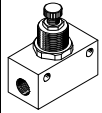



One-way flow control valves GR/GRA, in-line installation



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

Product range overview and type codes

Product range overview									
Version	Valve function	Version	Type	Connection direction	Pneumatic connection 1	Pneumatic connection 2	qnN ¹⁾ [l/min]	Adjustment component	→ Page/ Internet
In-line installation	Metal		GR/GRA	Inline	M3, M5, G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	M3, M5, G ¹ / ₈ , G ¹ / ₄ , G ³ / ₈ , G ¹ / ₂ , G ³ / ₄	29.5 ... 3,300	Knurled screw	3
	One-way flow control function								
In-line installation	Polymer		GR	Inline	QS-3, QS-4, QS-6, QS-8	QS-3, QS-4, QS-6, QS-8	85 ... 265	Knurled screw	11
	One-way flow control function								

1) Standard nominal flow rate in direction of flow control.

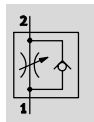
Type codes

GR	-	QS-4	-		-	
Type						
GR	One-way flow control valve, in-line installation					
GRA	One-way flow control valve, in-line installation					
Pneumatic connection 1 and 2						
M3	Female thread M3					
M5	Female thread M5					
1/8	Female thread G ¹ / ₈					
1/4	Female thread G ¹ / ₄					
3/8	Female thread G ³ / ₈					
1/2	Female thread G ¹ / ₂					
3/4	Female thread G ³ / ₄					
QS-3	Push-in connector for tubing O.D. 3 mm					
QS-4	Push-in connector for tubing O.D. 4 mm					
QS-6	Push-in connector for tubing O.D. 6 mm					
QS-8	Push-in connector for tubing O.D. 8 mm					
Number of valves						
X2	2 one-way flow control valves in one housing					
Generation						
B	B series					

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

Technical data – Female thread, metal

One-way flow control valve GR/GRA

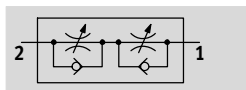


- - Flow rate
29.5 ... 3300 l/min
- - Temperature range
-20 ... +75 °C
- - Operating pressure
0.1 ... 15 bar



GR-1/4

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								
Valve function	One-way flow control function							
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
Adjusting element	Knurled screw							
Type of mounting	Through-hole			-		Through-hole		
	Front panel mounting			-		Front panel mounting		
Mounting position	-			In-line installation		-		
	Any							

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

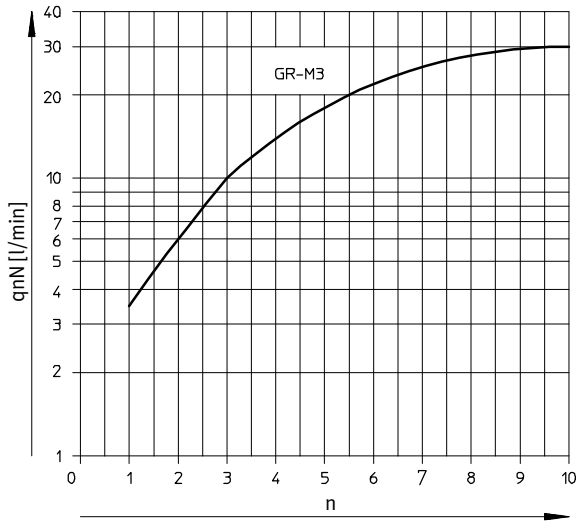
Operating and environmental conditions								
Type	GR-M3	GR-M5-B, GR-M5X2-B	GR-1/8-B, GR-1/8X2-B	GR-1/4	GRA-1/4-B	GR-3/8-B	GR-1/2	GR-3/4
Operating pressure [bar]	0.3 ... 8	0.5 ... 10			0.1 ... 10		0.3 ... 15	
Operating medium	Compressed air to ISO 8573-1:2010							
Note on operating/pilot medium	Lubricated 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		

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

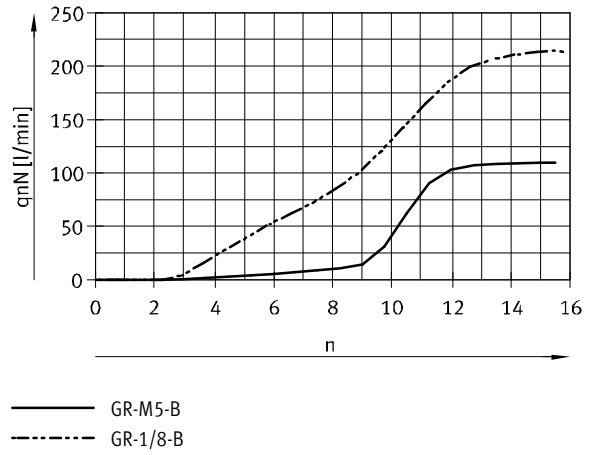
Technical data – Female thread, metal

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

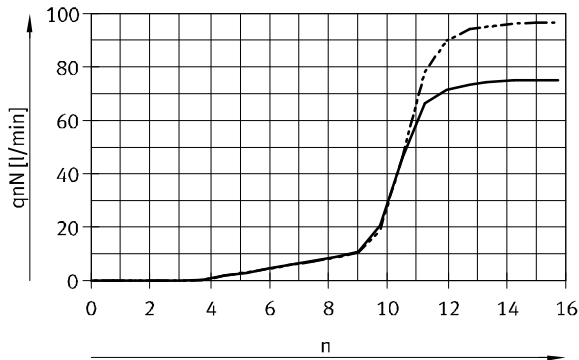
GR-M3



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

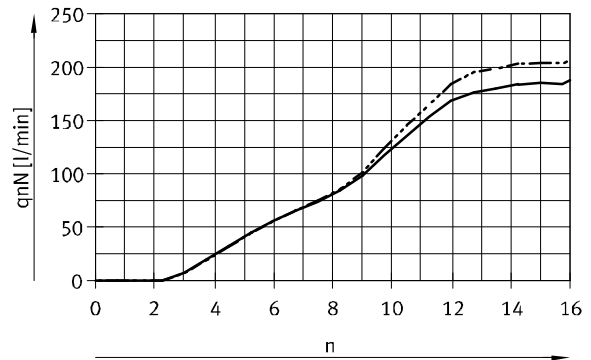


GR-M5X2-B



- GR-M5X2-B (Regulating screw closed)
- - - GR-M5X2-B (Regulating screw open)

GR-1/8X2-B



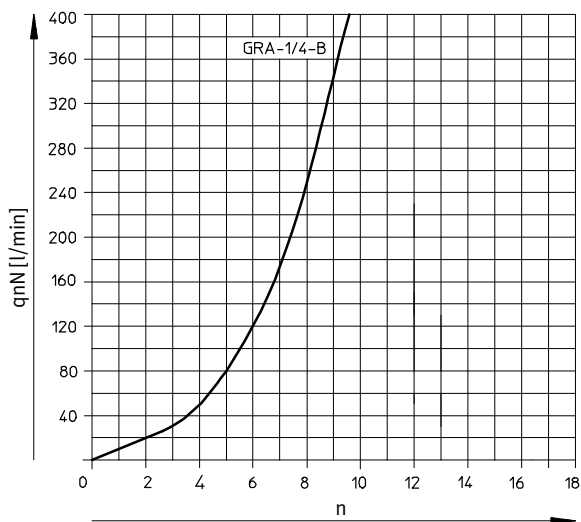
- GR-1/8X2-B (Regulating screw closed)
- - - GR-1/8X2-B (Regulating screw open)

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

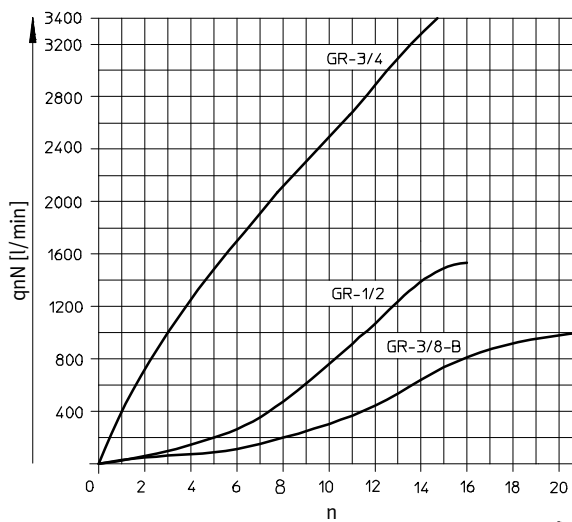
Technical data – Female thread, metal

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

GRA-1/4-B

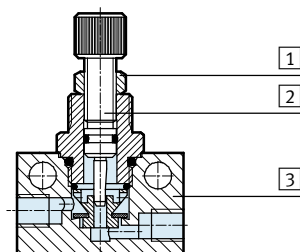


GR-3/8-B, GR-1/2, GR-3/4



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	Regulating 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	Nitrile rubber
Note on materials		RoHS compliant

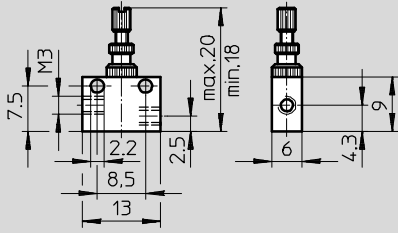
One-way flow control valves GR/GRA, in-line installation

Technical data – Female thread, metal

Dimensions

Download CAD data → www.festo.com

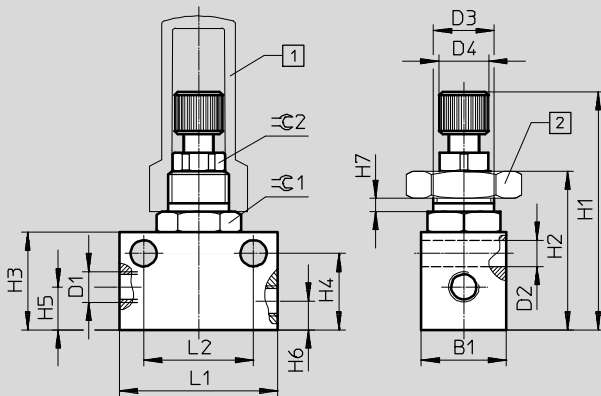
GR-M3



Dimensions

Download CAD data → www.festo.com

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



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

- 1 Cover cap GRK → 10
- 2 Hex nut GRM → 10

Type	Connection D1	B1	D2 Ø	D3	D4	H1		H2	H3	H4	H5	H6	H7 max.	L1	L2 ±0.1	≈C 1	≈C 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

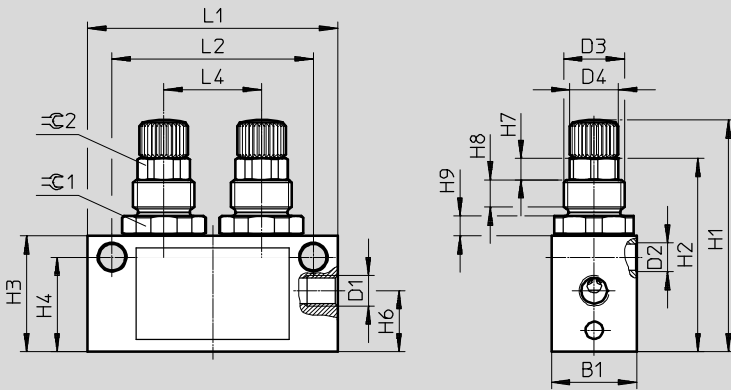
One-way flow control valves GR/GRA, in-line installation

Technical data – Female thread, metal

Dimensions

Download CAD data → www.festo.com

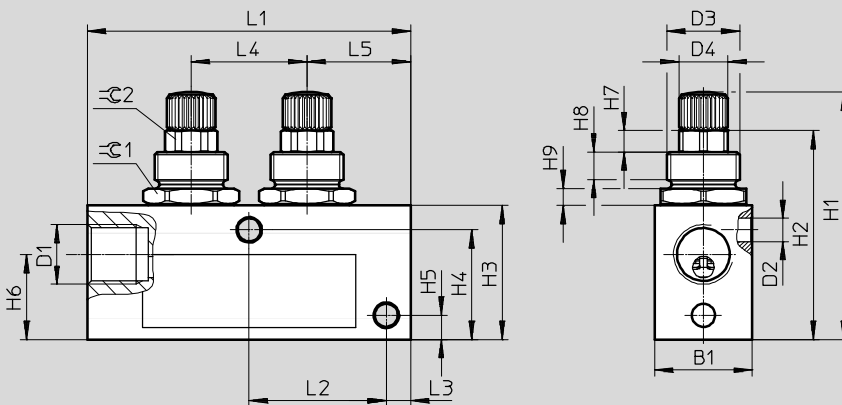
GR-M5X2-B



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

Cover cap GRK → 10
Hex nut GRM → 10

GR-1/8X2-B



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

Cover cap GRK → 10
Hex nut GRM → 10

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

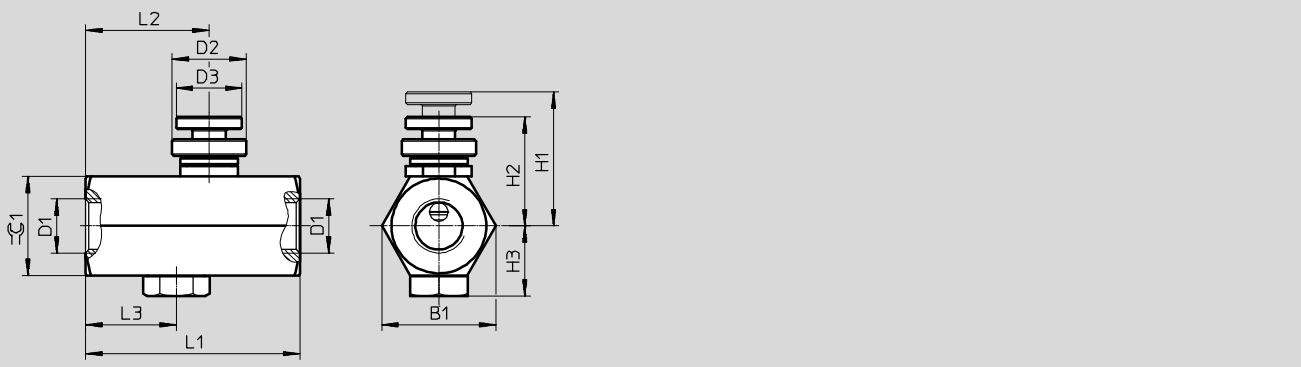
One-way flow control valves GR/GRA, in-line installation

Technical data – Female thread, metal

Dimensions

Download CAD data → www.festo.com

GR-1/4



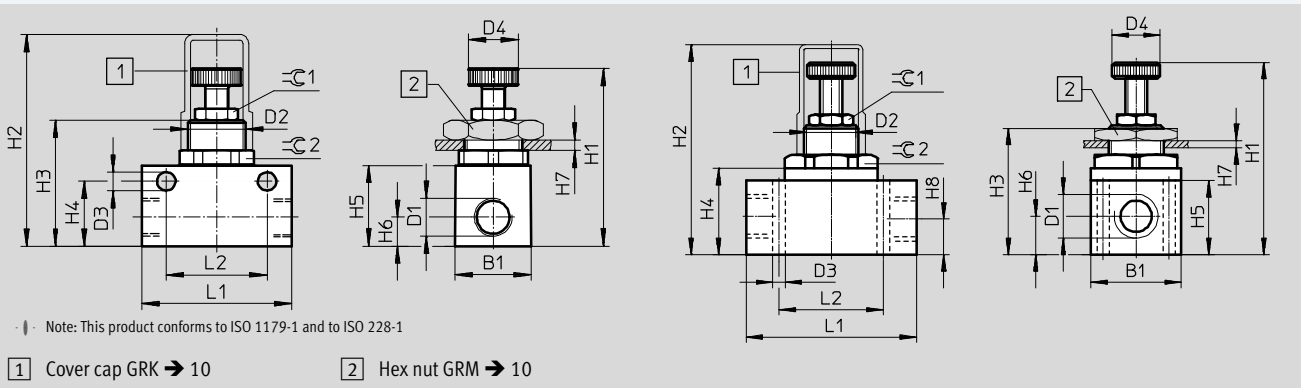
Type	Connection D1	B1	D2 ∅	D3 ∅	H1	H2	H3	L1	L2	L3	∅ 1
GR-1/4	G1/4	28	18	16	32.5	26.5	17	52	30	22	24

Dimensions

Download CAD data → www.festo.com

GRA-1/4-B

GR-3/8-B



Type	Connection D1	B1	D2	D3 ∅	D4 ∅	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

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

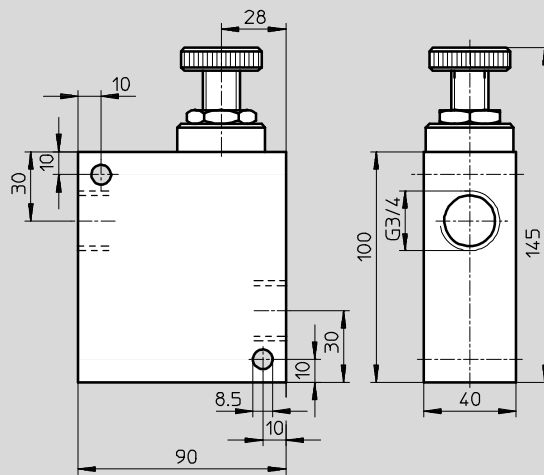
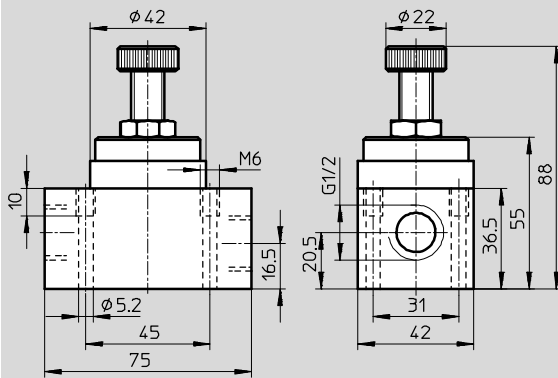
Technical data – Female thread, metal

Dimensions

Download CAD data → www.festo.com

GR-1/2

GR-3/4



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

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

Ordering data – One-way flow control function

Pneumatic connection	Standard nominal flow rate q _{nN} at 6 bar → 5 bar		Standard flow rate q _n at 6 bar → 0 bar		Weight [g]	Part No.	Type	
	In direction of flow control [l/min]	In non-return direction [l/min]	In direction of flow control [l/min]	In non-return direction [l/min]				
2	1							
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	–	–	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

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

Accessories

Hex nut GRM

For front panel mounting

Material: Steel



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

Cover cap GRK

Material: PP

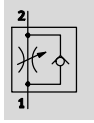





Ordering data			
For type	Description	Part No.	Type
GR-M5-B, GR-M5X2-B	Thread M10x1	6436	GRK-M5
GR-1/8-B, GR-1/8X2-B	Thread M12x1	2105	GRK-1/8
GRA-1/4-B, GR-3/8-B	Thread M20x1.5	6309	GRK-3/8-B

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

Technical data – 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



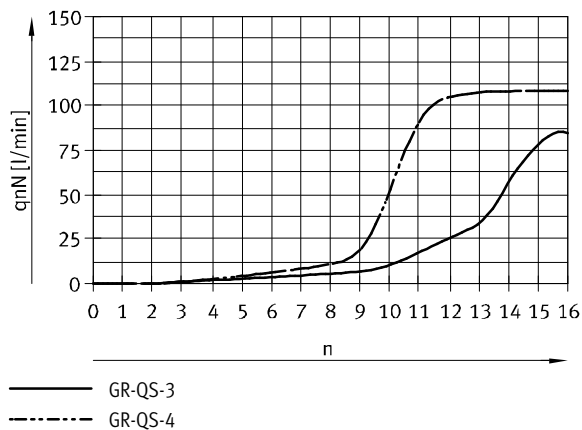
General technical data				
Valve function	One-way flow control function			
Pneumatic connection 2	QS-3	QS-4	QS-6	QS-8
Pneumatic connection 1	QS-3	QS-4	QS-6	QS-8
Adjustment component	Knurled screw			
Type of mounting	Via through-hole			
	Front panel mounting			
	Via accessories			
Mounting position	Any			

Operating and environmental conditions	
Operating pressure [bar]	0.2 ... 10
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium 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

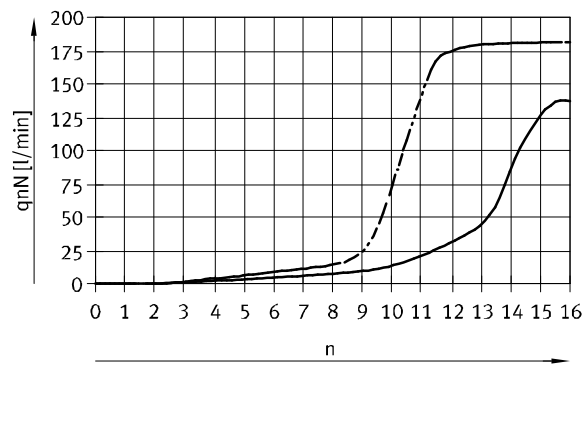
One-way flow control valves GR, in-line installation

Technical data – Push-in connector QS, polymer

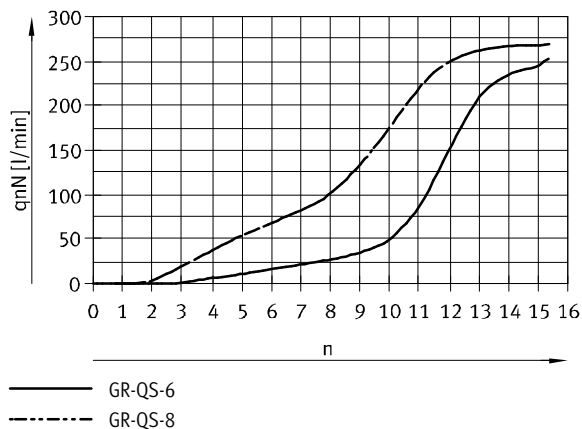
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of turns of the adjusting screw n
GR-QS-3, GR-QS-4



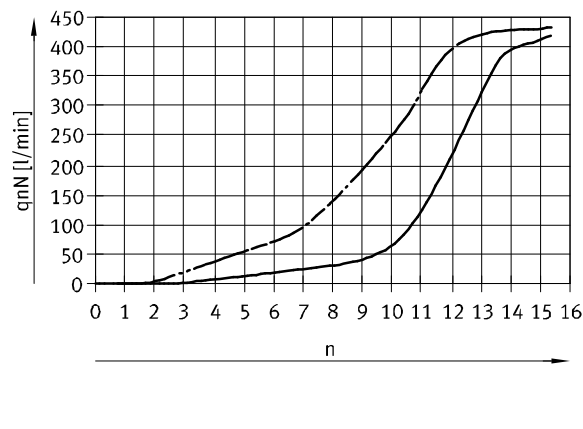
Standard flow rate q_n at 6 → 0 bar as a function of turns of the adjusting screw n
GR-QS-3, GR-QS-4



GR-QS-6, GR-QS-8

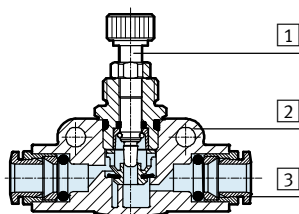


GR-QS-6, GR-QS-8



Materials

Sectional view



One-way flow control valve		
1	Adjusting screw	High-alloy steel
2	Housing	PA, reinforced
3	Releasing ring	POM
-	Seals	NBR
Note on materials		RoHS-compliant

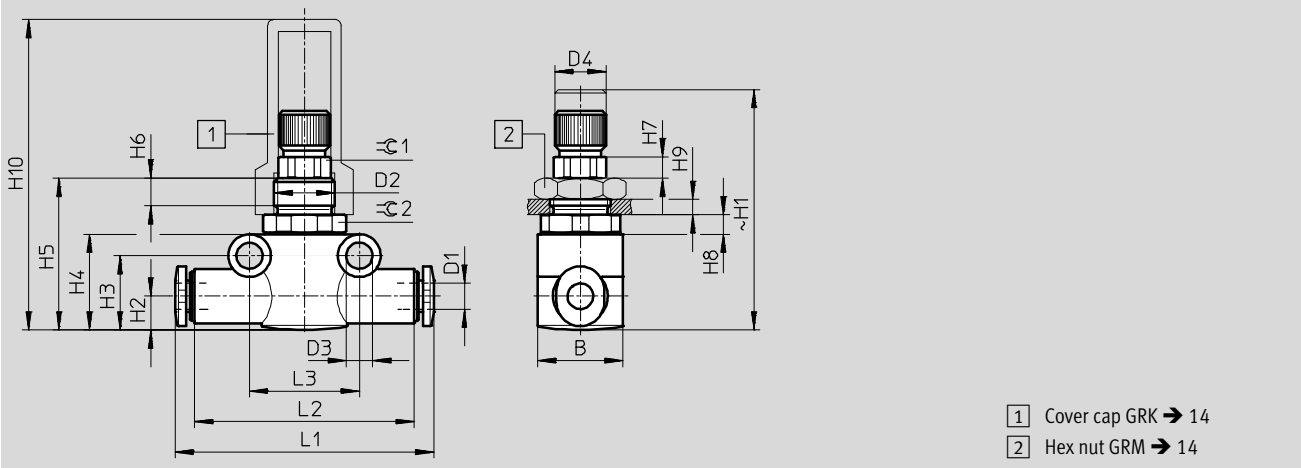
One-way flow control valves GR, in-line installation

Technical data – Push-in connector QS, polymer

Dimensions

Download CAD data → www.festo.com

Knurled screw



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
	2	1	in direction of flow control	in non-return direction			
			[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

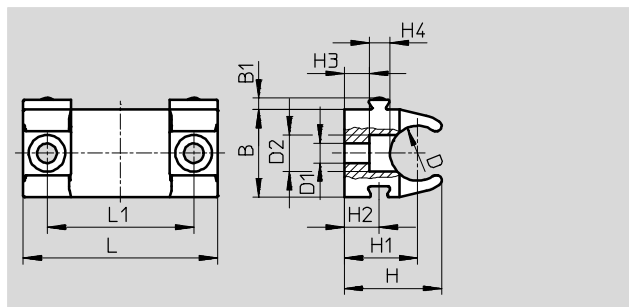
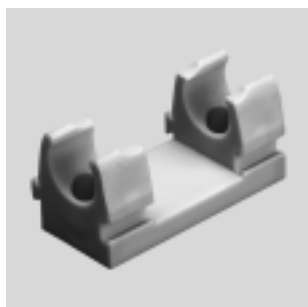
One-way flow control valves GR, in-line installation

Accessories

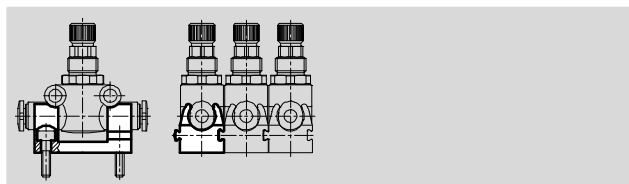
Retainer GR-H

For mounting on a flat surface via M3 screws. The one-way flow control valve is snapped into the retainer. The retainer can be fitted in any position.

Material: POM
Free of copper and PTFE



Linking of multiple retainers via dovetail slot



Dimensions and ordering data								
For type	B	B1	D	D1	D2	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

Hex nut GRM

For front panel mounting

Material: Steel



Ordering data			
For type	Description	Part No.	Type
GR-QS-3, GR-QS-4	Thread M10x1	6444	GRM-M5
GR-QS-6, GR-QS-8	Thread M12x1	2107	GRM-1/8

Cover cap GRK

Material: PP



Ordering data			
For type	Description	Part No.	Type
GR-QS-3, GR-QS-4	Thread M10x1	6436	GRK-M5
GR-QS-6, GR-QS-8	Thread M12x1	2105	GRK-1/8