

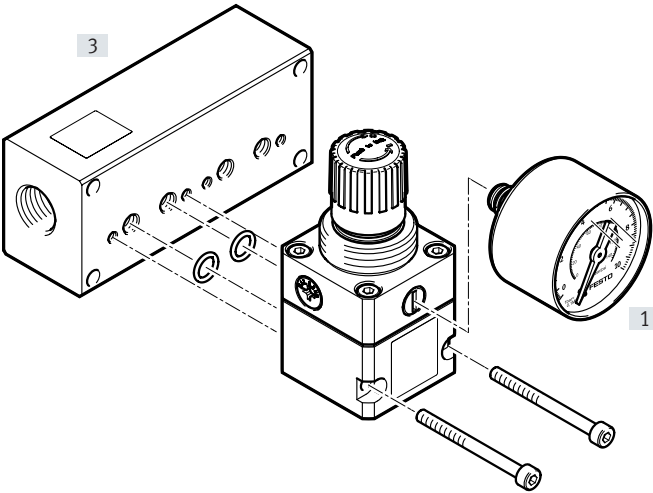
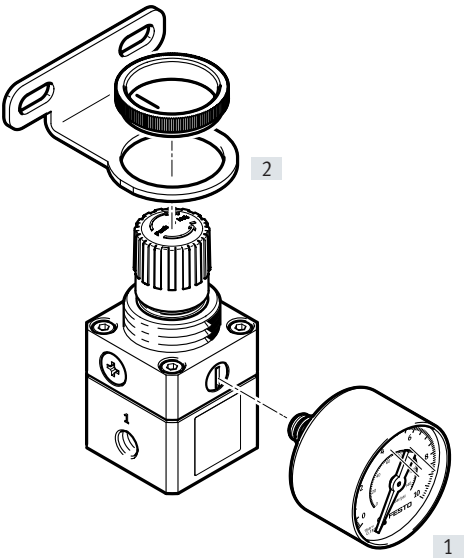
Precision pressure regulators LRP/LRPS

FESTO



Peripherals overview

Peripherals overview	
Precision pressure regulator LRP-1/8-6	Precision pressure regulator LRP-7.0-6



Mounting attachments and accessories		→ Page/Internet
[1]	Precision pressure gauge PAGN	16
[2]	Mounting bracket MS4-WR	16
[3]	Manifold block for manifold assembly of 2 or 4 valves MRS	14

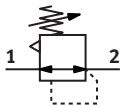
Type codes

Type codes

001	Series		003	Pressure regulation range	
LRP	Precision pressure regulator		0,7	Up to 0.7 bar	
LRPS	Precision pressure regulator, lockable		2,5	Up to 2.5 bar	
			4	Up to 4 bar	
002	Pneumatic connection		6	Up to 6 bar	
1/8	Female thread G1/8		10	Up to 10 bar	
1/4	Female thread G1/4				
7.0	For sub-base diameter 7 mm		004	EU certification	
				None	
			EX4	II 2GD	
			005	Special material properties	
			F1A	Recommended for production facilities for the manufacture of lithium-ion batteries	

Datasheet

Function



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

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 that require 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 port 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	With accessories	
	Front panel mounting	
	In-line installation	
Mounting position	Any	
Actuator lock	Rotary knob with latch	
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 - Moderate corrosion stress	

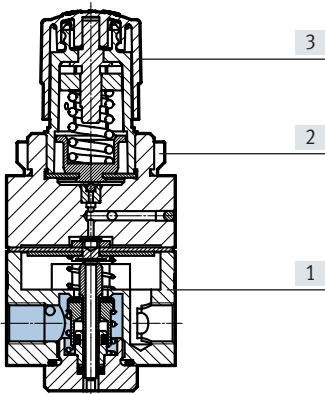
1) More information: www.festo.com/x/topic/crc

Datasheet

Weight [g]	
Precision pressure regulator	200

Materials

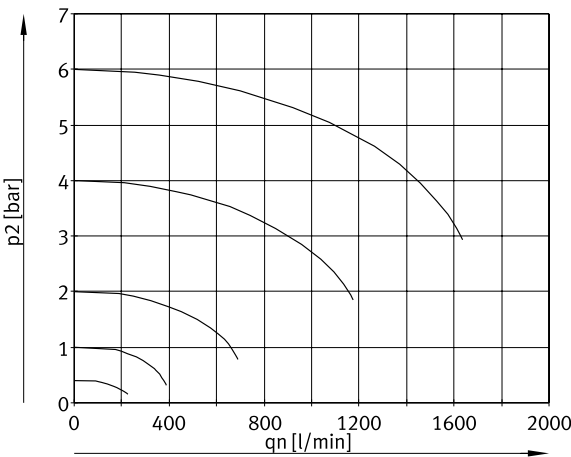
Sectional view



Precision pressure regulator		
[1]	Housing	Aluminium
[2]	Knurled nut	Aluminium
[3]	Rotary knob	PA
–	Diaphragm, seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L

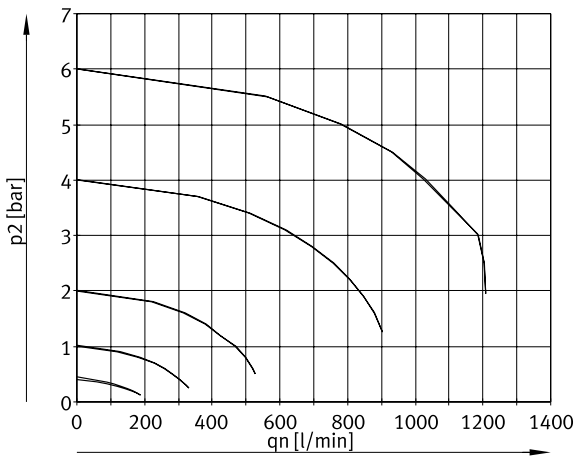
Standard flow rate q_n as a function of output pressure p_2

LRP-1/8-6



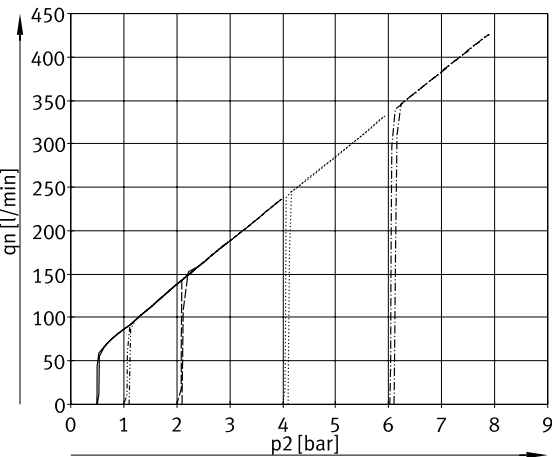
Operating pressure $p_1 = 8$ bar

LRP-7.0-6



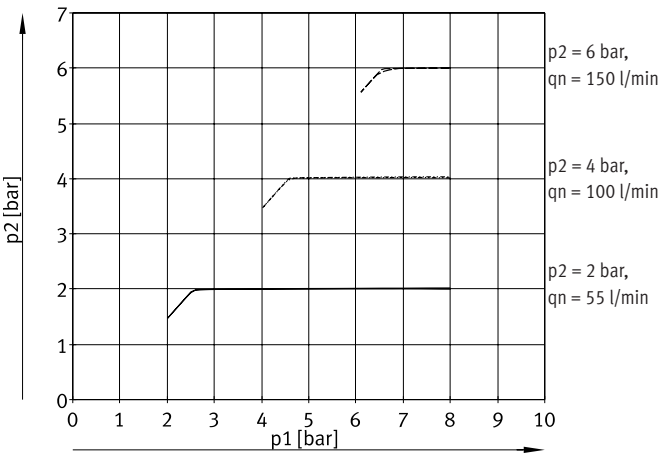
Operating pressure $p_1 = 8$ bar

Standard flow rate $q_{n2,3}$ through secondary exhausting as a function of output pressure p_2



Operating pressure $p_1 = 8$ bar

Output pressure p_2 as a function of operating pressure p_1



Datasheet

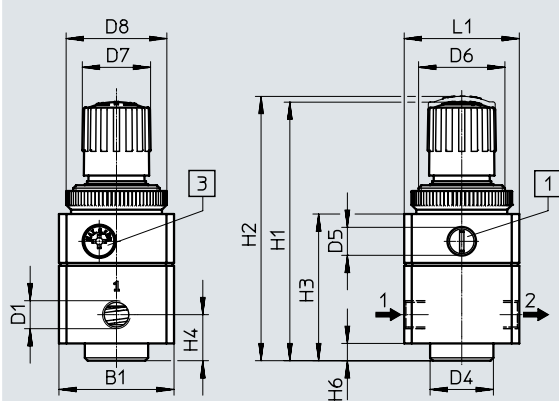
Internal air consumption qn as a function of operating pressure p1



Dimensions

Download CAD data → www.festo.com

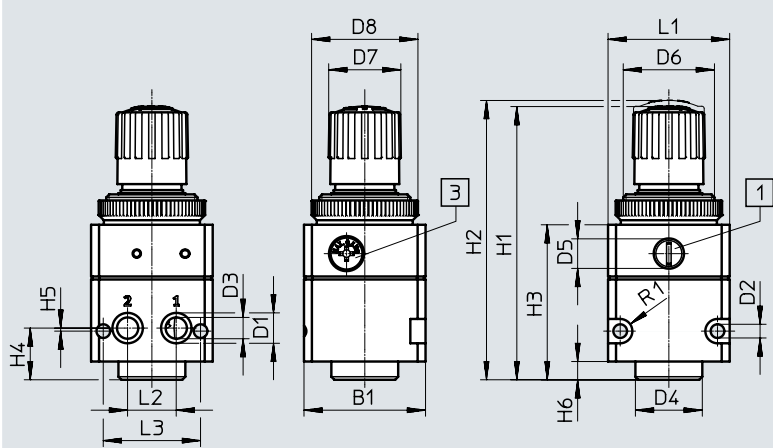
LRP-1/8-6



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

→ Flow direction

LRP-7.0-6



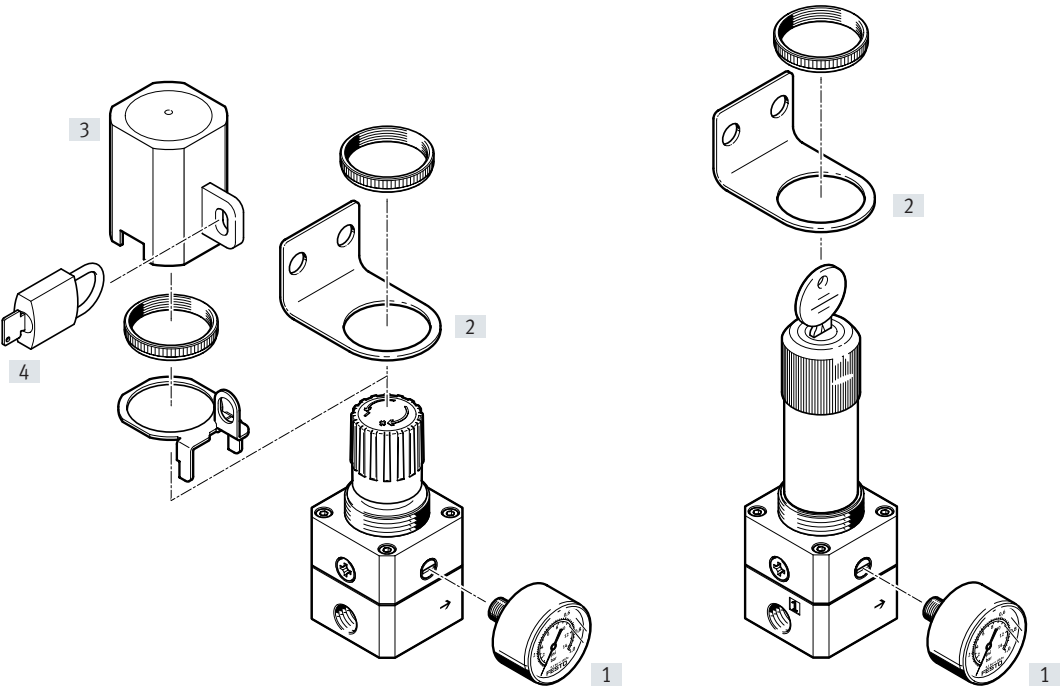
- [1] Pressure gauge connection
- [3] Flow control filter

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		Part no.		Type
Pressure regulation range [bar]		Pneumatic connection 1, 2.		
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

Peripherals overview	
Precision pressure regulator LRP	Precision pressure regulator LRPS



Mounting attachments and accessories		→ Page/Internet
[1]	Precision pressure gauge MAP	16
[2]	Mounting bracket HR	15
[3]	Regulator lock with locking plate LRVS-LRP	15
[4]	Padlock LRVS-D	15

Type codes

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	

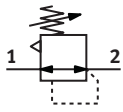
003	Pressure regulation range	
0,7	Up to 0.7 bar	
2,5	Up to 2.5 bar	
4	Up to 4 bar	
6	Up to 6 bar	
10	Up to 10 bar	

004	EU certification	
	None	
EX4	II 2GD	

005	Special material properties	
F1A	Recommended for production facilities for the manufacture of lithium-ion batteries	

Datasheet

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	With accessories			
	Front panel mounting			
	In-line installation			
Mounting position	Any			
Actuator lock	Rotary knob with latch			
	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⁾ 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 - Moderate corrosion stress

1) More information: www.festo.com/x/topic/crc

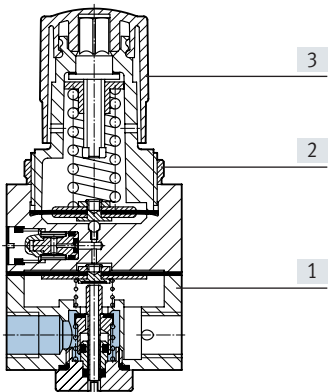
Weight [g]

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

Datasheet

Materials

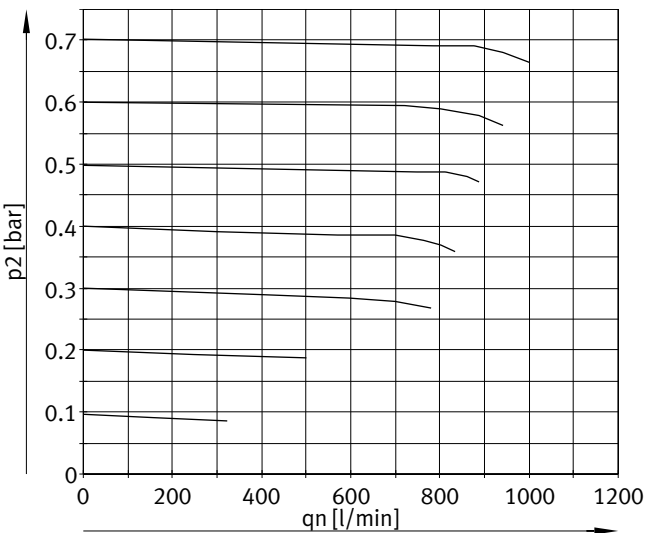
Sectional view



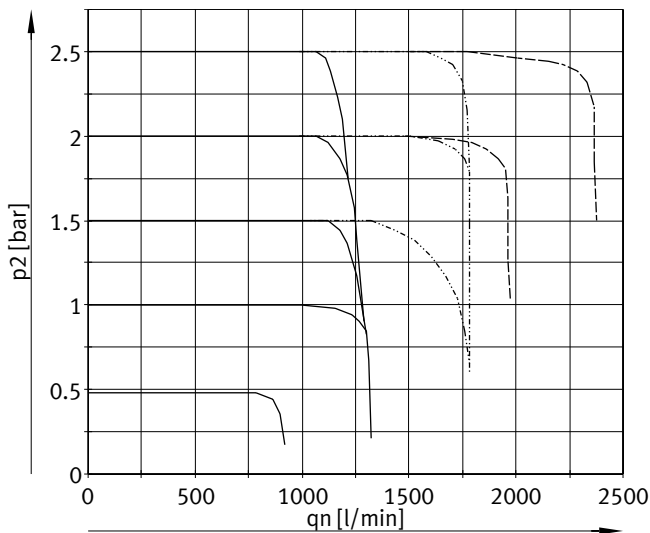
Precision pressure regulator		
[1]	Housing	Die-cast aluminium
[2]	Knurled nut	Aluminium
[3]	Rotary knob	PA
–	Seals	NBR
Note on materials		RoHS-compliant
LABS (PWIS) conformity		VDMA24364-B1/B2-L
Additional material specifications – products for battery production (LRP-...-F1A)		
Suitable for the production of Li-ion batteries		Metals with more than 1% by mass of copper, zinc or nickel are excluded from use. Exceptions are nickel in steel, chemically nickel-plated surfaces, circuit boards, cables, electrical plug connectors and coils.

Standard flow rate qn as a function of output pressure p2

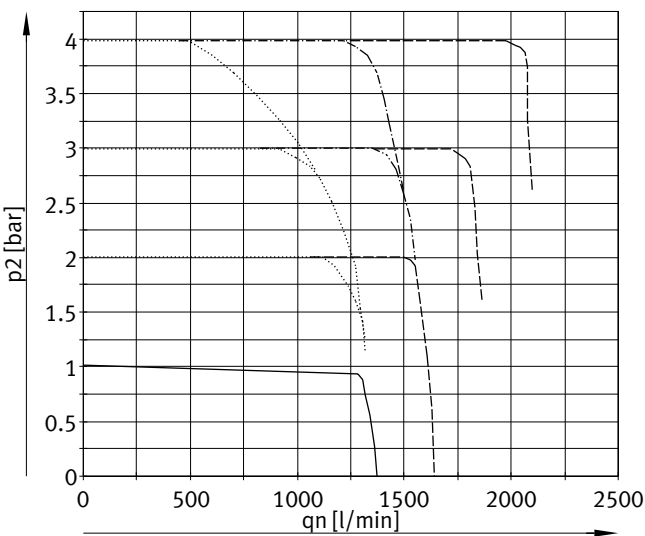
LRP/LRPS-1/4-0.7



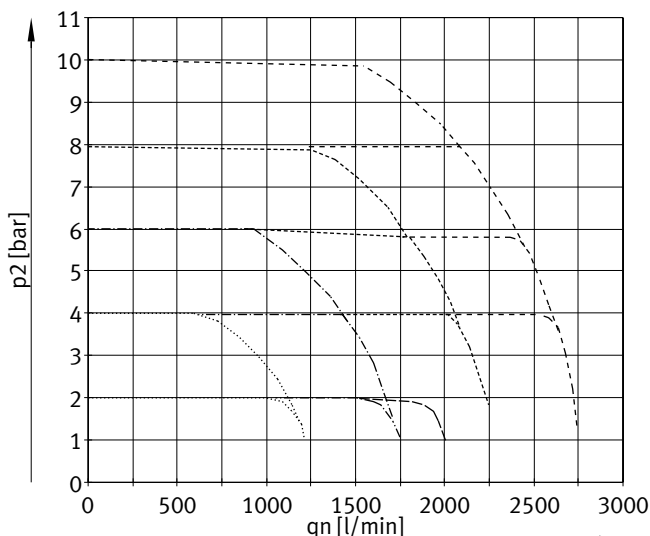
LRP/LRPS-1/4-2.5



LRP/LRPS-1/4-4



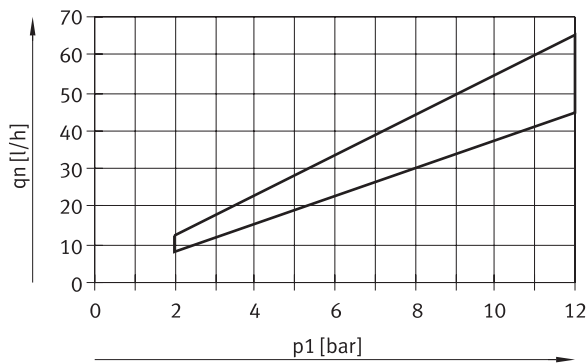
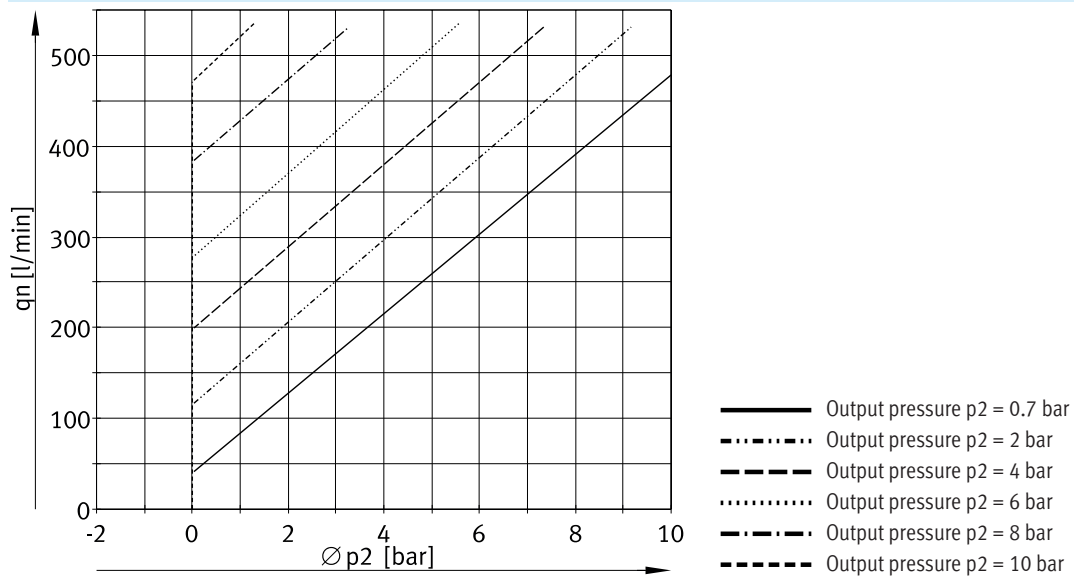
LRP/LRPS-1/4-10



— 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

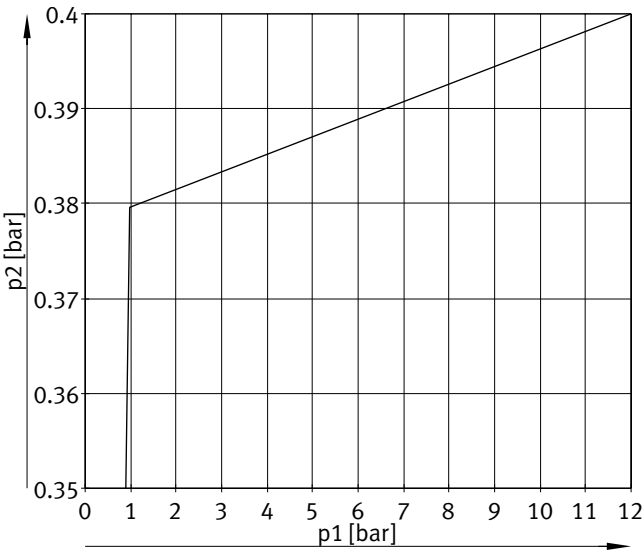
Datasheet

Internal air consumption q_n as a function of operating pressure p_1 Standard flow rate $q_{n_{2,3}}$ through secondary exhausting as a function of the output overpressure $\Delta p_2'$ Operating pressure $p_1 = 5 \dots 12$ bar

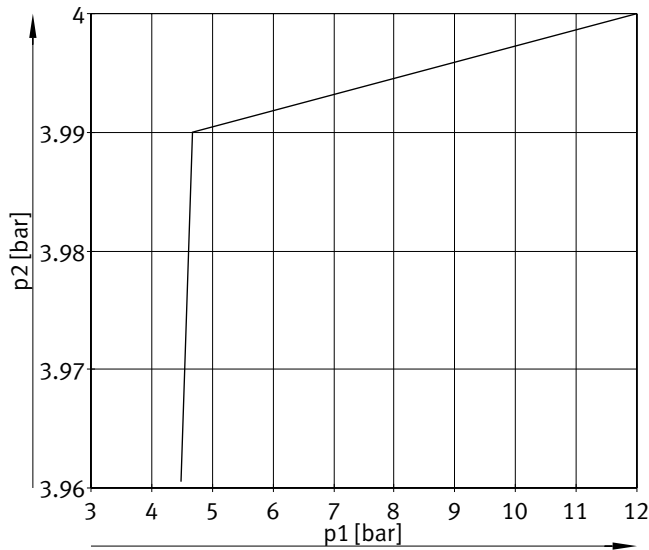
Datasheet

Output pressure p2 as a function of operating pressure p1

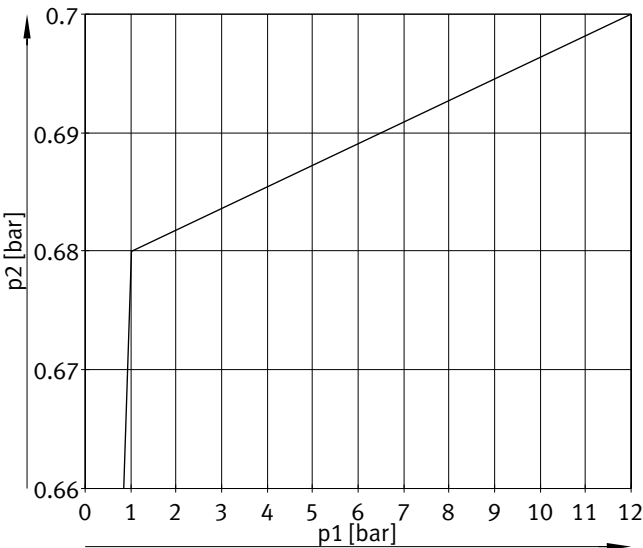
Primary pressure dependence qn = 35 l/min



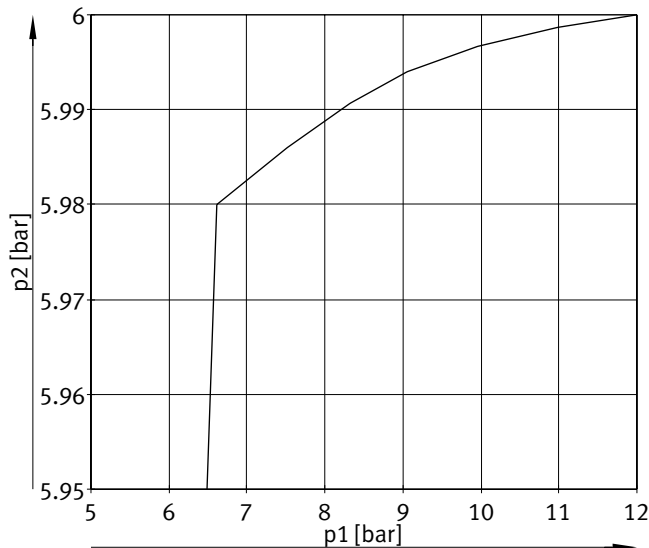
Primary pressure dependence qn = 220 l/min



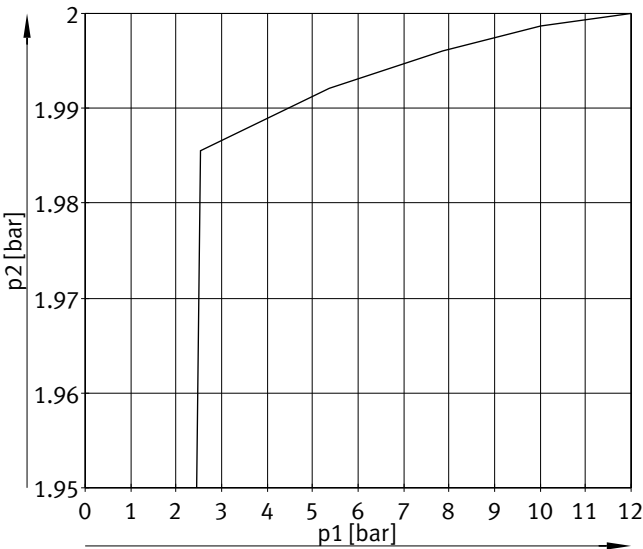
Primary pressure dependence qn = 55 l/min



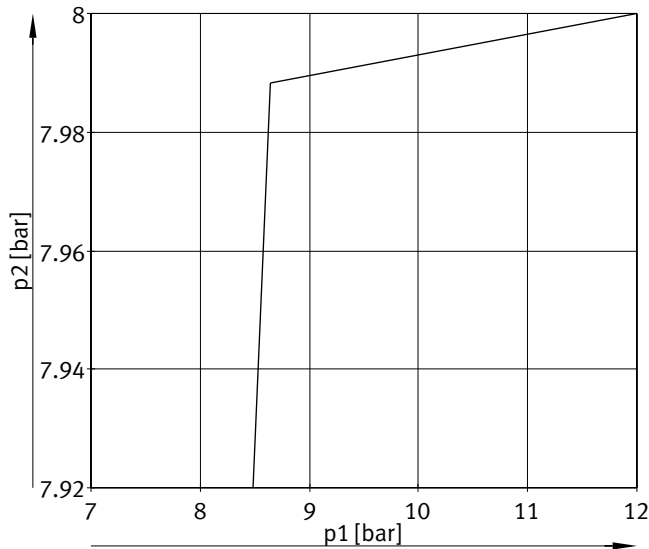
Primary pressure dependence qn = 340 l/min



Primary pressure dependence qn = 120 l/min

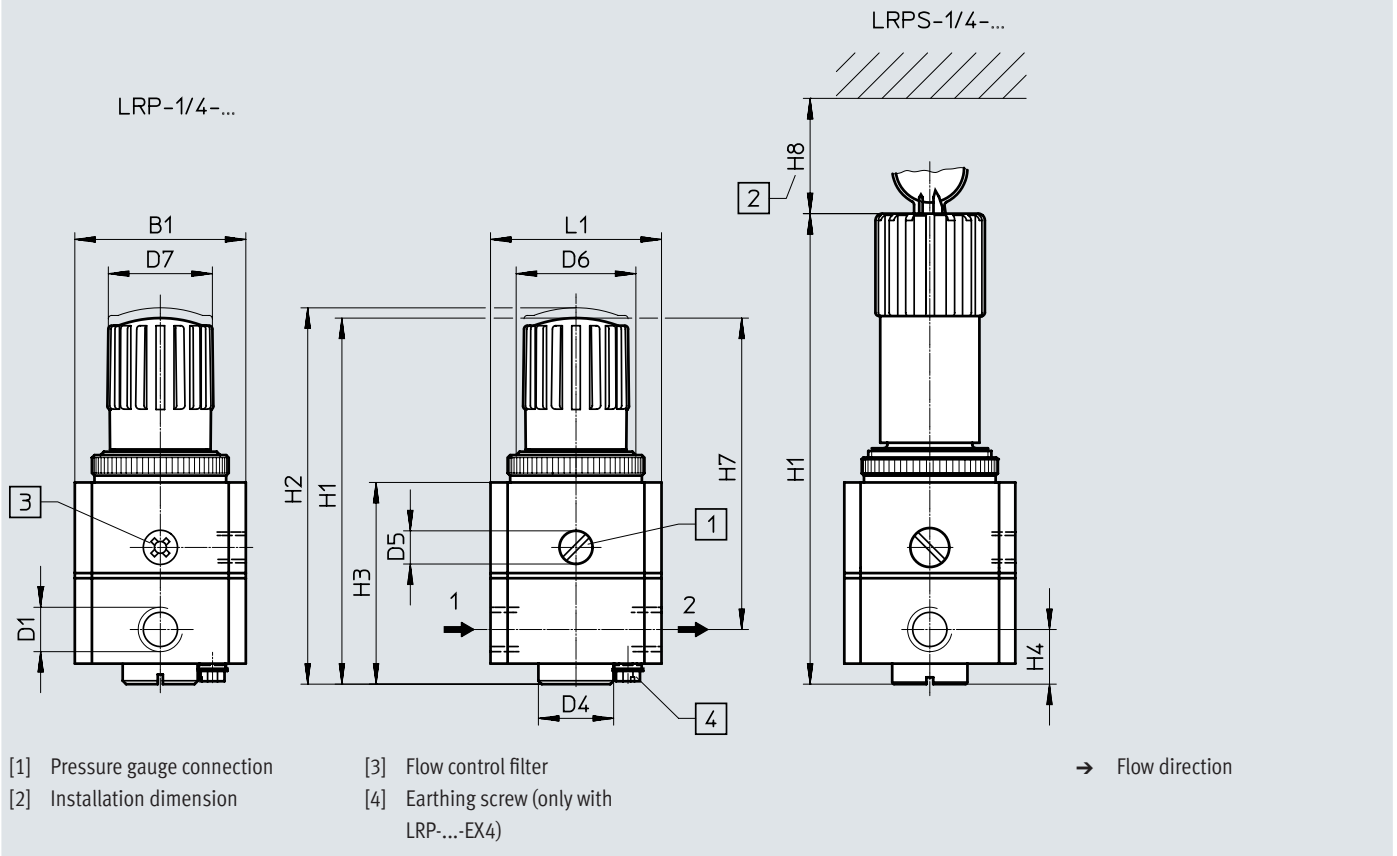


Primary pressure dependence qn = 420 l/min



Datasheet

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 battery production				
0.05 ... 0.7	8196140	LRP-1/4-0.7-F1A		
0.05 ... 2.5	8196141	LRP-1/4-2.5-F1A		
0.1 ... 10	8196142	LRP-1/4-10-F1A		
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

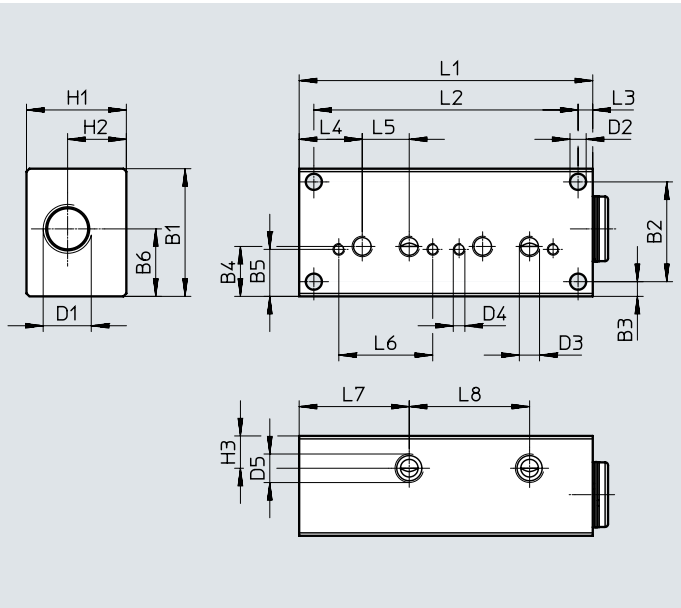
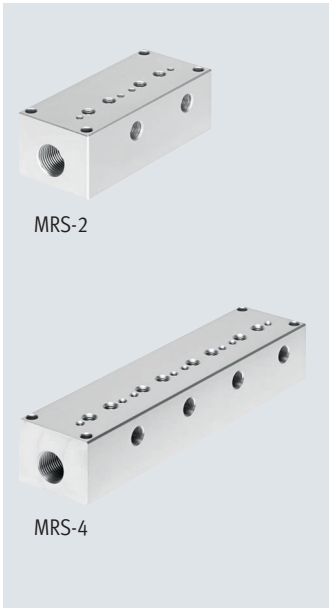
Manifold block MRS

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	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 mounting [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. no. of valve positions	CRC ¹⁾	Weight [g]	Part no.	Type
G3/8	2	2	365	2844247	MRS-2
	4	2	650	2844348	MRS-4

1) More information: www.festo.com/x/topic/crc

Accessories

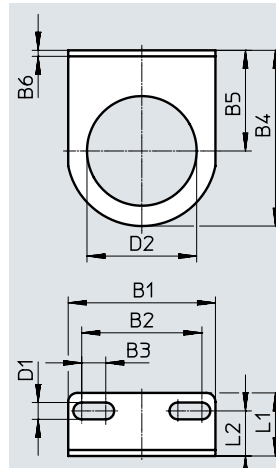
Mounting bracket HR

For precision pressure regulator
LRP/LRPS, size 50

- For wall mounting

Material:
Galvanised steel

LABS (PWIS) conformity:
VDMA24364-B1/B2-L



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	
										4	8175928	HR-1/4-P-F1A ²⁾	

1) More information: www.festo.com/x/topic/crc

2) Recommended for production systems for manufacturing Li-ion batteries. More information: www.festo.com/x/topic/bat.

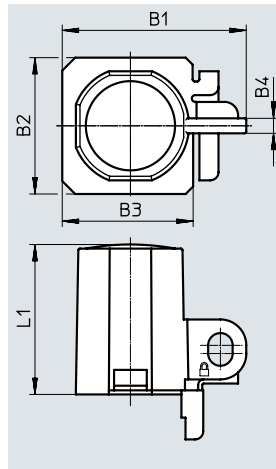
Regulator lock LRVS-LRP

For precision pressure regulator LRP,
size 50

Material:
Cap: Polyacetel
Locking plate: Steel
Knurled nut: Aluminium

LABS (PWIS) conformity:
VDMA24364-B1/B2-L

Ambient temperature:
-20 ... +60°C



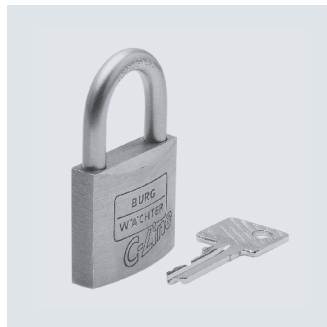
Dimensions and ordering data							
B1	B2	B3	B4	L1	Weight [g]	Part no.	Type
67.5	50	48	5.5	55	36	193785	LRVS-LRP-1/4

Padlock LRVS-D

For precision pressure regulator LRP,
size 50

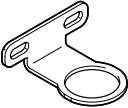
Material:
Housing: Brass

LABS (PWIS) conformity:
VDMA24364-B1/B2-L



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

Accessories

Ordering data – Mounting bracket MS4-WR				Datasheets → 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					Datasheets → 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					Datasheets → 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