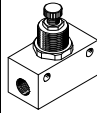



**One-way flow control valves GR/GRA, in-line installation**



# 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 <sup>1)</sup> [l/min]	Adjustment component	→ Page/ Internet
In-line installation	<b>Metal</b>								
	One-way flow control function		GR/GRA	Inline	M3, M5, G <sup>1</sup> / <sub>8</sub> , G <sup>1</sup> / <sub>4</sub> , G <sup>3</sup> / <sub>8</sub> , G <sup>1</sup> / <sub>2</sub> , G <sup>3</sup> / <sub>4</sub>	M3, M5, G <sup>1</sup> / <sub>8</sub> , G <sup>1</sup> / <sub>4</sub> , G <sup>3</sup> / <sub>8</sub> , G <sup>1</sup> / <sub>2</sub> , G <sup>3</sup> / <sub>4</sub>	29.5 ... 3,300	Knurled screw	3
In-line installation	<b>Polymer</b>								
	One-way flow control function		GR	Inline	QS-3, QS-4, QS-6, QS-8	QS-3, QS-4, QS-6, QS-8	85 ... 250	Knurled screw	11

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

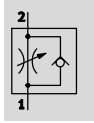
## Type codes

GR	-	QS-4	-		-	
<b>Type</b>						
GR	One-way flow control valve, in-line installation					
GRA	One-way flow control valve, in-line installation					
<b>Pneumatic connection 1 and 2</b>						
M3	Female thread M3					
M5	Female thread M5					
1/8	Female thread G <sup>1</sup> / <sub>8</sub>					
1/4	Female thread G <sup>1</sup> / <sub>4</sub>					
3/8	Female thread G <sup>3</sup> / <sub>8</sub>					
1/2	Female thread G <sup>1</sup> / <sub>2</sub>					
3/4	Female thread G <sup>3</sup> / <sub>4</sub>					
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					
<b>Number of valves</b>						
X2	2 one-way flow control valves in one housing					
<b>Generation</b>						
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

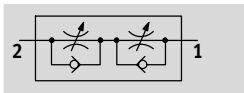


- - Flow rate  
29.5 ... 3300 l/min
- - Temperature range  
-20 ... +75 °C
- - Operating pressure  
0.1 ... 15 bar



GR-1/4

One-way flow control valve GR...X2



- - Flow rate  
90 ... 190 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				
				In-line installation				
Mounting position	Any							

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

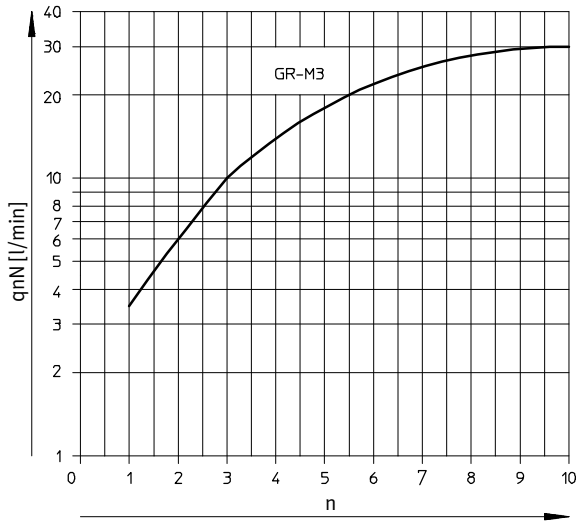
Operating and environmental conditions								
Type	GR-M3	GR-M5-B, GR-M5X2-B	GR-1/8-B, GR-1/8X2-B	GR-1/4	GRA-1/4-B	GR-3/8-B	GR-1/2	GR-3/4
Operating pressure [bar]	0.3 ... 8	0.5 ... 10			0.1 ... 10		0.3 ... 15	
Operating medium	Compressed air to ISO 8573-1:2010							
	[6:4:4]	[7:4:4]		[7:-:-]	[7:4:4]		[7:-:-]	
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

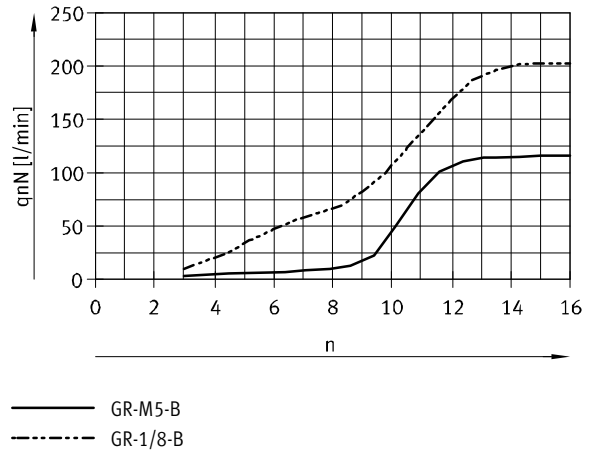
Technical data – Female thread, metal

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

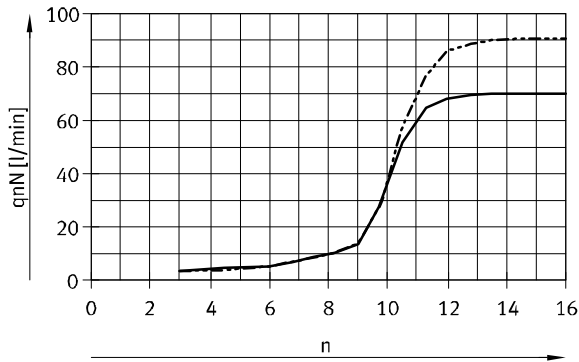
GR-M3



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

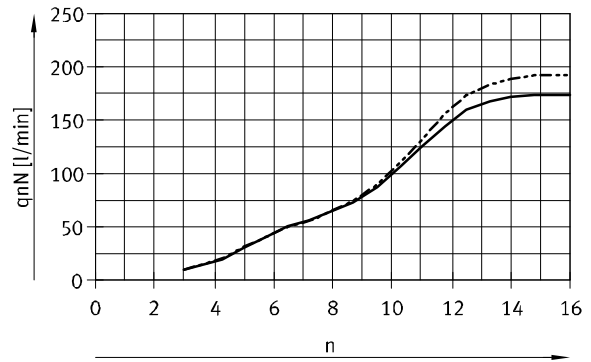


GR-M5X2-B



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

GR-1/8X2-B



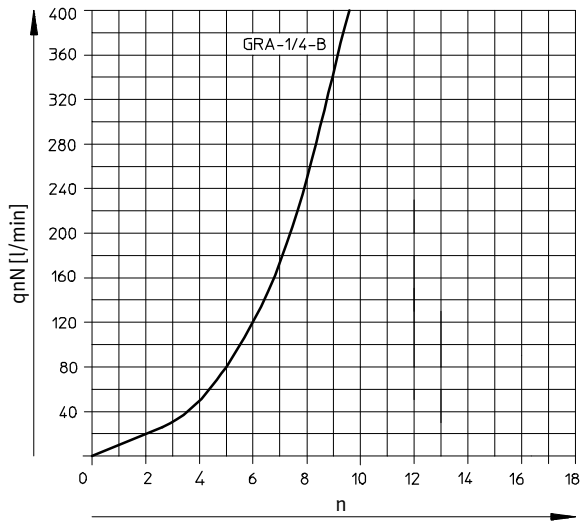
- GR-1/8X2-B (Regulating screw closed)
- - - GR-1/8X2-B (Regulating screw open)

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

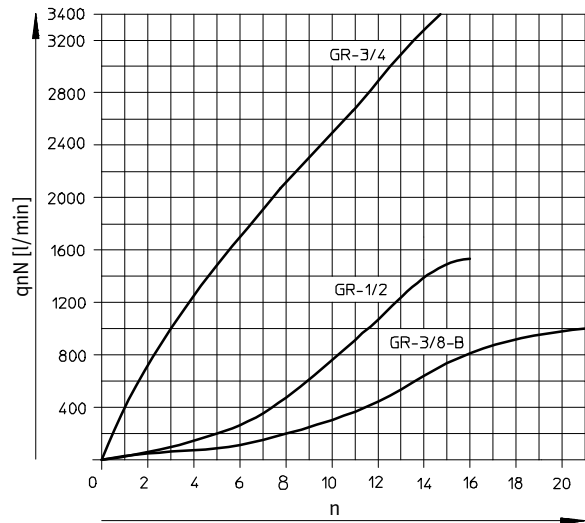
Technical data – Female thread, metal

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

GRA-1/4-B

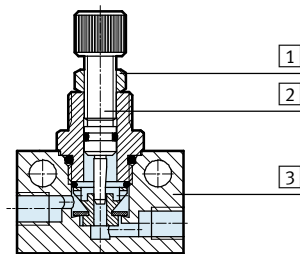


GR-3/8-B, GR-1/2, GR-3/4



## 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

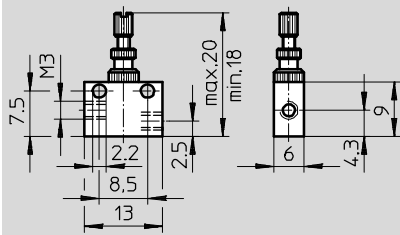
# One-way flow control valves GR/GRA, in-line installation

Technical data – Female thread, metal

## Dimensions

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

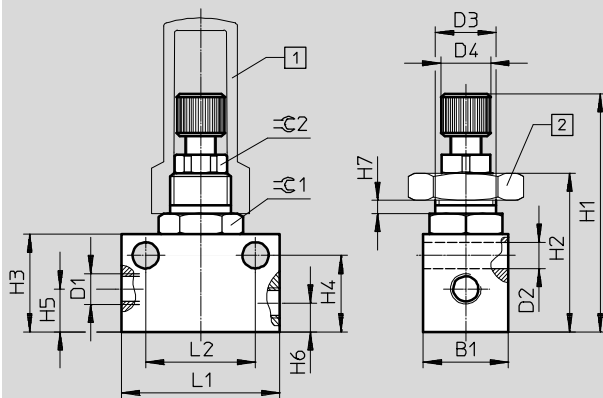
GR-M3



## Dimensions

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

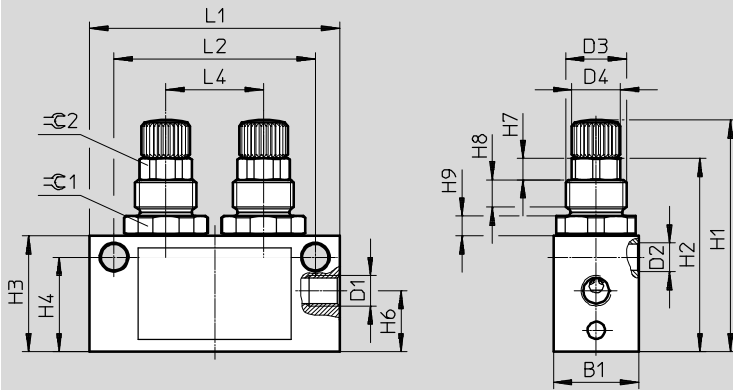
# One-way flow control valves GR/GRA, in-line installation

Technical data – Female thread, metal

## Dimensions

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

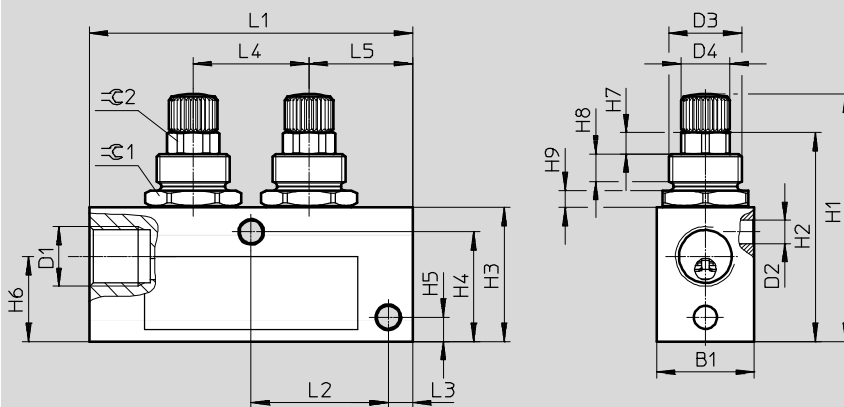
GR-M5X2-B



· † · 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

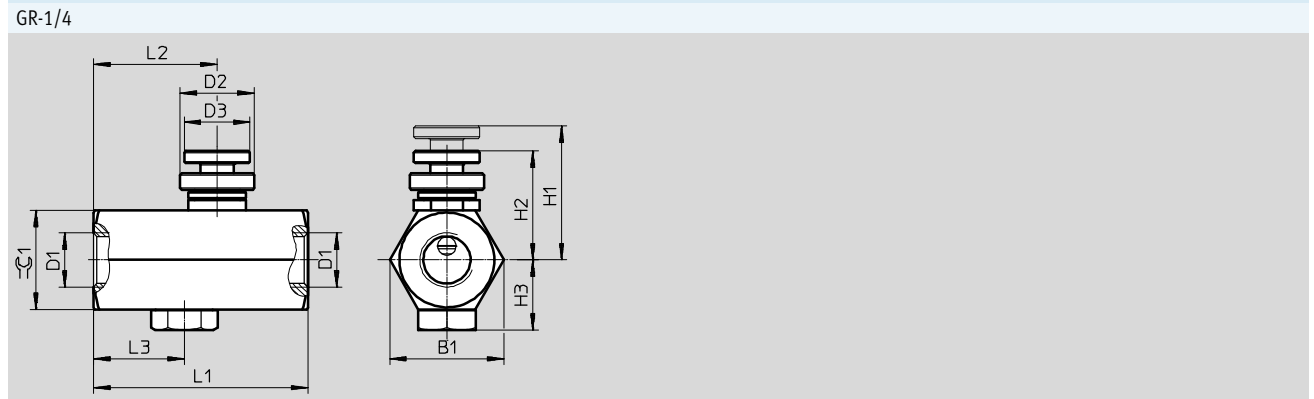
Type	Connection D1	B1	D2 ∅	D3	D4 ∅	H1		H2	H3	H4	H5
						min.	max.				
GR-M5X2-B	M5	14	4.7 <sup>+0.1</sup>	M10x1	8	38	43.5	31.7	19	15.5	–
GR-1/8X2-B	G1/8	16	3.8 <sup>+0.1</sup>	M12x1	8	40.6	46.2	34.3	22	18	4

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

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

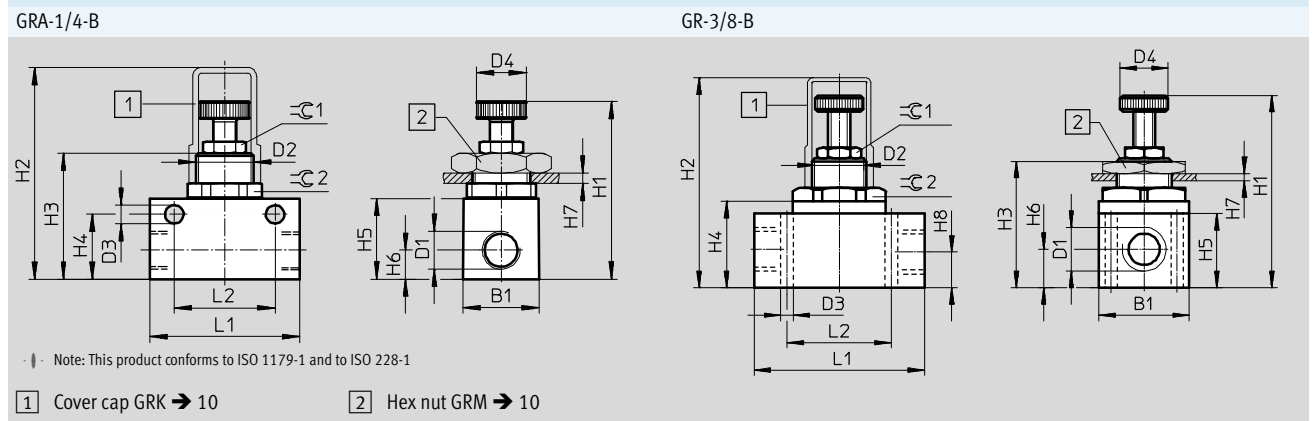
Technical data – Female thread, metal

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



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](http://www.festo.com)

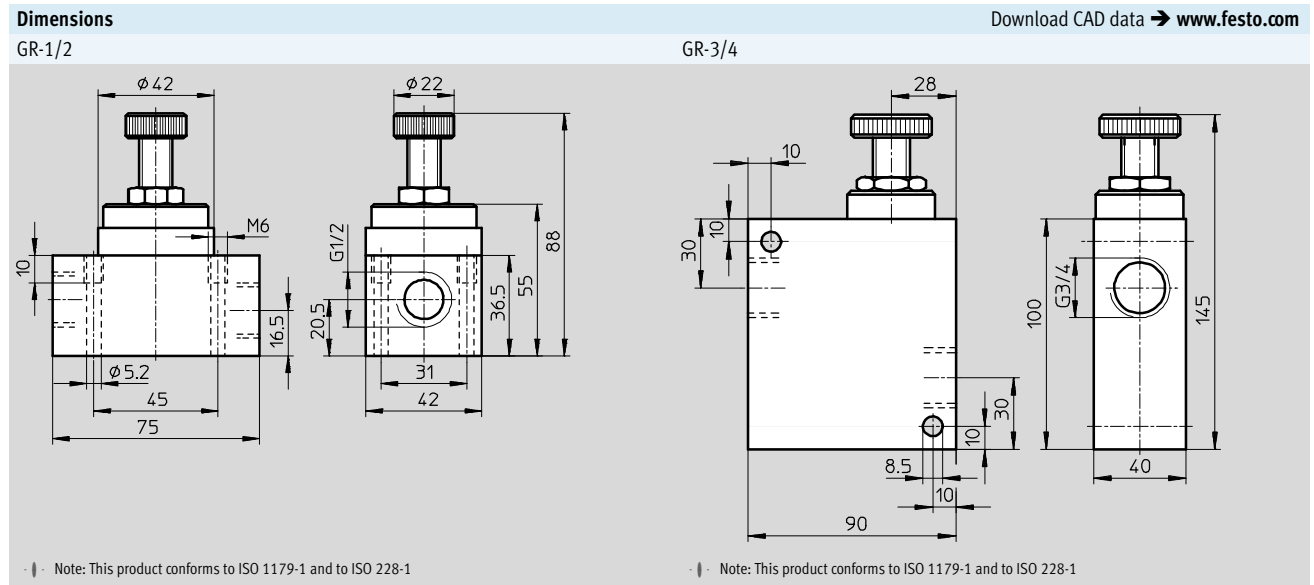


Type	Connection D1	B1	D2	D3 ∅	D4 ∅	H1		H2	H3	H4	H5	H6	H7 max.	H8	L1	L2	∅ 1	∅ 2
						min.	max.											
GRA-1/4-B	G1/4	26.5	M20x1.5	6.4	17.4	56	62	73.5	44	22.5	28	10	3.5	–	52	35 ±0.1	13	24
GR-3/8-B	G3/8	33	M20x1.5	4.5	17.5	62.5	74	76.5	46	31.5	27	14	3.5	13	62	38	13	30



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

Technical data – Female thread, metal



Ordering data – One-way flow control function							
	Pneumatic connection		Standard nominal flow rate qnN at 6 bar → 5 bar		Weight [g]	Part No.	Type
	2	1	In direction of flow control [l/min]	In non-return direction [l/min]			
<b>Knurled screw</b>							
	M3	M3	29.5	26 ... 27.5	2.5	<b>15899</b>	<b>GR-M3</b>
	M5	M5	115	130 ... 137	19	<b>151213</b>	<b>GR-M5-B</b>
	G1/8	G1/8	210	180 ... 275	31	<b>151215</b>	<b>GR-1/8-B</b>
	G1/4	G1/4	420	780	180	<b>6509</b>	<b>GRA-1/4-B</b>
	G3/8	G3/8	1010	1150	225	<b>6308</b>	<b>GR-3/8-B</b>
	G1/2	G1/2	1620	2760	517	<b>3720</b>	<b>GR-1/2</b>
	G3/4	G3/4	3300	4800	938	<b>2103</b>	<b>GR-3/4</b>
	G1/4	G1/4	370	150	80	<b>2101</b>	<b>GR-1/4</b>
	M5	M5	90	70	37	<b>152611</b>	<b>GR-M5X2-B</b>
	G1/8	G1/8	190	175	54	<b>152612</b>	<b>GR-1/8X2-B</b>

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

FESTO

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

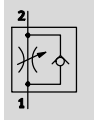





Ordering data			
For type	Description	Part No.	Type
GR-M5-B, GR-M5X2-B	Thread M10x1	6436	GRK-M5
GR-1/8-B, GR-1/8X2-B	Thread M12x1	2105	GRK-1/8
GRA-1/4-B, GR-3/8-B	Thread M20x1.5	6309	GRK-3/8-B

# 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 ... 250 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			

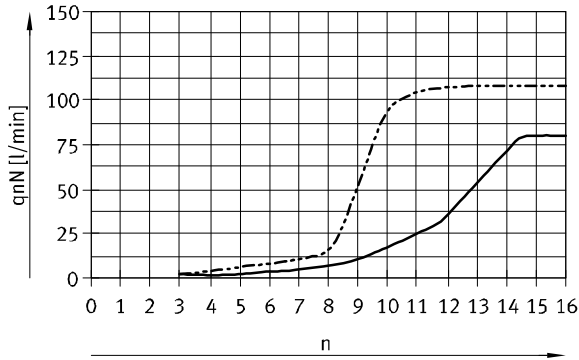
Operating and environmental conditions	
Operating pressure [bar]	0.2 ... 10
Operating medium	Compressed air in accordance with ISO 8573-1:2010 [7:4:4]
Note on operating/pilot medium	Operation with lubricated medium possible (in which case lubricated operation will always be required)
Ambient temperature [°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

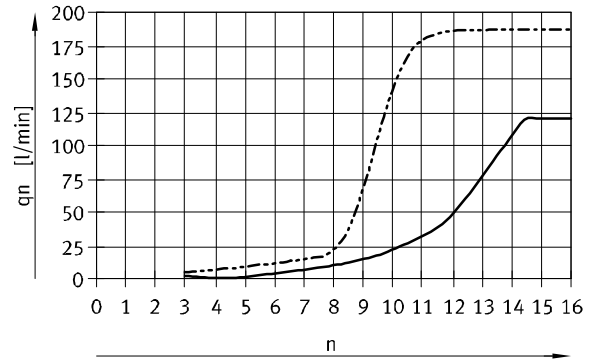
GR-QS-3, GR-QS-4



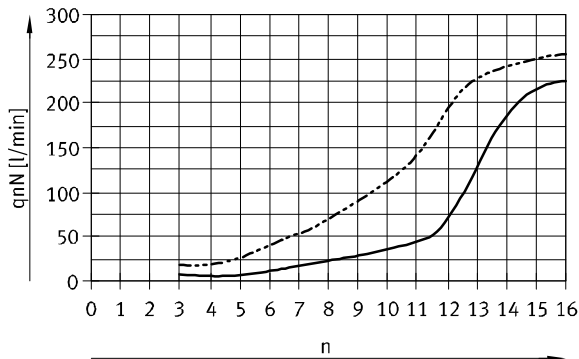
— GR-QS-3  
- - - GR-QS-4

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

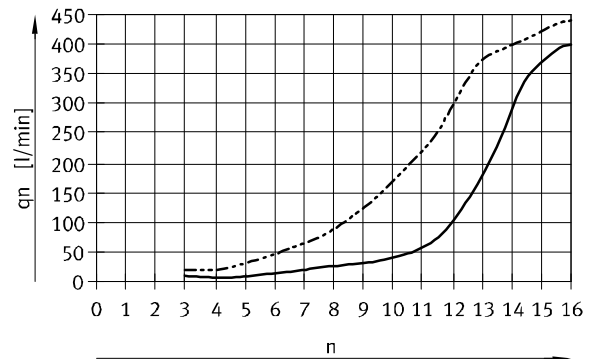


GR-QS-6, GR-QS-8



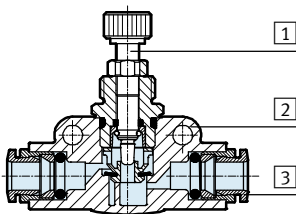
— GR-QS-6  
- - - GR-QS-8

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

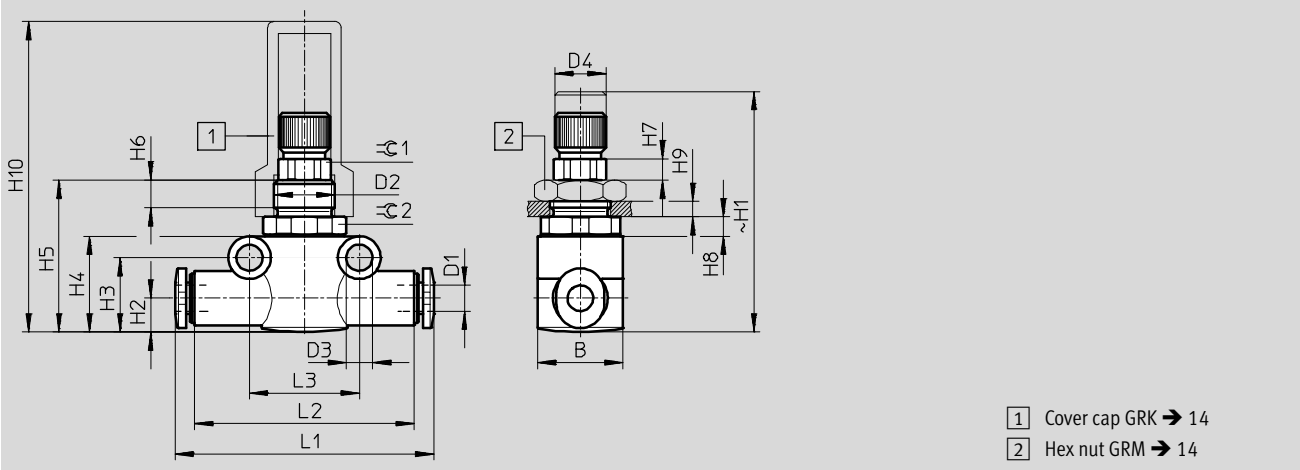
# One-way flow control valves GR, in-line installation

Technical data – Push-in connector QS, polymer

## Dimensions

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

Knurled screw



- 1 Cover cap GRK → 14
- 2 Hex nut GRM → 14

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 [l/min]	in non-return direction [l/min]			
<b>Knurled screw</b>							
	QS-3	QS-3	85		12	193965	GR-QS-3
	QS-4	QS-4	110		12	193967	GR-QS-4
	QS-6	QS-6	230		22	193969	GR-QS-6
	QS-8	QS-8	250		23	193970	GR-QS-8

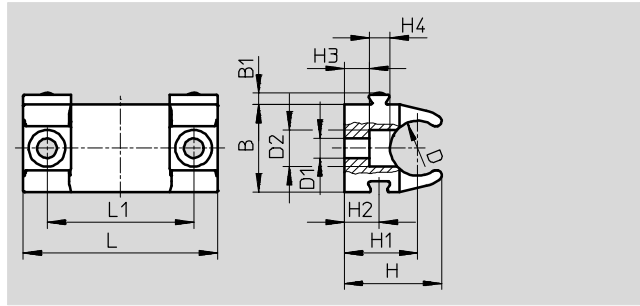
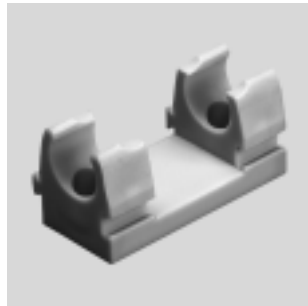
# One-way flow control valves GR, in-line installation

Accessories

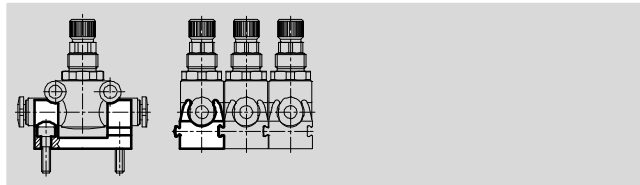
## Retainer GR-H

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