

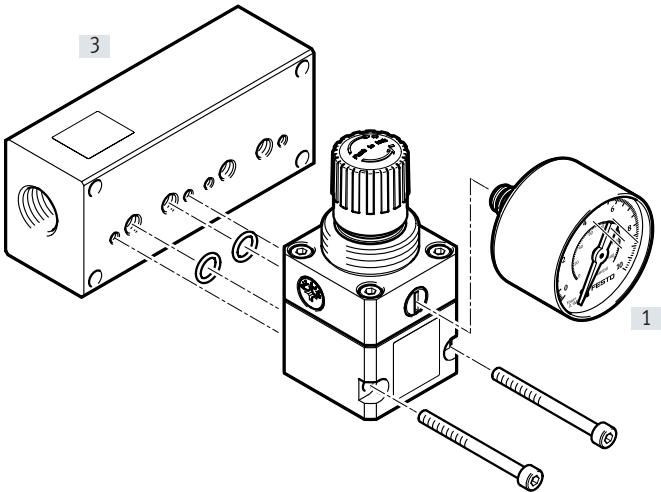
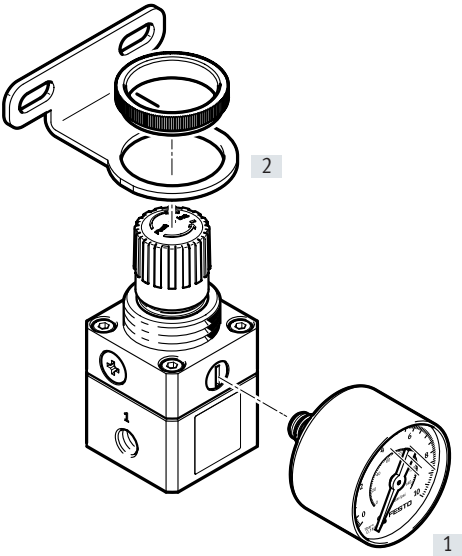
Precision pressure regulators LRP/LRPS

FESTO



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

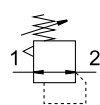
Type codes

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	Pilotless 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

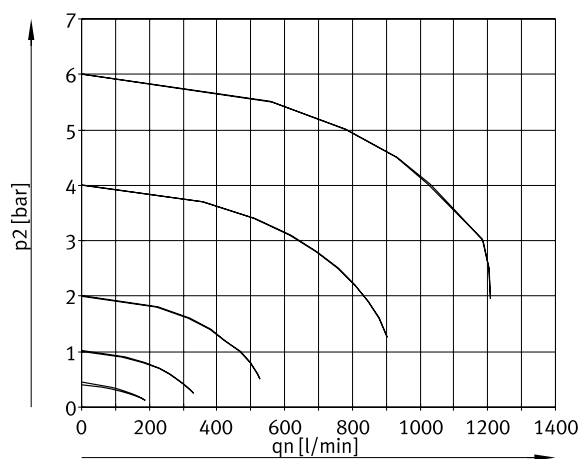
Moderate corrosion stress. Indoor applications in which condensation can occur. External visible parts with primarily decorative surface requirements which are in direct contact with a normal industrial environment.

Materials

Precision pressure regulator

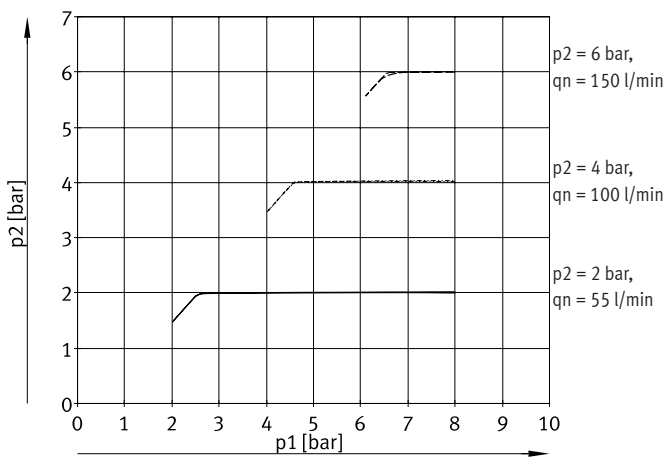
Standard flow rate q_n as a function of output pressure p_2

LRP-7.0-6



Operating pressure $p_1 = 8 \text{ bar}$

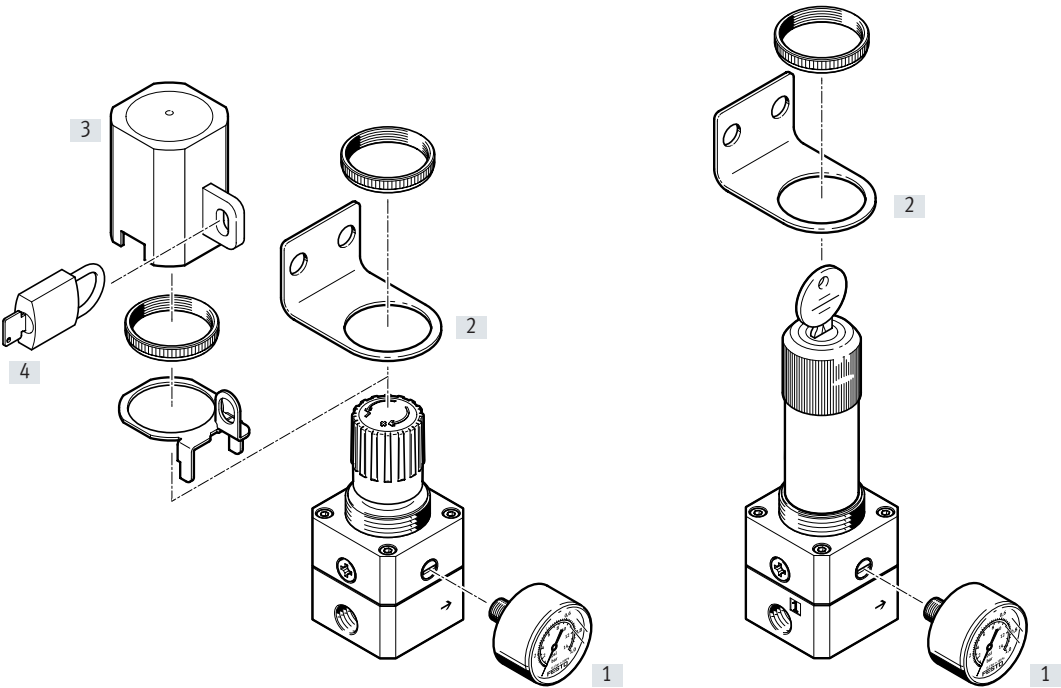
Output pressure p_2 as a function of operating pressure p_1



4

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

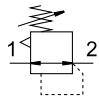
Type codes

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
-  - www.festo.com



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 rate¹⁾ q_N [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.

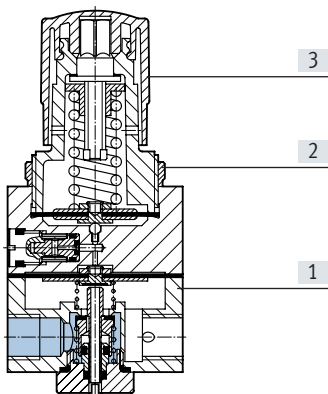
Weight [g]

Type	LRP	LRP-...-EX4	LRPS
Precision pressure regulator	310	315	410

Data sheet

Materials

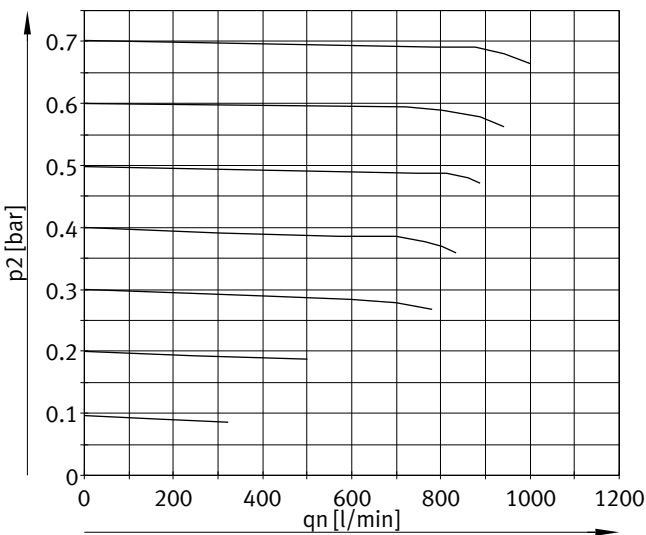
Sectional view



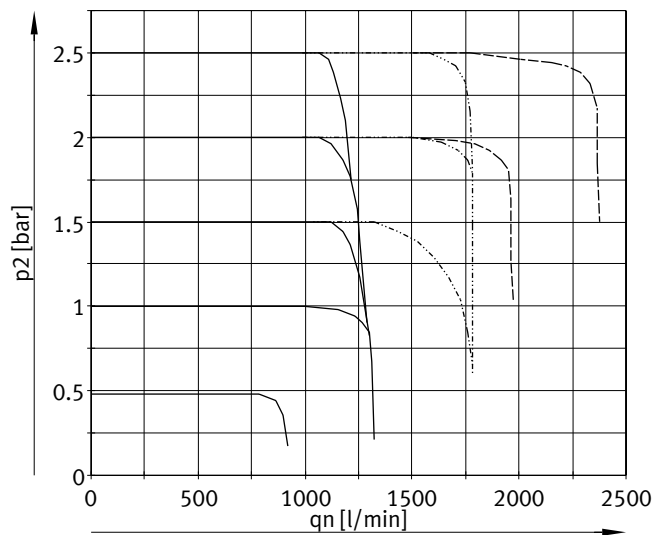
Precision pressure regulator		
[1]	Housing	Die-cast aluminium
[2]	Knurled nut	Aluminium
[3]	Rotary knob	PA
-	Seals	NBR
Note on materials		RoHS-compliant

Standard flow rate q_n as a function of output pressure p_2

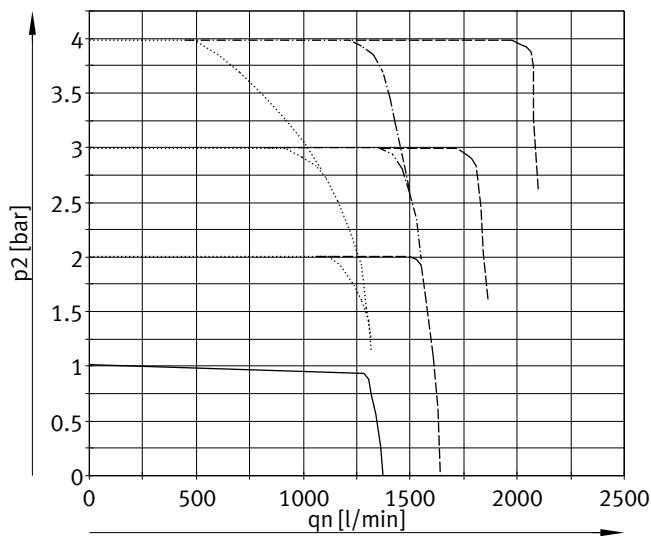
LRP/LRPS-1/4-0.7



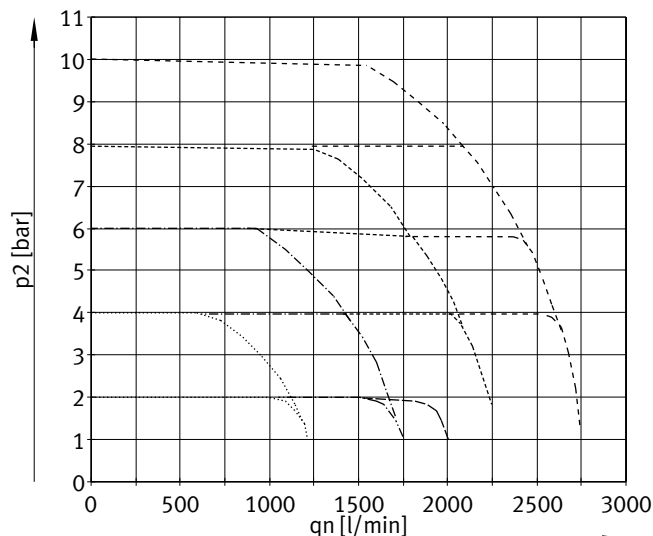
LRP/LRPS-1/4-2.5



LRP/LRPS-1/4-4



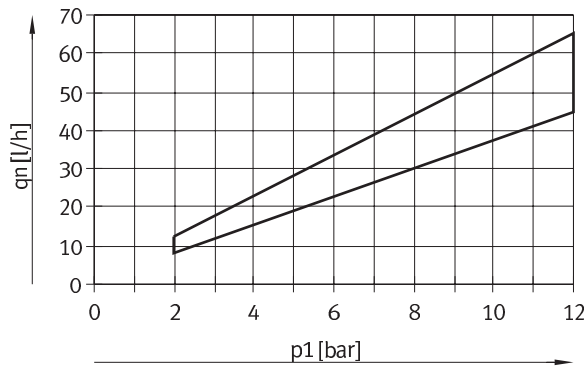
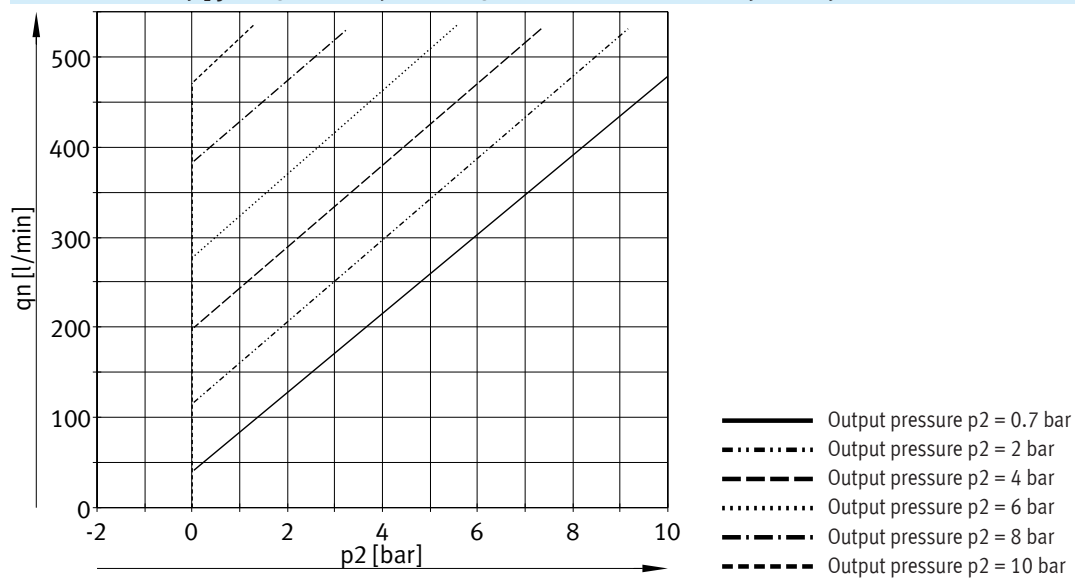
LRP/LRPS-1/4-10



— Operating pressure $p_1 = 5 \dots 12$ bar
- - - - - Operating pressure $p_1 = 7 \dots 12$ bar
- - - - - Operating pressure $p_1 = 10 \dots 12$ bar
..... Operating pressure $p_1 = 5$ bar

- . - . - . Operating pressure $p_1 = 7$ bar
- - - - - Operating pressure $p_1 = 10$ bar
- - - - - Operating pressure $p_1 = 12$ bar

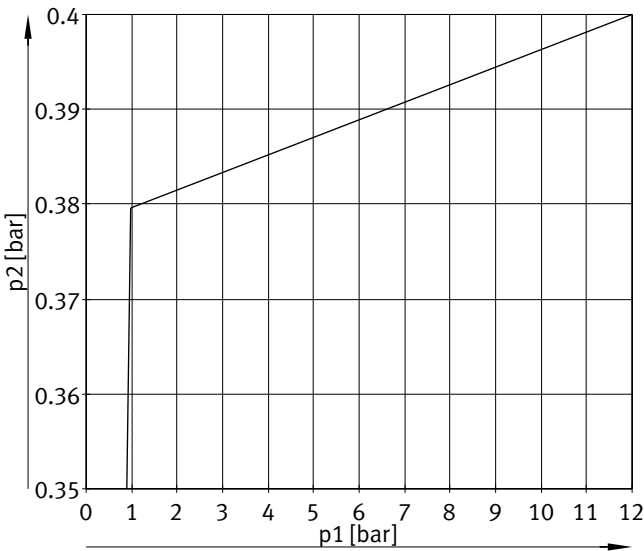
Data sheet

Internal air consumption q_n as a function of operating pressure p_1 Standard flow rate $q_{n2.3}$ through secondary exhausting as a function of outlet excess pressure p_2' Operating pressure $p_1 = 5 \dots 12$ bar

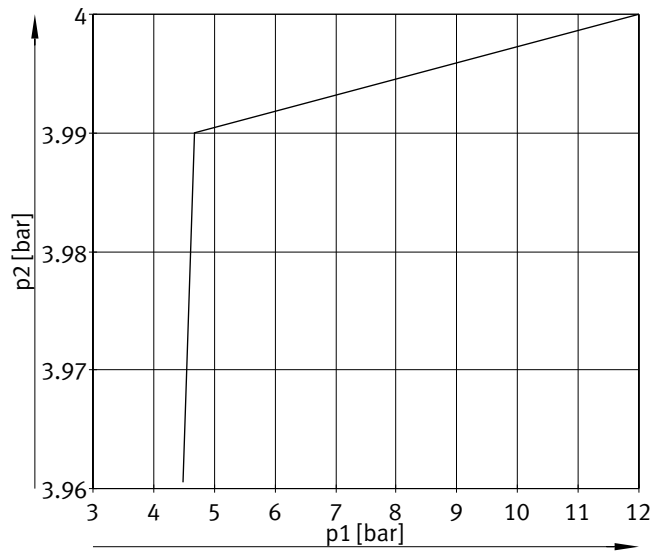
Data sheet

Output pressure p2 as a function of operating pressure p1

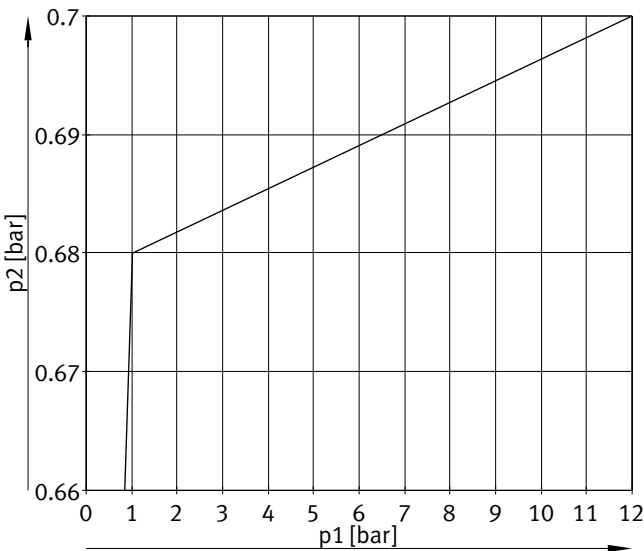
Primary pressure dependence qn = 35 l/min



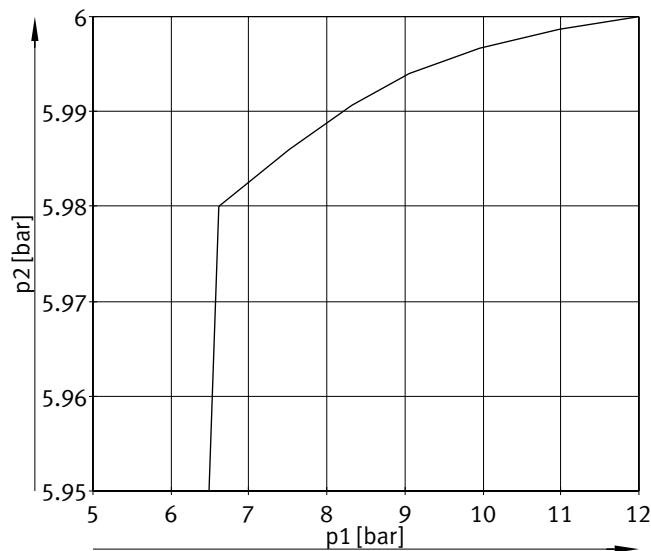
Primary pressure dependence qn = 220 l/min



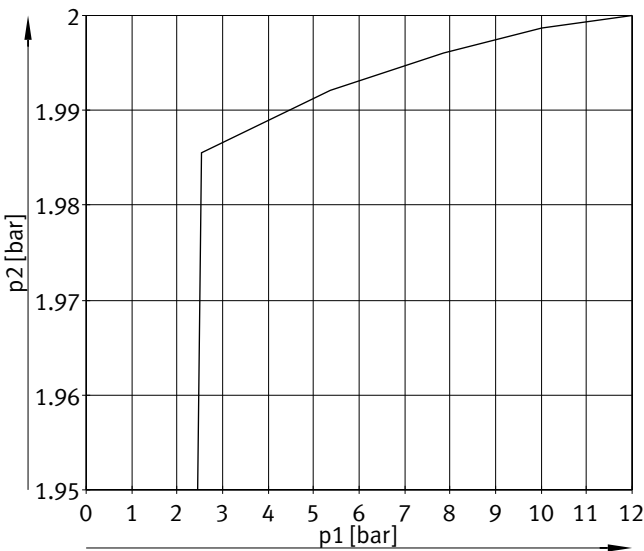
Primary pressure dependence qn = 55 l/min



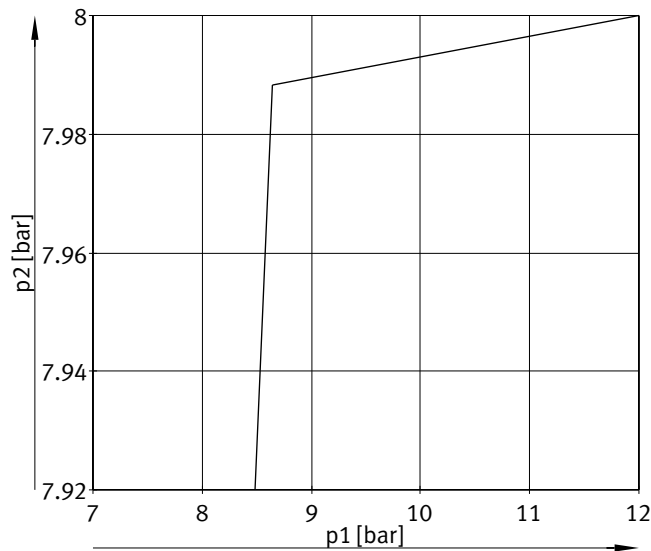
Primary pressure dependence qn = 340 l/min



Primary pressure dependence qn = 120 l/min

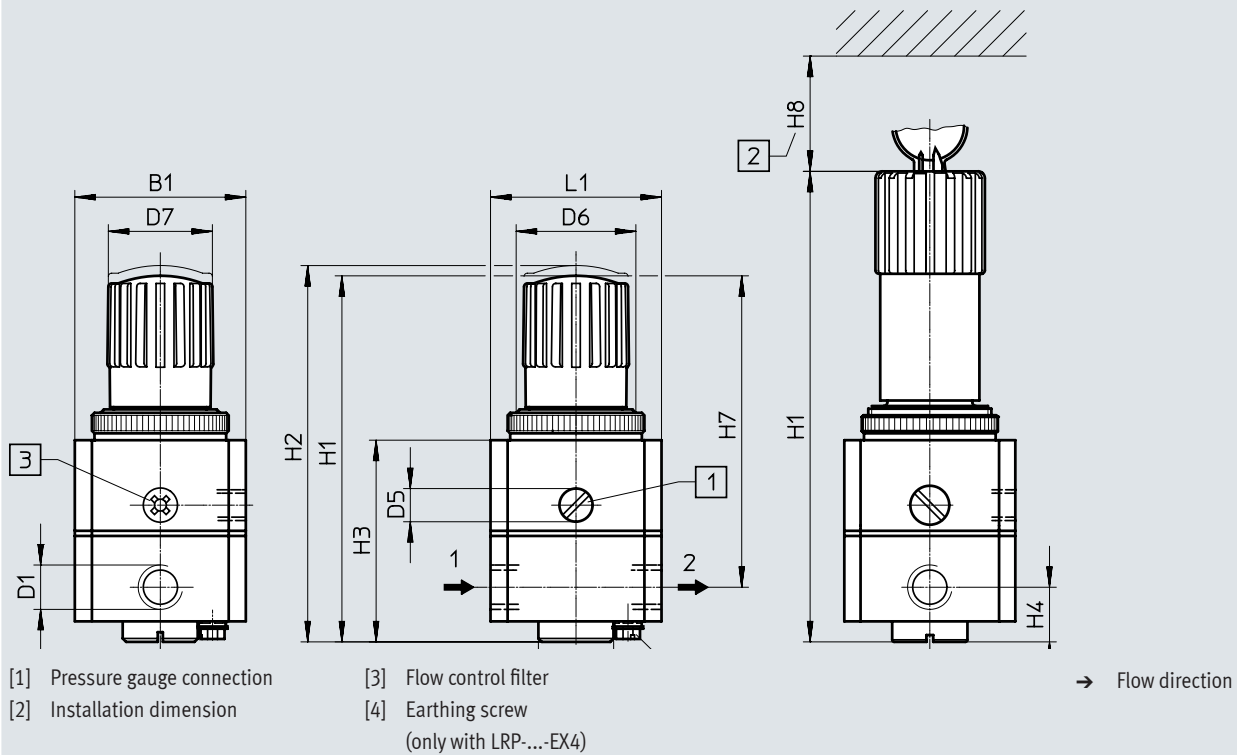


Primary pressure dependence qn = 420 l/min



Data sheet

Dimensions

Download CAD data → www.festo.com

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

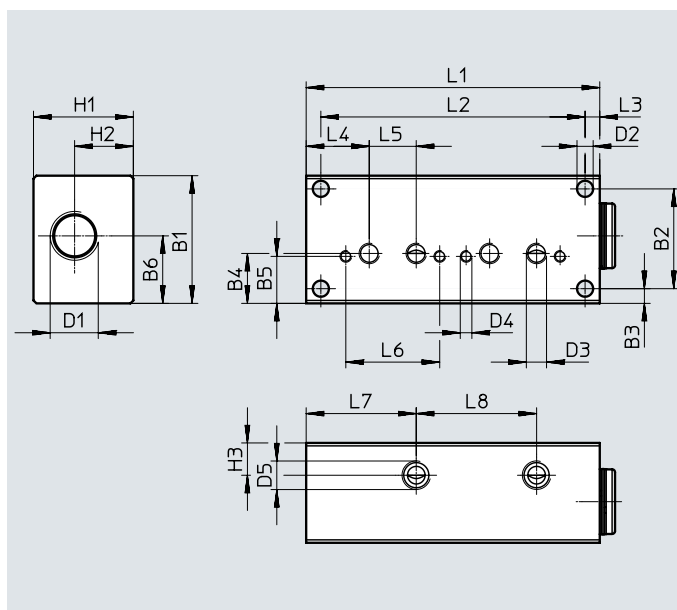
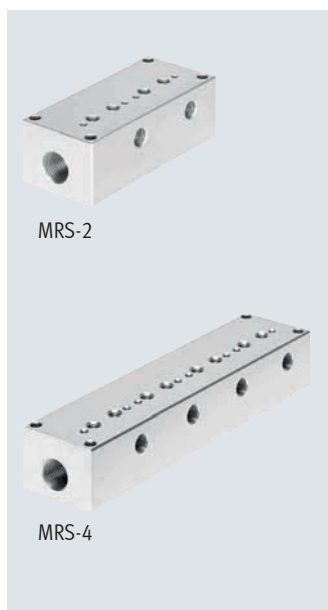
for precision pressure regulator
LRP-7.0-6

- 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



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

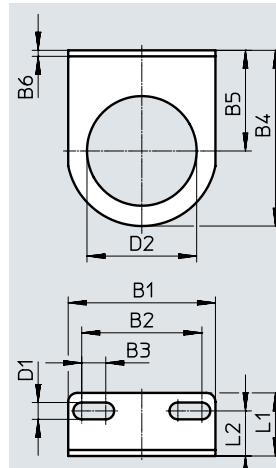
for precision pressure regulator
LRP/LRPS, size 50

- For wall mounting

Material:

Galvanised steel

Free of copper and PTFE



Dimensions and ordering data												Part no.	Type
B1	B2	B3	B4	B5	B6	D1 Ø	D2 Ø +0.1	L1	L2	CRC ¹⁾			
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

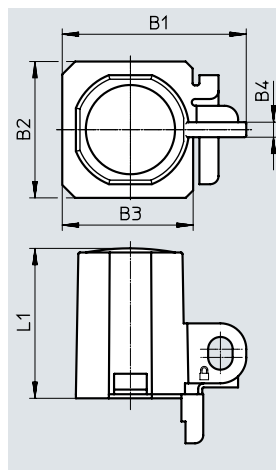
Locking plate: steel

Knurled nut: aluminium

Free of copper and PTFE

Ambient temperature:

-20 ... +60°C



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

Padlock LRVS-D

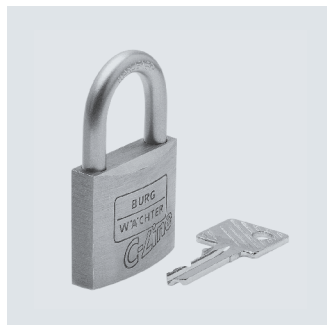
for precision pressure regulator LRP,
size 50

Material:

Housing: brass

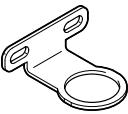
Ambient temperature:

-20 ... +60°C



Ordering data		Part no.	Type
Weight [g]			
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

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