

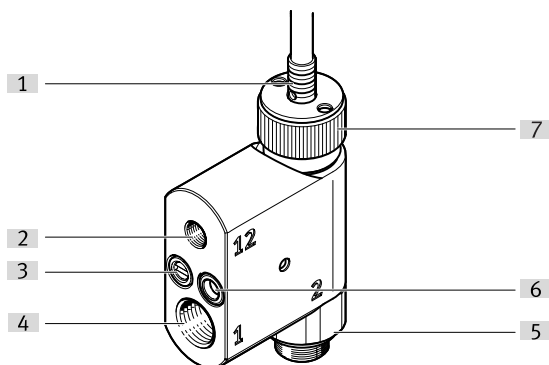
Shut-off valve VBOC

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 vboc](#)



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

Valve function

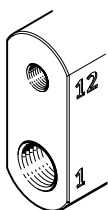
The valve VBOC is a pneumatically actuated shut-off valve (2/2-way valve, normally closed) for direct mounting on a pneumatic actuator. The component can be used as a safety sub-function SSC (Safe Stopping and Closing) in accordance with VDMA 24584. The integrated switching position monitoring (closed) 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

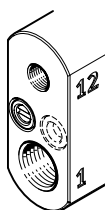
The valve is available in 4 variants, in the basic function or with optional additional functions.

None

[E] One-way flow control valve for exhaust air



- Base valve



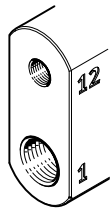
- Basic valve, additionally with adjustable one-way flow control function (exhaust air)

Characteristics

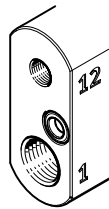
Additional function 2

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

□	None	[S7]	Manual exhaust function
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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	
M8	M8 plug, A-coded, to EN 61076-2-104	
M12	Plug M12, A-coded, to EN 61076-2-101	
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	

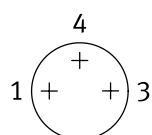
1) Applies to products with additional function 2 [S7] (manual exhaust function)

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	

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



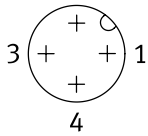
[1] - Core colour: Brown; Assignment: +

[3] - Core colour: Blue; Assignment: -

[4] - Core colour: Black; Assignment: Output

Datasheet

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



- [1] - Core colour: Brown; Assignment: +
- [3] - Core colour: Blue; Assignment: -
- [4] - Core colour: Black; Assignment: Output

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 standardised 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 according to ISO 8778	500 l/min	1,080 l/min	1,740 l/min	2,560 l/min
Nominal flow rate 2->1 normalised 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 according 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 according to ISO 8778	170 l/min	360 l/min	430 l/min	860 l/min
Nominal flow rate in non-return direction normalised according 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-return direction at 0.6->0 MPa (6->0 bar, 87->0 psi) according 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) ²⁾	To EU EMC Directive In accordance with EU RoHS Directive			
UKCA marking (see declaration of conformity) ³⁾	To UK instructions for EMC To UK RoHS instructions			

1) More information www.festo.com/x/topic/kbk

2) Next information www.festo.com/catalogue/vboc → Support/Downloads.

3) Next information www.festo.com/catalogue/vboc → Support/Downloads.

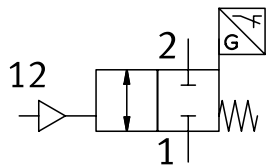
Mechanical system				
Pneumatic connection, port 1	G1/8	G1/4	G3/8	G1/2
Type of mounting	Screw-in, Via male thread			
Nominal torque	6 Nm	10 Nm	13 Nm	23 Nm
Tolerance for nominal tightening torque	± 20%			
Permissible actuation moment, regulating screw	—			

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 with reduced Cu/Zn/Ni values (F1a)

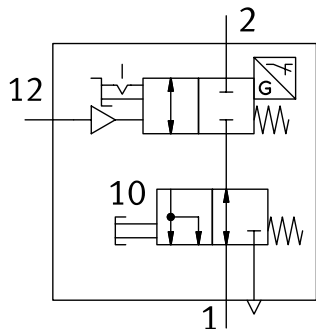
1) Applies to products with feature S7 (manual exhaust function)

Datasheet

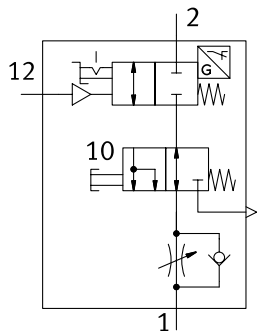
Function – Basic valve: shut-off valve with diagnostic function (switching position sensing)



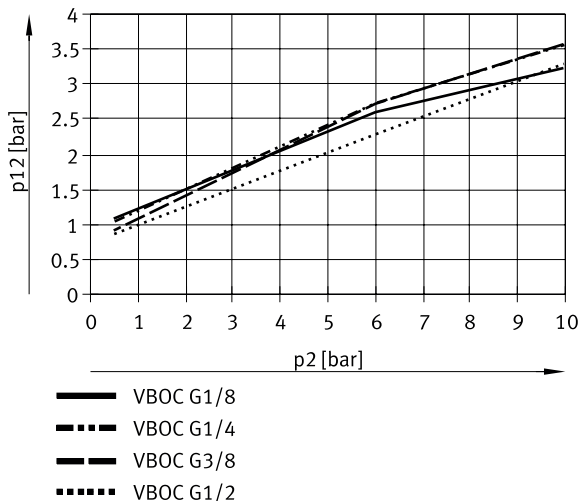
Function – Basic valve with exhaust function



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

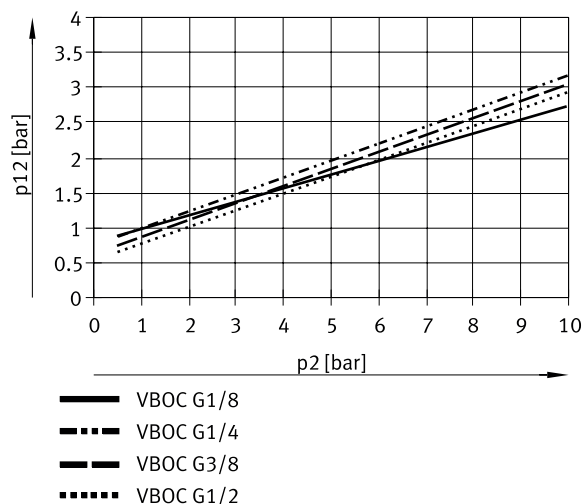


Switch-on pilot pressure p12 as a function of operating pressure p2

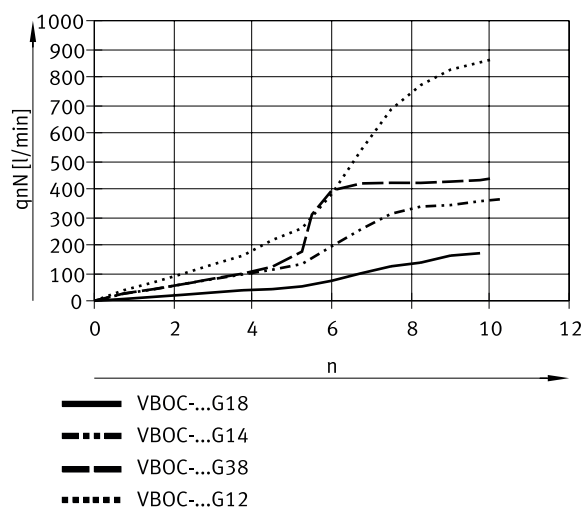


Datasheet

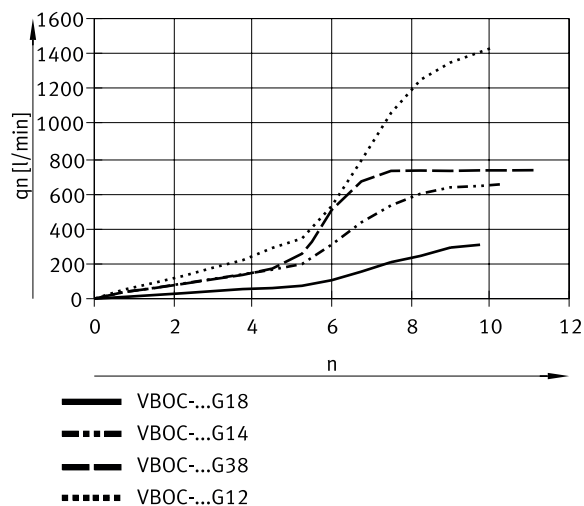
Switch-off pilot pressure p_{12} as a function of operating pressure p_2



Standard nominal flow rate q_{nN} at 0.6 → 0.5 MPa as a function of the turns of the adjusting screw n (throttle direction 2 → 1)



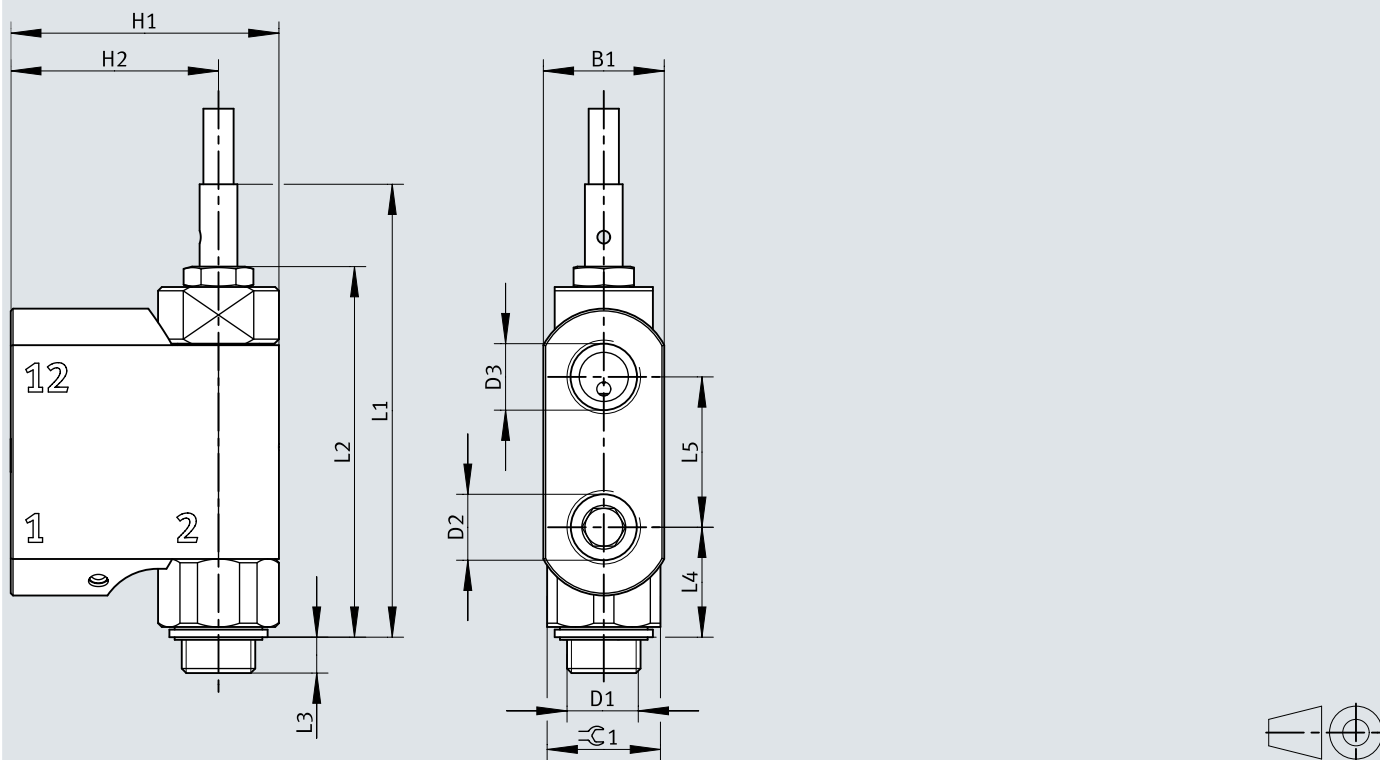
Nominal flow rate q_n at 0.6 → 0 MPa as a function of the turns of the adjusting screw n (flow control direction 2 → 1)



Dimensions

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

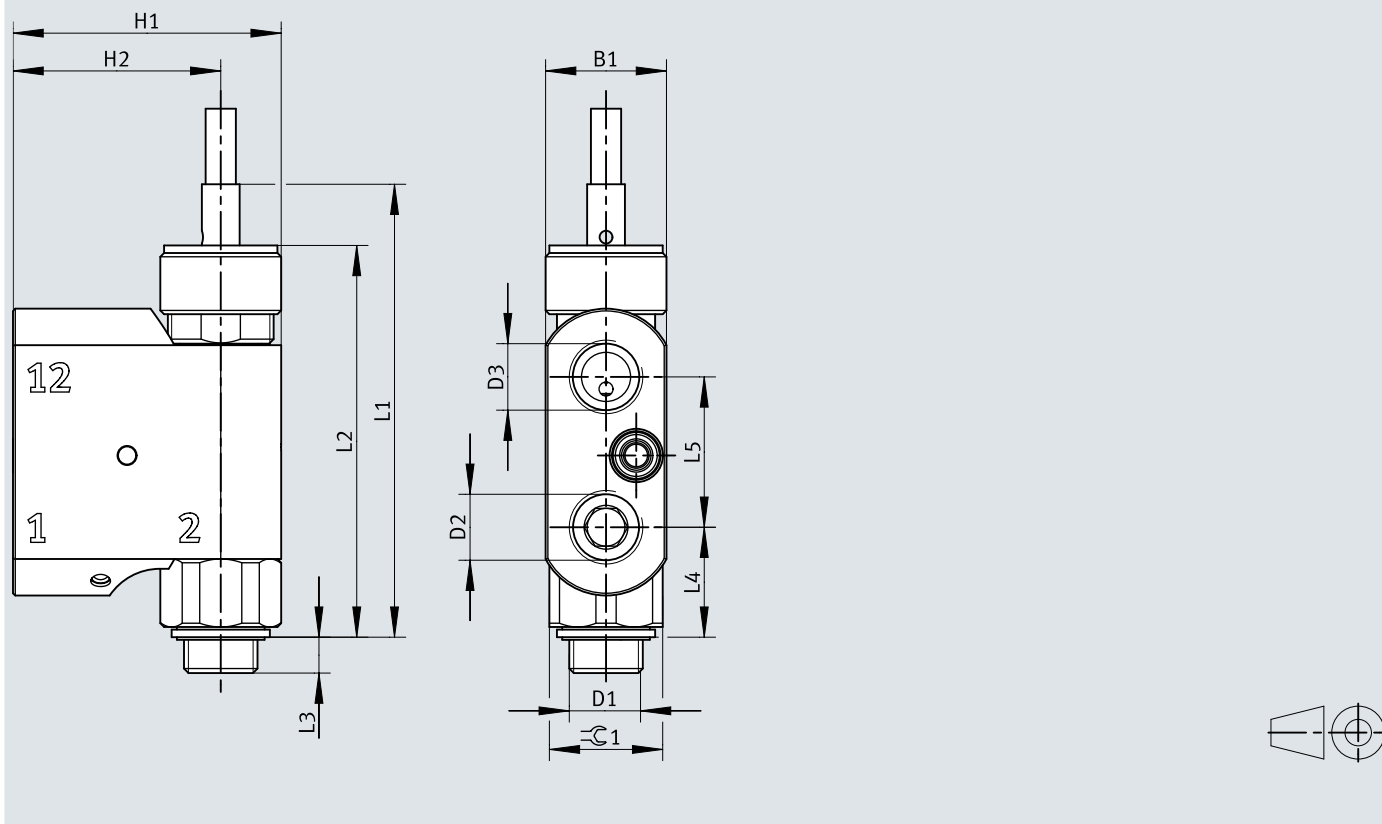
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	B1	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	⌀1
VBOC-L2-P-M8-G18-E	16	G1/8	G1/8	G1/8	28,5	20,5	60	49,1	4,8	14,6	19,9	15
VBOC-L2-P-M12-G18-E	16	G1/8	G1/8	G1/8	28,5	20,5	60	49,1	4,8	14,6	19,9	15
VBOC-L2-P-M8-G14-E	20	G1/4	G1/4	G1/8	39	29	69,2	57,3	5,2	16,9	24	18
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	42	30	82,7	70,8	6,2	23,4	31	22
VBOC-L2-P-M12-G38-E	24	G3/8	G3/8	G1/8	42	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

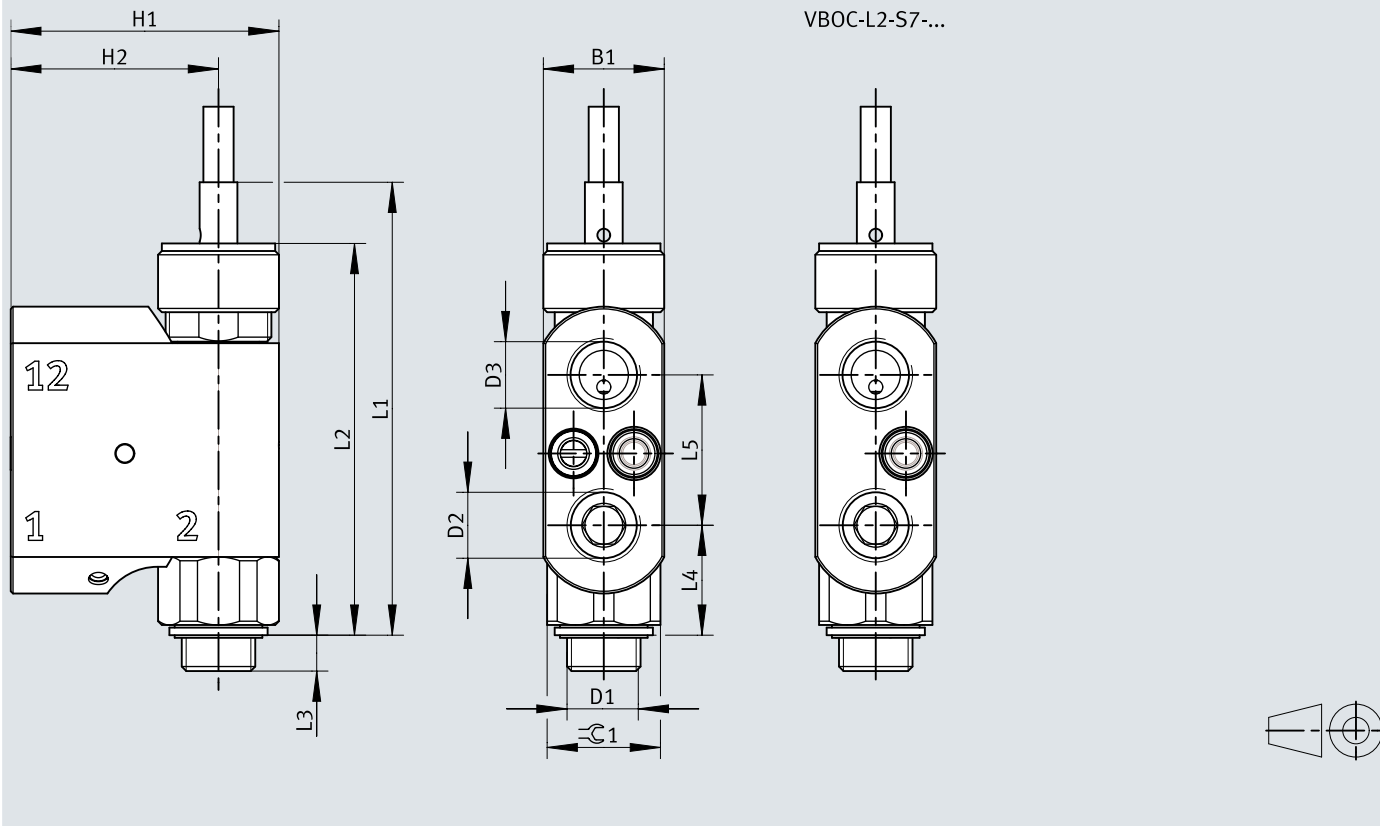
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	B1	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	⊙ 1
VBOC-L2-S7-P-M8-G18-E	16	G1/8	G1/8	G1/8	35,5	27,5	60	51,9	4,8	14,6	19,9	15
VBOC-L2-S7-P-M12-G18-E	16	G1/8	G1/8	G1/8	35,5	27,5	60	51,9	4,8	14,6	19,9	15
VBOC-L2-S7-P-M8-G14-E	22	G1/4	G1/4	G1/8	40	29	69,2	61,1	5,2	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


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	B1	D1	D2	D3	H1	H2	L1	L2	L3	L4	L5	$\varnothing C1$
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