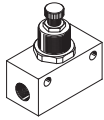
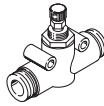


One-way flow control valves GR/GRA, in-line installation

FESTO



Product range overview

Product range overview									
Design	Valve function	Design	Type	Outlet direction of connection	Pneumatic connection 1	Pneumatic connection 2	q _N ¹⁾ [l/min]	Adjusting element	→ Page/ Internet
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	4
	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	11

1) Standard nominal flow rate in flow control direction.

Type codes

001	Series	
GR	One-way flow control valve	
GRA	One-way flow control valve	

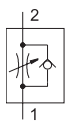
002	Pneumatic connection	
M3	Male thread M3	
M5	Male thread M5	
1/8	Male thread G1/8	
1/4	Male thread G1/4	
3/8	Male thread G3/8	
1/2	Male thread G1/2	
3/4	Male thread G3/4	
QS-3	Push-in connector 3 mm	
QS-4	Push-in connector 4 mm	
QS-6	Push-in connector 6 mm	
QS-8	Push-in connector 8 mm	

003	Number of one-way flow control valves	
	1 valve	
X2	2 valves	

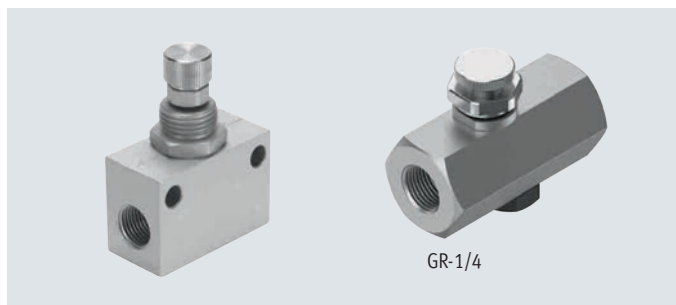
004	Generation	
	None	
B	Series B	

Datasheet – Female thread, metal

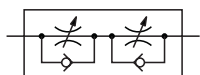
One-way flow control valve GR/GRA



-  - Flow rate
29.5 ... 3300 l/min
-  - Temperature range
–20 ... +75°C
-  - Operating pressure
0.1 ... 15 bar



One-way flow control valve GR...X2



-  - Flow rate
95 ... 205 l/min
-  - Temperature range
–20 ... +60°C
-  - Operating pressure
0.5 ... 10 bar



Two one-way flow control valves are combined in a housing. This allows the flow and return speed to be set separately for single- or double-acting compact cylinders, for example.

General technical data

Type	GR-M3	GR-M5-B, GR-M5X2-B	GR-1/8-B, GR-1/8X2-B	GR-1/4	GRA-1/4-B	GR-3/8-B	GR-1/2	GR-3/4
Pneumatic connection 1, 2	M3	M5	G1/8	G1/4	G1/4	G3/8	G1/2	G3/4
Valve function	One-way flow control function							
Adjusting element	Knurled screw							
Type of mounting	Through-hole			–	Through-hole			
	Front panel mounting			–	Front panel mounting			
	–			In-line installation	–			
Mounting position	Any							

–  - Note: This product conforms to ISO 1179-1 and ISO 228-1

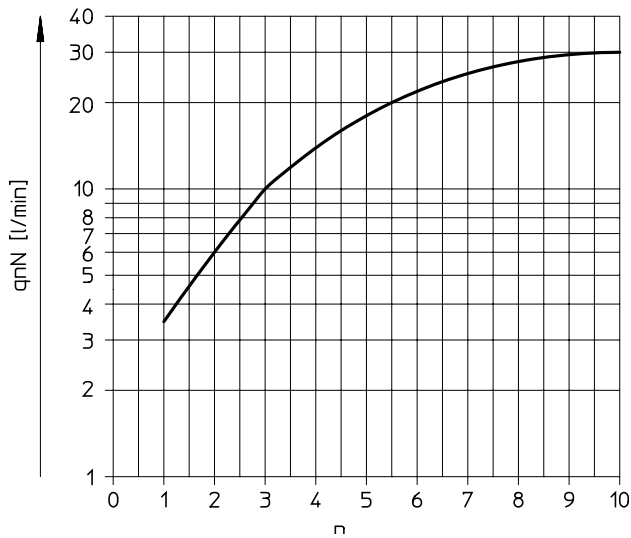
Operating and environmental conditions

Type	GR-M3	GR-M5-B, GR-M5X2-B	GR-1/8-B, GR-1/8X2-B	GR-1/4	GRA-1/4-B	GR-3/8-B	GR-1/2	GR-3/4
Operating pressure [bar]	0.3 ... 8	0.5 ... 10			0.1 ... 10			0.3 ... 15
Operating medium	Compressed air to ISO 8573-1:2010							
	[6:4:4]	[7:4:4]		[7:–:–]	[7:4:4]		[7:–:–]	
Note on the operating/ pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)							
Ambient temperature [°C]	–10 ... +60	–20 ... +60		–20 ... +75				–10 ... +60
Temperature of medium [°C]	–10 ... +60	–20 ... +60		–20 ... +75				–10 ... +60
Storage temperature [°C]	–10 ... +40	–20 ... +40		–20 ... +75				–10 ... +60

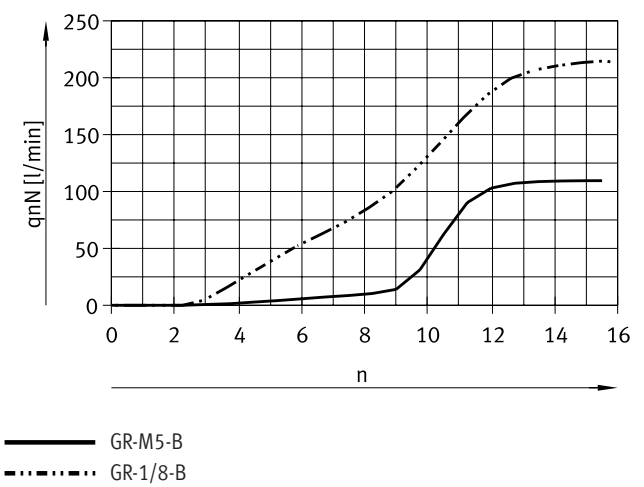
Datasheet – Female thread, metal

Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n

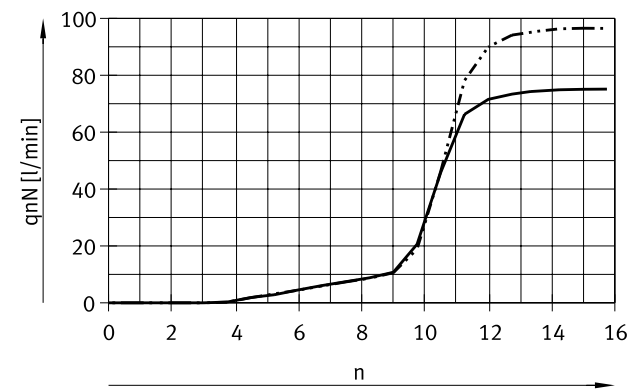
GR-M3



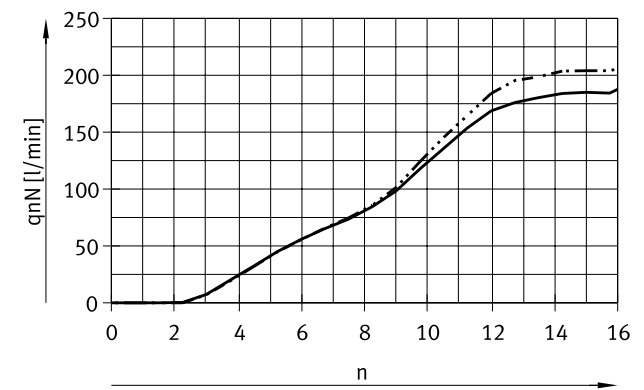
GR-M5-B, GR-1/8-B



GR-M5X2-B



GR-1/8X2-B



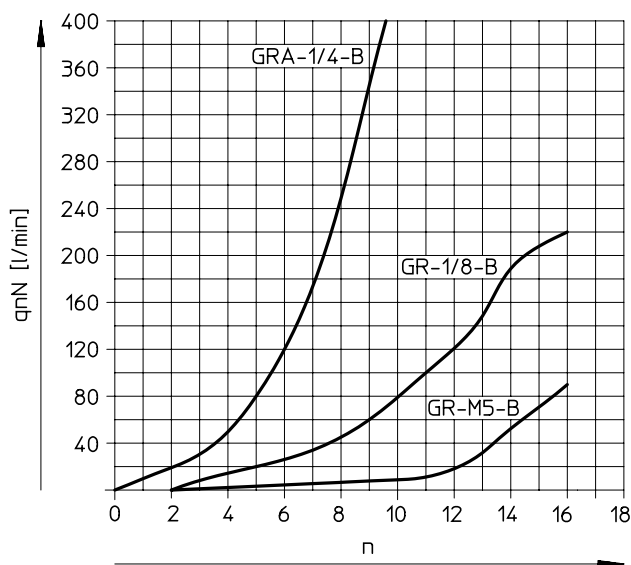
— GR-M5X2-B (adjusting screw closed)
 GR-M5X2-B (adjusting screw open)

— GR-1/8X2-B (adjusting screw closed)
 GR-1/8X2-B (adjusting screw open)

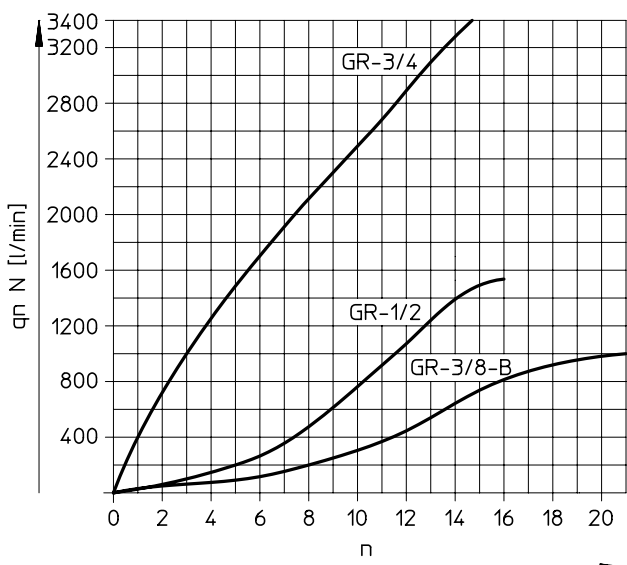
Datasheet – Female thread, metal

Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n

GRA-1/4-B, GR-1/8-B, GR-M5-B

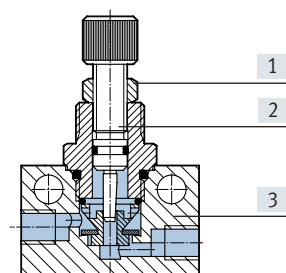


GR-3/8-B, GR-1/2, GR-3/4



Materials

Sectional view



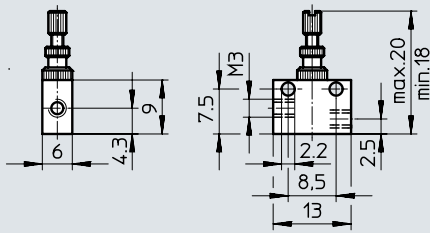
One-way flow control valve		
[1]	Nut	GR-M5-B, GR-M5X2-B, GR-1/8-B, GR-1/8X2-B: Wrought aluminium alloy GR-1/4, GRA-1/4-B, GR-3/8-B, GR-1/2, GR-3/4: Steel
[2]	Adjusting screw	GR-M3, GRA-1/4-B, GR-3/8-B, GR-1/2, GR-3/4: Brass GR-M5-B, GR-M5X2-B, GR-1/8-B, GR-1/8X2-B: High-alloy steel GR-1/4: Galvanised steel
[3]	Housing	GR-M3, GR-M5-B, GR-M5X2-B, GR-1/8-B, GR-1/8X2-B, GR-1/4, GR-3/4: Wrought aluminium alloy GRA-1/4-B, GR-3/8-B, GR-1/2: Die-cast zinc
-	Seals	NBR
Note on materials		RoHS-compliant

Datasheet – Female thread, metal

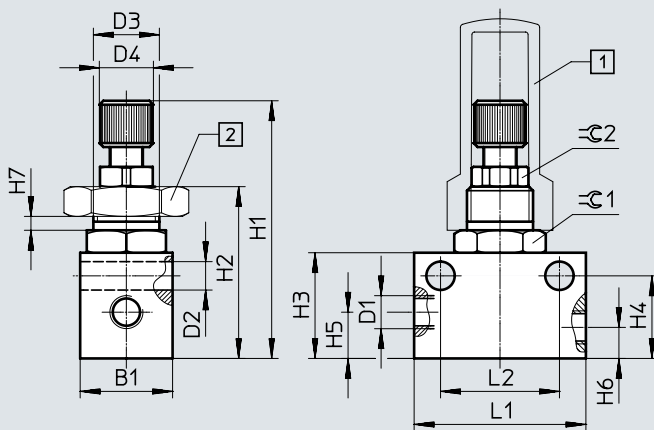
Dimensions

Download CAD data → www.festo.com

GR-M3



GR-M5-B, GR-1/8-B



- [1] Cover cap GRK → 15
- [2] Hex nut GRM → 15

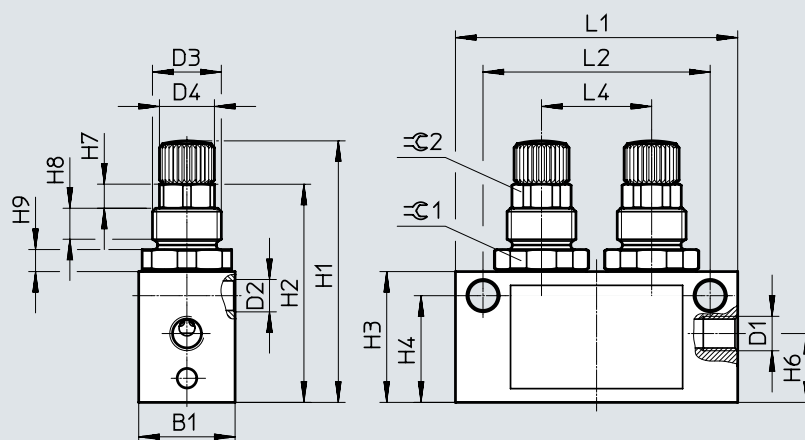
Note: This product conforms to ISO 1179-1 and ISO 228-1

Type	Connection D1	B1	D2 Ø	D3	D4	H1		H2	H3	H4	H5	H6	H7 max.	L1	L2 ±0.1	≅ 1	≅ 2
						min.	max.										
GR-M5-B	M5	14	4.3	M10x1	8	35	41	25.2	16	12.5	7	4.7	2.5	26	18	13	8
GR-1/8-B	G1/8	16	4.3	M12x1	8	40.6	46.5	30.8	22	17.5	9.2	9	3.5	32	24	14	8

Datasheet – Female thread, metal

Dimensions

GR-M5X2-B

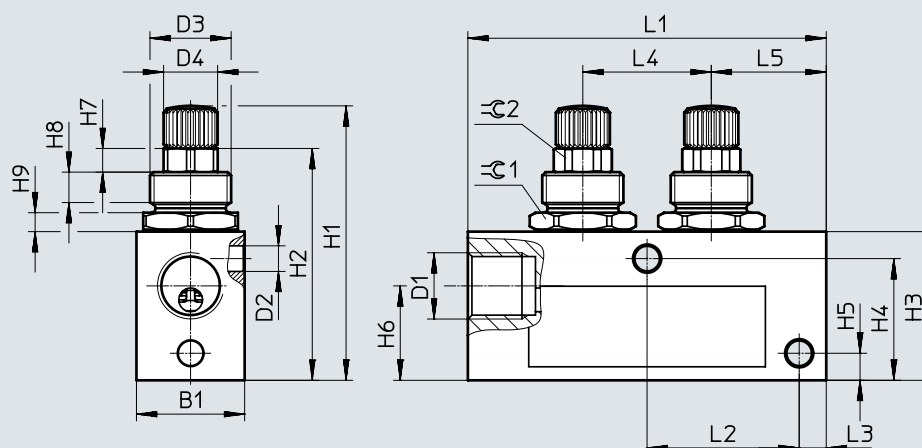
Download CAD data → www.festo.com


- Note: This product conforms to ISO 1179-1 and ISO 228-1

Cover cap GRK → 15

Hex nut GRM → 15

GR-1/8X2-B



- Note: This product conforms to ISO 1179-1 and ISO 228-1

Cover cap GRK → 15

Hex nut GRM → 15

Type	Connection D1	B1	D2 ø	D3	D4 ø	H1		H2	H3	H4	H5
						min.	max.				
GR-M5X2-B	M5	14	4.7 ^{+0.1}	M10x1	8	38	43.5	31.7	19	15.5	–
GR-1/8X2-B	G1/8	16	3.8 ^{+0.1}	M12x1	8	40.6	46.2	34.3	22	18	4

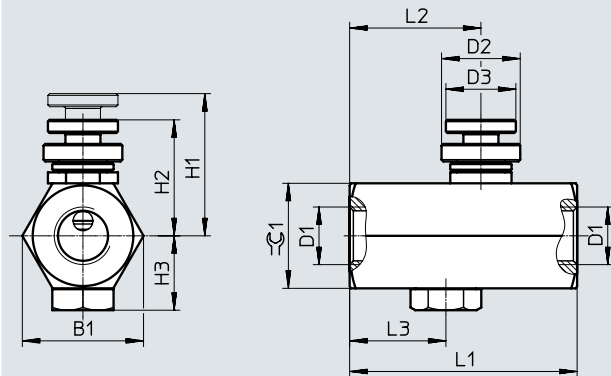
Type	H6	H7	H8	H9	L1	L2	L3	L4	L5	≙ 1	≙ 2
GR-M5X2-B	10	3.5	4.5	3.2	41 ^{+0.5}	33 ^{+0.2}	–	16 ^{+0.2}	–	13	8
GR-1/8X2-B	14	3.5	4.5	2.8	53 ^{+0.5}	22.5 ^{±0.15}	4	19 ^{±0.15}	17	14	8

Datasheet – Female thread, metal

Dimensions

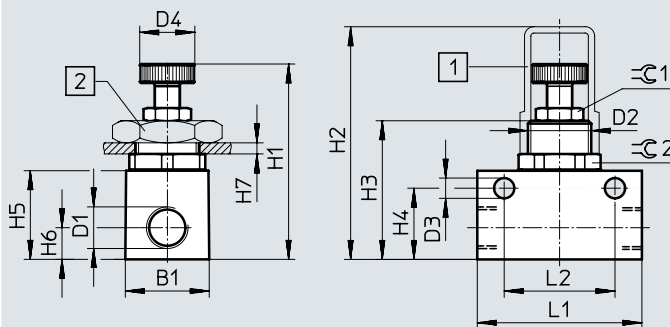
Download CAD data → www.festo.com

GR-1/4



Type	Connection D1	B1	D2 ø	D3 ø	H1	H2	H3	L1	L2	L3	≈ 1
GR-1/4	G1/4	28	18	16	32.5	26.5	17	52	30	22	24

GRA-1/4-B

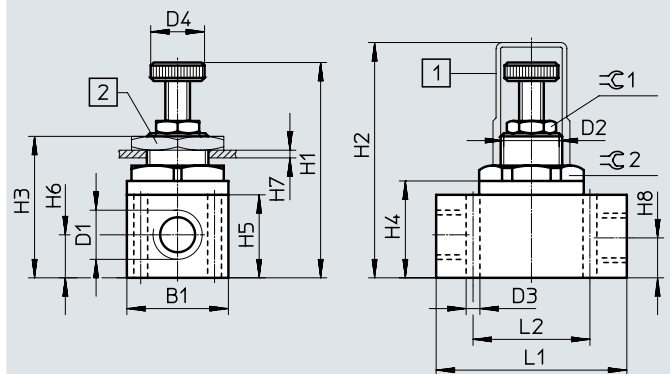


Note: This product conforms to ISO 1179-1 and ISO 228-1

[1] Cover cap GRK → 15

[2] Hex nut GRM → 15

GR-3/8-B



[1] Cover cap GRK → 15

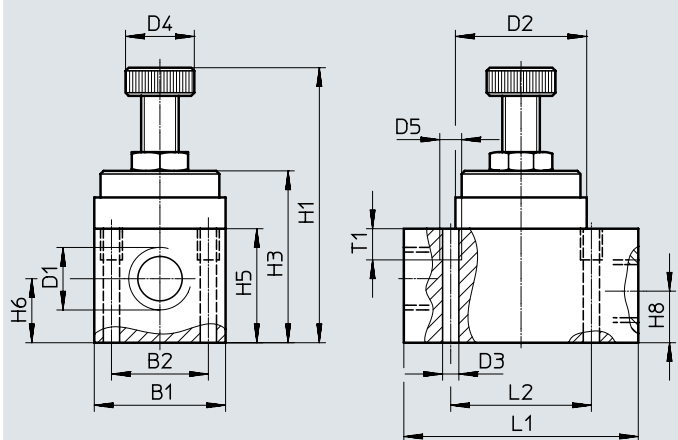
[2] Hex nut GRM → 15

Type	Connection D1	B1	D2	D3 ø	D4 ø	H1		H2	H3	H4	H5	H6	H7 max.	H8	L1	L2	≈ 1	≈ 2
						min.	max.											
GRA-1/4-B	G1/4	26.5	M20x1.5	6.4	17.4	56	62	73.5	44	22.5	28	10	3.5	–	52	35 ±0.1	13	24
GR-3/8-B	G3/8	33	M20x1.5	4.5	17.5	62.5	74	76.5	46	31.5	27	14	3.5	13	62	38	13	30

Datasheet – Female thread, metal

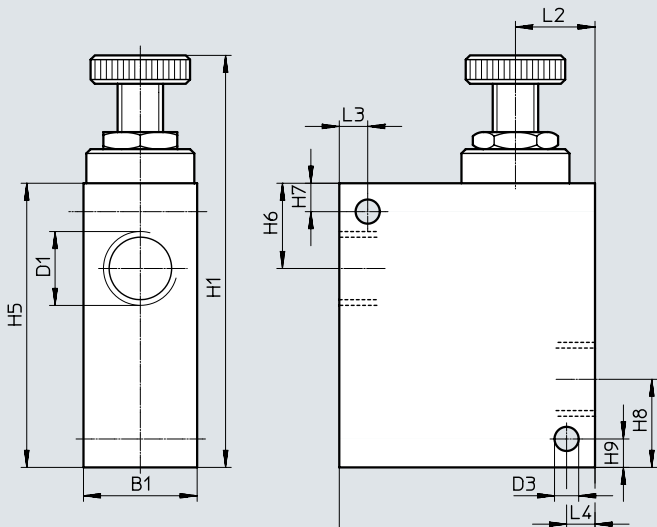
Dimensions

GR-1/2



- Note: This product conforms to ISO 1179-1 and ISO 228-1

GR-3/4



- Note: This product conforms to ISO 1179-1 and ISO 228-1

Download CAD data → www.festo.com

Type	B1	B2	D1	D2 ø	D3 ø	D4 ø	D5	H1	H3	H5	H6	H7	H8	H9	L1	L2	L3	L4	T1
GR-1/2	42	31	G1/2	42	2	22	M6	88	55	36.5	20.5	–	16.5	–	75	45	–	–	10
GR-3/4	40	–	G3/4	–	8.5	–	–	145	–	100	30	10	30	10	90	28	10	10	–

Ordering data – One-way flow control function

Pneumatic connection		Standard nominal flow rate qnN At 6 → 5 bar		Standard flow rate qn At 6 → 0 bar		Weight [g]	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]			

Knurled screw

	M3	M3	29.5	26 ... 27.5	–	–	2.5	15899	GR-M3
	M5	M5	115	130 ... 137	–	–	19	151213	GR-M5-B
	G1/8	G1/8	210	180 ... 275	–	–	31	151215	GR-1/8-B
	G1/4	G1/4	420	780	–	–	180	6509	GRA-1/4-B
	G3/8	G3/8	1010	1150	–	–	225	6308	GR-3/8-B
	G1/2	G1/2	1620	2760	–	–	517	3720	GR-1/2
	G3/4	G3/4	3300	4800 ¹⁾	–	–	938	2103	GR-3/4
	G1/4	G1/4	370	150	570	340	80	2101	GR-1/4
	M5	M5	95	75	–	–	37	152611	GR-M5X2-B
	G1/8	G1/8	205	190	–	–	54	152612	GR-1/8X2-B

1) Measurement with adjusting screw open

Datasheet – Push-in connector QS, polymer

One-way flow control valve GR

-  - Flow rate
85 ... 265 l/min
-  - Temperature range
-10 ... +60°C
-  - Operating pressure
0.2 ... 10 bar

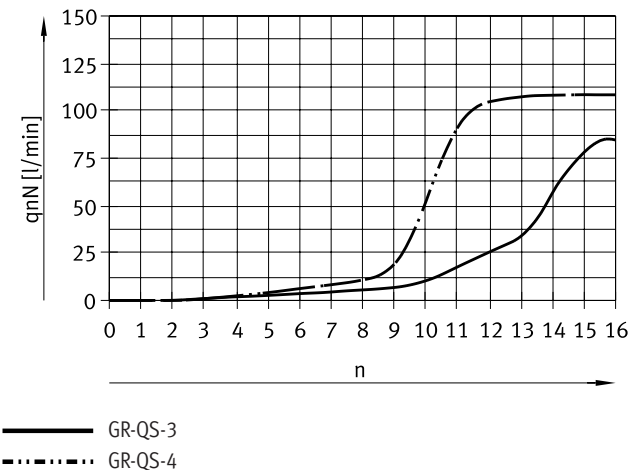


General technical data				
Pneumatic connection 2	QS-3	QS-4	QS-6	QS-8
Pneumatic connection 1	QS-3	QS-4	QS-6	QS-8
Valve function	One-way flow control function			
Adjusting element	Knurled screw			
Type of mounting	Through-hole			
	Front panel mounting			
	With accessories			
Mounting position	Any			
Operating and environmental conditions				
Operating pressure	[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]	−10 ... +60		
Temperature of medium	[°C]	−10 ... +60		
Storage temperature	[°C]	−10 ... +40		

Datasheet – Push-in connector QS, polymer

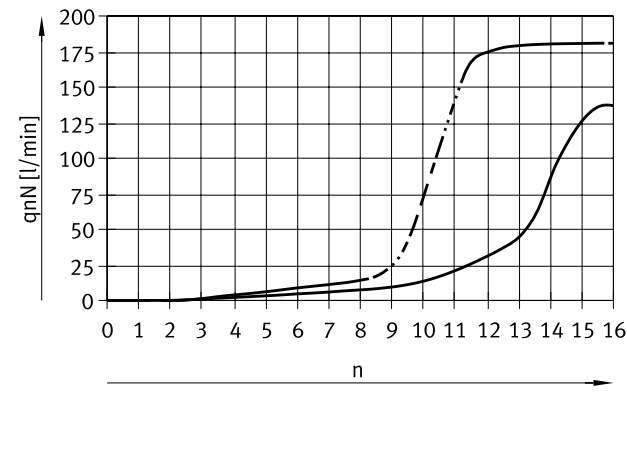
Standard nominal flow rate q_{nN} at 6 → 5 bar
as a function of spindle rotations n

GR-QS-3, GR-QS-4

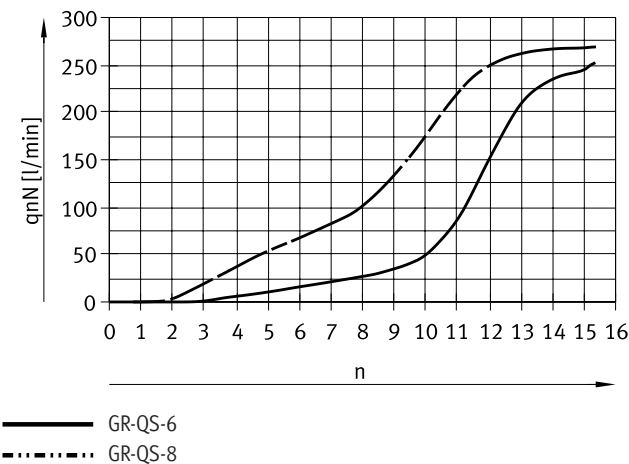


Standard flow rate q_n at 6 → 0 bar
as a function of spindle rotations n

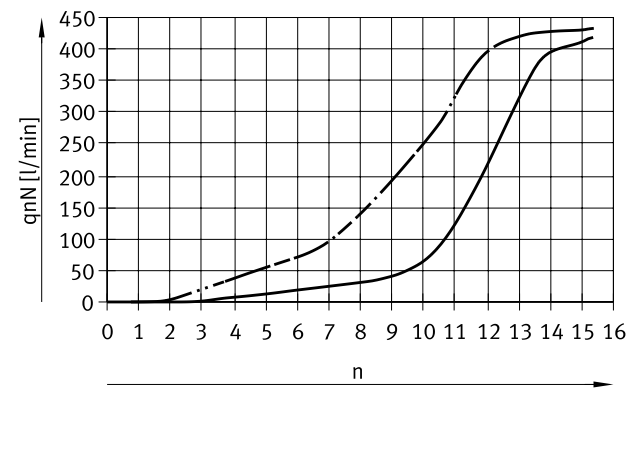
GR-QS-3, GR-QS-4



GR-QS-6, GR-QS-8

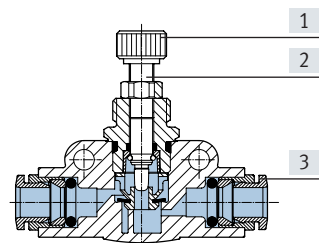


GR-QS-6, GR-QS-8



Materials

Sectional view



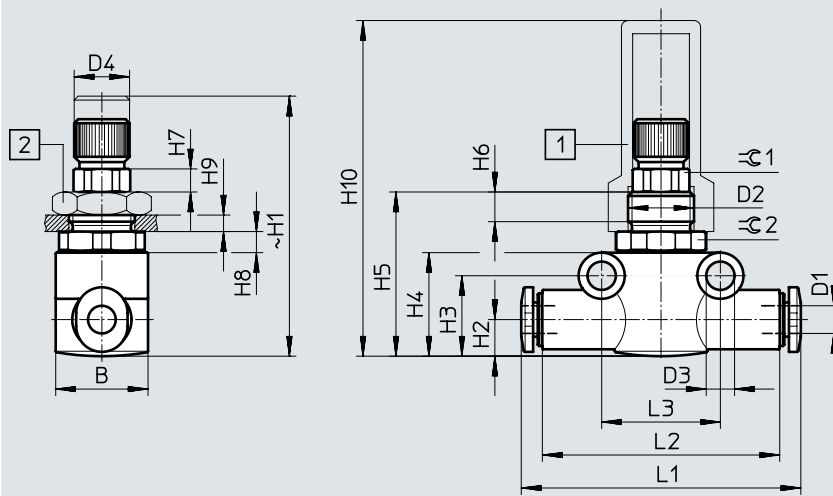
One-way flow control valve		
[1]	Knurled head	Reinforced PA
[2]	Adjusting screw	High-alloy steel
[3]	Releasing ring	POM
–	Seals	NBR
Note on materials		RoHS-compliant

Datasheet – Push-in connector QS, polymer

Dimensions

Download CAD data → www.festo.com

Knurled screw



[1] Cover cap GRK → 15

[2] Hex nut GRM → 15

Type	Tubing O.D. D1	B	D2	D3 Ø	D4 Ø	H1		H2	H3	H4
						min.	max.			
GR-QS-3	3	14	M10x1	4.3 ±0.1	7.9 -0.3	35	41.5	5.55	12.2	15.7
GR-QS-4	4	14	M10x1	4.3 ±0.1	7.9 -0.3	35	41.5	5.55	12.2	15.7
GR-QS-6	6	16	M12x1	4.3 ±0.1	7.9 -0.3	40	46	8.4	17.3	21.3
GR-QS-8	8	16	M12x1	4.3 ±0.1	7.9 -0.3	40	46	8.4	17.3	21.3

Type	H5	H6	H7	H8	H9 max.	H10	L1	L2	L3	≈ 1	≈ 2
GR-QS-3	24.9	4.5	3.5	3.2	2.5	50.9	41.8	36	18	8	13
GR-QS-4	24.9			3.2	2.5	50.9	42.4	36	18		13
GR-QS-6	30.1			2.8	3.5	46.1	51.6	43	24		14
GR-QS-8	30.1			2.8	3.5	46.1	53.4	43	24		14

Ordering data – One-way flow control function

	Pneumatic Connection		Standard nominal flow rate qnN at 6 → 5 bar		Weight [g]	Part no.	Type
			In flow control direction	In non-return direction			
	2	1	[l/min]	[l/min]			

Knurled screw

	QS-3	QS-3	85	120	12	193965	GR-QS-3
	QS-4	QS-4	110	165	12	193967	GR-QS-4
	QS-6	QS-6	245	430	22	193969	GR-QS-6
	QS-8	QS-8	265	500	23	193970	GR-QS-8

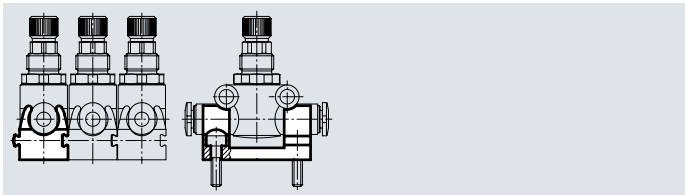
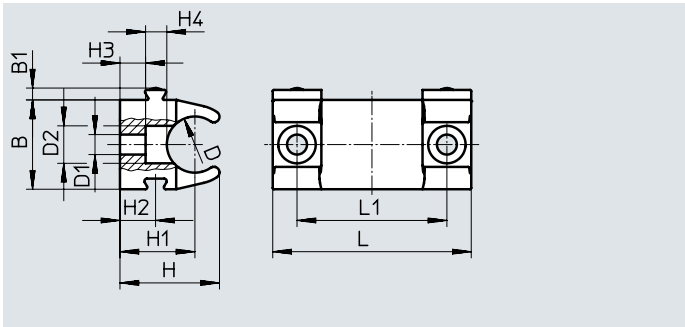
Accessories

Retaining bracket GR-H

For mounting one-way flow control valves GR with push-in connector QS on a level surface. The valve is snapped into the retaining bracket. It can be mounted in any position.

Material: POM
Free of copper and PTFE

Linking multiple retaining brackets via dovetail slot



Dimensions and ordering data								
For type	B	B1	D Ø	D1 Ø	D2 Ø	H	H1	H2
GR-QS-3, GR-QS-4	14.3	1.9	9	3.2	6	16	12	5.7
GR-QS-6, GR-QS-8	19.8	1.9	14.5	3.2	6	19.2	13	5.7

For type	H3	H4	L	L1	Weight [g]	Part no.	Type
GR-QS-3, GR-QS-4	4.1	3.4	31.8	24	4	195495	GR-H-QS-3-4
GR-QS-6, GR-QS-8	2.3	3.4	31.8	24	5	195496	GR-H-QS-6-8

Accessories

Hex nut GRM

For front panel mounting

Material: Steel



Ordering data			
For type	Description	Part no.	Type
GR-M5-B, GR-M5X2-B, GR-QS-3, GR-QS-4	M10x1 thread	6444	GRM-M5
GR-1/8-B, GR-1/8X2-B, GR-QS-6, GR-QS-8	M12x1 thread	2107	GRM-1/8
GRA-1/4-B, GR-3/8-B	M20x1.5 thread	204596	GRM-3/8

Cover cap GRK

Material: PP



Ordering data			
For type	Description	Part no.	Type
GR-M5-B, GR-M5X2-B, GR-QS-3, GR-QS-4	M10x1 thread	6436	GRK-M5
GR-1/8-B, GR-1/8X2-B, GR-QS-6, GR-QS-8	M12x1 thread	2105	GRK-1/8
GRA-1/4-B, GR-3/8-B	M20x1.5 thread	6309	GRK-3/8-B

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