

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

FESTO



Characteristics

At a glance

One-way flow control valve for in-line installation.

Diagrams

[Link](#) [online](#)



The diagrams shown in this document are also available online. These can be used to display precise values.

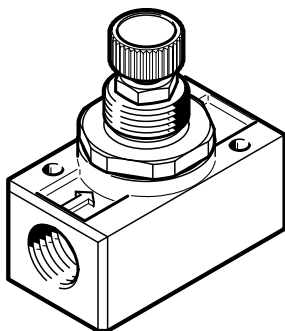
Pneumatic connection

Variants:

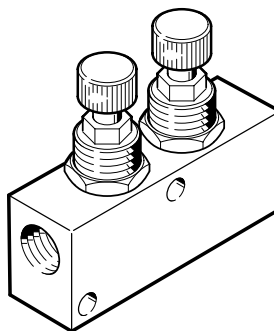
- Male thread (metal housing)
- Plug connection (plastic housing)

Number of one-way flow control valves

[] 1 valve



[X2] 2 valves



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

Type code

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

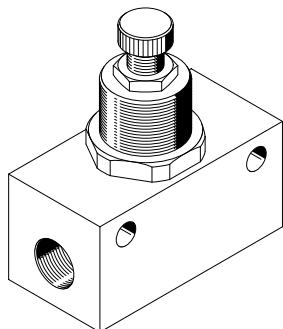
002	Pneumatic connection	
M3	Male thread M3	
M5	Male thread M5	
1/8	Male thread G1/8	
1/4	Male thread G1/4	
3/8	Male thread G3/8	
1/2	Male thread G1/2	
3/4	Male thread G3/4	
QS-3	Push-in connector 3 mm	
QS-4	Push-in connector 4 mm	
QS-6	Push-in connector 6 mm	
QS-8	Push-in connector 8 mm	

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

004	Generation	
	None	
B	Series B	

Datasheet

Technical data – Male thread

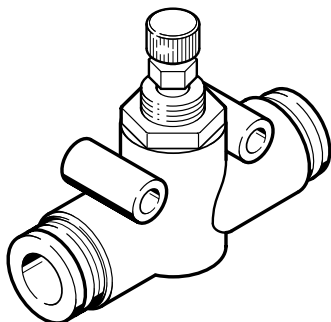


Pneumatic connection, port 2	M3	M5	G1/8	G1/4	G3/4	Female thread G1/4	Female thread G3/8	Female thread G1/2
Pneumatic connection, port 1	M3	M5	G1/8	G1/4	G3/4	Female thread G1/4	Female thread G3/8	Female thread G1/2
Nominal size	–	2 mm	3 mm	–				
Valve function	One-way flow control function							
Mounting position	optional							
Adjustment component	Knurled screw							
Type of mounting	Either:, Front panel mounting, With through-hole			In-line installa- tion	Front panel mounting, With through-hole	Either:, Front panel mounting, With through-hole		With through- hole
Standard nominal flow rate in flow control direction	29.5 l/min	95 ... 115 l/min	205 ... 210 l/min	370 l/min	3,300 l/min	420 l/min	1,010 l/min	1,620 l/min
Standard nominal flow rate in blocked direction	26 ... 27.5 l/min	75 ... 137 l/min	180 ... 275 l/min	150 l/min	4,800 l/min	780 l/min	1,150 l/min	2,760 l/min
Operating pressure	0.3 ... 8 bar	0.5 ... 10 bar			0.3 ... 15 bar	0.1 ... 10 bar		
Ambient temperature	-10 ... 60°C	-20 ... 60°C		-20 ... 75°C	-10 ... 60°C	-20 ... 75°C		
Media temperature	-10 ... 60°C	-20 ... 60°C		-20 ... 75°C	-10 ... 60°C	-20 ... 75°C		
Operating medium	Compressed air to ISO 8573- 1:2010 [6:4:4]	Compressed air to ISO 8573-1:2010 [7:4:4]		Compressed air to ISO 8573-1:2010 [7:-:-]		Compressed air to ISO 8573-1:2010 [7:4:4]		Compressed air to ISO 8573- 1:2010 [7:-:-]
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)							
ATEX declaration ¹⁾	For zone 1, 2, 21, 22, The information in the certificate must be observed!							
Material housing	Wrought aluminium alloy					Die-cast zinc		
Material seals	NBR				–	NBR	–	
Material sleeve	–	POM		–				
Material adjusting screw	Brass	High-alloy steel		Steel, Galvanised	–		Brass	
Material nut	–	Wrought aluminium alloy		–				Galvanised steel
Note on materials	RoHS-compliant							
LABS (PWIS) conformity	VDMA24364-B1/B2-L							

1) More information www.festo.com/catalogue/gr → Support/Downloads.

Datasheet

Technical data – Push-in connector QS

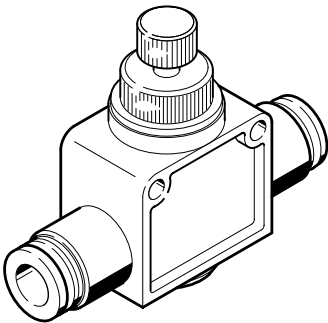


Pneumatic connection, port 2	QS-3	QS-4	QS-6	QS-8
Pneumatic connection, port 1	QS-3	QS-4	QS-6	QS-8
Valve function	One-way flow control function			
Mounting position	optional			
Adjustment component	Knurled screw			
Type of mounting	Either:, Front panel mounting, With through-hole, With accessories			
Standard nominal flow rate in flow control direction	85 l/min	110 l/min	245 l/min	265 l/min
Standard nominal flow rate in blocked direction	120 l/min	165 l/min	430 l/min	500 l/min
Operating pressure	0.2 ... 10 bar			
Ambient temperature	-10 ... 60°C			
Media temperature	-10 ... 60°C			
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]			
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)			
ATEX declaration ¹⁾	For zone 1, 2, 21, 22, The information in the certificate must be observed!			
Material housing	PA-reinforced			
Material seals	NBR			
Material adjusting screw	High-alloy steel			
Note on materials	RoHS-compliant			
LABS (PWIS) conformity	VDMA24364-B1/B2-L			

1) More information www.festo.com/catalogue/gr → Support/Downloads.

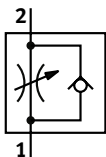
Datasheet

Technical data – Push-in connector QB (NPT – not available on all markets)

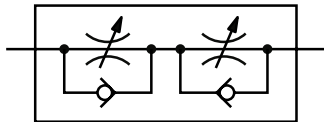


Pneumatic connection, port 2	QB-5/32	QB-1/4	QB-5/16	QB-3/8	QB-1/2
Pneumatic connection, port 1	QB-5/32	QB-1/4	QB-5/16	QB-3/8	QB-1/2
Valve function	One-way flow control function				
Type of actuation	Manual				
Mounting position	optional				
Adjustment component	Slotted head screw				
Type of mounting	Either:, In-line installation, With through-hole				
Standard nominal flow rate in flow control direction	7.63 cfm	21.1 cfm	35.91 cfm	51.18 cfm	62.85 cfm
Standard nominal flow rate in blocked direction	2.693 ... 7.632 cfm	22.446 ... 24.69 cfm	25.588 ... 36.362 cfm	36.362 ... 52.523 cfm	48.483 ... 57.012 cfm
Standard flow rate in flow control direction 0.6->0 MPa (6->0 bar, 87->0 psi)	13.5 cfm	35 cfm	60.6 cfm	85.3 cfm	104.2 cfm
Standard flow rate in non-return direction 0.6->0 MPa (6->0 bar, 87->0 psi)	10.774 ... 14.365 cfm	47.585 ... 48.034 cfm	61.95 ... 62.399 cfm	92.028 ... 97.864 cfm	74.52 ... 90.681 cfm
Operating pressure	-13.793 ... 116.001 psi				
Ambient temperature	0 ... 60°C				
Media temperature	32 ... 140°F				
Operating medium	Compressed air to ISO 8573-1:2010 [7:4:4]				
Note on operating and pilot medium	Lubricated operation possible (in which case lubricated operation will always be required)				
Material housing	PBT-reinforced				
Material seals	NBR				
Material adjusting screw	Brass, Nickel-plated				
Note on materials	RoHS-compliant				
LABS (PWIS) conformity	VDMA24364 zone III				

Function one-way flow control valve GR/GRA

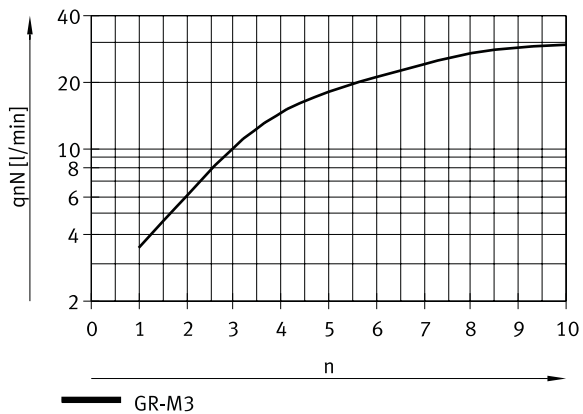
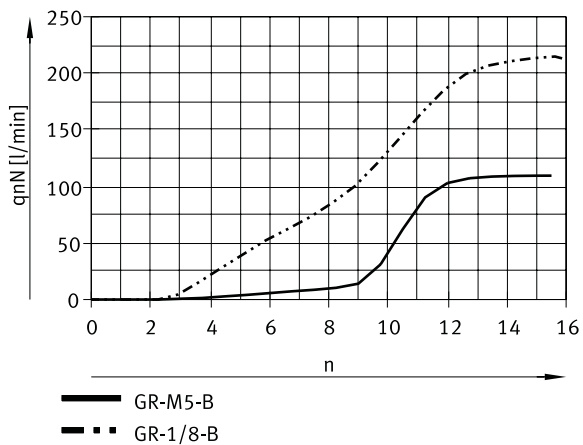
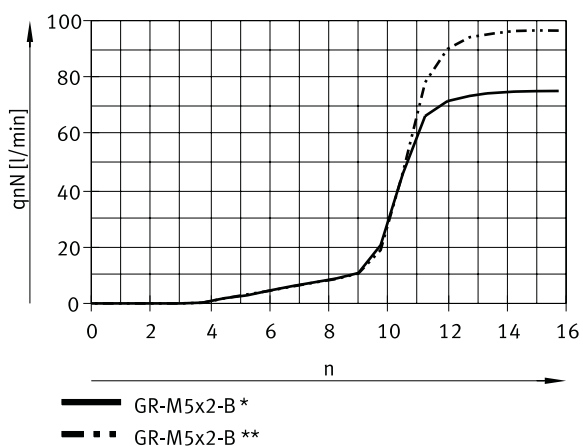


Function one-way flow control valve GR-...X2



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

Datasheet

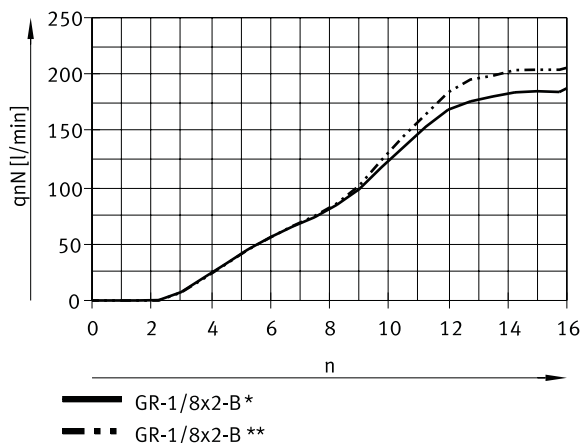
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GR-M3)Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GR-M5-B; GR-1/8-B)Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GR-M5X2-B)

* adjusting screw closed

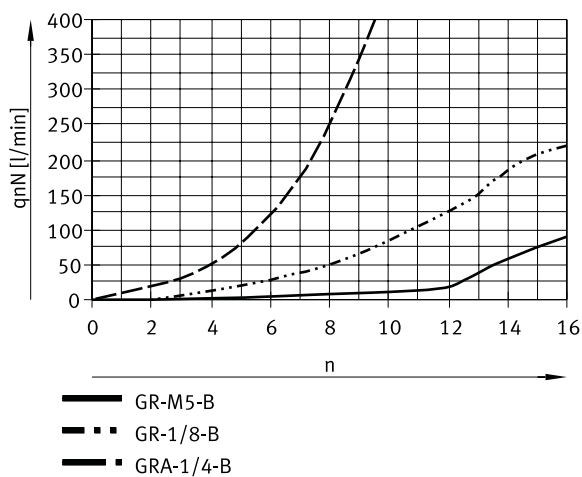
** adjusting screw open

Datasheet

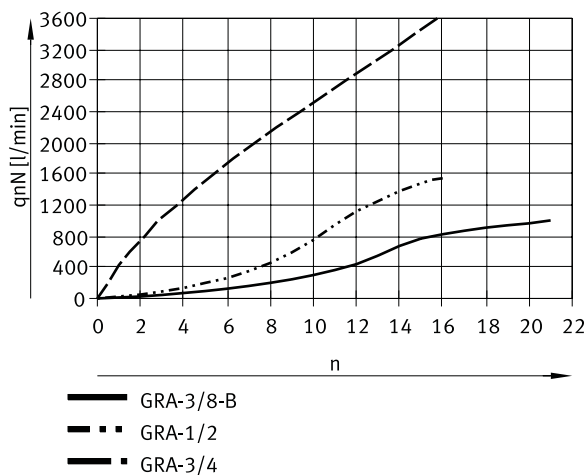
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GR-1/8X2-B)



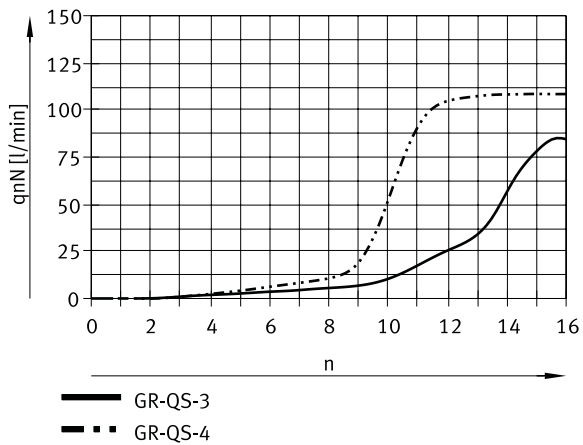
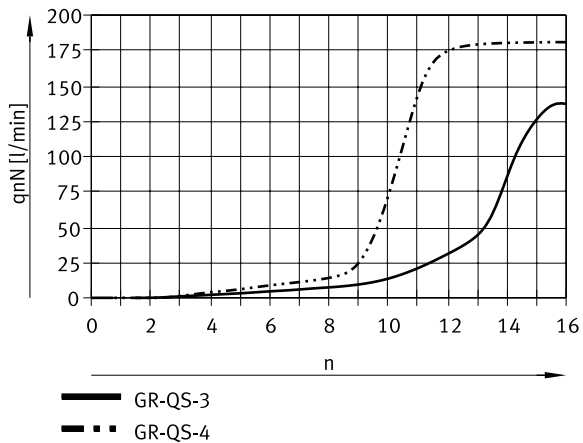
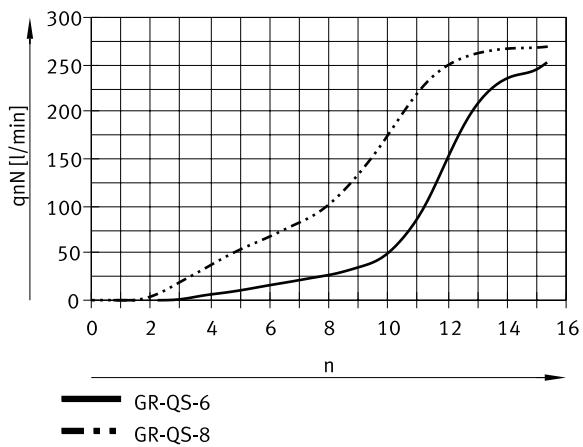
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GRA-1/4-B; GR-1/8-B; GR-M5-B)



Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GR-3/8-B; GR-1/2; GR-3/4)

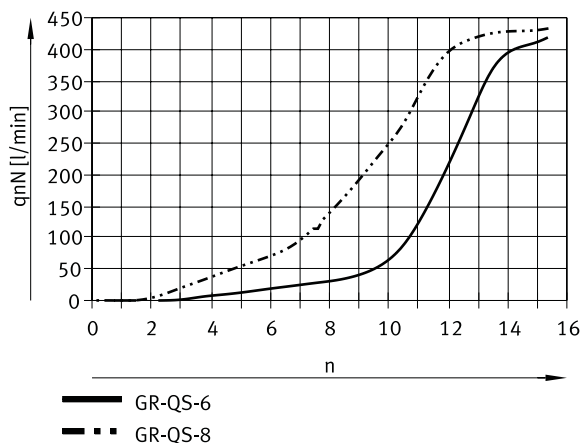


Datasheet

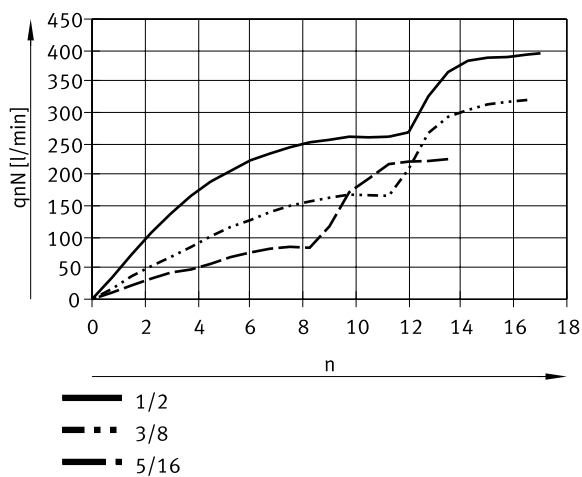
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GR-QS-3; GR-QS-4)Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n (GR-QS-3; GR-QS-4)Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GR-QS-6; GR-QS-8)

Datasheet

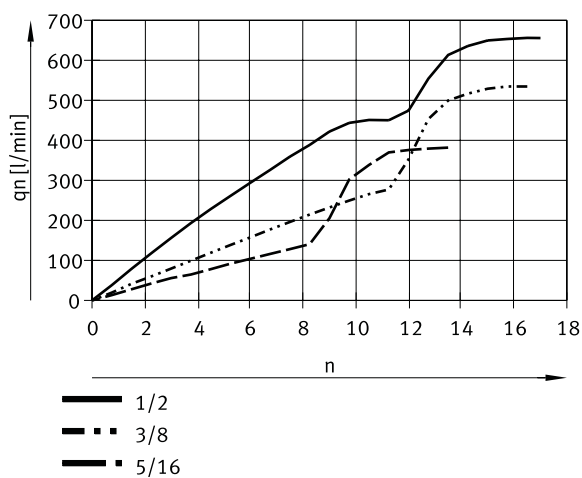
Standard flow rate q_N at 6 → 0 bar as a function of spindle rotations n (GR-QS-6; GR-QS-8)



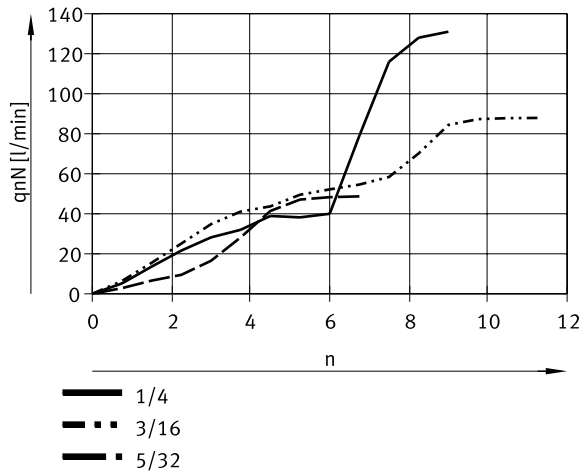
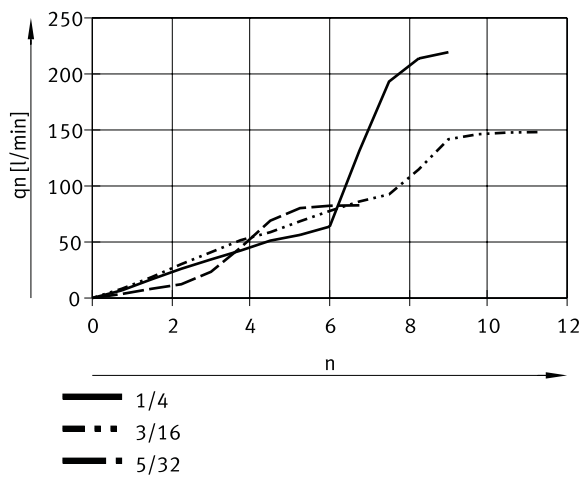
Standard nominal flow rate q_N at 6 → 5 bar as a function of spindle rotations n (GR-QB-1/2-U, GR-QB-3/8-U, GR-QB-5/16-U)



Standard flow rate q_N at 6 → 0 bar as a function of spindle rotations n (GR-QB-1/2-U, GR-QB-3/8-U, GR-QB-5/16-U)

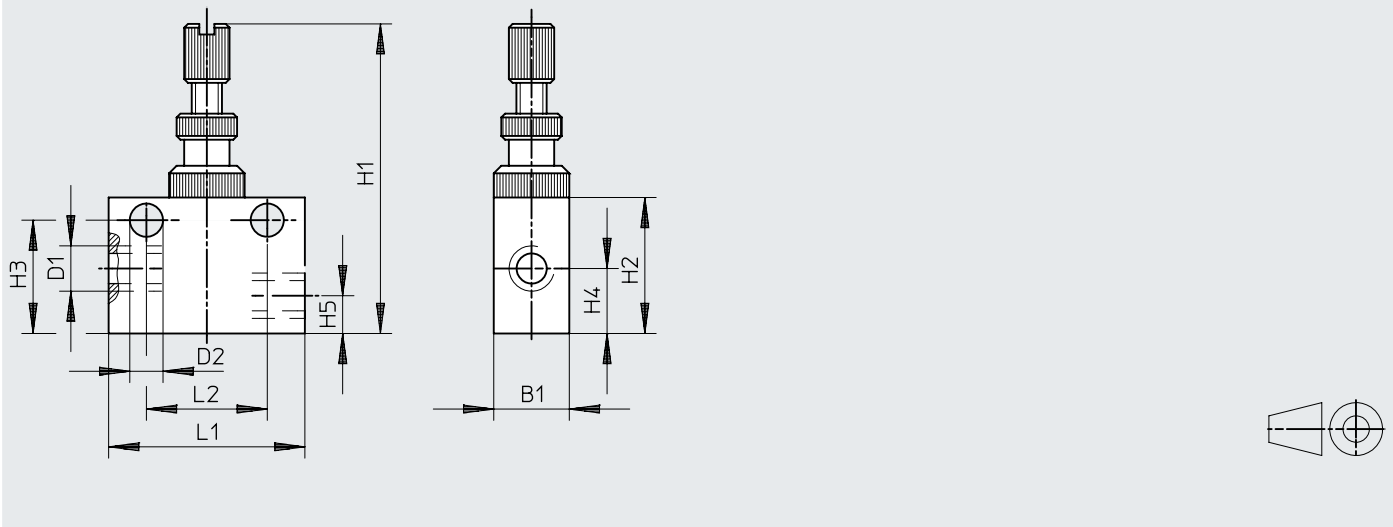


Datasheet

Standard nominal flow rate q_{nN} at $6 \rightarrow 5$ bar as a function of spindle rotations n (GR-QB-1/4-U, GR-QB-3/16-U, GR-QB-5/32-U)Standard flow rate q_n at $6 \rightarrow 0$ bar as a function of spindle rotations n (GR-QB-1/4-U, GR-QB-3/16-U, GR-QB-5/32-U)

Dimensions

Dimensions – GR-M3 Download CAD data www.festo.com

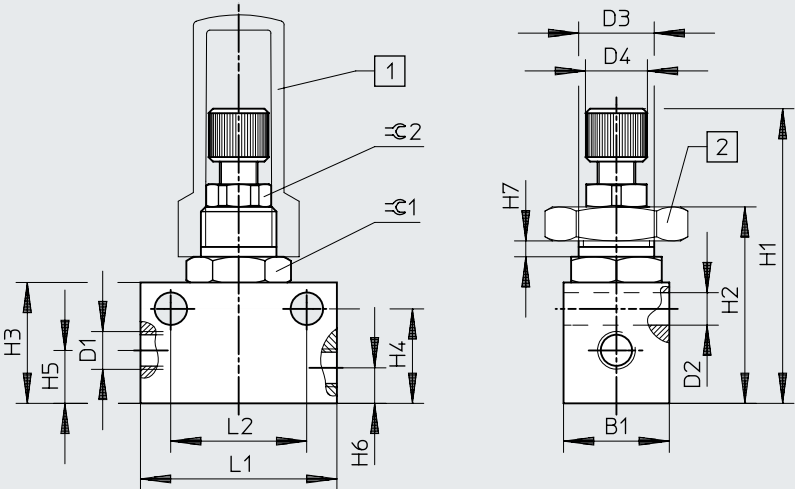


	B1	D1	D2 Ø	H1 min.	H1 max.	H2	H3	H4	H5	L1	L2
GR-M3	6	M3	2,2	18	20	9	7,5	4,3	2,5	13	8,5

Dimensions

Dimensions – GR-M5-B, GR-1/8-B

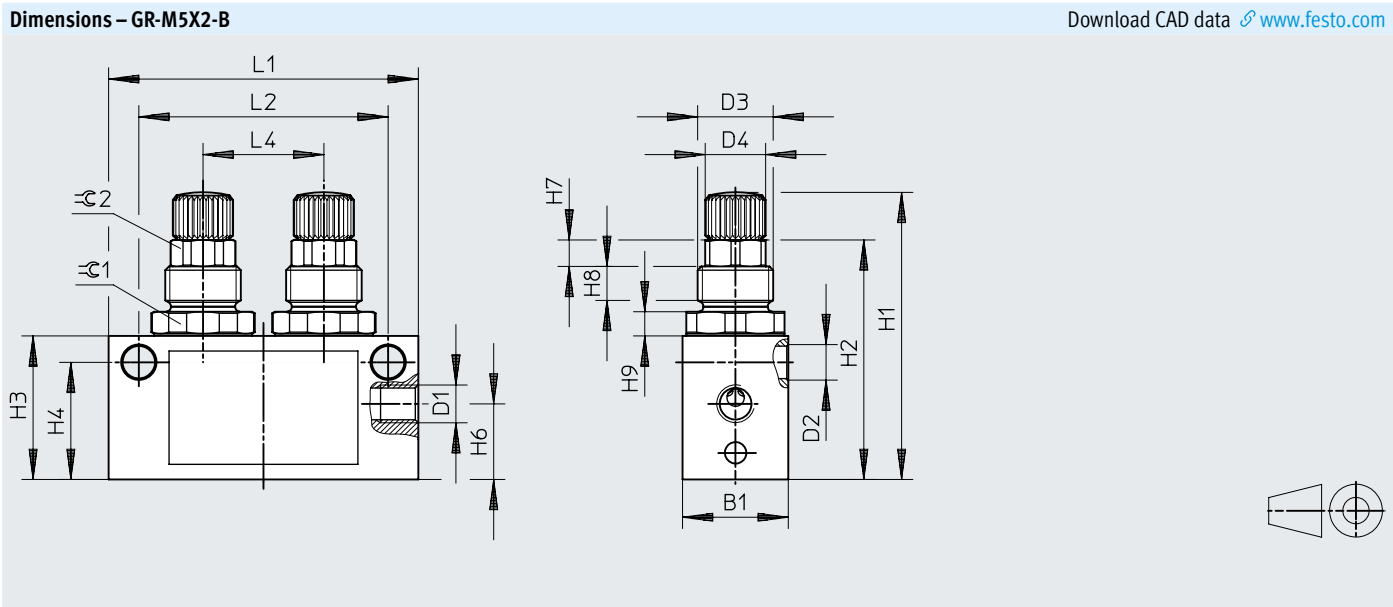
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- [1] Cover cap GRK
- [2] Hex nut GRM

	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

Dimensions



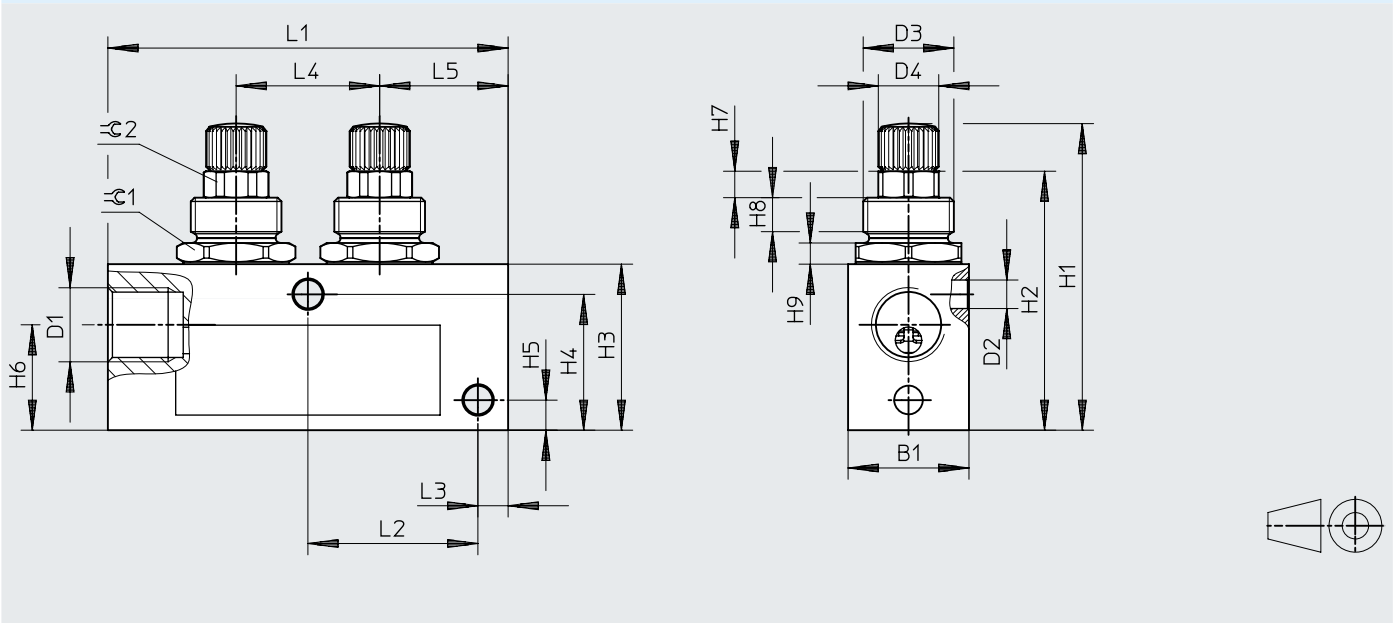
	D1	B1	D2 Ø	D3	D4	H1		H2	H3	H4
						min.	max.			
GR-M5X2-B	M5	14	4,7 _{+0,1}	M10x1	8	38	43,5	31,7	19	15,5

	H6	H7	H8	H9	L1	L2	L4	≈C 1	≈C 2
GR-M5X2-B	10	3,5	4,5	3,2	41 _{+0,5}	33 _{+0,2}	16 _{+0,2}	13	8

Dimensions

Dimensions – GR-1/8X2-B

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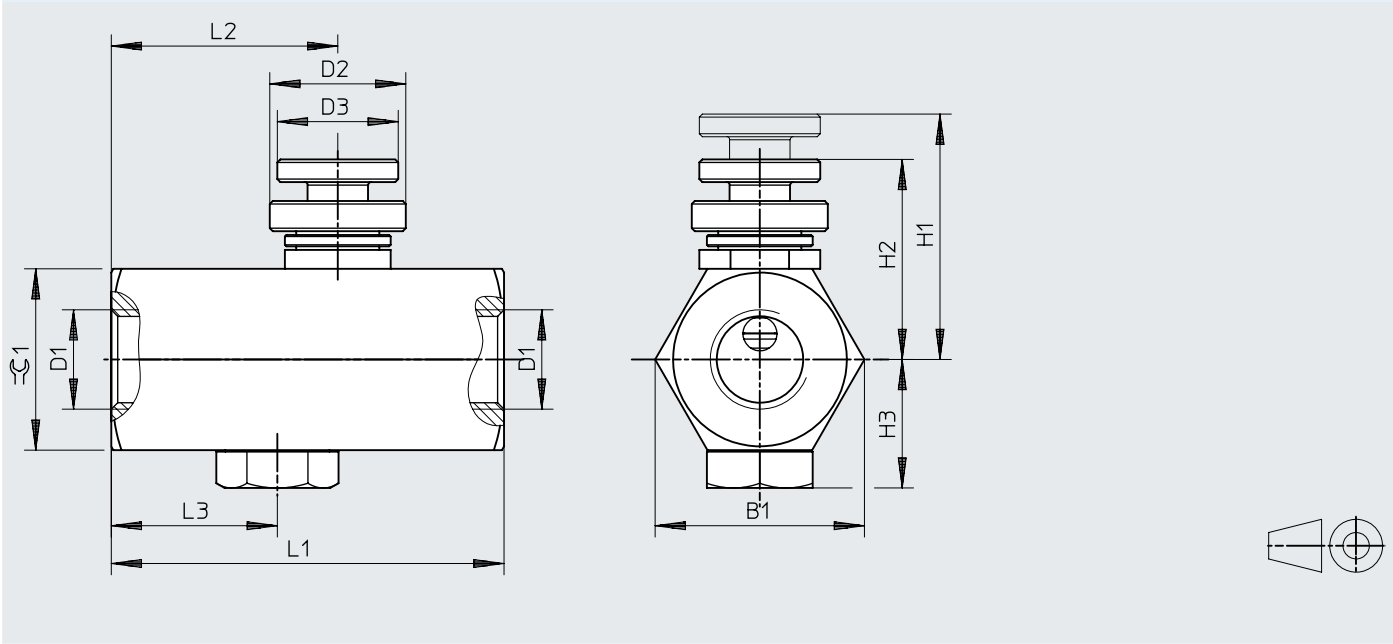


	D1	B1	D2 ø	D3	D4	H1		H2	H3	H4	H5
						min.	max.				
GR-1/8X2-B	G1/8	16	3,8 _{+0,1}	M12x1	8	40,6	46,2	34,3	22	18	4

	H6	H7	H8	H9	L1	L2	L3	L4	L5	≈G 1	≈G 2
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

Dimensions

Dimensions – GR-1/4 Download CAD data www.festo.com

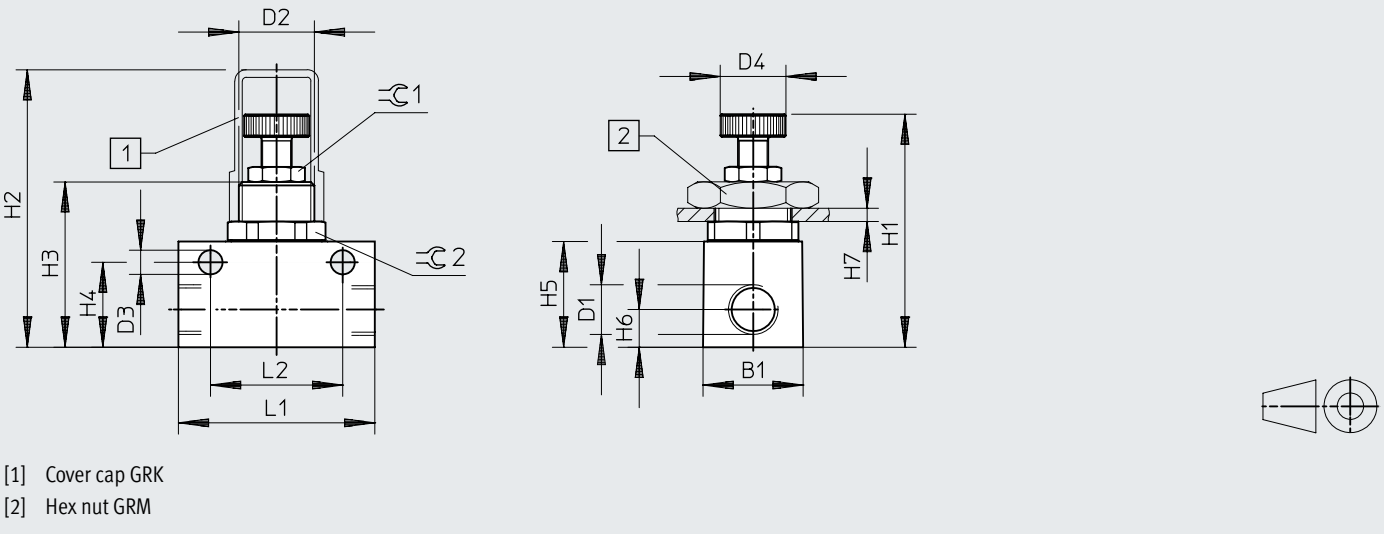


	D1	B1	D2 ø	D3 ø	H1	H2	H3	L1	L2	L3	≈ 1
GR-1/4	G1/4	28	18	16	32,5	26,5	17	52	30	22	24

Dimensions

Dimensions – GRA-1/4-B

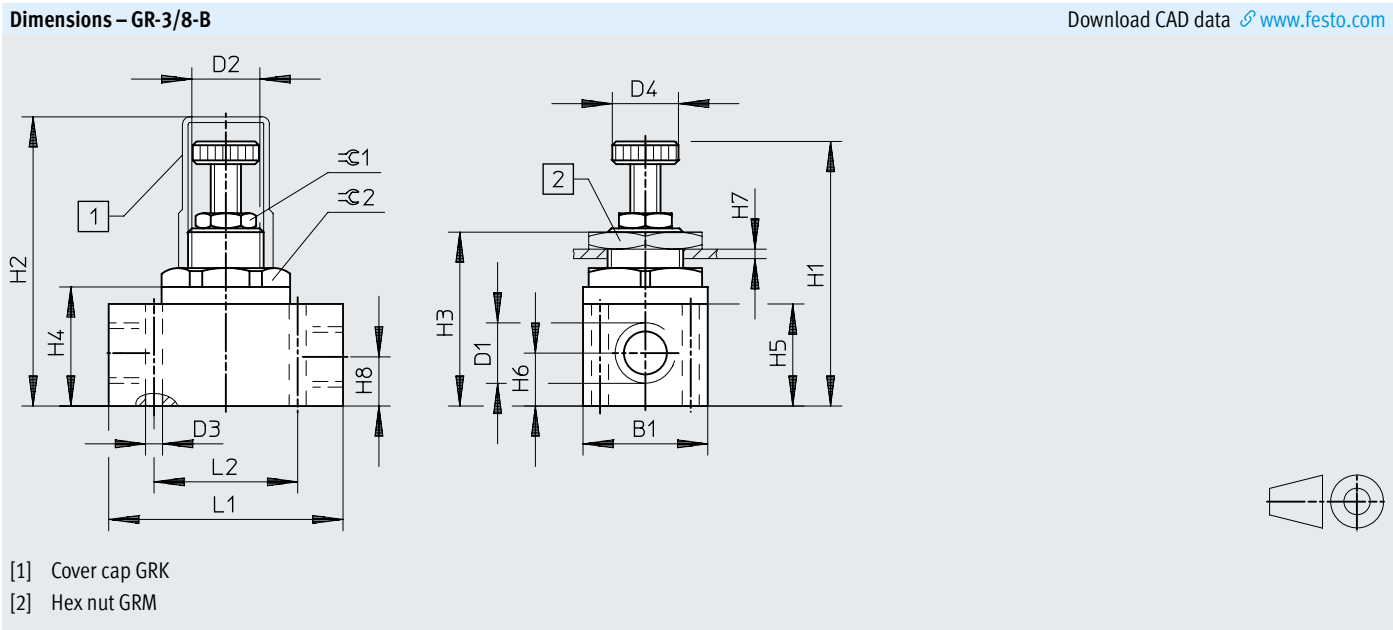
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	D1	B1	D2	D3 Ø	D4 Ø	H1		H2
						min.	max.	
GRA-1/4-B	G1/4	26,5	M20x1,5	6,4	17,4	56	62	73,5

	H3	H4	H5	H6	H7 max.	L1	L2	⌀ 1	⌀ 2
GRA-1/4-B	44	22,5	28	10	3,5	52	35 ±0,1	13	24

Dimensions



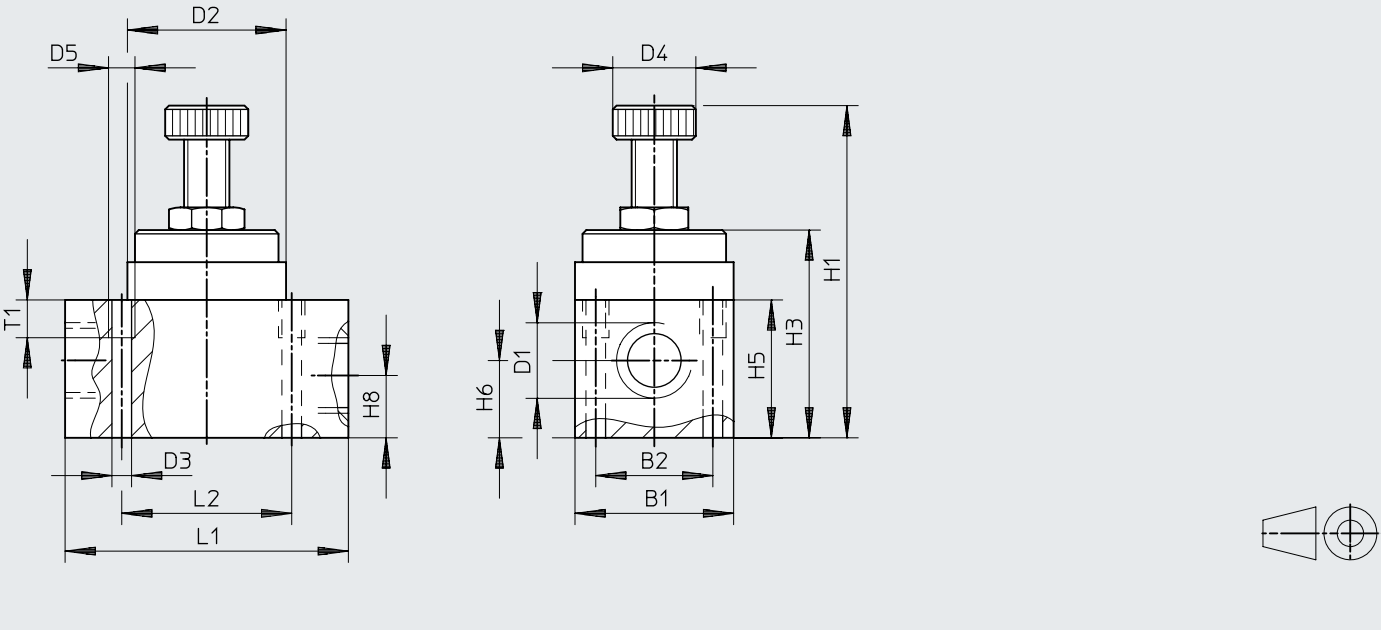
	D1	B1	D2	D3 Ø	D4 Ø	H1		H2
						min.	max.	
GR-3/8-B	G3/8	33	M20x1,5	4,5	17,5	62,5	74	76,5

	H3	H4	H5	H6	H7 max.	H8	L1	L2	≈ 1	≈ 2
GR-3/8-B	46	31,5	27	14	3,5	13	62	38	13	30

Dimensions

Dimensions – GR-1/2

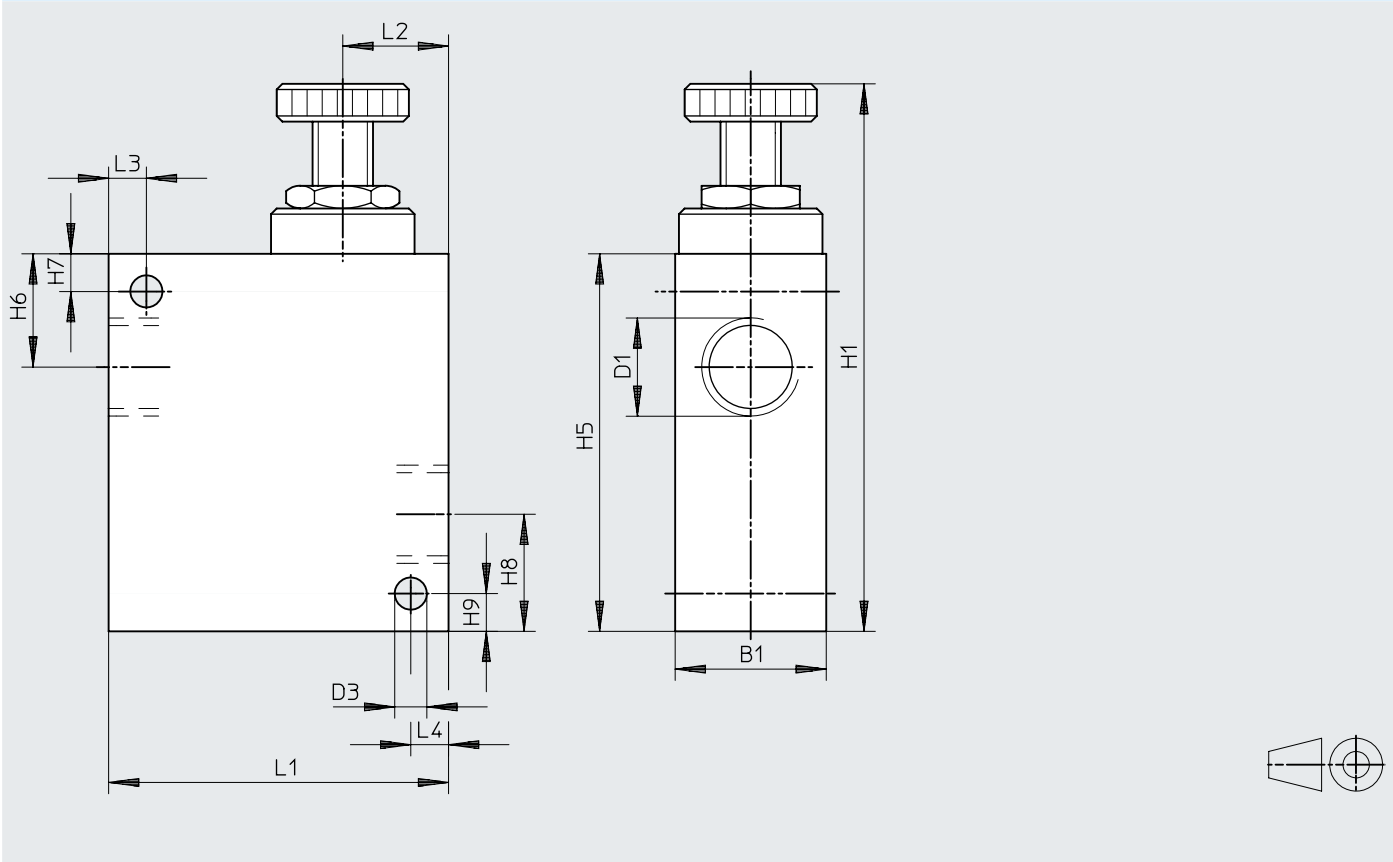
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	B1	B2	D1	D2 ø	D3 ø	D4 ø	D5	H1	H3	H5	H6	H8	L1	L2	T1
GR-1/2	42	31	G1/2	42	2	22	M6	88	55	36,5	20,5	16,5	75	45	10

Dimensions

Dimensions – GR-3/4 Download CAD data www.festo.com

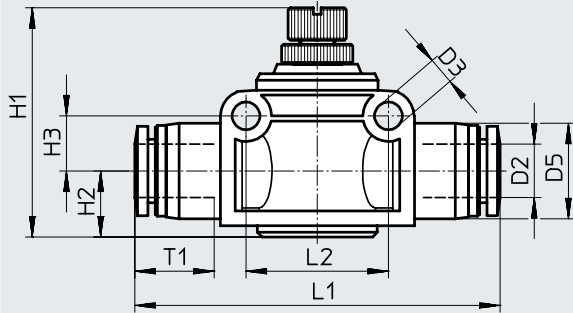


	B1	D1	D3 ø	H1	H5	H6	H7	H8	H9	L1	L2	L3	L4
GR-3/4	40	G3/4	8,5	145	100	30	10	30	10	90	28	10	10

Dimensions

Dimensions – GR-QB (NPT – not available on all markets)

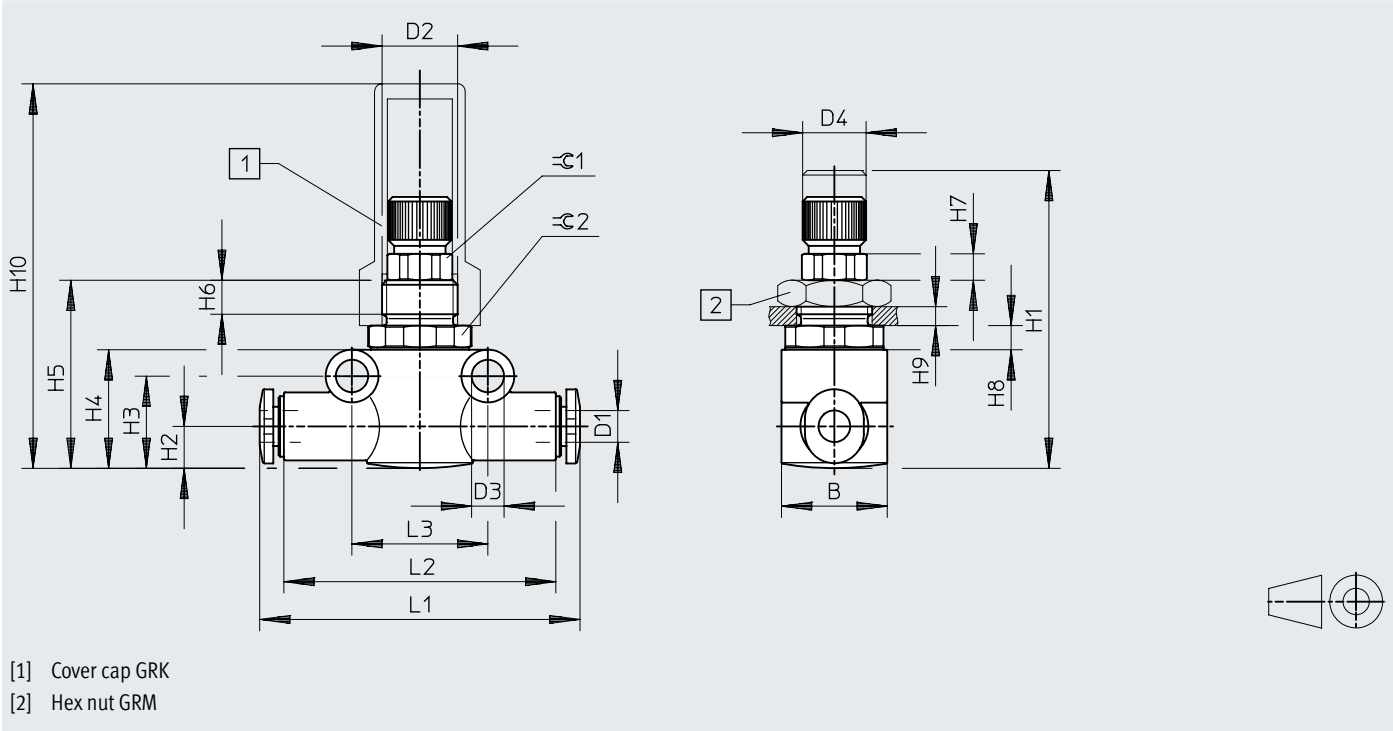
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	D2	D3 Ø	D5 Ø	H1		H2	H3	L1	L2	T1
				Min.	Max.					
GR-QB-5/32-U	5/32	3,2	10,5	26,4	28,9	7,6	5,6	44,8	15,4	14,9
GR-QB-1/4-U	1/4	4,3	13,1	33,5	38,9	9,4	8,0	50,1	20,4	16,8
GR-QB-5/16-U	5/16	4,4	14,8	35,5	41,5	10,2	8,5	56,4	22,0	18,7
GR-QB-3/8-U	3/8	4,3	17,5	40,7	48,6	11,4	10,3	61,4	28,1	20,1
GR-QB-1/2-U	1/2	4,4	20,5	45,5	53,4	14,0	12,1	70,7	32,0	22,9

Dimensions

Dimensions – Push-in connector QS, polymer, knurled screw Download CAD data www.festo.com



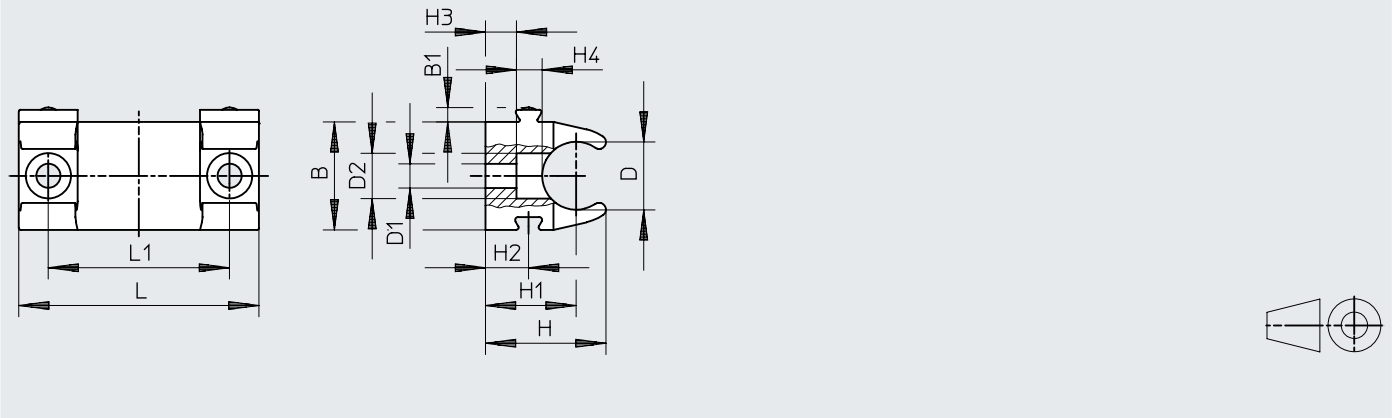
	D1	B	D2	D3 Ø	D4 Ø	H1		H2	H3	H4
						min.	max.			
GR-QS-3	3	14	M10x1	4,3 ±0,1	7,9 -0,3	35	41,5	5,55	12,2	15,7
GR-QS-4	4	14	M10x1	4,3 ±0,1	7,9 -0,3	35	41,5	5,55	12,2	15,7
GR-QS-6	6	16	M12x1	4,3 ±0,1	7,9 -0,3	40	46	8,4	17,3	21,3
GR-QS-8	8	16	M12x1	4,3 ±0,1	7,9 -0,3	40	46	8,4	17,3	21,3

	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

Dimensions

Dimensions – Retaining bracket GR H

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	B	B1	D ø	D1 ø	D2 ø	H	H1	H2	H3	H4	L	L1
GR-H-QS-3-4	14,3	1,9	9	3,2	6	16	12	5,7	4,1	3,4	31,8	24
GR-H-QS-6-8	19,8	1,9	14,5	3,2	6	19,2	13	5,7	2,3	3,4	31,8	24

Ordering data

Ordering data – Male thread

	Pneumatic connection, port 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in blocked direction	Product weight	Part no.	Type
	M3	29.5 l/min	26 ... 27.5 l/min	2.5 g	15899	GR-M3
	M5	95 l/min	75 l/min	37 g	152611	GR-M5X2-B
		115 l/min	130 ... 137 l/min	19 g	151213	GR-M5-B
	G1/8	205 l/min	190 l/min	54 g	152612	GR-1/8X2-B
		210 l/min	180 ... 275 l/min	31 g	151215	GR-1/8-B
	G1/4	370 l/min	150 l/min	80 g	2101	GR-1/4
	G3/4	3,300 l/min	4,800 l/min	938 g	2103	GR-3/4
	Female thread G1/4	420 l/min	780 l/min	180 g	6509	GRA-1/4-B
	Female thread G3/8	1,010 l/min	1,150 l/min	225 g	6308	GR-3/8-B
	Female thread G1/2	1,620 l/min	2,760 l/min	517 g	3720	GR-1/2

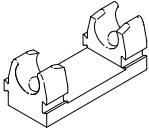
Ordering data – Push-in connector QS

	Pneumatic connection, port 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in blocked direction	Product weight	Part no.	Type
	QS-3	85 l/min	120 l/min	12 g	193965	GR-QS-3
	QS-4	110 l/min	165 l/min		★ 193967	GR-QS-4
	QS-6	245 l/min	430 l/min	22 g	★ 193969	GR-QS-6
	QS-8	265 l/min	500 l/min	23 g	★ 193970	GR-QS-8

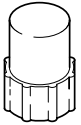
Ordering data - Push-in connector QB (NPT – not available on all markets)

	Pneumatic connection, port 1	Standard nominal flow rate in flow control direction	Standard nominal flow rate in blocked direction	Product weight	Part no.	Type
	QB-5/32	7.63 cfm	2.693 ... 7.632 cfm	11.34 oz	534680	GR-QB-5/32-U
	QB-1/4	21.1 cfm	22.446 ... 24.690 cfm	28.35 oz	★ 534682	GR-QB-1/4-U
	QB-5/16	35.91 cfm	25.588 ... 36.362 cfm	42.525 oz	534683	GR-QB-5/16-U
	QB-3/8	51.18 cfm	36.362 ... 52.523 cfm	76.545 oz	★ 534684	GR-QB-3/8-U
	QB-1/2	62.85 cfm	48.483 ... 57.012 cfm	119.07 oz	★ 534685	GR-QB-1/2-U

Accessories

Retaining bracket GR H			
	Short type code	Part no.	Type
	GR	195496	GR-H-QS-6-8
		195495	GR-H-QS-3-4

Hex nut GRM			
	Short type code	Part no.	Type
	GRM	6444	GRM-M5
		204596	GRM-3/8
		2107	GRM-1/8

Cover cap GRK			
	Short type code	Part no.	Type
	GRK	2105	GRK-1/8