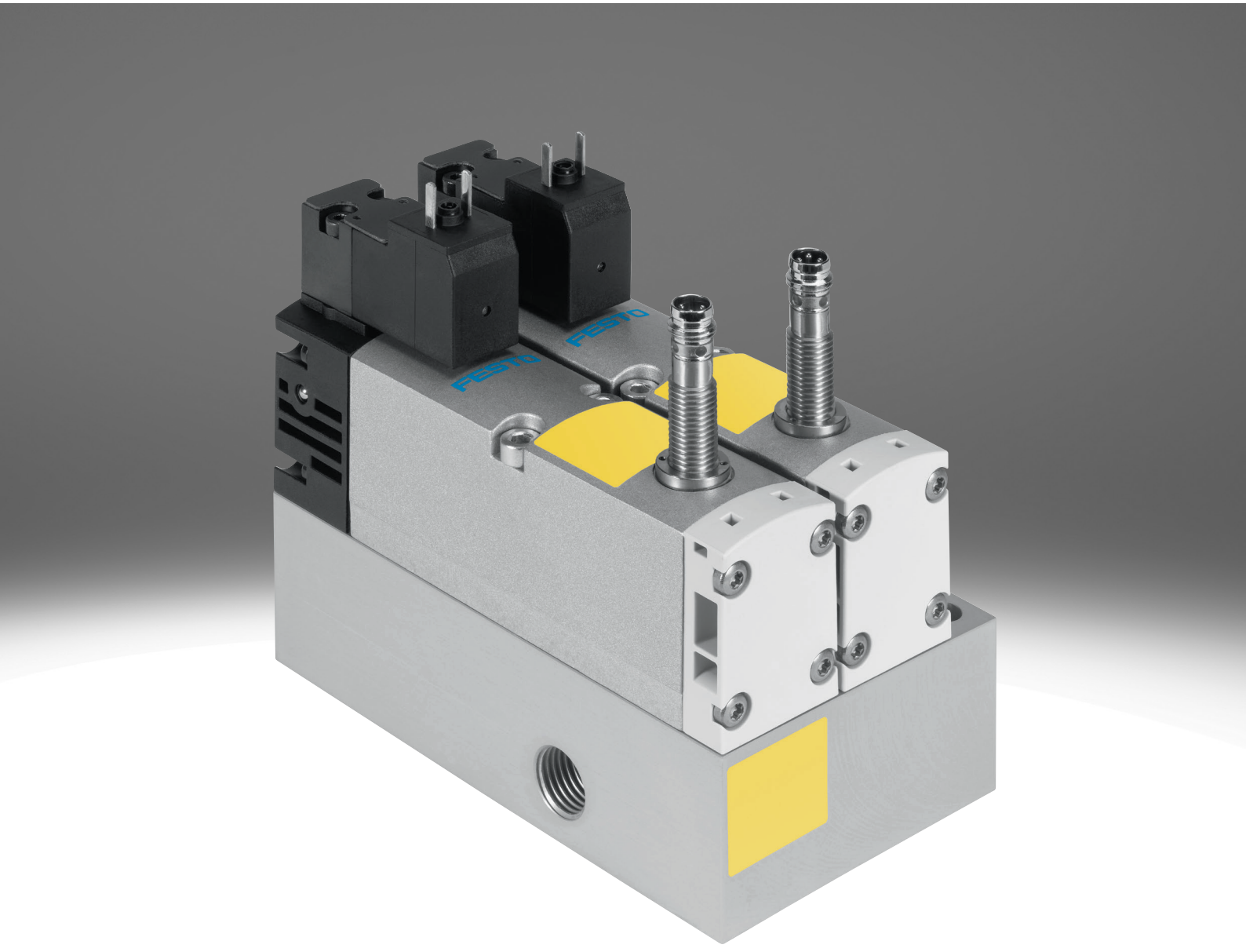
Control block VOFA



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.

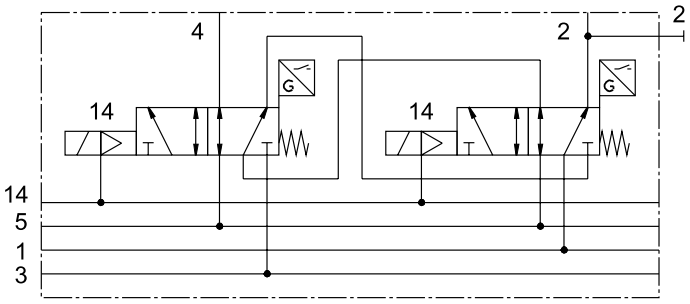
The control block is intended for two-channel control of pneumatic drive components such as double-acting cylinders, and can be used to realise the following protective measures:
- Protection against unexpected start-up (EN ISO 14118)
- Reversing hazardous movements, provided the reversing movement will 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

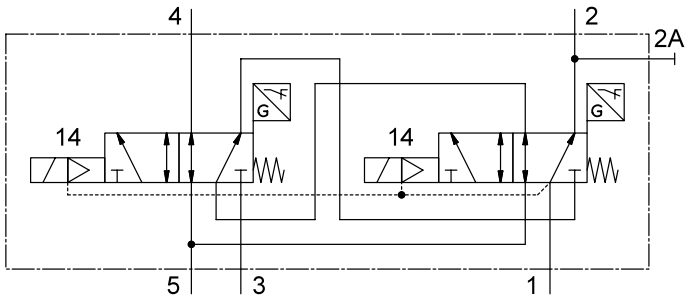


Control block VOFA-B26-T52-... as version for valve terminal VTSA/VTSA-F with 2x5/2-way solenoid valve, single solenoid:

- Pneumatic connection via valve terminal
- Mechanical spring return
- With NPN sensor (code SN) or PNP sensor (code SP)
- Fulfils 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

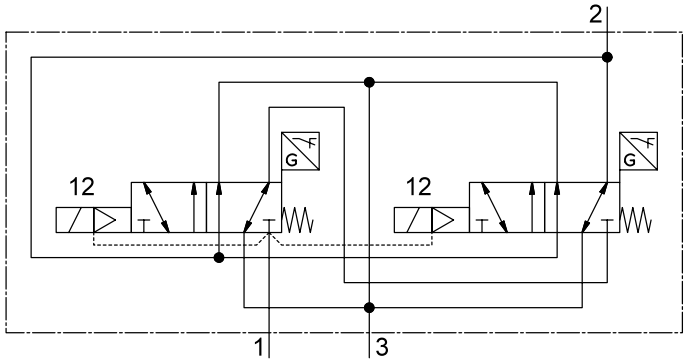


Control block VOFA-L26-T52-... as decentralised individual connection variant with 2x 5/2-way solenoid valve, single solenoid:

- as pneumatic individual connection
- Mechanical spring return
- With NPN or PNP sensor
- Fulfils 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.

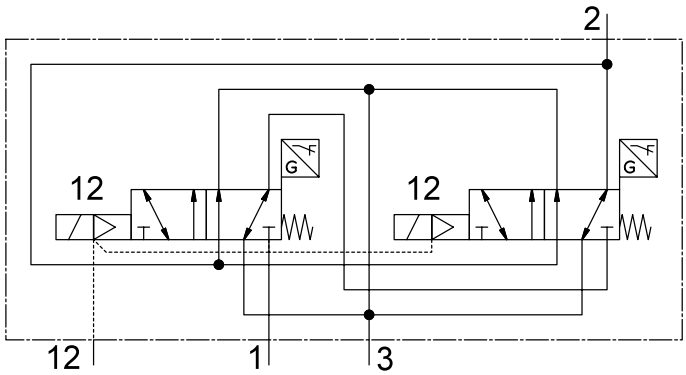
[3GL] 3/2-way valve, normally closed



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
- Fulfils 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
- Fulfils 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 Protection against manipulation, prevention of unexpected start-up		Protection against manipulation, prevention of unexpected start-up Reversing a movement
Performance Level (PL)	Exhausting/up to category 4, performance level e 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 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) [1]	To EU EMC Directive To EC Machinery Directive		
UKCA marking (see declaration of conformity)[2]	To UK instructions for EMC 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 [3]	Shock test with severity level 2 to FN 942017-5 and EN 60068-2-27		
Vibration resistance [4]	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/... → 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/... → 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 [1]	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 To UK regulations for machines	
CE mark (see declaration of conformity)	To EU EMC Directive To EC Machinery Directive	

1) Further information 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 [1]	58 ms	60 ms	58 ms
Valve - sensor switching time off [2]	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 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.

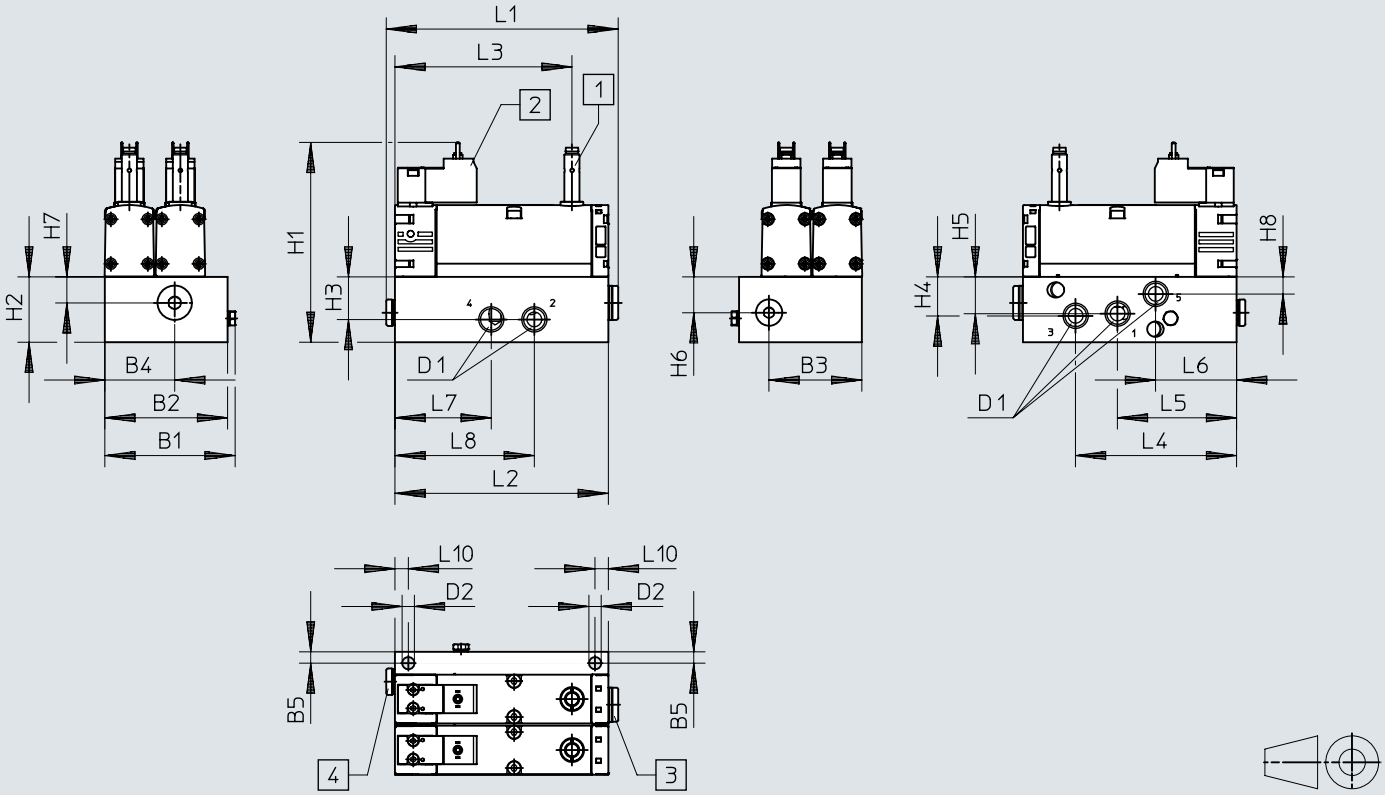
Datasheet

Electrical data – Sensor (to EN-60947-5-2)		
Pilot air supply	External	Internal
Electrical connection	Type C To EN 175301-803 Without protective earth conductor	
Switching output	PNP	NPN 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 HNBR 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



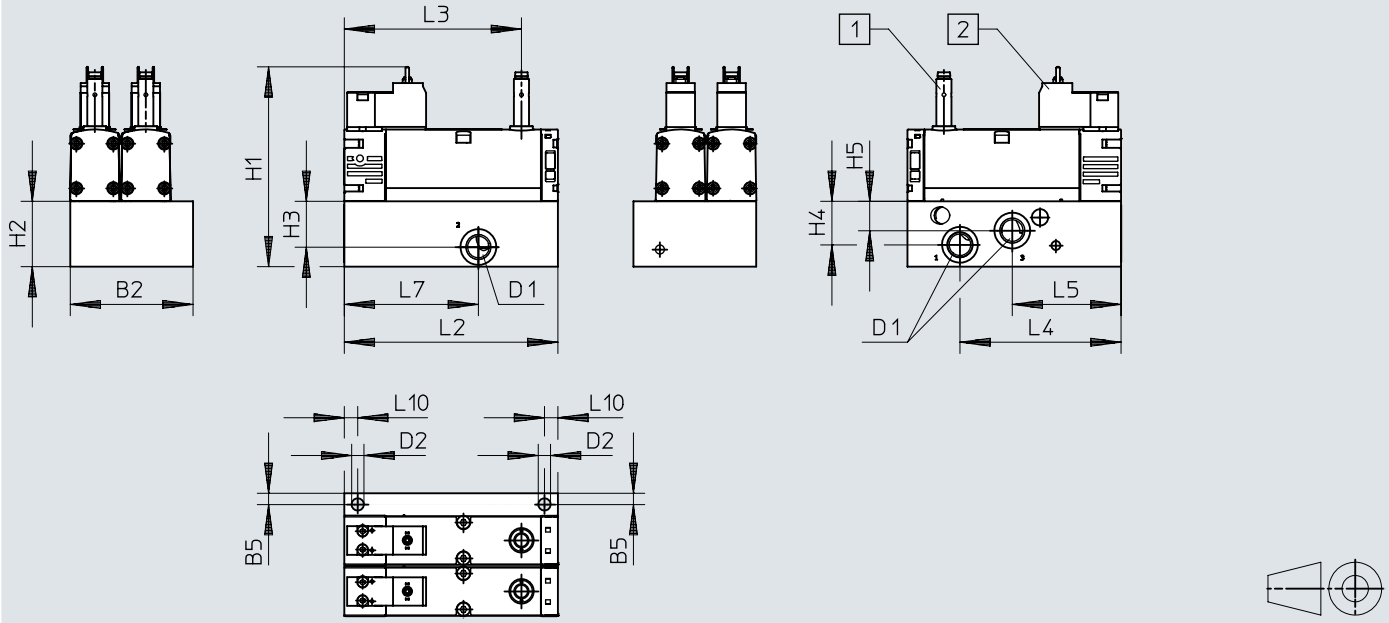
[1] Proximity switch PNP or NPN, size M8x1, plug connection according to EN 61076-2-104
[2] Electrical connection according to EN 175301-803, type C
[3] Pneumatic connection G1/4 sealed with blanking plug
[4] Pneumatic connection G1/8 sealed with blanking plug

	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



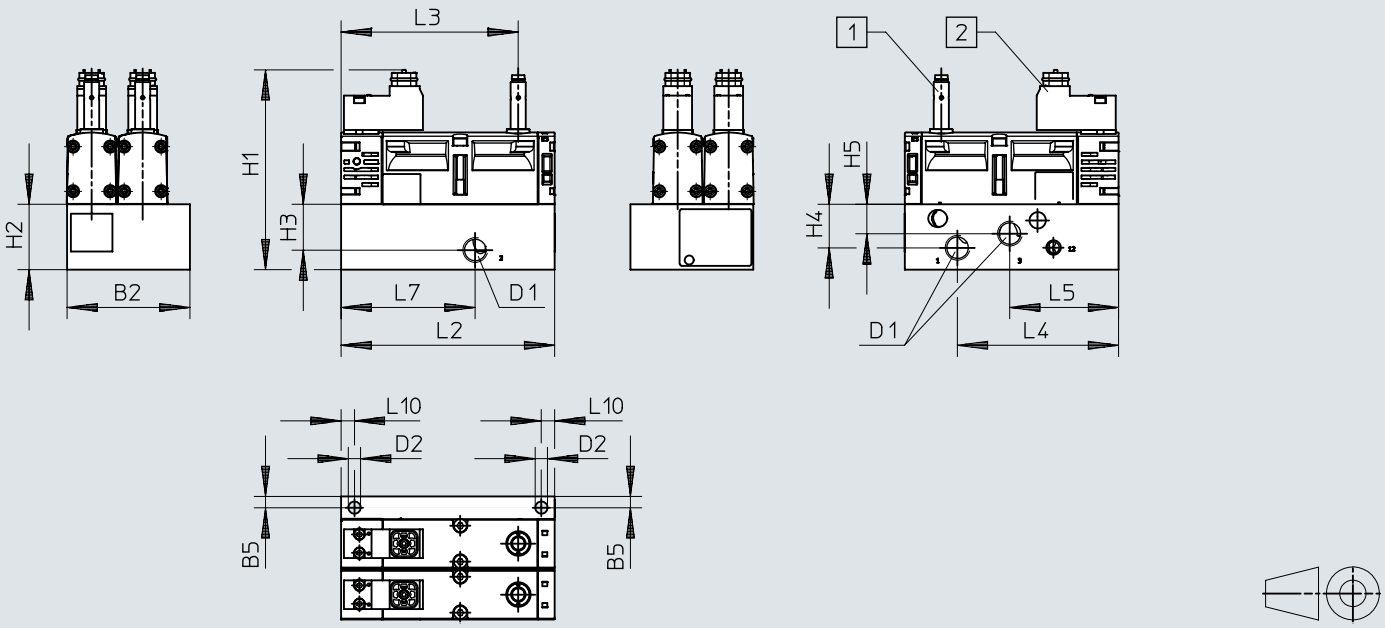
[1] Proximity switch PNP or NPN, size M8x1, plug connection according to EN 61076-2-104
[2] Electrical connection according to EN 175301-803, type C

	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 – Decentralised individual connection variant VOFA-L26-T32C-MZ-...

Download CAD data www.festo.com



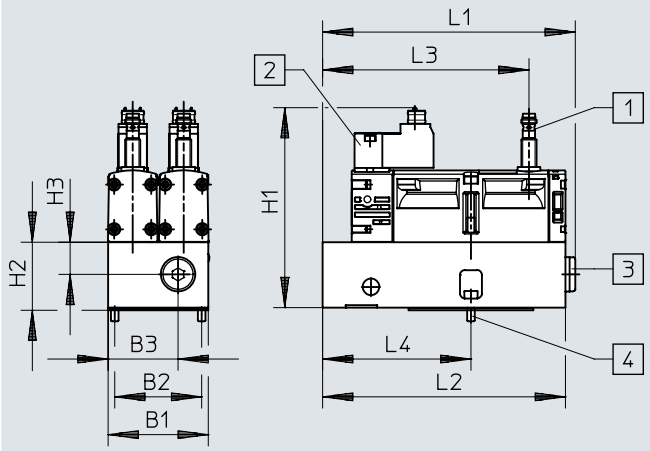
[1] Proximity switch with plug connection to EN 61076-2-104

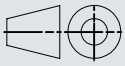
[2] Electrical connection according to EN 175301-803, type C

	B2	B5	D1	D2	H1	H2	H3	H4	H5	L2	L3	L4	L5	L7	L10
VOFA-L26-T32C-MZ-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

Dimensions

Dimensions – Version for valve terminal VTSA/VTSA-F, VOFA-B26-T52-... Download CAD data www.festo.com



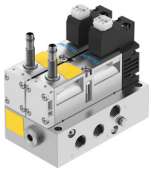


[1] Proximity switch PNP or NPN, size M8x1, plug connection according to EN 61076-2-104
[2] Electrical connection according to EN 175301-803, type C
[3] Pneumatic connection G1/4 sealed with blanking plug
[4] 2x screw with hex socket (AF 2.5), M4x12 (included in the scope of delivery)

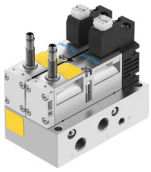
	B1	B2	B3	H1	H2	H3	L1	L2	L3	L4
VOFA-B26-T52-M-1C1-APP VOFA-B26-T52-M-1C1-ANP	53	46	37	105,8	34,6	17	133,7	128,5	109,2	78,5

Ordering data

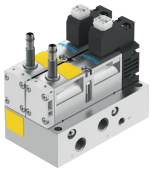
Control block, as decentralised individual connection variant, 5/2-way solenoid valve

	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

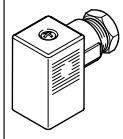
	Switching output	Construction width	Product weight	Part no.	Type
	NPN	65 mm	1,134 g	**574012**	**VOFA-L26-T32C-M-G14-1C1-ANP**
	PNP			**574011**	**VOFA-L26-T32C-M-G14-1C1-APP**

Control block, as decentralised individual connection variant, 3/2-way solenoid valve, external pilot air supply

	Switching output	Construction width	Product weight	Part no.	Type
	PNP	65 mm	1,134 g	**8162034**	**VOFA-L26-T32C-MZ-G14-1C1-APP**

Accessories

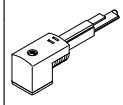
Plug socket for the electrical connection of individual valves

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

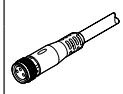
Illuminated seal for plug pattern EN 175301-803, type C, for plug socket MSSD

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

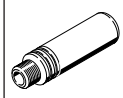
Connecting cable for the electrical connection of individual valves

	Electrical connection 1, connection type	Electrical connection 1, number of connections/ cores	Signal status display	Cable length	Part no.	Type
	Socket	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, connector system	Electrical connection 1, number of connections/ cores	Cable length	Part no.	Type
	Socket	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

	Pneumatic connection, port 1	Part no.	Type
	Male thread G1/4	**3569**	**B-1/4**