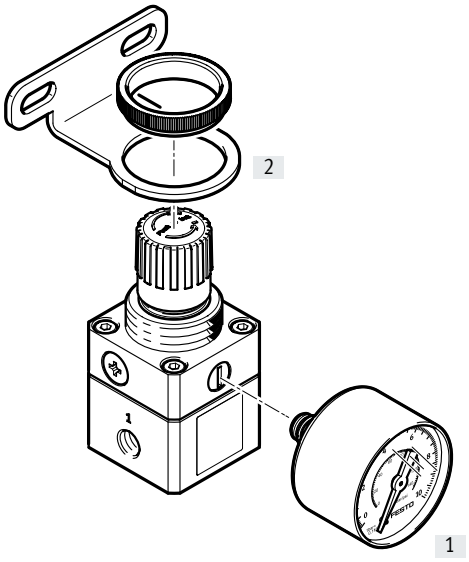
Precision pressure regulators LRP/LRPS

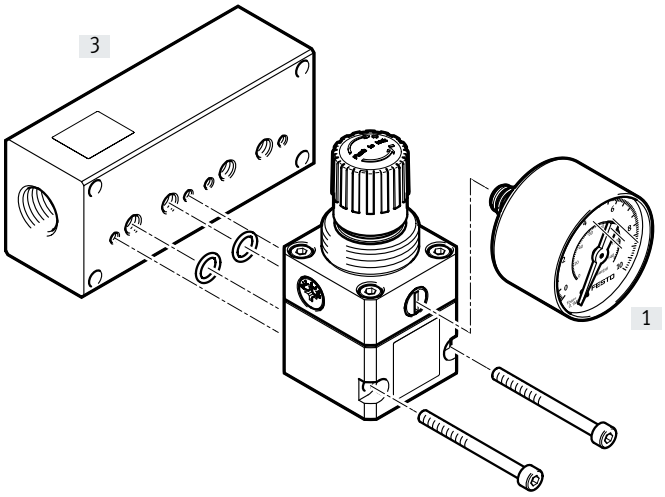
Peripherals overview and type codes

Peripherals overview

Precision pressure regulator LRP-1/8-6



Precision pressure regulator LRP-7.0-6



Mounting components and accessories		→ Page/Internet
[1]	Precision pressure gauge PAGN	14
[2]	Mounting bracket MS4-WR	14
[3]	Manifold block for manifold assembly of 2 or 4 valves MRS	12

Type codes

001	Series	
LRP	Precision pressure regulator	
LRPS	Precision pressure regulator, lockable	

002	Pneumatic connection	
1/8	Female thread G1/8	
1/4	Female thread G1/4	
7.0	For sub-base diameter 7 mm	

003	Pressure regulation range	
0,7	Up to 0.7 bar	
2,5	Up to 2.5 bar	
4	Up to 4 bar	
6	Up to 6 bar	
10	Up to 10 bar	

004	EU certification	
	None	
EX4	II 2GD	

Data sheet

Function

- Flow rate
  300 l/min
- Temperature range
  –10 ... +60°C
- Operating pressure
  1 ... 8 bar

LRP-1/8-6

LRP-7.0-6

Note

A manifold block MRS is required to connect the precision pressure regulator LRP-7.0-6 to the compressed air supply. The mounting kit with screws and sealing rings is included with the device.

The precision pressure regulator is suitable for sensitive applications requiring a pressure hysteresis of 0.02 bar. The output pressure p2 can be set within the pressure regulation range.

In the event of a failure of the compressed air supply, the output pressure p2 is exhausted via connection 3 (secondary exhausting).

- Precision pressure adjustment possible both in static and dynamic applications
- Operating pressure fluctuations are almost entirely compensated
- Good response characteristics during rapid changes to operating pressure and flow rate

General technical data			
Type		LRP-1/8-6	LRP-7.0-6
Pneumatic connection 1, 2		G1/8	For sub-base with a diameter of 7 mm
Pressure gauge connection		G1/8	
Design		Piloted precision diaphragm regulator	
Regulator function		Output pressure constant, with secondary exhausting	
Type of mounting		Via accessories	
		Front panel mounting	
		In-line installation	
Mounting position		Any	
Actuator lock		Rotary knob with detent	
Pressure regulation range	[bar]	0.1 ... 6	
Max. pressure hysteresis	[bar]	0.02	
Pressure indicator		Prepared for G1/8	

Standard nominal flow rate qnN [l/min]			
Type		LRP-1/8-6	LRP-7.0-6
Standard nominal flow rate	[l/min]	300[1)]	240[2)]

1) Measured at p1 = 8 bar and p2 = 6 bar, Δp2 = 100 mbar.
2) Measured on manifold block MRS-4 at p1 = 8 bar and p2 = 6 bar, Δp2 = 100 mbar.

Operating and environmental conditions		
Operating pressure	[bar]	1 ... 8
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
		Inert gases
Note on operating/ pilot medium		Lubricated operation not possible
Ambient temperature	[°C]	–10 ... +60
Temperature of medium	[°C]	–10 ... +60
Storage temperature	[°C]	–10 ... +60
Corrosion resistance class CRC[1)]		2

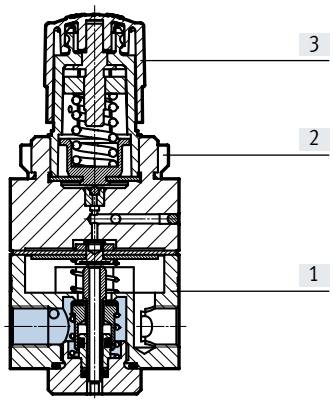
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Data sheet

Weight [g]	
Precision pressure regulator	200

Materials

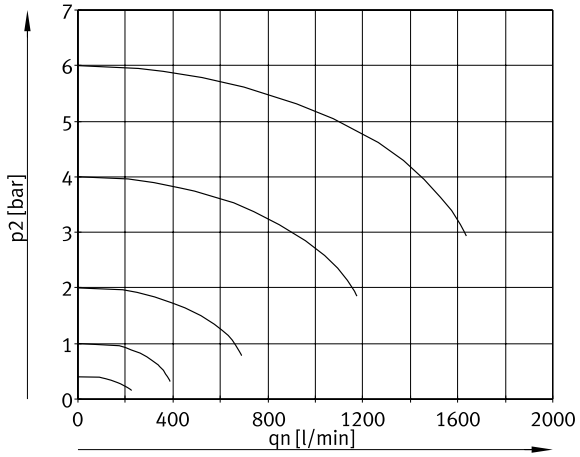
Sectional view



Precision pressure regulator		
[1]	Housing	Aluminium
[2]	Knurled nut	Aluminium
[3]	Rotary knob	PA
–	Diaphragm, seals	NBR
Note on materials		RoHS-compliant

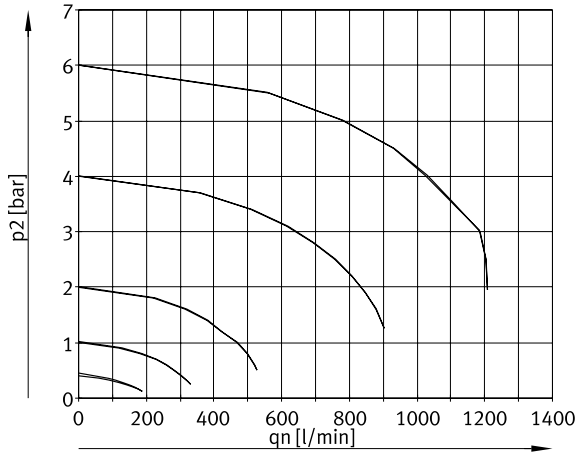
Standard flow rate qn as a function of output pressure p2

LRP-1/8-6



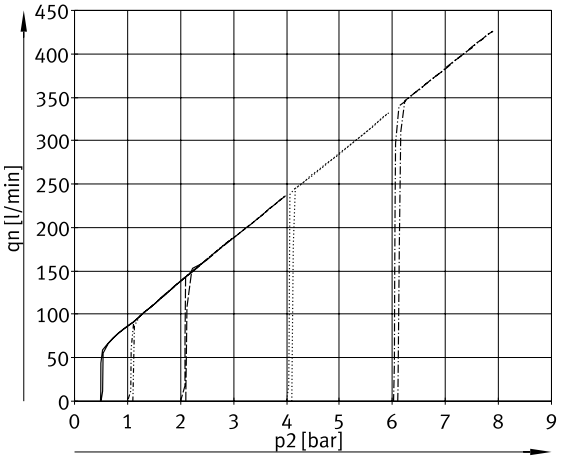
Operating pressure p1 = 8 bar

LRP-7.0-6



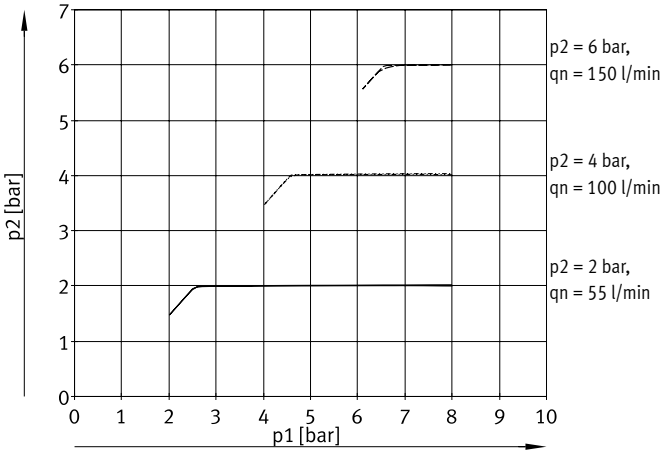
Operating pressure p1 = 8 bar

Standard flow rate qn_{2-3} through secondary exhausting as a function of output pressure p2



Operating pressure p1 = 8 bar

Output pressure p2 as a function of operating pressure p1

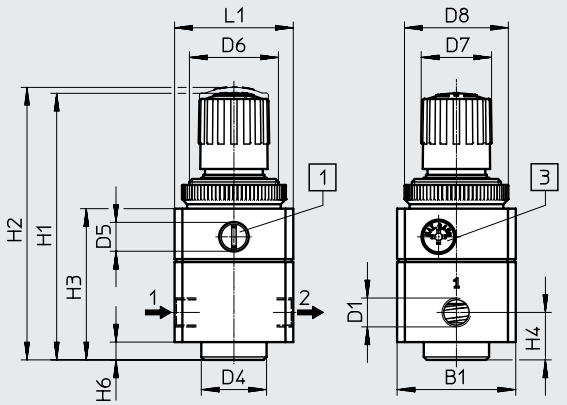


Data sheet

Internal air consumption qn as a function of operating pressure p1

Dimensions Download CAD data ➔ www.festo.com

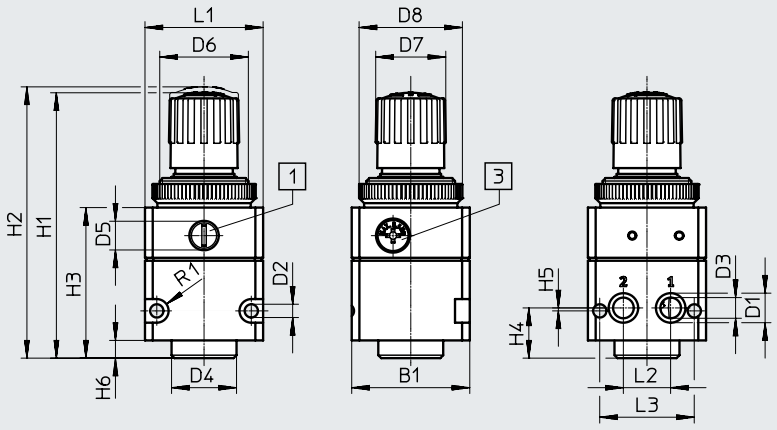
LRP-1/8-6



[1] Pressure gauge connection
[3] Flow control filter

➔ Flow direction

LRP-7.0-6



[1] Pressure gauge connection
[3] Flow control filter

Type	B1	D1	D2 ø	D3 ø	D4 ø	D5	D6	D7 ø	D8 ø	H1	H2	H3	H4	H5	H6	L1	L2	L3	R1
LRP-1/8-6	40	G1/8	–	–	22	G1/8	M30x1.5	24	35	~90	~92	51	16	–	6	40	–	–	–
LRP-7.0-6		ø 10	4.5	7									17	1			16	32	4

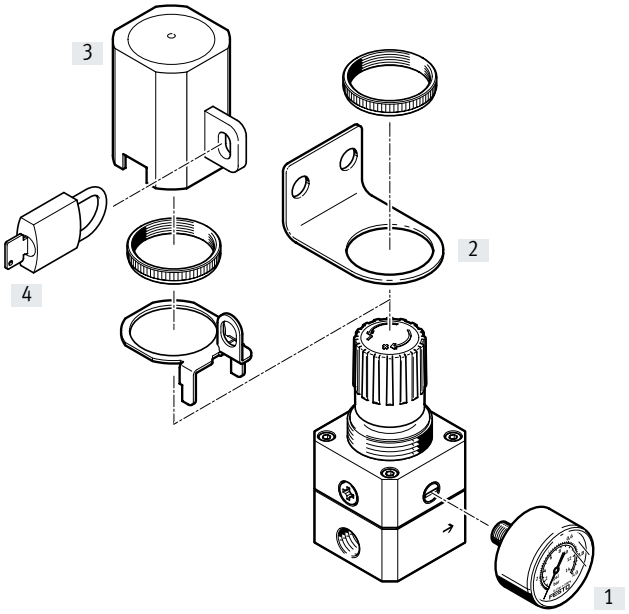
Ordering data

Pressure regulation range [bar]	Pneumatic connection 1, 2	Part no.	Type
0.1 ... 6	G1/8	**2416371**	**LRP-1/8-6**
	For sub-base with a diameter of 7 mm	**2418761**	**LRP-7.0-6**

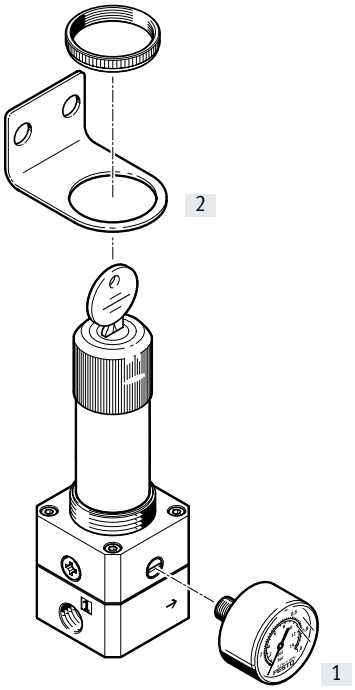
Peripherals overview and type codes

Peripherals overview

Precision pressure regulator LRP



Precision pressure regulator LRPS



Mounting components and accessories		→ Page/Internet
[1]	Precision pressure gauge MAP	14
[2]	Mounting bracket HR	13
[3]	Regulator lock with locking plate LRVS-LRP	13
[4]	Padlock LRVS-D	13

Type codes

001	Series	
LRP	Precision pressure regulator	
LRPS	Precision pressure regulator, lockable	

002	Pneumatic connection	
1/8	Female thread G1/8	
1/4	Female thread G1/4	
7.0	For sub-base diameter 7 mm	

003	Pressure regulation range	
0,7	Up to 0.7 bar	
2,5	Up to 2.5 bar	
4	Up to 4 bar	
6	Up to 6 bar	
10	Up to 10 bar	

004	EU certification	
	None	
EX4	II 2GD	

Data sheet

Function

Flow rate
800 ... 2300 l/min

Temperature range
–10 ... +60°C

Operating pressure
1 ... 12 bar

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The precision pressure regulator controls the operating pressure (secondary side) using a diaphragm pilot control. This acts on the main seat and thus improves the regulating characteristics.

- Precision pressure adjustment possible both in static and dynamic applications
- Pressure hysteresis of < 0.02 bar for flow rate characteristic curves
- Good response characteristics during rapid changes to input pressure and flow rate
- Input pressure fluctuations are almost entirely compensated
- Product variants LRP-...-EX4 can be used in zones 1 and 2 of explosive gas atmospheres and in zones 21 and 22 of explosive dust atmospheres

General technical data					
LRP/LRPS-1/4-...		0.7	2.5	4	10
Pneumatic connection 1, 2		G1/4			
Design		Piloted precision diaphragm regulator			
Regulator function		Output pressure constant, with secondary exhausting			
Type of mounting		Via accessories			
		Front panel mounting			
		In-line installation			
Mounting position		Any			
Actuator lock		Rotary knob with detent			
		Rotary knob with integrated lock			
Pressure regulation range	[bar]	0.05 ... 0.7	0.05 ... 2.5	0.05 ... 4	0.1 ... 10
Max. pressure hysteresis	[bar]	0.02			
Pressure indicator		Prepared for G1/8			

Standard nominal flow rate[1] qnN [l/min]					
LRP/LRPS-1/4-...		0.7	2.5	4	10
Standard nominal flow rate	[l/min]	800	1800	2000	2300

1) Measured at p1 = 12 bar and Δp2 = 100 mbar.

Operating and environmental conditions		
Operating pressure	[bar]	1 ... 12
Operating medium		Compressed air to ISO 8573-1:2010 [7:4:4]
		Inert gases
Note on operating/ pilot medium		Lubricated operation not possible
Ambient temperature	[°C]	–10 ... +60
Temperature of medium	[°C]	–10 ... +60
Corrosion resistance class CRC[1]		2

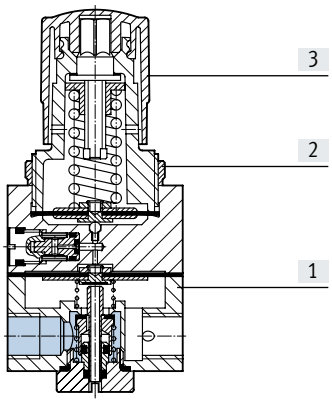
1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Weight [g]			
Type	LRP	LRP-...-EX4	LRPS
Precision pressure regulator	310	315	410

Data sheet

Materials

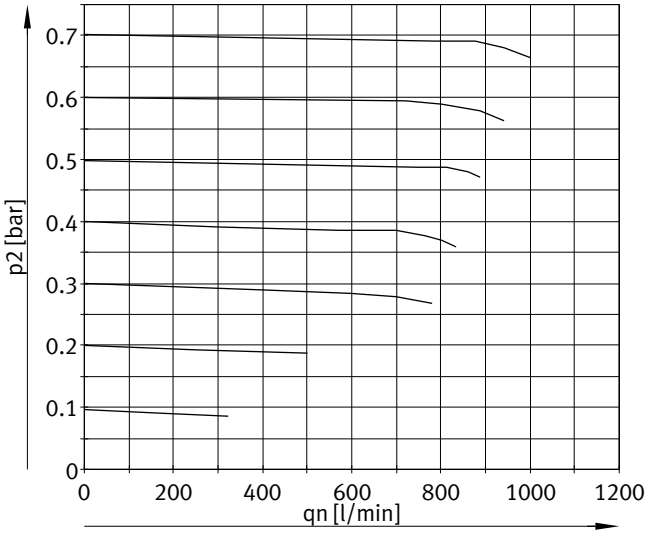
Sectional view



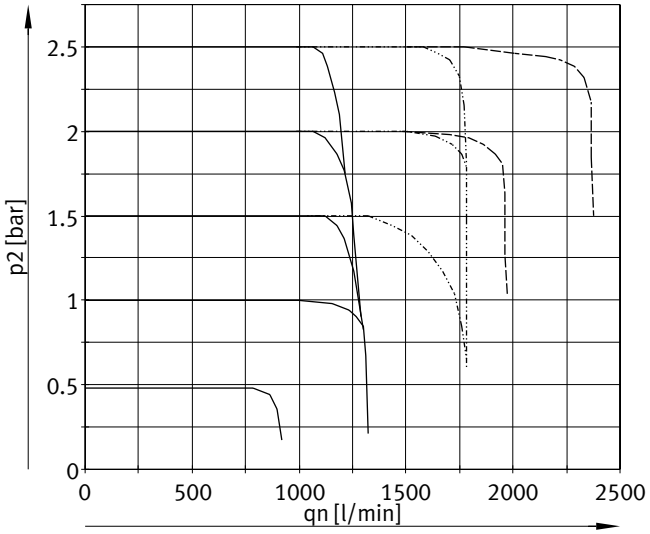
Precision pressure regulator		
[1]	Housing	Die-cast aluminium
[2]	Knurled nut	Aluminium
[3]	Rotary knob	PA
–	Seals	NBR
Note on materials		RoHS-compliant

Standard flow rate qn as a function of output pressure p2

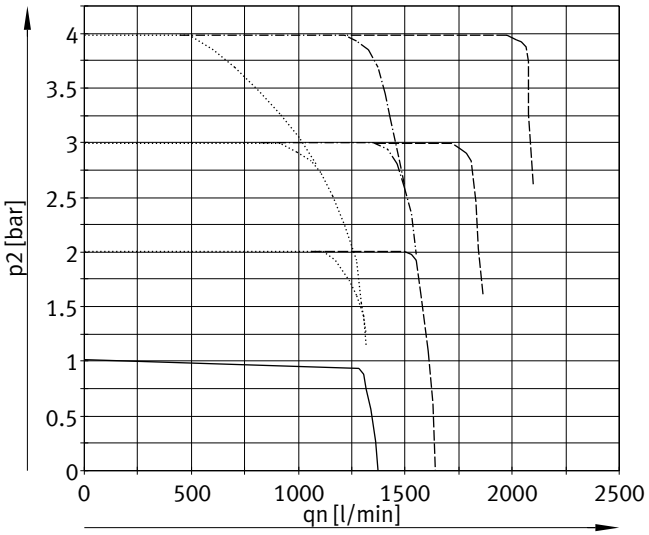
LRP/LRPS-1/4-0.7



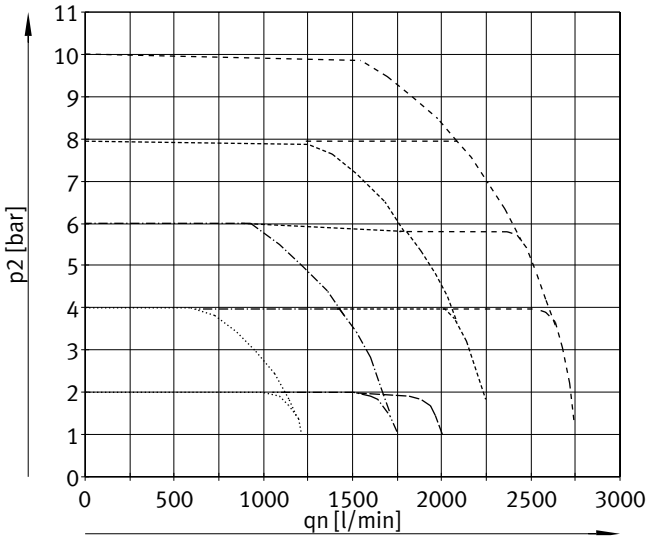
LRP/LRPS-1/4-2.5



LRP/LRPS-1/4-4



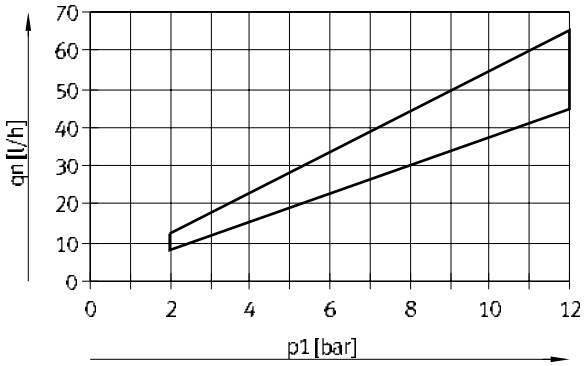
LRP/LRPS-1/4-10



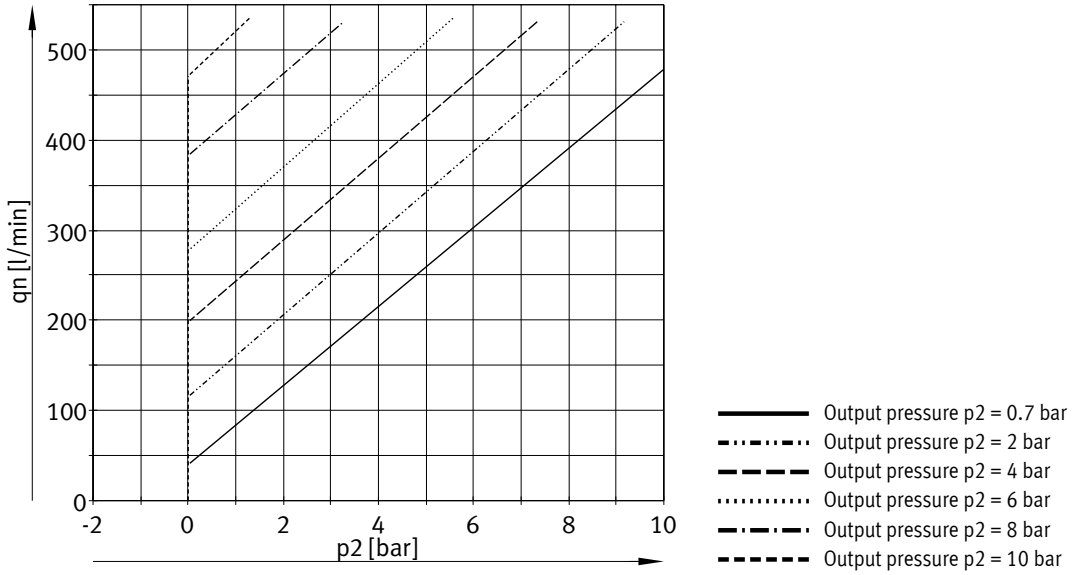
Operating pressure p1 = 5 ... 12 bar
Operating pressure p1 = 7 ... 12 bar
Operating pressure p1 = 10 ... 12 bar
Operating pressure p1 = 5 bar
Operating pressure p1 = 7 bar
Operating pressure p1 = 10 bar
Operating pressure p1 = 12 bar

Data sheet

Internal air consumption qn as a function of operating pressure p1



Standard flow rate qn_{2-3} through secondary exhausting as a function of outlet excess pressure p2'

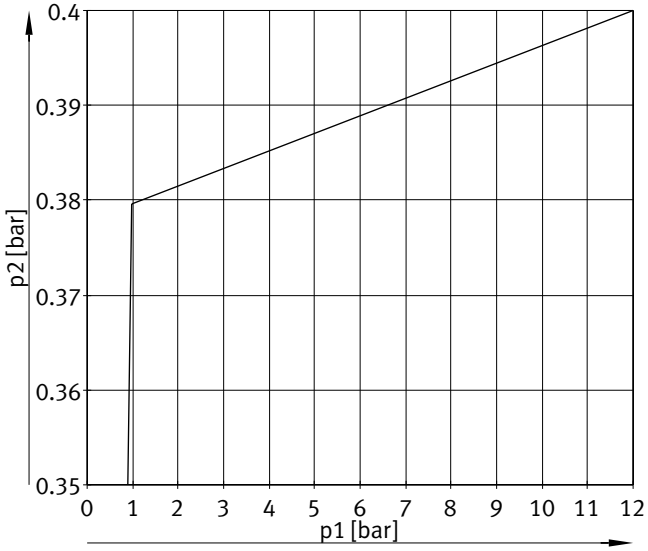


Operating pressure p1 = 5 ... 12 bar

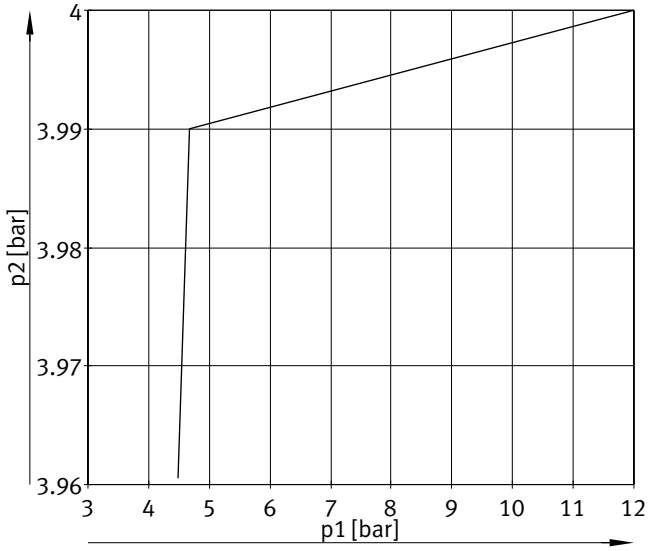
Data sheet

Output pressure p2 as a function of operating pressure p1

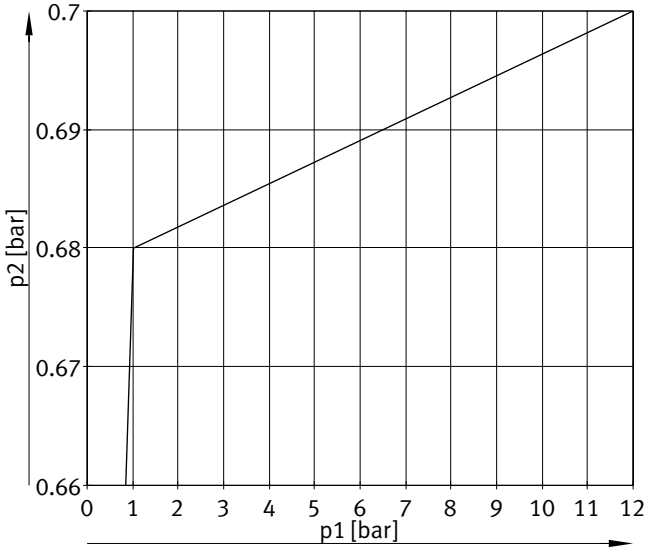
Primary pressure dependence qn = 35 l/min



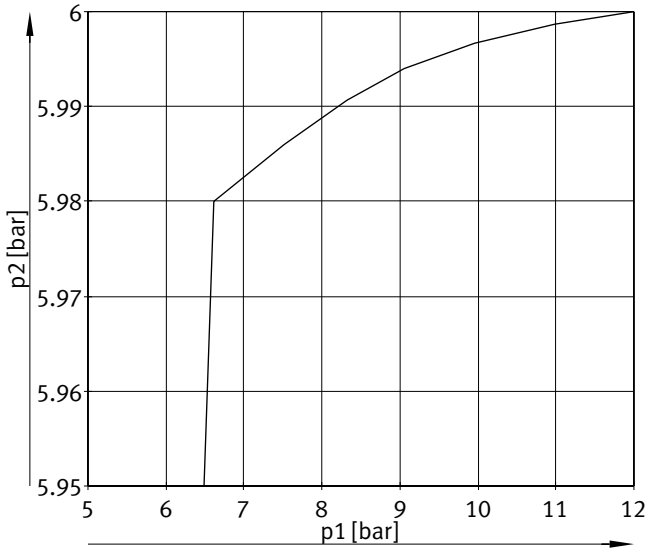
Primary pressure dependence qn = 220 l/min



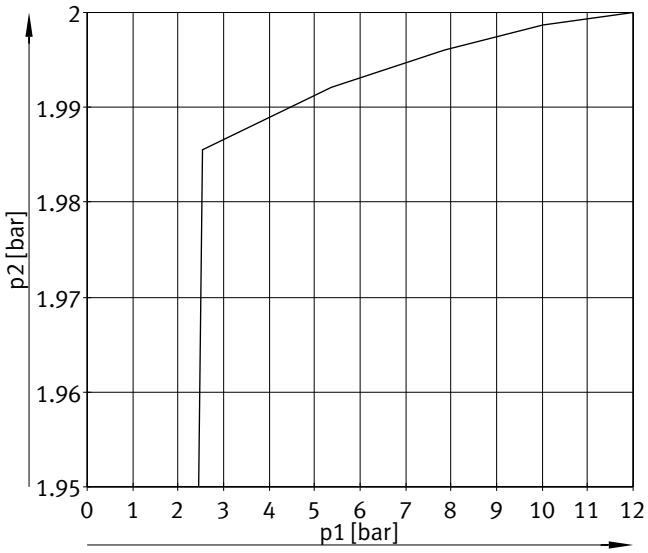
Primary pressure dependence qn = 55 l/min



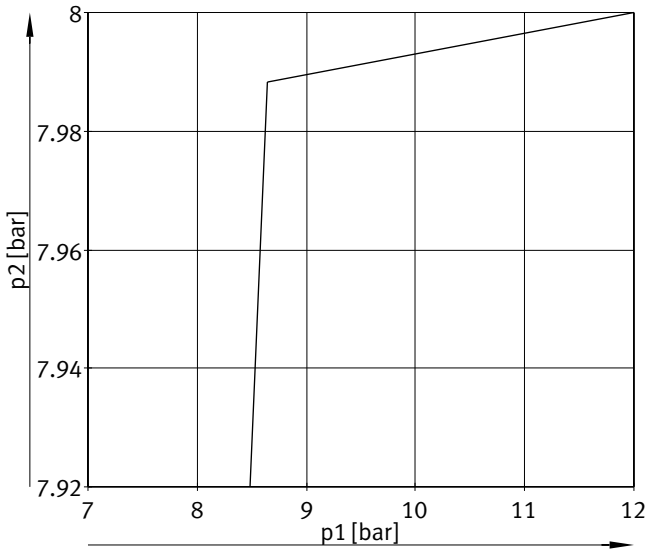
Primary pressure dependence qn = 340 l/min



Primary pressure dependence qn = 120 l/min

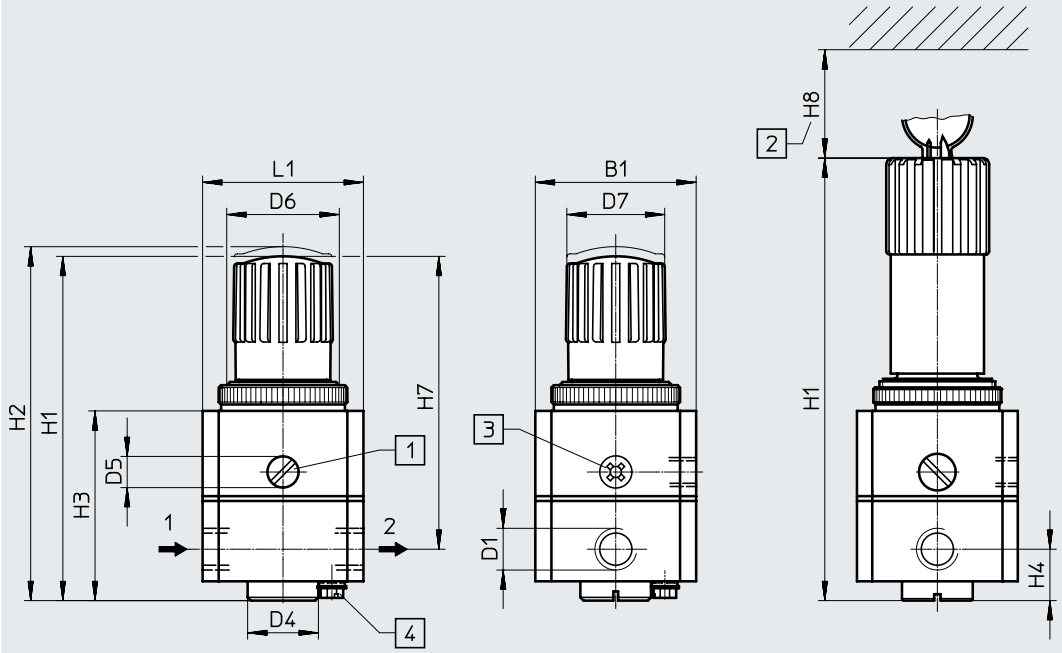


Primary pressure dependence qn = 420 l/min



Data sheet

Dimensions Download CAD data ➔ www.festo.com



[1] Pressure gauge connection
[2] Installation dimension
[3] Flow control filter
[4] Earthing screw (only with LRP-...-EX4)
➔ Flow direction

Type	B1	D1	D4 ø	D5	D6	D7 ø	H1	H2	H3	H4	H7	H8 min.	L1
LRP	50	G1/4	22	G1/8	M36x1.5	31	108	111	59	16	92	–	50
LRPS							138	–			–	60	

Ordering data

Pressure regulation range [bar]	Precision pressure regulator LRP		Lockable precision pressure regulator LRPS	
	Part no.	Type	Part no.	Type
0.05 ... 0.7	**159500**	**LRP-1/4-0.7**	**194690**	**LRPS-1/4-0.7**
0.05 ... 2.5	**162834**	**LRP-1/4-2.5**	**194691**	**LRPS-1/4-2.5**
0.05 ... 4	**159501**	**LRP-1/4-4**	**194692**	**LRPS-1/4-4**
0.1 ... 10	**159502**	**LRP-1/4-10**	**194693**	**LRPS-1/4-10**
For use in potentially explosive areas in zones 1, 2 as well as 21, 22				
0.05 ... 0.7	**549918**	**LRP-1/4-0.7-EX4**		
0.05 ... 2.5	**549919**	**LRP-1/4-2.5-EX4**		
0.05 ... 4	**549920**	**LRP-1/4-4-EX4**		
0.1 ... 10	**549921**	**LRP-1/4-10-EX4**		

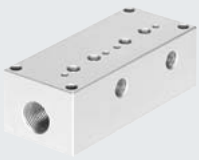
Accessories

Manifold block MRS
for precision pressure regulator
LRP-7.0-6

- For manifold assembly of 2 or 4 valves
- Continuous compressed air supply in the manifold block
- G3/8 connection for compressed air supply, G1/8 connections for working pressure
- Vacant positions can be sealed with blanking plugs

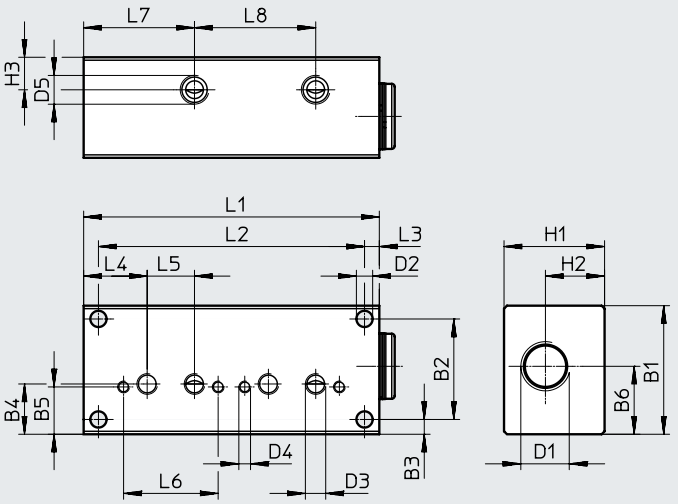
Operating pressure: –0.9 ... 10 bar

Material:
Wrought aluminium alloy
RoHS-compliant



MRS-2

MRS-4



Type	B1	B2	B3	B4	B5	B6	D1	D2 ø	D3	D4	D5	H1	H2	H3
MRS-2	43.5	34	5	17	16	23	G3/8	5.5	M7	M4	G1/8	34	20	11
MRS-4														

Type	L1	L2	L3	L4	L5	L6	L7	L8	Max. tightening torque	
									Regulator fastening [Nm]	Wall mounting [Nm]
MRS-2	100	90	5	21.5	16	32	37.5	41	2.5	4
MRS-4	182	172								

Ordering data

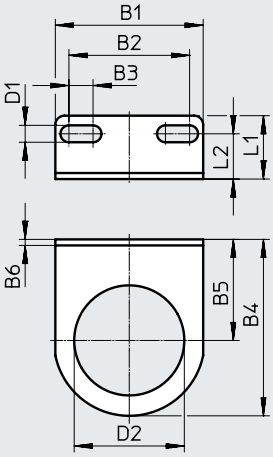
Pneumatic connection 1	Max. number of regulator positions	CRC[1)]	Weight [g]	Part no.	Type
G3/8	2	2	365	**2844247**	**MRS-2**
	4	2	650	**2844348**	**MRS-4**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Accessories

Mounting bracket HR
for precision pressure regulator LRP/LRPS, size 50
- For wall mounting

Material:
Galvanised steel
Free of copper and PTFE



Dimensions and ordering data

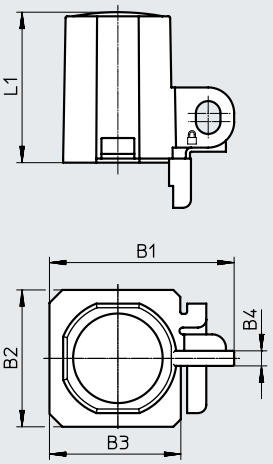
B1	B2	B3	B4	B5	B6	D1 ø	D2 ø +0.1	L1	L2	CRC[1]	Part no.	Type
49	40	8	58.5	33.5	2	5.6	36.5	21	15	2	**159503**	**HR-1/4-P**

1) Corrosion resistance class CRC 2 to Festo standard FN 940070
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Regulator lock LRVS-LRP
for precision pressure regulator LRP, size 50

Material:
Cap: polyacetal
Locking plate: steel
Knurled nut: aluminium
Free of copper and PTFE

Ambient temperature:
–20 ... +60°C



Dimensions and ordering data

B1	B2	B3	B4	L1	Weight [g]	Part no.	Type
67.5	50	48	5.5	55	36	**193785**	**LRVS-LRP-1/4**

Padlock LRVS-D
for precision pressure regulator LRP, size 50

Material:
Housing: brass

Ambient temperature:
–20 ... +60°C

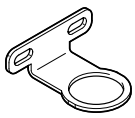
Ordering data

Weight [g]	Part no.	Type
120	**193786**	**LRVS-D**

Accessories

Ordering data – Mounting bracket MS4-WR

Data sheets → Internet: ms4-wr

	Description	Weight [g]	Part no.	Type
	For precision pressure regulator LRP, size 40, for wall mounting	49	**526064**	**MS4-WR**

Ordering data – Precision pressure gauge MAP/PAGN

	Nominal size	Pneumatic connection	Display range		Part no.	Type
			Outer scale	Inner scale		
	**Precision pressure gauge MAP, EN 837-1**					Data sheets → Internet: map
	40	R1/8	0 ... 1 bar	0 ... 15 psi	**161126**	**MAP-40-1-1/8-EN**
			0 ... 4 bar	0 ... 58 psi	**162842**	**MAP-40-4-1/8-EN**
			0 ... 6 bar	0 ... 87 psi	**161127**	**MAP-40-6-1/8-EN**
			0 ... 16 bar	0 ... 232 psi	**161128**	**MAP-40-16-1/8-EN**
	Precision pressure gauge PAGN, EN 837-1					Data sheets → Internet: pagn
	40	R1/8	0 ... 10 bar	0 ... 145 psi	**2849914**	**PAGN-40-10-R18-1.6**
			0 ... 1 MPa	0 ... 10 bar	**2849916**	**PAGN-40-1M-R18-1.6**