

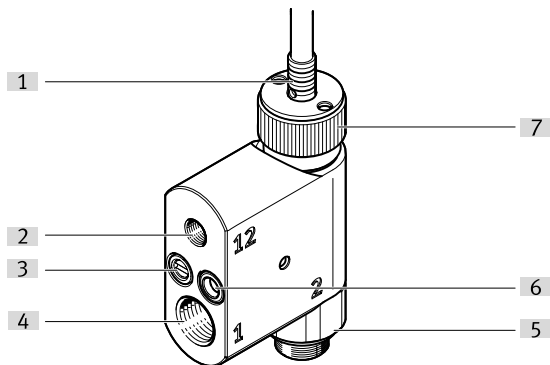
Shut-off valve VBOC

FESTO



Characteristics

At a glance



- [1] Sensor LED, incl. cable connection
- [2] Pneumatic port 12, pilot air
- [3] One-way flow control function (exhaust air)
- [4] Pneumatic port 1, compressed air supply
- [5] Pneumatic port 2, drive
- [6] Exhaust function (non-detenting)
- [7] Manual override

Diagrams Link [vdoc](#)



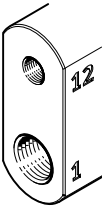
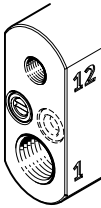
The diagrams shown in this document are also available online. These can be used to display precise values.

Valve function

The valve VBOC is a pneumatically actuated shut-off valve (2/2-way valve, normally closed) for direct mounting on a pneumatic actuator. The component can be used as a safety sub-function SSC (Safe Stopping and Closing) in accordance with VDMA 24584. The integrated switching position monitoring (closed) provides a diagnostic function. The valve is optionally available with additional functions: Exhaust function and/or one-way flow control valves (exhaust air)

Additional function 1

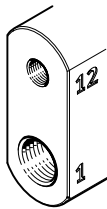
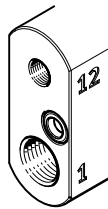
The valve is available in 4 variants, in the basic function or with optional additional functions.

□ None	[E] One-way flow control valve for exhaust air
 • Base valve	 • Basic valve, additionally with adjustable one-way flow control function (exhaust air)

Characteristics

Additional function 2

The valve is available in 4 variants, in the basic function or with optional additional functions.

□ None	[S7] Manual exhaust function
 Base valve	 • Basic valve, additionally with manual exhaust function (non-detenting) To enable port 2 to be exhausted, the shut-off valve must be unlocked using the manual override. The exhaust function can be carried out directly via the actuating element [6] into the atmosphere or indirectly via an upstream 5/3E directional control valve (mid-position exhausted). The exhaust function can only be ensured if there is no pressure at port 1.

Type code

001	Series	
VBOC	Shut-off valve	
002	Design	
L	L-shape	
003	Valve function	
2	2/2-way	
004	Additional function 1	
	None	
E	One-way flow control valve for exhaust air	
005	Additional function 2	
	None	
S7	Manual exhaust function	

006	Switching input/output	
P	PNP	
007	Electrical connection	
M12	Plug M12, A-coded, to EN 61076-2-101	
M8	M8 plug, A-coded, to EN 61076-2-104	
008	Pneumatic connection 1	
E	Same size as pneumatic connection 2	
009	Pneumatic connection 2	
G18	G1/8	
G14	G1/4	
G38	G3/8	
G12	G1/2	

Datasheet

General technical data				
Pneumatic connection, port 1	G1/8	G1/4	G3/8	G1/2
Pneumatic connection, port 2	G1/8	G1/4	G3/8	G1/2
Pilot air port 12	G1/8			
Valve function	2/2-way, closed, monostable			
Manual exhaust function	Non-detenting			
Manual override	Detenting			
Selection of additional functions	Exhaust air one-way flow control function			
Selection of additional function 2 ¹⁾	Manually exhausted			
Pilot air supply	External			
Type of actuation	Pneumatic			
Type of reset	Mechanical spring			
Mounting position	optional			
Type of seal on screwed plug	Sealing ring			
Rotatability	360°/no continuous swivelling permissible			
Reverse polarity protection sensor	For all electrical connections			
Note on forced dynamization	Current information on this topic can be found in Technical Report V			
Permissible actuation moment, regulating screw ²⁾	1 Nm	2 Nm	2.5 Nm	

1) Applies to products with additional function 2 [S7] (manual exhaust function)

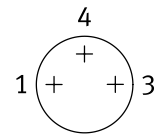
2) Applies to products with additional function 1 [E] (adjustable exhaust air one-way flow control non-function)

Switching output				
Pneumatic connection, port 1	G1/8	G1/4	G3/8	G1/2
Switching output	PNP			
Switching element function	N/C contact			
Switching position sensing	Normal position via sensor			
Switching time off	15 ms	25 ms	34 ms	
Switching time on	8 ms	14 ms	10 ms	11 ms

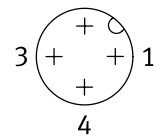
Electrical data		
Electrical connection 1, connector system	M12x1, A-coded to EN 61076-2-101	M8x1, A-coded, to EN 61076-2-104
Electrical connection 1, number of connections/cores	4	3
Electrical connection 1, used connections/cores	3	
Measuring principle	Inductive	
Nominal operating voltage DC	24 V	
Operating voltage range, DC sensor	10 ... 30 V	
Short-circuit strength sensor	Yes	
Idle current sensor	≤10 mA	
Max. output current sensor	200 mA	
Voltage drop sensor	≤3 V	
Electrical connection 1, function	Switching output	
Electrical connection 1, connection type	Cable with plug	
Cable length	0.3 m	

Datasheet

Plug pattern – M8x1 A-coded according to EN 61076-2-104



Plug pattern – M12x1 A-coded according to EN 61076-2-101



Flow values (without adjustable exhaust air one-wayflow control function)				
Pneumatic connection, port 1	G1/8	G1/4	G3/8	G1/2
Nominal flow rate standard-ised according to ISO 8778	290 l/min	600 l/min	1,000 l/min	1,470 l/min
Standard flow rate 0.6->0 MPa (6->0 bar, 87->0 psi) in ac-cording to ISO 8778	500 l/min	1,080 l/min	1,740 l/min	2,560 l/min
Nominal flow rate 2->1 nor-malised according to ISO 8778	330 l/min	700 l/min	1,090 l/min	1,560 l/min
Standard flow rate 0.6->0 MPa (6->0 bar, 87->0 psi) 2->1 ac-cording to ISO 8778	500 l/min	1,120 l/min	1,740 l/min	2,580 l/min

Flow values (with adjustable exhaust air one-way flow control function)				
Pneumatic connection, port 1	G1/8	G1/4	G3/8	G1/2
Nominal flow rate in throttle direction normalised accord-ing to ISO 8778	170 l/min	360 l/min	430 l/min	860 l/min
Nominal flow rate in non-re-turn direction normalised ac-cording to ISO 8778	150 ... 200 l/min	290 ... 410 l/min	640 ... 730 l/min	1,140 ... 1,240 l/min
Standard flow rate in throttle direction at 0.6->0 MPa (6->0 bar, 87->0 psi) according to ISO 8778	310 l/min	650 l/min	670 l/min	1,430 l/min
Standard flow rate in non-re-turn direction at 0.6->0 MPa (6->0 bar, 87->0 psi) accord-ing to ISO 8778	300 ... 400 l/min	620 ... 740 l/min	1,080 ... 1,250 l/min	1,880 ... 2,100 l/min

Datasheet

Operating and environmental conditions

Pneumatic connection, port 1	G1/8	G1/4	G3/8	G1/2
Operating pressure	0.05 ... 1 MPa			
Operating pressure	0.5 ... 10 bar			
Operating pressure	7.25 ... 145 psi			
Switch-on pressure	0.15 ... 0.4 MPa			
Switch-off pressure	0.05 ... 0.2 MPa			
Pilot pressure	0.2 ... 1 MPa		0.1 ... 1 MPa	
Pilot pressure	2 ... 10 bar		1 ... 10 bar	
Pilot pressure	29 ... 145 psi		14.5 ... 145 psi	
Pneumatic off range	0.04 MPa			
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)			
Ambient temperature	-5 ... 60°C			
Media temperature	-5 ... 60°C			
Corrosion resistance class CRC ¹⁾	2 - Moderate corrosion stress			
CE mark (see declaration of conformity)	To EU EMC Directive In accordance with EU RoHS Directive			
UKCA marking (see declaration of conformity)	To UK instructions for EMC To UK RoHS instructions			

1) More information: www.festo.com/x/topic/crc

Mechanical system

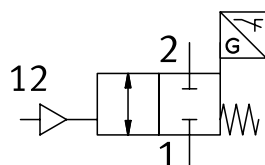
Pneumatic connection, port 1	G1/8	G1/4	G3/8	G1/2
Type of mounting	Screw-in, Via male thread			
Nominal torque	6 Nm	10 Nm	13 Nm	23 Nm
Tolerance for nominal tightening torque	± 20%			
Permissible actuation moment, regulating screw	—			

Materials

Material seals	HNBR NBR TPE-U(PU)
Material hollow bolt	Wrought aluminium alloy
Material cable sheath	PVC
Knurled nut material ¹⁾	Wrought aluminium alloy
Material adjusting screw	High-alloy stainless steel
Material swivel fitting	Wrought aluminium alloy
Material sensor bracket	High-alloy stainless steel
Locking nut material	High-alloy stainless steel
Note on materials	RoHS-compliant
LABS (PWIS) conformity	VDMA24364 zone III
Special characteristics	Resistant to welding spatter
Suitability for the production of Li-ion batteries	Suitable for battery production according to the Festo internal definition of the degree of severity F1A with restrictions regarding the use of Cu/Zn/Ni

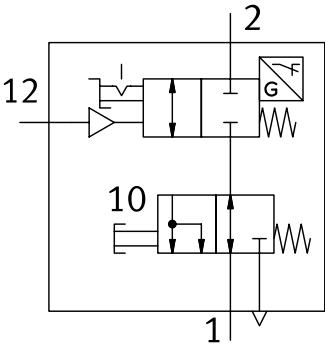
1) Applies to products with feature S7 (manual exhaust function)

Function – Basic valve: shut-off valve with diagnostic function (switching position sensing)

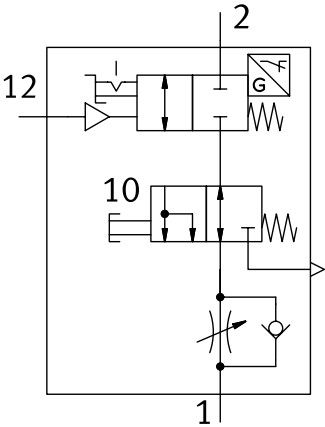


Datasheet

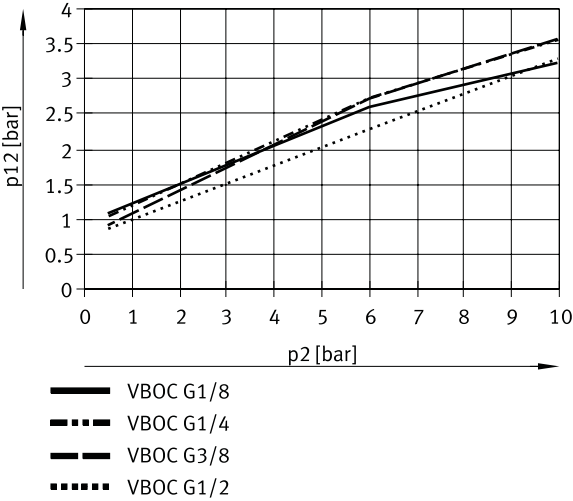
Function – Basic valve with exhaust function



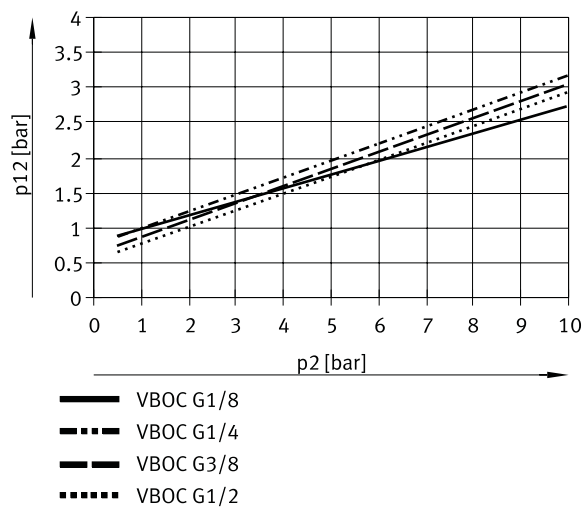
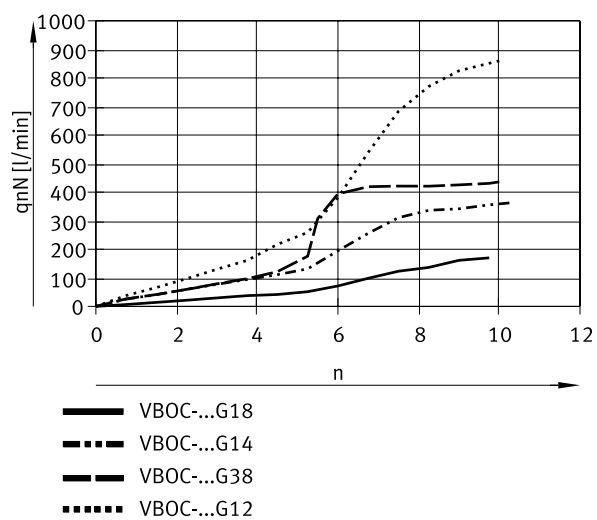
Function – Basic valve with adjustable exhaust air one-way flow control function and exhaust function



Switch-on pilot pressure p12 as a function of operating pressure p2

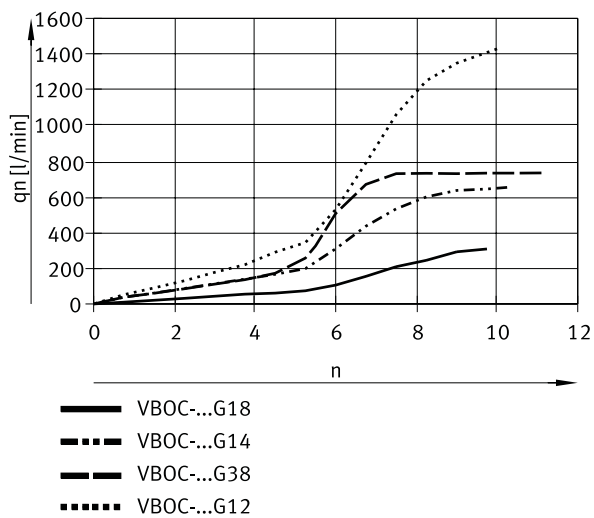


Datasheet

Switch-off pilot pressure p_{12} as a function of operating pressure p_2 Standard nominal flow q_{nN} at 0.6 → 0.5 MPa as a function of the turns of the adjusting screw n (flow control direction 2 → 1)

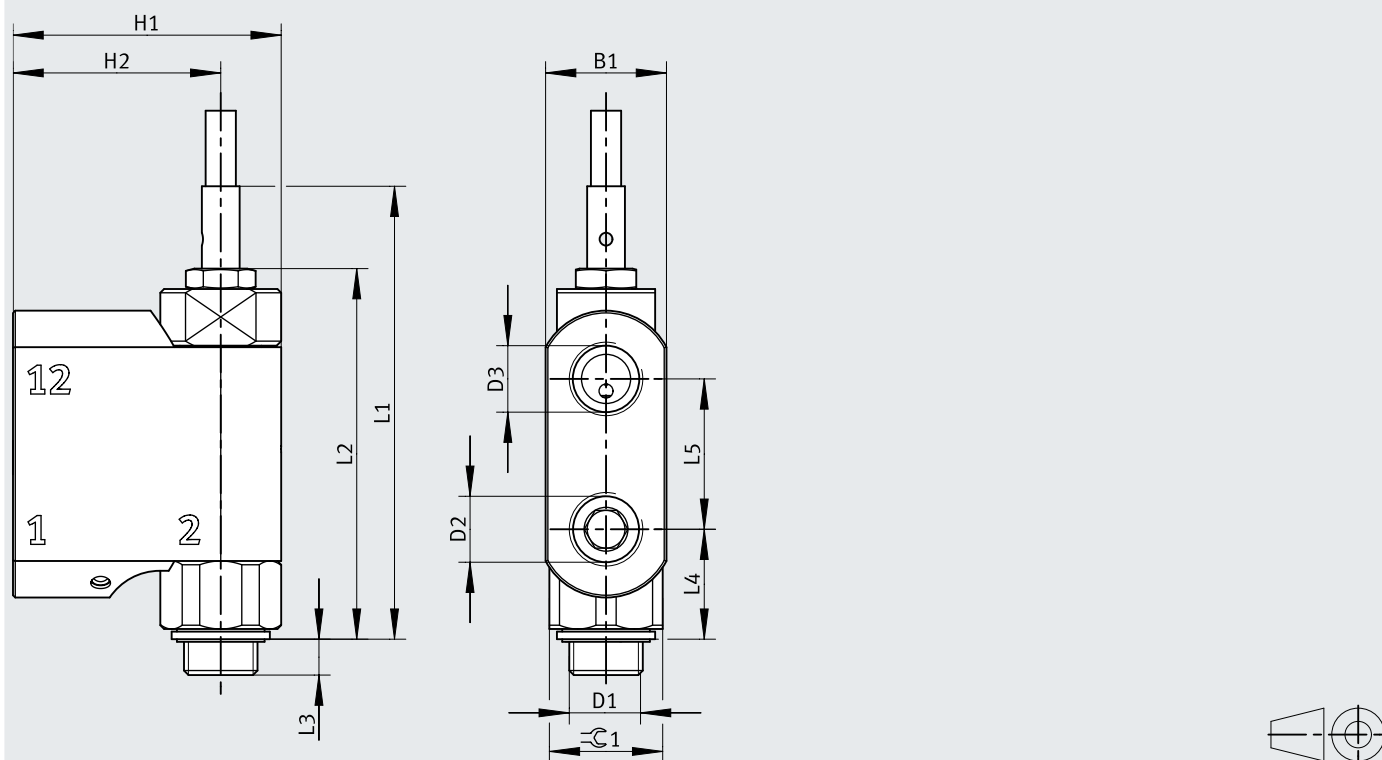
Datasheet

Standard flow q_n at 0.6 → 0 MPa as a function of the turns of the adjusting screw n (flow control direction 2 → 1)



Dimensions

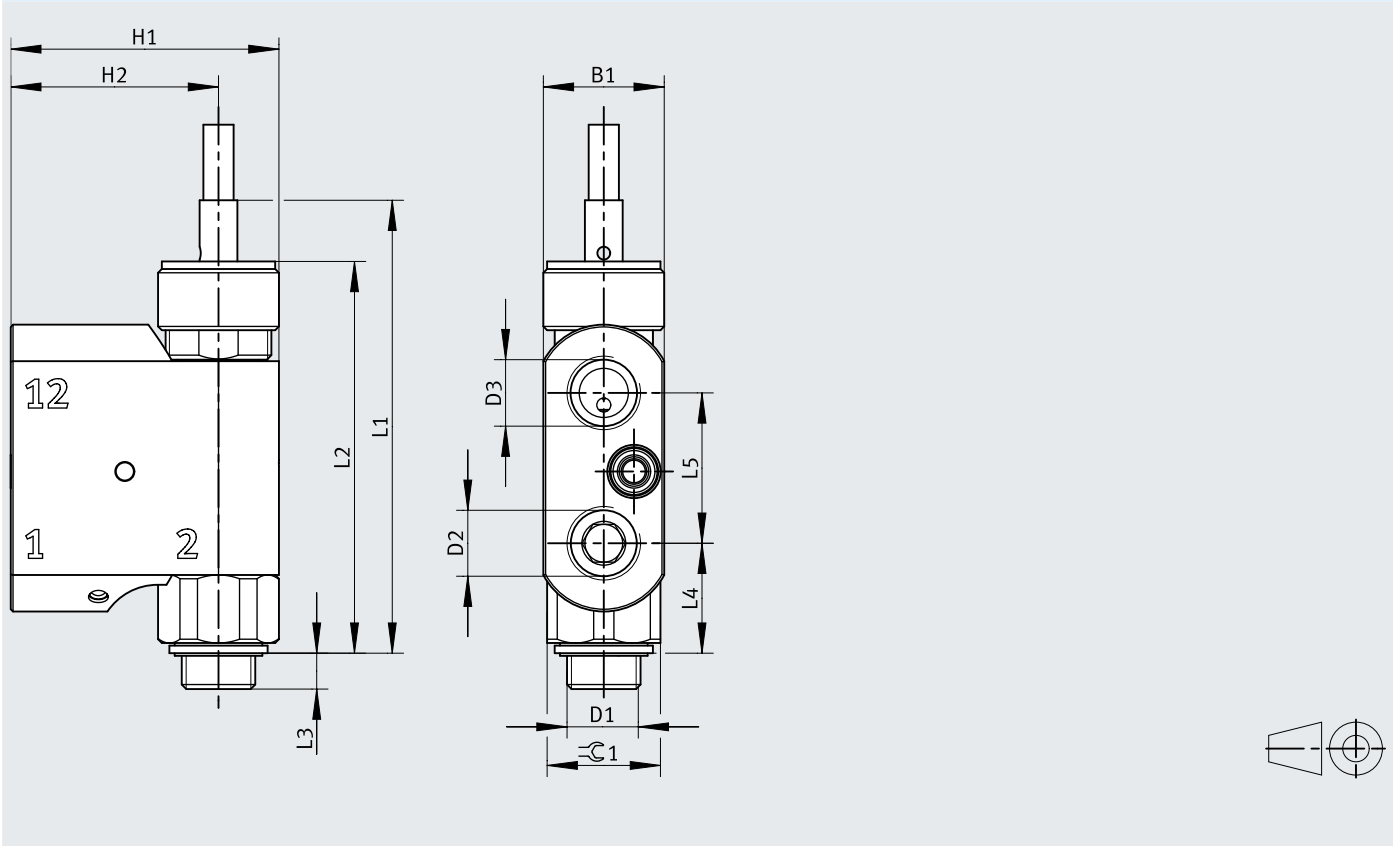
Dimensions – VBOC-L2-...-P-M-...-G-...-E

Download CAD data www.festo.com

	B1	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	$\approx \text{C} 1$
VBOC-L2-P-M8-G18-E	16	G1/8	G1/8	G1/8	28,5	20,5	60	49,1	4,8	14,6	19,9	15
VBOC-L2-P-M12-G18-E	16	G1/8	G1/8	G1/8	28,5	20,5	60	49,1	4,8	14,6	19,9	15
VBOC-L2-P-M8-G14-E	20	G1/4	G1/4	G1/8	39	29	69,2	57,3	5,2	16,9	24	18
VBOC-L2-P-M12-G14-E	20	G1/4	G1/4	G1/8	39	29	69,2	57,3	5,2	16,9	24	18
VBOC-L2-P-M8-G38-E	24	G3/8	G3/8	G1/8	53	30	82,7	70,8	6,2	23,4	31	22
VBOC-L2-P-M12-G38-E	24	G3/8	G3/8	G1/8	53	30	82,7	70,8	6,2	23,4	31	22
VBOC-L2-P-M8-G12-E	30	G1/2	G1/2	G1/8	52	37	90,7	78,8	7,2	24,4	34	28
VBOC-L2-P-M12-G12-E	30	G1/2	G1/2	G1/8	52	37	90,7	78,8	7,2	24,4	34	28

Dimensions

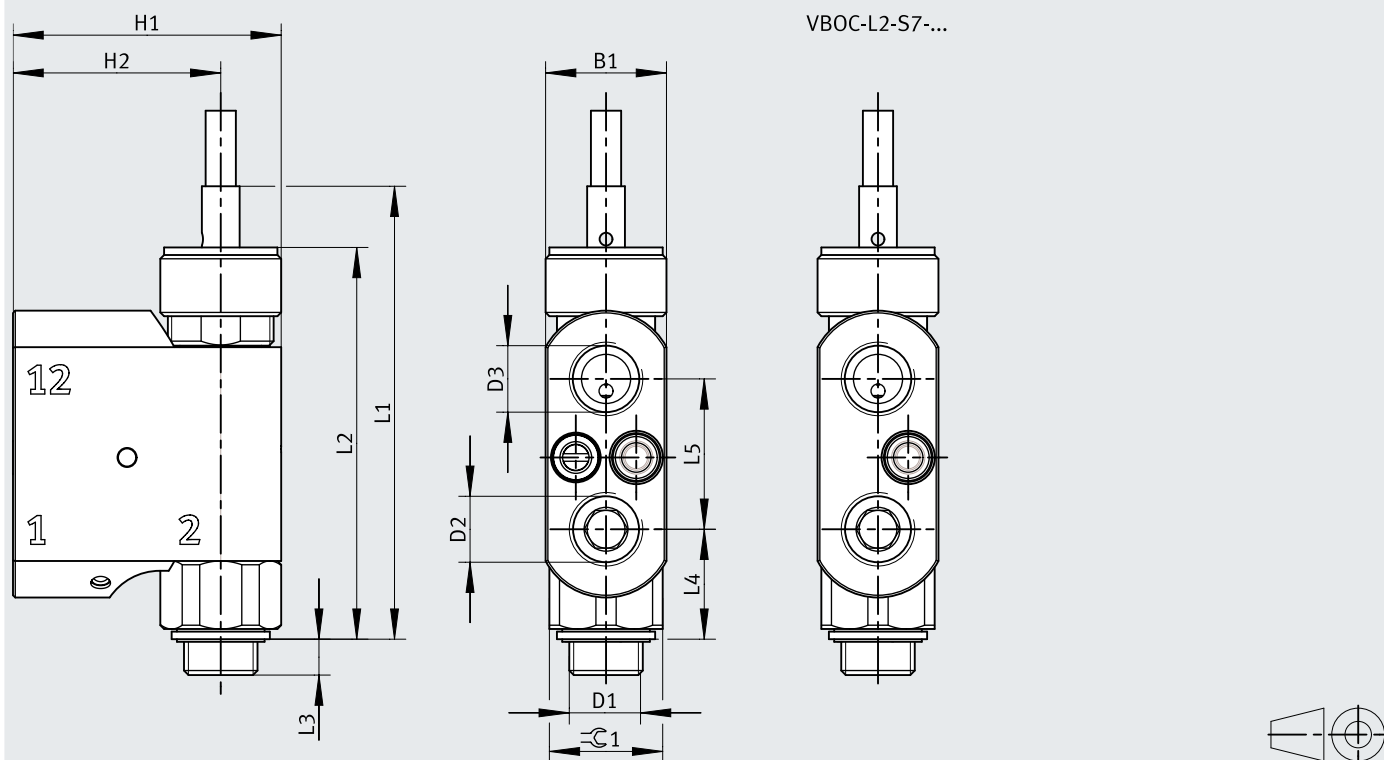
Dimensions – VBOC-L2-S7-P-M...-G...-E Download CAD data www.festo.com



	B1	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	≅ 1
VBOC-L2-S7-P-M8-G18-E	16	G1/8	G1/8	G1/8	35,5	27,5	60	51,9	4,8	14,6	19,9	15
VBOC-L2-S7-P-M12-G18-E	16	G1/8	G1/8	G1/8	35,5	27,5	60	51,9	4,8	14,6	19,9	15
VBOC-L2-S7-P-M8-G14-E	22	G1/4	G1/4	G1/8	40	29	69,2	61,1	5,2	16,9	24	18
VBOC-L2-S7-P-M12-G14-E	22	G1/4	G1/4	G1/8	40	29	69,2	61,1	5,2	16,9	24	18
VBOC-L2-S7-P-M8-G38-E	26	G3/8	G3/8	G1/8	43	30	82,7	74,6	6,2	23,4	31	22
VBOC-L2-S7-P-M12-G38-E	26	G3/8	G3/8	G1/8	43	30	82,7	74,6	6,2	23,4	31	22
VBOC-L2-S7-P-M8-G12-E	32	G1/2	G1/2	G1/8	53	37	90,7	82,6	7,2	24,4	34	28
VBOC-L2-S7-P-M12-G12-E	32	G1/2	G1/2	G1/8	53	37	90,7	82,6	7,2	24,4	34	28

Dimensions

Dimensions – VBOC-L2-E-S7-P-M...-G...-E

Download CAD data www.festo.com

	B1	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	≅ 1
VBOC-L2-E-S7-P-M8-G18-E	16	G1/8	G1/8	G1/8	35,5	27,5	60	51,9	4,8	14,6	19,9	15
VBOC-L2-E-S7-P-M12-G18-E	16	G1/8	G1/8	G1/8	35,5	27,5	60	51,9	4,8	14,6	19,9	15
VBOC-L2-E-S7-P-M8-G14-E	22	G1/4	G1/4	G1/8	49,6	38,6	69,2	61,1	5,2	16,9	24	18
VBOC-L2-E-S7-P-M12-G14-E	22	G1/4	G1/4	G1/8	49,6	38,6	69,2	61,1	5,2	16,9	24	18
VBOC-L2-E-S7-P-M8-G38-E	26	G3/8	G3/8	G1/8	62	49	82,7	74,6	6,2	23,4	31	22
VBOC-L2-E-S7-P-M12-G38-E	26	G3/8	G3/8	G1/8	62	49	82,7	74,6	6,2	23,4	31	22
VBOC-L2-E-S7-P-M8-G12-E	32	G1/2	G1/2	G1/8	81	65	90,7	82,6	7,2	24,4	34	28
VBOC-L2-E-S7-P-M12-G12-E	32	G1/2	G1/2	G1/8	81	65	90,7	82,6	7,2	24,4	34	28

Ordering data

Ordering data – Basic valve: shut-off valve with diagnostic function (switching position sensing)

	Pneumatic connection, port 1	Pneumatic connection, port 2	Electrical connection 1, number of connections/cores	Product weight	Part no.	Type
	G1/8	G1/8	3	46 g	8177462	VBOC-L2-P-M8-G18-E
			4	53 g	8177451	VBOC-L2-P-M12-G18-E
	G1/4	G1/4	3	87 g	8177464	VBOC-L2-P-M8-G14-E
			4	94 g	8177452	VBOC-L2-P-M12-G14-E
	G3/8	G3/8	3	133 g	8177470	VBOC-L2-P-M8-G38-E
			4	140 g	8177453	VBOC-L2-P-M12-G38-E
	G1/2	G1/2	3	238 g	8177468	VBOC-L2-P-M8-G12-E
			4	145 g	8177454	VBOC-L2-P-M12-G12-E

Function – basic valve with manual exhaust function

	Pneumatic connection, port 1	Pneumatic connection, port 2	Electrical connection 1, number of connections/cores	Product weight	Part no.	Type
	G1/8	G1/8	3	57 g	8179237	VBOC-L2-S7-P-M8-G18-E
			4	64 g	8181754	VBOC-L2-S7-P-M12-G18-E
	G1/4	G1/4	3	97 g	8180683	VBOC-L2-S7-P-M8-G14-E
			4	104 g	8180685	VBOC-L2-S7-P-M12-G14-E
	G3/8	G3/8	3	147 g	8180903	VBOC-L2-S7-P-M8-G38-E
			4	154 g	8180904	VBOC-L2-S7-P-M12-G38-E
	G1/2	G1/2	3	257 g	8181283	VBOC-L2-S7-P-M8-G12-E
			4	264 g	8181284	VBOC-L2-S7-P-M12-G12-E

Ordering data – Basic valve with adjustable one-way flow control function (exhaust air) and manual exhaust function

	Pneumatic connection, port 1	Pneumatic connection, port 2	Electrical connection 1, number of connections/cores	Product weight	Part no.	Type
	G1/8	G1/8	3	61 g	8177459	VBOC-L2-E-S7-P-M8-G18-E
			4	68 g	8177443	VBOC-L2-E-S7-P-M12-G18-E
	G1/4	G1/4	3	122 g	8177461	VBOC-L2-E-S7-P-M8-G14-E
			4	104 g	8177444	VBOC-L2-E-S7-P-M12-G14-E
	G3/8	G3/8	3	209 g	8177466	VBOC-L2-E-S7-P-M8-G38-E
			4	216 g	8177445	VBOC-L2-E-S7-P-M12-G38-E
	G1/2	G1/2	3	385 g	8177465	VBOC-L2-E-S7-P-M8-G12-E
			4	392 g	8177446	VBOC-L2-E-S7-P-M12-G12-E