

## One-way flow control valves VFOE

**FESTO**






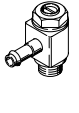



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



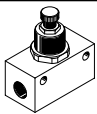
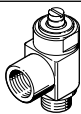
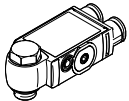
Product range overview – One-way flow control valves

Design	Valve function	Design	Type	Outlet direction of connection	Pneumatic connection 1	Pneumatic connection 2	qnN <sup>1)</sup> [l/min]	Adjusting element	→ Page/ Internet	
<b>Standard</b>										
<b>Polymer</b>										
Exhaust air one-way flow control function		VFOE-LE	Elbow outlet	QS-4, QS-6, QS-8, QS-10	M5, G1/8, G1/4, G3/8, R1/8, R1/4, R3/8	90 ... 1000	Rotary knob with detent	5		
		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	5		
<b>Metal</b>										
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	
		GRLSA	Elbow outlet	QS-6, QS-8	G1/8, G1/4	0 ... 450	Rotary knob with scale, internal hexagon	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	
					PK-3, PK-4, PK-6	M5, G1/8, G1/4	83 ... 540		Slotted head screw	
		VFOC-S	Elbow outlet	QS-4, QS-6	Push-in sleeve <sup>2)</sup> QS-4, QS-6	0 ... 270	Slotted head screw	vfoc		
<b>Nickel-plated metal</b>										
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	vfoh		

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

Design	Valve function	Design	Type	Outlet direction of connection	Pneumatic connection 1	Pneumatic connection 2	qnN <sup>1)</sup> [l/min]	Adjusting element	→ Page/ Internet
<b>Mini</b>	<b>Metal</b> 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
<b>In-line installation</b>	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
			GR	Straight	QS-3, QS-4, QS-6, QS-8	QS-3, QS-4, QS-6, QS-8	85 ... 265	Knurled screw	gr
<b>Corrosion-resistant</b>	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
			<b>Polymer</b>	VFOF	Elbow outlet	QS-6, QS-8	G1/8, G1/4	240 ... 590	Internal hex
<b>Function combination</b>	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

### Which fitting fits which thread?

#### Metric thread

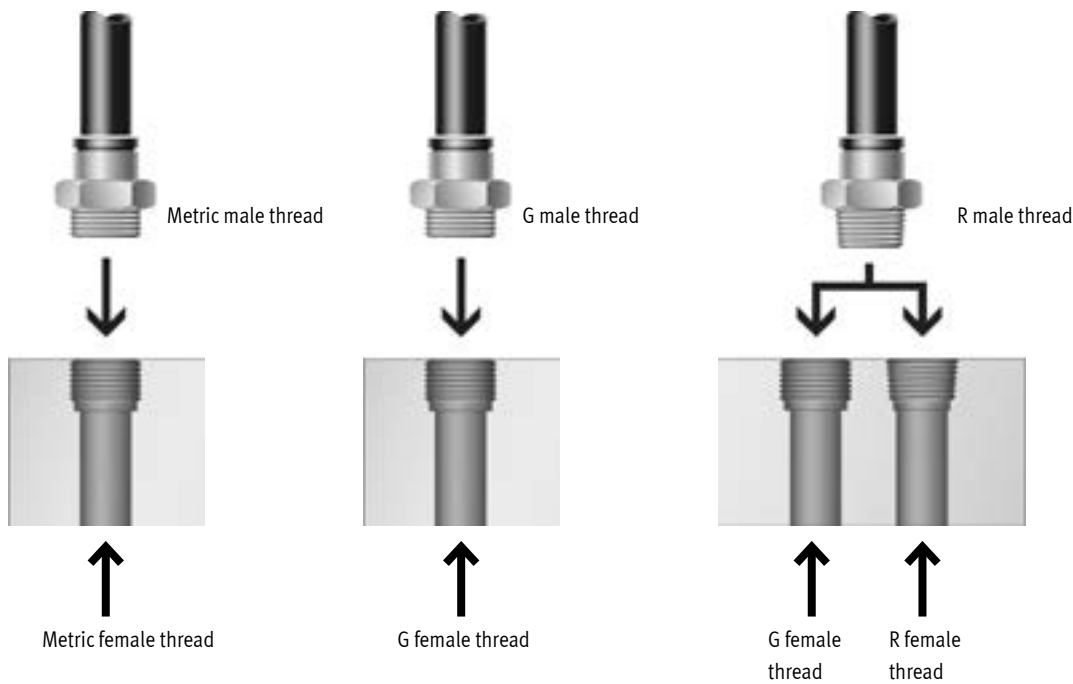
- Threads are comparable with G threads and are fitted as cylindrical metric thread
- The seal is guaranteed by a replaceable sealing ring.

#### G thread to ISO 228-1

- Shorter thread
- Consistent installation depth
- Replaceable sealing ring
- Sealing on the front
- Can be re-used a number of times thanks to replaceable sealing ring.

#### R thread to EN 10226-1 and ISO 7/1

- Self-sealing thread
- Sealing via coated threads
- No additional sealing surface required
- Smaller installation dimensions since there is no need for an offset for the sealing surface
- Can be reused up to 5 times
- Remove loose sealant remnants.



**Note**

Contact between the assembly tool and the housing should be avoided during assembly.



**Note**

When re-installing the one-way flow control valves with R thread, we recommend additionally using sealing band.

## Type codes

001	Series
VFOE	One-way flow control valve
002	Design
L	L-shape
003	Function
E	One-way flow control valve for exhaust air
S	One-way flow control valve for supply air
004	Adjusting component
T	Rotary knob with detent

005	Pneumatic connection 2
M5	M5
M7	M7
G18	G1/8
G14	G1/4
G38	G3/8
G12	G1/2
R18	R1/8
R14	R1/4
R38	R3/8
R12	R1/2

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
Q12	Push-in connector 12 mm

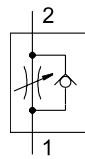
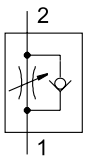
007	Package unit
	Standard
P20	20
P50	50

Technical data

One-way flow control function

Exhaust air

Supply air



- Flow rate  
82 ... 1300 l/min
- Temperature range  
-10 ... +60°C
- Operating pressure  
0.02 ... 1 MPa



General technical data – VFOE-LE								
Pneumatic connection 2	M5	G1/8	G1/4	G3/8	R1/8	R1/4	R3/8	
Valve function	Exhaust air one-way flow control function							
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	
Actuation type	Manual							
Mounting position	Any							
Adjusting element	Rotary knob with detent, colour: blue							
Type of mounting	Screw-in							
Suitability for re-installation	max.	-				5		
Rotatability	Can be rotated 360° around the screw-in axis after mounting / not permitted for continuous rotation							
Nominal tightening torque	[Nm]	2 ±20%	5 ±20%	10 ±20%	13 ±20%	Hand-tight + 1 to 2 revolutions		
Max. tightening torque	[Nm]	2.4	6	12	15.6	-		
Product weight	[g]	3.3	9.5	16.0	29.5	9.5	16.0	29.5

General technical data – VFOE-LS					
Pneumatic connection 2	M5	M7	G1/8	R1/8	
Valve function	Supply air one-way flow control function				
Pneumatic connection 1	QS-4, QS-6	QS-4, QS-6	QS-4, QS-6, QS-8	QS-4, QS-6, QS-8	
Actuation type	Manual				
Mounting position	Any				
Adjusting element	Rotary knob with detent, colour: light blue				
Type of mounting	Screw-in				
Suitability for re-installation	max.	-		5	
Rotatability	Can be rotated 360° around the screw-in axis after mounting / not permitted for continuous rotation				
Nominal tightening torque	[Nm]	2 ±20%	3 ±20%	5 ±20%	Hand-tight + 1 to 2 revolutions
Max. tightening torque	[Nm]	2.4	3.6	6	-
Product weight	[g]	3.3	4.0	9.5	9.5

Operating and environmental conditions	
Operating pressure for complete temperature range	[MPa] 0.02 ... 1
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]
PWIS conformity	VDMA24364 zone III
Note on the operating/pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)
Ambient temperature	[°C] -10 ... +60
Temperature of medium	[°C] -10 ... +60
Storage temperature	[°C] -10 ... +40
Corrosion resistance class CRC <sup>1)</sup>	1

1) Corrosion resistance class CRC 1 to Festo standard FN 940070  
Low corrosion stress. Dry indoor application or transport and storage protection. Also applies to parts behind coverings, in the non-visible interior area, and parts which are covered in the application (e.g. drive trunnions).

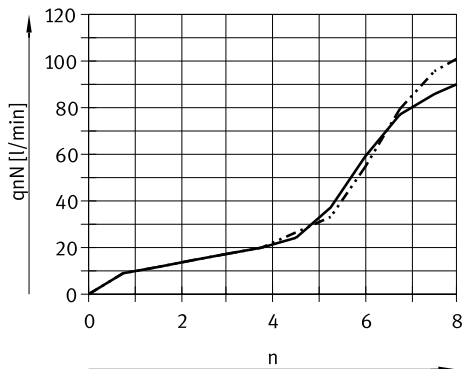
## Technical data

Materials	
Housing	PBT
Cover, releasing ring	POM
Threaded bolt	Galvanised steel
Static seals	NBR
Dynamic seals	HNBR
Note on materials	RoHS II-compliant

Technical data

Standard nominal flow rate  $q_{nN}$  at 0.6 → 0.5 MPa as a function of spindle rotations  $n$

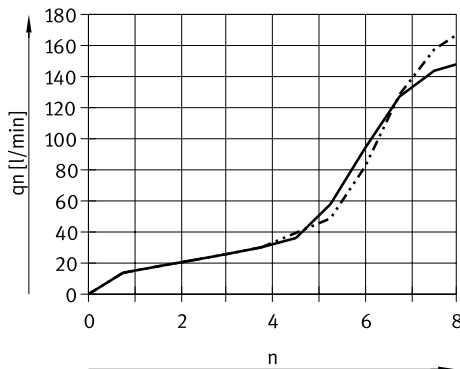
Threaded connection M5 (exhaust)



— Push-in connector 4 mm  
 - - - Push-in connector 6 mm

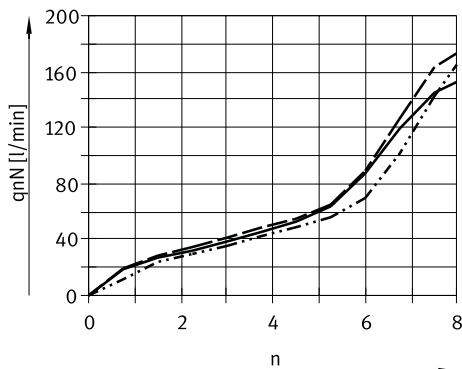
Standard flow rate  $q_n$  at 0.6 → 0 MPa as a function of spindle rotations  $n$

Threaded connection M5 (exhaust)



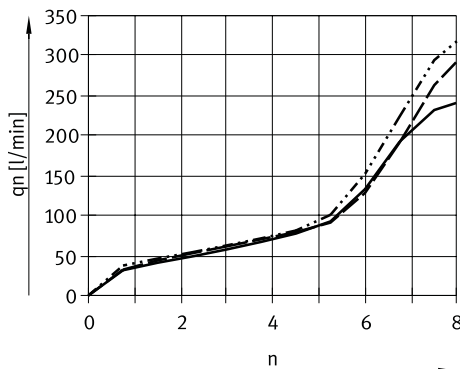
— Push-in connector 4 mm  
 - - - Push-in connector 6 mm

Threaded connection G1/8, R1/8 (exhaust)



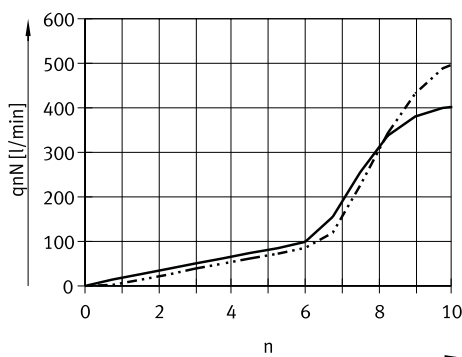
— Push-in connector 4 mm  
 - - - Push-in connector 6 mm  
 - · - Push-in connector 8 mm

Threaded connection G1/8, R1/8 (exhaust)



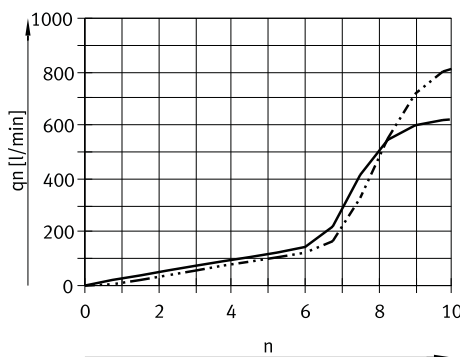
— Push-in connector 4 mm  
 - - - Push-in connector 6 mm  
 - · - Push-in connector 8 mm

Threaded connection G1/4, R1/4 (exhaust)



— Push-in connector 6 mm  
 - - - Push-in connector 8 mm / 10 mm

Threaded connection G1/4, R1/4 (exhaust)



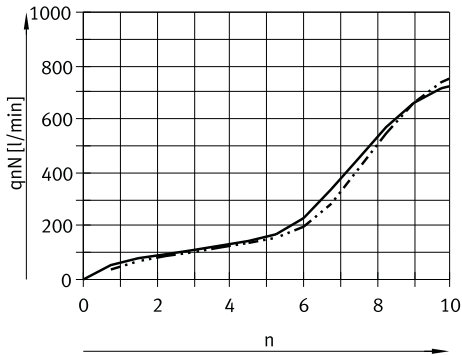
— Push-in connector 6 mm  
 - - - Push-in connector 8 mm / 10 mm



**Technical data**

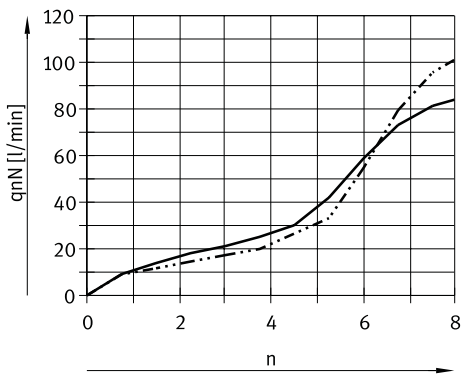
**Standard nominal flow rate  $q_{nN}$  at 0.6 → 0.5 MPa as a function of spindle rotations  $n$**

Threaded connection G3/8, R3/8 (exhaust)



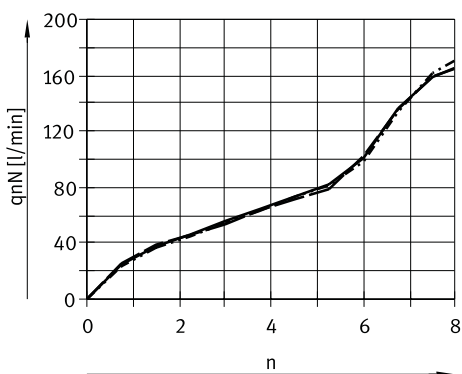
- Push-in connector 8 mm
- - - Push-in connector 10 mm

Threaded connection M5, M7 (supply air)



- Push-in connector 4 mm
- - - Push-in connector 6 mm

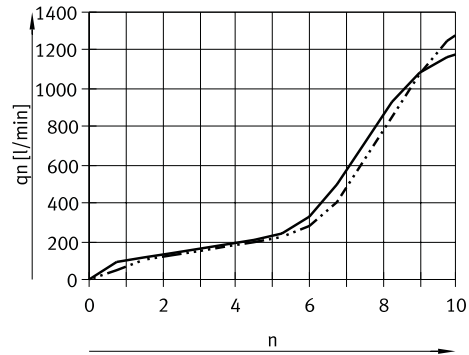
Threaded connection G1/8, R1/8 (supply air)



- Push-in connector 4 mm
- - - Push-in connector 6 mm
- · - Push-in connector 8 mm

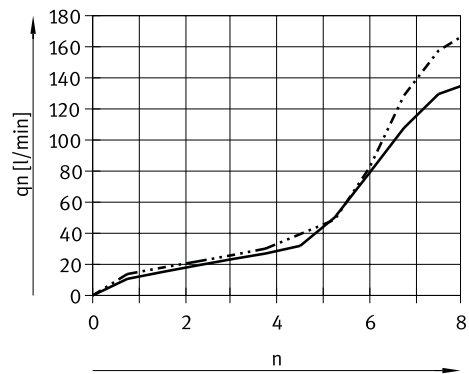
**Standard flow rate  $q_n$  at 0.6 → 0 MPa as a function of spindle rotations  $n$**

Threaded connection G3/8, R3/8 (exhaust)



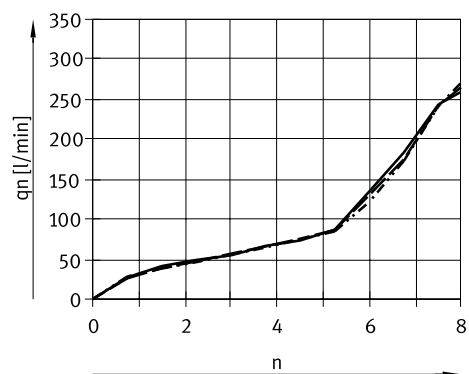
- Push-in connector 8 mm
- - - Push-in connector 10 mm

Threaded connection M5, M7 (supply air)



- Push-in connector 4 mm
- - - Push-in connector 6 mm

Threaded connection G1/8, R1/8 (supply air)



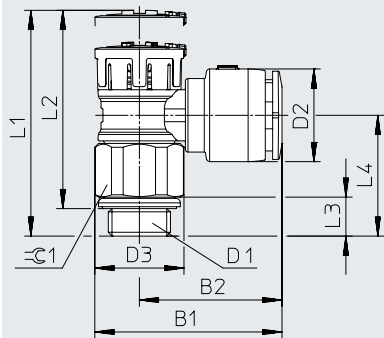
- Push-in connector 4 mm
- - - Push-in connector 6 mm
- · - Push-in connector 8 mm

Technical data

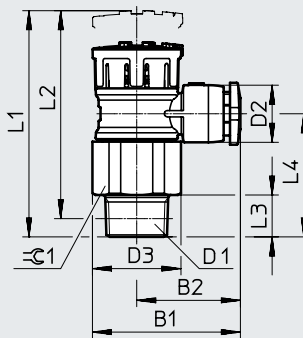
Dimensions

Download CAD data → [www.festo.com](http://www.festo.com)

VFOE-...-M../G..



VFOE-...-R..



Type	B1	B2	D1	D2 ø	D3 ø	L1		L2		L3	L4	1
						Unlocked	Locked	Unlocked (max.)	Locked			
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-LE-T-G18-Q4	23.3	16.3	G1/8	9	14	31.7	30.3	27.4	26	6.1	18.9	13
VFOE-LS-T-G18-Q4												
VFOE-LE-T-G18-Q6	24.4	17.4	G1/8	11	14	31.7	30.3	27.4	26	6.1	18.9	13
VFOE-LS-T-G18-Q6												
VFOE-LE-T-G18-Q8	29.3	22.3	G1/8	14.5	14	31.7	30.3	27.4	26	6.1	18.9	13
VFOE-LS-T-G18-Q8												
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-LE-T-R18-Q4	23.3	16.3	R1/8	9	14	32.2	30.8	29.2	27.8	6.6	19.4	13
VFOE-LS-T-R18-Q4												
VFOE-LE-T-R18-Q6	24.4	17.4	R1/8	11	14	32.2	30.8	29.2	27.8	6.6	19.4	13
VFOE-LS-T-R18-Q6												
VFOE-LE-T-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-LS-T-R18-Q8												
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

## Technical data

## ★ Core Range

Ordering data		Standard nominal flow rate qnN At 0.6 MPa → 0.5 MPa		Standard flow rate qn At 0.6 MPa → 0 MPa		Weight [g]	Part No.	Type	PU <sup>1)</sup>
Pneumatic connection		In flow control direction [l/min]	In non-return direction [l/min]	In flow control direction [l/min]	In non-return direction [l/min]				
2	1								
<b>Exhaust air one-way flow control function</b>									
M5	QS-4	90	50 ... 90	150	130 ... 160	3.3	★ 8068723	VFOE-LE-T-M5-Q4	1
							8095432	VFOE-LE-T-M5-Q4-P50	50
	QS-6	105	60 ... 105	160	150 ... 180		★ 8068724	VFOE-LE-T-M5-Q6	1
G1/8	QS-4	150	90 ... 150	250	240 ... 300	9.5	★ 8068725	VFOE-LE-T-G18-Q4	1
	QS-6	165	110 ... 200	280	300 ... 360		★ 8068726	VFOE-LE-T-G18-Q6	1
							8095433	VFOE-LE-T-G18-Q6-P50	50
	QS-8	170	130 ... 200	320	320 ... 390		★ 8068727	VFOE-LE-T-G18-Q8	1
G1/4	QS-6	400	350 ... 450	610	700 ... 800	16	★ 8068728	VFOE-LE-T-G14-Q6	1
	QS-8	500	370 ... 500	810	750 ... 900		★ 8068729	VFOE-LE-T-G14-Q8	1
							8095434	VFOE-LE-T-G14-Q8-P50	50
	QS-10	500	370 ... 500	810	750 ... 900		★ 8068730	VFOE-LE-T-G14-Q10	1
G3/8	QS-8	700	600 ... 900	1150	1300 ... 1500	29.5	★ 8068731	VFOE-LE-T-G38-Q8	1
	QS-10	800	700 ... 1000	1280	1400 ... 1600		★ 8068732	VFOE-LE-T-G38-Q10	1
							8095435	VFOE-LE-T-G38-Q10-P20	20
	QS-4	150	90 ... 150	250	240 ... 300		9.5	★ 8068734	VFOE-LE-T-R18-Q4
R1/8	QS-6	165	110 ... 200	280	300 ... 360			★ 8068735	VFOE-LE-T-R18-Q6
	QS-8	170	130 ... 200	320	320 ... 390		★ 8068736	VFOE-LE-T-R18-Q8	1
R1/4	QS-6	400	350 ... 450	610	700 ... 800	16	★ 8068737	VFOE-LE-T-R14-Q6	1
	QS-8	500	370 ... 500	810	750 ... 900		★ 8068738	VFOE-LE-T-R14-Q8	1
	QS-10	500	370 ... 500	810	750 ... 900		★ 8068739	VFOE-LE-T-R14-Q10	1
	QS-8	720	600 ... 900	1150	1300 ... 1500		29.5	★ 8068740	VFOE-LE-T-R38-Q8
R3/8	QS-10	750	700 ... 1000	1280	1400 ... 1600			★ 8068741	VFOE-LE-T-R38-Q10
<b>Supply air one-way flow control function</b>									
M5	QS-4	85	50 ... 90	135	130 ... 160	3.3	★ 8068743	VFOE-LS-T-M5-Q4	1
	QS-6	100	60 ... 100	165	150 ... 180		★ 8068744	VFOE-LS-T-M5-Q6	1
M7	QS-4	85	50 ... 90	135	130 ... 160	4	★ 8068745	VFOE-LS-T-M7-Q4	1
	QS-6	100	60 ... 100	165	150 ... 180		★ 8068746	VFOE-LS-T-M7-Q6	1
G1/8	QS-4	165	90 ... 165	260	240 ... 300	9.5	★ 8068747	VFOE-LS-T-G18-Q4	1
	QS-6	170	110 ... 200	270	300 ... 360		★ 8068748	VFOE-LS-T-G18-Q6	1
	QS-8	170	130 ... 200	270	320 ... 390		★ 8068749	VFOE-LS-T-G18-Q8	1
	QS-4	165	90 ... 165	260	240 ... 300		9.5	★ 8068750	VFOE-LS-T-R18-Q4
R1/8	QS-6	170	110 ... 200	270	300 ... 360			★ 8068751	VFOE-LS-T-R18-Q6
	QS-8	170	130 ... 200	270	320 ... 390		★ 8068752	VFOE-LS-T-R18-Q8	1

1) Packaging unit