ... 31 | | | | **-** | | - |
| 0 | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | 12 | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | 12 | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | 12 | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | 13 | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | 13 | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | 13 | **R** | | |
| | | | Vacant position | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 10 bar | Pressure regulator plate for port 1 | 14 | **ZA** | | |
| | | | | Pressure regulator plate for port 4 | | **ZB** | | |
| | | | | Pressure regulator plate for port 2 | | **ZC** | | |
| | | | | Pressure regulator plate for port 4/2 | | **ZD** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | 15 | **ZE** | | |
| | | | | Pressure regulator plate for port 4, reversible | 15 | **ZK** | | |
| | | | | Pressure regulator plate for port 2, reversible | 15 | **ZL** | | |
| | | | Input pressure 6 bar | Pressure regulator plate for port 1 | 14 | **ZF** | | |
| | | | | Pressure regulator plate for port 4 | | **ZG** | | |
| | | | | Pressure regulator plate for port 2 | | **ZH** | | |
| | | | | Pressure regulator plate for port 4/2 | | **ZI** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | 15 | **ZJ** | | |
| | | | | Pressure regulator plate for port 4, reversible | 15 | **ZM** | | |
| ↓ | | | | Pressure regulator plate for port 2, reversible | 15 | **ZN** | | |

12 **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

13 **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

14 **ZA, ZF** Not permitted in zones with reverse operation.

15 **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, G Thread for CPX – Pneumatic Part

FESTO

➔ [0] **Options**

| | |
|---|---|
| | **Pneumatic accessories** |
| | U, ...B, ...T, ...N, ...V |
| + | **10N** |
| | **20** |

**Ordering Table**

| Width | | | 18 mm | 26 mm | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ [0] | **16** | Pressure indicator for valve position 00 ... 31 | Pressure gauge, 10 bar | | [16] | **T** | | Enter equipment **selection** for valve positions in **order code** |
| | | | Pressure gauge, 6 bar | | [17] | **U** | | |
| | **17** | Flow control valve for valve position 00 ... 31 | Flow control plate | | [18] | **X** | | |
| | **18** | Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | [19] | **ZT** | | |
| | **19** | Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | [18] | **ZU** | | |
| | **20** | **Pneumatic accessories** | | | | **+** | | + |
| | | Mounting brackets (pack of 5) | Supplied separately | | [20] | **U** | | |
| | | Inscription label holder for valves | 5 ... 50 | | | **...B** | | |
| | | Inscription label holder for manifold subbases | 5 ... 50 | | | **...T** | | |
| | | Cover cap for manual override, pushing | 10 ... 90 | | | **...N** | | |
| | | Cover cap for manual override, covered | 10 ... 90 | | | **...V** | | |

[16] **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

[17] **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

[18] **X, ZU** Not with valves with reverse operation (14) P, Q, R

[19] **ZT** Not with right-hand end plate (4) Y, Z

[20] **U** Can only be selected if there are more than 9 valve positions. Cannot be combined with DIN H-rail

# Ordering Data – Configurable Products

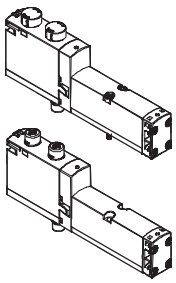
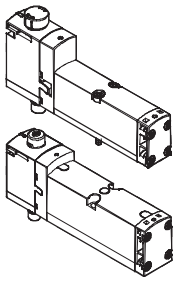
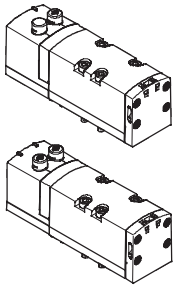
Valve Manifolds Type 45 VTSA-F, G Thread – Pneumatic Part

| Sizes of Pneumatic Connections | | | | | |
|---|---|---|---|---|---|
| | | Code | Duct | Width | |
| | | | | 18 mm | 26 mm |
| **7** | | Configuration of all pneumatic connections | | | |
| **4** | Right-hand end plate<br>V, X, Y, U, Z, W | **M** | 12, 14 | G¼ (QS-G¼-10) | G¼ (QS-G¼-10) |
| | | **G** | 12, 14 | G¼ (QS-G¼-10) | G¼ (QS-G¼-10) |
| | | **N** | 12, 14 | G¼ (QS-G¼-8) | G¼ (QS-G¼-8) |
| **4** | Right-hand end plate<br>V, X, U | **M** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **G** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **N** | 1, 3, 5 | G½ (QS-G½-12) | G½ (QS-G½-12) |
| **9** | Left-hand supply plate<br>X | **M** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **G** | 1, 3, 5 | G½ (QS-G½-16) | G½ (QS-G½-16) |
| | | **N** | 1, 3, 5 | G½ (QS-G½-12) | G½ (QS-G½-12) |
| **11** | Type of interlinking block<br>Large<br>A, B, E, F | **M** | 2, 4 | G⅛ (QS-G⅛-8) | G¼ (QS-G¼-10) |
| **11** | Type of interlinking block<br>Small<br>AK, BK, EK, FK | **N** | 2, 4 | G⅛ (QS-G⅛-6) | G¼ (QS-G¼-8) |

# Ordering Data – Individual Valve

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

FESTO

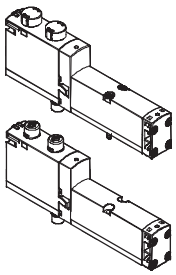
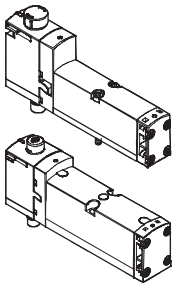
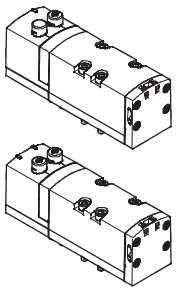
| Ordering Data | | | | | |
|---|---|---|---|---|---|
| | Code | Valve function | Width | Type | Part No. |
| Solenoid valves, 24 V DC | | | | | |
|  | M | 5/2-way valve, single solenoid, pneumatic spring return | 18 mm | **VSVA-B-M52-AZD-A2-1T1L** | **539184** |
| | | | 26 mm | **VSVA-B-M52-AZD-A1-1T1L** | **539158** |
| | | | 42 mm[1)] | **VSVA-B-M52-AZD-D1-1T1L** | **543698** |
| | O | 5/2-way valve, single solenoid, spring return | 18 mm | **VSVA-B-M52-MZD-A2-1T1L** | **539185** |
| | | | 26 mm | **VSVA-B-M52-MZD-A1-1T1L** | **539159** |
| | | | 42 mm[1)] | **VSVA-B-M52-MZD-D1-1T1L** | **543699** |
| | J | 5/2-way valve, double solenoid, bistable | 18 mm | **VSVA-B-B52-ZD-A2-1T1L** | **539182** |
| | | | 26 mm | **VSVA-B-B52-ZD-A1-1T1L** | **539156** |
| | | | 42 mm[1)] | **VSVA-B-B52-ZD-D1-1T1L** | **543696** |
| | D | 5/2-way valve, double solenoid, dominant signal | 18 mm | **VSVA-B-D52-ZD-A2-1T1L** | **539183** |
| | | | 26 mm | **VSVA-B-D52-ZD-A1-1T1L** | **539157** |
| | | | 42 mm[1)] | **VSVA-B-D52-ZD-D1-1T1L** | **543697** |
|  | N | 2x 3/2-way valve, single solenoid, normally open | 18 mm | **VSVA-B-T32U-AZD-A2-1T1L** | **539178** |
| | | | 26 mm | **VSVA-B-T32U-AZD-A1-1T1L** | **539152** |
| | | | 42 mm[1)] | **VSVA-B-T32U-AZD-D1-1T1L** | **543692** |
| | K | 2x 3/2-way valve, single solenoid, normally closed | 18 mm | **VSVA-B-T32C-AZD-A2-1T1L** | **539176** |
| | | | 26 mm | **VSVA-B-T32C-AZD-A1-1T1L** | **539150** |
| | | | 42 mm[1)] | **VSVA-B-T32C-AZD-D1-1T1L** | **543690** |
| | H | 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed | 18 mm | **VSVA-B-T32H-AZD-A2-1T1L** | **539180** |
| | | | 26 mm | **VSVA-B-T32H-AZD-A1-1T1L** | **539154** |
| | | | 42 mm[1)] | **VSVA-B-T32H-AZD-D1-1T1L** | **543694** |
|  | B | 5/3-way valve, mid-position pressurised | 18 mm | **VSVA-B-P53U-ZD-A2-1T1L** | **539186** |
| | | | 26 mm | **VSVA-B-P53U-ZD-A1-1T1L** | **539160** |
| | | | 42 mm[1)] | **VSVA-B-P53U-ZD-D1-1T1L** | **543700** |
| | G | 5/3-way valve, mid-position closed | 18 mm | **VSVA-B-P53C-ZD-A2-1T1L** | **539188** |
| | | | 26 mm | **VSVA-B-P53C-ZD-A1-1T1L** | **539162** |
| | | | 42 mm[1)] | **VSVA-B-P53C-ZD-D1-1T1L** | **543702** |
| | E | 5/3-way valve, mid-position exhausted | 18 mm | **VSVA-B-P53E-ZD-A2-1T1L** | **539187** |
| | | | 26 mm | **VSVA-B-P53E-ZD-A1-1T1L** | **539161** |
| | | | 42 mm[1)] | **VSVA-B-P53E-ZD-D1-1T1L** | **543701** |
| | P | 2x 3/2-way valve, single solenoid, reverse operation, normally open | 18 mm | **VSVA-B-T32F-AZD-A2-1T1L** | **539179** |
| | | | 26 mm | **VSVA-B-T32F-AZD-A1-1T1L** | **539153** |
| | | | 42 mm[1)] | **VSVA-B-T32F-AZD-D1-1T1L** | **543693** |
| | Q | 2x 3/2-way valve, single solenoid, reverse operation, normally closed | 18 mm | **VSVA-B-T32N-AZD-A2-1T1L** | **539177** |
| | | | 26 mm | **VSVA-B-T32N-AZD-A1-1T1L** | **539151** |
| | | | 42 mm[1)] | **VSVA-B-T32N-AZD-D1-1T1L** | **543691** |
| | R | 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed | 18 mm | **VSVA-B-T32W-AZD-A2-1T1L** | **539181** |
| | | | 26 mm | **VSVA-B-T32W-AZD-A1-1T1L** | **539155** |
| | | | 42 mm[1)] | **VSVA-B-T32W-AZD-D1-1T1L** | **543695** |

1) Type 44 VTSA only

# Ordering Data – Individual Valve

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

FESTO

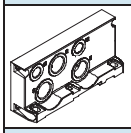
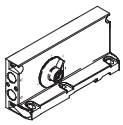
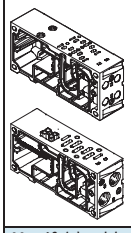
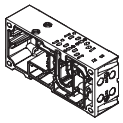
| Ordering Data | | | | | |
|---|---|---|---|---|---|
| | Code | Valve function | Width | Type | Part No. |
| Solenoid valves, 110 V AC | | | | | |
|  | M | 5/2-way valve, single solenoid, pneumatic spring return | 18 mm | **VSVA-B-M52-AZD-A2-2AT1L** | **539171** |
| | | | 26 mm | **VSVA-B-M52-AZD-A1-2AT1L** | **539145** |
| | | | 42 mm[1)] | **VSVA-B-M52-AZD-D1-2AT1L** | **543685** |
| | O | 5/2-way valve, single solenoid, spring return | 18 mm | **VSVA-B-M52-MZD-A2-2AT1L** | **539172** |
| | | | 26 mm | **VSVA-B-M52-MZD-A1-2AT1L** | **539146** |
| | | | 42 mm[1)] | **VSVA-B-M52-MZD-D1-2AT1L** | **543686** |
| | J | 5/2-way valve, double solenoid, bistable | 18 mm | **VSVA-B-B52-ZD-A2-2AT1L** | **539169** |
| | | | 26 mm | **VSVA-B-B52-ZD-A1-2AT1L** | **539143** |
| | | | 42 mm[1)] | **VSVA-B-B52-ZD-D1-2AT1L** | **543683** |
|  | D | 5/2-way valve, double solenoid, dominant signal | 18 mm | **VSVA-B-D52-ZD-A2-2AT1L** | **539170** |
| | | | 26 mm | **VSVA-B-D52-ZD-A1-2AT1L** | **539144** |
| | | | 42 mm[1)] | **VSVA-B-D52-ZD-D1-2AT1L** | **543684** |
| | N | 2x 3/2-way valve, single solenoid, normally open | 18 mm | **VSVA-B-T32U-AZD-A2-2AT1L** | **539165** |
| | | | 26 mm | **VSVA-B-T32U-AZD-A1-2AT1L** | **539139** |
| | | | 42 mm[1)] | **VSVA-B-T32U-AZD-D1-2AT1L** | **543679** |
| | K | 2x 3/2-way valve, single solenoid, normally closed | 18 mm | **VSVA-B-T32C-AZD-A2-2AT1L** | **539163** |
| | | | 26 mm | **VSVA-B-T32C-AZD-A1-2AT1L** | **539137** |
| | | | 42 mm[1)] | **VSVA-B-T32C-AZD-D1-2AT1L** | **543677** |
| | H | 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed | 18 mm | **VSVA-B-T32H-AZD-A2-2AT1L** | **539167** |
| | | | 26 mm | **VSVA-B-T32H-AZD-A1-2AT1L** | **539141** |
| | | | 42 mm[1)] | **VSVA-B-T32H-AZD-D1-2AT1L** | **543681** |
|  | B | 5/3-way valve, mid-position pressurised | 18 mm | **VSVA-B-P53U-ZD-A2-2AT1L** | **539173** |
| | | | 26 mm | **VSVA-B-P53U-ZD-A1-2AT1L** | **539147** |
| | | | 42 mm[1)] | **VSVA-B-P53U-ZD-D1-2AT1L** | **543687** |
| | G | 5/3-way valve, mid-position closed | 18 mm | **VSVA-B-P53C-ZD-A2-2AT1L** | **539175** |
| | | | 26 mm | **VSVA-B-P53C-ZD-A1-2AT1L** | **539149** |
| | | | 42 mm[1)] | **VSVA-B-P53C-ZD-D1-2AT1L** | **543689** |
| | E | 5/3-way valve, mid-position exhausted | 18 mm | **VSVA-B-P53E-ZD-A2-2AT1L** | **539174** |
| | | | 26 mm | **VSVA-B-P53E-ZD-A1-2AT1L** | **539148** |
| | | | 42 mm[1)] | **VSVA-B-P53E-ZD-D1-2AT1L** | **543688** |
| | P | 2x 3/2-way valve, single solenoid, reverse operation, normally open | 18 mm | **VSVA-B-T32F-AZD-A2-2AT1L** | **539166** |
| | | | 26 mm | **VSVA-B-T32F-AZD-A1-2AT1L** | **539140** |
| | | | 42 mm[1)] | **VSVA-B-T32F-AZD-D1-2AT1L** | **543680** |
| | Q | 2x 3/2-way valve, single solenoid, reverse operation, normally closed | 18 mm | **VSVA-B-T32N-AZD-A2-2AT1L** | **539164** |
| | | | 26 mm | **VSVA-B-T32N-AZD-A1-2AT1L** | **539138** |
| | | | 42 mm[1)] | **VSVA-B-T32N-AZD-D1-2AT1L** | **543678** |
| | R | 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed | 18 mm | **VSVA-B-T32W-AZD-A2-2AT1L** | **539168** |
| | | | 26 mm | **VSVA-B-T32W-AZD-A1-2AT1L** | **539142** |
| | | | 42 mm[1)] | **VSVA-B-T32W-AZD-D1-2AT1L** | **543682** |

1) Type 44 VTSA only

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

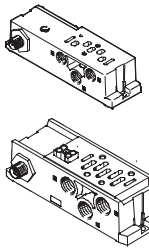
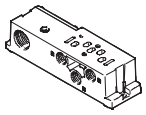
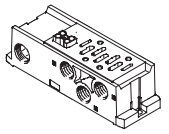
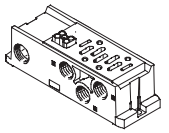
FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Right-hand end plate | | | | | |
|  | V | With supply air/exhaust air, internal pilot air supply, G½ | | **VABE-S6-1R-G12** | **539234** |
| | X | With supply air/exhaust air, external pilot air supply, G½ | | **VABE-S6-1RZ-G12** | **539236** |
| End plate with pilot air selector | | | | | |
|  | Y | Internal pilot air supply | | **VABE-S6-1RZ-G-B1** | **539238** |
| | U | Internal pilot air supply, ducted pilot exhaust air | | | |
| | Z | External pilot air supply | | | |
| | W | External pilot air supply, ducted pilot exhaust air | | | |
| Manifold subbase, port pattern to ISO 15407-2 and ISO 5599-2 – Type 44 VTSA | | | | | |
|  | A | 2 valve positions, 4 addresses, for double solenoid valves | 18 mm | **VABV-S4-2S-G18-2T2** | **539224** |
| | B | 2 valve positions, 4 addresses, for double solenoid valves | 26 mm | **VABV-S4-1S-G14-2T2** | **539220** |
| | C | 1 valve position, 2 addresses, for double solenoid valves | 42 mm | **VABV-S2-1S-G38-T2** | **542458** |
| | E | 2 valve positions, 2 addresses, for single solenoid valves | 18 mm | **VABV-S4-2S-G18-2T1** | **539226** |
| | F | 2 valve positions, 2 addresses, for single solenoid valves | 26 mm | **VABV-S4-1S-G14-2T1** | **539222** |
| | G | 1 valve position, 1 address, for single solenoid valves | 42 mm | **VABV-S2-1S-G38-T1** | **542459** |
| Manifold subbase, optimized for flow rate – Type 45 VTSA-F | | | | | |
|  | A | 2 valve positions, 4 addresses, for double solenoid valves | 18 mm | **VABV-S4-2HS-G18-2T2** | **546215** |
| | B | 2 valve positions, 4 addresses, for double solenoid valves | 26 mm | **VABV-S4-1HS-G14-2T2** | **546211** |
| | E | 2 valve positions, 2 addresses, for single solenoid valves | 18 mm | **VABV-S4-2HS-G18-2T1** | **546214** |
| | F | 2 valve positions, 2 addresses, for single solenoid valves | 26 mm | **VABV-S4-1HS-G14-2T1** | **546210** |

# Accessories

Valve Manifolds Type 44 VTSA – Metric Series

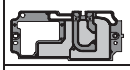
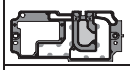
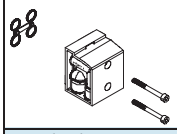
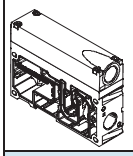
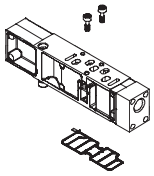
FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Individual subbase, port pattern to ISO 15407-2 and ISO 5599-2, electrical connection with plug connector M12 – Type 44 VTSA | | | | | |
|  | Threaded connection, internal pilot air supply | | | | |
| | – | Connections at side, G1⁄8 | 18 mm | **VABS-S4-2S-G18-B-R3** | **541070** |
| | – | Connections at side, G1⁄4 | 26 mm | **VABS-S4-1S-G14-B-R3** | **541069** |
| | – | Connections at side, G3⁄8 | 42 mm | **VABS-S2-1S-G38-B-R3** | **546104** |
|  | Threaded connection, external pilot air supply | | | | |
| | – | Connections at side, G1⁄8 | 18 mm | **VABS-S4-2S-G18-R3** | **541064** |
| | – | Connections at side, G1⁄4 | 26 mm | **VABS-S4-1S-G14-R3** | **541063** |
| | – | Connections at side, G3⁄8 | 42 mm | **VABS-S2-1S-G38-R3** | **546101** |
| Individual subbase, port pattern to ISO 15407-2, electrical connection with cable manifolds – Type 44 VTSA | | | | | |
|  | Threaded connection, internal pilot air supply | | | | |
| | – | Connections at side, G1⁄8 | 18 mm | **VABS-S4-2S-G18-B-K2** | **541067** |
| | – | Connections at side, G1⁄4 | 26 mm | **VABS-S4-1S-G14-B-K2** | **541065** |
| | Threaded connection, external pilot air supply | | | | |
| | – | Connections at side, G1⁄8 | 18 mm | **VABS-S4-2S-G18-K2** | **539723** |
| | – | Connections at side, G1⁄4 | 26 mm | **VABS-S4-1S-G14-K2** | **539725** |
| Individual subbase, port pattern to ISO 5599-2, electrical connection with spring-loaded manifold – Type 44 VTSA | | | | | |
|  | Threaded connection, internal pilot air supply | | | | |
| | – | Connections at side, G3⁄8 | 42 mm | **VABS-S2-1S-G38-B-C1** | **546762** |
| | Threaded connection, external pilot air supply | | | | |
| | – | Connections at side, G3⁄8 | 42 mm | **VABS-S2-1S-G38-C1** | **546760** |
| Individual subbase, port pattern to ISO 5599-2, electrical connection for self-assembly – Type 44 VTSA | | | | | |
|  | Threaded connection, internal pilot air supply | | | | |
| | – | Connections at side, G3⁄8 | 42 mm | **VABS-S2-1S-G38-B-K1** | **546102** |
| | Threaded connection, external pilot air supply | | | | |
| | – | Connections at side, G3⁄8 | 42 mm | **VABS-S2-1S-G38-K1** | **546099** |

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Separator plate | | | | | |
|  | S | Duct separation 1, 3, 5 | | **VABD-S6-10-P3-C** | **539228** |
|  | T | Duct separation 1 | | **VABD-S6-10-P1-C** | **539227** |
|  | R | Duct separation 3, 5 | | **VABD-S6-10-P2-C** | **539229** |
| 90° connection plate | | | | | |
|  | P | Outlet at bottom, connecting thread G1⁄8 | 18 mm | **VABF-S4-2-A2G2-G18** | **539719** |
| | P | Outlet at bottom, connecting thread G1⁄4 | 26 mm | **VABF-S4-1-A2G2-G14** | **539721** |
| | P | Outlet at bottom, connecting thread G3⁄8 | 42 mm[1)] | **VABF-S2-1-A1G2-G38** | **546097** |
| Supply plate | | | | | |
|  | L | With exhaust plate, 3/5 common, G1⁄2 | | **VABF-S6-10-P1A7-G12** | **539231** |
| | K | With exhaust port cover, 3/5 separated, G1⁄2 | | **VABF-S6-10-P1A6-G12** | **539230** |
| Vertical supply plate | | | | | |
|  | ZU | Connecting thread G1⁄8 | 18 mm | **VABF-S4-2-P1A3-G18** | **540173** |
| | | Connecting thread G1⁄4 | 26 mm | **VABF-S4-1-P1A3-G14** | **540171** |
| | | Connecting thread G3⁄8 | 42 mm[1)] | **VABF-S2-1-P1A3-G38** | **546093** |

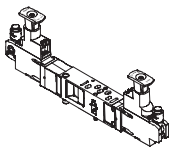
1) Type 44 VTSA only

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

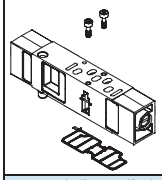
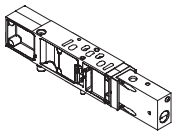
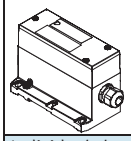
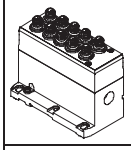
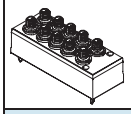
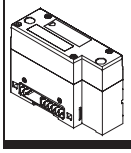
FESTO

**Ordering Data**

| Designation | Code | Description | Width | Type | Part No. |
|---|---|---|---|---|---|
| Regulator plate | | | | | |
|  | ZA | For port 1, 10 bar | 18 mm | **VABF-S4-2-R1C2-C-10** | **540153** |
| | | For port 1, 10 bar | 26 mm | **VABF-S4-1-R1C2-C-10** | **540154** |
| | | For port 1, 10 bar | 42 mm[1)] | **VABF-S2-1-R1C2-C-10** | **546084** |
| | ZF | For port 1, 6 bar | 18 mm | **VABF-S4-2-R1C2-C-6** | **540151** |
| | | For port 1, 6 bar | 26 mm | **VABF-S4-1-R1C2-C-6** | **540152** |
| | | For port 1, 6 bar | 26 mm | **VABF-S4-1-R1C2-C-6E** | **549876** |
| | | For port 1, 6 bar | 42 mm[1)] | **VABF-S2-1-R1C2-C-6** | **546083** |
| | ZB | For port 4, 10 bar | 18 mm | **VABF-S4-2-R3C2-C-10** | **540157** |
| | | For port 4, 10 bar | 26 mm | **VABF-S4-1-R3C2-C-10** | **540158** |
| | | For port 4, 10 bar | 42 mm[1)] | **VABF-S2-1-R3C2-C-10** | **546086** |
| | ZG | For port 4, 6 bar | 18 mm | **VABF-S4-2-R3C2-C-6** | **540155** |
| | | For port 4, 6 bar | 26 mm | **VABF-S4-1-R3C2-C-6** | **540156** |
| | | For port 4, 6 bar | 42 mm[1)] | **VABF-S2-1-R3C2-C-6** | **546085** |
| | ZC | For port 2, 10 bar | 18 mm | **VABF-S4-2-R2C2-C-10** | **540161** |
| | | For port 2, 10 bar | 26 mm | **VABF-S4-1-R2C2-C-10** | **540162** |
| | | For port 2, 10 bar | 42 mm[1)] | **VABF-S2-1-R2C2-C-10** | **546088** |
| | ZH | For port 2, 6 bar | 18 mm | **VABF-S4-2-R2C2-C-6** | **540159** |
| | | For port 2, 6 bar | 26 mm | **VABF-S4-1-R2C2-C-6** | **540160** |
| | | For port 2, 6 bar | 42 mm[1)] | **VABF-S2-1-R2C2-C-6** | **546087** |
| | ZD | For ports 2 and 4, 10 bar | 18 mm | **VABF-S4-2-R4C2-C-10** | **540165** |
| | | For ports 2 and 4, 10 bar | 26 mm | **VABF-S4-1-R4C2-C-10** | **540166** |
| | | For ports 2 and 4, 10 bar | 42 mm[1)] | **VABF-S2-1-R4C2-C-10** | **546090** |
| | ZI | For ports 2 and 4, 6 bar | 18 mm | **VABF-S4-2-R4C2-C-6** | **540163** |
| | | For ports 2 and 4, 6 bar | 26 mm | **VABF-S4-1-R4C2-C-6** | **540164** |
| | | For ports 2 and 4, 6 bar | 42 mm[1)] | **VABF-S2-1-R4C2-C-6** | **546089** |
| | ZE | For ports 2 and 4, reversible, 10 bar | 18 mm | **VABF-S4-2-R5C2-C-10** | **540169** |
| | | For ports 2 and 4, reversible, 10 bar | 26 mm | **VABF-S4-1-R5C2-C-10** | **540170** |
| | | For ports 2 and 4, reversible, 10 bar | 42 mm[1)] | **VABF-S2-1-R5C2-C-10** | **546092** |
| | ZJ | For ports 2 and 4, reversible, 6 bar | 18 mm | **VABF-S4-2-R5C2-C-6** | **540167** |
| | | For ports 2 and 4, reversible, 6 bar | 26 mm | **VABF-S4-1-R5C2-C-6** | **540168** |
| | | For ports 2 and 4, reversible, 6 bar | 42 mm[1)] | **VABF-S2-1-R5C2-C-6** | **546091** |
| | ZL | For port 2, reversible, 10 bar | 18 mm | **VABF-S4-2-R6C2-C-10** | **546252** |
| | | For port 2, reversible, 10 bar | 26 mm | **VABF-S4-1-R6C2-C-10** | **546251** |
| | | For port 2, reversible, 10 bar | 42 mm[1)] | **VABF-S2-1-R6C2-C-10** | **546832** |
| | ZN | For port 2, reversible, 6 bar | 18 mm | **VABF-S4-2-R6C2-C-6** | **546248** |
| | | For port 2, reversible, 6 bar | 26 mm | **VABF-S4-1-R6C2-C-6** | **546247** |
| | | For port 2, reversible, 6 bar | 42 mm[1)] | **VABF-S2-1-R6C2-C-6** | **546831** |
| | ZK | For port 4, reversible, 10 bar | 18 mm | **VABF-S4-2-R7C2-C-10** | **546254** |
| | | For port 4, reversible, 10 bar | 26 mm | **VABF-S4-1-R7C2-C-10** | **546253** |
| | | For port 4, reversible, 10 bar | 42 mm[1)] | **VABF-S2-1-R7C2-C-10** | **546834** |
| | ZM | For port 4, reversible, 6 bar | 18 mm | **VABF-S4-2-R7C2-C-6** | **546250** |
| | | For port 4, reversible, 6 bar | 26 mm | **VABF-S4-1-R7C2-C-6** | **546249** |
| | | For port 4, reversible, 6 bar | 42 mm[1)] | **VABF-S2-1-R7C2-C-6** | **546833** |

1) Type 44 VTSA only

**Ordering Data**

| Designation | Code | Description | Width | Type | Part No. |
|---|---|---|---|---|---|
| Pressure gauge | | | | | |
|  | T | With cartridge connection for regulator, 10 bar for regulator plate, code ZA, ZB, ZC, ZD, ZE | 18 mm | **PAGN-26-16-P10** | **543487** |
| | | | 26 mm | | |
| | | | 42 mm[1)] | **PAGN-40-16-P10** | **548010** |
| | U | With cartridge connection for regulator, 6 bar for regulator plate, code ZF, ZG, ZH, ZI, ZJ | 18 mm | **PAGN-26-10-P10** | **543488** |
| | | | 26 mm | | |
| | | | 42 mm[1)] | **PAGN-40-10-P10** | **548009** |
| Cartridge for regulator plate | | | | | |
|  | – | For tubing O.D. 4 mm | | **QSP10-4** | **172972** |
| | – | For tubing O.D. 3/16″ | | **QSP10-3/16U** | **172975** |
| Flow control plate | | | | | |
|  | X | Controls the flow of exhaust air after the valve to ducts 3 and 5 | 18 mm | **VABF-S4-2-F1B1-C** | **540176** |
| | | | 26 mm | **VABF-S4-1-F1B1-C** | **540175** |
| | | | 42 mm[1)] | **VABF-S2-1-F1B1-C** | **546095** |
| Vertical shut-off plate | | | | | |
|  | ZT | 2/2-way valve for shutting off the operating pressure at the valve position | 18 mm | **VABF-S4-2-L1D1-C** | **542884** |
| | | | 26 mm | **VABF-S4-1-L1D1-C** | **542885** |
| | | | 42 mm[1)] | **VABF-S2-1-L1D1-C** | **546096** |
| Multi-pin node | | | | | |
|  | T | Tension spring, for threaded connection, 36-pin | | **VABE-S6-1LF-C-M1-C36M** | **543412** |
| | MP1 | Sub-D plug, 37-pin | | **VABE-S6-1LT-C-M1-S37** | **543414** |
| Individual electrical connection | | | | | |
|  | -MP2 | Multi-pin node with individual connection M12, 6-way | | **VABE-S6-LT-C-S6-R5** | **549046** |
| | -MP3 | Multi-pin node with individual connection M12, 10-way | | **VABE-S6-LT-C-S10-R5** | **549047** |
|  | – | Cover for individual connection M12, 6-way | | **VAEM-S6-C-S6-R5** | **549048** |
| | – | Cover for individual connection M12, 10-way | | **VAEM-S6-C-S10-R5** | **549049** |
| Pneumatic interface | | | | | |
|  | – | For electrical manifold CPX | | **VABA-S6-1-X1** | **543416** |

1) Type 44 VTSA only

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

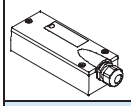
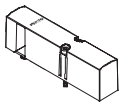
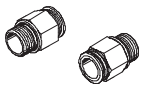
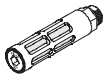
FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | | Type | Part No. |
| Connecting cable with Sub-D plug socket | | | | | |
|  | Polyurethane, IP65 | | | | |
| | GA | Connecting cable for max. 8 solenoid coils, 10-pin, suitable for chain link trunking | 2.5 m | **NEBV-S1W37-E-2,5-LE10** | **539240** |
| | GB | | 5 m | **NEBV-S1W37-E-5-LE10** | **539241** |
| | GC | | 10 m | **NEBV-S1W37-E-10-LE10** | **539242** |
| | GD | Connecting cable for max. 22 solenoid coils, 26-pin, suitable for chain link trunking | 2.5 m | **NEBV-S1W37-E-2,5-LE26** | **539243** |
| | GE | | 5 m | **NEBV-S1W37-E-5-LE26** | **539244** |
| | GF | | 10 m | **NEBV-S1W37-E-10-LE26** | **539245** |
| | GG | Connecting cable for max. 32 solenoid coils, 37-pin | 2.5 m | **NEBV-S1W37-K-2,5-LE37** | **539246** |
| | GH | | 5 m | **NEBV-S1W37-K-5-LE37** | **539247** |
| | GI | | 10 m | **NEBV-S1W37-K-10-LE37** | **539248** |
| | Polyvinyl chloride, IP65 | | | | |
| | GK | Connecting cable for max. 8 solenoid coils, 10-pin | 2.5 m | **NEBV-S1W37-KM-2,5-LE10** | **543271** |
| | GL | | 5 m | **NEBV-S1W37-KM-5-LE10** | **543272** |
| | GM | | 10 m | **NEBV-S1W37-KM-10-LE10** | **543273** |
| | GN | Connecting cable for max. 22 solenoid coils, 27-pin | 2.5 m | **NEBV-S1W37-KM-2,5-LE27** | **543274** |
| | GO | | 5 m | **NEBV-S1W37-KM-5-LE27** | **543275** |
| | GP | | 10 m | **NEBV-S1W37-KM-10-LE27** | **543276** |
| | GQ | Connecting cable for max. 32 solenoid coils, 37-pin | 2.5 m | **NEBV-S1W37-KM-2,5-LE37** | **543277** |
| | GR | | 5 m | **NEBV-S1W37-KM-5-LE37** | **543278** |
| | GS | | 10 m | **NEBV-S1W37-KM-10-LE37** | **543279** |

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

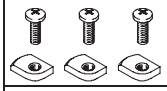
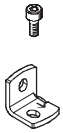
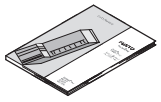
FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | | Type | Part No. |
| Cover for multi-pin plug | | | | | |
|  | – | For user configuration | | **NECV-S1W37** | **545974** |
| Cover | | | | | |
|  | L | Blanking plate for vacant position | 18 mm | **VABB-S4-2-WT** | **539213** |
| | | | 26 mm | **VABB-S4-1-WT** | **539212** |
| | | | 42 mm | **VABB-S2-1-WT** | **543186** |
|  | N | Cover cap for manual override, pushing | 10 pieces | **VAMC-S6-CH** | **541010** |
|  | V | Cover cap for manual override, covered | 10 pieces | **VAMC-S6-CS** | **541011** |
|  | – | End cap for electrical manifold module, size 18 mm and 26 mm | 10 pieces | **VABD-S4-E-C** | **547713** |
| Inscription label holder | | | | | |
|  | B | Clip-on inscription label holder for valve cap | 5 pieces | **ASCF-T-S6** | **540888** |
|  | T | Inscription label holder for manifold blocks | 5 pieces | **ASCF-M-S6** | **540889** |
| Push-in fitting | | | | | |
|  | – | Connecting thread G¼ for tubing O.D. 10 mm | 10 pieces | **QS-G¼-10** | **186101** |
| | | Connecting thread G¼ for tubing O.D. 8 mm | 10 pieces | **QS-G¼-8** | **186099** |
| | | Connecting thread G⅛ for tubing O.D. 10 mm | 10 pieces | **QS-G⅛-10** | **190643** |
| | | Connecting thread G⅛ for tubing O.D. 8 mm | 10 pieces | **QS-G⅛-8** | **186098** |
| | | Connecting thread G⅛ for tubing O.D. 6 mm | 10 pieces | **QS-G⅛-6** | **186096** |
| | | Connecting thread G½ for tubing O.D. 16 mm | 1 piece | **QS-G½-16** | **186105** |
| | | Connecting thread G⅜ for tubing O.D. 10 mm | 10 pieces | **QS-G⅜-10** | **186102** |
| | | Connecting thread G⅜ for tubing O.D. 12 mm | 10 pieces | **QS-G⅜-12** | **186103** |
| Silencer | | | | | |
|  | – | Connecting thread G¼ | | **U-¼** | **2316** |
| | L | Connecting thread G½ | | **U-½** | **2310** |
| | K | Connecting thread G½ | | **U-½-B** | **6844** |

# Accessories

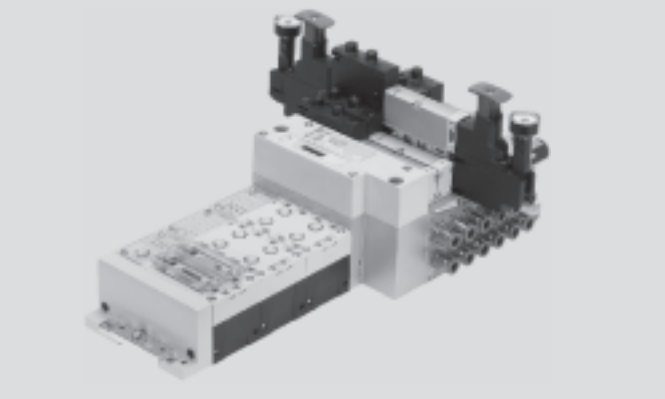
Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Metric Series

FESTO

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

# Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO



- Modular multi-functional valve manifold for up to 32 valves:
  – Type 44 VTSA, ISO 15407-2/ISO 5599-2
  – Type 45 VTSA-F with optimized flow
- Different valve sizes on one valve manifold:
  – 0.71 in (ISO 02)
  – 1.02 in (ISO 01)
  – 1.65 in (ISO 1), type 44 VTSA only
- Flow rate: up to 53.0 scfm
- Design suitable for electrical peripherals CPX

**Product Range Overview**

| Electrical connection | Valve types | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| | 5/2-way valve, single solenoid with pneumatic spring return | 5/2-way valve, single solenoid with spring return | 5/2-way valve, double solenoid | 5/2-way valve, double solenoid dominant switching | 2x 3/2-way valve, normally open | 2x 3/2-way valve, normally closed | 2x 3/2-way valve: 1x normally open, 1x normally closed | 5/3-way valve, mid-position pressurised | 5/3-way valve, mid-position closed | 5/3-way valve, mid-position exhausted | 2x 3/2-way valve, normally open, reverse operation | 2x 3/2-way valve, normally closed, reverse operation | 2x 3/2-way valve: 1x normally open, 1x normally closed, reverse operation | Blanking plate for vacant position |
| | M | O | J | D | N | K | H | B | G | E | P | Q | R | L |
| Electrical multi-pin plug connection, CageClamp | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Electrical multi-pin plug connection, Sub-D (37-pin) | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |
| Fieldbus connection/control block | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ | ■ |

## Features

**Flexible**

- Easy modification and expansion due to high degree of modularity. Fast connection of the subbases by means of four screws.
- Fully modular system allows the combination of 0.71 in (Size 02), 1.02 in (Size 01) and 1.65 in (Size 1) valves on the same manifold without the need for any transition/adapter plate.
- Change direction of working ports with easy-to-install angle plate.
- Fieldbus valve terminal suitable for CPX electrical peripherals.

**Easily integrated**

- Fieldbus nodes: Interbus, DeviceNet, Profibus DP, CANopen, CC-Link via CPX terminal
- Ethernet: Modbus/TCP, EtherNet/IP, TCP/IP via CPX terminal
- Full complement of CPX I/O modules
- Expandable up to 32 solenoid coils
- Integration of a wide range of function modules possible
- Supply plates permit a flexible air supply and variable pressure zones

**Comprehensive**

- High-performance valves in a sturdy metal housing
- Complete range of vertical sandwich components such as pressure regulators, flow control valve, individual pressure supply, shutoff plate (hot swap).
- Standard air qualities: 40 micron filtration grade. Can be used with lubricated or non-lubricated air, and inert gases.
- Manual override available, with momentary, locking, or hidden (non-accessible) options.

**Installation and maintenance**

- Ready-to-install unit, preassembled and tested
- Durable, low cost identification by label holder on the valve or label holder on the subbase.
- Secure wall mounting or DIN rail mounting
- Fast troubleshooting thanks to LEDs on the valves and diagnosis via fieldbus.
- Reliability of service thanks to valves that can be replaced easily and quickly.
- Easy fault identification using CPX-MMI handheld diagnostic unit.

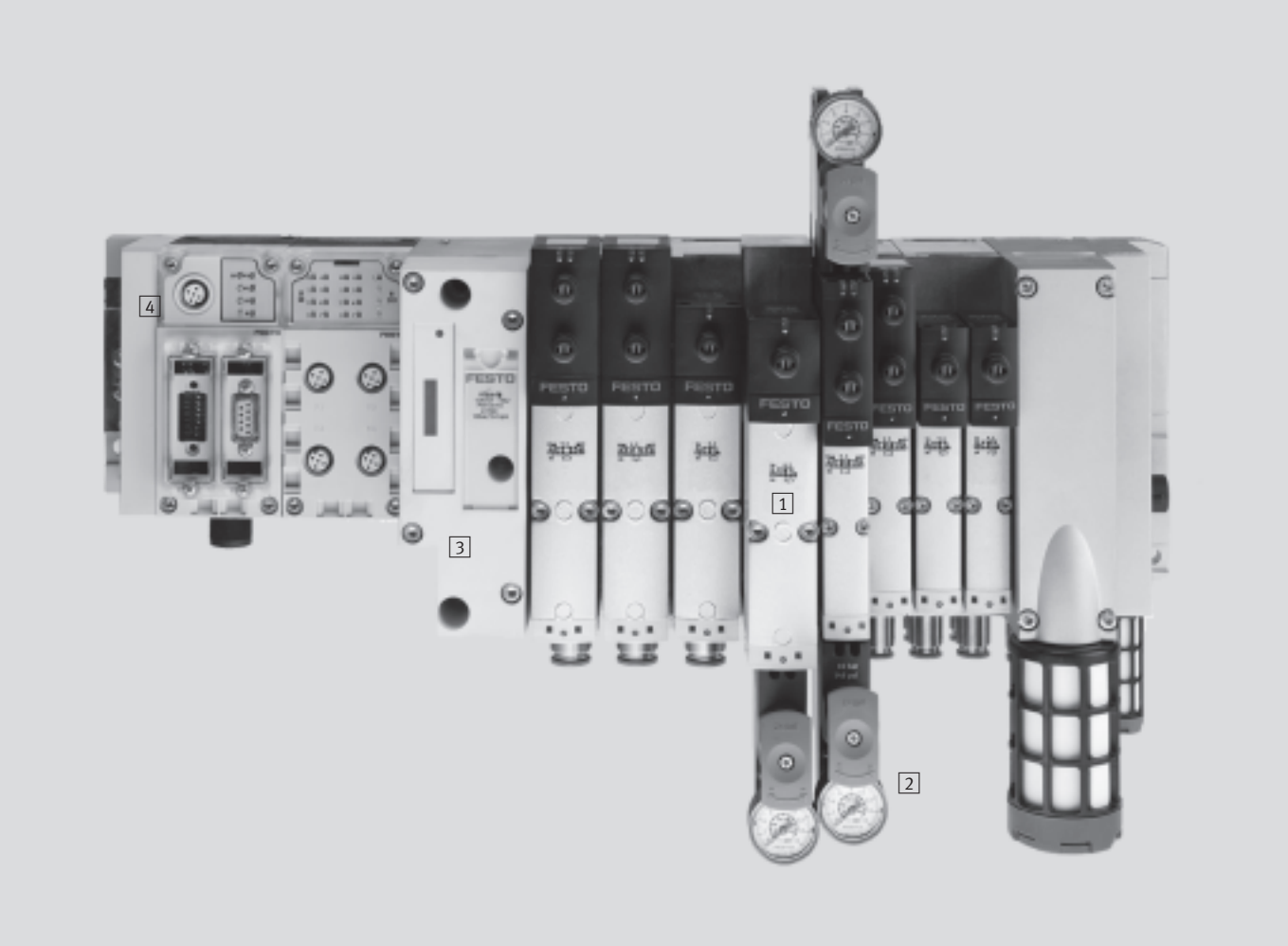
## Contents



→ www.festo.com/catalog/vtsa
→ www.festo.com/catalog/vtsa-f

# Features and Benefits

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series




**1 Combination of sizes**
The flexible combination of different valve sizes on a single valve terminal (0.71 in, 1.02 in and 1.65 in) allows adaptation to different flow requirements. For greater freedom and optimized applications.

**2 Operating efficiency**
Adjustment of regulators without tools. And with the standardized operating direction from above for regulators and valves, this terminal offers the solution to just about every requirement in terms of functionality.

**3 Connection to CPX**
What about fieldbus and modular I/Os? Connection to the modern CPX terminal is an added benefit. This level of freedom, modularity, and versatility is unmatched in any valve manifold solution.

**4 Decentralized intelligence**
The CPX-MMI-1 hand-held device explains errors in plain text and helps expedite troubleshooting, reducing downtimes. Remote maintenance via Ethernet/Internet eliminates the need for servicing at night and over long distances, which can often be very expensive. The on-site intelligence permits CMS (Condition Monitoring Systems) for each valve and statistical error logging with history and timestamp.

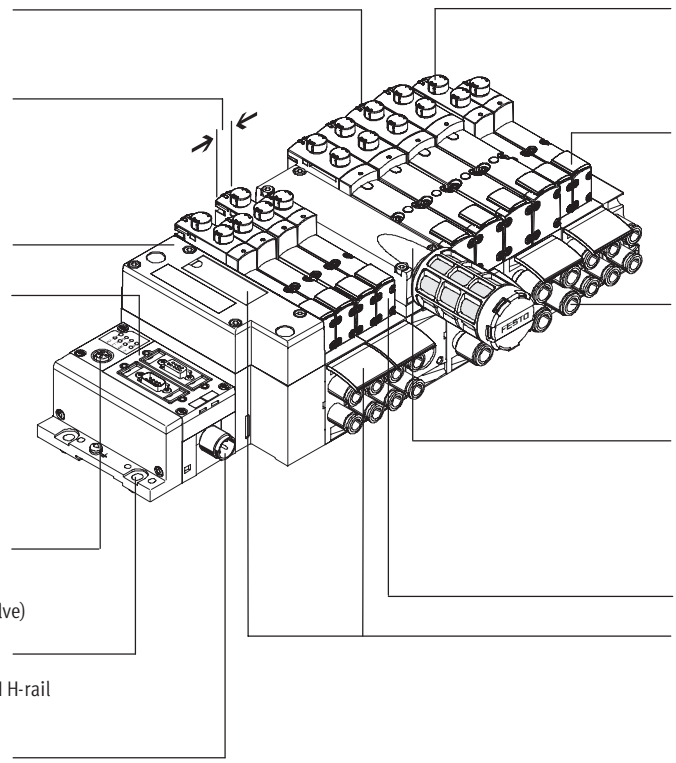
A higher degree of modularity

- Valve manifold type 44 VTSA complies to ISO 15407-2 in width 0.71 and 1.02 in and with ISO 5599-2 in width 1.65 in. The VTSA terminal can be used for all applications
- Simple connection of pneumatic and electrical components
- Flow rate up to 53.0 scfm
- 5/2-way, 2x 3/2-way and 5/3-way valve functions
- Voltage options: 24 V DC or 110 V AC
- IP65 rated
- Modular and flexible
- Easy diagnostics and maintenance
- Reliable and durable
- Competitive pricing

# Overview – Key Features

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

## Valve Manifold



Reduced downtimes:
LED diagnosis on the spot

Width 0.71, 1.02 and 1.65 in can be combined on a single manifold without adapter

Pneumatic interface to CPX

Straightforward electrical connections
- Fieldbus connection via CPX
- Multi-pin plug connection with pre-assembled cable or manifold strip (Cage Clamp)
- Control block via CPX
- Individual connection

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

Quick mounting:
Direct mounting using screws or DIN H-rail

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

Reliable operation:
Manual override: pushing/detented or with covr

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

Functional:
Large ports, flow-optimized ducts, robust metal thread or pre-assembled QS connections

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

Comprehensive valve functions

Practical:
Large inscription labels

## Valve Functions

- 5/2-way valve
  - Single solenoid valve, pneumatic/spring return
  - Double solenoid valve
  - Double solenoid valve with dominant signal
- 2x 3/2-way valve, single solenoid
  - Normally open
  - Normally open, reversible
  - Normally closed
  - Normally closed, reversible
  - 1x normally open, 1x normally closed
  - 1x normally open, 1x normally closed, reversible
- 5/3-way valve
  - Mid-position pressurized
  - Mid-position closed
  - Mid-position exhausted

## Special Features

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

**Fieldbus manifold/control block**
- Max. 32 valve positions/ max. 32 solenoid coils
- Any compressed air supply
- Any number of pressure zones

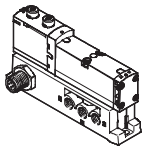
**Individual valve**
- Electrical connection via standardized 4-pin M12 plug or via 4-pin clamped manifold connection for configuration by the user
- Available with internal/external pilot air supply

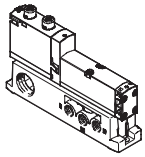
**Combinable**
- Width 0.71 in: valve flow rate up to 24.7 scfm
- Width 1.02 in: valve flow rate up to 49.4 scfm
- Width 1.65 in: valve flow rate up to 53.0 scfm
- Width 1.65 in, 1.02 in and 0.71 in can be combined on a single valve manifold

# Overview – Key Features

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

## Individual Connection



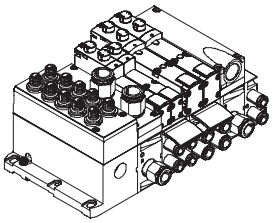


Valves on individual subbases can be used for actuators further away from the valve manifold.

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

or it can be configured by the user with a 4-pin clamped manifold connection 24 V DC or 110 V AC.

## Manifold Connection

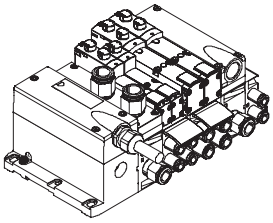


An individual connecting cable carries the control signal between the controller and the valve manifold.

The valve manifolds can be fitted with max. 20 valves and max. 20 solenoid coils.

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

## Multi-pin Plug Connection



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

The valve manifolds can be fitted with max. 32 valves and max. 32 solenoid coils.

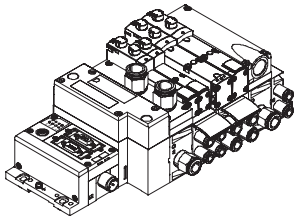
Variants

- Multi-pin plug connection with manifold strip (CageClamp) 24 V DC or 110 V AC
- Pre-assembled connecting cable 24 V DC
- Sub-D plug connector for fitting by users, 37-pin

# Overview – Key Features

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

## Fieldbus Connection via the CPX System



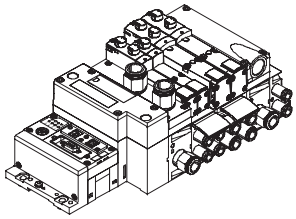
An integrated fieldbus node manages the communication connection to a higher-order PLC. This enables a space-saving pneumatic and electronic solution.

Valve manifolds with fieldbus interfaces can be configured with up to 16 manifold subbases. With 2 solenoid coils per connection, up to 32 solenoid coils can thus be actuated.

Variants
- Profibus-DP
- Interbus
- DeviceNet
- CANopen
- CC-Link
- Ethernet/IP
- CPX manifold

➔ www.festo.com/catalog/cpx

## Control Block Connection via the CPX System



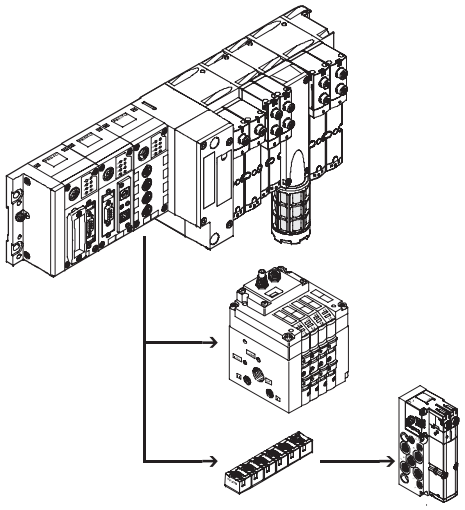
Controllers integrated in the Festo valve manifolds permit the construction of stand-alone control units to IP65, without control cabinets.

Using the slave operation mode, these valve manifolds can be used for intelligent pre-processing and are therefore ideal modules for designing decentralised intelligence.

In the master operation mode, manifold groups can be designed with many options and functions, which can autonomously control a medium-sized machine/system.
- CPX manifold

➔ www.festo.com/catalog/cpx

## CP String Extension



The optional string extension allows additional valve manifolds and I/O modules to be connected to the fieldbus node of the CPX manifold. Different input and output modules as well as CPV-SC, CPV and CPA valve manifolds can be connected.
The maximum length of the CP string extension is 32.8 feets, which means that the extension modules can be mounted directly on site. All of the required electrical signals are transmitted via the CP cable, which in turn means that no further installation is needed on the extension module.

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

➔ www.festo.com/catalog/cpi

# Overview – Pneumatic Components

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

## Modular Pneumatic Components

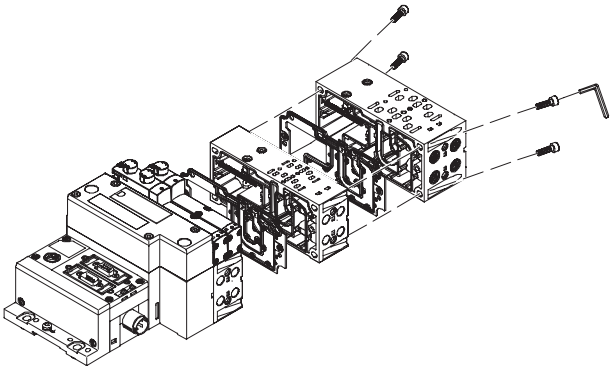
The modular design of the VTSA/ VTSA-F facilitates maximum flexibility right from the planning stage and offers maximum ease of service in operation.

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

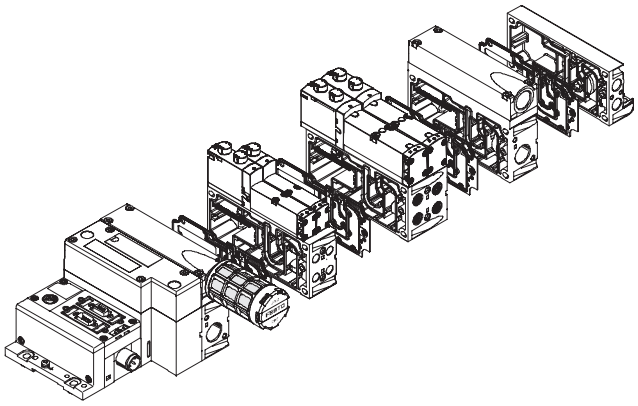
Inside, the manifold subbases contain the connection ducts for supplying compressed air to and venting from the valve manifold as well as the working ports for the pneumatic cylinders from each valve.

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

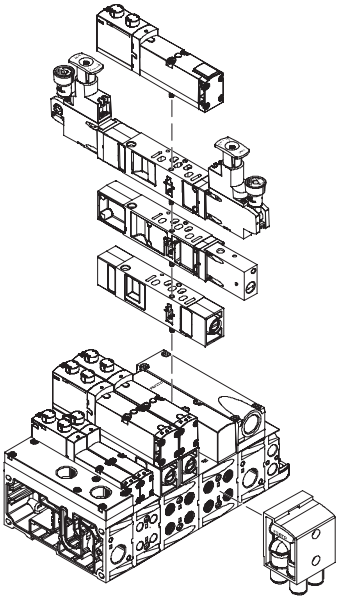
## Modularity in the basic system



## Modularity in the valves



## Modularity in the vertical stacking



# Overview – Electrical Components

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

## Modular Electrical Peripherals

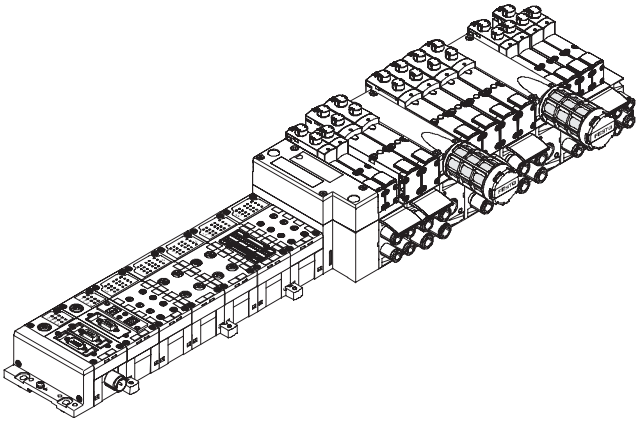
The manner in which the valves are actuated differs according to whether you are using a multi-pin manifold or fieldbus manifold.

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.

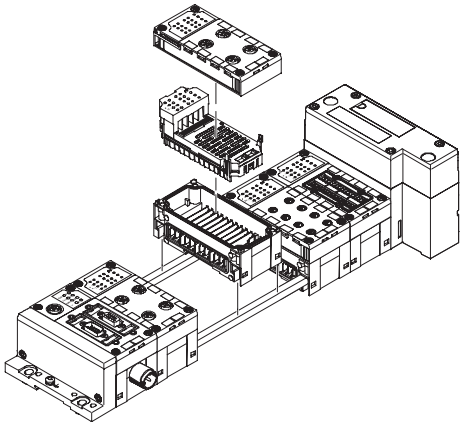
Parallel linking facilitates the following:

- Transmission of switching information
- High valve density
- Compact design
- Position-based diagnosis
- Separate voltage supply for valves
- Flexible conversion without address shifting
- Transmission of status, parameter and diagnostic data

## VTSA with electrical peripherals CPX



## Modularity with electrical peripherals CPX



# Overview – Multi-pin Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

## Valve Manifold with Multi-pin Plug Connection

Order code:

- 44E for the electrical components
- 44P for the pneumatic components
- 45P... for the pneumatic components. High flow rate with optimized manifold subbases.

Valve manifolds with multi-pin plug connection can be expanded with up to 32 valves with max. 32 solenoid coils. The manifold subbases width 0.71 and 1.02 in are prepared for:

- 2 single solenoid valves
- 2 double solenoid valves

The manifold subbases width 1.65 in are prepared for:

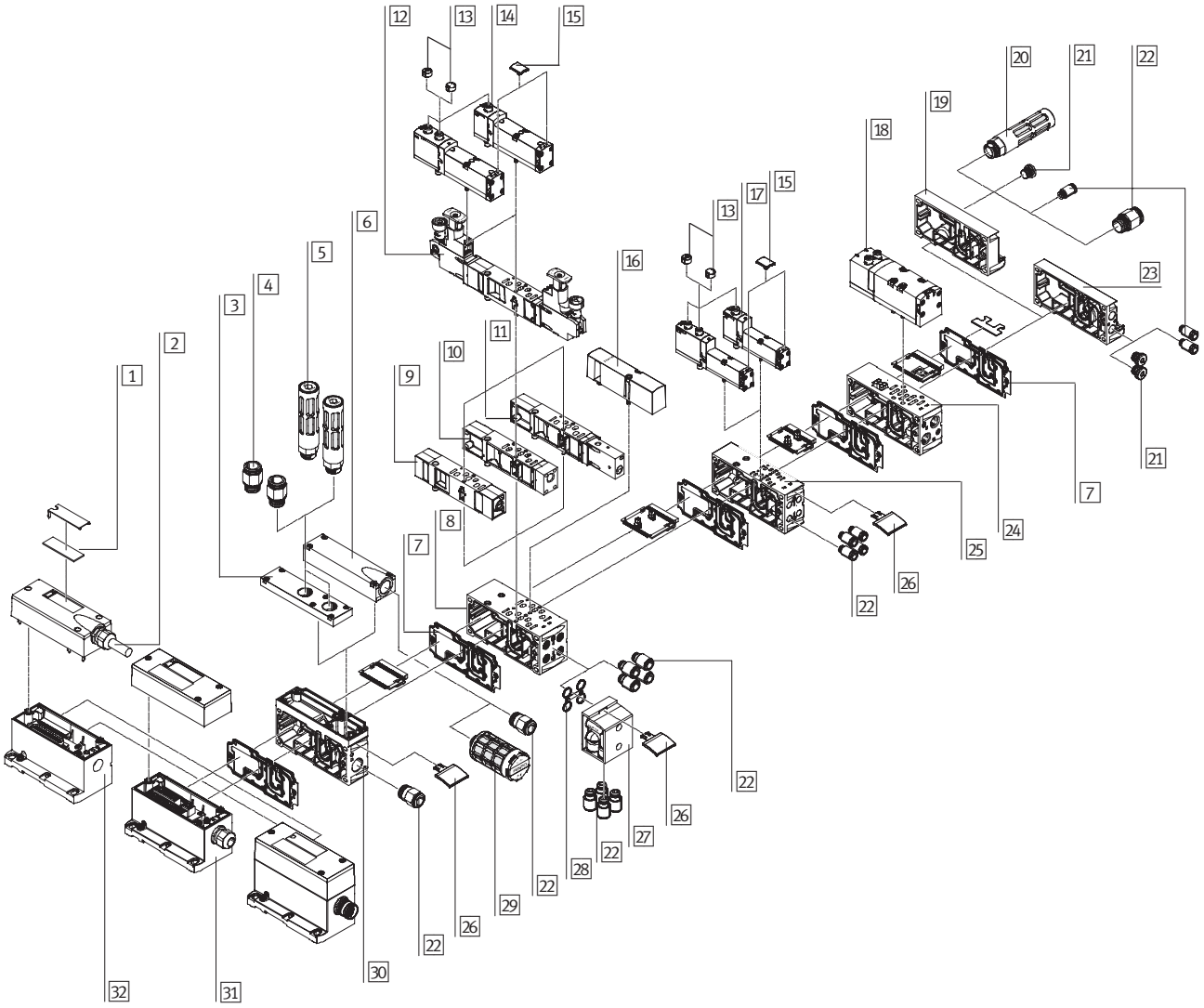
- 1 single solenoid valve
- 1 double solenoid valve

depending on the size.

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

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

- 37-pin Sub-D connection (24 V DC): The connecting cable can be ordered in lengths of 8.2, 16.4 and 32.8 ft for max. 8, 22 or 32 solenoid coils.
- Manifold strip (24 V DC or 110 V AC)



# Overview – Multi-pin Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

| Valve Manifold with Multi-pin Plug Connection | | | |
|---|---|---|---|
| | | **Brief description** | **➔ Page** |
| 1 | Inscription labels | Large, for multi-pin plug connection | – |
| 2 | Multi-core cable | | 98 |
| 3 | Exhaust plate | Ports 3 and 5 separated | 95 |
| 4 | Fittings | For supply plate | 99 |
| 5 | Silencer | For supply plate | 99 |
| 6 | Exhaust port cover | For ducted exhaust air (ports 3 and 5 combined) | 95 |
| 7 | Duct separation/seal | | 95 |
| 8 | Manifold subbase | For valves with a width of 1.02 in | 95 |
| 9 | Flow control plate | | 97 |
| 10 | Vertical supply plate | | 95 |
| 11 | Vertical shut-off plate | | 97 |
| 12 | Pressure regulator plate | | 96 |
| 13 | Cover cap | For manual override, pushing, covered | 99 |
| 14 | Valve | Width 1.02 in | 91 |
| 15 | Inscription label holder | For valve | 99 |
| 16 | Blanking plate | For unused valve position (vacant position) | 99 |
| 17 | Valve | Width 0.71 in | 91 |
| 18 | Valve | Width 1.65 in (type 44 only) | 91 |
| 19 | Right-hand end plate | | 93 |
| 20 | Silencer | For end plate | 99 |
| 21 | Blanking plugs | | 100 |
| 22 | Fittings | | 99 |
| 23 | End plate with pilot air selector | | 93 |
| 24 | Manifold subbase | For valves with a width of 1.65 in (type 44 only) | 93 |
| 25 | Manifold subbase | For valves with a width of 0.71 in | 93 |
| 26 | Inscription label holder | For supply plate, subbase, 90° connection plate | 99 |
| 27 | 90° connection plate | | 95 |
| 28 | Seals | | 95 |
| 29 | Silencer | | 99 |
| 30 | Supply plate | | 95 |
| 31 | Multi-pin plug connection | Via manifold strip (CageClamp) 24 V DC or 110 V AC | 97 |
| 32 | Multi-pin plug connection | With multi-core cable 24 V DC | 97 |

**Note**

The choice of silencer to be used depends on the type of vertical stacking of the valve positions to the left and the right of the supply plate.

Exhaust port cover 6 with plastic exhaust air silencer type U-½
- A pressure regulator plate

Exhaust port cover 6 with metal exhaust air silencer type U-½-B
- P pressure regulator plate
- B pressure regulator plate
- AB pressure regulator plate
- Vertical shut-off plate
- Vertical supply plate
- Flow control plate

# Overview – Fieldbus Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

## Valve Manifold with Fieldbus Connection, Control Block (Electrical Peripherals CPX)

Order code:

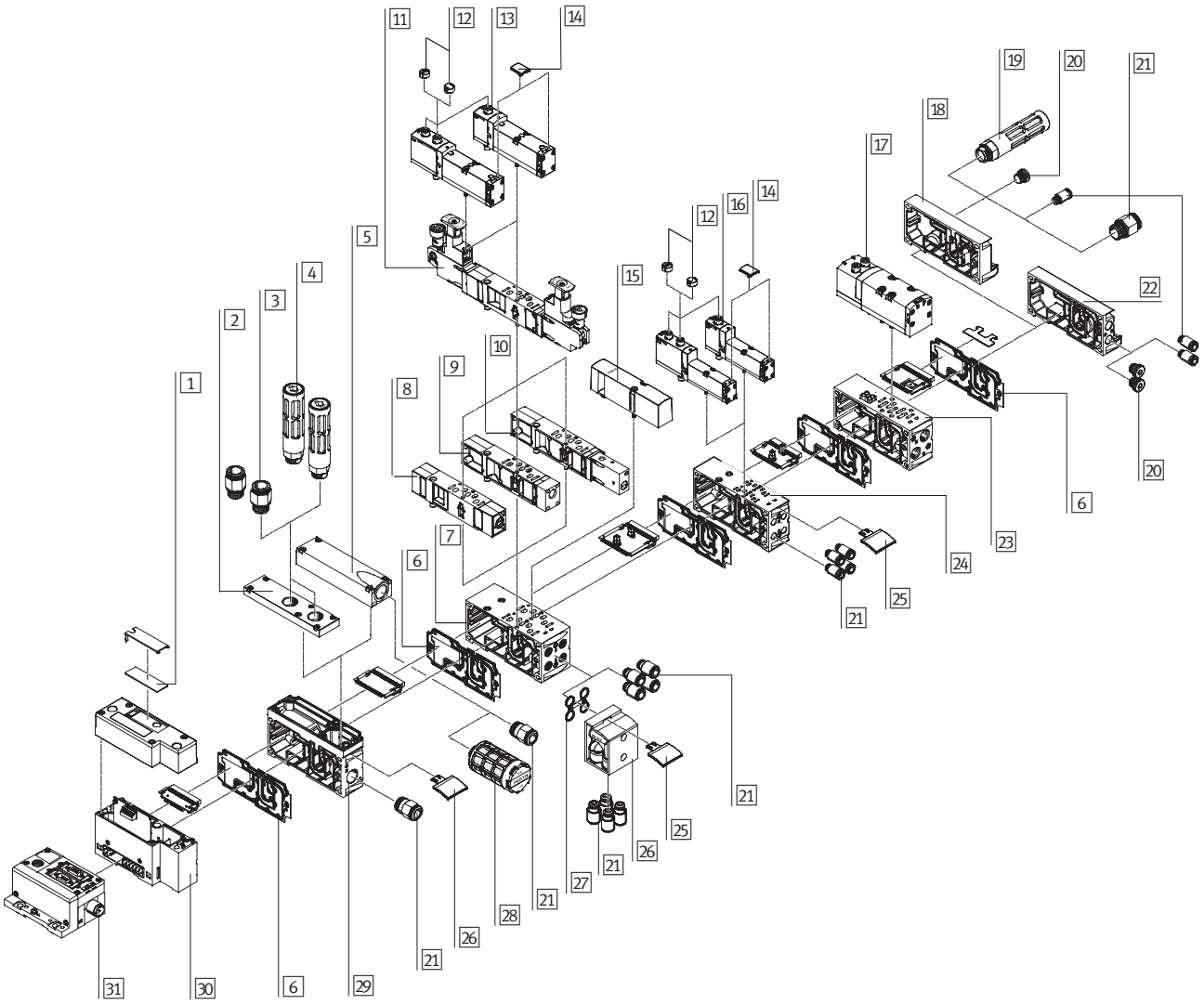
- 50E-... for the electrical peripherals
- 44P for the pneumatic components
- 45P... for the pneumatic components. High flow rate with optimized manifold subbases.

Valve manifolds with fieldbus interface can be expanded with up to 32 valves with max. 32 solenoid coils.
Each valve position can be fitted with any valve or a blanking plate.

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

In general:

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



# Overview – Fieldbus Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

| Valve Manifold with Fieldbus Connection, Control Block (Electrical Peripherals CPX) | | | |
|---|---|---|---|
| | | **Brief description** | **➔ Page** |
| 1 | Inscription labels | Large, for pneumatic interface CPX | – |
| 2 | Exhaust plate | Ports 3 and 5 separated | 95 |
| 3 | Fittings | For supply plate | 99 |
| 4 | Silencer | For supply plate | 99 |
| 5 | Exhaust port cover | For ducted exhaust air (ports 3 and 5 combined) | 95 |
| 6 | Duct separation/seal | | 95 |
| 7 | Manifold subbase | For valves with a width of 1.02 in | 93 |
| 8 | Flow control plate | | 97 |
| 9 | Vertical supply plate | | 95 |
| 10 | Vertical shut-off plate | | 97 |
| 11 | Pressure regulator plate | | 96 |
| 12 | Cover cap | For manual override, pushing, covered | 99 |
| 13 | Valve | Width 1.02 in | 91 |
| 14 | Inscription label holder | For valve | 99 |
| 15 | Blanking plate | For unused valve position (vacant position) | 99 |
| 16 | Valve | Width 0.71 in | 91 |
| 17 | Valve | Width 1.65 in (type 44 only) | 91 |
| 18 | Right-hand end plate | | 93 |
| 19 | Silencer | For end plate | 99 |
| 20 | Blanking plugs | | 100 |
| 21 | Fittings | | 99 |
| 22 | End plate with pilot air selector | | 93 |
| 23 | Manifold subbase | For valves with a width of 1.65 in (type 44 only) | 93 |
| 24 | Manifold subbase | For valves with a width of 0.71 in | 93 |
| 25 | Inscription label holder | For supply plate/subbase/90° connection plate | 99 |
| 26 | 90° connection plate | | 95 |
| 27 | Seals | | 95 |
| 28 | Silencer | | 99 |
| 29 | Supply plate | | 95 |
| 30 | Pneumatic interface | | 97 |
| 31 | Fieldbus interface | | – |

**Note**

The choice of silencer to be used depends on the type of vertical stacking of the valve positions to the left and the right of the supply plate.

Exhaust port cover 5 with plastic exhaust air silencer type U-½
- A pressure regulator plate

Exhaust port cover 5 with metal exhaust air silencer type U-½-B
- P pressure regulator plate
- B pressure regulator plate
- AB pressure regulator plate
- Vertical shut-off plate
- Vertical supply plate
- Flow control plate

# Overview – Single Subbases

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

## Individual Subbase

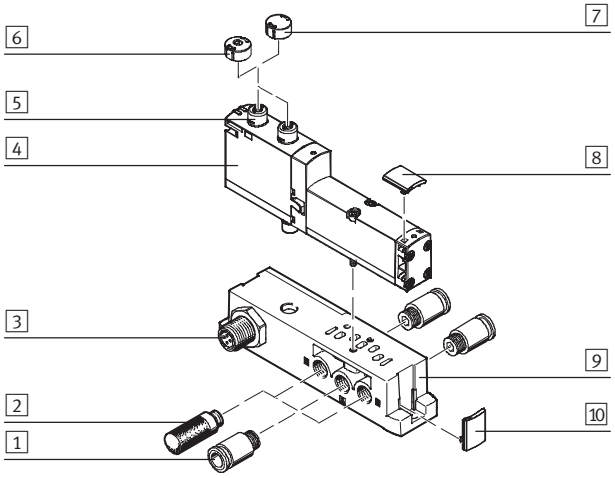
Order code:

- Using individual part numbers

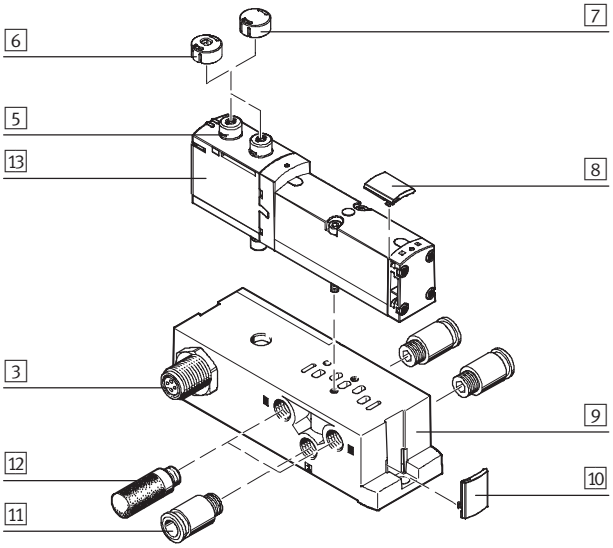
Individual subbases can be equipped with any valve.

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

Width 0.71 in with M12 plug




Width 1.02 in with M12 plug




| | | Brief description | ➔ Page |
|---|---|---|---|
| 1 | Fitting | 1/8 NPT for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 2 | Silencer | 1/8 NPT for supply/exhaust ports (1, 3, 5) | 99 |
| 3 | Electrical connection M12[1)] | 4-pin | – |
| 4 | VSVA valve | Width 0.71 in | 91 |
| 5 | Manual override | Non-detenting/detenting, per solenoid coil | – |
| 6 | Cover cap | For manual override, pushing | 99 |
| 7 | Cover cap | For manual override, covered | 99 |
| 8 | Inscription label holder | For valves | 99 |
| 9 | Individual subbase | For valve VSVA | 94 |
| 10 | Inscription label holder | For manifold blocks | 99 |
| 11 | Fitting | 1/4 NPT for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 12 | Silencer | 1/4 NPT for supply/exhaust ports (1, 3, 5) | 99 |
| 13 | VSVA valve | Width 1.02 in | 91 |

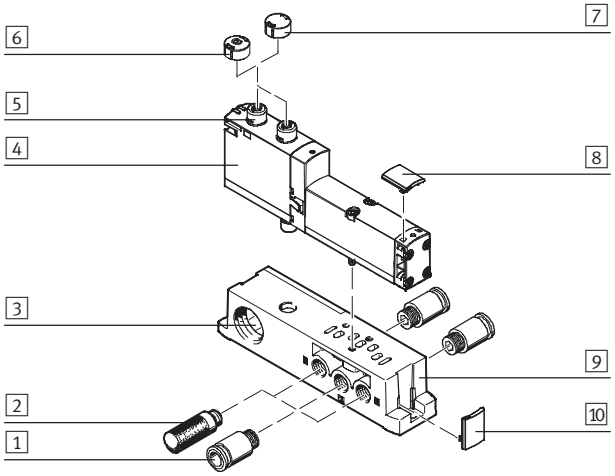
1) Only with 24 V DC

# Overview – Single Subbases

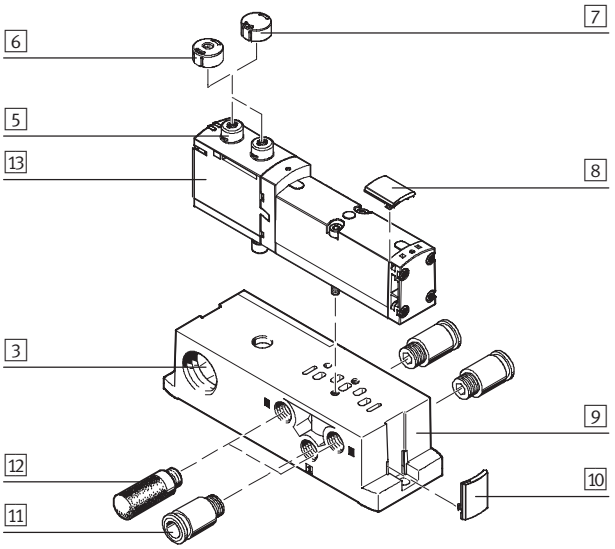
Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

**Individual Subbase**

Width 0.71 in with clamped manifold connection




Width 1.02 in with clamped manifold connection




| | | Brief description | ➔ Page |
|---|---|---|---|
| 1 | Fitting | ⅛ NPT for aupply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 2 | Silencer | ⅛ NPT for supply/exhaust ports (1, 3, 5) | 99 |
| 3 | Manifold connection[1)] | 4-pin, configured by the user | – |
| 4 | VSVA valve | Width 0.71 in | 91 |
| 5 | Manual override | By pushing/detenting, per solenoid coil | – |
| 6 | Cover cap | For manual override, pushing | 99 |
| 7 | Cover cap | For manual override, covered | 99 |
| 8 | Inscription label holder | For valves | 99 |
| 9 | Individual subbase | For valve VSVA | 94 |
| 10 | Inscription label holder | For manifold blocks | 99 |
| 11 | Fitting | ¼ NPT for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 12 | Silencer | ¼ NPT for supply/exhaust ports (1, 3, 5) | 99 |
| 13 | VSVA valve | Width 1.02 in | 91 |

1) 24 V DC or 110 V AC

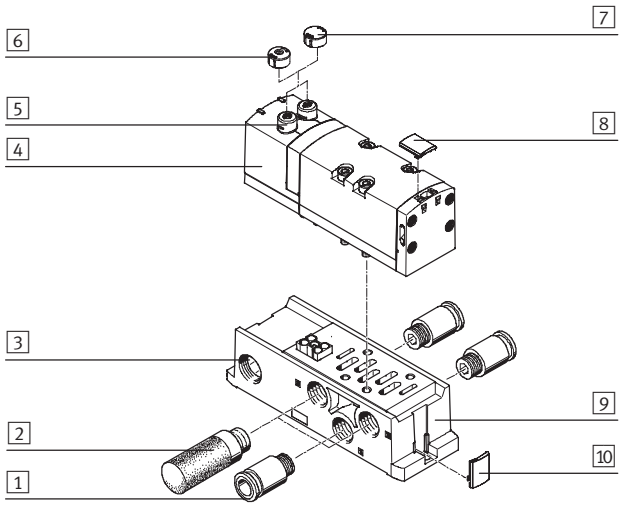
# Overview – Single Subbases

Valve Manifolds Type 44 VTSA – Inch Series

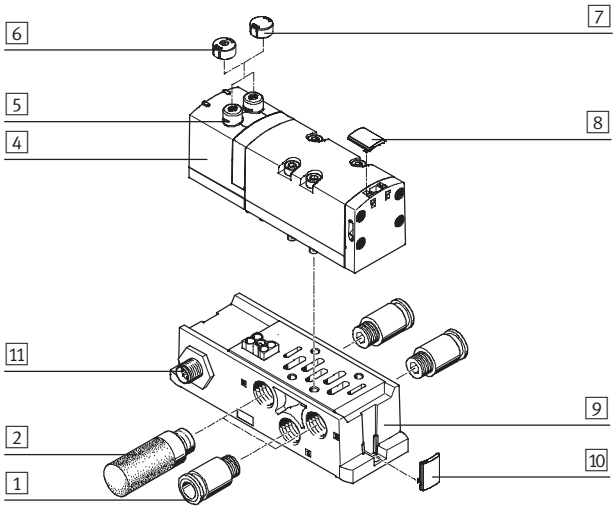
FESTO

**Individual Subbase**

Width 1.65 in with spring-loaded manifold/open end




Width 1.65 in with M12 plug




| | Brief description | ➔ Page |
|---|---|---|
| 1 Fitting | 3/8 NPT for supply/exhaust ports (1, 3, 5) and working ports (2, 4) | 99 |
| 2 Silencer | 3/8 NPT for supply/exhaust ports (1, 3, 5) | 99 |
| 3 Clamped manifold connection/open end[1] | 4-pin, configured by the user | – |
| 4 VSVA valve | Width 1.65 in | 91 |
| 5 Manual override | Pushing/detenting, per solenoid coil | – |
| 6 Cover cap | For manual override, pushing | 99 |
| 7 Cover cap | For manual override, covered | 99 |
| 8 Inscription label holder | For valves | 99 |
| 9 Individual subbase | For valve VSVA | 94 |
| 10 Inscription label holder | For manifold blocks | 99 |
| 11 Electrical connection M12[2] | 4-pin | – |

1) 24 V DC or 110 V AC
2) Only for 24 V DC

# Overview – Individual Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

## Valve Manifold with Individual Connection

Order code:

- 44E for the electrical components
- 45E for the electrical components
- 44P for the pneumatic components
- 45P for the pneumatic components

Valve manifolds with individual connection can be expanded with up to 20 valves with max. 20 solenoid coils. The manifold subbases width 0.71 and 1.02 in are either prepared for:

- 2 single solenoid valves
- 2 double solenoid valves

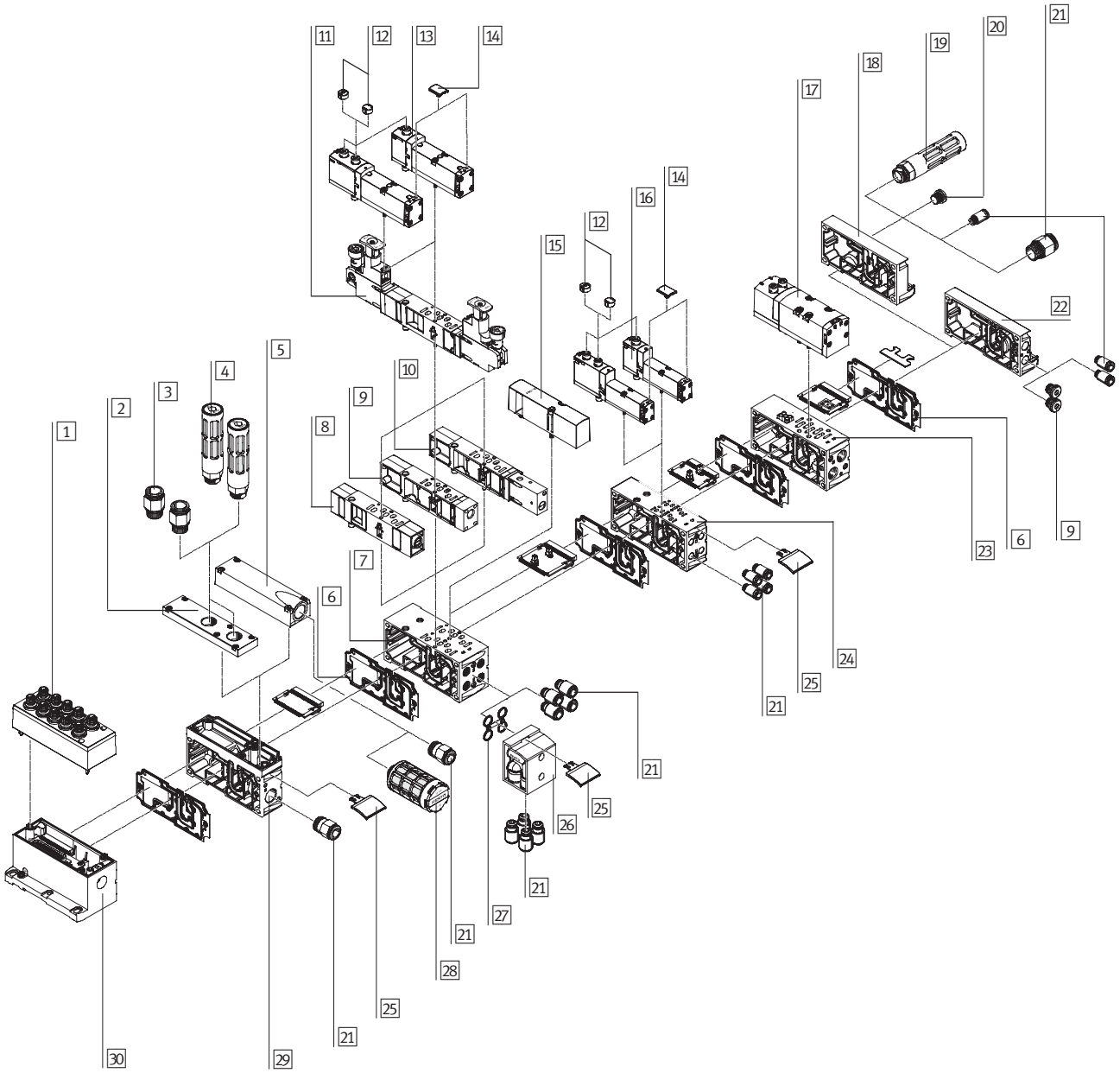
The manifold subbases width 1.65 in are prepared for:

- 1 single solenoid valve
- 1 double solenoid valve

depending on the size.

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

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



# Overview – Individual Connection

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

| Valve Manifold with Individual Connection | | | |
|---|---|---|---|
| | | Brief description | ➔ Page |
| 1 | Cover | For individual connection | 97 |
| 2 | Exhaust plate | Ports 3 and 5 separated | 95 |
| 3 | Fittings | For supply plate | 99 |
| 4 | Silencer | For supply plate | 99 |
| 5 | Exhaust port cover | For ducted exhaust air (ports 3 and 5 combined) | 95 |
| 6 | Duct separation/seal | | 95 |
| 7 | Manifold subbase | For valves with a width of 1.02 in | 93 |
| 8 | Flow control plate | | 97 |
| 9 | Vertical supply plate | | 95 |
| 10 | Vertical shut-off plate | | 97 |
| 11 | Pressure regulator plate | | 96 |
| 12 | Cover cap | For manual override, pushing, covered | 99 |
| 13 | Valve | Width 1.02 in | 91 |
| 14 | Inscription label holder | For valve | 99 |
| 15 | Blanking plate | For unused valve position (vacant position) | 99 |
| 16 | Valve | Width 0.71 in | 91 |
| 17 | Valve | Width 1.65 in (type 44 only) | 93 |
| 18 | Right-hand end plate | | 93 |
| 19 | Silencer | For end plate | 99 |
| 20 | Blanking plugs | | 100 |
| 21 | Fittings | | 99 |
| 22 | End plate with pilot air selector | | 93 |
| 23 | Manifold subbase | For valves with a width of 1.65 in (type 44 only) | 93 |
| 24 | Manifold subbase | For valves with a width of 0.71 in | 93 |
| 25 | Inscription label holder | For supply plate, subbase, 90° connection plate | 99 |
| 26 | 90° connection plate | | 95 |
| 27 | Seals | | 95 |
| 28 | Silencer | | 99 |
| 29 | Supply plate | | 95 |
| 30 | Multi-pin plug connection | Individual connection with M12, 10-way or 6-way (including cover) | 97 |

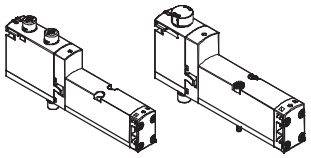
**Note**

The choice of silencer to be used depends on the type of vertical stacking of the valve positions to the left and the right of the supply plate.

Exhaust port cover 5 with plastic exhaust air silencer type U-½
- A pressure regulator plate

Exhaust port cover 5 with metal exhaust air silencer type U-½-B
- P pressure regulator plate
- B pressure regulator plate
- AB pressure regulator plate
- Vertical shut-off plate
- Vertical supply plate
- Flow control plate

## Subbase Valve



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

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

**Reverse operation**
Select reverse operation (code Z) if you wish to operate an actuator (cylinder) with different pressures for the forward and return stroke. It must be noted here that these valves must be operated via a separate pressure zone.

## Blanking Plate

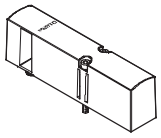
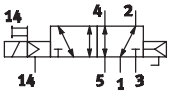
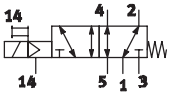
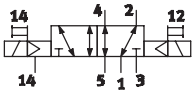
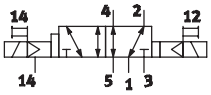
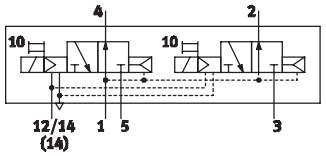
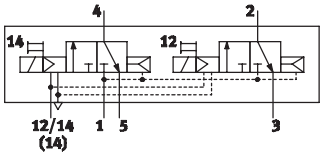
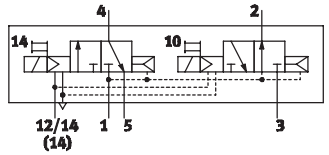
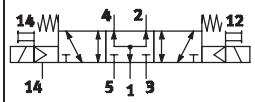
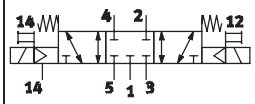
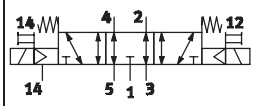
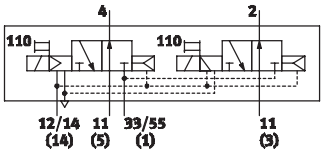
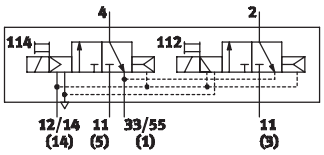
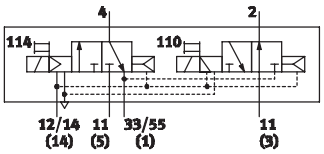


Plate without valve function for reserving valve positions on a valve manifold.

Valves and blanking plates are attached to the manifold subbase using two screws.

**Valve Function**

| Code | Circuit symbol | Width | | | Description |
|---|---|---|---|---|---|
| | | 0.71 in | 1.02 in | 1.65 in | |
| M |  | ■ | ■ | ■ | 5/2-way valve, single solenoid<br>• Pneumatic spring return |
| O |  | ■ | ■ | ■ | 5/2-way valve, single solenoid<br>• Spring return |
| J |  | ■ | ■ | ■ | 5/2-way valve, double solenoid |
| D |  | ■ | ■ | ■ | 5/2-way valve, double solenoid<br>• Dominant signal with port 14 on the control side |
| N |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Normally open<br>• Pneumatic spring return |
| K |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Normally closed<br>• Pneumatic spring return |

| Valve Function | | | | | |
|---|---|---|---|---|---|
| Code | Circuit symbol | Width | | | Description |
| | | 0.71 in | 1.02 in | 1.65 in | |
| H |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Normal position<br>– 1x closed<br>– 1x open<br>• Pneumatic spring return<br>• Operating pressure > 44 psi |
| B |  | ■ | ■ | ■ | 5/3-way valve<br>• Mid-position pressurized[1)]<br>• Spring force return |
| G |  | ■ | ■ | ■ | 5/3-way valve<br>• Mid-position closed[1)]<br>• Spring force return |
| E |  | ■ | ■ | ■ | 5/3-way valve<br>• Mid-position exhausted[1)]<br>• Spring force return |
| P |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Reverse operation<br>• Normally open<br>• Pneumatic spring return |
| Q |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Reverse operation<br>• Normally closed<br>• Pneumatic spring return |
| R |  | ■ | ■ | ■ | 2x 3/2-way valve, single solenoid<br>• Reverse operation<br>• Normal position<br>– 1x closed<br>– 1x open<br>• Pneumatic spring return |
| L | | ■ | ■ | ■ | For valve manifold only:<br>Blanking plate for vacant valve position |

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

## Design

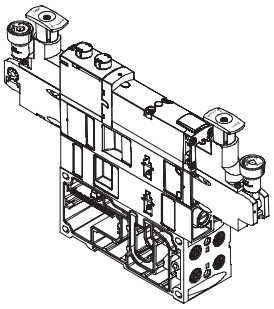
### Valve replacement

The valves are attached to the metal manifold subbase using two screws. This means that they can be easily replaced. The high-quality of the manifold subbase guarantees good long-term sealing tightness.

### Expansion

Vacant positions can be equipped with valves at a later date. The dimensions, mounting points and existing pneumatic installations remain unchanged during this process. The order code VSVA-... is located on the front of the valve beneath the manual override.

## Vertical Stacking

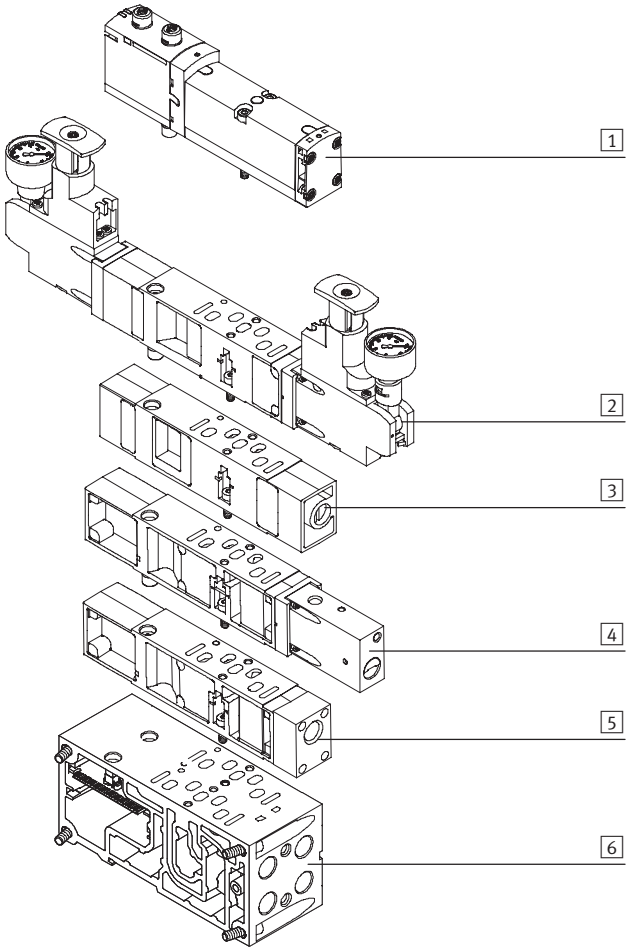


Additional function units can be added to each valve position between the subbase and the valve. These functions, designated as vertical stacking, facilitate special functioning or control of the respective individual valve position.
Combinations of several valve sizes on one valve manifold are possible.

**Note**
The operation of the components should be checked when combining multiple vertical stacking components.

The following combination of reversible valve manifolds with vertical stacking components is not permitted:
- Reversible pressure regulating plates
- Throttle plates
- Vertical isolating plates
- Vertical supply plates

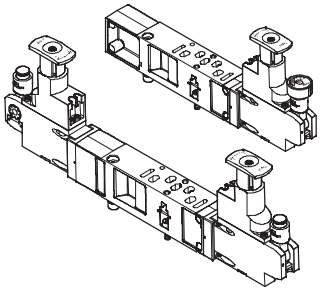
## Vertical stacking components




The following component sequence is recommended for valve positions with vertical stacking:
1. ISO valve
2. Pressure regulator plate
3. Flow control plate
4. Vertical shut-off plate
5. Vertical supply plate
6. Manifold subbase

## Vertical Stacking

### Pressure regulator plate

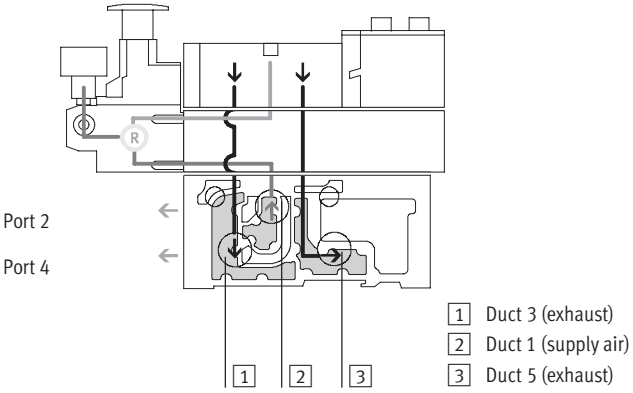


An adjustable pressure regulator can be installed between the subbase and the valve in order to control the force of the respective actuator.

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

Standard version:
- Standard port pattern to ISO 15407-2 or ISO 5599-2 (type 44 only)
- For supply pressure up to 88 psi or up to 147 psi
- Without pressure gauge (optional)
- Regulator knob with 3 positions (locked, reference position, free running)

### Mode of operation of the pressure regulating plate (P regulation) for port 1; code: ZA, ZF




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

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

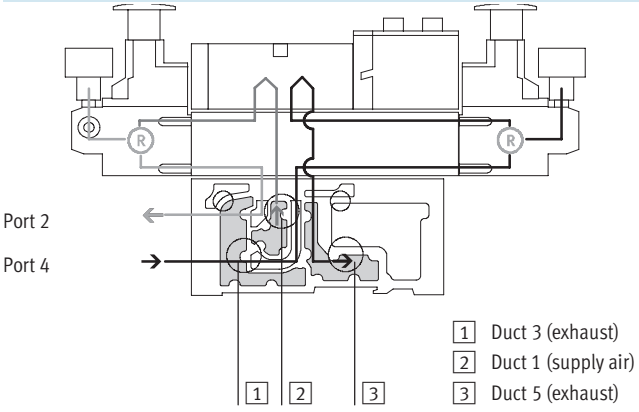
#### Advantages

- The pressure regulator is not affected by venting, as the pressure is regulated before the valve.
- The pressure regulator can always be adjusted, as the pressure from the valve manifold is always present.

#### Application examples

- An equal working pressure is required at working ports 2 and 4
- A lower working pressure (e.g. 44 psi) than the operating pressure present on the valve manifold (e.g. 118 psi) is required.

### Mode of operation of the pressure regulating plate (A/B regulation) for ports 2 and 4; code: ZD, ZI




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

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

#### Restrictions

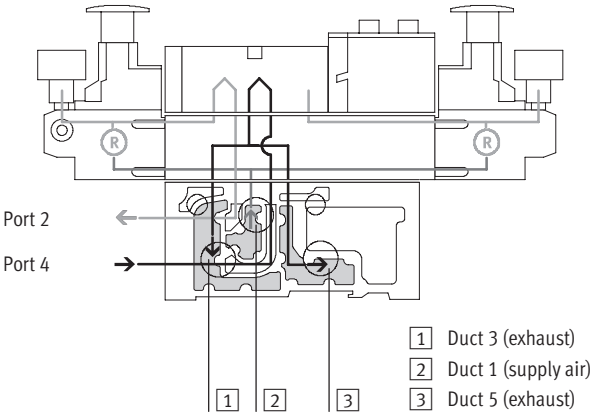
- The pressure regulator cannot be adjusted in the exhaust position. For example, the pressure regulator for duct 4 cannot be adjusted when the valve is pressurized in the switching position from duct 1 to duct 2 and exhausted from duct 4 to duct 5.

#### Application examples

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

## Vertical Stacking

Mode of operation of the pressure regulating plate (A/B regulation, reversible) for ports 2 and 4, reversible; code: ZE, ZJ




With this pressure regulator, the supply air (duct 1) is split and routed directly to both pressure regulators. The regulated compressed air is present in ducts 3 and 5 on the valve. The valve is thus operated in reversible mode.
This means
- Duct 3 routes the working pressure to port 2
- Duct 5 routes the working pressure to port 4

Example with the following switching position:
The supply air in duct 1 is split among ducts 3 and 5 in the regulator and flows from here to the valve. In the valve, the supply air is routed to port 2 of the manifold subbase. The exhaust air is simultaneously routed via duct 4 of the manifold subbase and via the valve to regulator duct 1, where it is split between ducts 3 and 5 and then drawn off via the manifold subbase.

### Application examples

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

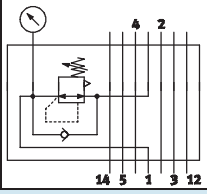
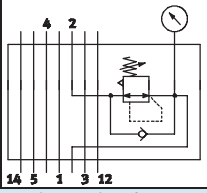
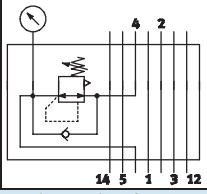
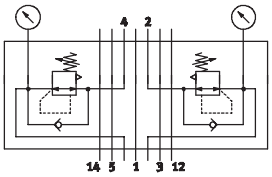
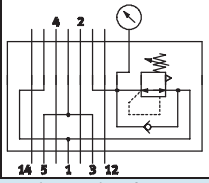
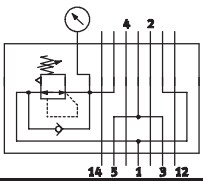
**Note**
- Reversible pressure regulating plates may only be combined with valves that can be operated in reversible mode.
- Valves in valve positions with vertical shut-off plates are operated with internal pilot air supply, even when the valve manifold is operated with external pilot air supply.
-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

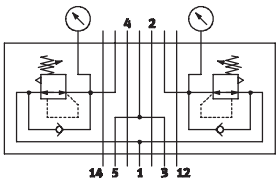
### Advantages

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

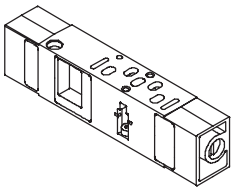
### Disadvantages

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

| Vertical Stacking – Pressure Regulating Plate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Code | | Type | Width | | | Supply pressure | | Description |
| | | | 0.71 in | 1.02 in | 1.65 in | 88 psi | 147 psi | |
| Pressure regulating plate for port 1 (P regulator) | | | | | | | | |
| ZA |  | VABF-S4-...-R1C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in duct 1 before the directional control valve |
| ZF | | VABF-S4-...-R1C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for port 2 (B regulator) | | | | | | | | |
| ZC |  | VABF-S4-...-R2C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in duct 2 after the directional control valve |
| ZH | | VABF-S4-...-R2C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for port 4 (A regulator) | | | | | | | | |
| ZB |  | VABF-S4-...-R3C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in duct 4 after the directional control valve |
| ZG | | VABF-S4-...-R3C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for ports 2 and 4 (AB regulator) | | | | | | | | |
| ZD |  | VABF-S4-...-R4C2-C-10 | ■ | ■ | ■ | – | ■ | • Regulates the operating pressure in ducts 2 and 4 after the directional control valve |
| ZI | | VABF-S4-...-R4C2-C-6 | ■ | ■ | ■ | ■ | – | **Note** These pressure regulating plates cannot be combined with reversible 2x 3/2-way valves (code P, Q, R). |
| Pressure regulating plate for port 2, reversible (B regulator) | | | | | | | | |
| ZL |  | VABF-S4-...-R6C2-C-10 | ■ | ■ | ■ | – | ■ | • Reversible pressure regulator for port 2 |
| ZN | | VABF-S4-...-R6C2-C-6 | ■ | ■ | ■ | ■ | – | |
| Pressure regulating plate for port 4, reversible (A regulator) | | | | | | | | |
| ZK |  | VABF-S4-...-R7C2-C-10 | ■ | ■ | ■ | – | ■ | • Reversible pressure regulator for port 4 |
| ZM | | VABF-S4-...-R7C2-C-6 | ■ | ■ | ■ | ■ | – | |

| Vertical Stacking – Pressure Regulating Plate | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Code | | Type | Width | | | Supply pressure | | Description |
| | | | 0.71 in | 1.02 in | 1.65 in | 88 psi | 147 psi | |
| Pressure regulating plate for ports 2 and 4, reversible (AB regulator) | | | | | | | | |
| ZE |  | VABF-S4-...-R5C2-C-10 | ■ | ■ | ■ | – | ■ | • Reversible pressure regulator for ports 2 and 4<br>• Pressure regulation before the valve<br>• Redirects the operating pressure from duct 1 to ducts 3 and 5<br>• Routes the exhaust air from duct 1 to ducts 3 and 5 |
| ZJ | | VABF-S4-...-R5C2-C-6 | ■ | ■ | ■ | ■ | – | **Note**<br>This pressure regulating plate cannot be combined with standard 2x 3/2-way valves (code N, K, H). Reversible 2x 3/2-way valves (code P, Q, R) must not be operated in a separate pressure zone in combination with these pressure regulators. |

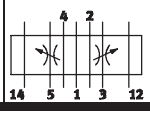
## Vertical Stacking – Flow Control Plate



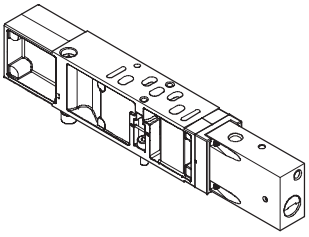
This plate is used for exhaust air flow control in ducts 3 and 5 of a valve in order to adjust the speed of the actuator.

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

**Note**
On reversible valve manifolds, supply air flow control takes place in ducts 3 and 5 before the valve.

| Code | | Type | Width | | | Description |
|---|---|---|---|---|---|---|
| | | | 0.71 in | 1.02 in | 1.65 in | |
| X |  | VABF-S4-...F1B1-C | ■ | ■ | ■ | • Controls the flow of exhaust air after the valve to ducts 3 and 5 |

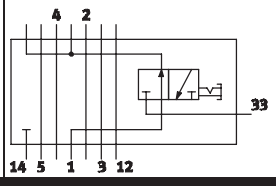
## Vertical Stacking – Vertical Shut-off Plate



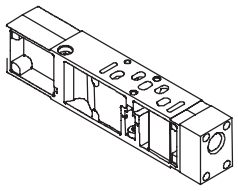
With this plate a valve can be shut off from the supply pressure of the Manifold. This means that the valve can be removed without shutting off the pressure.

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

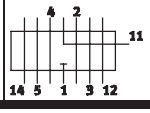
**Note**
It must be ensured that the operating pressure of the valve manifold lies within the range of the required pilot pressure (i.e. min. 44 psi).

| Code | | Type | Width | | | Description |
|---|---|---|---|---|---|---|
| | | | 0.71 in | 1.02 in | 1.65 in | |
| ZT |  | VABF-S4-...L1D1-C | ■ | ■ | ■ | • 2/2-way valve for shutting off the operating pressure at the valve position<br>• Blocks ducts 12 and 14 for the valve position<br>• Supplies the valve position with internal pilot air |

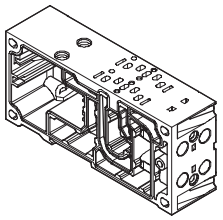
## Vertical Stacking – Vertical Supply Plate



With this plate a valve can be supplied with individual operating pressure independently of the operating pressure of the manifold.

| Code | | Type | Width | | | Description |
|---|---|---|---|---|---|---|
| | | | 0.71 in | 1.02 in | 1.65 in | |
| ZU |  | VABF-S4-...P1A3-... | ■ | ■ | ■ | • Plate with port 11 for supplying an individual operating pressure for a valve position |

## Manifold Subbase



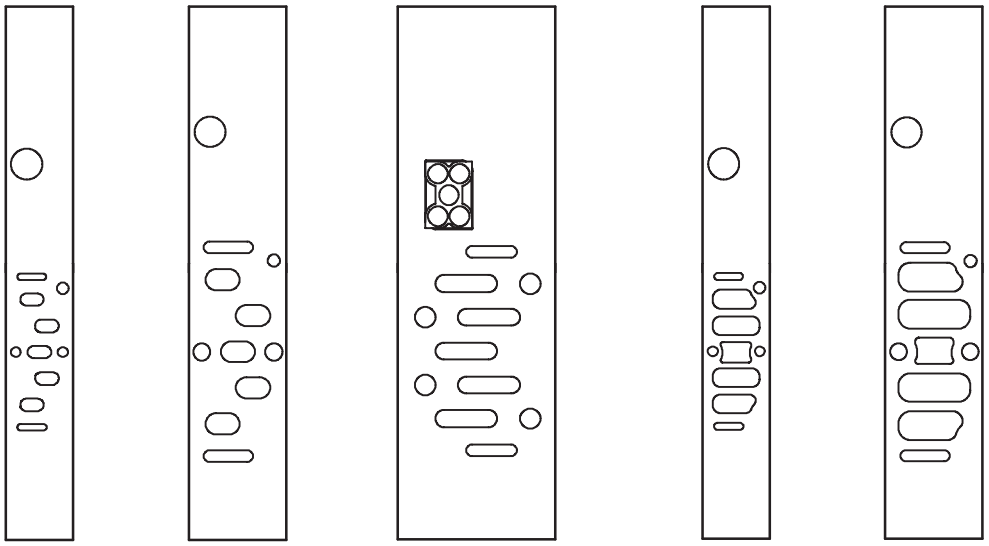
VTSA/VTSA-F is based on a modular system which consists of manifold subbases and valves. Manifold subbases are available for valve width 0.71 and 1.02 in in a double grid, i.e. two valves per manifold subbase.
For width 1.65 in (type 44 only) there are manifold subbases for one valve per subbase .

The manifold subbase contains a ducting seal and electrical linking. They can be freely mixed within a valve manifold. The manifold subbases are screwed together and thus form the support system for the valves.
Inside the manifold blocks are the connection channels for supplying compressed air to and venting from the valves on the manifold as well as the working lines for the pneumatic cylinders for each valve.
Each manifold subbase is connected to the next using four screws. Individual manifold sections can be isolated and further manifold subbases inserted by loosening these screws. This ensures that the valve manifold can be rapidly and reliably expanded.

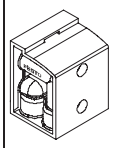
## Port Patterns on the Manifold Subbase

Type 44 VTSA
Width 0.71 in | Width 1.02 in | Width 1.65 in

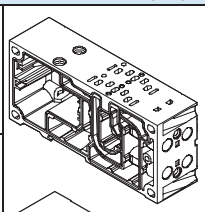
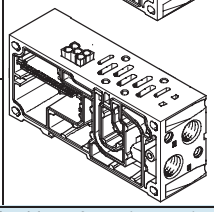
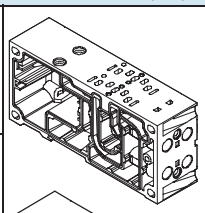
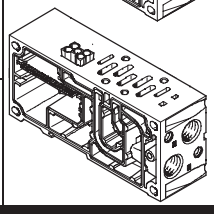
Type 45 VTSA-F
Width 0.71 in | Width 1.02 in



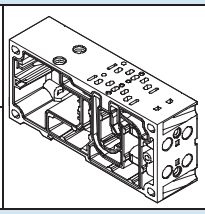
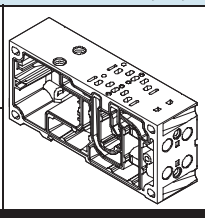
## 90° Connection Plate for Working Ports (2, 4) of the Manifold Subbases

| Code | | Type | Width | | | Ports | Working ports (2, 4) in the 90° connection plate |
|---|---|---|---|---|---|---|---|
| | | | 0.71 in | 1.02 in | 1.65 in | | |
| P |  | NPT thread:<br>VABF-S4-...-A2G2-N... | ■ | ■ | ■ | 2 and 4 | Outlet at bottom<br>• Connection size for 0.71 in width: 1/8 NPT<br>• Connection size for 1.02 in width: 1/4 NPT<br>• Connection size for 1.65 in width: 3/8 NPT |

**Manifold Subbase Variants – Type 44 VTSA**

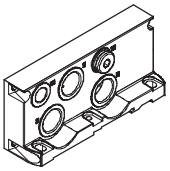
| Code | | Type | Width | | | No. of valve positions/solenoid coils | Working ports (2, 4) on manifold subbase |
|---|---|---|---|---|---|---|---|
| | | | 0.71 in | 1.02 in | 1.65 in | | |
| Manifold subbase for multi-pin plug/fieldbus connection for double solenoid valves | | | | | | | |
| A<br>AK |  | NPT thread:<br>VABV-S4-2S-N18-2T2 | ■ | – | – | 2/4 | • Connection sizes for 0.71 in width:<br>1/8 NPT, QS-1/8-5/16-U, QS-1/8-1/4-U |
| B<br>BK | | NPT thread:<br>VABV-S4-1S-N14-2T2 | – | ■ | – | 2/4 | • Connection sizes for 1.02 in width:<br>1/4 NPT, QS-1/4-3/8-U, QS-1/4-5/16-U |
| C<br>CK |  | NPT thread:<br>VABV-S2-1S-N38-2T2 | – | – | ■ | 2/4 | • Connection sizes for 1.65 in width:<br>3/8 NPT, QS-3/8-3/8-U, QS-3/8-1/2-U |
| Manifold subbase for multi-pin plug/fieldbus connection for single solenoid valves | | | | | | | |
| E<br>EK |  | NPT thread:<br>VABV-S4-2S-N18-2T1 | ■ | – | – | 2/2 | • Connection sizes for 0.71 in width:<br>1/8 NPT, QS-1/8-5/16-U, QS-1/8-1/4-U |
| F<br>FK | | NPT thread:<br>VABV-S4-1S-N14-2T1 | – | ■ | – | 2/2 | • Connection sizes for 1.02 in width:<br>1/4 NPT, QS-1/4-3/8-U, QS-1/4-5/16-U |
| G<br>GK |  | NPT thread:<br>VABV-S2-1S-N38-2T1 | – | – | ■ | 2/2 | • Connection sizes for 1.65 in width:<br>3/8 NPT, QS-3/8-3/8-U, QS-3/8-1/2-U |

**Manifold Subbase Variants – Type 45 VTSA-F**

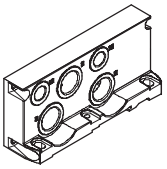
| Code | | Type | Width | | No. of valve positions/solenoid coils | Working ports (2, 4) on manifold subbase |
|---|---|---|---|---|---|---|
| | | | 0.71 in | 1.02 in | | |
| Manifold subbase for multi-pin plug/fieldbus connection for double solenoid valves | | | | | | |
| A<br>AK |  | NPT thread:<br>VABV-S4-2HS-N18-2T2 | ■ | – | 2/4 | • Connection sizes for 0.71 in width:<br>1/8 NPT, QS-1/8-5/16-U, QS-1/8-1/4-U |
| B<br>BK | | NPT thread:<br>VABV-S4-1HS-N14-2T2 | – | ■ | 2/4 | • Connection sizes for 1.02 in width:<br>1/4 NPT, QS-1/4-3/8-U, QS-1/4-5/16-U |
| Manifold subbase for multi-pin plug/fieldbus connection for single solenoid valves | | | | | | |
| E<br>EK |  | NPT thread:<br>VABV-S4-2HS-N18-2T1 | ■ | – | 2/2 | • Connection sizes for 0.71 in width:<br>1/8 NPT, QS-1/8-5/16-U, QS-1/8-1/4-U |
| F<br>FK | | NPT thread:<br>VABV-S4-1HS-N14-2T1 | – | ■ | 2/2 | • Connection sizes for 1.02 in width:<br>1/4 NPT, QS-1/4-3/8-U, QS-1/4-5/16-U |

## Compressed Air Supply and Venting

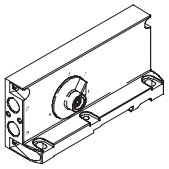
Right-hand end plate
– Code V



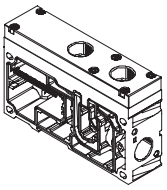
Right-hand end plate
– Code X



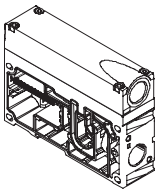
End plate with pilot air selector
– Code Y, U, Z, W



Port configuration for supply plates
Exhaust air 3/5 separated
– Code K



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



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

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

## Pilot air supply

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

- Internal
- External

**Internal pilot air supply**
Internal pilot air supply can be selected if the required working pressure is between 44 and 147 psi.
The pilot air supply is then branched from the compressed air supply 1 using an internal connection. Port 14 on the right-hand end plate is sealed with a blanking plug.

**External pilot air supply**
If the supply pressure is less than 44 psi, you must operate your valve manifold using external pilot air supply. The pilot air supply is supplied via port 14 on the right-hand end plate to this end. This is the case even if the valve manifold is operated with different pressure zones.

**Note**
If a gradual pressure build-up in the system using a pressurized on-off valve is required, external pilot supply air where the control pressure applied during switch-on is already very high should be selected.

## Right-hand End Plate

Different right-hand end plates are available.

With the following two end plates, the outgoing direction of the ports is aligned with the horizontal stacking direction.
Right-hand end plates with supply air/exhaust air
– Internal pilot air supply: Code V
– External pilot air supply: Code X

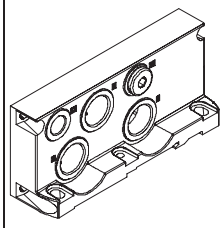
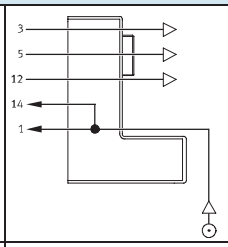
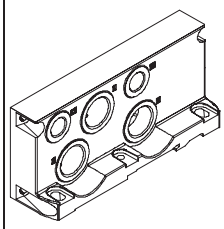
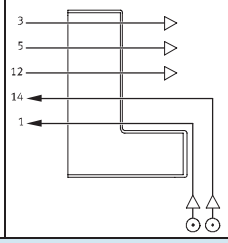
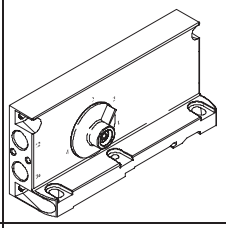
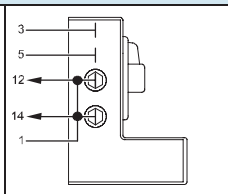
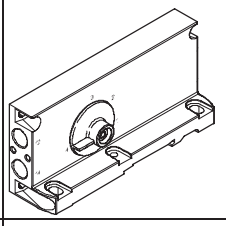
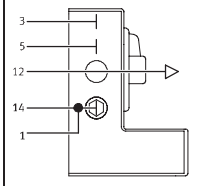
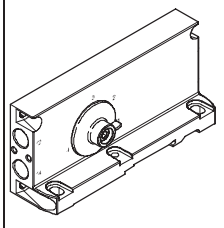
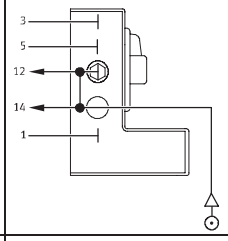
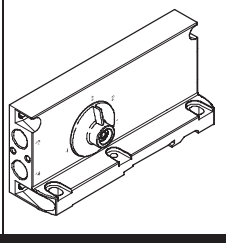
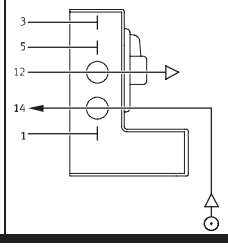
For end plates with pilot air selector, the outgoing direction of the ports is to the front face of the valve manifold. This means that all of the ports on the manifold can be combined in one outgoing direction.
The special feature of the end plates with pilot air selector is the selector switch itself, which has four settings for different pilot air supply/pilot exhaust air.

End plates with pilot air selector switch set at the factory for:
– Internal pilot air supply: Code Y
– External pilot air supply: Code Z
– Internal pilot air supply, ducted pilot exhaust air: Code U
– External pilot air supply, ducted pilot exhaust air: Code W

**Note**
The end plate with pilot air selector must be used in combination with a supply plate.
The reversible 3/2-way valves (code P, Q, R) must only be operated in selector position 1 or 2 (code Z, Y).

**Right-hand End Plate with Coding Cap**

| Code | Selector position |
|---|---|
| Z | 1 |
| Y | 2 |
| W | 3 |
| U | 4 |

| Right-hand End Plate | | | | | | |
|---|---|---|---|---|---|---|
| Code | Type of compressed air supply and pilot air supply | | Width | | | Description |
| | | | 0.71 in | 1.02 in | 1.65 in | |
| | Right-hand end plate | | | | | |
| V |  |  | ■ | ■ | ■ | Supply air/exhaust air, internal pilot air supply, silencer<br>• Pilot air supply is branched internally from port 1<br>• Port 14 is sealed with a blanking plug<br>• Exhaust 3/5 via silencer<br>• For operating pressure in the range 44 ... 147 psi<br>• Pilot exhaust[1)] |
| X |  |  | ■ | ■ | ■ | Supply air/exhaust air, external pilot air supply, silencer<br>• Pilot air supply between 2 and 10 bar is connected at port 14<br>• Exhaust 3/5 via silencer<br>• For operating pressure in the range –13.2 ... 147 psi (suitable for vacuum)<br>• Pilot exhaust[1)] |
| Code[2)] | End plate with pilot air selector | | | | | |
| Y (2) |  |  | ■ | ■ | ■ | Internal pilot air supply<br>• Pilot air supply is branched internally from port 1<br>• Ports 1/12/14 are internally connected<br>• Ports 12/14 are sealed with blanking plugs<br>• Pilot exhaust air is vented via valve housing |
| U (4) |  |  | ■ | ■ | ■ | Internal pilot supply air, ducted exhaust air<br>• Pilot air supply is branched internally from port 1<br>• Ports 1/14 are internally connected<br>• Port 14 is sealed with a blanking plug<br>• Pilot exhaust via port 12 with silencer[1)] |
| Z (1) |  |  | ■ | ■ | ■ | External pilot air supply<br>• Pilot air supply is connected at port 14<br>• Port 12 is sealed with a blanking plug<br>• Ports 12/14 are internally connected<br>• Pilot exhaust air is vented via valve housing |
| W (3) |  |  | ■ | ■ | ■ | External pilot supply air, ducted exhaust air<br>• Pilot air supply is connected at port 14<br>• Pilot exhaust via port 12 with silencer[1)] |

1) Ducted pilot exhaust air is only possible with turned seals on the valve
2) Selector position in brackets

## Compressed Air Supply/Duct Separation

Additional supply plates can be used for larger manifolds or to create pressure zones.
These can be selected at any point before or after manifold subbases.

Supply plates contain the ports:
- Compressed air supply port (1)
- Exhaust port (3/5) common or separated

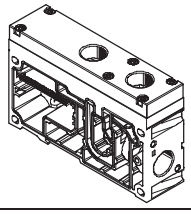
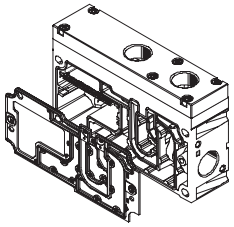
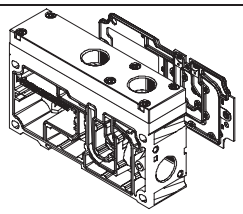
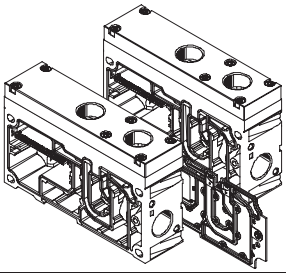
Depending on your order, the exhaust air ducts are either ducted or vented via silencers.

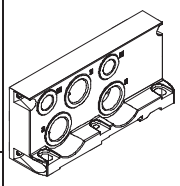
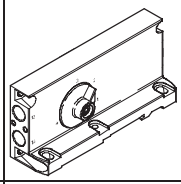
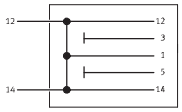
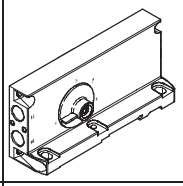
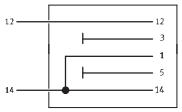
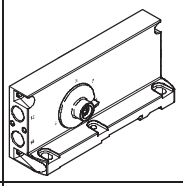
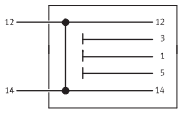
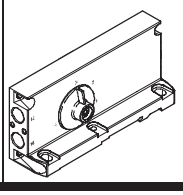
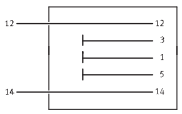
**VTSA/VTSA-F with ducted exhaust air**
With ducted exhaust air, venting can be performed via a supply plate or a right-hand end plate (code V or X).

If a duct separation is required, there are three different options:
- Duct separation 1, 3, 5: Code S
- Duct separation 1: Code T
- Duct separation 3, 5: Code R

If a combination of duct separation (S, T or R) and one or two supply plates is required, the following variants can be selected:
- Supply plate with duct separation on the left-hand side:
  Code SU, TU, RU
- Supply plate with duct separation on the right-hand side:
  Code US, UT, UR
- 2 supply plates with intermediate duct separation:
  Code USU, UTU, URU

**Supply Plates**

| Code | | Type | Width | | | Description |
|---|---|---|---|---|---|---|
| | | | 0.71 in | 1.02 in | 1.65 in | |
| U |  | • Exhaust port 3/5 common<br>For NPT thread:<br>VABF-S6-10-P1A7-N12<br>• Exhaust air 3/5 separated<br>For NPT thread:<br>VABF-S6-10-P1A6-N12 | ■ | ■ | ■ | Supply plate without duct separation<br>(no R, S or T selected) |
| SU<br>TU<br>RU |  | | ■ | ■ | ■ | Supply plate with duct separation on left,<br>if R, S or T selected |
| US<br>UT<br>UR |  | | ■ | ■ | ■ | Supply plate with duct separation on right,<br>if R, S or T selected |
| USU<br>UTU<br>URU |  | | ■ | ■ | ■ | 2 supply plates with duct separation in centre,<br>if R, S or T selected |

| Configuration of All Pneumatic Connections with NPT Thread | | | | | | |
|---|---|---|---|---|---|---|
| Code[1] | | | Connection | Designation | **Code M** Push-in connector large | **Code N** Push-in connector small |
| V |  | – | Right-hand end plate, internal pilot air supply, silencer | | | |
| | | | 1 Compressed air/ vacuum supply | Push-in fitting | QS-½-⅝-U | QS-½-½-U |
| | | | 3/5 Exhaust air | Via silencer | U-½-B-NPT | U-½-B-NPT |
| | | | 14 Pilot air supply | Blanking plug | B-¼-NPT | B-¼-NPT |
| X | | | Right-hand end plate, external pilot air supply, silencer | | | |
| | | | 1 Compressed air/ vacuum supply | Push-in fitting | QS-½-⅝-U | QS-½-½-U |
| | | | 3/5 Exhaust air | Via silencer | U-½-B-NPT | U-½-B-NPT |
| | | | 12 Pilot exhaust air | Via silencer | U-¼-B-NPT | U-¼-B-NPT |
| | | | 14 Pilot air supply | Push-in fitting | QS-¼-⅜-U | QS-¼-5/16-U |
| Y (2) |  |  | End plate with pilot air selector, internal pilot air supply | | | |
| | | | 12/14 Pilot air supply/ pilot exhaust air | Blanking plug/push-in fitting | B-¼-NPT / QS-¼-⅜-U | B-¼-NPT / QS-¼-5/16-U |
| U (4) |  |  | End plate with pilot air selector, internal pilot air supply, ducted exhaust air | | | |
| | | | 12/14 Pilot air supply/ pilot exhaust air | Blanking plug/blanking plug | B-¼-NPT / B-¼-NPT | B-¼-NPT / B-¼-NPT |
| Z (1) |  |  | End plate with pilot air selector, external pilot air supply | | | |
| | | | 12/14 Pilot air supply/ pilot exhaust air | Push-in fitting or silencer/push-in fitting | QS-¼-⅜-U or U-¼-B-NPT / QS-¼-⅜-U | QS-¼-5/16-U or U-¼-B-NPT / QS-¼-5/16-U |
| W (3) |  |  | End plate with pilot air selector, external pilot air supply, ducted exhaust air | | | |
| | | | 12/14 Pilot air supply/ pilot exhaust air | Push-in fitting or silencer/blanking plug | QS-¼-⅜-U or U-¼-B-NPT / B-¼-NPT | QS-¼-5/16-U or U-¼-B-NPT / B-¼-NPT |

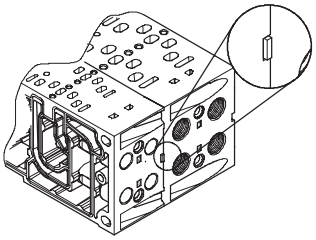
1) Selektor position in brackets.

## Creation of Pressure Zones and Separation of Exhaust Air

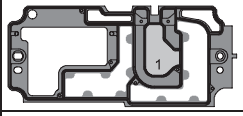
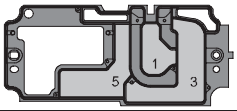
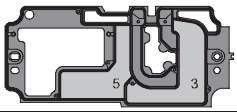
The valve manifold VTSA/VTSA-F offers a number of options for creating pressure zones if different working pressures are required.
Pressure zones are created by isolating the internal supply ducts between the manifold subbases using an appropriate duct separation.

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

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



**Creating Pressure Zones**

| Code | Separating seal | | Width | | | Description |
|---|---|---|---|---|---|---|
| | Pictorial examples | Coding | 0.71 in | 1.02 in | 1.65 in | |
| T |  |  | ■ | ■ | ■ | Duct 1 separated |
| S |  |  | ■ | ■ | ■ | Duct 1 and 3/5 separated |
| R |  |  | ■ | ■ | ■ | Duct 3/5 separated |

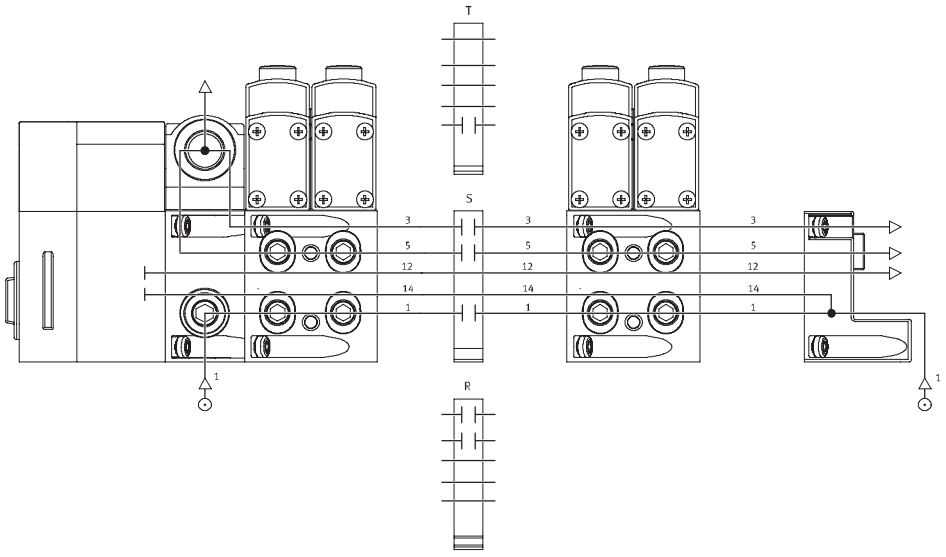
## Examples: Compressed Air Supply and Pilot Air Supply, Right-hand End Plate

### Internal pilot air supply, silencer/ducted exhaust air

Right-hand end plate
Code V

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

Optional
duct separation

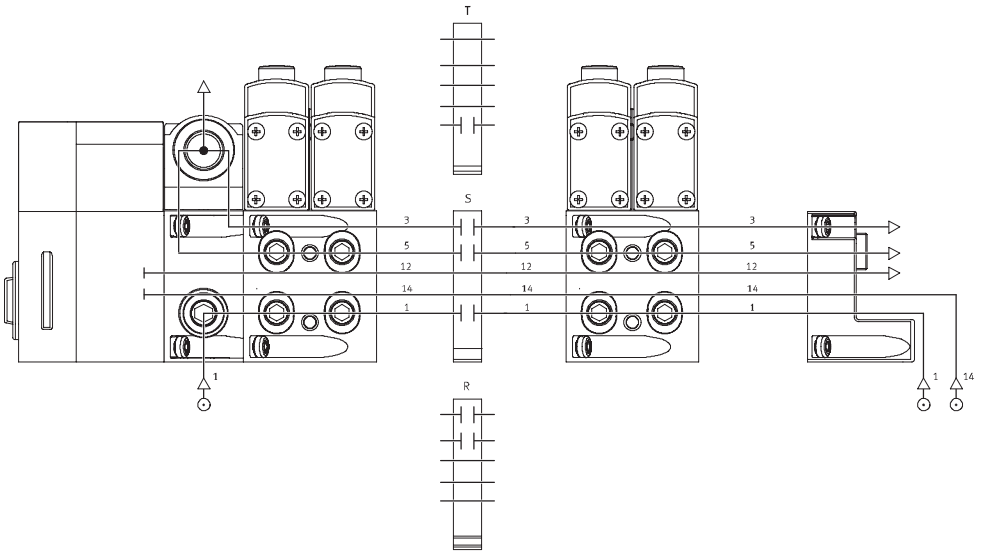



### External pilot air supply, silencer/ducted exhaust air

Right-hand end plate
Code X

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

Optional
duct separation



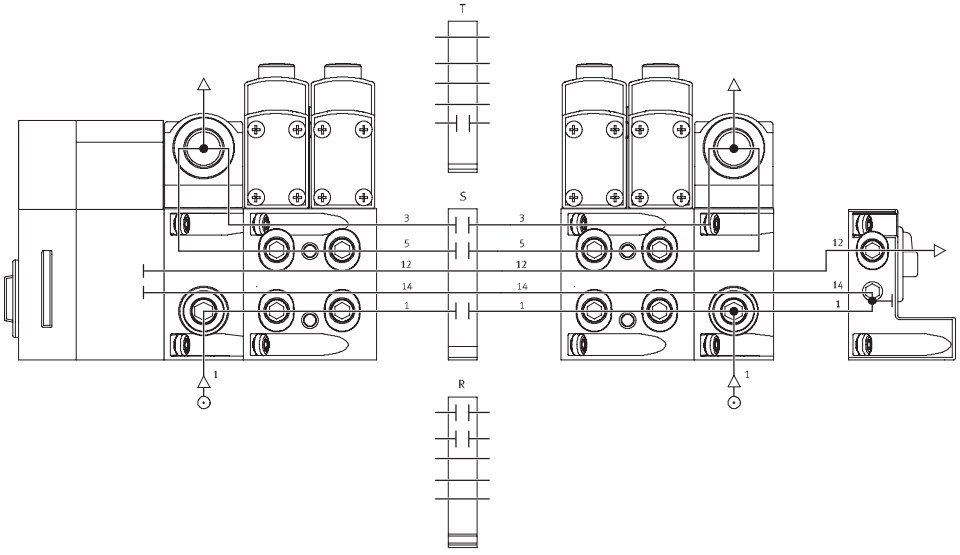
## Examples: Compressed Air Supply and Pilot Air Supply via End Plate with Pilot Air Selector

### Internal pilot air supply, ducted exhaust air/silencer

Right-hand end plate
Code Y, U – code U shown

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

Optional
duct separation

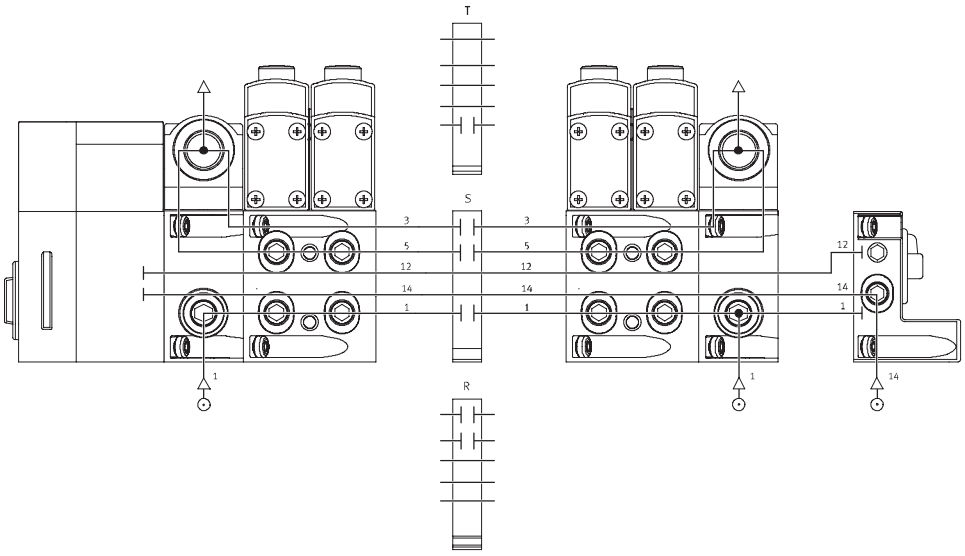



### External pilot air supply, ducted exhaust air/silencer

Right-hand end plate
Code Z, W – code Z shown

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

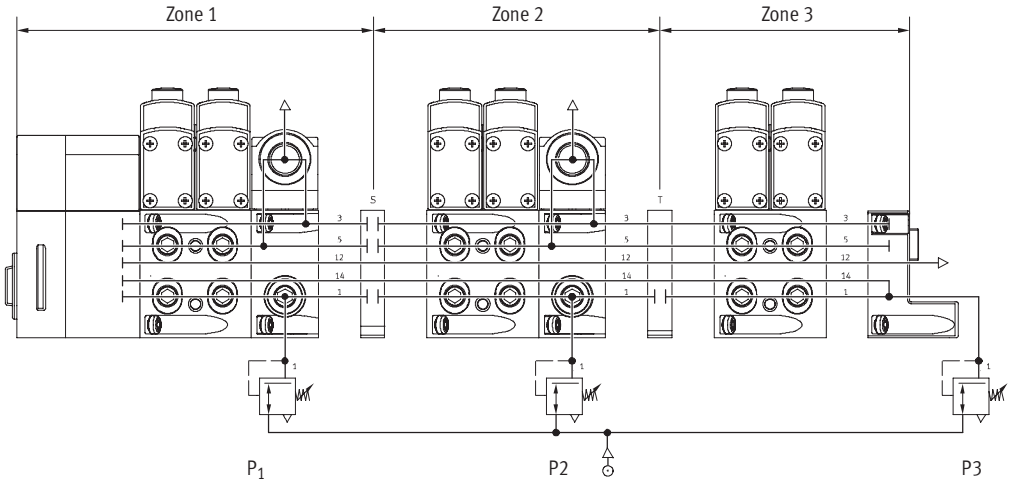
Optional
duct separation



**Examples: Creation of Pressure Zones**

VTSA/VTSA-F with CPX manifold connection

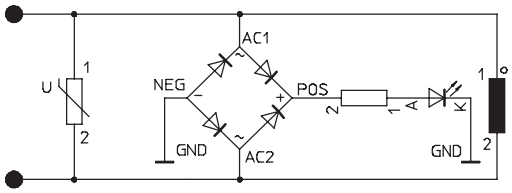
VTSA/VTSA-F allows the creation of up to 16 pressure zones (32 pressure zones if only size 1 (1.65 in), ISO 5599-2, is fitted). The diagram shows an example for the configuration and connection of three pressure zones using duct separations – with internal pilot air supply.



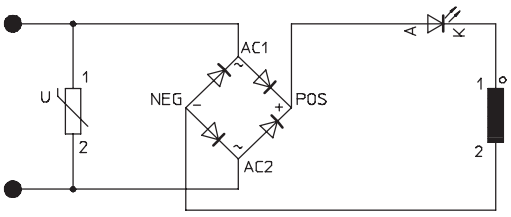
## Protective Circuit

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

### 24 V DC version




### 110 V AC version

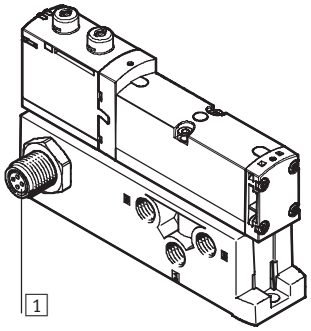


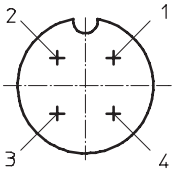

## Individual Valve

Valves can also be used on individual subbases for actuators further away from the valve manifold.

- Electrical M12 connector, 4 pin 24 V DC
- Screw terminal connection for configuration by the user 24 V DC or 110 V AC

## Electrical Connection, Individual Valve 24 V DC



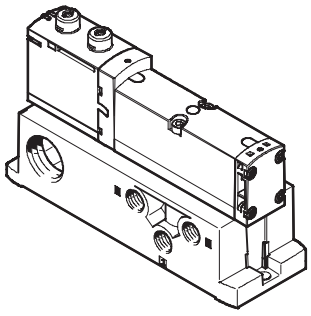

[1] Connector plug M12x1, male, 4-pin to EN 61076-2-101

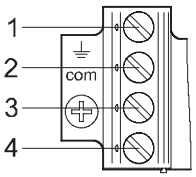
Pin allocation M12 on individual valve to ISO 20401

With positive logic:
Pin1 – Not allocated
Pin2 – 24 V DC for coil 12
Pin3 – 0 V for coil 12 and 14 or
Pin4 – 24 V DC for coil 14

With negative logic:
Pin1 – Not allocated
Pin2 – 0 V for coil 12
Pin3 – 24 V DC for coil 12 and 14
Pin4 – 0 V for coil 14

## Electrical Connection, Individual Valve, 24 V DC or 110 V AC






Terminal allocation for assembly by the user

With positive logic:
1 – Unused (with 110 V AC connection for earthing)
2 – 24 V DC for coil 12
3 – 0 V for coil 12 and 14
4 – 24 V DC for coil 14

With negative logic:
1 – Unused
2 – 0 V for coil 12
3 – 24 V DC for coil 12 and 14
4 – 0 V for coil 14

## Fieldbus Connection/Control Block

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

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

**Note**
Further information can be found in
➔ www.festo.com/catalog/cpx

## Electrical Multi-pin Plug Connection

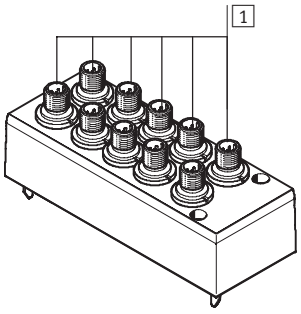
The following multi-pin plug connection variants are offered for the valve manifold VTSA:

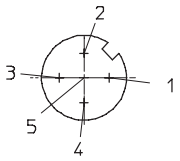
- Individual electrical connection M12 (5-pin M12 for 24 V DC):
  6 or 10 M12 connectors allowing for 2 solenoids to be activated per connection.
- Sub-D multi-pin plug connection (37-pin for 24 V DC):
  A maximum of 32 solenoids can be activated. The manifold is available with up to 32 single solenoid valves, 16 double solenoid valves, or a combination of up to 32 solenoids.
- Terminal box (cage clamp terminal strip for 24 V DC or 110 V AC):
  A maximum of 32 solenoids can be activated. The manifold is available with up to 32 single solenoid valves, 16 double solenoid valves, or a combination of up to 32 solenoids.

Each pin on the Sub-D multi-pin plug or terminal box can activate exactly a single solenoid coil.
If the maximum configurable number of valve positions is 32, this means that 32 valves can be addressed via a single solenoid coil.
With 16 or less valve positions, 2 valve solenoid coils per valve can be addressed.

**Note**
Use the following 37-pin connecting cables from Festo to connect the valve manifold with Sub-D multi-pin plug connection:
- NEBV-S1W37-...-LE10
  for max. 8 solenoid coils
- NEBV-S1W37-...-LE26
  for max. 22 solenoid coils
- NEBV-S1W37-...-LE37
  for max. 32 solenoid coils
- NECV-S1W37
  pre-assembled plug connector

## Individual Electrical Connection, 6-way Code MP2, or 10-way Code MP3, 24 V DC




1 Connector plug M12x1, male, 5-pin

Pin allocation M12

| | |
|---|---|
| Pin1 | – Unused |
| Pin2 | – 24 V DC for coil 12 |
| Pin3 | – 0 V for coil 12 and 14 |
| Pin4 | – 24 V DC for coil 14 |
| **Pin5** | **– Functional earth** |

**Pin Allocation – Terminal Box (CageClamp), 24 V DC and 110 V AC; Electrical Connection Code T**

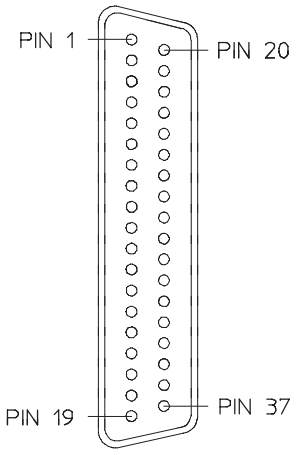
| | Manifold | Coil/address | Manifold | Coil/address |
|---|---|---|---|---|
| Each solenoid coil must be assigned to a specific terminal on the terminal strip in order for actuation of the valves to take place. | 1 | 0 | 17 | 16 |
| | 2 | 1 | 18 | 17 |
| | 3 | 2 | 19 | 18 |
| Coil 0 Coil 19 | 4 | 3 | 20 | 19 |
| | 5 | 4 | 21 | 20 |
| | 6 | 5 | 22 | 21 |
| | 7 | 6 | 23 | 22 |
| | 8 | 7 | 24 | 23 |
| | 9 | 8 | 25 | 24 |
| | 10 | 9 | 26 | 25 |
| | 11 | 10 | 27 | 26 |
| | 12 | 11 | 28 | 27 |
| | 13 | 12 | 29 | 28 |
| | 14 | 13 | 30 | 29 |
| | 15 | 14 | 31 | 30 |
| 0 V[1) ] Coil 20 Coil 31 | 16 | 15 | 32 | 31 |
| **Note** | Conductor | | | |
| The drawing shows the view onto the terminal strip (CageClamp). | 33 | 0 V | 35 | 0 V |
| | 34 | 0 V | 36 | 0 V |

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

**Sub-D plug, 24 V DC; Electrical Connection Code MP1**

| Type | Sheath | Length [ft] | Wire x mm² [mm²] | Cable ∅ [in] | Part No. |
|---|---|---|---|---|---|
| NEBV-S1W37-E2,5-LE10 | Polyurethane (PUR) | 8.2 | 10 x 0.34 | 0.30 | **539240** |
| NEBV-S1W37-E5-LE10 | | 16.4 | | | **539241** |
| NEBV-S1W37-E10-LE10 | | 32.8 | | | **539242** |
| NEBV-S1W37-E2,5-LE26 | | 8.2 | 26 x 0.34 | 0.45 | **539243** |
| NEBV-S1W37-E5-LE26 | | 16.4 | | | **539244** |
| NEBV-S1W37-E10-LE26 | | 32.8 | | | **539245** |
| NEBV-S1W37-K2,5-LE37 | | 8.2 | 37 x 0.34 | 0.51 | **539246** |
| NEBV-S1W37-K5-LE37 | | 16.4 | | | **539247** |
| NEBV-S1W37-K10-LE37 | | 32.8 | | | **539248** |
| NEBV-S1W37-KM-2,5-LE10 | Polyvinyl chloride (PVC) | 8.2 | 10 x 0.34 | 0.30 | **543271** |
| NEBV-S1W37-KM-5-LE10 | | 16.4 | | | **543272** |
| NEBV-S1W37-KM-10-LE10 | | 32.8 | | | **543273** |
| NEBV-S1W37-KM-2,5-LE27 | | 8.2 | 27 x 0.34 | 0.45 | **543274** |
| NEBV-S1W37-KM-5-LE27 | | 16.4 | | | **543275** |
| NEBV-S1W37-KM-10-LE27 | | 32.8 | | | **543276** |
| NEBV-S1W37-KM-2,5-LE37 | | 8.2 | 37 x 0.34 | 0.51 | **543277** |
| NEBV-S1W37-KM-5-LE37 | | 16.4 | | | **543278** |
| NEBV-S1W37-KM-10-LE37 | | 32.8 | | | **543279** |

**Pin Allocation – Sub-D Plug Socket, 24 V DC; Electrical Connection Code MP1**



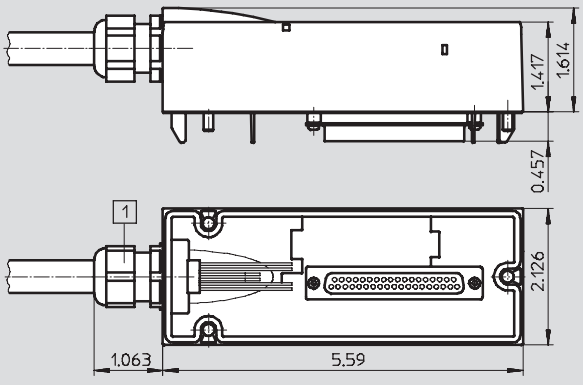

| Pin[2] | Address/coil | Core color[1] | Pin[2] | Address/coil | Core color[1] |
|---|---|---|---|---|---|
| 1 | 0 | WH | 17 | 16 | WH PK |
| 2 | 1 | BN | 18 | 17 | PK BN |
| 3 | 2 | GN | 19 | 18 | WH BU |
| 4 | 3 | YE | 20 | 19 | BN BU |
| 5 | 4 | GY | 21 | 20 | WH RD |
| 6 | 5 | PK | 22 | 21 | BN RD |
| 7 | 6 | BU | 23 | 22 | GY GN |
| 8 | 7 | RD | 24 | 23 | YE GY |
| 9 | 8 | GY PK | 25 | 24 | PK GN |
| 10 | 9 | RD BU | 26 | 25 | YE PK |
| 11 | 10 | WH GN | 27 | 26 | GN BU |
| 12 | 11 | BN GN | 28 | 27 | YE BU |
| 13 | 12 | WH YE | 29 | 28 | GN RD |
| 14 | 13 | YE BN | 30 | 29 | YE RD |
| 15 | 14 | WH GY | 31 | 30 | GN BK |
| 16 | 15 | GY BN | 32 | 31 | GY BU |
| Conductor | | | | | |
| 33 | 0 V[3] | YE BK | 35 | 0 V[3] | BN BK |
| 34 | 0 V[3] | WH BK | 36 | 0 V[3] | BK |
| Earthing | | | | | |
| 37 | FE (earth) | VT | – | – | – |

**Note**
The drawing shows the view onto the Sub-D plug socket at the multi-core cable NEBV-S1W37-....

1) To IEC 757
2) Pin 9 ... 35: Not available with cable NEBV-S1-W37-...-10
Pin 23 ... 33: Not available with cable NEBV-S1-W37-...-26
3) 0 V for positive switching control signals; connect 24 V for negative switching control signals; mixed operation is not permitted.

**Dimensions[4]** Download CAD Data ➔ **www.festo.com/us/cad**

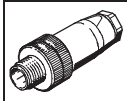
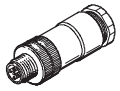
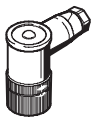
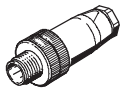
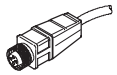
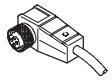
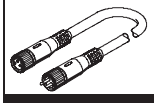
Multi-pin cable NEBV-S1W37-...




1 Cable conduit fitting M20x1.5

The wire colors refer to the following pre-assembled multi-core cables from Festo:
- NEBV-S1W37-...-10 for valve manifold with max. 8 solenoid coils
- NEBV-S1W37-...-26 for valve manifold with max. 22 solenoid coils
- NEBV-S1W37-...-37 for valve manifold with max. 32 solenoid coils

4) Dimensions are in inches, unless otherwise noted.

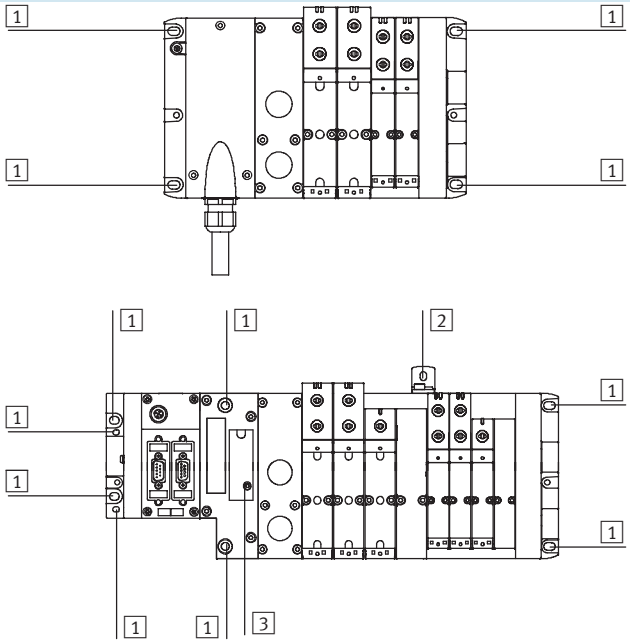
| Electrical Connection Technology | | | | |
|---|---|---|---|---|
| | Electrical connection | Type of mounting/cable length | Type | Part No. |
| Sensor plug/socket for inputs/outputs | | | | |
|  | Straight plug, 4-pin, screw manifold | Threaded connector M12 | **SEA-GS-7** | **18666** |
| | | | **SEA-GS-9** | **18778** |
|  | | | **SEA-GS-11-DUO** | **18779** |
|  | Plug socket, angled, 4-pin, screw manifold | Union nut M12 | **SEA-M12-4WD-PG7** | **185498** |
|  | Straight plug, 4-pin, screw manifold | Threaded connector M12 | **SEA-4GS-7-2,5** | **192008** |
| Plug socket with cable for connecting individual valves or sensors | | | | |
|  | Straight socket, 4-pin, M12 | 16.4 ft | **SIM-M12-4GD-5-PU** | **164259** |
|  | Angled socket, 4-pin, M12 | 16.4 ft | **SIM-M12-4WD-5-PU** | **164258** |
|  | Modular system for connecting cables | – | **NEBU-...**<br>➔ www.festo.com/catalog/nebu | **–** |

## Valve Manifold Assembly

Sturdy manifold attachment thanks to:

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

### Wall mounting



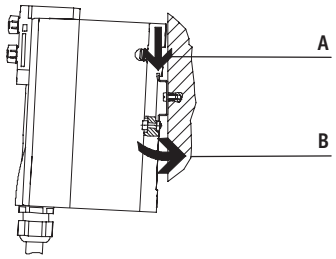

The VTSA/VTSA-F valve manifold is screwed onto the mounting surface using M6 screws. The mounting holes are located at the following points:

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

The fieldbus version additionally provides a bracket for wall mounting (Part No. 665983).
The mounting brackets can be used with very long valve manifolds (6 manifold subbases or more) to improve load capacity during vibration or shocks.

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

### DIN H-rail mounting



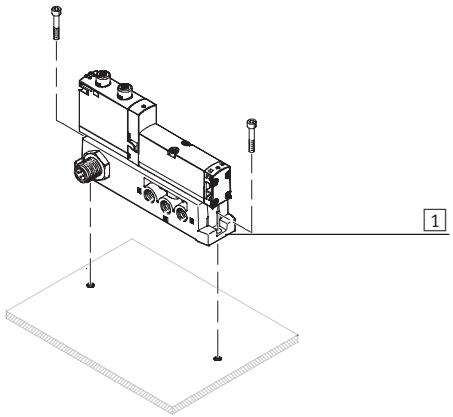

The VTSA/VTSA-F valve manifold is hooked onto the DIN H-rail (see arrow A).
It is then swivelled about the DIN H-rail, then swung into place and secured with the clamping shim (see arrow B).

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

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

This permits mounting of the valve manifold on a DIN H-rail to EN 60715.

## Individual Valve Assembly




[1] Vertical mounting holes

The individual manifold block is designed for wall mounting for integration into a system or machine.
It is mounted vertically.

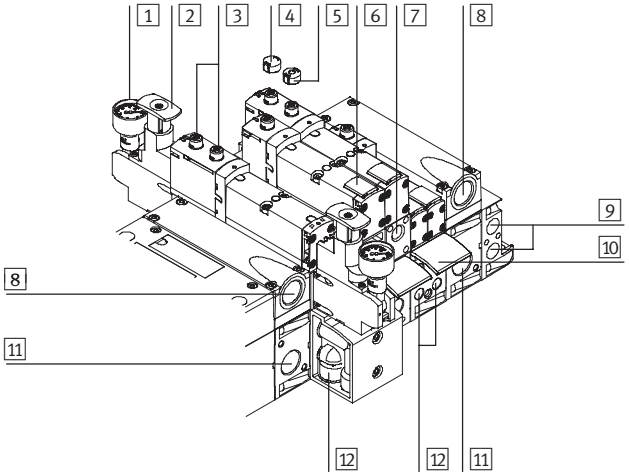
## Display and Operation

Each solenoid coil is allocated an LED which indicates its switching status.
- Indicator 12 shows the switching status of the pilot control for output 2
- Indicator 14 shows the switching status of the pilot control for output 4

**Manual override**
The manual override allows the valve to be switched when in the electrically non-activated or de-energized status. The valve is actuated by pushing the manual override. The set switching status can also be secured by turning the manual override.

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

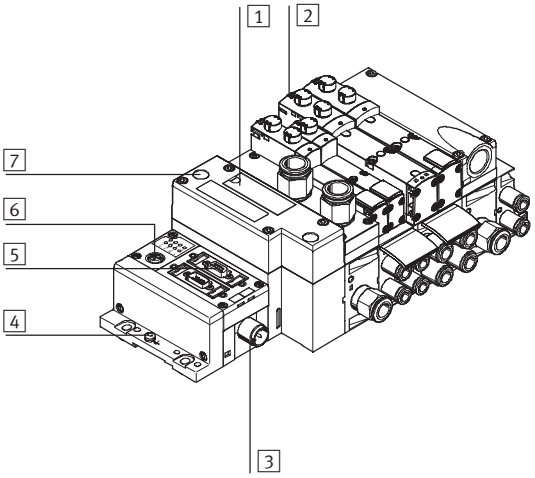
### Pneumatic connection and control elements




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

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

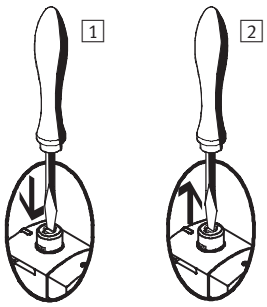
### Electrical connection and display components




1 Inscription area and cover for DIN H-rail mounting
2 Yellow LEDs: Signal status display for pilot solenoid coils
3 Voltage supply connection
4 Earth manifold
5 Fieldbus connection (bus-specific)
6 Service interface for handheld unit, etc.
7 Red LED: Common fault display for valves

## Manual Override (MO)

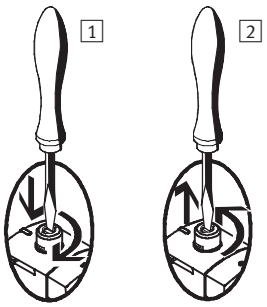
### Manual override with automatic return (pushing)




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

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

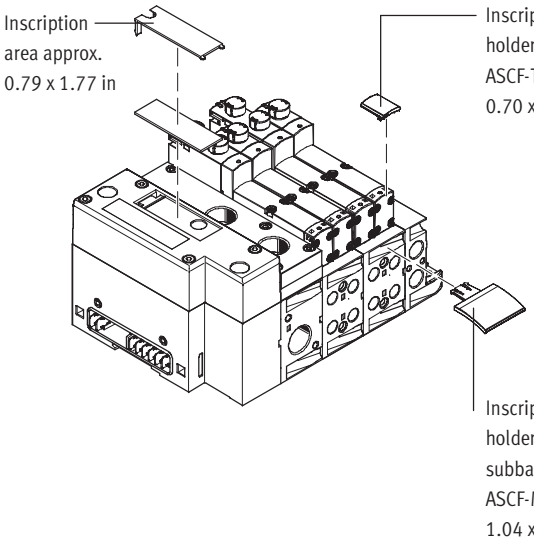
### Manual override set via turning (covered)




1 Press in the stem of the manual override using a pin or screwdriver until the valve switches and then turn the stem clockwise by 90° until the stop is reached. Valve remains actuated.

2 Turn the stem anti-clockwise by 90° until the stop is reached and then remove the screwdriver. Spring force pushes the stem of the manual override back. Valve returns to the initial position (not with double solenoid valve code J and D).

## Inscription System




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

- Inscription label holder for valve type ASCF-T-S6: Part No. 540888
- Inscription label holder for manifold subbase type ASCF-M-S6: Part No. 540889

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

# Instructions for Use

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

Operate your equipment with unlubricated compressed air if possible. Festo valves and cylinders are designed for operation under normal use without any additional lubrication and still have a long service life.
The quality of compressed air downstream from the compressor must correspond to that of unlubricated compressed air. If possible, do not operate all of your equipment with lubricated compressed air. The lubricators should, where possible, always be installed directly upstream of the actuator used.

Unsuitable additional oil and an excessive oil content in the compressed air reduce the service life of the valve manifold.
Use Festo special oil OFSW-32 or the alternatives listed in the Festo catalog (as specified in DIN 51524 HLP32; basic oil viscosity 32 CST at 104 °F).

**Bio-oils**
When using bio-oils (oils which are based upon synthetic or native ester, e.g. rapeseed oil methyl ester), the maximum residual oil content of 0.1 mg/m$^3$ must not be exceeded (see ISO 8573-1 Class 2).

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

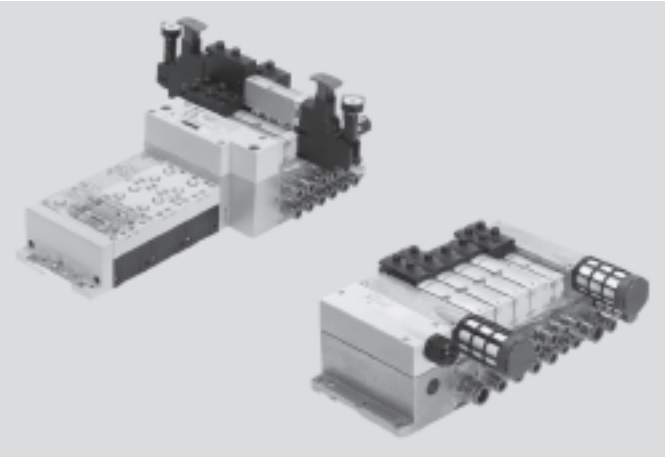
# Technical Data

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

**Flow rate**
- Width 0.71 in: Up to 24.7 scfm
- Width 1.02 in: Up to 49.7 scfm
- Width 1.65 in: Up to 53.0 scfm

**Valve width**
- 02: 0.71 in (18 mm)
- 01: 1.02 in (26 mm)
- 1: 1.65 in (42 mm)

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



| General Technical Data | | | | |
|---|---|---|---|---|
| Width | | 0.71 in | 1.02 in | 1.65 in (type 44 VTSA only) |
| Design | | Electromagnetically actuated piston spool valve | | |
| Lubrication | | Lubrication for life | | |
| Type of mounting | | Wall mounting | | |
| | | On DIN H-rail to EN 60715 | | |
| Mounting position | | Any | | |
| Manual override | | Pushing, pushing/detenting, covered | | |
| Pneumatic connections | | NPT thread | NPT thread | NPT thread |
| Pneumatic connection | | Via manifold subbase | | |
| Supply port | 1 | ½ NPT,<br>QS-½-½-U,<br>QS-½-⅝-U | ½ NPT,<br>QS-½-½-U,<br>QS-½-⅝-U | ½ NPT,<br>QS-½-½-U,<br>QS-½-⅝-U |
| Exhaust port | 3/5 | ½ NPT,<br>QS-½-½-U,<br>QS-½-⅝-U | ½ NPT,<br>QS-½-½-U,<br>QS-½-⅝-U | ½ NPT,<br>QS-½-½-U,<br>QS-½-⅝-U |
| Working ports | 2/4 | ⅛ NPT,<br>QS-⅛-¼-U,<br>QS-⅛-5/16-U | ¼ NPT,<br>QS-¼-5/16-U,<br>QS-¼-⅜-U | ⅜ NPT,<br>QS-⅜-⅜-U,<br>QS-⅜-½-U |
| Port for external pilot supply air | 14 | ¼ NPT | ¼ NPT | ¼ NPT |
| Pilot exhaust air port | 12 | ¼ NPT | ¼ NPT | ¼ NPT |
| Certification | | CE | | |

| Standard Nominal Flow Rate [scfm] – Type 44 VTSA | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| Width 0.71 in | | | | | | | | | | | | | |
| Flow rate of valve | 26.5 | | | | 21.2 | | | 24.7[1)]<br>15.2[2)] | | | 21.2 | | |
| Flow rate of valve on individual subbase | 21.2 | | | | 17.7 | | | 19.4[1)]<br>12.7[2)] | | | 17.7 | | |
| Flow rate of valve on valve manifold | 19.4 | | | | 14.1 | | | 15.9[1)]<br>10.6[2)] | | | 14.1 | | |
| Width 1.02 in | | | | | | | | | | | | | |
| Flow rate of valve | 49.4 | | | | 44.1 | | | 49.4[1)]<br>35.3[2)] | | | 44.1 | | |
| Flow rate of valve on individual subbase | 42.4 | | | | 38.8 | | | 42.4[1)]<br>30.0[2)] | | | 35.3 | | |
| Flow rate of valve on valve manifold | 38.8 | | | | 31.8 | | | 35.3[1)]<br>24.7[2)] | | | 31.8 | | |
| Width 1.65 in | | | | | | | | | | | | | |
| Flow rate of valve | 63.5 | | | | 49.4 | | | 60.0[1)]<br>26.5[2)] | | | 49.4 | | |
| Flow rate of valve on individual subbase | 45.9 | | | | 42.4 | | | 42.4[1)]<br>28.2[2)] | | | 42.4 | | |
| Flow rate of valve on valve manifold | 53.0 | | | | 42.4 | | | 49.4[1)]<br>28.2[2)] | | | 42.4 | | |

1) Switching position
2) Mid-position

| Standard Nominal Flow Rate [scfm] – Type 45 VTSA-F | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| Width 0.71 in | | | | | | | | | | | | | |
| Flow rate of valve | 26.5 | | | | 21.2 | | | 17.7[1)]<br>11.6[2)] | | | 21.2 | | |
| Flow rate of valve on valve manifold | 24.7 | | | | 19.4 | | | 17.7[1)]<br>11.6[2)] | | | 19.4 | | |
| Width 1.02 in | | | | | | | | | | | | | |
| Flow rate of valve | 49.4 | | | | 44.1 | | | 49.4[1)]<br>24.7[2)] | | | 44.1 | | |
| Flow rate of valve on valve manifold | 47.7 | | | | 40.6 | | | 47.7[1)]<br>24.7[2)] | | | 40.6 | | |

1) Switching position
2) Mid-position

# Technical Data

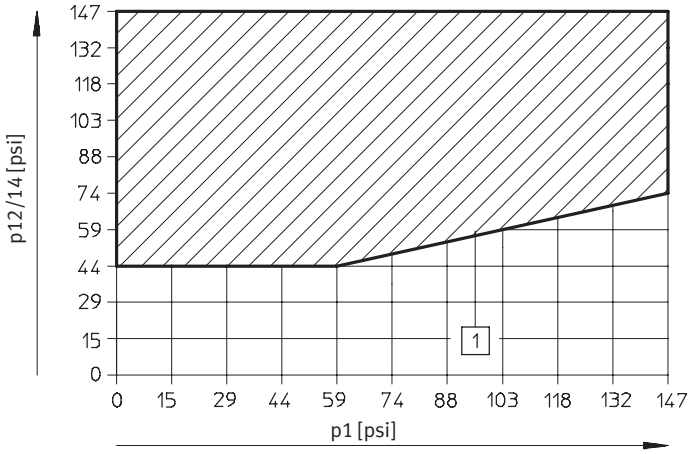
Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

| Operating and Environmental Conditions | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | | | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| Operating medium | | | Filtered compressed air, lubricated or unlubricated, inert gases | | | | | | | | | | | | |
| Grade of filtration | | [µm] | 40 (average pore size) | | | | | | | | | | | | |
| Operating pressure | Pilot pressure | [psi] | 44 ... 147 | | | | | | | | | | | | |
| | With internal pilot air | [psi] | 44 ... 147 | | | | | | | | | | | | |
| | With external pilot air | [psi] | –13.2 ... +147 | | | | 44 ... 147 | | | –13.2 ... +147 | | | | | |
| Ambient temperature | | [°F] | 23 ... 122 | | | | | | | | | | | | |
| Temperature of medium | | [°F] | 23 ... 122 | | | | | | | | | | | | |
| Storage temperature[1)] | | [°F] | –4 ... +104 | | | | | | | | | | | | |
| Relative air humidity | | [%] | 90 | | | | | | | | | | | | |

1) Long-term storage

**Pilot Pressure p12/14 as a Function of Operating Pressure p1**

For 3/2-way valves

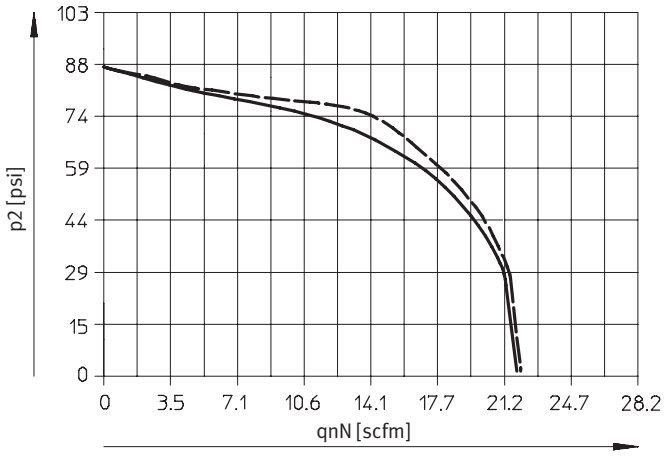



1 Operating range for valves with external pilot air supply

| Valve Response Times [ms] | | | | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| Valve function order code | | M | O | J | D | N | K | H | B | G | E | P | Q | R |
| 18 mm | | | | | | | | | | | | | | |
| Response times | on | 22 | 12 | – | – | 12 | 12 | 12 | 15 | 15 | 15 | 25 | 25 | 25 |
| | off | 28 | 38 | – | – | 30 | 30 | 30 | 44 | 44 | 44 | 12 | 12 | 12 |
| | changeover | – | – | 11 | 11 | – | – | – | 22 | 22 | 22 | – | – | – |
| 26 mm | | | | | | | | | | | | | | |
| Response times | on | 25 | 20 | – | – | 20 | 20 | 20 | 22 | 22 | 22 | 32 | 32 | 32 |
| | off | 45 | 65 | – | – | 38 | 38 | 38 | 65 | 65 | 65 | 30 | 30 | 30 |
| | changeover | – | – | 18 | 18 | – | – | – | 33 | 33 | 33 | – | – | – |
| 42 mm (type 44 VTSA only) | | | | | | | | | | | | | | |
| Response times | on | 27 | 22 | – | – | 20 | 20 | 20 | 22 | 22 | 22 | 34 | 34 | 34 |
| | off | 45 | 60 | – | – | 38 | 38 | 38 | 65 | 65 | 65 | 28 | 28 | 28 |
| | changeover | – | – | 16 | 16 | – | – | – | – | – | – | – | – | – |

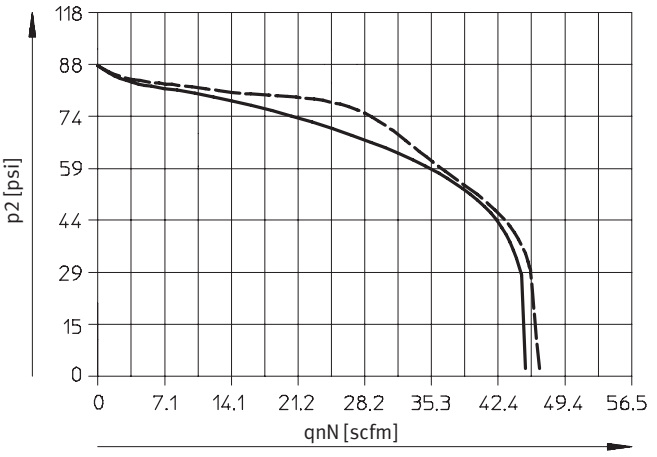
## Flow Rate qn as a Function of Output Pressure p2 with Pressure Regulator Plates (P Regulator Plate) for Port 1

Width 0.71 in




88 psi
147 psi

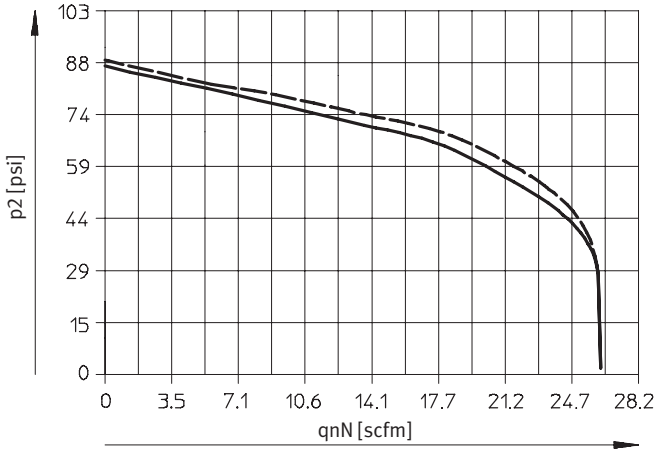
Width 1.02 in




88 psi
147 psi

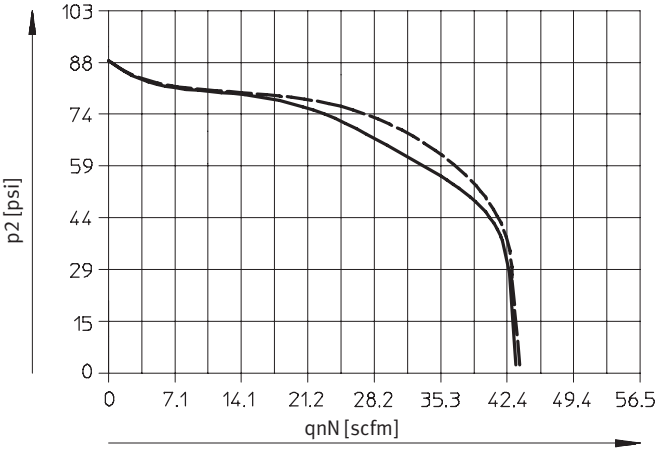
## Flow Rate qn as a Function of Output Pressure p2 with Pressure Regulator Plates (AB Regulator Plates) for Port 2, 4 or Ports 4/2

Width 0.71 in




88 psi
147 psi

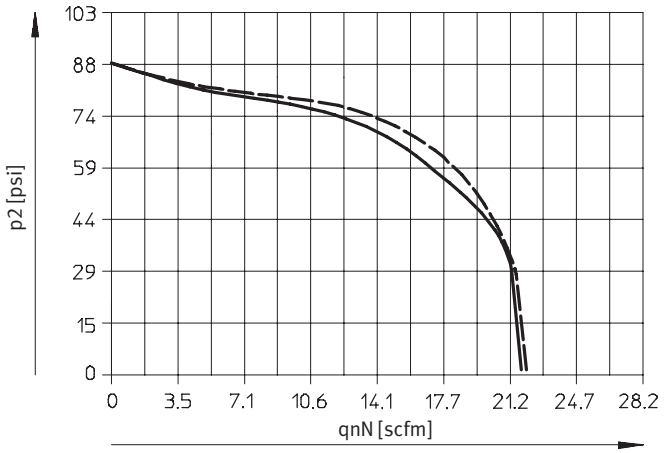
Width 1.02 in




88 psi
147 psi

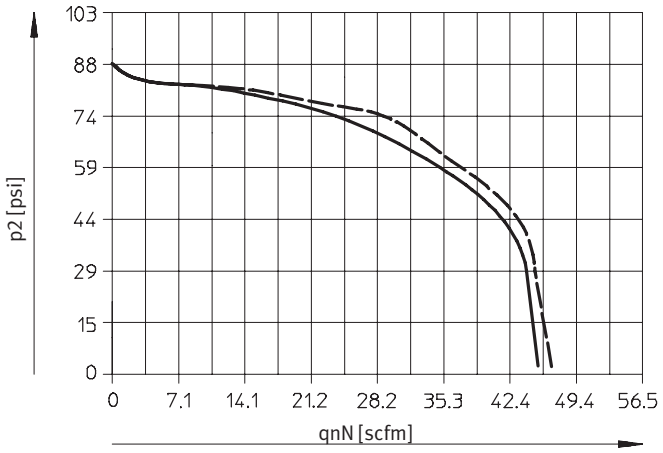
## Flow Rate qn as a Function of Output Pressure p2 with Pressure Regulator Plates (AB Regulator Plates, Rev.) for Ports 4/2, Reversible

Width 0.71 in



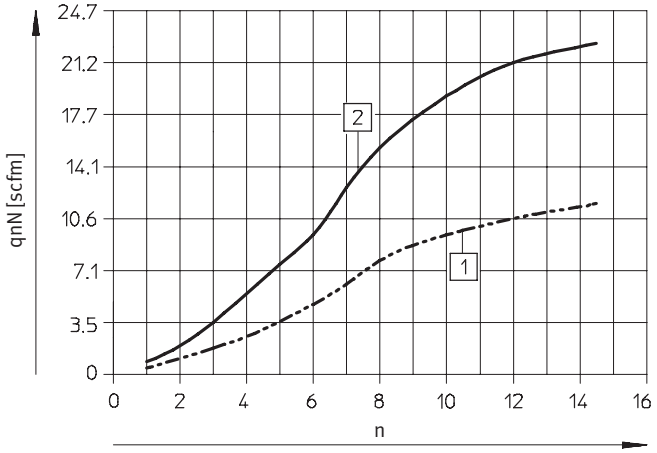

88 psi
147 psi

Width 1.02 in




88 psi
147 psi

## Flow Rate qn as a Function of Flow Control




1 Width 0.71 in
2 Width 1.02 in
n Revolutions of the adjusting screw

| Electrical Data – VTSA/VTSA-F with CPX Manifold | | | | |
|---|---|---|---|---|
| | | 0.71 in | 1.02 in | 1.65 in (type 44 only) |
| Voltage supply for electronics/sensors (pin 1) | | | | |
| Operating voltage | [V] | 24 DC ±10% | | |
| Steady state current consumption at 24 V DC | [mA] | 20 | | |
| Duty cycle | | 100% | | |
| Load voltage supply for valves (pin 2) | | | | |
| Operating voltage | [V] | 24 DC ±10% | | |
| Diagnostic message undervoltage $V_{OFF}$, load voltage outside function range | [V] | 21.6 ... 21.5 | | |
| Protection class to EN 60529 | | IP65 (for all types of signal transmission in assembled state) | | |
| Power consumption at 24 V DC | | | | |
| 2x 3/2-way valve | [W] | 1.3 | | |
| 5/2-way valve, 5/3-way valve | [W] | 1.6 | | |

| Electrical Data – VTSA/VTSA-F with Multi-pin Plug Connection | | | | |
|---|---|---|---|---|
| | | 0.71 in | 1.02 in | 1.65 in |
| Load voltage supply for valves | | | | |
| Operating voltage | [V] | 24 DC ±10%<br>110 AC ±10% (50 ... 60 Hz) | | |
| Duty cycle | | 100% | | |
| Protection class to EN 60529 | | IP65 (for all types of signal transmission in assembled state), NEMA 4 | | |
| Power consumption at 24 V DC | | | | |
| 2x 3/2-way valve | [W] | 1.3 | | |
| 5/2-way valve, 5/3-way valve | [W] | 1.6 | | |
| Power consumption at 110 V AC | | | | |
| 2x 3/2-way valve | [VA] | 1 | | |
| 5/2-way valve, 5/3-way valve | [VA] | 1.6 | | |

# Technical Data

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

| Materials | | | |
|---|---|---|---|
| | 0.71 in | 1.02 in | 1.65 in |
| Manifold subbase | Die-cast aluminum | | |
| Valve | Die-cast aluminum, reinforced polyamide | | |
| Seals | Nitrile rubber, elastomer (support made of steel) | | |
| Supply plate | Die-cast aluminum | | |
| Right-hand end plate | Die-cast aluminum | | |
| Left-hand pneumatic interface | Die-cast aluminum | | |
| Flow control plate | Die-cast aluminum | | |
| Pressure regulator plate | Die-cast aluminum, reinforced polyamide | | |
| Multi-pin connection block | Die-cast aluminum | | |
| Cover for the pneumatic interface and multi-pin plug connection | Wellamid, reinforced polyamide | | |

| Product Weight [lb] | | | |
|---|---|---|---|
| | 0.71 in | 1.02 in | 1.65 in (type 44 only) |
| Sub-D multi-pin interface module or manifold strip[1)] | 1.21 | | |
| Interface module CPX[1)] | 3.24 | | |
| Supply plate[2)] | | | |
| • Exhaust plate with 3 and 5 common | 1.36 | | |
| • Exhaust port cover with 3 and 5 separated | 1.32 | | |
| Right-hand end plate[3)] | | | |
| • Axial | 0.75 | | |
| • Selector | 0.62 | | |
| Manifold subbase[4)] | 0.99 | 1.40 | 0.75 |
| 90° connection plate[3)] | 0.37 | 0.51 | 0.39 |
| Pressure regulator plate | | | |
| for port 1 | 0.77 | 0.89 | 1.41 |
| for port 4 or 2 | 0.81 | 0.99 | 1.41 |
| for ports 4/2 | 1.35 | 1.53 | 2.03 |
| Flow control plate | 0.50 | 0.71 | 0.49 |
| Vertical supply plate[3)] | 0.31 | 0.42 | 0.75 |
| Vertical shut-off plate | 0.46 | 0.60 | 1.32 |
| Valves | | | |
| • 5/3-way valve (code B, G, E) | 0.42 | 0.71 | 1.01 |
| • 5/2-way valve, single solenoid (code M, O) | 0.36 | 0.65 | 0.94 |
| • 5/2-way valve, double solenoid (code J, D) | 0.38 | 0.61 | 0.97 |
| • 2x 3/2-way valve (code N, K, H, P, Q, R) | 0.42 | 0.74 | 0.97 |
| Blanking plate | 0.08 | 0.16 | 0.15 |

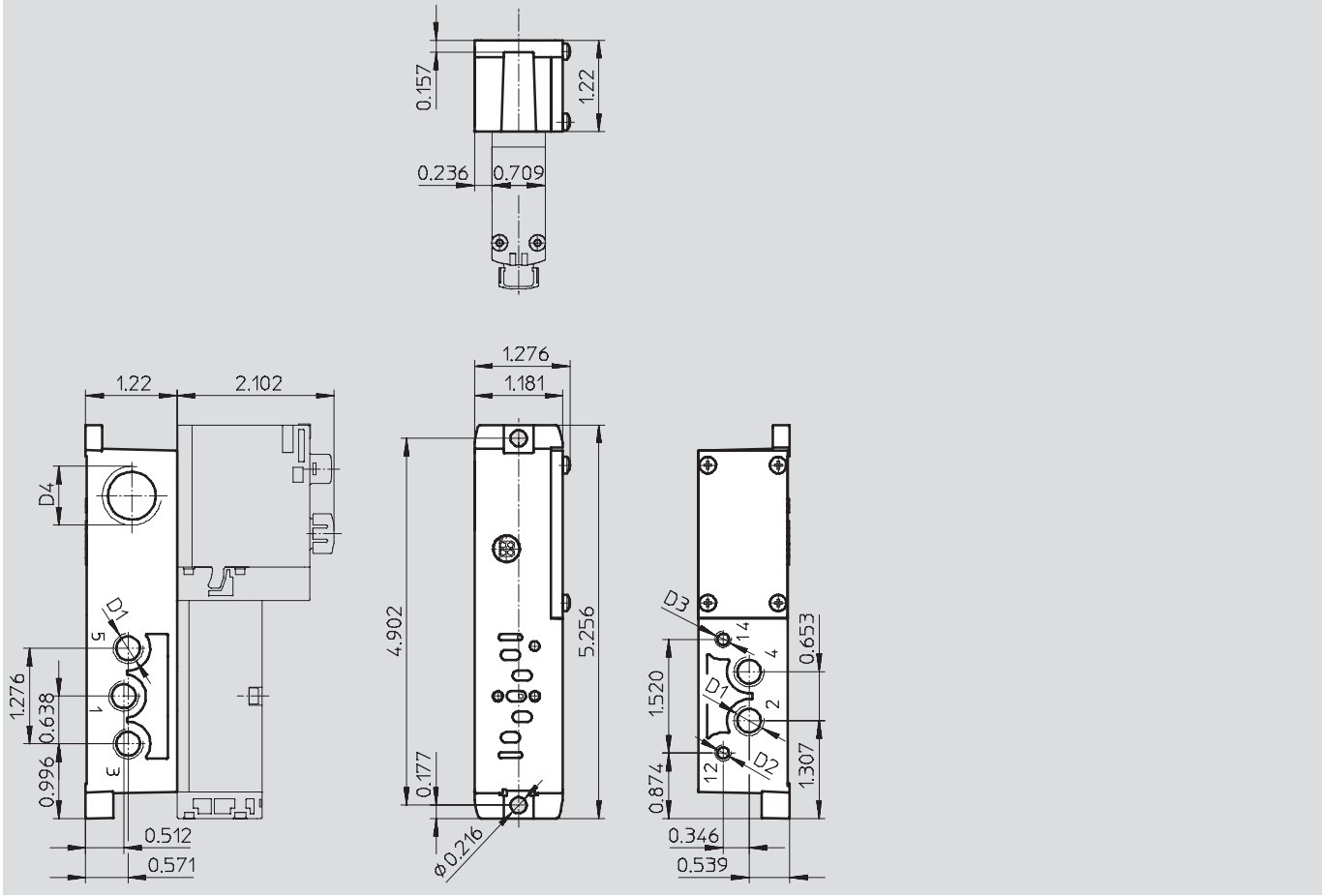
1) With thin metal seal, printed circuit board
2) With thin metal seal and electrical manifold module
3) With screws
4) With thin metal seal, electrical manifold module, inscription label holder, 4 screws

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with cable manifolds, width 0.71 in




| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply, cable manifolds | | | | |
| VABS-S4-2S-N18-K2 | ⅛ NPT | 10-32 UNF-2B | 10-32 UNF-2B | ½ NPT |
| Internal pilot air supply, cable manifolds | | | | |
| VABS-S4-2S-N18-B-K2 | ⅛ NPT | 10-32 UNF-2B | – | ½ NPT |

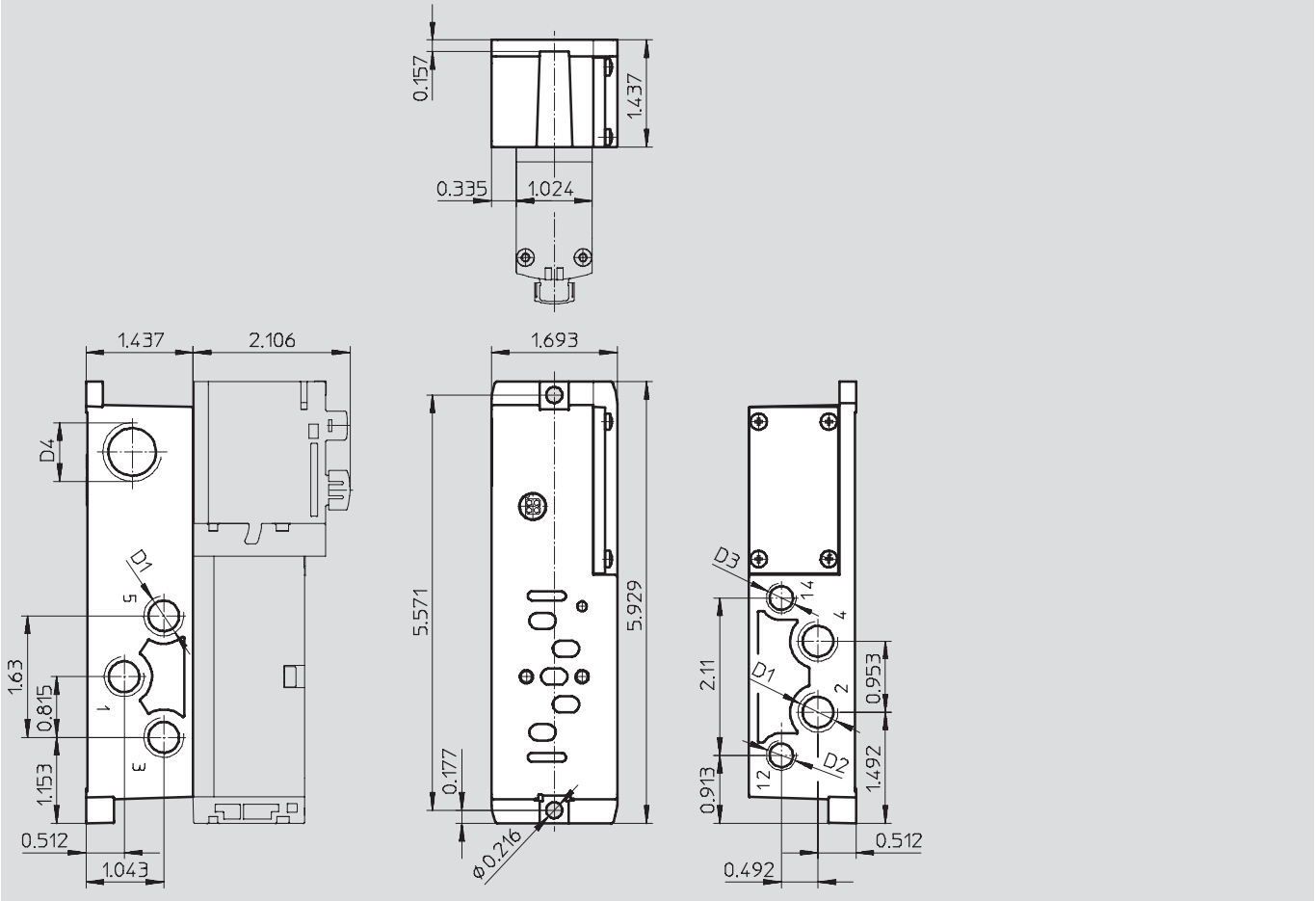
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with cable manifolds, width 1.02 in




| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply, cable manifolds | | | | |
| VABS-S4-1S-N14-K2 | ¼ NPT | ⅛ NPT | ⅛ NPT | ½ NPT |
| Internal pilot air supply, cable manifolds | | | | |
| VABS-S4-1S-N14-B-K2 | ¼ NPT | ⅛ NPT | – | ½ NPT |

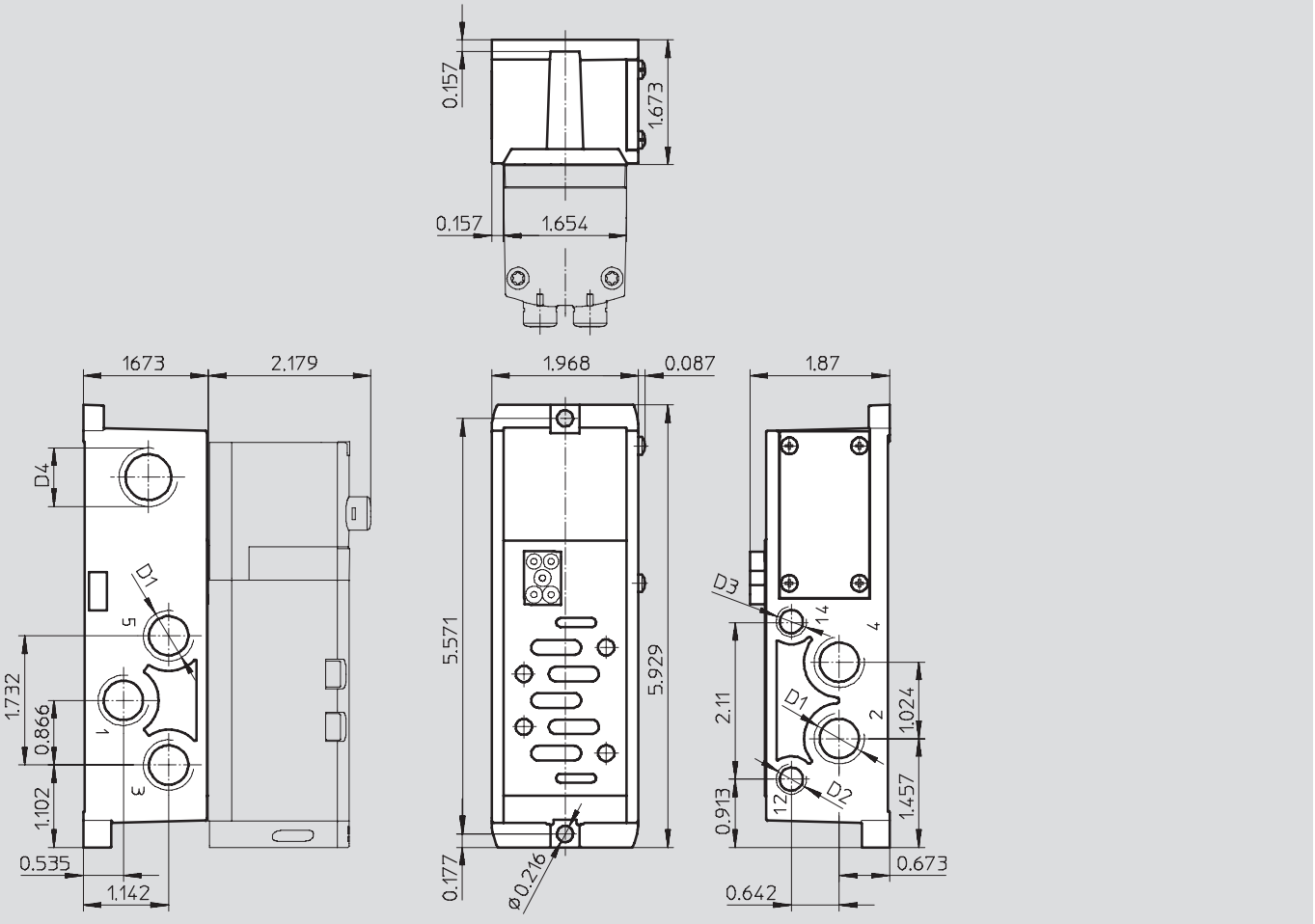
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Individual subbase with spring-loaded manifold (C1) or for self-assembly (K1), width 1.65 in




| Type | D1 | D2 | D3 | D4 |
|---|---|---|---|---|
| External pilot air supply | | | | |
| VABS-S2-1S-N38-K1(C1) | ⅜ NPT | ⅛ NPT | ⅛ NPT | ½ NPT |
| Internal pilot air supply | | | | |
| VABS-S2-1S-N14-B-K1(C1) | ⅜ NPT | ⅛ NPT | – | ½ NPT |

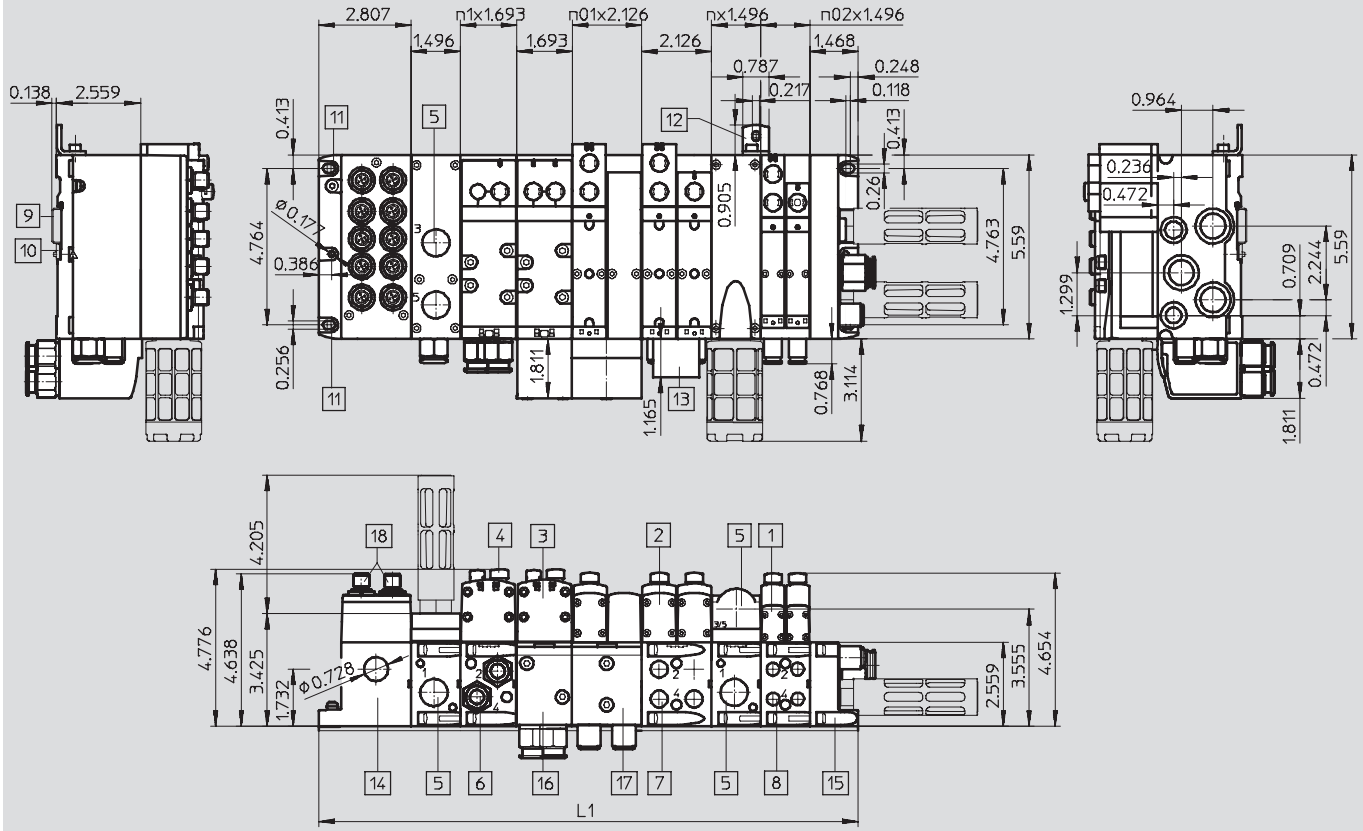
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve Manifold with individual electrical connection




1 Solenoid valve 0.71 in
2 Solenoid valve 1.02 in
3 Solenoid valve 1.65 in
4 Cover cap/manual override
5 Threaded connection ½ NPT
6 Threaded connection ⅜ NPT
7 Threaded connection ¼ NPT
8 Threaded connection ⅛ NPT
9 DIN H-rail
10 DIN H-rail mounting kit
11 Mounting hole
12 Additional mounting bracket
13 Inscription label holder
14 Individual connection
15 End plate
16 90° connection plate
width 1.65 in, G⅜
17 90° connection plate
width 0.71 in, G⅛
width 1.02 in, G¼
18 M12 plug, 5-pin (6-way or 10-way)

n02 Number of manifold subbases 0.71 in
n01 Number of manifold subbases 1.02 in
n1 Number of manifold subbases 1.65 in
n Number of supply plates (only with end plate with pilot air selector)

| Width | L1 |
|---|---|
| 0.71 in | 2.807 + n02 x 1.496 + n x 1.496 + 1.468 |
| 1.02 in | 2.807 + n01 x 2.126 + n x 1.496 + 1.468 |
| 1.65 in | 2.807 + n1 x 1.693 + n x 1.496 + 1.468 |
| Mixture of 0.71, 1.02 and 1.65 in | 2.807 + n02 x 1.496 + n01 x 2.126 + n1 x 1.693 + n x 1.496 + 1.468 |

1) Dimensions are in inches, unless otherwise noted.

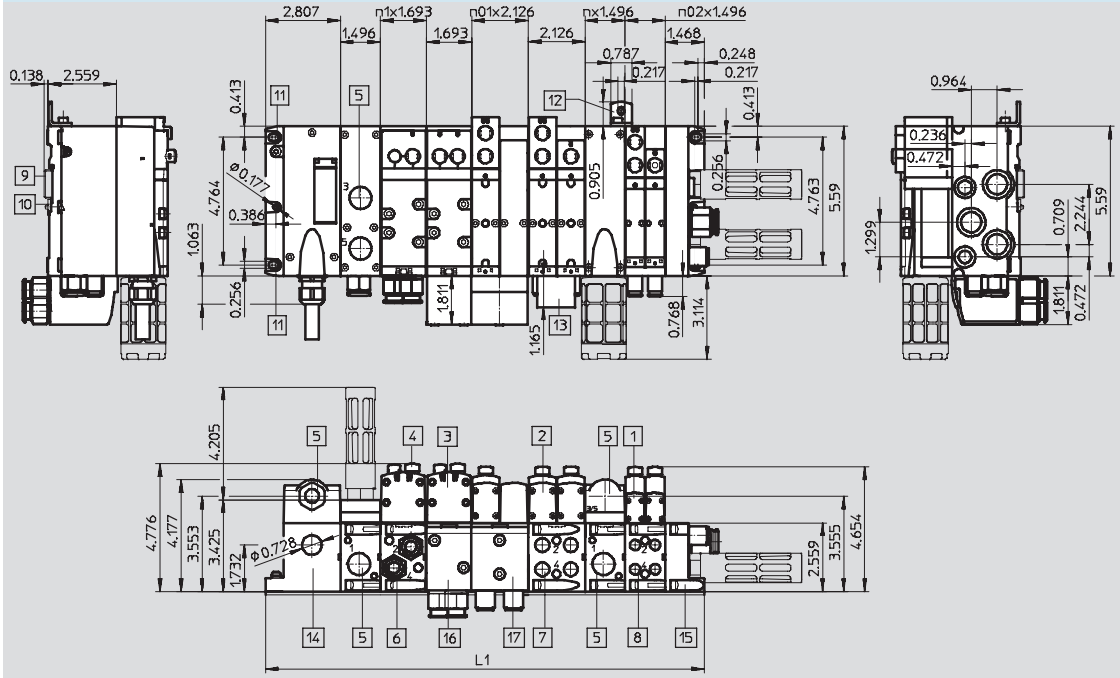
# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

FESTO

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with multi-pin plug connection

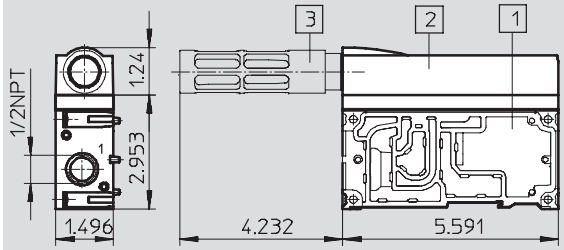



1 Solenoid valve 0.71 in
2 Solenoid valve 1.02 in
3 Solenoid valve 1.65 in
4 Cover cap/manual override
5 Threaded connection ½ NPT
6 Threaded connection ⅜ NPT
7 Threaded connection ¼ NPT
8 Threaded connection ⅛ NPT
9 DIN H-rail
10 DIN H-rail mounting kit
11 Mounting hole
12 Additional mounting bracket
13 Inscription label holder
14 Multi-pin plug connection
15 End plate
16 90° connection plate width 1.65 in, G⅜
17 90° connection plate width 0.71 in, G⅛ width 1.02 in, G¼

n02 Number of manifold subbases 0.71 in
n01 Number of manifold subbases 1.02 in
n1 Number of manifold subbases 1.65 in
n Number of supply plates

| Width | L1 |
|---|---|
| 0.71 in | 2.807 + n02 x 1.496 + n x 1.496 + 1.468 |
| 1.02 in | 2.807 + n01 x 2.126 + n x 1.496 + 1.468 |
| 1.65 in | 2.807 + n1 x 1.693 + n x 1.496 + 1.468 |
| Mixture of 0.71, 1.02 and 1.65 in | 2.807 + n02 x 1.496 + n01 x 2.126 + n1 x 1.693 + n x 1.496 + 1.468 |

Supply plate with silencer




1 Supply plate
2 Exhaust port cover
3 Silencer U-½-B-NPT

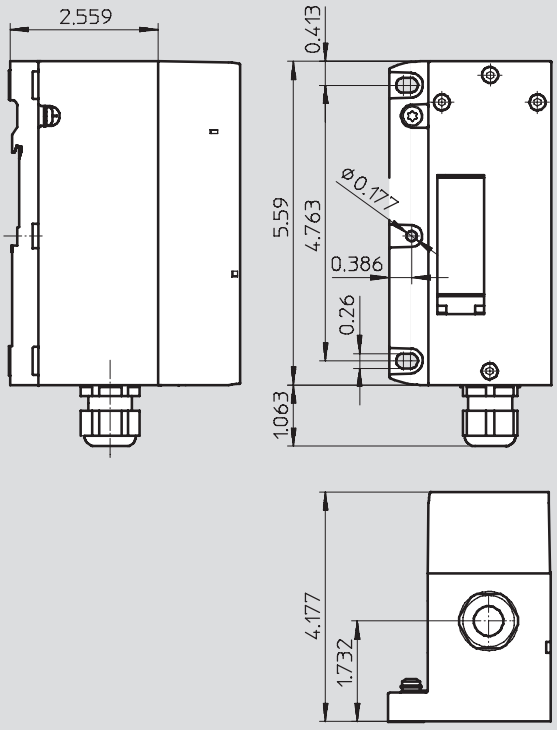
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions[1)]** Download CAD Data ➔ **www.festo.com/us/cad**

Multi-pin, manifold strip (CageClamp)



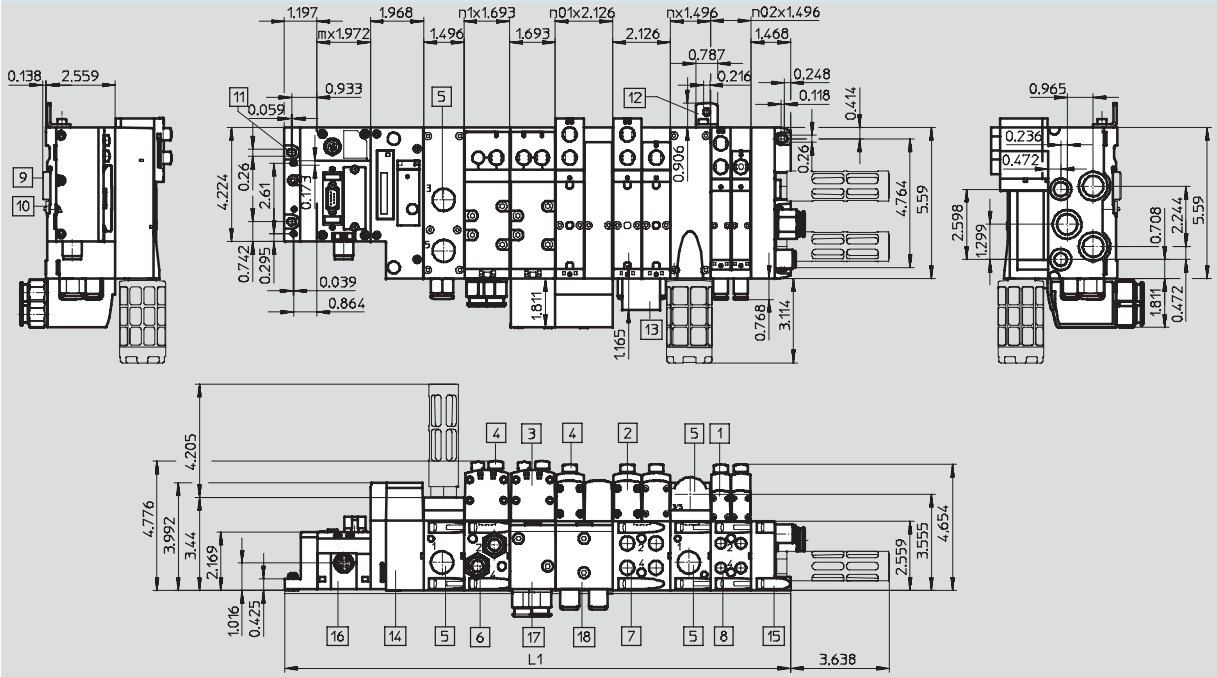

1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

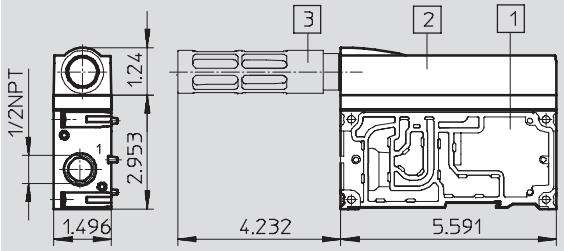
Valve manifold with fieldbus connection




| | | | | | | | |
|---|---|---|---|---|---|---|---|
| 1 | Solenoid valve 0.71 in | 7 | Threaded connection ¼ NPT | 14 | Pneumatic interface CPX | n02 | Number of manifold subbases 0.71 in |
| 2 | Solenoid valve 1.02 in | 8 | Threaded connection ⅛ NPT | 15 | End plate | n01 | Number of manifold subbases 1.02 in |
| 3 | Solenoid valve 1.65 in | 9 | DIN H-rail | 16 | CPX module/fieldbus node | n1 | Number of manifold subbases 1.65 in |
| 4 | Cover cap/manual override | 10 | DIN H-rail mounting kit | 17 | 90° connection plate width 1.65 in, G⅜ | n | Number of supply plates (only with end plate with pilot air selector) |
| 5 | Threaded connection ½ NPT | 11 | Mounting hole | 18 | 90° connection plate width 0.71 in, G⅛ width 1.02 in, G¼ | m | Number of CPX modules |
| 6 | Threaded connection ⅜ NPT | 12 | Additional mounting bracket | | | | |
| | | 13 | Inscription label holder | | | | |

| Width | L1 |
|---|---|
| 0.71 in | 1.197 + m x 1.972 + 1.968 + n02 x 1.496 + n x 1.496 + 1.468 |
| 1.02 in | 1.197 + m x 1.972 + 1.968 + n01 x 2.126 + n x 1.496 + 1.468 |
| 1.65 in | 1.197 + m x 1.972 + 1.968 + n1 x 1.693 + n x 1.496 + 1.468 |
| Mixture of 0.71, 1.02 and 1.65 in | 1.197 + m x 1.972 + 1.968 + n02 x 1.496 + n01 x 2.126 + n1 x 1.693 + n x 1.496 + 1.468 |

Supply plate with silencer




| | |
|---|---|
| 1 | Supply plate |
| 2 | Exhaust port cover |
| 3 | Silencer U-½-B-NPT |

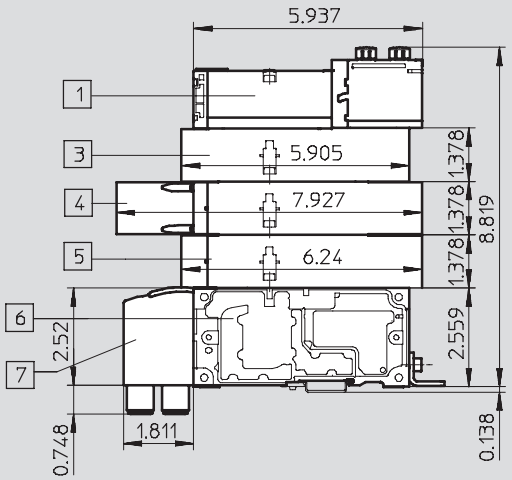
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

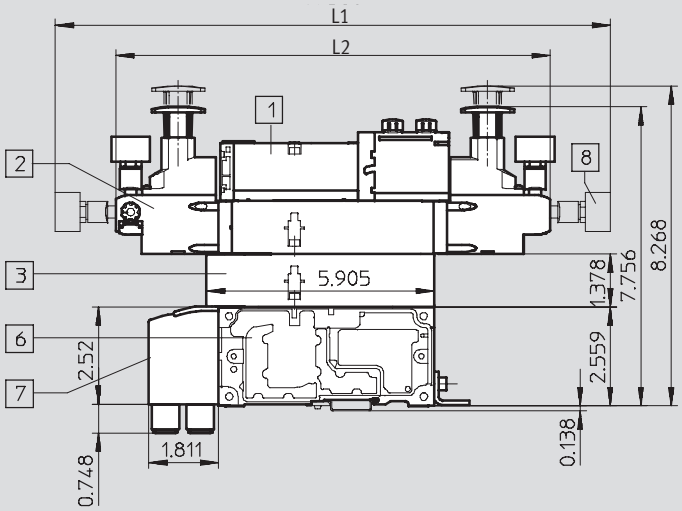
Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Vertical stacking components, width 0.71 in




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




1 Solenoid valve
2 Pressure regulator plate
3 Flow control plate
4 Vertical shut-off plate
6 Manifold subbase
7 90° connection plate
8 Pressure gauge, freely positionable

| Width | L1 | L2 |
|---|---|---|
| 0.71 in | 13.71 | 10.58 |
| 1.02 in | 14.40 | 11.26 |

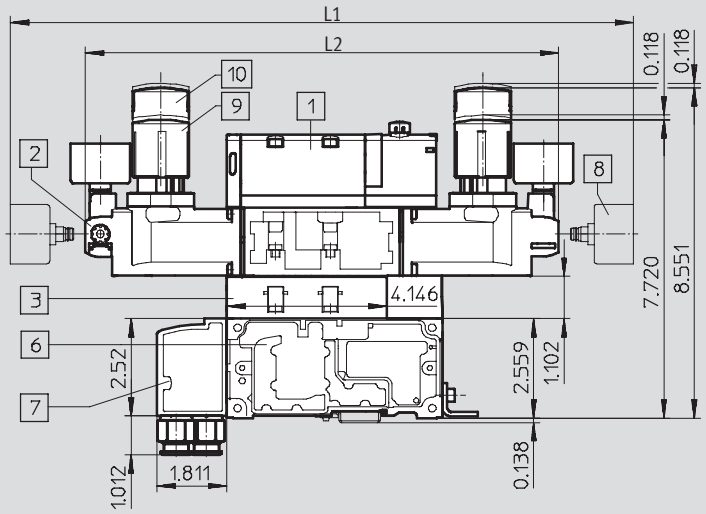
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Vertical stacking components




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

| Width | L1 | L2 |
|---|---|---|
| 0.71 in | 13.71 | 10.58 |
| 1.02 in | 14.40 | 11.26 |
| 1.65 in | 16.15 | 12.27 |

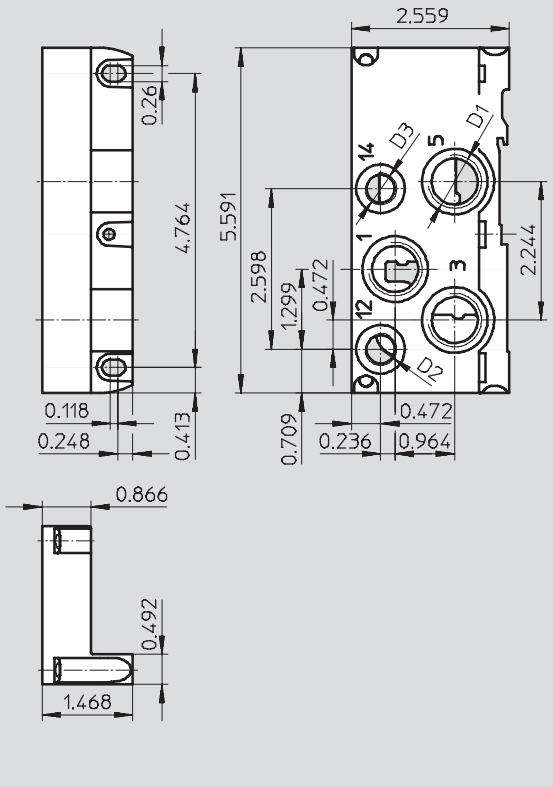
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

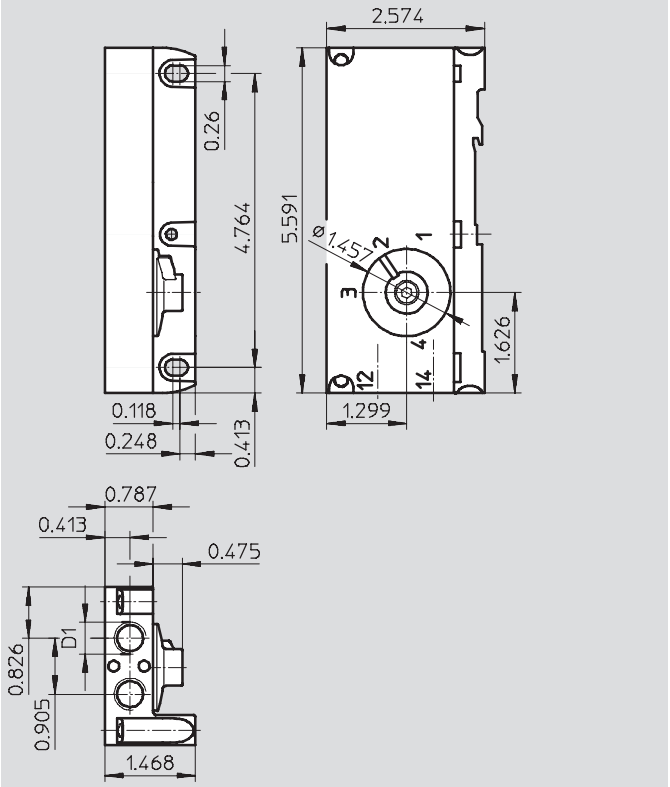
Valve Manifolds Type 44 VTSA – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Right-hand end plate




Right-hand end plate with pilot air selector




| Type | D1 | D2 | D3 |
|---|---|---|---|
| VABE-S6-1R-N12 | ½ NPT | ¼ NPT | ¼ NPT |
| VABE-S6-1RZ-N12 | | | |

| Type | D1 |
|---|---|
| VABE-S6-1RZ-N-B1 | ¼ NPT |

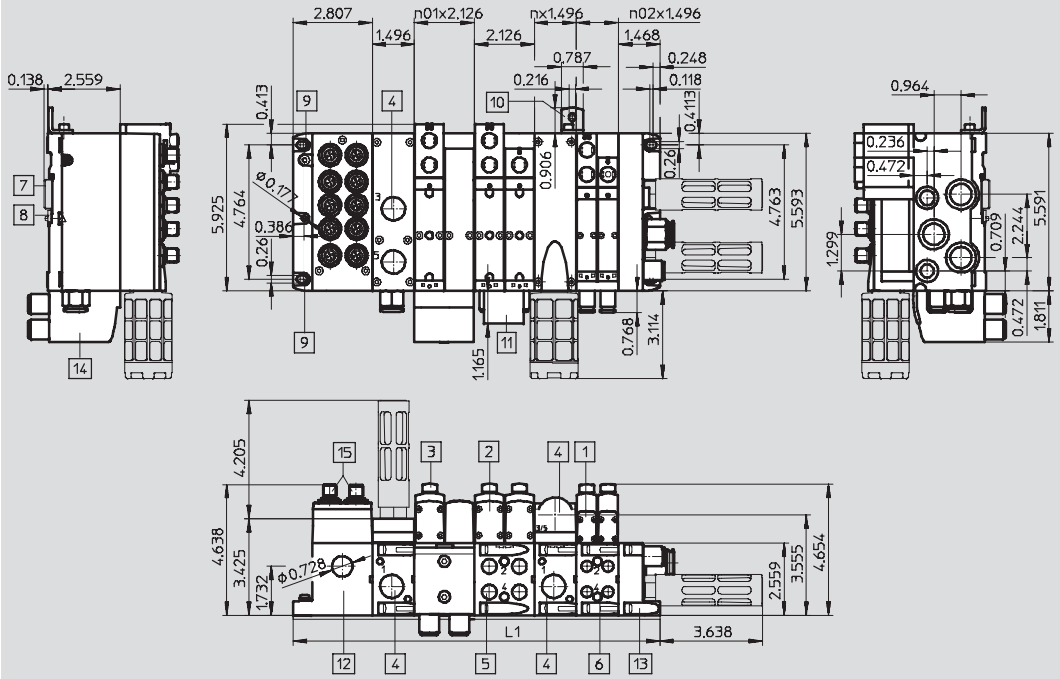
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with individual electrical connection




1 Solenoid valve 0.71 in
2 Solenoid valve 1.02 in
3 Cover cap/manual override
4 Threaded connection ½ NPT
5 Threaded connection ¼ NPT
6 Threaded connection ⅛ NPT
7 DIN H-rail
8 DIN H-rail mounting kit
9 Mounting hole
10 Additional mounting bracket
11 Inscription label holder
12 Individual connection
13 End plate
14 90° connection plate
15 M12 plug, 5-pin (6-way or 10-way)

n02 Number of manifold subbases 0.71 in
n01 Number of manifold subbases 1.02 in
n Number of supply plates

| Width | L1 |
|---|---|
| 0.71 in | 2.807 + n02 x 1.496 + n x 1.496 + 1.468 |
| 1.02 in | 2.807 + n01 x 2.126 + n x 1.496 + 1.468 |
| Mixture of 0.71 and 1.02 in | 2.807 + n02 x 1.496 + n01 x 2.126 + n x 1.496 + 1.468 |

1) Dimensions are in inches, unless otherwise noted.

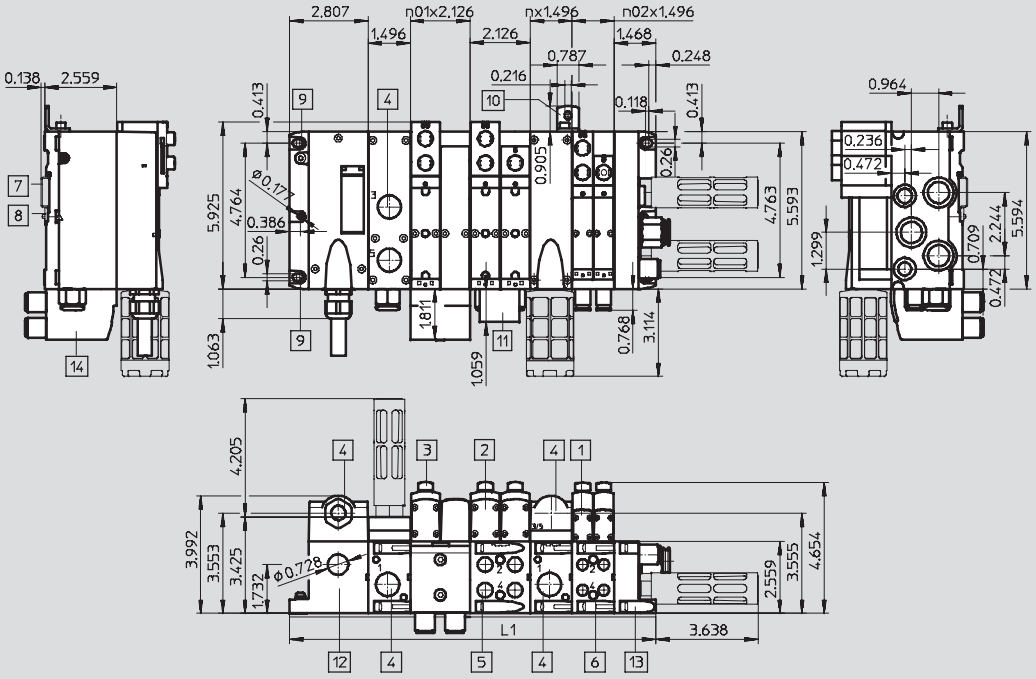
# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Inch Series

FESTO

**Dimensions[1)]** Download CAD Data ➔ **www.festo.com/us/cad**

Valve Manifold with multi-pin plug connection

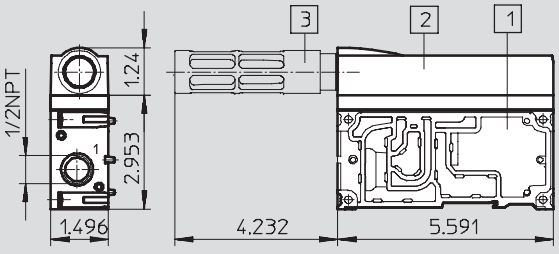



1 Solenoid valve 0.71 in
2 Solenoid valve 1.02 in
3 Cover cap/manual override
4 Threaded connection ½ NPT
5 Threaded connection ¼ NPT
6 Threaded connection ⅛ NPT
7 DIN H-rail
8 DIN H-rail mounting kit
9 Mounting hole
10 Additional mounting bracket
11 Inscription label holder
12 Multi-pin plug connection
13 End plate
14 90° connection plate

n02 Number of manifold subbases 0.71 in
n01 Number of manifold subbases 1.02 in
n Number of supply plates

| Width | L1 |
|---|---|
| 0.71 in | 2.807 + n02 x 1.496 + n x 1.496 + 1.468 |
| 1.02 in | 2.807 + n01 x 2.126 + n x 1.496 + 1.468 |
| Mixture of 0.71 and 1.02 in | 2.807 + n02 x 1.496 + n01 x 2.126 + n x 1.496 + 1.468 |

Supply plate with silencer




1 Supply plate
2 Exhaust port cover
3 Silencer U-½-B-NPT

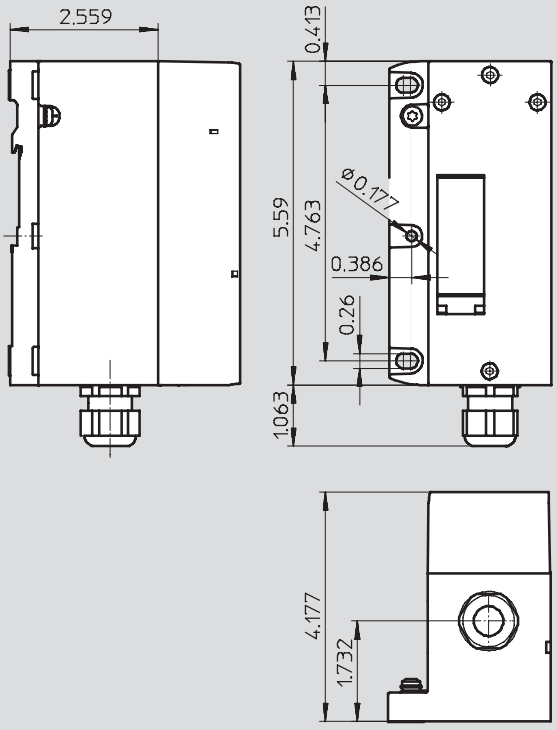
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Multi-pin, manifold strip (CageClamp)



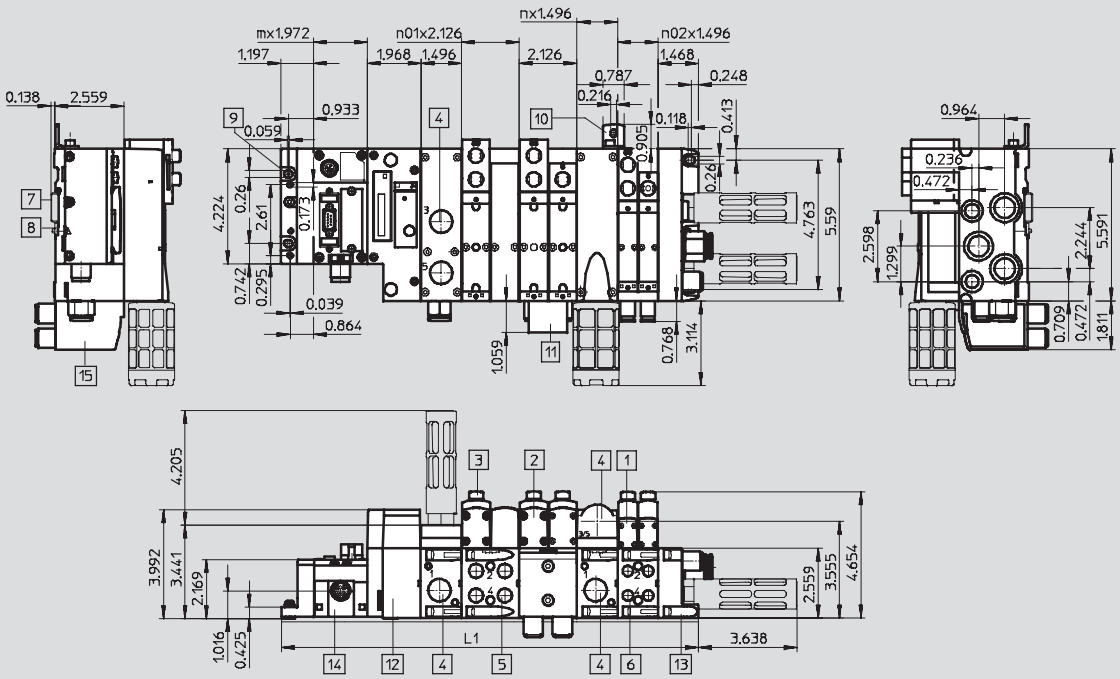

1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Valve manifold with fieldbus connection

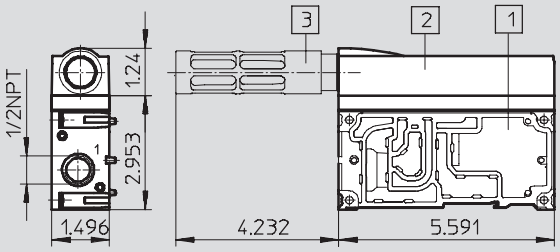



1 Solenoid valve 0.71 in
2 Solenoid valve 1.02 in
3 Cover cap/manual override
4 Threaded connection ½ NPT
5 Threaded connection ¼ NPT
6 Threaded connection ⅛ NPT
7 DIN H-rail
8 DIN H-rail mounting kit
9 Mounting hole
10 Additional mounting bracket
11 Inscription label holder
12 Pneumatic interface CPX
13 End plate
14 CPX module/fieldbus node
15 90° connection plate
width 0.71 in, G⅛
width 1.02 in, G¼

n02 Number of manifold subbases 0.71 in
n01 Number of manifold subbases 1.02 in
n Number of supply plates
m Number of CPX modules

| Width | L1 |
|---|---|
| 0.71 in | 1.197 + m x 1.972 + 1.968 + n02 x 1.496 + n x 1.496 + 1.468 |
| 1.02 in | 1.197 + m x 1.972 + 1.968 + n01 x 2.126 + n x 1.496 + 1.468 |
| Mixture of 0.71 and 1.02 in | 1.197 + m x 1.972 + 1.968 + n02 x 1.496 + n01 x 2.126 + n x 1.496 + 1.468 |

Supply plate with silencer




1 Supply plate
2 Exhaust port cover
3 Silencer U-½-B-NPT

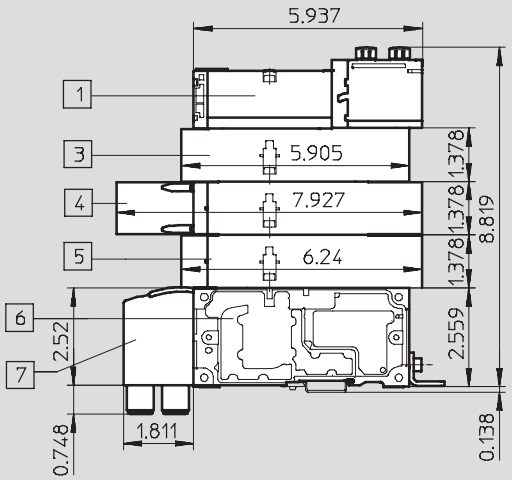
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

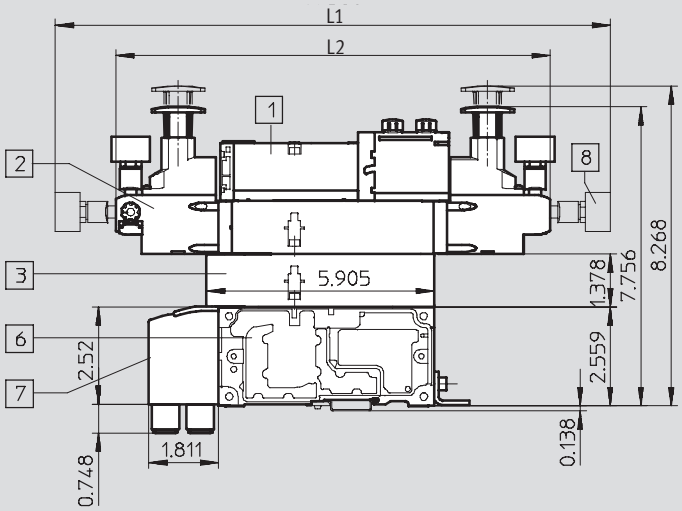
Valve Manifolds Type 45 VTSA-F – Inch Series

**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Vertical stacking components, width 0.71 in




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




1 Solenoid valve
2 Pressure regulator plate
3 Flow control plate
4 Vertical shut-off plate
6 Manifold subbase
7 90° connection plate
8 Pressure gauge, freely positionable

| Width | L1 | L2 |
|---|---|---|
| 0.71 in | 13.71 | 10.58 |
| 1.02 in | 14.40 | 11.26 |

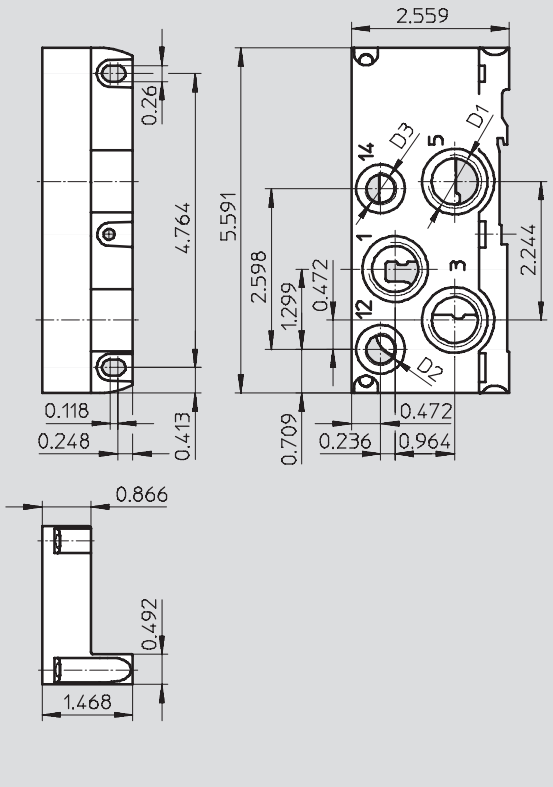
1) Dimensions are in inches, unless otherwise noted.

# Dimensional Drawings

Valve Manifolds Type 45 VTSA-F – Inch Series

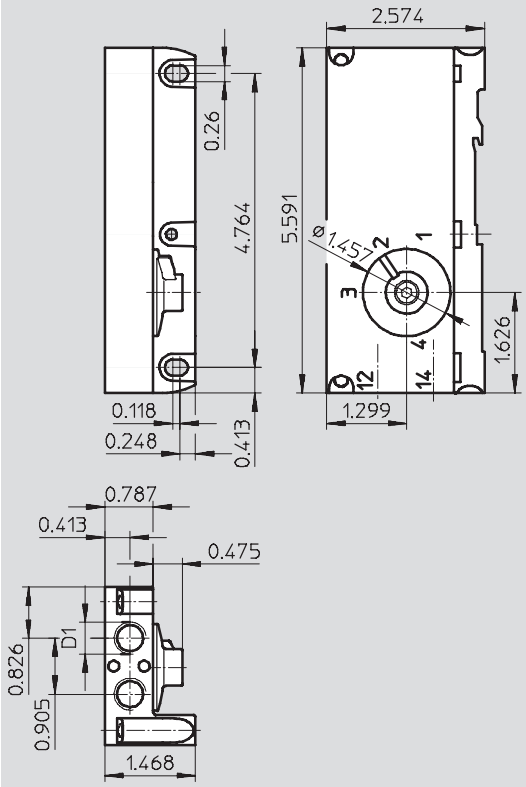
**Dimensions**[1)] Download CAD Data ➔ **www.festo.com/us/cad**

Right-hand end plate




| Type | D1 | D2 | D3 |
|---|---|---|---|
| VABE-S6-1R-N12 | ½ NPT | ¼ NPT | ¼ NPT |
| VABE-S6-1RZ-N12 | | | |

Right-hand end plate with pilot air selector




| Type | D1 |
|---|---|
| VABE-S6-1RZ-N-B1 | ¼ NPT |

1) Dimensions are in inches, unless otherwise noted.

# Online Product Configurator

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

**Configuring VTSA Valve Manifolds**

Available via our online catalog at ➔ www.festo.com/catalog/vtsa

A product configurator is available to help you configure a VTSA valve manifold that best fits your needs.

The valve manifolds are fully assembled according to your order specifications and are individually tested. This reduces the amount of assembly and installation time required to a minimum.

Valve terminals are ordered using an order code.

Ordering data for type 44
➔ 168
Ordering data for type 45
➔ 178

Ordering data for CPX
➔ www.festo.com/catalog/cpx

The illustration provides an example of a valve manifold configuration.

**The following steps give a brief explanation of how to use the on-line Festo product configurator to determine an order code**

From the Festo Industrial Automation home page www.festo.com/usa select the “Catalog” link from the “Products” menu at the top of the page; this will bring you directly to the home page for the Pneumatic Catalog.
From this location you may now use the search box, located above the Product Tree on the left hand side of the page, to perform a text based search for your product. Valid search criteria are “Part No.’s” (e.g. 539215, 547963, etc.), “Type” (e.g. VTSA, Type 44/45), or “Article Type” (e.g. valve manifold).
You may also visually navigate the catalog by using the product tree on the left or the product images off to the right.

Once you’ve located the style of VTSA (type 44 or 45, NPT or ISO, etc.) you want, click on the blue shopping basket icon (this does not initiate an order). Confirm the quantity required in the pop-up window and click Ok.
You must now view your shopping basket to configure your manifold; click on the “Basket” link on the far-right side of the page and then on the configuration symbol. You can then configure the valve terminal step by step (from the top down) according to your requirements.

If you already have a complete order code, you may easily input it using the “Insert” button (upper right). The first order code (beginning with 44E or 45E) will specify your electrical configuration and options. The second part of the order code (beginning with 44P or 45P) will specify your pneumatic configuration and options.

As you make selections the product configurator will assist you by showing you various indicators along the way. Incompatible selections are indicated by a red box with an X in it. Incomplete “required” selections are indicated by a light green box. Incomplete “optional” selections are indicated by an empty box. Completed selections are indicated by a light blue box with a check mark in it.

Once you have selected all required components, look for the “Configuration Complete” indicator in the upper-right corner of the page. Press the “Complete” button to add the configured manifold to your basket for on-line order. On-line order is not required; you may also copy down your order code for future reference or phone/fax order.

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for Multi-pin Plug – Electrical Part

FESTO

| M Mandatory Data | | | | O Options | | |
|---|---|---|---|---|---|---|
| Module No. | Valve manifold, electrical part | Electrical connection | Voltage | Connecting cable for multi-pin plug connection | User's manual | DIN H-rail mounting |
| 539216 | 44E | T, MP1, MP2, MP3 | P, Q | GA, GB, GC, GD, GE, GF, GG, GH ,GI, GK, GL, GM, GN, GO, GP, GQ, GR, GS | D, E, F, I, S, V | H |
| Order example | | | | | | |
| 539216 | 44E | – MP1 | – P | + GE | – D | – |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Ordering Table**

| | | | | | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | | **539216** | | | | |
| | 2 | Valve manifold, electrical part | | Valve manifold type 44, VTSA, electrical multi-pin plug connection/manifold box | | **44E** | | |
| | 3 | Electrical connection | | Multi-pin plug, CageClamp | 1 | **-T** | | |
| | | | | Electrical multi-pin plug connection, Sub-D (37-pin) | 1 | **-MP1** | | |
| | | | | Electrical multi-pin plug connection, individual connection with M12, 6-way | 2 | **-MP2** | | |
| | | | | Electrical multi-pin plug connection, individual connection with M12, 10-way | 3 | **-MP3** | | |
| | 4 | Voltage | | 24 V DC | | **-P** | | |
| | | | | 110 V AC | 5 | **-Q** | | |
| O | 5 | **Electrical accessories** | | | | **+** | | + |
| | | Connecting cable for multi-pin plug connection, pre-assembled, supplied loose | Polyurethane | Connecting cable for Sub-D, 8.2 ft, 10-core, 8 solenoid coils | 6 | **GA** | | |
| | | | | Connecting cable for Sub-D, 16.4 ft, 10-core, 8 solenoid coils | 6 | **GB** | | |
| | | | | Connecting cable for Sub-D, 32.8 ft, 10-core, 8 solenoid coils | 6 | **GC** | | |
| | | | | Connecting cable for Sub-D, 8.2 ft, 26-core, 22 solenoid coils | 6 | **GD** | | |
| | | | | Connecting cable for Sub-D, 16.4 ft, 26-core, 22 solenoid coils | 6 | **GE** | | |
| | | | | Connecting cable for Sub-D, 32.8 ft, 26-core, 22 solenoid coils | 6 | **GF** | | |
| | | | | Connecting cable for Sub-D, 8.2 ft, 37-core, 32 solenoid coils | 6 | **GG** | | |
| | | | | Connecting cable for Sub-D, 16.4 ft, 37-core, 32 solenoid coils | 6 | **GH** | | |
| | | | | Connecting cable for Sub-D, 32.8 ft, 37-core, 32 solenoid coils | 6 | **GI** | | |
| | | | Polyvinyl chloride | Connecting cable for Sub-D, 8.2 ft, 10-core, 8 solenoid coils | 6 | **GK** | | |
| | | | | Connecting cable for Sub-D, 16.4 ft, 10-core, 8 solenoid coils | 6 | **GL** | | |
| | | | | Connecting cable for Sub-D, 32.8 ft, 10-core, 8 solenoid coils | 6 | **GM** | | |
| | | | | Connecting cable for Sub-D, 8.2 ft, 27-core, 22 solenoid coils | 6 | **GN** | | |
| | | | | Connecting cable for Sub-D, 16.4 ft, 27-core, 22 solenoid coils | 6 | **GO** | | |
| | | | | Connecting cable for Sub-D, 32.8 ft, 27-core, 22 solenoid coils | 6 | **GP** | | |
| | | | | Connecting cable for Sub-D, 8.2 ft, 37-core, 32 solenoid coils | 6 | **GQ** | | |
| | | | | Connecting cable for Sub-D, 16.4 ft, 37-core, 32 solenoid coils | 6 | **GR** | | |
| | | | | Connecting cable for Sub-D, 32.8 ft, 37-core, 32 solenoid coils | 6 | **GS** | | |
| | 6 | User's manual | | German | | **-D** | | |
| | | | | English | | **-E** | | |
| | | | | French | | **-F** | | |
| | | | | Italian | | **-I** | | |
| | | | | Spanish | | **-S** | | |
| | | | | Swedish | | **-V** | | |
| | 7 | DIN H-rail mounting | | 1 | | **-H** | | |

1 **T, MP1** Max. 32 addresses can be selected
2 **MP2** Max. 12 addresses can be selected
3 **MP3** Max. 20 addresses can be selected
5 **Q** Only with electrical connection (3) T (multi-pin plug, CageClamp)
6 **G...** Not with electrical connection (3) T, MP2, MP3 and MP4

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

| M Mandatory Data | | | | O Options → | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Module No. | Valve manifold, pneumatic part | Manual override | Right-hand end plate | Port configuration for supply plates | Pneumatic supply to valve Manifold | Configuration of all pneumatic connections | Outgoing direction of all working lines | Left-hand supply plate | Reverse operation |
| 539216 | 44PN | N, R, V | V, X, Y, U, Z, W | K, L | S, V | M, N, G | P | X | Z |
| Order example | | | | | | | | | |
| 539216 | 44PN | – R | – V | – K | S | M | P | X | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**Ordering Table**

| | | Width | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | Enter code |
|---|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **539216** | **539216** | **539216** | | | |
| | 2 | Valve manifold, pneumatic part | Valve manifold type 44, VTSA, modular subbase valves to ISO 15407-2, pneumatic connections with NPT thread | | | | **44PN** | |
| | 3 | Manual override | Pushing (non-detenting) | | | | **-N** | |
| | | | Pushing/detenting | | | | **-R** | |
| | | | Covered | | | | **-V** | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | | **-V** | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | | **-X** | |
| | | | End plate with pilot air selector, internal pilot air supply | | | 1 | **-Y** | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | | 1 | **-U** | |
| | | | End plate with pilot air selector, external pilot air supply | | | 1 | **-Z** | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | | 1 | **-W** | |
| O | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | | 2 | **-K** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | | 2 | **-L** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | | **S** | |
| | | | QS push-in fittings | | | | **V** | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | | 3 | **M** | |
| | | | QS push-in fittings, small | | | 3 | **N** | |
| | | | QS push-in fittings, large and small mixed | | | 3 | **G** | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | | **P** | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | | **X** | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | | 4 | **Z** | |

1 **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

2 **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

3 **M, N, G** Must be selected if pneumatic valve manifold supply (6) S or V was selected

4 **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

**→ 0 Options →**

**Pneumatic manifold subbases 00 … 15**

**11 Type of interlinking block:** A, B, C, E, F, G, AK, BK, CK, EK, FK, GK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **A** | **B** | **B** | **B S** | **B** | | | | | | | | | | | |
| | **11 + 12 + 13** | | | | | | | | | | | | | | | |

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ | **11** | Pneumatic manifold subbases | | | | 5 | - | | - |
| 0 | | Type of interlinking block 00 … 15 Manifold subbase | 2 valve positions, 4 addresses | – | – | | **A** | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | – | | **B** | | |
| | | | – | – | 1 valve position, 2 addresses | | **C** | | |
| | | | 2 valve positions, 2 addresses | – | – | 6 | **E** | | |
| | | | – | 2 valve positions, 2 addresses | – | 6 | **F** | | |
| | | | – | – | 1 valve position, 1 address | 6 | **G** | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | – | 7 | **AK** | | |
| | | | – | 2 valve positions, 4 addresses | – | 7 | **BK** | | |
| | | | – | – | 1 valve position, 2 addresses | 7 | **CK** | | |
| | | | 2 valve positions, 2 addresses | – | – | 8 | **EK** | | |
| | | | – | 2 valve positions, 2 addresses | – | 8 | **FK** | | |
| | | | – | – | 1 valve position, 1 address | 8 | **GK** | | |
| | **12** | Compressed air supply/duct separation 00 … 15 | Duct separation 1, 3, 5 | | | 9 10 | **S** | | |
| | | | Duct separation 1 | | | 9 10 | **T** | | |
| | | | Duct separation 3, 5 | | | 9 10 | **R** | | |
| | | | Supply plate | | | | **U** | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | | 9 | **SU** | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | | 9 | **US** | | |
| | | | Supply plate with duct separation 1 at left | | | 9 | **TU** | | |
| | | | Supply plate with duct separation 1 at right | | | 9 | **UT** | | |
| | | | Supply plate with duct separation 3, 5 at left | | | 9 | **RU** | | |
| | | | Supply plate with duct separation 3, 5 at right | | | 9 | **UR** | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | | **USU** | | |
| | | | 2 supply plates with duct separation 1 in centre | | | | **UTU** | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | | **URU** | | |
| ↓ | **13** | Reverse operation 00 … 15 | Subsequent valve positions permitted for reverse operation | | | 11 | **Z** | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F, G** Only with valves (14) M, O and L

7 **AK, BK, CK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK, GK** Only with configuration of all pneumatic connections (7) N or G. Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR** No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU. A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

**19 Vertical supply plate for position 00 ... 31:** ZU

| Valve position | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| → | **14** | Pneumatic valve positions 00 ... 31 | | | | | **-** | | - |
| 0 | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | | 12 | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | | 12 | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | | 12 | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | | 13 | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | | 13 | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | | 13 | **R** | | |
| | | | Vacant position | | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 147 psi | Pressure regulator plate for port 1 | | 14 | **ZA** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZB** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZC** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZD** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZE** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZK** | | |
| | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZL** | | |
| | | | Input pressure 88 psi | Pressure regulator plate for port 1 | | 14 | **ZF** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZG** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZH** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZI** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZJ** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZM** | | |
| ← | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZN** | | |

12 **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

13 **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

14 **ZA, ZF** Not permitted in zones with reverse operation

15 **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

| | | |
|---|---|---|
| ➔ 0 | **Options** | |
| | **Pneumatic accessories** | |
| | U, ...B, ...T, ...N, ...V | |
| + | **10N** | |
| | **20** | |

**Ordering Table**

| | | Width | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ 0 | **16** | Pressure indicator for valve position 00 ... 31 | Pressure gauge, 147 psi | | | 16 | **T** | | Enter equipment **selection** for valve positions in **order code** |
| | | | Pressure gauge, 88 psi | | | 17 | **U** | | |
| | **17** | Flow control valve for valve position 00 ... 31 | Flow control plate | | | 18 | **X** | | |
| | **18** | Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | | 19 | **ZT** | | |
| | **19** | Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | | 18 | **ZU** | | |
| | **20** | **Pneumatic accessories** | | | | | **+** | | + |
| | | Mounting brackets (pack of 5) | Supplied separately | | | 20 | **U** | | |
| | | Inscription label holder for valves | 5 ... 50 | | | | **...B** | | |
| | | Inscription label holder for manifold subbases | 5 ... 50 | | | | **...T** | | |
| | | Cover cap for manual override, pushing | 10 ... 90 | | | | **...N** | | |
| | | Cover cap for manual override, covered | 10 ... 90 | | | | **...V** | | |

16 **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

17 **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

18 **X, ZU** Not with valves with reverse operation (14) P, Q, R

19 **ZT** Not with right-hand end plate (4) Y, Z

20 **U** Can only be selected if there are more than 9 valve positions

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for CPX – Pneumatic Part

FESTO

| M Mandatory Data | | | | O Options → | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| **Module No.** | **Valve manifold, pneumatic part** | **Manual override** | **Right-hand end plate** | **Port configuration for supply plates** | **Pneumatic supply to valve manifold** | **Configuration of all pneumatic connections** | **Outgoing direction of all working lines** | **Left-hand supply plate** | **Reverse operation** |
| 539218 | 44PN | N, R, V | V, X, Y, U, Z, W | K, L | S, V | M, N, G | P | X | Z |
| **Order example** | | | | | | | | | |
| **539218** | **44PN** | – **R** | – **V** | – **K** | **S** | **M** | **P** | **X** | |
| **1** | **2** | **3** | **4** | **5** | **6** | **7** | **8** | **9** | **10** |

**Ordering Table**

| | | Width | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | Enter code |
|---|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **539218** | **539218** | **539218** | | | |
| | 2 | Valve manifold, pneumatic part | Valve manifold type 44, VTSA, modular subbase valves to ISO 15407-2, pneumatic connections with NPT thread | | | | **44PN** | |
| | 3 | Manual override | Pushing (non-detenting) | | | | **-N** | |
| | | | Pushing/detenting | | | | **-R** | |
| | | | Covered | | | | **-V** | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | | **-V** | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | | **-X** | |
| | | | End plate with pilot air selector, internal pilot air supply | | | 1 | **-Y** | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | | 1 | **-U** | |
| | | | End plate with pilot air selector, external pilot air supply | | | 1 | **-Z** | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | | 1 | **-W** | |
| O | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | | 2 | **-K** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | | 2 | **-L** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | | **S** | |
| | | | QS push-in fittings | | | | **V** | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | | 3 | **M** | |
| | | | QS push-in fittings, small | | | 3 | **N** | |
| | | | QS push-in fittings, large and small mixed | | | 3 | **G** | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | | **P** | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | | **X** | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | | 4 | **Z** | |

1 **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

2 **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

3 **M, N, G** Must be selected if pneumatic valve manifold supply (6) S or V was selected

4 **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for CPX – Pneumatic Part

FESTO

**→ 0 Options →**

**Pneumatic manifold subbases 00 … 15**

**11 Type of interlinking block:** A, B, C, E, F, G, AK, BK, CK, EK, FK, GK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **A** | **B** | **B** | **B S** | **B** | | | | | | | | | | | |
| | **11 + 12 + 13** | | | | | | | | | | | | | | | |

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ | **11** | Pneumatic manifold subbases | | | | 5 | - | | - |
| 0 | | Type of interlinking block 00 … 15 Manifold subbase | 2 valve positions, 4 addresses | – | – | | **A** | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | – | | **B** | | |
| | | | – | – | 1 valve position, 2 addresses | | **C** | | |
| | | | 2 valve positions, 2 addresses | – | – | 6 | **E** | | |
| | | | – | 2 valve positions, 2 addresses | – | 6 | **F** | | |
| | | | – | – | 1 valve position, 1 address | 6 | **G** | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | – | 7 | **AK** | | |
| | | | – | 2 valve positions, 4 addresses | – | 7 | **BK** | | |
| | | | – | – | 1 valve position, 2 addresses | 7 | **CK** | | |
| | | | 2 valve positions, 2 addresses | – | – | 8 | **EK** | | |
| | | | – | 2 valve positions, 2 addresses | – | 8 | **FK** | | |
| | | | – | – | 1 valve position, 1 address | 8 | **GK** | | |
| | **12** | Compressed air supply/duct separation 00 … 15 | Duct separation 1, 3, 5 | | | 9 10 | **S** | | |
| | | | Duct separation 1 | | | 9 10 | **T** | | |
| | | | Duct separation 3, 5 | | | 9 10 | **R** | | |
| | | | Supply plate | | | | **U** | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | | 9 | **SU** | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | | 9 | **US** | | |
| | | | Supply plate with duct separation 1 at left | | | 9 | **TU** | | |
| | | | Supply plate with duct separation 1 at right | | | 9 | **UT** | | |
| | | | Supply plate with duct separation 3, 5 at left | | | 9 | **RU** | | |
| | | | Supply plate with duct separation 3, 5 at right | | | 9 | **UR** | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | | **USU** | | |
| | | | 2 supply plates with duct separation 1 in centre | | | | **UTU** | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | | **URU** | | |
| ↓ | **13** | Reverse operation 00 … 15 | Subsequent valve positions permitted for reverse operation | | | 11 | **Z** | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F, G** Only with valves (14) M, O and L

7 **AK, BK, CK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK, GK** Only with configuration of all pneumatic connections (7) N or G. Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR** No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU. A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for CPX – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

**19 Vertical supply plate for position 00 ... 31:** ZU

| Valve position | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| → | **14** | Pneumatic valve positions 00 ... 31 | | | | | **-** | | - |
| 0 | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | | 12 | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | | 12 | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | | 12 | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | | 13 | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | | 13 | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | | 13 | **R** | | |
| | | | Vacant position | | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 147 psi | Pressure regulator plate for port 1 | | 14 | **ZA** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZB** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZC** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZD** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZE** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZK** | | |
| | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZL** | | |
| | | | Input pressure 88 psi | Pressure regulator plate for port 1 | | 14 | **ZF** | | |
| | | | | Pressure regulator plate for port 4 | | | **ZG** | | |
| | | | | Pressure regulator plate for port 2 | | | **ZH** | | |
| | | | | Pressure regulator plate for port 4/2 | | | **ZI** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | | 15 | **ZJ** | | |
| | | | | Pressure regulator plate for port 4, reversible | | 15 | **ZM** | | |
| ← | | | | Pressure regulator plate for port 2, reversible | | 15 | **ZN** | | |

12 **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

13 **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

14 **ZA, ZF** Not permitted in zones with reverse operation.

15 **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for CPX – Pneumatic Part

FESTO

| ➔ | 0 | Options |
|---|---|---|

| | Pneumatic accessories |
|---|---|
| | U, ...B, ...T, ...N, ...V |
| + | 10N |
| | 20 |

**Ordering Table**

| | | Width | 0.71 in | 1.02 in | 1.65 in – size 1 | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|---|
| ↓ | 16 | Pressure indicator for valve position 00 ... 31 | Pressure gauge, 147 psi | | | 16 | T | | Enter equipment selection for valve positions in order code |
| 0 | | | Pressure gauge, 88 psi | | | 17 | U | | |
| | 17 | Flow control valve for valve position 00 ... 31 | Flow control plate | | | 18 | X | | |
| | 18 | Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | | 19 | ZT | | |
| | 19 | Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | | 18 | ZU | | |
| | 20 | **Pneumatic accessories** | | | | | + | | + |
| | | Mounting brackets (pack of 5) | Supplied separately | | | 20 | U | | |
| | | Inscription label holder for valves | 5 ... 50 | | | | ...B | | |
| | | Inscription label holder for manifold subbases | 5 ... 50 | | | | ...T | | |
| | | Cover cap for manual override, pushing | 10 ... 90 | | | | ...N | | |
| | | Cover cap for manual override, covered | 10 ... 90 | | | | ...V | | |

16 **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

17 **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

18 **X, ZU** Not with valves with reverse operation (14) P, Q, R

19 **ZT** Not with right-hand end plate (4) Y, Z

20 **U** Can only be selected if there are more than 9 valve positions.
Cannot be combined with DIN H-rail

# Ordering Data – Configurable Products

Valve Manifolds Type 44 VTSA, NPT Thread for CPX – Pneumatic Part

| Sizes of Pneumatic Connections | | | | | | |
|---|---|---|---|---|---|---|
| | | Code | Duct | Width | | |
| | | | | 0.71 in | 1.02 in | 1.65 in – size 1 |
| **7** | | Configuration of all pneumatic connections | | | | |
| **4** | Right-hand end plate<br>V, X, Y, U, Z, W | **M** | 12, 14 | ¼ NPT (QS-¼-⅜-U) | ¼ NPT (QS-¼-⅜-U) | ¼ NPT (QS-¼-⅜-U) |
| | | **G** | 12, 14 | ¼ NPT (QS-¼-⅜-U) | ¼ NPT (QS-¼-⅜-U) | ¼ NPT (QS-¼-⅜-U) |
| | | **N** | 12, 14 | ¼ NPT (QS-¼-5/16-U) | ¼ NPT (QS-¼-5/16-U) | ¼ NPT (QS-¼-5/16-U) |
| **4** | Right-hand end plate<br>V, X, U | **M** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **G** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **N** | 1, 3, 5 | ½ NPT (QS-½-½-U) | ½ NPT (QS-½-½-U) | ½ NPT (QS-½-½-U) |
| **9** | Left-hand supply plate<br>X | **M** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **G** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **N** | 1, 3, 5 | ½ NPT (QS-½-½-U) | ½ NPT (QS-½-½-U) | ½ NPT (QS-½-½-U) |
| **11** | Type of interlinking block<br>Large<br>A, B, C, E, F, G | **M** | 2, 4 | ⅛ NPT (QS-⅛-5/16-U) | ¼ NPT (QS-¼-⅜-U) | ⅜ NPT (QS-⅜-½-U |
| **11** | Type of interlinking block<br>Small<br>AK, BK, CK, EK, FK, GK | **N** | 2, 4 | ⅛ NPT (QS-⅛-¼-U) | ¼ NPT (QS-G¼-5/16-U) | ⅜ NPT (QS-⅜-⅜-U |

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for Multi-pin Plug – Electrical Part

FESTO

| M Mandatory Data | | | | O Options | | |
|---|---|---|---|---|---|---|
| **Module No.** | **Valve manifold, electrical part** | **Electrical connection** | **Voltage** | **Connecting cable for multi-pin plug connection** | **User's manual** | **DIN H-rail mounting** |
| 547964 | 45E | T, MP1, MP2, MP3, MP4 | P, Q | GA, GB, GC, GD, GE, GF, GG, GH ,GI, GK, GL, GM, GN, GO, GP, GQ, GR, GS | D, E, F, I, S, V | H |
| **Order example** | | | | | | |
| **547964** | **45E** | **MP1** | **P** | **GE** | **D** | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 |

**Ordering Table**

| | | | | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **547964** | | | | |
| | 2 | Valve manifold, electrical part | Valve manifold type 45, VTSA-F, electrical multi-pin plug connection/manifold box | | **45E** | | |
| | 3 | Electrical connection | Multi-pin plug, CageClamp | 1 | **-T** | | |
| | | | Electrical multi-pin plug connection, Sub-D (37-pin) | 1 | **-MP1** | | |
| | | | Electrical multi-pin plug connection, individual connection with M12, 6-way | 2 | **-MP2** | | |
| | | | Electrical multi-pin plug connection, individual connection with M12, 10-way | 3 | **-MP3** | | |
| | | | Electrical multi-pin plug connection, round plug connector (19-pin), M23 | 4 | **-MP4** | | |
| | 4 | Voltage | 24 V DC | | **-P** | | |
| | | | 110 V AC | 5 | **-Q** | | |
| O | 5 | **Electrical accessories** | | | **+** | | + |
| | | Connecting cable for multi-pin plug connection, pre-assembled, supplied loose, Polyurethane | Connecting cable for Sub-D, 8.2 ft, 10-core, 8 solenoid coils | 6 | **GA** | | |
| | | | Connecting cable for Sub-D, 16.4 ft, 10-core, 8 solenoid coils | 6 | **GB** | | |
| | | | Connecting cable for Sub-D, 32.8 ft, 10-core, 8 solenoid coils | 6 | **GC** | | |
| | | | Connecting cable for Sub-D, 8.2 ft, 26-core, 22 solenoid coils | 6 | **GD** | | |
| | | | Connecting cable for Sub-D, 16.4 ft, 26-core, 22 solenoid coils | 6 | **GE** | | |
| | | | Connecting cable for Sub-D, 32.8 ft, 26-core, 22 solenoid coils | 6 | **GF** | | |
| | | | Connecting cable for Sub-D, 8.2 ft, 37-core, 32 solenoid coils | 6 | **GG** | | |
| | | | Connecting cable for Sub-D, 16.4 ft, 37-core, 32 solenoid coils | 6 | **GH** | | |
| | | | Connecting cable for Sub-D, 32.8 ft, 37-core, 32 solenoid coils | 6 | **GI** | | |
| | | Polyvinyl chloride | Connecting cable for Sub-D, 8.2 ft, 10-core, 8 solenoid coils | 6 | **GK** | | |
| | | | Connecting cable for Sub-D, 16.4 ft, 10-core, 8 solenoid coils | 6 | **GL** | | |
| | | | Connecting cable for Sub-D, 32.8 ft, 10-core, 8 solenoid coils | 6 | **GM** | | |
| | | | Connecting cable for Sub-D, 8.2 ft, 27-core, 22 solenoid coils | 6 | **GN** | | |
| | | | Connecting cable for Sub-D, 16.4 ft, 27-core, 22 solenoid coils | 6 | **GO** | | |
| | | | Connecting cable for Sub-D, 32.8 ft, 27-core, 22 solenoid coils | 6 | **GP** | | |
| | | | Connecting cable for Sub-D, 8.2 ft, 37-core, 32 solenoid coils | 6 | **GQ** | | |
| | | | Connecting cable for Sub-D, 16.4 ft, 37-core, 32 solenoid coils | 6 | **GR** | | |
| | | | Connecting cable for Sub-D, 32.8 ft, 37-core, 32 solenoid coils | 6 | **GS** | | |
| | 6 | User's manual | German | | **-D** | | |
| | | | English | | **-E** | | |
| | | | French | | **-F** | | |
| | | | Italian | | **-I** | | |
| | | | Spanish | | **-S** | | |
| | | | Swedish | | **-V** | | |
| | 7 | DIN H-rail mounting | 1 | | **-H** | | |

1 **T, MP1** Max. 32 addresses can be selected
2 **MP2** Max. 12 addresses can be selected
3 **MP3** Max. 20 addresses can be selected
4 **MP4** Max. 16 addresses can be selected
5 **Q** Only with electrical connection (3) T (multi-pin plug, CageClamp)
6 **G...** Not with electrical connection (3) T, MP2, MP3 and MP4

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

[M] **Mandatory Data** | [O] **Options** →

| Module No. | Valve manifold, pneumatic part | | Manual override | | Right-hand end plate | | Port configuration for supply plates | Pneumatic supply to valve manifold | Configuration of all pneumatic connections | Outgoing direction of all working lines | Left-hand supply plate | Reverse operation |
|---|---|---|---|---|---|---|---|---|---|---|---|---|
| 547964 | 45PN | | N, R, V | | V, X, Y, U, Z, W | | K, L | S, V | M, N, G | P | X | Z |
| **Order example** | | | | | | | | | | | | |
| **547964** | **45PN** | – | **R** | – | **V** | – | **K** | **S** | **M** | **P** | **X** | |
| **1** | **2** | | **3** | | **4** | | **5** | **6** | **7** | **8** | **9** | **10** |

**Ordering Table**

| | | Width | 0.71 in | 1.02 in | Conditions | Code | Enter code |
|---|---|---|---|---|---|---|---|
| [M] | 1 | Module No. | **547964** | **547964** | | | |
| | 2 | Valve manifold, pneumatic part | Valve manifold type 45, VTSA-F, modular subbase valves, optimised for flow rate, pneumatic connections with NPT thread | | | **45PN** | |
| | 3 | Manual override | Pushing (non-detenting) | | | **-N** | |
| | | | Pushing/detenting | | | **-R** | |
| | | | Covered | | | **-V** | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | **-V** | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | **-X** | |
| | | | End plate with pilot air selector, internal pilot air supply | | [1] | **-Y** | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | [1] | **-U** | |
| | | | End plate with pilot air selector, external pilot air supply | | [1] | **-Z** | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | [1] | **-W** | |
| [O] | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | [2] | **-K** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | [2] | **-L** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | **S** | |
| | | | QS push-in fittings | | | **V** | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | [3] | **M** | |
| | | | QS push-in fittings, small | | [3] | **N** | |
| | | | QS push-in fittings, large and small mixed | | [3] | **G** | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | **P** | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | **X** | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | [4] | **Z** | |

[1] **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

[2] **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

[3] **M, N, G** Must be selected if pneumatic valve manifold supply (6) S or V was selected

[4] **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

**→ 0 Options →**

**Pneumatic manifold subbases 00 ... 15**

**11 Type of interlinking block:** A, B, E, F, AK, BK, EK, FK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **A** | **B** | **B** | **B S** | **B** | | | | | | | | | | | |

**11 + 12 + 13**

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ | **11** | Pneumatic manifold subbases | | | 5 | - | | - |
| 0 | | Type of interlinking block 00 ... 15 — Manifold subbase | 2 valve positions, 4 addresses | – | | **A** | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | | **B** | | |
| | | | 2 valve positions, 2 addresses | – | 6 | **E** | | |
| | | | – | 2 valve positions, 2 addresses | 6 | **F** | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | 7 | **AK** | | |
| | | | – | 2 valve positions, 4 addresses | 7 | **BK** | | |
| | | | 2 valve positions, 2 addresses | – | 8 | **EK** | | |
| | | | – | 2 valve positions, 2 addresses | 8 | **FK** | | |
| | **12** | Compressed air supply/duct separation 00 ... 15 | Duct separation 1, 3, 5 | | 9 10 | **S** | | |
| | | | Duct separation 1 | | 9 10 | **T** | | |
| | | | Duct separation 3, 5 | | 9 10 | **R** | | |
| | | | Supply plate | | | **U** | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | 9 | **SU** | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | 9 | **US** | | |
| | | | Supply plate with duct separation 1 at left | | 9 | **TU** | | |
| | | | Supply plate with duct separation 1 at right | | 9 | **UT** | | |
| | | | Supply plate with duct separation 3, 5 at left | | 9 | **RU** | | |
| | | | Supply plate with duct separation 3, 5 at right | | 9 | **UR** | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | **USU** | | |
| | | | 2 supply plates with duct separation 1 in centre | | | **UTU** | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | **URU** | | |
| ↓ | **13** | Reverse operation 00 ... 15 | Subsequent valve positions permitted for reverse operation | | 11 | **Z** | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F** Only with valves (14) M, O and L

7 **AK, BK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK** Only with configuration of all pneumatic connections (7) N or G
Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR**
No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU.
A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

**19 Vertical supply plate for position 00 ... 31:** ZU

| Valve position | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ | **14** | Pneumatic valve positions 00 ... 31 | | | | **-** | | - |
| 0 | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | 12 | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | 12 | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | 12 | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | 13 | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | 13 | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | 13 | **R** | | |
| | | | Vacant position | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 147 psi | Pressure regulator plate for port 1 | 14 | **ZA** | | |
| | | | | Pressure regulator plate for port 4 | | **ZB** | | |
| | | | | Pressure regulator plate for port 2 | | **ZC** | | |
| | | | | Pressure regulator plate for port 4/2 | | **ZD** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | 15 | **ZE** | | |
| | | | | Pressure regulator plate for port 4, reversible | 15 | **ZK** | | |
| | | | | Pressure regulator plate for port 2, reversible | 15 | **ZL** | | |
| | | | Input pressure 88 psi | Pressure regulator plate for port 1 | 14 | **ZF** | | |
| | | | | Pressure regulator plate for port 4 | | **ZG** | | |
| | | | | Pressure regulator plate for port 2 | | **ZH** | | |
| | | | | Pressure regulator plate for port 4/2 | | **ZI** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | 15 | **ZJ** | | |
| | | | | Pressure regulator plate for port 4, reversible | 15 | **ZM** | | |
| ↓ | | | | Pressure regulator plate for port 2, reversible | 15 | **ZN** | | |

12 **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

13 **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

14 **ZA, ZF** Not permitted in zones with reverse operation

15 **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for Multi-pin Plug – Pneumatic Part

FESTO

| | | |
|---|---|---|
| ➔ 0 | **Options** | |
| | **Pneumatic accessories** | |
| | U, ...B, ...T, ...N, ...V | |
| + | **10N** | |
| | **20** | |

**Ordering Table**

| Width | | 0.71 in | 1.02 in | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|
| ↓ 0 | **16** Pressure indicator for valve position 00 ... 31 | Pressure gauge, 147 psi | | 16 | **T** | | Enter equipment **selection** for valve positions in **order code** |
| | | Pressure gauge, 88 psi | | 17 | **U** | | |
| | **17** Flow control valve for valve position 00 ... 31 | Flow control plate | | 18 | **X** | | |
| | **18** Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | 19 | **ZT** | | |
| | **19** Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | 18 | **ZU** | | |
| | **20** **Pneumatic accessories** | | | | **+** | | + |
| | Mounting brackets (pack of 5) | Supplied separately | | 20 | **U** | | |
| | Inscription label holder for valves | 5 ... 50 | | | **...B** | | |
| | Inscription label holder for manifold subbases | 5 ... 50 | | | **...T** | | |
| | Cover cap for manual override, pushing | 10 ... 90 | | | **...N** | | |
| | Cover cap for manual override, covered | 10 ... 90 | | | **...V** | | |

16 **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

17 **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

18 **X, ZU** Not with valves with reverse operation (14) P, Q, R

19 **ZT** Not with right-hand end plate (4) Y, Z

20 **U** Can only be selected if there are more than 9 valve positions

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for CPX – Pneumatic Part

FESTO

| M Mandatory Data | | | | O Options | | | | | |
|---|---|---|---|---|---|---|---|---|---|
| Module No. | Valve manifold, pneumatic part | Manual override | Right-hand end plate | Port configuration for supply plates | Pneumatic supply to valve manifold | Configuration of all pneumatic connections | Outgoing direction of all working lines | Left-hand supply plate | Reverse operation |
| 547966 | 45PN | N, R, V | V, X, Y, U, Z, W | K, L | S, V | M, N, G | P | X | Z |
| Order example | | | | | | | | | |
| 547966 | 45PN | – R | – V | – K | S | M | P | X | |
| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

**Ordering table**

| | | Width | 0.71 in | 1.02 in | Conditions | Code | Enter code |
|---|---|---|---|---|---|---|---|
| M | 1 | Module No. | **547966** | **547966** | | | |
| | 2 | Valve manifold, pneumatic part | Valve manifold type 45, VTSA-F, modular subbase valves, optimized for flow rate, pneumatic connections with NPT thread | | | **45PN** | |
| | 3 | Manual override | Pushing (non-detenting) | | | **-N** | |
| | | | Pushing/detenting | | | **-R** | |
| | | | Covered | | | **-V** | |
| | 4 | Right-hand end plate | Right-hand end plate, with supply air/exhaust air, internal pilot air supply | | | **-V** | |
| | | | Right-hand end plate with supply air/exhaust air, external pilot air supply | | | **-X** | |
| | | | End plate with pilot air selector, internal pilot air supply | | 1 | **-Y** | |
| | | | End plate with pilot air selector, internal pilot air supply, ducted pilot exhaust air | | 1 | **-U** | |
| | | | End plate with pilot air selector, external pilot air supply | | 1 | **-Z** | |
| | | | End plate with pilot air selector, external pilot air supply, ducted pilot exhaust air | | 1 | **-W** | |
| O | 5 | Port configuration for supply plates | Normal operation: Supply port 1, exhaust port 3/5 separated | | 2 | **-K** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 separated | | | | |
| | | | Normal operation: Supply port 1, exhaust port 3/5 common | | 2 | **-L** | |
| | | | Reverse operation: Exhaust port 1, supply port 3/5 common | | | | |
| | 6 | Pneumatic valve manifold supply (standard: threaded connection) | Silencer and QS push-in fittings | | | **S** | |
| | | | QS push-in fittings | | | **V** | |
| | 7 | Configuration of all pneumatic connections | QS push-in fittings, large | | 3 | **M** | |
| | | | QS push-in fittings, small | | 3 | **N** | |
| | | | QS push-in fittings, large and small mixed | | 3 | **G** | |
| | 8 | Outgoing direction of all working lines (standard outlet at front) | 90° connection plate, outlet at bottom | | | **P** | |
| | 9 | Left-hand supply plate | Left-hand supply plate in front of manifold subbase 00 | | | **X** | |
| ↓ | 10 | Reverse operation | Reverse operation as of valve position 00 | | 4 | **Z** | |

1 **Y, U, Z, W** At least one left-hand supply plate (9) X or one compressed air supply/duct separation (12) U, SU, TU, RU, USU, UTU or URU must be selected

2 **K, L** Must be selected if left-hand supply plate (9) X or one compressed air supply/duct separation (12) (S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU) was selected

3 **M, N, G** Must be selected if pneumatic valve Manifold supply (6) S or V was selected

4 **Z** A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U (internal pilot air supply)

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for CPX – Pneumatic Part

FESTO

## → 0 Options →

**Pneumatic manifold subbases 00 … 15**

**11 Type of interlinking block:** A, B, E, F, AK, BK, EK, FK

**12 Compressed air supply/duct separation:** S, T, R, U, SU, US, TU, UT, RU, UR, USU, UTU, URU

**13 Reverse operation:** Z

Module position

| | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | A | B | B | B S | B | | | | | | | | | | | |

**11 + 12 + 13**

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ | 11 | Pneumatic manifold subbases | | | 5 | - | | - |
| 0 | | Type of interlinking block 00 … 15 — Manifold subbase | 2 valve positions, 4 addresses | – | | A | | Enter the equipment selected in the order code |
| | | | – | 2 valve positions, 4 addresses | | B | | |
| | | | 2 valve positions, 2 addresses | – | 6 | E | | |
| | | | – | 2 valve positions, 2 addresses | 6 | F | | |
| | | Manifold subbase with QS push-in fittings, small | 2 valve positions, 4 addresses | – | 7 | AK | | |
| | | | – | 2 valve positions, 4 addresses | 7 | BK | | |
| | | | 2 valve positions, 2 addresses | – | 8 | EK | | |
| | | | – | 2 valve positions, 2 addresses | 8 | FK | | |
| | 12 | Compressed air supply/duct separation 00 … 15 | Duct separation 1, 3, 5 | | 9 10 | S | | |
| | | | Duct separation 1 | | 9 10 | T | | |
| | | | Duct separation 3, 5 | | 9 10 | R | | |
| | | | Supply plate | | | U | | |
| | | | Supply plate with duct separation 1, 3, 5 at left | | 9 | SU | | |
| | | | Supply plate with duct separation 1, 3, 5 at right | | 9 | US | | |
| | | | Supply plate with duct separation 1 at left | | 9 | TU | | |
| | | | Supply plate with duct separation 1 at right | | 9 | UT | | |
| | | | Supply plate with duct separation 3, 5 at left | | 9 | RU | | |
| | | | Supply plate with duct separation 3, 5 at right | | 9 | UR | | |
| | | | 2 supply plates with duct separation 1, 3, 5 in centre | | | USU | | |
| | | | 2 supply plates with duct separation 1 in centre | | | UTU | | |
| | | | 2 supply plates with duct separation 3, 5 in centre | | | URU | | |
| ↓ | 13 | Reverse operation 00 … 15 | Subsequent valve positions permitted for reverse operation | | 11 | Z | | |

5 Manifold subbases must be fitted throughout without any gaps

6 **E, F** Only with valves (14) M, O and L

7 **AK, BK** Only with configuration of all pneumatic connections (7) N or G

8 **EK, FK** Only with configuration of all pneumatic connections (7) N or G
Only with valves (14) M, O and L

9 **S, T, R, SU, US, TU, UT, RU, UR**
No pressure-free zones may be created

10 **S, T, R** Cannot be selected on last manifold subbase

11 **Z** Only with compressed air supply/duct separation (12) S, SU, US or USU.
A reversible pressure zone cannot be terminated with a right-hand end plate (4) V, Y, U

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for CPX – Pneumatic Part

FESTO

→ 0 **Options** →

**Pneumatic valve positions 00 ... 31**

**14 Valve position 00 ... 31:** M, O, J, D, N, K, H, B, G, E, P, Q, R, L

**15 Pressure regulator for position 00 ... 31:** ZA, ZB, ZC, ZD, ZE, ZK, ZL, ZF, ZG, ZH, ZI, ZJ, ZM, ZN

**16 Pressure indicator for position 00 ... 31:** T, U

**17 Flow control valve position 00 ... 31:** X

**18 Vertical pressure isolating plate for position 00 ... 31:** ZT

**19 Vertical supply plate for position 00 ... 31:** ZU

| Valve position | 00 | 01 | 02 | 03 | 04 | 05 | 06 | 07 | 08 | 09 | 10 | 11 | 12 | 13 | 14 | 15 | 16 | 17 | 18 | 19 | 20 | ... | 30 | 31 |
|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|---|
| – | **M** | **M** | **M** | **O** | **O** | **O** | **J** | **J** | **E** | **E** | | | | | | | | | | | | ... | | |

**14 + 15 + 16 + 17 + 18 + 19**

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ | **14** | Pneumatic valve positions 00 ... 31 | | | | **-** | | - |
| 0 | | Valve position 00 ... 31 | 5/2-way valve, single solenoid with pneumatic spring return | | | **M** | | Enter equipment selection for valve positions in order code |
| | | | 5/2-way valve, single solenoid with spring return | | | **O** | | |
| | | | 5/2-way valve, double solenoid | | | **J** | | |
| | | | 5/2-way valve, double solenoid with dominant signal | | | **D** | | |
| | | | 2x 3/2-way valve, normally open | | 12 | **N** | | |
| | | | 2x 3/2-way valve, normally closed | | 12 | **K** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open | | 12 | **H** | | |
| | | | 5/3-way valve, mid-position pressurised | | | **B** | | |
| | | | 5/3-way valve, mid-position closed | | | **G** | | |
| | | | 5/3-way valve, mid-position exhausted | | | **E** | | |
| | | | 2x 3/2-way valve, normally open, reverse operation | | 13 | **P** | | |
| | | | 2x 3/2-way valve, normally closed, reverse operation | | 13 | **Q** | | |
| | | | 2x 3/2-way valve, 1x normally closed, 1x normally open, reverse operation | | 13 | **R** | | |
| | | | Vacant position | | | **L** | | |
| | **15** | Pressure regulator for valve position 00 ... 31 | Input pressure 147 psi | Pressure regulator plate for port 1 | 14 | **ZA** | | |
| | | | | Pressure regulator plate for port 4 | | **ZB** | | |
| | | | | Pressure regulator plate for port 2 | | **ZC** | | |
| | | | | Pressure regulator plate for port 4/2 | | **ZD** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | 15 | **ZE** | | |
| | | | | Pressure regulator plate for port 4, reversible | 15 | **ZK** | | |
| | | | | Pressure regulator plate for port 2, reversible | 15 | **ZL** | | |
| | | | Input pressure 88 psi | Pressure regulator plate for port 1 | 14 | **ZF** | | |
| | | | | Pressure regulator plate for port 4 | | **ZG** | | |
| | | | | Pressure regulator plate for port 2 | | **ZH** | | |
| | | | | Pressure regulator plate for port 4/2 | | **ZI** | | |
| | | | | Pressure regulator plate for port 4/2, reversible | 15 | **ZJ** | | |
| | | | | Pressure regulator plate for port 4, reversible | 15 | **ZM** | | |
| ↓ | | | | Pressure regulator plate for port 2, reversible | 15 | **ZN** | | |

12 **N, K, H** Not permitted in zones with reverse operation.
Not with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate)

13 **P, Q, R** Only permissible in zones with reverse operation or with pressure regulator (15) ZE, ZJ (reversible pressure regulator plate). Pilot pressure required on duct 12 (ducted exhaust air not possible).
Not with right-hand end plate (4) Y, Z

14 **ZA, ZF** Not permitted in zones with reverse operation.

15 **ZE, ZK, ZL, ZJ, ZM, ZN** Not permitted in zones with reverse operation.
Not with 2x 3/2-way valves (14) N, K, H

# Ordering Data – Configurable Products

Valve Manifolds Type 45 VTSA-F, NPT Thread for CPX – Pneumatic Part

FESTO

➔ [0] **Options**

| | |
|---|---|
| | **Pneumatic accessories** |
| | U, ...B, ...T, ...N, ...V |
| + | **10N** |
| | **20** |

**Ordering Table**

| Width | | | 0.71 in | 1.02 in | Conditions | Code | | Enter code |
|---|---|---|---|---|---|---|---|---|
| ↓ [0] | **16** | Pressure indicator for valve position 00 ... 31 | Pressure gauge, 147 psi | | [16] | **T** | | Enter equipment **selection** for valve positions in **order code** |
| | | | Pressure gauge, 88 psi | | [17] | **U** | | |
| | **17** | Flow control valve for valve position 00 ... 31 | Flow control plate | | [18] | **X** | | |
| | **18** | Vertical isolating plate for valve position 00 ... 31 | Pressure separator plate on valve assembly | | [19] | **ZT** | | |
| | **19** | Vertical supply plate for valve position 00 ... 31 | Compressed air supply on valve | | [18] | **ZU** | | |
| | **20** | **Pneumatic accessories** | | | | **+** | | + |
| | | Mounting brackets (pack of 5) | Supplied separately | | [20] | **U** | | |
| | | Inscription label holder for valves | 5 ... 50 | | | **...B** | | |
| | | Inscription label holder for manifold subbases | 5 ... 50 | | | **...T** | | |
| | | Cover cap for manual override, pushing | 10 ... 90 | | | **...N** | | |
| | | Cover cap for manual override, covered | 10 ... 90 | | | **...V** | | |

[16] **T** Only with pressure regulator (15) ZA, ZB, ZC, ZD, ZE

[17] **U** Only with pressure regulator (15) ZF, ZG, ZH, ZI, ZJ

[18] **X, ZU** Not with valves with reverse operation (14) P, Q, R

[19] **ZT** Not with right-hand end plate (4) Y, Z

[20] **U** Can only be selected if there are more than 9 valve positions. Cannot be combined with DIN H-rail

# Ordering Data – Configurable Products

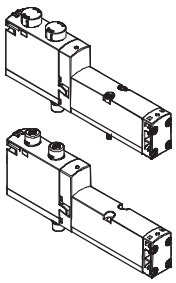
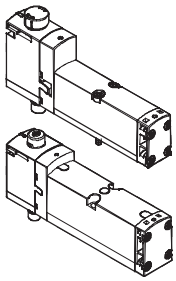
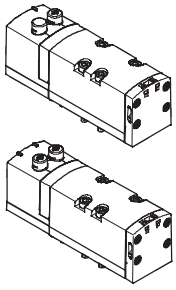
Valve Manifolds Type 45 VTSA-F, NPT Thread for CPX – Pneumatic Part

| Sizes of Pneumatic Connections | | | | | |
|---|---|---|---|---|---|
| | | Code | Duct | Width | |
| | | | | 0.71 in | 1.02 in |
| **7** | | Configuration of all pneumatic connections | | | |
| **4** | Right-hand end plate<br>V, X, Y, U, Z, W | **M** | 12, 14 | ¼ NPT (QS-¼-⅜-U) | ¼ NPT (QS-¼-⅜-U) |
| | | **G** | 12, 14 | ¼ NPT (QS-¼-⅜-U) | ¼ NPT (QS-¼-⅜-U) |
| | | **N** | 12, 14 | ¼ NPT (QS-¼-5/16-U) | ¼ NPT (QS-¼-5/16-U) |
| **4** | Right-hand end plate<br>V, X, U | **M** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **G** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **N** | 1, 3, 5 | ½ NPT (QS-½-½-U) | ½ NPT (QS-½-½-U) |
| **9** | Left-hand supply plate<br>X | **M** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **G** | 1, 3, 5 | ½ NPT (QS-½-⅝-U) | ½ NPT (QS-½-⅝-U) |
| | | **N** | 1, 3, 5 | ½ NPT (QS-½-½-U) | ½ NPT (QS-½-½-U) |
| **11** | Type of interlinking block<br>Large<br>A, B, E, F | **M** | 2, 4 | ⅛ NPT (QS-⅛-5/16-U) | ¼ NPT (QS-¼-⅜-U) |
| **11** | Type of interlinking block<br>Small<br>AK, BK, EK, FK | **N** | 2, 4 | ⅛ NPT (QS-⅛-¼-U) | ¼ NPT (QS-G¼-5/16-U) |

# Ordering Data – Individual Valve

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

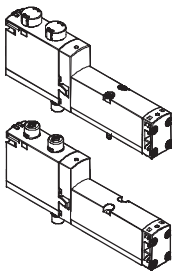
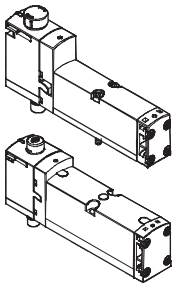
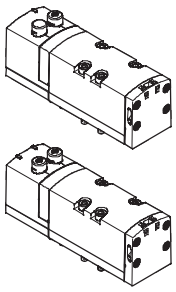
| Ordering Data | | | | | |
|---|---|---|---|---|---|
| | Code | Valve function | Width | Type | Part No. |
| Solenoid valves, 24 V DC | | | | | |
|  | M | 5/2-way valve, single solenoid, pneumatic spring return | 0.71 in | **VSVA-B-M52-AZD-A2-1T1L** | **539184** |
| | | | 1.02 in | **VSVA-B-M52-AZD-A1-1T1L** | **539158** |
| | | | 1.65 in[1)] | **VSVA-B-M52-AZD-D1-1T1L** | **543698** |
| | O | 5/2-way valve, single solenoid, spring return | 0.71 in | **VSVA-B-M52-MZD-A2-1T1L** | **539185** |
| | | | 1.02 in | **VSVA-B-M52-MZD-A1-1T1L** | **539159** |
| | | | 1.65 in[1)] | **VSVA-B-M52-MZD-D1-1T1L** | **543699** |
| | J | 5/2-way valve, double solenoid, bistable | 0.71 in | **VSVA-B-B52-ZD-A2-1T1L** | **539182** |
| | | | 1.02 in | **VSVA-B-B52-ZD-A1-1T1L** | **539156** |
| | | | 1.65 in[1)] | **VSVA-B-B52-ZD-D1-1T1L** | **543696** |
| | D | 5/2-way valve, double solenoid, dominant signal | 0.71 in | **VSVA-B-D52-ZD-A2-1T1L** | **539183** |
| | | | 1.02 in | **VSVA-B-D52-ZD-A1-1T1L** | **539157** |
| | | | 1.65 in[1)] | **VSVA-B-D52-ZD-D1-1T1L** | **543697** |
|  | N | 2x 3/2-way valve, single solenoid, normally open | 0.71 in | **VSVA-B-T32U-AZD-A2-1T1L** | **539178** |
| | | | 1.02 in | **VSVA-B-T32U-AZD-A1-1T1L** | **539152** |
| | | | 1.65 in[1)] | **VSVA-B-T32U-AZD-D1-1T1L** | **543692** |
| | K | 2x 3/2-way valve, single solenoid, normally closed | 0.71 in | **VSVA-B-T32C-AZD-A2-1T1L** | **539176** |
| | | | 1.02 in | **VSVA-B-T32C-AZD-A1-1T1L** | **539150** |
| | | | 1.65 in[1)] | **VSVA-B-T32C-AZD-D1-1T1L** | **543690** |
| | H | 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed | 0.71 in | **VSVA-B-T32H-AZD-A2-1T1L** | **539180** |
| | | | 1.02 in | **VSVA-B-T32H-AZD-A1-1T1L** | **539154** |
| | | | 1.65 in[1)] | **VSVA-B-T32H-AZD-D1-1T1L** | **543694** |
|  | B | 5/3-way valve, mid-position pressurised | 0.71 in | **VSVA-B-P53U-ZD-A2-1T1L** | **539186** |
| | | | 1.02 in | **VSVA-B-P53U-ZD-A1-1T1L** | **539160** |
| | | | 1.65 in[1)] | **VSVA-B-P53U-ZD-D1-1T1L** | **543700** |
| | G | 5/3-way valve, mid-position closed | 0.71 in | **VSVA-B-P53C-ZD-A2-1T1L** | **539188** |
| | | | 1.02 in | **VSVA-B-P53C-ZD-A1-1T1L** | **539162** |
| | | | 1.65 in[1)] | **VSVA-B-P53C-ZD-D1-1T1L** | **543702** |
| | E | 5/3-way valve, mid-position exhausted | 0.71 in | **VSVA-B-P53E-ZD-A2-1T1L** | **539187** |
| | | | 1.02 in | **VSVA-B-P53E-ZD-A1-1T1L** | **539161** |
| | | | 1.65 in[1)] | **VSVA-B-P53E-ZD-D1-1T1L** | **543701** |
| | P | 2x 3/2-way valve, single solenoid, reverse operation, normally open | 0.71 in | **VSVA-B-T32F-AZD-A2-1T1L** | **539179** |
| | | | 1.02 in | **VSVA-B-T32F-AZD-A1-1T1L** | **539153** |
| | | | 1.65 in[1)] | **VSVA-B-T32F-AZD-D1-1T1L** | **543693** |
| | Q | 2x 3/2-way valve, single solenoid, reverse operation, normally closed | 0.71 in | **VSVA-B-T32N-AZD-A2-1T1L** | **539177** |
| | | | 1.02 in | **VSVA-B-T32N-AZD-A1-1T1L** | **539151** |
| | | | 1.65 in[1)] | **VSVA-B-T32N-AZD-D1-1T1L** | **543691** |
| | R | 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed | 0.71 in | **VSVA-B-T32W-AZD-A2-1T1L** | **539181** |
| | | | 1.02 in | **VSVA-B-T32W-AZD-A1-1T1L** | **539155** |
| | | | 1.65 in[1)] | **VSVA-B-T32W-AZD-D1-1T1L** | **543695** |

1) Type 44 VTSA only

# Ordering Data – Individual Valve

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

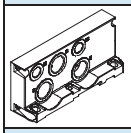
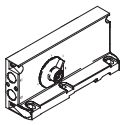
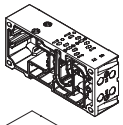
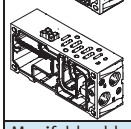
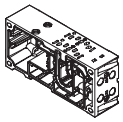
| Ordering Data | | | | | |
|---|---|---|---|---|---|
| | Code | Valve function | Width | Type | Part No. |
| Solenoid valves, 110 V AC | | | | | |
|  | M | 5/2-way valve, single solenoid, pneumatic spring return | 0.71 in | **VSVA-B-M52-AZD-A2-2AT1L** | **539171** |
| | | | 1.02 in | **VSVA-B-M52-AZD-A1-2AT1L** | **539145** |
| | | | 1.65 in[1)] | **VSVA-B-M52-AZD-D1-2AT1L** | **543685** |
| | O | 5/2-way valve, single solenoid, spring return | 0.71 in | **VSVA-B-M52-MZD-A2-2AT1L** | **539172** |
| | | | 1.02 in | **VSVA-B-M52-MZD-A1-2AT1L** | **539146** |
| | | | 1.65 in[1)] | **VSVA-B-M52-MZD-D1-2AT1L** | **543686** |
| | J | 5/2-way valve, double solenoid, bistable | 0.71 in | **VSVA-B-B52-ZD-A2-2AT1L** | **539169** |
| | | | 1.02 in | **VSVA-B-B52-ZD-A1-2AT1L** | **539143** |
| | | | 1.65 in[1)] | **VSVA-B-B52-ZD-D1-2AT1L** | **543683** |
|  | D | 5/2-way valve, double solenoid, dominant signal | 0.71 in | **VSVA-B-D52-ZD-A2-2AT1L** | **539170** |
| | | | 1.02 in | **VSVA-B-D52-ZD-A1-2AT1L** | **539144** |
| | | | 1.65 in[1)] | **VSVA-B-D52-ZD-D1-2AT1L** | **543684** |
| | N | 2x 3/2-way valve, single solenoid, normally open | 0.71 in | **VSVA-B-T32U-AZD-A2-2AT1L** | **539165** |
| | | | 1.02 in | **VSVA-B-T32U-AZD-A1-2AT1L** | **539139** |
| | | | 1.65 in[1)] | **VSVA-B-T32U-AZD-D1-2AT1L** | **543679** |
| | K | 2x 3/2-way valve, single solenoid, normally closed | 0.71 in | **VSVA-B-T32C-AZD-A2-2AT1L** | **539163** |
| | | | 1.02 in | **VSVA-B-T32C-AZD-A1-2AT1L** | **539137** |
| | | | 1.65 in[1)] | **VSVA-B-T32C-AZD-D1-2AT1L** | **543677** |
| | H | 2x 3/2-way valve, single solenoid, 1x normally open, 1x normally closed | 0.71 in | **VSVA-B-T32H-AZD-A2-2AT1L** | **539167** |
| | | | 1.02 in | **VSVA-B-T32H-AZD-A1-2AT1L** | **539141** |
| | | | 1.65 in[1)] | **VSVA-B-T32H-AZD-D1-2AT1L** | **543681** |
|  | B | 5/3-way valve, mid-position pressurised | 0.71 in | **VSVA-B-P53U-ZD-A2-2AT1L** | **539173** |
| | | | 1.02 in | **VSVA-B-P53U-ZD-A1-2AT1L** | **539147** |
| | | | 1.65 in[1)] | **VSVA-B-P53U-ZD-D1-2AT1L** | **543687** |
| | G | 5/3-way valve, mid-position closed | 0.71 in | **VSVA-B-P53C-ZD-A2-2AT1L** | **539175** |
| | | | 1.02 in | **VSVA-B-P53C-ZD-A1-2AT1L** | **539149** |
| | | | 1.65 in[1)] | **VSVA-B-P53C-ZD-D1-2AT1L** | **543689** |
| | E | 5/3-way valve, mid-position exhausted | 0.71 in | **VSVA-B-P53E-ZD-A2-2AT1L** | **539174** |
| | | | 1.02 in | **VSVA-B-P53E-ZD-A1-2AT1L** | **539148** |
| | | | 1.65 in[1)] | **VSVA-B-P53E-ZD-D1-2AT1L** | **543688** |
| | P | 2x 3/2-way valve, single solenoid, reverse operation, normally open | 0.71 in | **VSVA-B-T32F-AZD-A2-2AT1L** | **539166** |
| | | | 1.02 in | **VSVA-B-T32F-AZD-A1-2AT1L** | **539140** |
| | | | 1.65 in[1)] | **VSVA-B-T32F-AZD-D1-2AT1L** | **543680** |
| | Q | 2x 3/2-way valve, single solenoid, reverse operation, normally closed | 0.71 in | **VSVA-B-T32N-AZD-A2-2AT1L** | **539164** |
| | | | 1.02 in | **VSVA-B-T32N-AZD-A1-2AT1L** | **539138** |
| | | | 1.65 in[1)] | **VSVA-B-T32N-AZD-D1-2AT1L** | **543678** |
| | R | 2x 3/2-way valve, single solenoid, reverse operation, 1x normally open, 1x normally closed | 0.71 in | **VSVA-B-T32W-AZD-A2-2AT1L** | **539168** |
| | | | 1.02 in | **VSVA-B-T32W-AZD-A1-2AT1L** | **539142** |
| | | | 1.65 in[1)] | **VSVA-B-T32W-AZD-D1-2AT1L** | **543682** |

1) Type 44 VTSA only

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

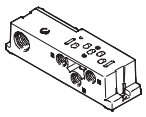
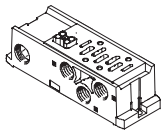
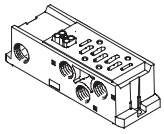
FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Right-hand end plate | | | | | |
|  | V | With supply air/exhaust air, internal pilot air supply, ½ NPT | | **VABE-S6-1R-N12** | **539235** |
| | X | With supply air/exhaust air, external pilot air supply, ½ NPT | | **VABE-S6-1RZ-N12** | **539237** |
| End plate with pilot air selector | | | | | |
|  | Y | Internal pilot air supply | | **VABE-S6-1RZ-N-B1** | **539239** |
| | U | Internal pilot air supply, ducted pilot exhaust air | | | |
| | Z | External pilot air supply | | | |
| | W | External pilot air supply, ducted pilot exhaust air | | | |
| Manifold subbase, port pattern to ISO 15407-2 and ISO 5599-2 – Type 44 VTSA | | | | | |
|  | A | 2 valve positions, 4 addresses, for double solenoid valves | 0.71 in | **VABV-S4-2S-N18-2T2** | **539223** |
| | B | 2 valve positions, 4 addresses, for double solenoid valves | 1.02 in | **VABV-S4-1S-N14-2T2** | **539219** |
| | C | 1 valve position, 2 addresses, for double solenoid valves | 1.65 in | **VABV-S2-1S-N38-T2** | **542460** |
|  | E | 2 valve positions, 2 addresses, for single solenoid valves | 0.71 in | **VABV-S4-2S-N18-2T1** | **539225** |
| | F | 2 valve positions, 2 addresses, for single solenoid valves | 1.02 in | **VABV-S4-1S-N14-2T1** | **539221** |
| | G | 1 valve position, 1 address, for single solenoid valves | 1.65 in | **VABV-S2-1S-N38-T1** | **542461** |
| Manifold subbase, optimised for flow rate – Type 45 VTSA-F | | | | | |
|  | A | 2 valve positions, 4 addresses, for double solenoid valves | 0.71 in | **VABV-S4-2HS-N18-2T2** | **546217** |
| | B | 2 valve positions, 4 addresses, for double solenoid valves | 1.02 in | **VABV-S4-1HS-N14-2T2** | **546213** |
| | E | 2 valve positions, 2 addresses, for single solenoid valves | 0.71 in | **VABV-S4-2HS-N18-2T1** | **546216** |
| | F | 2 valve positions, 2 addresses, for single solenoid valves | 1.02 in | **VABV-S4-1HS-N14-2T1** | **546212** |

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

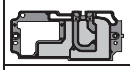
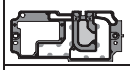
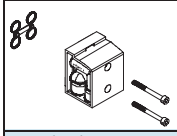
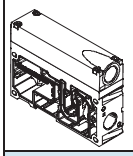
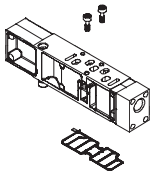
FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Individual subbase, port pattern to ISO 15407-2, electrical connection with cable manifolds – Type 44 VTSA | | | | | |
|  | NPT thread, internal pilot air supply | | | | |
| | – | Connections at side, ⅛ NPT | 0.71 in | **VABS-S4-2S-N18-B-K2** | **541068** |
| | – | Connections at side, ¼ NPT | 1.02 in | **VABS-S4-1S-N14-B-K2** | **541066** |
| | NPT thread, external pilot air supply | | | | |
| | – | Connections at side, ⅛ NPT | 0.71 in | **VABS-S4-2S-N18-K2** | **539724** |
| | – | Connections at side, ¼ NPT | 1.02 in | **VABS-S4-1S-N14-K2** | **539726** |
| Individual subbase, port pattern to ISO 5599-2, electrical connection with spring-loaded manifold – Type 44 VTSA | | | | | |
|  | NPT thread, internal pilot air supply | | | | |
| | – | Connections at side, ⅜ NPT | 1.65 in | **VABS-S2-1S-N38-B-C1** | **546763** |
| | NPT thread, external pilot air supply | | | | |
| | – | Connections at side, ⅜ NPT | 1.65 in | **VABS-S2-1S-N38-C1** | **546761** |
| Individual subbase, port pattern to ISO 5599-2, electrical connection for self-assembly – Type 44 VTSA | | | | | |
|  | NPT thread, internal pilot air supply | | | | |
| | – | Connections at side, ⅜ NPT | 1.65 in | **VABS-S2-1S-N38-B-K1** | **546103** |
| | NPT thread, external pilot air supply | | | | |
| | – | Connections at side, ⅜ NPT | 1.65 in | **VABS-S2-1S-N38-K1** | **546100** |

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

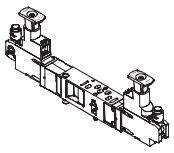
| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Separator plate | | | | | |
|  | S | Duct separation 1, 3, 5 | | **VABD-S6-10-P3-C** | **539228** |
|  | T | Duct separation 1 | | **VABD-S6-10-P1-C** | **539227** |
|  | R | Duct separation 3, 5 | | **VABD-S6-10-P2-C** | **539229** |
| 90° connection plate | | | | | |
|  | P | Outlet at bottom, connecting thread 1/8 NPT | 0.71 in | **VABF-S4-2-A2G2-N18** | **539720** |
| | P | Outlet at bottom, connecting thread 1/4 NPT | 1.02 in | **VABF-S4-1-A2G2-N14** | **539722** |
| | P | Outlet at bottom, connecting thread 3/8 NPT | 1.65 in[1)] | **VABF-S2-1-A1G2-N38** | **546098** |
| Supply plate | | | | | |
|  | L | With exhaust plate, 3/5 common, 1/2 NPT | | **VABF-S6-10-P1A7-N12** | **539233** |
| | K | With exhaust port cover, 3/5 separated, 1/2 NPT | | **VABF-S6-10-P1A6-N12** | **539232** |
| Vertical supply plate | | | | | |
|  | ZU | Connecting thread 1/8 NPT | 0.71 in | **VABF-S4-2-P1A3-N18** | **540174** |
| | | Connecting thread 1/4 NPT | 1.02 in | **VABF-S4-1-P1A3-N14** | **540172** |
| | | Connecting thread 3/8 NPT | 1.65 in[1)] | **VABF-S2-1-P1A3-N38** | **546094** |

1) Type 44 VTSA only

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

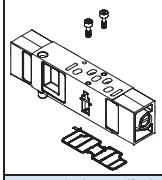
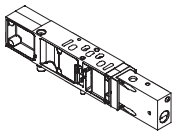
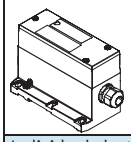
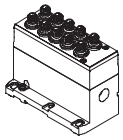
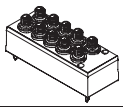
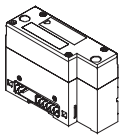
| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Regulator plate | | | | | |
|  | ZA | For port 1, 10 bar | 0.71 in | **VABF-S4-2-R1C2-C-10** | **540153** |
| | | For port 1, 10 bar | 1.02 in | **VABF-S4-1-R1C2-C-10** | **540154** |
| | | For port 1, 10 bar | 1.65 in[1)] | **VABF-S2-1-R1C2-C-10** | **546084** |
| | ZF | For port 1, 6 bar | 0.71 in | **VABF-S4-2-R1C2-C-6** | **540151** |
| | | For port 1, 6 bar | 1.02 in | **VABF-S4-1-R1C2-C-6** | **540152** |
| | | For port 1, 6 bar | 1.02 in | **VABF-S4-1-R1C2-C-6E** | **549876** |
| | | For port 1, 6 bar | 1.65 in[1)] | **VABF-S2-1-R1C2-C-6** | **546083** |
| | ZB | For port 4, 10 bar | 0.71 in | **VABF-S4-2-R3C2-C-10** | **540157** |
| | | For port 4, 10 bar | 1.02 in | **VABF-S4-1-R3C2-C-10** | **540158** |
| | | For port 4, 10 bar | 1.65 in[1)] | **VABF-S2-1-R3C2-C-10** | **546086** |
| | ZG | For port 4, 6 bar | 0.71 in | **VABF-S4-2-R3C2-C-6** | **540155** |
| | | For port 4, 6 bar | 1.02 in | **VABF-S4-1-R3C2-C-6** | **540156** |
| | | For port 4, 6 bar | 1.65 in[1)] | **VABF-S2-1-R3C2-C-6** | **546085** |
| | ZC | For port 2, 10 bar | 0.71 in | **VABF-S4-2-R2C2-C-10** | **540161** |
| | | For port 2, 10 bar | 1.02 in | **VABF-S4-1-R2C2-C-10** | **540162** |
| | | For port 2, 10 bar | 1.65 in[1)] | **VABF-S2-1-R2C2-C-10** | **546088** |
| | ZH | For port 2, 6 bar | 0.71 in | **VABF-S4-2-R2C2-C-6** | **540159** |
| | | For port 2, 6 bar | 1.02 in | **VABF-S4-1-R2C2-C-6** | **540160** |
| | | For port 2, 6 bar | 1.65 in[1)] | **VABF-S2-1-R2C2-C-6** | **546087** |
| | ZD | For ports 2 and 4, 10 bar | 0.71 in | **VABF-S4-2-R4C2-C-10** | **540165** |
| | | For ports 2 and 4, 10 bar | 1.02 in | **VABF-S4-1-R4C2-C-10** | **540166** |
| | | For ports 2 and 4, 10 bar | 1.65 in[1)] | **VABF-S2-1-R4C2-C-10** | **546090** |
| | ZI | For ports 2 and 4, 6 bar | 0.71 in | **VABF-S4-2-R4C2-C-6** | **540163** |
| | | For ports 2 and 4, 6 bar | 1.02 in | **VABF-S4-1-R4C2-C-6** | **540164** |
| | | For ports 2 and 4, 6 bar | 1.65 in[1)] | **VABF-S2-1-R4C2-C-6** | **546089** |
| | ZE | For ports 2 and 4, reversible, 10 bar | 0.71 in | **VABF-S4-2-R5C2-C-10** | **540169** |
| | | For ports 2 and 4, reversible, 10 bar | 1.02 in | **VABF-S4-1-R5C2-C-10** | **540170** |
| | | For ports 2 and 4, reversible, 10 bar | 1.65 in[1)] | **VABF-S2-1-R5C2-C-10** | **546092** |
| | ZJ | For ports 2 and 4, reversible, 6 bar | 0.71 in | **VABF-S4-2-R5C2-C-6** | **540167** |
| | | For ports 2 and 4, reversible, 6 bar | 1.02 in | **VABF-S4-1-R5C2-C-6** | **540168** |
| | | For ports 2 and 4, reversible, 6 bar | 1.65 in[1)] | **VABF-S2-1-R5C2-C-6** | **546091** |
| | ZL | For port 2, reversible, 10 bar | 0.71 in | **VABF-S4-2-R6C2-C-10** | **546252** |
| | | For port 2, reversible, 10 bar | 1.02 in | **VABF-S4-1-R6C2-C-10** | **546251** |
| | | For port 2, reversible, 10 bar | 1.65 in[1)] | **VABF-S2-1-R6C2-C-10** | **546832** |
| | ZN | For port 2, reversible, 6 bar | 0.71 in | **VABF-S4-2-R6C2-C-6** | **546248** |
| | | For port 2, reversible, 6 bar | 1.02 in | **VABF-S4-1-R6C2-C-6** | **546247** |
| | | For port 2, reversible, 6 bar | 1.65 in[1)] | **VABF-S2-1-R6C2-C-6** | **546831** |
| | ZK | For port 4, reversible, 10 bar | 0.71 in | **VABF-S4-2-R7C2-C-10** | **546254** |
| | | For port 4, reversible, 10 bar | 1.02 in | **VABF-S4-1-R7C2-C-10** | **546253** |
| | | For port 4, reversible, 10 bar | 1.65 in[1)] | **VABF-S2-1-R7C2-C-10** | **546834** |
| | ZM | For port 4, reversible, 6 bar | 0.71 in | **VABF-S4-2-R7C2-C-6** | **546250** |
| | | For port 4, reversible, 6 bar | 1.02 in | **VABF-S4-1-R7C2-C-6** | **546249** |
| | | For port 4, reversible, 6 bar | 1.65 in[1)] | **VABF-S2-1-R7C2-C-6** | **546833** |

1) Type 44 VTSA only

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | Width | Type | Part No. |
| Pressure gauge | | | | | |
|  | T | With cartridge connection for regulator, 10 bar for regulator plate, code ZA, ZB, ZC, ZD, ZE | 0.71 in | **PAGN-26-16-P10** | **543487** |
| | | | 1.02 in | | |
| | | | 1.65 in[1)] | **PAGN-40-16-P10** | **548010** |
| | U | With cartridge connection for regulator, 6 bar for regulator plate, code ZF, ZG, ZH, ZI, ZJ | 0.71 in | **PAGN-26-10-P10** | **543488** |
| | | | 1.02 in | | |
| | | | 1.65 in[1)] | **PAGN-40-10-P10** | **548009** |
| Cartridge for regulator plate | | | | | |
|  | – | For tubing O.D. 0.157 in | | **QSP10-4** | **172972** |
| | | For tubing O.D. 0.236 in | | **QSP10-6** | **172973** |
| | | For tubing O.D. 3⁄16″ | | **QSP10-3/16U** | **172975** |
| Flow control plate | | | | | |
|  | X | Controls the flow of exhaust air after the valve to ducts 3 and 5 | 0.71 in | **VABF-S4-2-F1B1-C** | **540176** |
| | | | 1.02 in | **VABF-S4-1-F1B1-C** | **540175** |
| | | | 1.65 in[1)] | **VABF-S2-1-F1B1-C** | **546095** |
| Vertical shut-off plate | | | | | |
|  | ZT | 2/2-way valve for shutting off the operating pressure at the valve position | 0.71 in | **VABF-S4-2-L1D1-C** | **542884** |
| | | | 1.02 in | **VABF-S4-1-L1D1-C** | **542885** |
| | | | 1.65 in[1)] | **VABF-S2-1-L1D1-C** | **546096** |
| Multi-pin node | | | | | |
|  | T | Tension spring, for NPT connection, 36-pin | | **VABE-S6-1LF-C-M1-C36N** | **543413** |
| | MP1 | Sub-D plug, 37-pin | | **VABE-S6-1LT-C-M1-S37** | **543414** |
| Individual electrical connection | | | | | |
|  | -MP2 | Multi-pin node with individual connection M12, 6-way | | **VABE-S6-LT-C-S6-R5** | **549046** |
| | -MP3 | Multi-pin node with individual connection M12, 10-way | | **VABE-S6-LT-C-S10-R5** | **549047** |
|  | – | Cover for individual connection M12, 6-way | | **VAEM-S6-C-S6-R5** | **549048** |
| | – | Cover for individual connection M12, 10-way | | **VAEM-S6-C-S10-R5** | **549049** |
| Pneumatic interface | | | | | |
|  | – | For electrical manifold CPX | | **VABA-S6-1-X1** | **543416** |

1) Type 44 VTSA only

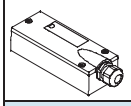
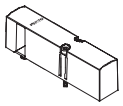
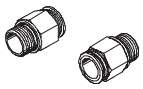
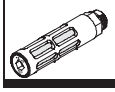
**Ordering Data**

| Designation | Code | Description | | Type | Part No. |
|---|---|---|---|---|---|
| Connecting cable with Sub-D plug socket | | | | | |
|  | Polyurethane, IP65 | | | | |
| | GA | Connecting cable for max. 8 solenoid coils, 10-pin, suitable for chain link trunking | 8.2 ft | **NEBV-S1W37-E-2,5-LE10** | **539240** |
| | GB | | 16.4 ft | **NEBV-S1W37-E-5-LE10** | **539241** |
| | GC | | 32.8 ft | **NEBV-S1W37-E-10-LE10** | **539242** |
| | GD | Connecting cable for max. 22 solenoid coils, 26-pin, suitable for chain link trunking | 8.2 ft | **NEBV-S1W37-E-2,5-LE26** | **539243** |
| | GE | | 16.4 ft | **NEBV-S1W37-E-5-LE26** | **539244** |
| | GF | | 32.8 ft | **NEBV-S1W37-E-10-LE26** | **539245** |
| | GG | Connecting cable for max. 32 solenoid coils, 37-pin | 8.2 ft | **NEBV-S1W37-K-2,5-LE37** | **539246** |
| | GH | | 16.4 ft | **NEBV-S1W37-K-5-LE37** | **539247** |
| | GI | | 32.8 ft | **NEBV-S1W37-K-10-LE37** | **539248** |
| | Polyvinyl chloride, IP65 | | | | |
| | GK | Connecting cable for max. 8 solenoid coils, 10-pin | 8.2 ft | **NEBV-S1W37-KM-2,5-LE10** | **543271** |
| | GL | | 16.4 ft | **NEBV-S1W37-KM-5-LE10** | **543272** |
| | GM | | 32.8 ft | **NEBV-S1W37-KM-10-LE10** | **543273** |
| | GN | Connecting cable for max. 22 solenoid coils, 27-pin | 8.2 ft | **NEBV-S1W37-KM-2,5-LE27** | **543274** |
| | GO | | 16.4 ft | **NEBV-S1W37-KM-5-LE27** | **543275** |
| | GP | | 32.8 ft | **NEBV-S1W37-KM-10-LE27** | **543276** |
| | GQ | Connecting cable for max. 32 solenoid coils, 37-pin | 8.2 ft | **NEBV-S1W37-KM-2,5-LE37** | **543277** |
| | GR | | 16.4 ft | **NEBV-S1W37-KM-5-LE37** | **543278** |
| | GS | | 32.8 ft | **NEBV-S1W37-KM-10-LE37** | **543279** |

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

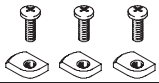
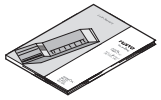
FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | | Type | Part No. |
| Cover for multi-pin plug | | | | | |
|  | – | For user configuration | | **NECV-S1W37** | **545974** |
| Cover | | | | | |
|  | L | Blanking plate for vacant position | 0.71 in | **VABB-S4-2-WT** | **539213** |
| | | | 1.02 in | **VABB-S4-1-WT** | **539212** |
| | | | 1.65 in | **VABB-S2-1-WT** | **543186** |
|  | N | Cover cap for manual override, pushing | 10 pieces | **VAMC-S6-CH** | **541010** |
|  | V | Cover cap for manual override, covered | 10 pieces | **VAMC-S6-CS** | **541011** |
|  | – | End cap for electrical manifold module, size 18 mm and 26 mm | 10 pieces | **VABD-S4-E-C** | **547713** |
| Inscription label holder | | | | | |
|  | B | Clip-on inscription label holder for valve cap | 5 pieces | **ASCF-T-S6** | **540888** |
|  | T | Inscription label holder for manifold blocks | 5 pieces | **ASCF-M-S6** | **540889** |
| Push-in fitting | | | | | |
|  | – | Connecting thread ¼ NPT for tubing O.D. 5/16" | | **QS-¼-5/16-U** | **153609** |
| | | Connecting thread ¼ NPT for tubing O.D. ½" | | **QS-¼-½-U** | **190681** |
| | | Connecting thread ⅛ NPT for tubing O.D. 5/16" | | **QS-⅛-5/16-U** | **153608** |
| | | Connecting thread ⅛ NPT for tubing O.D. ¼" | | **QS-⅛-¼-U** | **153605** |
| | | Connecting thread ½ NPT for tubing O.D. ½" | | **QS-½-½-U** | **153615** |
| | | Connecting thread ½ NPT for tubing O.D. ⅝" | | **QS-½-⅝-U** | **190682** |
| Silencer | | | | | |
|  | – | Connecting thread ¼ NPT | | **U-¼-B-NPT** | **12639** |
| | K, L | Connecting thread ½ NPT | | **U-½-B-NPT** | **12741** |

# Accessories

Valve Manifolds Type 44 VTSA, Type 45 VTSA-F – Inch Series

FESTO

| Ordering Data | | | | | |
|---|---|---|---|---|---|
| Designation | Code | Description | | Type | Part No. |
| Blanking plug | | | | | |
|  | – | Thread 1/8 NPT | 1 piece | **B-1/8-NPT** | **173985** |
| | – | Thread 1/4 NPT | 1 piece | **B-1/4-NPT** | **174165** |
| DIN H-rail mounting | | | | | |
|  | – | VTSA/VTSA-F with fieldbus | 3 pieces | **CPX-CPA-BG-NRH** | **526032** |
|  | – | VTSA/VTSA-F with multi-pin plug | 2 pieces | **CPA-BG-NRH** | **173498** |
| Wall mounting | | | | | |
|  | U | Mounting bracket | | **VAME-S6-10-W** | **539214** |
| User manual | | | | | |
|  | D | User manual for valve manifold VTSA/VTSA-F | German | **P.BE-VTSA-44-DE** | **538922** |
| | E | | English | **P.BE-VTSA-44-EN** | **538923** |
| | S | | Spanish | **P.BE-VTSA-44-ES** | **538924** |
| | F | | French | **P.BE-VTSA-44-FR** | **538925** |
| | I | | Italian | **P.BE-VTSA-44-IT** | **538926** |
| | V | | Swedish | **P.BE-VTSA-44-SV** | **538927** |

# Product Range and Company Overview

## A Complete Suite of Automation Services

Our experienced engineers provide complete support at every stage of your development process, including: conceptualization, analysis, engineering, design, assembly, documentation, validation, and production.

**Custom Automation Components**
Complete custom engineered solutions

**Custom Control Cabinets**
Comprehensive engineering support and on-site services

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Shipment, stocking and storage services

## The Broadest Range of Automation Components

With a comprehensive line of more than 30,000 automation components, Festo is capable of solving the most complex automation requirements.

**Electromechanical**
Electromechanical actuators, motors, controllers & drives

**Pneumatics**
Pneumatic linear and rotary actuators, valves, and air supply

**PLCs and I/O Devices**
PLC's, operator interfaces, sensors and I/O devices

**Supporting Advanced Automation... As No One Else Can!**
Festo is a leading global manufacturer of pneumatic and electromechanical systems, components and controls for industrial automation, with more than 12,000 employees in 56 national headquarters serving more than 180 countries. For more than 80 years, Festo has continuously elevated the state of manufacturing with innovations and optimized motion control solutions that deliver higher performing, more profitable automated manufacturing and processing equipment. Our dedication to the advancement of automation extends beyond technology to the education and development of current and future automation and robotics designers with simulation tools, teaching programs, and on-site services.

**Quality Assurance, ISO 9001 and ISO 14001 Certifications**

Festo Corporation is committed to supply all Festo products and services that will meet or exceed our customers' requirements in product quality, delivery, customer service and satisfaction.

To meet this commitment, we strive to ensure a consistent, integrated, and systematic approach to management that will meet or exceed the requirements of the ISO 9001 standard for Quality Management and the ISO 14001 standard for Environmental Management.

9001: CERTCC5-16248-2006-AQ-ESN-TGA
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# Festo North America

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**Dallas**
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**Detroit -** Automotive Engineering Center
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