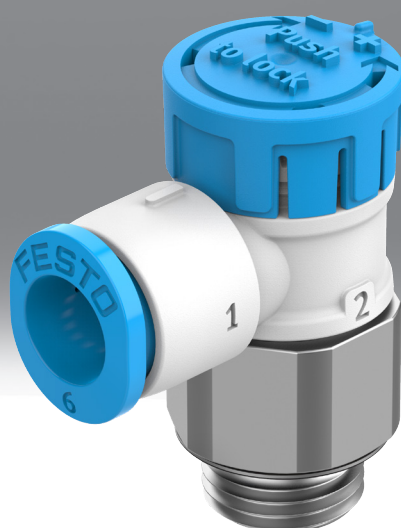


One-way flow control valve VFOE

FESTO



Characteristics

At a glance

Link [vfoe](#)

- One-way flow control valve for direct mounting on the actuator
- Low-cost solution for standard applications
 - Simple and reliable adjustment of pneumatic cylinder speed
 - Extremely easy assembly
 - Fast commissioning
 - Compact dimensions
 - Suitable for use in accordance with ATEX declaration from Festo for zones 1, 2 and 21, 22

Diagrams

Link [vfoe](#)



The diagrams shown in this document are also available online. There, it is possible to display precise values.

Function

One-way flow control valves regulate the piston speed of pneumatic actuators in the supply and return. This is achieved by suitable flow control of the flow rate of compressed air in the exhaust air or supply air direction.

[E]	One-way valve, exhaust air	[S]	One-way valve, supply air

The throttle function only works in the exhaust air direction, the non-return function works in the opposite direction.
Exhaust air version recognizable by the blue rotary knob.

The throttle function only works in the supply air direction, the non-return function works in the opposite direction.
Supply air variant recognizable by the light blue rotary knob.

Special material properties

[F1A]	Recommended for production plants for manufacturing lithium-ion batteries, F1A
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Application note: Foreign particles may adhere to the product or be generated during installation. Depending on the application, it may be necessary to blow out the product with clean compressed air, clean it after installation and operate it with captured exhaust air.

Packaging unit quantity

Package quantity in pieces (standard: 1)

Type code

001	Series	
VFOE	Check valve	
002	Design	
L	L-shape	
003	Function	
E	One-way valve, exhaust air	
S	One-way valve, supply air	
004	Adjusting element	
T	Rotary knob with detent	
005	Pneumatic connection 2	
G18	G1/8	
G14	G1/4	
G38	G3/8	
M5	M5	
M7	M7	
R14	R1/4	
R18	R1/8	
R38	R3/8	

006	Pneumatic connection 1	
Q4	Push-in connector, 4 mm	
Q6	Push-in connector, 6 mm	
Q8	Push-in connector, 8 mm	
Q10	Push-in connector, 10 mm	
007	Special material properties	
	None	
F1A	Recommended for production plants for manufacturing lithium-ion batteries, F1A	
008	Packaging unit quantity	
	Standard	
P20	20	
P50	50	

Datasheet

General technical data – VFOE-LE

Pneumatic connection 2	M5	G1/8	G1/4	G3/8	R1/8	R1/4	R3/8
Pneumatic connection 1	QS-4 QS-6	QS-4 QS-6 QS-8	QS-6 QS-8 QS-10	QS-8 QS-10	QS-4 QS-6 QS-8	QS-6 QS-8 QS-10	QS-8 QS-10
Valve function	Exhaust air flow control non-return function						
Actuation type	Manual						
Mounting position	Any						
Adjusting element	Rotary knob with latch						
Type of mounting	Screw-in						
Rotatability	360 deg/continuous swiveling not permissible						
Nominal tightening torque	2 Nm	5 Nm	10 Nm	13 Nm	–		
Tolerance for nominal tightening torque	±20%				–		
Max. tightening torque	2.4 Nm	6 Nm	12 Nm	15.6 Nm	–		
Product weight	3.3 g	9.5 g	16 g	29.5 g	9.5 g	16 g	29.5 g

General technical data – VFOE-LS

Pneumatic connection 2	M5	M7	G1/8	R1/8
Pneumatic connection 1	QS-4 QS-6		QS-4 QS-6 QS-8	
Valve function	Supply air flow control non-return function			
Actuation type	Manual			
Mounting position	Any			
Adjusting element	Rotary knob with latch			
Type of mounting	Screw-in			
Rotatability	360 deg/continuous swiveling not permissible			
Nominal tightening torque	2 Nm	3 Nm	5 Nm	–
Tolerance for nominal tightening torque	±20%			–
Max. tightening torque	2.4 Nm	3.6 Nm	6 Nm	–
Product weight	3.3 g	4 g	9.5 g	

Operating and environmental conditions – special material properties: none

Operating pressure for entire temperature range	0.02 ... 1 MPa
Operating pressure for entire temperature range	0.2 ... 10 bar
Operating pressure for entire temperature range	2.9 ... 145 psi
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4]
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)
Ambient temperature	-10 ... 60°C
Temperature of medium	-10 ... 60°C
Corrosion resistance class (CRC) ¹⁾	1 - Low corrosion stress

1) Further information, visit www.festo.com/x/topic/kbk

Datasheet

Operating and environmental conditions – special material properties: F1A

Operating pressure for entire temperature range	0.02 ... 1 MPa
Operating pressure for entire temperature range	0.2 ... 10 bar
Operating pressure for entire temperature range	2.9 ... 145 psi
Operating medium	Compressed air as per ISO 8573-1:2010 [7:4:4]
Information on operating and pilot media	Operation with oil lubrication possible (required for further use)
Ambient temperature	-10 ... 60°C
Temperature of medium	-10 ... 60°C
Corrosion resistance class (CRC) ¹⁾	0 - No corrosion stress

1) Further information, visit www.festo.com/x/topic/kbk

Materials

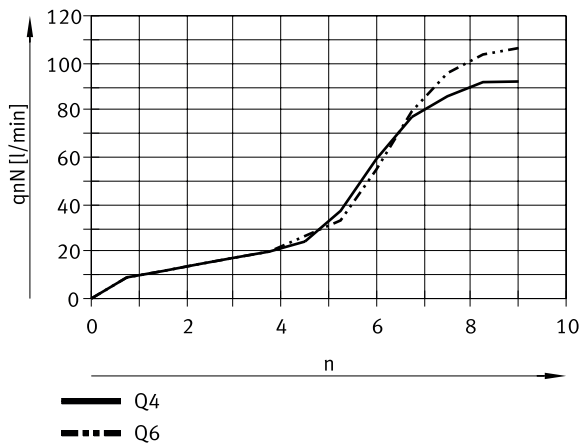
Housing material	PBT
Cover material	PBT
Releasing ring material	PBT
Threaded bolt material	Steel, chemically nickel-plated, Galvanized steel
Static seal material	NBR
Material of dynamic seals	HNBR
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364 Zone III
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1
ATEX declaration ¹⁾	for zones 1, 2, 21 and 22, Please observe the information on the certificate.

1) Further information www.festo.com/catalogue/vfoe → Support/Downloads.

Materials – special material properties: F1A

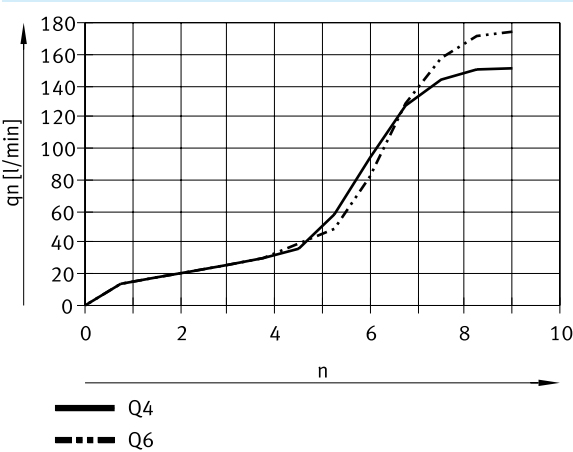
Threaded bolt material	Steel, chemically nickel-plated
Suitability for the production of Li-ion batteries	Suitable for battery production with reduced Cu/Zn/Ni values (F1a)
Variants	–
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1

Standard nominal flow rate q_{nN} at 0.6 → 0.5 MPa as a function of spindle revolutions n for threaded connection M5 (exhaust air)

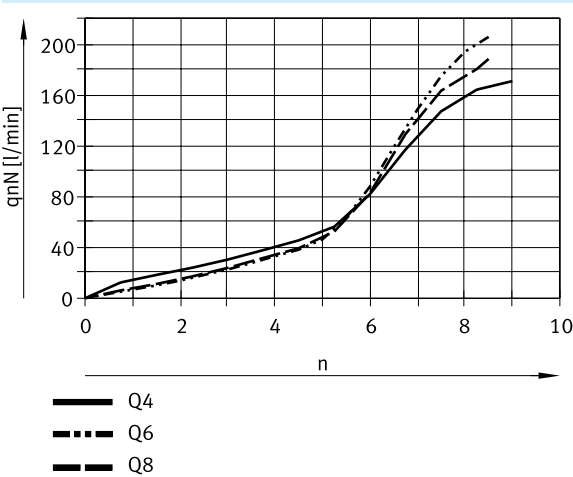


Datasheet

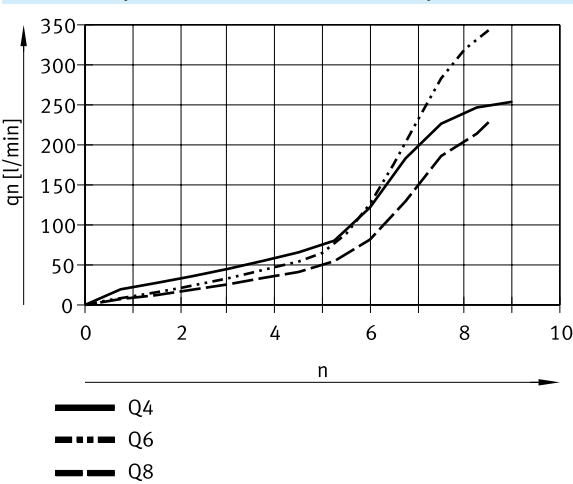
Normal flow q_n at 0.6 → 0 MPa as a function of spindle revolutions n for threaded connection M5 (exhaust air)



Standard nominal flow rate q_{nN} at 0.6 → 0.5 MPa as a function of spindle revolutions n for threaded connection G1/8, R1/8 (exhaust air)

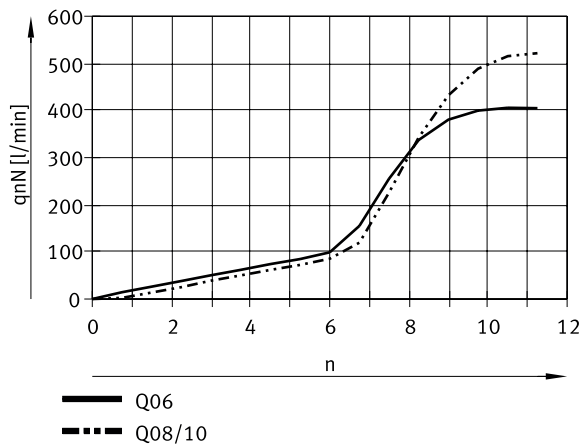


Normal flow q_n at 0.6 → 0 MPa as a function of spindle revolutions n for threaded connection G1/8, R1/8 (exhaust air)

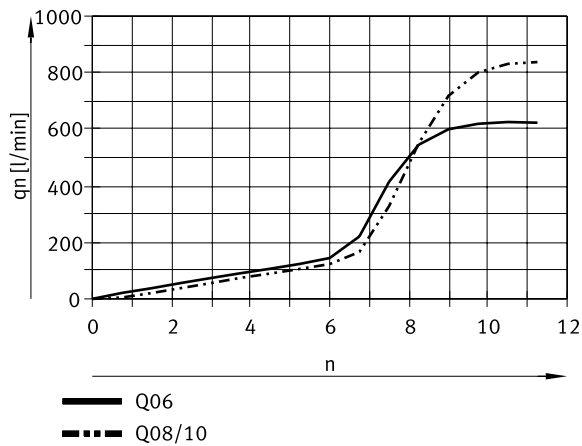


Datasheet

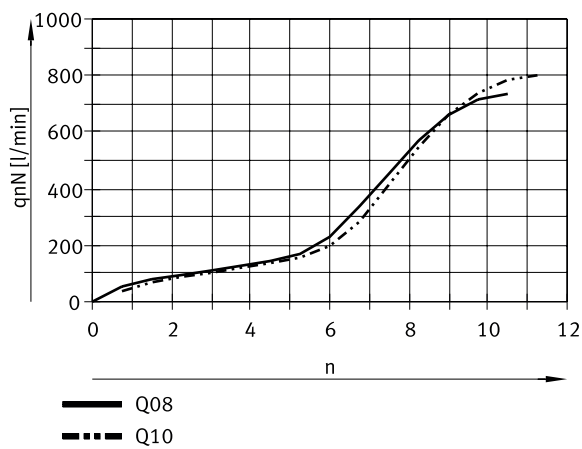
Standard nominal flow rate q_{nN} at $0.6 \rightarrow 0.5$ MPa as a function of spindle revolutions n for threaded connection G1/4, R1/4 (exhaust air)



Normal flow q_n at $0.6 \rightarrow 0$ MPa as a function of spindle revolutions n for threaded connection G1/4, R1/4 (exhaust air)

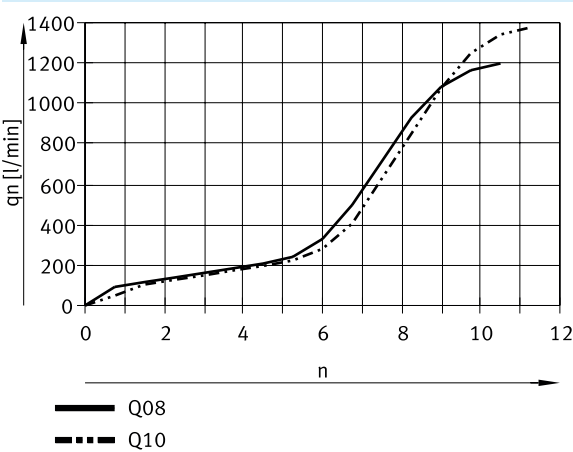


Standard nominal flow rate q_{nN} at $0.6 \rightarrow 0.5$ MPa as a function of spindle revolutions n for threaded connection G3/8, R3/8 (exhaust air)

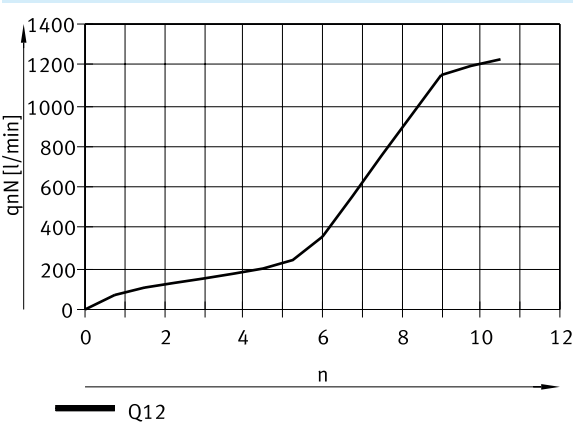


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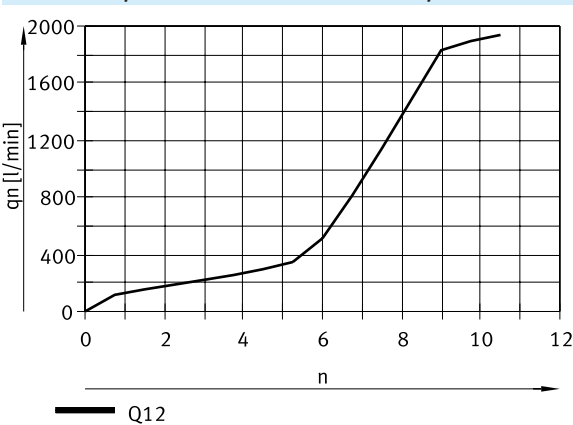
Normal flow q_n at 0.6 → 0 MPa as a function of spindle revolutions n for threaded connection G3/8, R3/8 (exhaust air)



Standard nominal flow rate q_{nN} at 0.6 → 0.5 MPa as a function of spindle revolutions n for threaded connection G1/2, R1/2 (exhaust air)

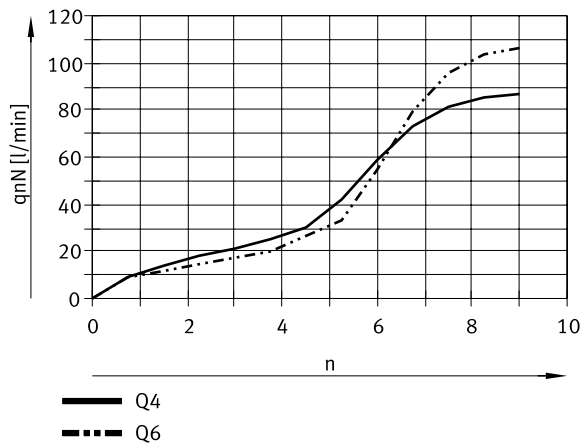


Normal flow q_n at 0.6 → 0 MPa as a function of spindle revolutions n for threaded connection G1/2, R1/2 (exhaust air)

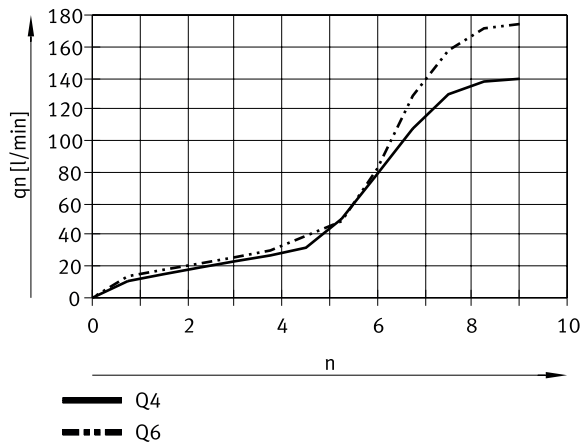


Datasheet

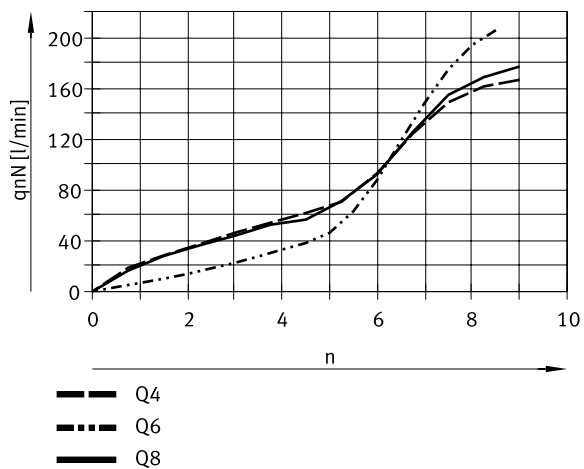
Standard nominal flow rate q_{nN} at 0.6 → 0.5 MPa as a function of spindle revolutions n for threaded connection M5, M7 (supply air)



Normal flow q_n at 0.6 → 0 MPa as a function of spindle revolutions n for threaded connection M5, M7 (supply air)

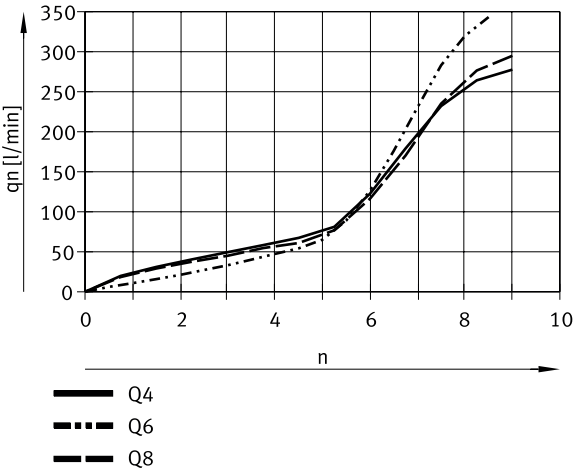


Standard nominal flow rate q_{nN} at 0.6 → 0.5 MPa as a function of spindle revolutions n for threaded connection G1/8, R1/8 (supply air)



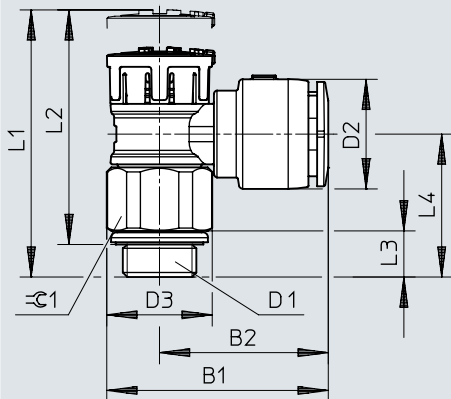
Datasheet

Normal flow q_n at 0.6 → 0 MPa as a function of spindle revolutions n for threaded connection G1/8, R1/8 (supply air)



Dimensions

Dimensions – VFOE-...-M../G..

[Download CAD data](#) www.festo.com


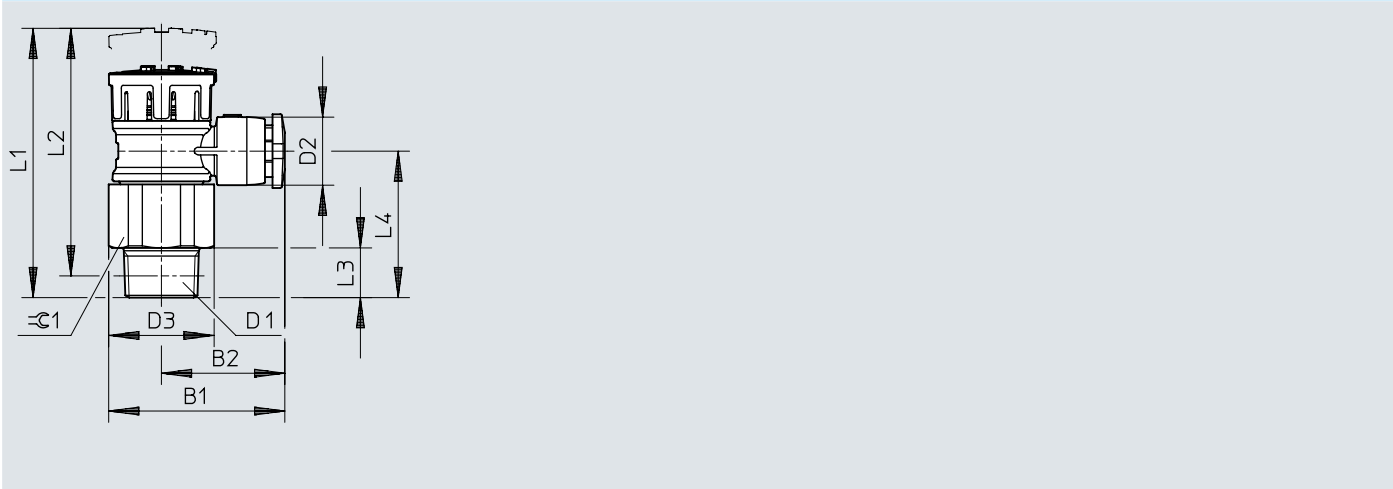
VFOE-...-M../G..	B1	B2	D1	D2 ø	D3 ø	L1		L2		L3	L4	≅ 1
						1)	2)	1) (max.)	2)			
VFOE-...-M5-Q4	19,6	14,6	M5	9	10	27,6	26,6	25	24	4,1	13,9	9
VFOE-...-M5-Q6	22,6	17,6	M5	11	10	27,6	26,6	25	24	4,1	13,9	9
VFOE-...-M7-Q4	19,6	14,6	M7	9	10	29,5	28,5	25	24	6	15,8	9
VFOE-...-M7-Q6	22,6	17,6	M7	11	10	29,5	28,5	25	24	6	15,8	9
VFOE-...-G18-Q4	23,3	16,3	G1/8	9	14	31,7	30,3	27,4	26	6,1	18,9	13
VFOE-...-G18-Q6	24,4	17,4	G1/8	11	14	31,7	30,3	27,4	26	6,1	18,9	13
VFOE-...-G18-Q8	29,3	22,3	G1/8	14,5	14	31,7	30,3	27,4	26	6,1	18,9	13
VFOE-...-G14-Q6	28,3	19,3	G1/4	11	17,9	38,6	36,7	33,9	32	7	22	16
VFOE-...-G14-Q8	30	21	G1/4	14,5	17,9	38,6	36,7	33,9	32	7	22	16
VFOE-...-G14-Q10	35,1	26,2	G1/4	16,5	17,9	38,6	36,7	33,9	32	7	22	16
VFOE-...-G38-Q8	34,5	23,3	G3/8	14,5	22,4	44,1	41,9	38,2	36	8,5	26,2	21
VFOE-...-G38-Q10	39,6	28,4	G3/8	17,5	22,4	44,1	41,9	38,2	36	8,5	26,2	21
VFOE-...-G12-Q12	46,8	33,3	G1/2	20,8	27	53,7	50,8	46,8	43,9	9,5	31	24

1) unlocked

2) locked

Dimensions

Dimensions – VFOE-...-R.. Download CAD data www.festo.com



VFOE-...-R..	B1	B2	D1	D2 ø	D3 ø	L1		L2		L3	L4	≅ 1
						1)	2)	1) (max.)	2)			
VFOE-...-R18-Q4	23,3	16,3	R1/8	9	14	32,2	30,8	29,2	27,8	6,6	19,4	13
VFOE-...-R18-Q6	24,4	17,4	R1/8	11	14	32,2	30,8	29,2	27,8	6,6	19,4	13
VFOE-...-R18-Q8	29,3	22,3	R1/8	14,5	14	32,2	30,8	29,2	27,8	6,6	19,4	13
VFOE-...-R14-Q6	28,3	19,3	R1/4	11	17,9	41,2	39,3	36,7	34,8	10,1	25,1	16
VFOE-...-R14-Q8	30	21	R1/4	14,5	17,9	41,2	39,3	36,7	34,8	10,1	25,1	16
VFOE-...-R14-Q10	35,1	26,2	R1/4	17,5	17,9	41,2	39,3	36,7	34,8	10,1	25,1	16
VFOE-...-R38-Q8	34,5	23,3	R3/8	14,5	22,4	45,2	43	40,7	38,5	10,1	27,8	21
VFOE-...-R38-Q10	39,6	28,4	R3/8	17,5	22,4	45,2	43	40,7	38,8	10,1	27,8	21
VFOE-...-R12-Q12	46,8	33,3	R1/2	20,8	27	55,8	52,9	50,8	47,9	12,1	33,6	24

- 1) unlocked
- 2) locked

Ordering data

Ordering data – exhaust air throttle non-return function

	Pneumatic connection 2	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in non-return direction	Part no.	Type
	M5	QS-4	90 l/min	50 ... 90 l/min	8068723	VFOE-LE-T-M5-Q4
		QS-6	105 l/min	60 ... 105 l/min	8095432	VFOE-LE-T-M5-Q4-P50
	G1/8	QS-4	150 l/min	90 ... 150 l/min	8068724	VFOE-LE-T-M5-Q6
		QS-6	165 l/min	110 ... 200 l/min	8068725	VFOE-LE-T-G18-Q4
		QS-8	170 l/min	130 ... 200 l/min	8095433	VFOE-LE-T-G18-Q6-P50
	G1/4	QS-6	400 l/min	350 ... 450 l/min	8068726	VFOE-LE-T-G18-Q6
		QS-8	500 l/min	370 ... 500 l/min	8068727	VFOE-LE-T-G18-Q8
		QS-10			8068728	VFOE-LE-T-G14-Q6
	G3/8	QS-6	400 l/min	350 ... 450 l/min	8068729	VFOE-LE-T-G14-Q8
		QS-8	500 l/min	370 ... 500 l/min	8095434	VFOE-LE-T-G14-Q8-P50
		QS-10			8068730	VFOE-LE-T-G14-Q10
	R1/8	QS-8	720 l/min	600 ... 900 l/min	8068731	VFOE-LE-T-G38-Q8
		QS-10	750 l/min	700 ... 1000 l/min	8095435	VFOE-LE-T-G38-Q10-P20
					8068732	VFOE-LE-T-G38-Q10
	R1/4	QS-4	150 l/min	90 ... 150 l/min	8068733	VFOE-LE-T-R18-Q4
		QS-6	165 l/min	110 ... 200 l/min	8068735	VFOE-LE-T-R18-Q6
		QS-8	170 l/min	130 ... 200 l/min	8068736	VFOE-LE-T-R18-Q8
	R3/8	QS-6	400 l/min	350 ... 450 l/min	8068737	VFOE-LE-T-R14-Q6
		QS-8	500 l/min	370 ... 500 l/min	8068738	VFOE-LE-T-R14-Q8
		QS-10			8068739	VFOE-LE-T-R14-Q10
	R3/8	QS-8	720 l/min	600 ... 900 l/min	8068740	VFOE-LE-T-R38-Q8
		QS-10	750 l/min	700 ... 1000 l/min	8068741	VFOE-LE-T-R38-Q10

Ordering data – supply air throttle non-return function

	Pneumatic connection 2	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in non-return direction	Part no.	Type
	M5	QS-4	85 l/min	50 ... 90 l/min	8068743	VFOE-LS-T-M5-Q4
		QS-6	100 l/min	60 ... 100 l/min	8068744	VFOE-LS-T-M5-Q6
	M7	QS-4	85 l/min	50 ... 90 l/min	8068745	VFOE-LS-T-M7-Q4
		QS-6	100 l/min	60 ... 100 l/min	8068746	VFOE-LS-T-M7-Q6
	G1/8	QS-4	165 l/min	90 ... 165 l/min	8068747	VFOE-LS-T-G18-Q4
		QS-6	170 l/min	110 ... 200 l/min	8068748	VFOE-LS-T-G18-Q6
		QS-8		130 ... 200 l/min	8068749	VFOE-LS-T-G18-Q8
	R1/8	QS-4	165 l/min	90 ... 165 l/min	8068750	VFOE-LS-T-R18-Q4
		QS-6	170 l/min	110 ... 200 l/min	8068751	VFOE-LS-T-R18-Q6
		QS-8		130 ... 200 l/min	8068752	VFOE-LS-T-R18-Q8

Ordering data products for battery production – exhaust air restrictor check function

	Pneumatic connection 2	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in non-return direction	Part no.	Type
	M5	QS-4	90 l/min	50 ... 90 l/min	8157642	VFOE-LE-T-M5-Q4-F1A
		QS-6	105 l/min	60 ... 105 l/min	8157641	VFOE-LE-T-M5-Q6-F1A
	G1/8	QS-4	150 l/min	90 ... 150 l/min	8223994	VFOE-LE-T-G18-Q4-F1A
		QS-6	165 l/min	110 ... 200 l/min	8223995	VFOE-LE-T-G18-Q6-F1A
		QS-8	170 l/min	130 ... 200 l/min	8223996	VFOE-LE-T-G18-Q8-F1A
	G1/4	QS-6	400 l/min	350 ... 450 l/min	8223997	VFOE-LE-T-G14-Q6-F1A
		QS-8	500 l/min	370 ... 500 l/min	8223998	VFOE-LE-T-G14-Q8-F1A

Ordering data

Ordering data products for battery production – exhaust air restrictor check function

	Pneumatic connection 2	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in non-return direction	Part no.	Type
	G1/4	QS-10	500 l/min	370 ... 500 l/min	8223999	VFOE-LE-T-G14-Q10-F1A
	G3/8	QS-8	720 l/min	600 ... 900 l/min	8223986	VFOE-LE-T-G38-Q8-F1A
		QS-10	750 l/min	700 ... 1000 l/min	8224001	VFOE-LE-T-G38-Q10-F1A

Ordering data products for battery production – supply air restrictor check function

	Pneumatic connection 2	Pneumatic connection 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in non-return direction	Part no.	Type
	M5	QS-4	85 l/min	50 ... 90 l/min	8157630	VFOE-LS-T-M5-Q4-F1A
		QS-6	100 l/min	60 ... 100 l/min	8157629	VFOE-LS-T-M5-Q6-F1A
	G1/8	QS-4	165 l/min	90 ... 165 l/min	8224003	VFOE-LS-T-G18-Q4-F1A
		QS-6	170 l/min	110 ... 200 l/min	8224004	VFOE-LS-T-G18-Q6-F1A
		QS-8		130 ... 200 l/min	8224005	VFOE-LS-T-G18-Q8-F1A