

Throttle valve GRLO

FESTO



Characteristics

At a glance



Adjustable unidirectional/bidirectional flow control valve.

- Flow control valve, flow control at both ends
- Precision adjustment for low and medium speeds
- Metal design

Series

The piston speed of both advancing and retracting pneumatic drives can be regulated using one-way flow control valves. This is achieved by restricting the flow rate of compressed air in the exhaust air or supply air direction as required.

With the throttle valve GRLO, the flow is regulated in both directions.

The flow control function is performed via an adjustable annular gap inside the valve. This gap can be increased or reduced by turning the knurled screw or slotted screw. This adjusting component can be used to set the required throttling.

Type code

001	Series	
GRLO	Flow control valve, L outlet	
002	Pneumatic connection	
M3	Male thread M3	
M5	Male thread M5	
003	Pneumatic connection 1	
	Connection size as for port 1 or 2	
PK-3	CK connection 3 mm	
QS-3	Push-in connector 3 mm	
QS-4	Push-in connector 4 mm	

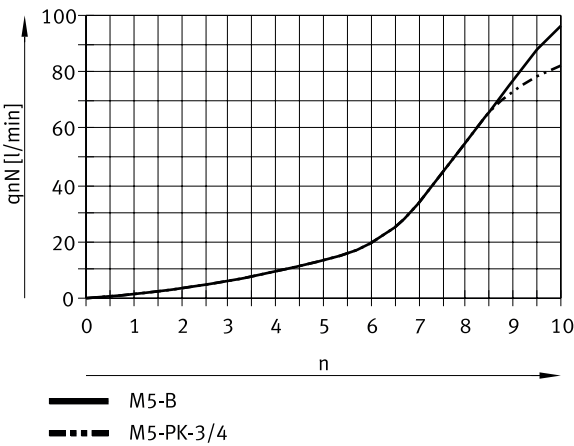
004	Flow rate characteristic	
	None	
LF	Low flow	
005	Generation	
	None	
B	Series B	
C	Series C	

Datasheet

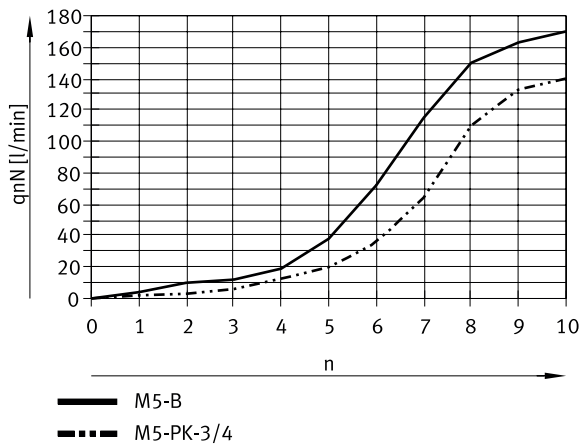
Technical data – female thread/barbed connector		
Pneumatic connection, port 1	M5	
Pneumatic connection, port 2 ¹⁾	M5	PK-3
Valve function	Flow control function	
Adjustment component	Slotted head screw	
Type of mounting	Screw-in	
Mounting position	Any	
Max. tightening torque	1.5 Nm	
Operating pressure	0 ... 10 bar	
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)	
Ambient temperature	-10 ... 60°C	
Media temperature	-10 ... 60°C	
Material adjusting screw	Brass	
Material swivel fitting	Die-cast zinc	
Material screwed plug	Brass, nickel-plated	
Material seals	NBR	
Note on materials	RoHS compliant	
LABS (PWIS) conformity	VDMA24364-B1/B2-L	
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1	

1) M5: This product conforms to ISO 1179-1 and ISO 228-1

Standard nominal flow rate qnN at 6 → 5 bar as a function of spindle rotations n



Datasheet

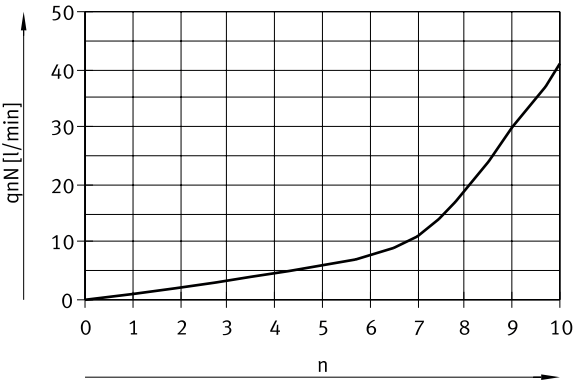
Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n 

Technical data – Push-in connector QS

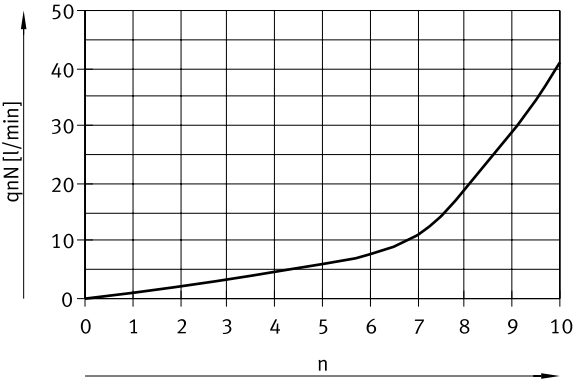
Pneumatic connection, port 1	M3	M5
Pneumatic connection, port 2	QS-3	QS-3, QS-4
Valve function	Flow control function	
Adjustment component	Slotted head screw	
Type of mounting	Screw-in	Screw-in, With male thread
Mounting position	Any	
Nominal torque	–	1.3 Nm
Tolerance for nominal tightening torque	–	±20%
Max. tightening torque	0.3 Nm	–
Operating pressure	–	0 ... 1 MPa
Operating pressure	0 ... 10 bar	–
Operating pressure	–	0 ... 145 psi
Operating pressure complete temperature range	–	0 ... 10 bar
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)	
Ambient temperature	-10 ... 60°C	
Media temperature	-10 ... 60°C	
Material adjusting screw	Brass	
Material swivel fitting	Die-cast zinc	
Material screwed plug	Brass	–
Material seals	NBR	
Note on materials	RoHS compliant	
LABS (PWIS) conformity	VDMA24364-B1/B2-L	
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1	

Datasheet

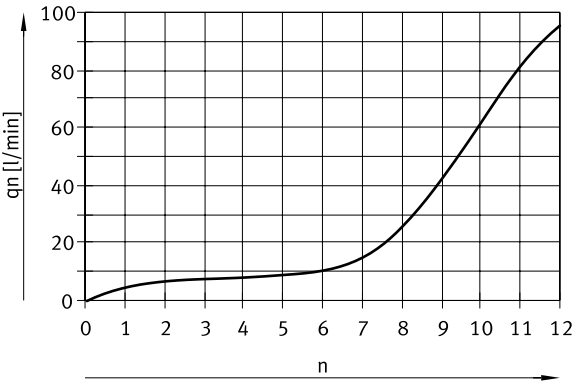
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GRLO-M3)



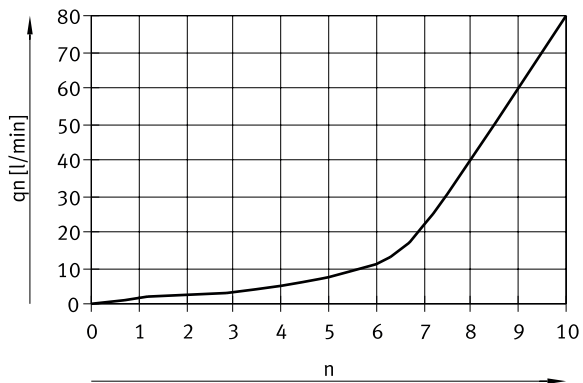
Standard nominal flow rate q_{nN} at 6 → 5 bar as a function of spindle rotations n (GRLO-M5)



Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n (GRLO-M3)

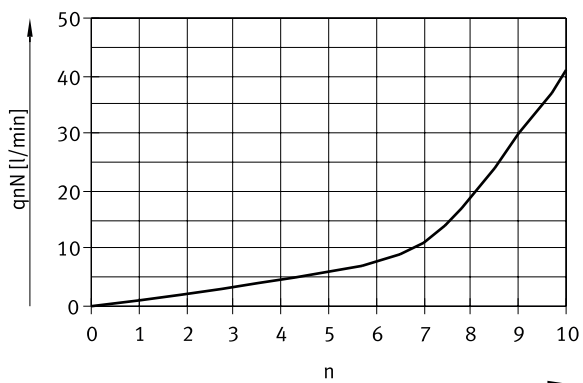


Datasheet

Standard flow rate q_n at 6 → 0 bar as a function of spindle rotations n (GRLO-M5)

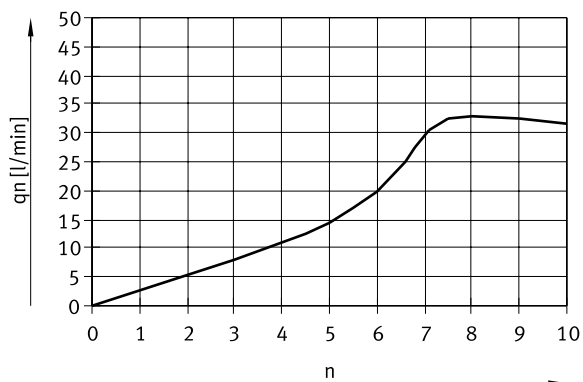
Technical data – Female thread

Pneumatic connection, port 1	M3
Pneumatic connection, port 2	M3
Valve function	Flow control function
Adjustment component	Slotted head screw
Type of mounting	Screw-in
Mounting position	Any
Max. tightening torque	0.3 Nm
Operating pressure	0 ... 10 bar
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)
Ambient temperature	-10 ... 60°C
Media temperature	-10 ... 60°C
Material adjusting screw	Brass
Material swivel fitting	Die-cast zinc
Material screwed plug	Brass
Material seals	NBR
Note on materials	RoHS compliant
LABS (PWIS) conformity	VDMA24364-B1/B2-L
Cleanroom suitability, measured according to ISO 14644-14	Class 4 according to ISO 14644-1

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

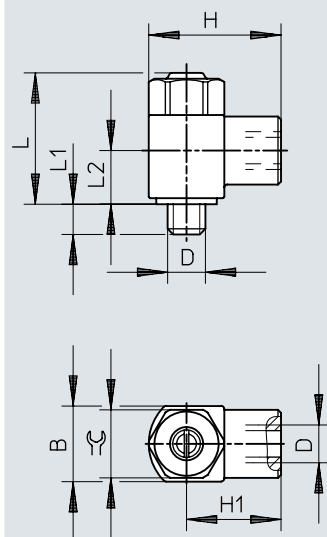
Datasheet

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



Dimensions

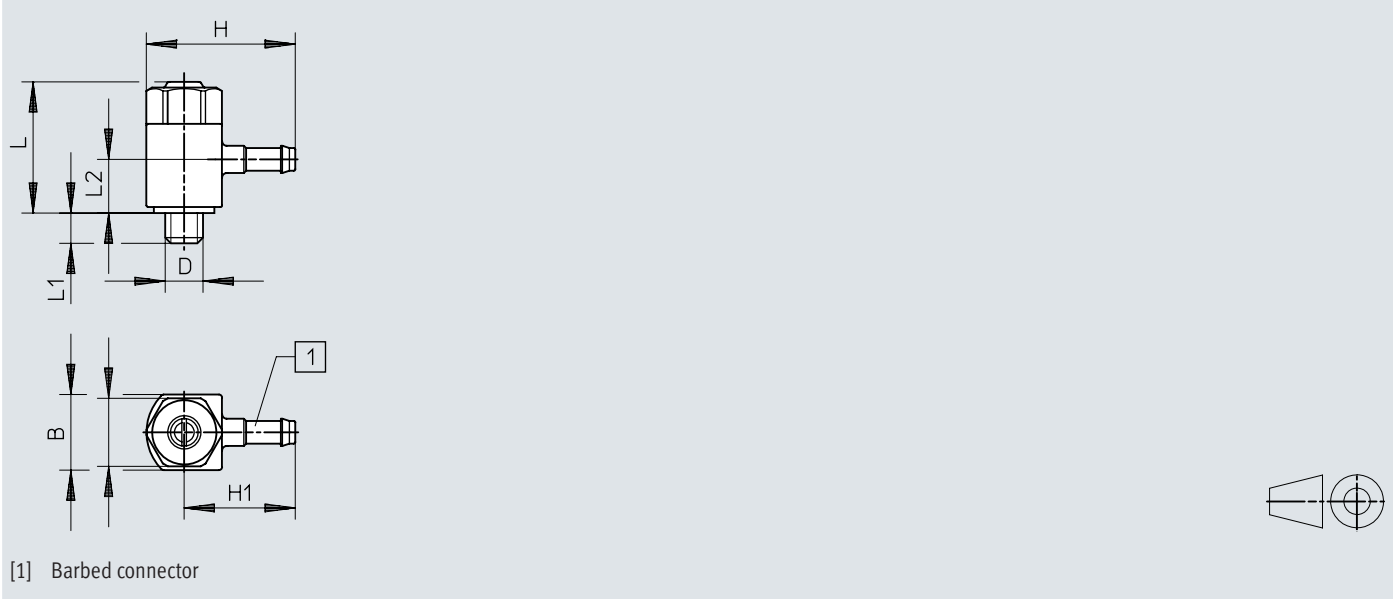
Dimensions – GRLO, female thread

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	D	B	~H	~H1	~L	L1	~L2	≡C
GRLO-M5	M5	10 -0,15	17,5	12,5	18 ±6,2%	4 ±0,3	7,1	9

Dimensions

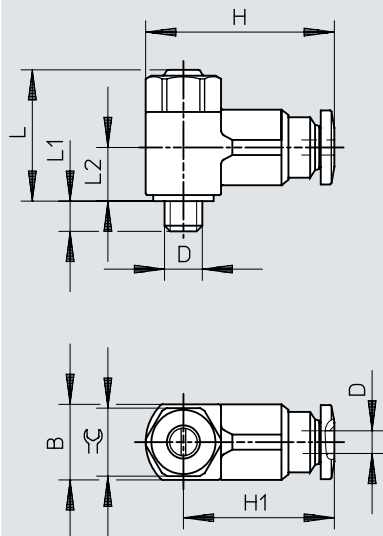
Dimensions – GRLO, push-in connector Download CAD data www.festo.com



	D	B	~H	~H1	~L	L1	~L2	≅
GRLO-M5-PK-3	M5	10 -0,15	19,7	14,7	18 ±5,7%	4 ±0,3	8,5	9

Dimensions

Dimensions – GRLO, mini

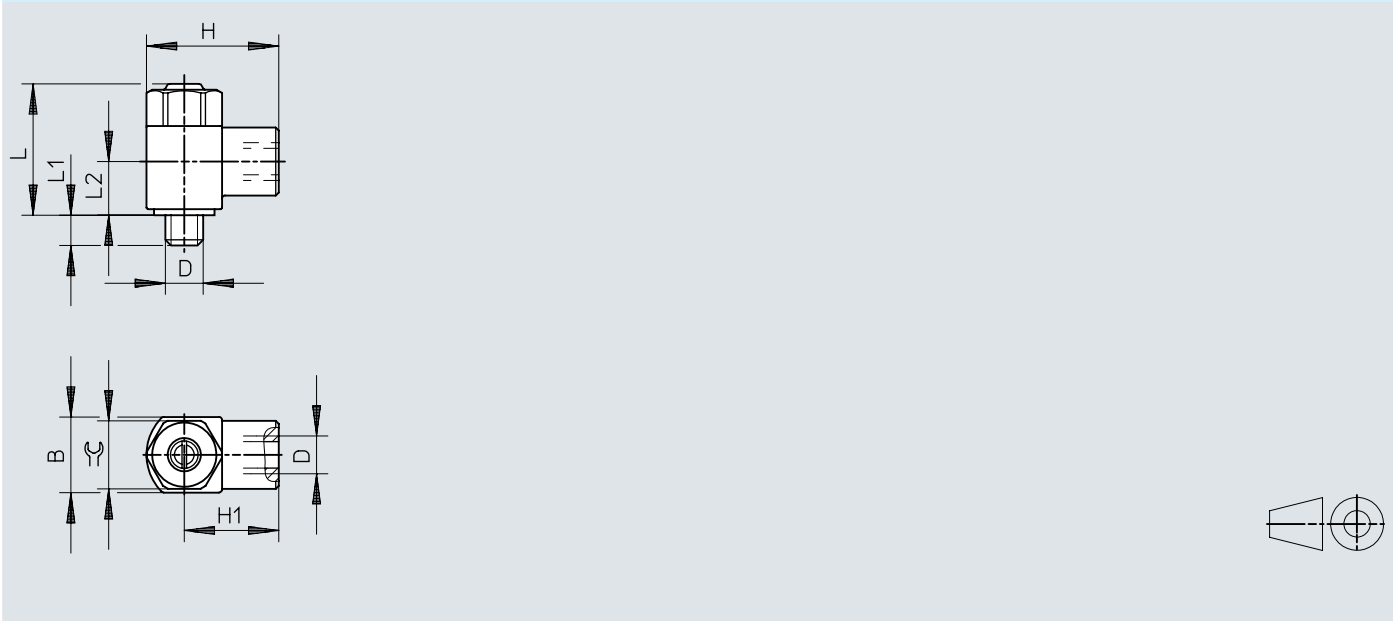
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	D	D1 Ø	B	~H	~H1
GRLO	M3	3	8 -0,15	20	15,8
	M5	3	9,8 -0,15	22,4	18,4
		4	9,8 -0,15	22,2	18,2

	D	~L		L1	~L2	≈C
GRLO	M3	16,6	±3,3%	2,3 +0,15/-0,3	7	7
	M5	17,2	±3,1%	3,1 +0,15/-0,35	7,3	
		17,2	±3,1%	3,1 +0,15/-0,35	7,3	

Dimensions

Dimensions – GRLO, female thread, metal Download CAD data www.festo.com



	D	B	~H	~H1	~L	L1	~L2	≡C
GRLO	M3	5 -0,1	9	6,5	13,4 ±3,9%	2,5 +0,15/-0,3	6,4	4,5

Ordering data

Ordering data – Female thread/barbed connector

	Pneumatic connection, port 1	Standard nominal flow rate in flow control direction	Standard flow rate in flow control direction 0.6- >0 MPa (6->0 bar, 87->0 psi)	Product weight	Part no.	Type
	M5	83 l/min	140 l/min	10 g	151182	GRLO-M5-PK-3-B
		95 l/min	169 l/min	11 g	151181	GRLO-M5-B

Ordering data – Push-in connector QS

	Pneumatic connection, port 1	Standard nominal flow rate in flow control direction	Standard flow rate in flow control direction 0.6- >0 MPa (6->0 bar, 87->0 psi)	Product weight	Part no.	Type
	M3	41 l/min	95 l/min	7 g	175042	GRLO-M3-QS-3
	M5	40 l/min	80 l/min	9 g	175054	GRLO-M5-QS-3-LF-C
					175057	GRLO-M5-QS-4-LF-C

Ordering data – Female thread

	Pneumatic connection, port 1	Standard nominal flow rate in flow control direction	Standard flow rate in flow control direction 0.6- >0 MPa (6->0 bar, 87->0 psi)	Product weight	Part no.	Type
	M3	18 l/min	33 l/min	2 g	175039	GRLO-M3