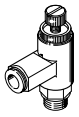
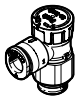
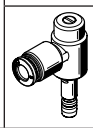
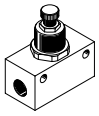
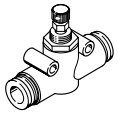
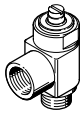
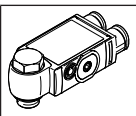
One-way flow control valves VFOH

Product range overview – One-way flow control valves

Version	Valve function	Version	Type	Outlet direction of connection	Pneumatic connection 1	Pneumatic connection 2	qnN[1] [l/min]	Adjusting element	→ Page/ Internet
Standard	**Polymer**								
	Exhaust air one-way flow control function		VFOE-LE	Elbow outlet	QS-4, QS-6, QS-8, QS-10, QS-12	M5, G1/8, G1/4, G3/8, G1/2, R1/8, R1/4, R3/8, R1/2	90 ... 1200	Rotary knob with detent	vfoe
			GRLA	Elbow outlet	QS-6, QS-8	G1/8, G1/4, G3/8	520 ... 650	Knurled screw	grla
	Supply air one-way flow control function		VFOE-LS	Elbow outlet	QS-4, QS-6, QS-8	M5, M7, G1/8, R1/8	90 ... 180	Rotary knob with detent	vfoe
	Metal								
	Exhaust air one-way flow control function		GRLA	Elbow outlet	QS-3, QS-4, QS-6, QS-8, QS-10, QS-12	M5, G1/8, G1/4, G3/8, G1/2	100 ... 1580	Slotted head screw Knurled screw	grla
					M5, G1/8, G1/4, G3/8, G1/2, G3/4	M5, G1/8, G1/4, G3/8, G1/2, G3/4	95 ... 4320	Slotted head screw	grla
					M5, G1/8, G1/4	M5, G1/8, G1/4	95 ... 610	Knurled screw	
					PK-3, PK-4, PK-6	M5, G1/8, G1/4	83 ... 540	Slotted head screw	grla
			GRLSA	Elbow outlet	QS-6, QS-8	G1/8, G1/4	0 ... 450	Rotary knob with scale, internal hex	grlsa
	Supply air one-way flow control function		GRLZ	Elbow outlet	QS-3, QS-4, QS-6, QS-8	M5, G1/8	100 ... 215	Slotted head screw	grlz
					M5, G1/8, G1/4	M5, G1/8, G1/4	95 ... 610	Slotted head screw Knurled screw	grlz
					PK-3, PK-4, PK-6	M5, G1/8, G1/4	83 ... 540	Slotted head screw	grlz
			VFOC-S	Elbow outlet	QS-4, QS-6	Push-in sleeve[2] QS-4, QS-6	0 ... 270	Slotted head screw	vfoc
	Nickel-plated metal								
	Exhaust air one-way flow control function		VFOH-LE	Elbow outlet	QS-4, QS-6, QS-8, QS-10	G1/8, G1/4	180 ... 530	External hex	6

1) Standard nominal flow rate in flow control direction.
2) Only suitable for push-in connector QS.

Product range overview – One-way flow control valves

Version	Valve function	Version	Type	Outlet direction of connection	Pneumatic connection 1	Pneumatic connection 2	qnN[1)] [l/min]	Adjusting element	→ Page/ Internet
Mini	**Metal**								
	Exhaust air one-way flow control function		GRLA	Elbow outlet	QS-3, QS-4	M3, M5	40 ... 41	Slotted head screw	grla
					M3	M3	0 ... 18	Slotted head screw	grla
	Supply air one-way flow control function		GRLZ	Elbow outlet	QS-3, QS-4	M3, M5	41 ... 48	Slotted head screw	grlz
					M3	M3	0 ... 18	Slotted head screw	grlz
In-line installation	**Metal**								
	One-way flow control function		GR/GRA	Straight	M3, M5, G1/8, G1/4, G3/8, G1/2, G3/4	M3, M5, G1/8, G1/4, G3/8, G1/2, G3/4	29.5 ... 3300	Knurled screw	gr
	Polymer								
	One-way flow control function		GR	Straight	QS-3, QS-4, QS-6, QS-8	QS-3, QS-4, QS-6, QS-8	85 ... 265	Knurled screw	gr
Corrosion-resistant	**Stainless steel**								
	Exhaust air one-way flow control function		CRGRLA	Elbow outlet	M5, G1/8, G1/4, G3/8, G1/2	M5, G1/8, G1/4, G3/8, G1/2	95 ... 2100	Slotted head screw	crgrla
Function combination	**Polymer**								
	Exhaust air one-way flow control function		VFOF	Elbow outlet	QS-6, QS-8	G1/8, G1/4	240 ... 590	Internal hex	vfof

1) Standard nominal flow rate in flow control direction.

Key features

Function

The piston speed of both advancing and retracting pneumatic cylinders, can be regulated using one-way flow control valves.

This is done through suitable restriction of the flow rate of compressed air in exhaust air or supply air direction. The non-return function works in the opposite direction.

The flow control function creates an adjustable annular gap inside the valve. This gap can be increased or decreased by turning the knurled screw or slotted head screw.

The required restriction can be set with the help of this adjustment element.

General information

Standard nominal flow rate qnN

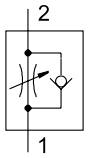
The standard nominal flow rate qnN is the volumetric flow rate based on standard conditions at an operating pressure of p1 = 6 bar and an output pressure of p2 = 5 bar, measured at room temperature t = 20°C.

Standard flow rate qn

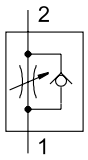
The standard flow rate qn is measured at an operating pressure of p1 = 6 bar and an output pressure with respect to atmospheric pressure (p2 = 0 bar).

Symbols

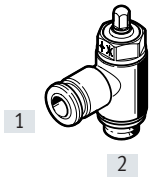
Exhaust air one-way flow control function



Supply air one-way flow control function



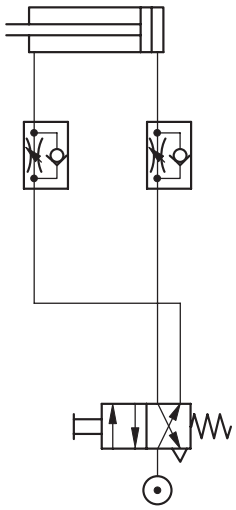
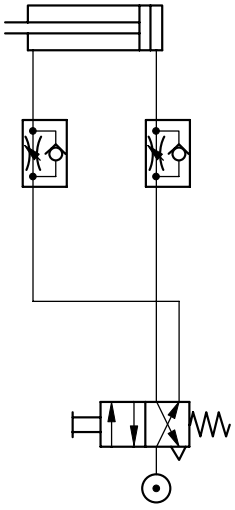
Connections



[1] Pneumatic connection 1 (compressed air connection)

[2] Pneumatic connection 2 (working port)

Flow control functions and range of applications

Application	Description	Application	Description
Double-acting cylinder with one-way flow control valve			
Exhaust air one-way flow control function		**Supply air one-way flow control function**	
	Speed adjustment through exhaust air flow control. Uncontrolled supply air and throttled exhaust air move the piston between air cushions (improves motion, even with load changes).		Adjustable speed during advance and return strokes. The flow rate is identical in both directions.

Type codes

001	Series	
VFOH	One-way flow control valve	

002	Design	
L	L-shape	

003	Function	
E	One-way flow control valve for exhaust air	

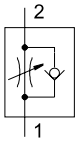
004	Adjusting component	
A	External hex	

005	Pneumatic connection	
G18	G1/8	
G14	G1/4	

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	

Datasheet

One-way flow control function
Exhaust air



Can be rotated 360° around the screw-in axis after mounting. Nickel-plated metal.

- Flow rate
  180 ... 530 l/min
- Temperature range
  0 ... +150°C
- Operating pressure
  0.2 ... 10 bar

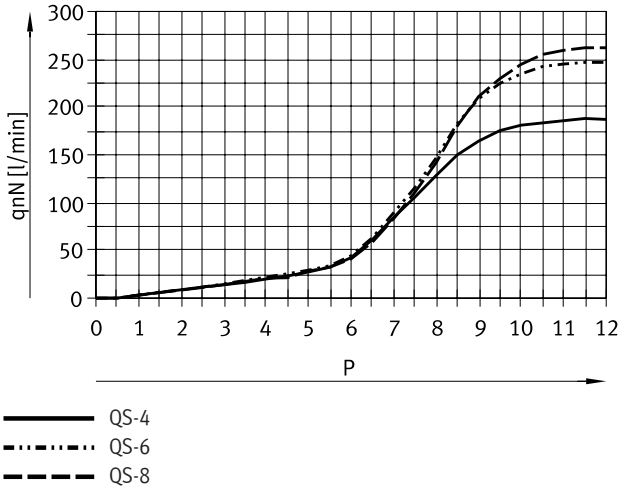
General technical data			
Pneumatic connection 2		G1/8	G1/4
Pneumatic connection 1		QS-4, QS-6, QS-8	QS-8, QS-10
Valve function		Exhaust air one-way flow control function	
Adjusting element		External hex	
Actuation type		Manual	
Type of mounting		Screw-in	
Mounting position		Any	
Nominal tightening torque	[Nm]	3 ±10%	5 ±10%

Operating and environmental conditions		
Operating pressure for entire temperature range	[bar]	0.2 ... 10
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
Note on the operating/pilot medium		Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C]	0 ... +150
Temperature of medium	[°C]	0 ... +150
Storage temperature	[°C]	–10 ... +150
Corrosion resistance class CRC[1)]		3

1) Corrosion resistance class CRC 3 to Festo standard FN 940070
High corrosion stress. Outdoor exposure under moderate corrosive conditions. Externally visible parts with primarily functional surface requirements which are in direct contact with a normal industrial environment.

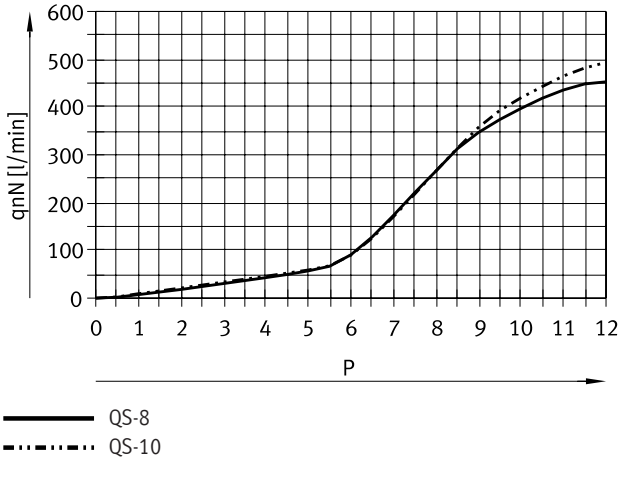
Standard nominal flow rate qnN at 6 → 5 bar as a function of spindle rotations n

VFOH-LE-A-G18



QS-4
QS-6
QS-8

VFOH-LE-A-G14

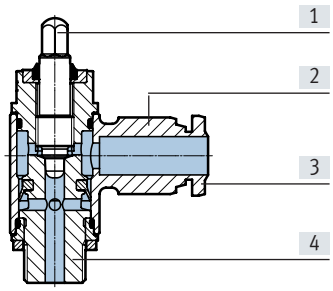


QS-8
QS-10

Datasheet

Materials

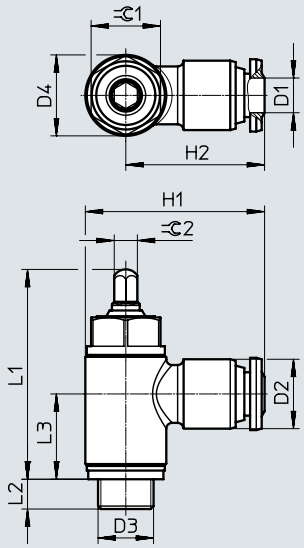
Sectional view



One-way flow control valve		
[1]	Adjusting screw	High-alloy stainless steel
[2]	Swivel connection	Nickel-plated brass
[3]	Releasing ring	Nickel-plated brass
[4]	Hollow bolt	Wrought aluminium alloy
–	Seals	FPM
Note on materials		RoHS-compliant
		Free of copper and PTFE

Dimensions

Download CAD data ➔ www.festo.com



Type	Connection D3	Tubing O.D. D1	D2 ø	D4 ø	H1	H2	L1	L2	L3	⫧ 1	⫧ 2
VFOH-LE-A-G18	G1/8	4	10.5	14	28	21	~36.3	~5.2	~14.8	12	4
		6	12		31	24					
		8	14		32	25					
VFOH-LE-A-G14	G1/4	8	14	18	36	27	~39.9	~6.1	~17.5	15	5
		10	17.7		41	32					

Ordering data

	Pneumatic connection		Standard nominal flow rate qnN at 6 ➔ 5 bar		Standard flow rate qn at 6 ➔ 0 bar		Weight	Part no.	Type
			In flow control direction	In non-return direction	In flow control direction	In non-return direction			
	2	1	[l/min]	[l/min]	[l/min]	[l/min]	[g]		
	G1/8	QS-4	180	103 ... 188	250	270 ... 300	23	**578797**	**VFOH-LE-A-G18-Q4**
		QS-6	255	111 ... 280	370	330 ... 390		**578798**	**VFOH-LE-A-G18-Q6**
		QS-8	275	132 ... 307	400	330 ... 410		**578799**	**VFOH-LE-A-G18-Q8**
	G1/4	QS-8	530	402 ... 578	720	610 ... 760	37	**578800**	**VFOH-LE-A-G14-Q8**
		QS-10	520	345 ... 535	840	635 ... 790	48	**578801**	**VFOH-LE-A-G14-Q10**

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