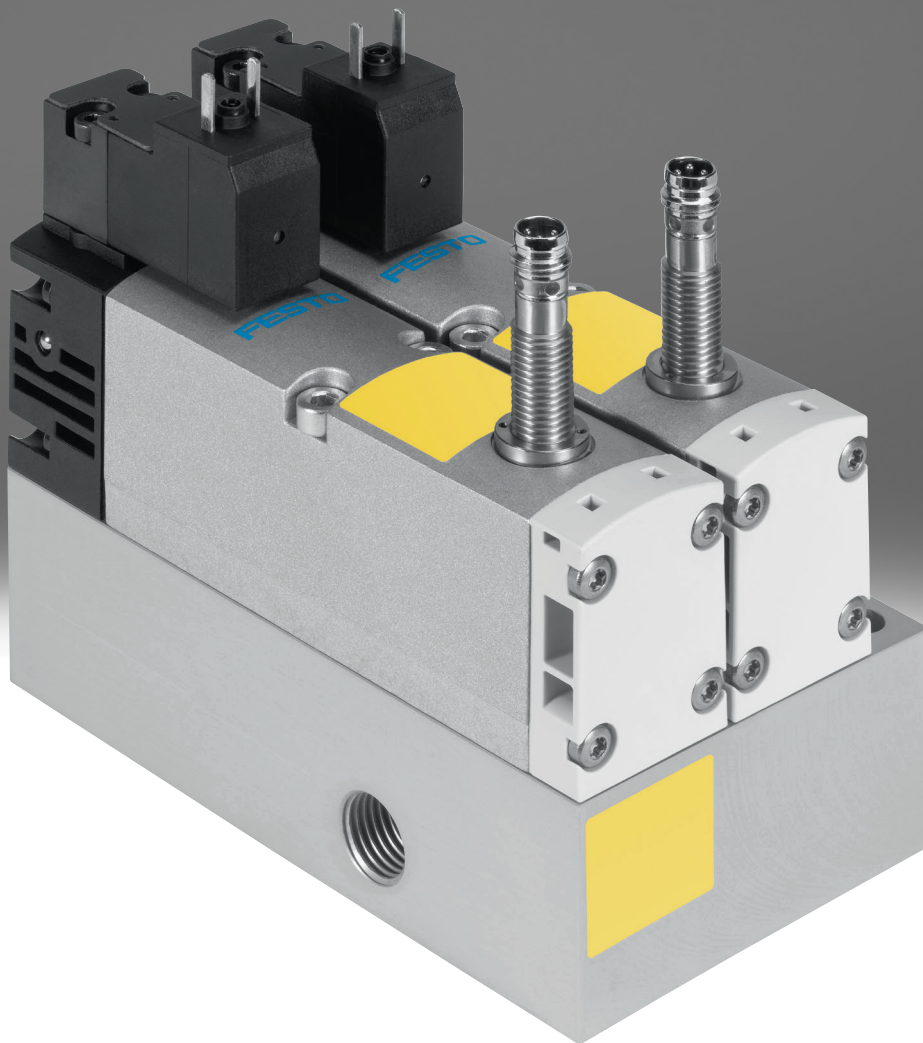


## Control block VOFA

**FESTO**



### Characteristics

#### At a glance

##### Innovative:

- Can be used for safe reversing of a hazardous movement (5/2-way solenoid valve)
- Can be used for safe exhausting (used as 3/2-way solenoid valve, not available as variant for installation on a valve terminal)

##### Flexible:

- Control block can be selected as version for valve terminal VTSA/VTSA-F
- Higher pressure range, 3 ... 10 bar
- Flow rate range up to 1050 l/min

##### Operationally safe:

- Sturdy and durable metal components
- Designed as a purely mechanical solution with regard to safety

##### Easy to assemble:

- Ready-to-install and tested unit
- Reduced costs for selection, ordering, assembly and commissioning
- Mounting with through-hole (for individual pneumatic connection)
- Mounting as vertical stacking on the manifold sub-base of the valve terminal
- Note: The control block with safety function VOFA should not be modified by customer themselves, otherwise the IFA approval will no longer be valid. The IFA certificate is linked to the tested safety function of the component.

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

- Protection against unexpected start-up (EN ISO 14118)
- Reversing hazardous movements, provided the reversing movement will not lead to any further hazards (5/2-way solenoid valve, single solenoid)
- Safe exhausting (when used as 3/2-way solenoid valve, normally closed)
- The control attributes of the control block enable Performance Level e (up to category 4, corresponds to the highest risk level) to be achieved for the protective measures. The Performance Level (PL) is a measure of the reliability of a safety function. The control block has been developed and manufactured according to the basic and proven safety principles of EN ISO 13849-1 and EN ISO 13849-2.
- The requirements of EN ISO 13849-1 and EN ISO 13849-2 (e.g. CCF, DC) must be taken into consideration for implementation and operation of the component and for use in higher categories (2 to 4).
- The control block with safety function is designed for installation in machines or automation systems and must only be used in industrial applications (high-demand mode)!
- Further information and technical data on the Support Portal → Internet: Safety engineering guidelines

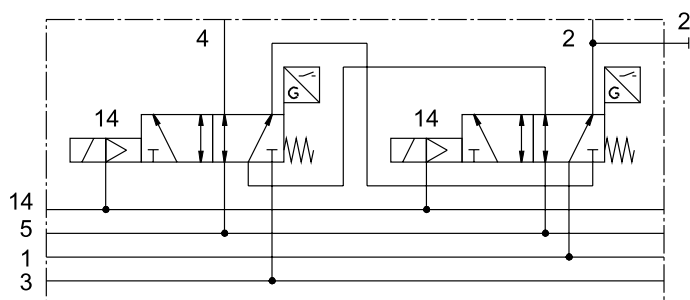
##### Function of the pneumatic/electrical links:

- The safety function is achieved by linking two pneumatics ducts of two 5/2-way single solenoid valves, width 26 mm, within the control block: port 4 is only pressurised if both solenoid valves are in the switching position. Port 2 is always pressurised when at least one of the two solenoid valves is in the normal position. The valves are reset via a mechanical spring.
- The switching operation of the solenoid valves can be sensed using the proximity switches on the solenoid valves (switching position sensing). By connecting the control signal and the switching signal of the proximity switch it is possible to check if the piston spools of the solenoid valves have reached or left the normal position (expectations).
- The piston spools of the solenoid valves are designed so that pneumatic short circuits between ports 2 and 4 are prevented (positive overlap).
- The two solenoid valves must be actuated via two independent ducts to achieve the desired category 4 (Performance Level e, to EN ISO 13849-1).
- 5/2-way solenoid valves with switching position sensing are always used.

## Characteristics

### Valve function

[5] 5/2-way valve

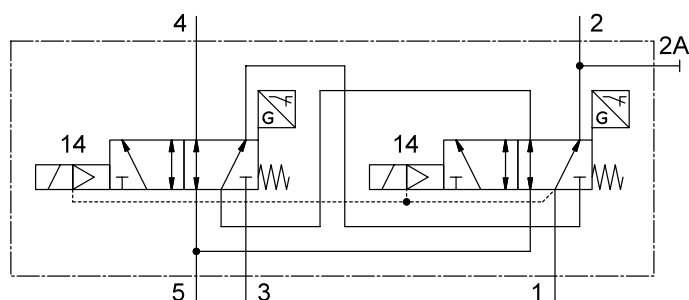


Control block VOFA-B26-T52-... as version for valve terminal VTSA/VTSA-F with 2x5/2-way solenoid valve, single solenoid:

- Pneumatic connection via valve terminal
- Mechanical spring return
- With NPN sensor (code SN) or PNP sensor (code SP)
- Fulfills the safety function of safe reversing; protection against unexpected start-up (EN 1037)

Note: The 2x 5/2-way solenoid valves each have their own electrical connection. The 2x 5/2-way solenoid valves have two pneumatically linked ducts via an individual sub-base/intermediate plate. The output of the linked 2x 5/2-way solenoid valves is only switched if both valves are in the switching position.

[5L] 5/2-way valve, monostable

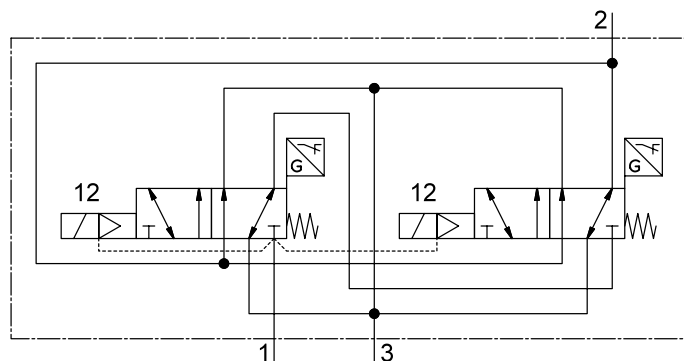


Control block VOFA-L26-T52-... as decentralised individual connection variant with 2x 5/2-way solenoid valve, single solenoid:

- as pneumatic individual connection
- Mechanical spring return
- With NPN or PNP sensor
- Fulfills the safety function of safe reversing; protection against unexpected start-up (EN 1037)

Note: The 2x 5/2-way solenoid valves each have their own electrical connection. The 2x 5/2-way solenoid valves have two pneumatically linked ducts via an individual sub-base/intermediate plate. The output of the linked 2x 5/2-way solenoid valves is only switched if both valves are in the switching position.

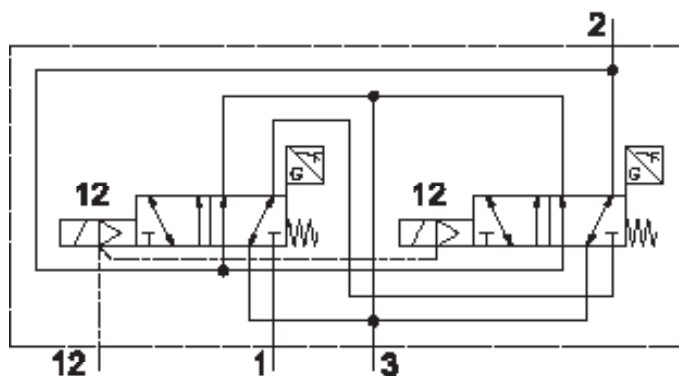
[3GL] 3/2-way valve, normally closed



Control block VOFA-L26-T32C-M-... as decentralised individual connection version with 3/2-way solenoid valve function, normally closed (both valves are pneumatically linked via the individual sub-base)

- as pneumatic individual connection
- Mechanical spring return
- With NPN or PNP sensor
- Fulfills the safety function for safe exhausting; protection against unexpected start-up (EN 1037)

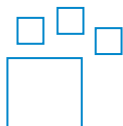
[M32C] 3/2-way valve, normally closed



Control block VOFA-L26-T32C-MZ-... as decentralised individual connection version with 3/2-way solenoid valve function, normally closed (both valves are pneumatically linked via the individual sub-base)

- as pneumatic individual connection
- Mechanical spring return
- External pilot air
- With NPN or PNP sensor
- Fulfills the safety function for safe exhausting; protection against unexpected start-up (EN 1037)

### Ordering data - modular system



Configurable product

This product and all its product options can be ordered online via the configurator.

## Type code

|      |                                    |  |
|------|------------------------------------|--|
| 001  | Series                             |  |
| VOFA | Control block with safety function |  |

|     |                                |  |
|-----|--------------------------------|--|
| 002 | Directional control valve type |  |
| L   | In-line valve                  |  |

|     |         |  |
|-----|---------|--|
| 003 | Size    |  |
| 26  | Size 26 |  |

|      |                                  |  |
|------|----------------------------------|--|
| 004  | Valve function                   |  |
| T32C | 2x3/2-way valve, normally closed |  |
| T52  | 2x5/2-way valve, normally closed |  |

|     |  |  |
|-----|--|--|
| 005 | Reset method for monostable/single solenoid valves |  |
| M   | Mechanical spring                                  |  |

|     |                      |  |
|-----|----------------------|--|
| 006 | Pneumatic connection |  |
| G14 | G1/4                 |  |

|     |                           |  |
|-----|---------------------------|--|
| 007 | Nominal operating voltage |  |
| 1   | 24 V DC                   |  |

|     |                       |  |
|-----|-----------------------|--|
| 008 | Electrical connection |  |
|-----|-----------------------|--|

|     |                                    |  |
|-----|------------------------------------|--|
| 009 | Position sensing                   |  |
| APP | Proximity sensor, PNP with M8 plug |  |
| ANP | Proximity sensor, NPN with plug M8 |  |

## Datasheet

| Safety characteristics                                     |  |  |
|--|--|--|
| Pilot air supply   | External   | Internal   |
| Safety function  | Exhaust<br>Protection against manipulation, prevention of unexpected start-up  | Protection against manipulation, prevention of unexpected start-up<br>Reversing a movement   |
| Performance Level (PL)                                     | Exhausting/up to category 4, performance level e<br>Protection against manipulation, prevention of unexpected start-up/up to category 4, Performance Level e | Protection against manipulation, prevention of unexpected start-up/up to category 4, Performance Level e<br>Reversing a movement/up to category 4, Performance Level e |
| Conforms to standard                                       | EN 60947-5-2   |  |
| Note on forced dynamization                                | Switching frequency min. 1/week  |  |
| Certificate issuing authority                              | –  | UL MH19482   |
| CE mark (see declaration of conformity) <sup>1)</sup>      | To EU EMC Directive<br>To EC Machinery Directive   |  |
| UKCA marking (see declaration of conformity) <sup>2)</sup> | To UK instructions for EMC<br>To UK regulations for machines   |  |
| Max. positive test pulse with 0 signal                     | 1,000 µs   |  |
| Max. negative test pulse with 1 signal                     | 800 µs   |  |
| Shock resistance <sup>3)</sup>                             | Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27  |  |
| Vibration resistance <sup>4)</sup>                         | Transport application test with severity level 2 to FN 942017-4 and EN 60068-2-6   |  |

1) Please refer to the declaration of conformity for the area of use: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...) → Support/Downloads.

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

2) Please refer to the declaration of conformity for the area of use: [www.festo.com/catalogue/...](http://www.festo.com/catalogue/...) → Support/Downloads.

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

3) Please also note the safety-related applications and safety engineering on the Support Portal

4) Please also note the safety-related applications and safety engineering on the Support Portal

| General technical data                                |                          |           |             |
|---|--------------------------|-----------|-------------|
| Pilot air supply                                      | External                 | Internal  |             |
| Standard nominal flow rate (standardised to DIN 1343) | 1,050 l/min              | 950 l/min | 1,050 l/min |
| Design  | Piston gate valve        |           |             |
| Type of reset   | Mechanical spring        |           |             |
| Sealing principle                                     | Soft                     |           |             |
| Exhaust-air function                                  | With flow control option |           |             |
| Type of actuation                                     | Electric                 |           |             |
| lap   | Overlap                  |           |             |
| Type of piloting                                      | Pilot actuated           |           |             |
| Flow direction  | Non-reversible           |           |             |
| Suitability for vacuum                                | no                       |           |             |
| Type of mounting                                      | With through-hole        |           |             |
| Mounting position                                     | optional                 |           |             |
| Manual override                                       | None                     |           |             |
| Signal status display                                 | With accessories         |           |             |

| Pneumatic connections        |          |          |
|------------------------------|----------|----------|
| Pilot air supply             | External | Internal |
| Pneumatic connection, port 1 | G1/4     |          |
| Pneumatic connection, port 2 | G1/4     |          |
| Pneumatic connection, port 3 | G1/4     |          |
| Pneumatic connection, port 4 | –        | G1/4     |
| Pneumatic connection, port 5 | –        | G1/4     |
| Pilot air port 12/14         | M7       | –        |

## Datasheet

## Operating and ambient conditions

|  |  |                           |
|--|--|---------------------------|
| Pilot air supply                             | External   | Internal                  |
| Operating pressure                           | 0 ... 1 MPa  | 0.3 ... 1 MPa             |
| Operating pressure                           | 0 ... 10 bar   | 3 ... 10 bar              |
| Operating medium                             | Compressed air to ISO 8573-1:2010 [7:4:4]  |                           |
| Pilot medium                                 | Compressed air to ISO 8573-1:2010 [7:4:4]  |                           |
| Note on operating and pilot medium           | Lubricated operation possible (in which case lubricated operation will always be required) |                           |
| Pilot pressure                               | 0.3 ... 1 MPa  |                           |
| Pilot pressure                               | 3 ... 10 bar   |                           |
| Sound pressure level                         | 85 dB(A)   |                           |
| Ambient temperature                          | -5 ... 50°C  |                           |
| Media temperature                            | -5 ... 50°C  |                           |
| Nominal altitude of use                      | 1,000 m in accordance with VDE 0580  |                           |
| Corrosion resistance class CRC <sup>1)</sup> | 0 - No corrosion stress  |                           |
| Approval                                     | –  | c UL us - Recognized (OL) |
| Certificate issuing authority                | –  | UL MH19482                |
| KC mark                                      | –  | KC-EMV                    |
| UKCA marking (see declaration of conformity) | To UK instructions for EMC<br>To UK regulations for machines                               |                           |
| CE mark (see declaration of conformity)      | To EU EMC Directive<br>To EC Machinery Directive   |                           |

1) Further information [www.festo.com/x/topic/kbk](http://www.festo.com/x/topic/kbk)

## Electrical data control block

|   |  |          |       |
|---|--|----------|-------|
| Pilot air supply                                | External   | Internal |       |
| Switching time on                               | 24 ms  | 22 ms    | 24 ms |
| Switching time off                              | 54 ms  | 56 ms    | 54 ms |
| Valve - sensor switching time on <sup>1)</sup>  | 58 ms  | 60 ms    | 58 ms |
| Valve - sensor switching time off <sup>2)</sup> | 11 ms  |          |       |
| Electrical connection                           | Type C, To EN 175301-803, Without protective earth conductor |          |       |
| Permissible voltage fluctuations                | -15%/+10%  |          |       |
| Max. magnetic interference field                | 60 mT  |          |       |
| Switching position sensing                      | Normal position via sensor                                   |          |       |
| Duty cycle                                      | 100%   |          |       |
| Degree of protection                            | IP65, NEMA 4   |          |       |
| Protection against direct and indirect contact  | PELV<br>Protection class to EN60950/IEC 950                  |          |       |

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

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

## Datasheet

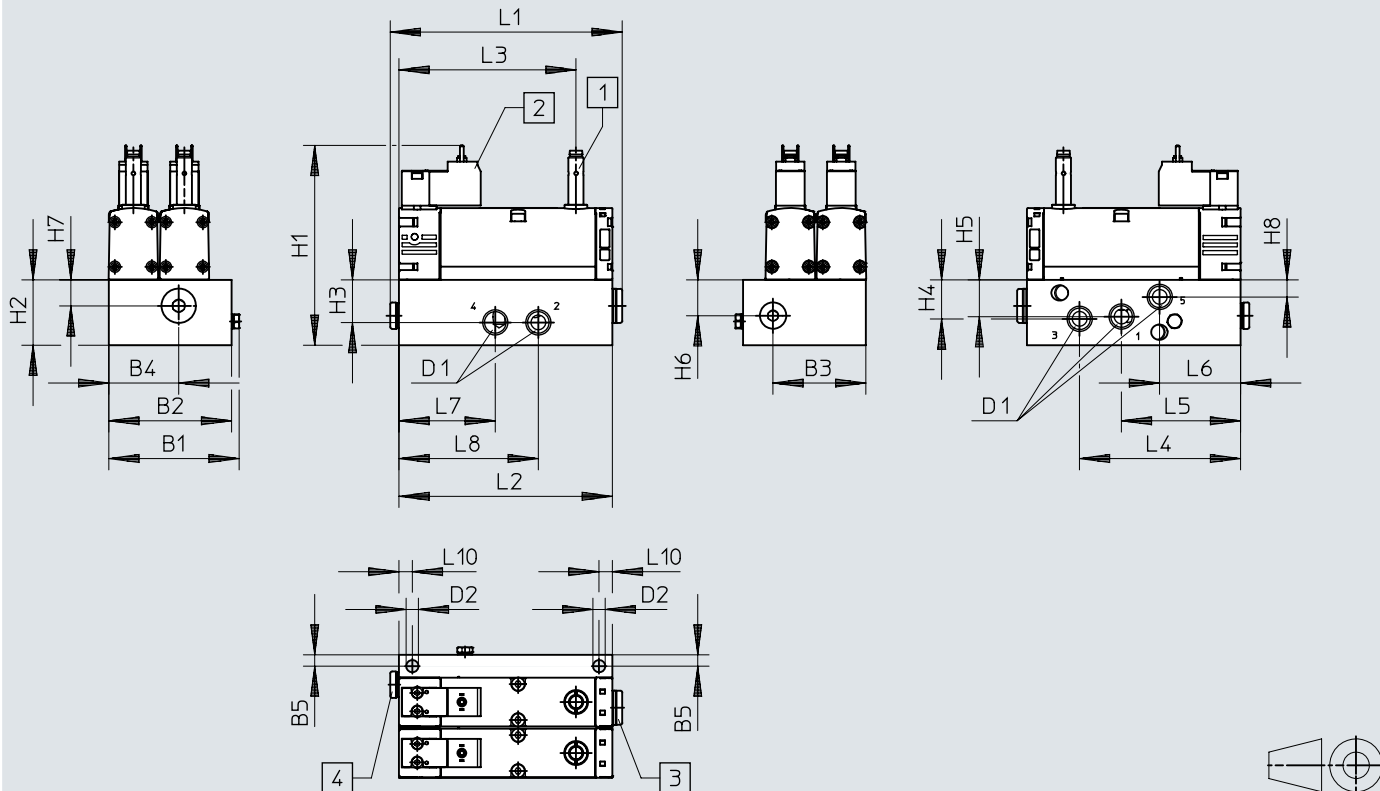
| Electrical data – Sensor (to EN-60947-5-2) |  |            |
|--|--|------------|
| Pilot air supply                           | External   | Internal   |
| Electrical connection                      | Type C<br>To EN 175301-803<br>Without protective earth conductor |            |
| Switching output                           | PNP  | NPN<br>PNP |
| Switching element function                 | N/C contact  |            |
| Signal status display                      | With accessories   |            |
| Operating voltage range, DC sensor         | 10 ... 30 V  |            |
| Residual ripple sensor                     | ± 10%  |            |
| Idle current sensor                        | 10 mA  |            |
| Max. output current sensor                 | 200 mA   |            |
| Max. switching frequency sensor            | 5,000 Hz   |            |
| Short-circuit strength sensor              | Pulsed   |            |
| Reverse polarity protection sensor         | For all electrical connections                                   |            |
| Measuring principle                        | Inductive  |            |

| Materials              |                        |
|------------------------|------------------------|
| Material housing       | Die-cast aluminium, PA |
| Material seals         | FPM<br>HNBR<br>NBR     |
| Material screws        | Galvanised steel       |
| Note on materials      | RoHS-compliant         |
| LABS (PWIS) conformity | VDMA24364-B1/B2-L      |

## Dimensions

Dimensions – Decentralised individual connection variant, VOFA-L26-T52-...

Download CAD data [www.festo.com](http://www.festo.com)



- [1] Proximity switch PNP or NPN, size M8x1, plug connection according to EN 61076-2-104
- [2] Electrical connection according to EN 175301-803, type C
- [3] Pneumatic connection G1/4 sealed with blanking plug
- [4] Pneumatic connection G1/8 sealed with blanking plug

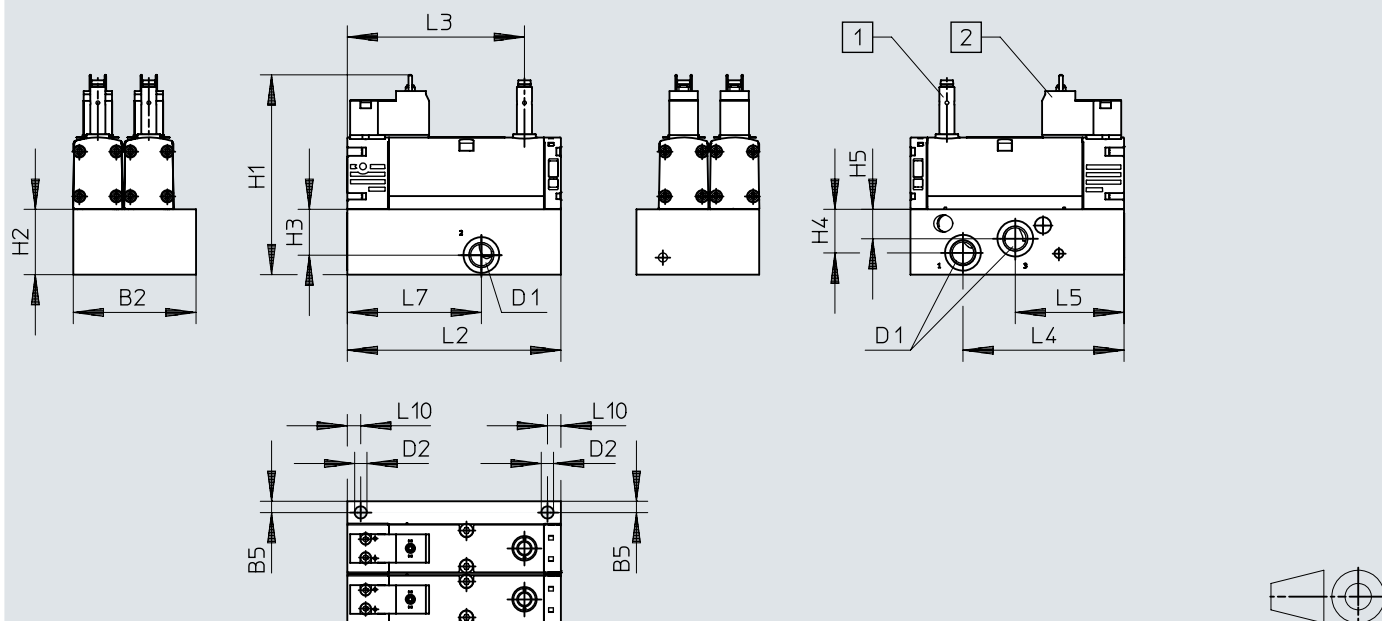
|                            | B1 | B2 | B3   | B4 | B5 | D1   | D2  | H1    | H2   | H3   | H4   | H5   | H6   |
|----------------------------|----|----|------|----|----|------|-----|-------|------|------|------|------|------|
| VOFA-L26-T52-M-G14-1C1-APP | 69 | 65 | 49,3 | 37 | 6  | G1/4 | 6,5 | 105,8 | 34,6 | 22,6 | 20,7 | 19,5 | 19,1 |
| VOFA-L26-T52-M-G14-1C1-ANP |    |    |      |    |    |      |     |       |      |      |      |      |      |

|                            | H7   | H8  | H9 | L1    | L2    | L3   | L4   | L5   | L6   | L7 | L8   | L9 | L10 |
|----------------------------|------|-----|----|-------|-------|------|------|------|------|----|------|----|-----|
| VOFA-L26-T52-M-G14-1C1-APP | 13,8 | 9,1 | 22 | 122,9 | 113,1 | 93,8 | 85,3 | 63,1 | 42,9 | 51 | 73,8 | 35 | 7,1 |
| VOFA-L26-T52-M-G14-1C1-ANP |      |     |    |       |       |      |      |      |      |    |      |    |     |



## Dimensions

Dimensions – Decentralised single connection variant VOFA-L26-T32C-M-...

Download CAD data [www.festo.com](http://www.festo.com)

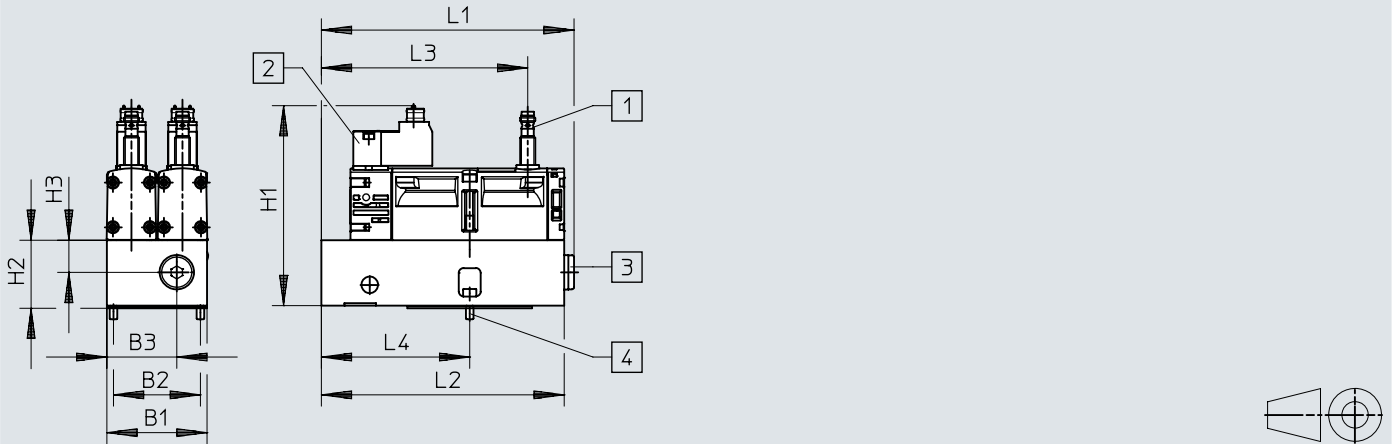
[1] Proximity switch PNP or NPN, size M8x1, plug connection according to EN 61076-2-104

[2] Electrical connection according to EN 175301-803, type C

|                             | B2 | B5 | D1   | D2  | H1    | H2   | H3   | H4   | H5   | L2    | L3   | L4   | L5   | L7 | L10 |
|-----------------------------|----|----|------|-----|-------|------|------|------|------|-------|------|------|------|----|-----|
| VOFA-L26-T32C-M-G14-1C1-APP | 65 | 6  | G1/4 | 6,5 | 105,8 | 34,6 | 24,3 | 23,1 | 15,6 | 113,1 | 93,8 | 85,3 | 57,6 | 71 | 7,1 |
| VOFA-L26-T32C-M-G14-1C1-ANP |    |    |      |     |       |      |      |      |      |       |      |      |      |    |     |

## Dimensions

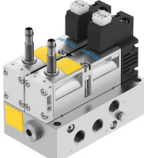
Dimensions – Version for valve terminal VTSA/VTSA-F, VOFA-B26-T52-...

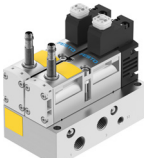
Download CAD data [www.festo.com](http://www.festo.com)

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

|                        | B1 | B2 | B3 | H1    | H2   | H3 | L1    | L2    | L3    | L4   |
|------------------------|----|----|----|-------|------|----|-------|-------|-------|------|
| VOFA-B26-T52-M-1C1-APP | 53 | 46 | 37 | 105,8 | 34,6 | 17 | 133,7 | 128,5 | 109,2 | 78,5 |
| VOFA-B26-T52-M-1C1-ANP |    |    |    |       |      |    |       |       |       |      |

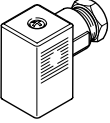
## Ordering data

| Control block, as decentralised individual connection variant, 5/2-way solenoid valve |                  |                    |                |          |                            |
|---|------------------|--------------------|----------------|----------|----------------------------|
|   | Switching output | Construction width | Product weight | Part no. | Type                       |
|      | NPN              | 65 mm              | 1,138 g        | 569820   | VOFA-L26-T52-M-G14-1C1-ANP |
|   | PNP              |                    |                | 569819   | VOFA-L26-T52-M-G14-1C1-APP |


| Control block, as a decentralised single connection variant, 3/2-way solenoid valve, internal pilot air supply |                  |                    |                |          |                             |
|--|------------------|--------------------|----------------|----------|-----------------------------|
|  | Switching output | Construction width | Product weight | Part no. | Type                        |
|                               | NPN              | 65 mm              | 1,134 g        | 574012   | VOFA-L26-T32C-M-G14-1C1-ANP |
|  | PNP              |                    |                | 574011   | VOFA-L26-T32C-M-G14-1C1-APP |

## Accessories

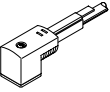
## Plug socket for the electrical connection of individual valves

|  | Electrical connection 1, connection type | Electrical connection 1, cable outlet | Electrical connection 1, number of connections/cores | Cable fitting | Electrical connection 2 | Part no. | Type        |
|--|--|---------------------------------------|--|---------------|-------------------------|----------|-------------|
|  |  |                                       |  | M12           |                         | 539712   | MSSD-EB-M12 |
|  | Socket                                   | Angled                                | 3  | Pg7           | Screw terminal          | ★ 151687 | MSSD-EB     |

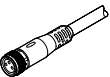
## Illuminated seal for plug pattern EN 175301-803, type C, for plug socket MSSD

|  | Product weight | Part no. | Type           |
|--|----------------|----------|----------------|
|  | 0.6 g          | 151717   | MEB-LD-12-24DC |

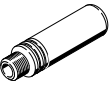
## Connecting cable for the electrical connection of individual valves

|  | Electrical connection 1, connection type | Electrical connection 1, cable outlet | Electrical connection 1, number of connections/cores | Signal status display | Cable length | Part no. | Type              |
|--|--|---------------------------------------|--|-----------------------|--------------|----------|-------------------|
|  | Socket                                   | Angled                                | 3  | Yellow LED            | 2.5 m        | ★ 151688 | KMEB-1-24-2.5-LED |
|  |  |                                       |  |                       | 5 m          | 151689   | KMEB-1-24-5-LED   |
|  |  |                                       |  |                       | 10 m         | 193457   | KMEB-1-24-10-LED  |


## Connecting cable for the electrical connection of sensors for switching position sensing, straight socket, open end

|  | Electrical connection 1, connection type | Electrical connection 1, cable outlet | Electrical connection 1, connector system | Electrical connection 1, number of connections/cores | Cable length | Part no.  | Type                  |
|--|--|---------------------------------------|---|--|--------------|-----------|-----------------------|
|  | Socket                                   | Straight                              | M8x1, A-coded, to EN 61076-2-104          | 3  | 2.5 m        | ★ 8078223 | NEBA-M8G3-U-2.5-N-LE3 |
|  |  |                                       |   |  | 5 m          | ★ 8078224 | NEBA-M8G3-U-5-N-LE3   |


## Silencers

|  | Pneumatic connection | Part no. | Type   |
|--|----------------------|----------|--------|
|  | G1/4                 | 197584   | UO-1/4 |

## Push-in fitting

|  | Pneumatic connection, port 1 | Pneumatic connection, port 2         | Size of pack | Part no. | Type       |
|--|------------------------------|--------------------------------------|--------------|----------|------------|
|  | Male thread G1/4             | For tubing outside diameter of 8 mm  | 10           | ★ 186099 | QS-G1/4-8  |
|  |                              | For tubing outside diameter of 10 mm |              | ★ 186101 | QS-G1/4-10 |
|  |                              | For tubing outer diameter of 12 mm   |              | ★ 186350 | QS-G1/4-12 |

## Accessories

| Blanking plug   |  | Part no. | Type  |
|---|--|----------|-------|
|  | Pneumatic connection, port 1<br>Male thread G1/4 | ★ 3569   | B-1/4 |