



LOW PRESSURE REDUCER LPR® F food conformity design angle design DN 25

Application

The self contained low pressure reducing regulators and back pressure regulators controls pressure in mbar range. Applications are for inert gas tank blanketing, reactors, centrifuges and agitating tubs with inert gas such as nitrogen. The regulators are designed to meet requirements in the food, chemical, pharmaceutical and biotechnology industries and are particularly corrosion resistant and reliable.

Design

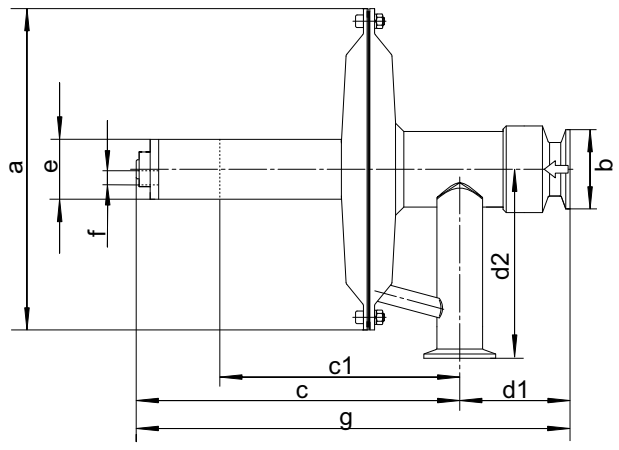
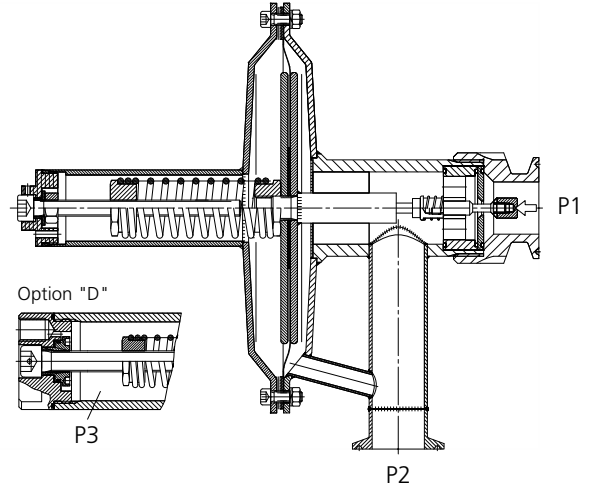
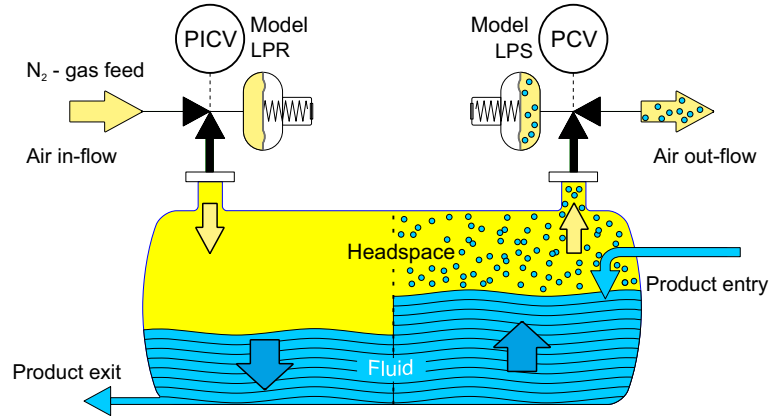
The large proportioned, spring-loaded diaphragm actuator with directly-controlled valve seat ensures precise control with low hysteresis. The regulators function without auxiliary power supply. High overpressure strength and safe regulator function is achieved by means of the supported diaphragm with long spindle guide. The regulator has a low degree of clearance volume and is self-draining.

Description

The components coming in contact with the product are manufactured from CrNiMo steel 1.4435 / 1.4404. The diaphragm and seals are made of PTFE and the regulator seat is made of perfluoroelastomer (FFKM – Isolast®, Chemraz®, Kalrez®) as standard or FDA compliant perfluoroelastomer. These materials guarantee high corrosion resistance and excellent sealing, even at zero flow. The design has a low degree of clearance volume and is self-draining (suitable for CIP). The surface finish for the stainless-steel version is better than Ra 0.8 for housing parts in contact with the medium, better than Ra 0.8 for internal functional parts and better than Ra 3.2 for the outer housing. Internal welding seams are ground and electro-polished.

Technical data

Nominal diameter:	DN 25 / 1"
Regulating range P2:	L.. to 500 mbar M.. to 1 bar D (pressure difference) to 4 bar = P3
Inlet pressure P1:	max. 10 bar
Vakuum proof	
Pressure connections:	Tri-Clamp ISO Schd.5 Special food connection (Special version available on request)
Weight:	6,0 kg to 8,3 kg
Temperature:	-20 ° to +120 °C for EPDM (Dependent on -20 ° to +160 °C for PTFE pressure conditions)
Testing and inspection:	According to IEC 60534-4
Pressure tightness:	Bubble tight sealing category VI



Model dimensions	pressure connection	a	b	c	g	d1 x d2	e	f Option "D"	c1 Fixed setting P2
LPRF-025-...-L-...-	Tri-Clamp ISO Schd.5 SMS	Ø 204	Ø50,5	205	275	Standard 70 x 120	Ø38 (M36)	G 1/4" female thread (dimen- sion "e" is always Ø54 (M48) with Option "D")	132
LPRF-025-...-M-...-				208	308		Ø54 (M48)		



MODEL CODE LPR[®]F

food conformity design
angle design DN 25

1			2			3			4			5			6			7		
Design			Nominal diameter DN/ pressure connection			Flow capacity			Regulating pressure range			Material			Options			Specials		
LP	R	F	-	025	.	-	..	-	...	-	...	-	...	-	.	-	-	Xn		

2 Nominal diameter DN/ Pressure connection

T	Tri-Clamp ISO Schd.5
S	SMS 25

3 Flow capacity

07	Seat	ø7 mm	kv = 0.70
12	Seat	ø12 mm	kv = 2.60
16	Seat	ø16 mm	kv = 5.20

4 Regulating pressure range P2 (mbar)

L01	2 - 10	L10	16 - 100	M01	200 - 1000
L02	4 - 20	L20	30 - 200		
L05	8 - 50	L50	80 - 500		

5 Material (only the same colours can be combined)

Housing/ internal components		Seat seal	Diaphragm/ Regulating range	
S	1.4435 (1.4404)/ 1.4435 (1.4404)	C FFKM con- forms to FDA	P	PTFE/ L..
		E EPDM	E	EPDM/ L.. M..
			G	PTFE-glass fibre reinforced / L.. M..

The housing/internal components/spring housing, seat and diaphragms can be combined in any order.

Special materials available on request.

6 Options

D	Differential pressure connection
E*	External impulse connection (standard 5/8"-20 UNS)
G	Pressure gauge connection G¼

*The welded nipple is provided for connecting a pipe with ø 10. Included are a Swagelok nut and a front and rear clamping ring. (Specials on request).

7 Specials

X0	If you require, for example, ATEX, PED, special connections, CIP connections on the housing, welding seams ground on the outside, a fixed setting for P2 ..., please enter an X in this field with the number of desired Specials. Each of the specials must be described in writing. For special versions and certifications, please contact the manufacturer or the appropriate sales representative.
X1	
X2	
Xn	

Flow table [flow quantities in Nm³/h]

P1 [bar rel.]	0.15	0.25	0.40	0.65	1.0	1.5	2	4	6	10	Seat size
10	10	14	18	22	26	34	42	72	100	155	ø7 mm
	23	31	42	54	65	85	100	168	232	360	ø12 mm
	53	70	85	115	145	180	220	370	510	790	ø16 mm
100	10	14	18	22	26	34	42	72	100	155	ø7 mm
	23	31	42	54	65	85	100	168	232	360	ø12 mm
	53	70	85	115	145	180	220	370	510	790	ø16 mm
200	10	14	18	22	26	34	42	72	100	155	ø7 mm

The flow capacity is the same in the super-critical operating range (guide value: P2 < 0.5 x P1).

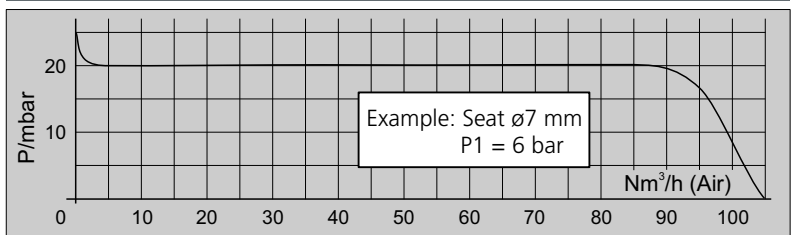
It is recommended to design for operation at a maximum of 70% of the flow values.

P1 = supply pressure P2 = regulating pressure

Dependency on inlet pressure (per -1 bar / +1 bar change in P1)

Seat ø7 mm	+3 mbar / - 3 mbar	Seat ø16 mm	+ 13 mbar / - 13 mbar
Seat ø12 mm	+ 8 mbar / - 8 mbar		

Pressure / flow characteristic

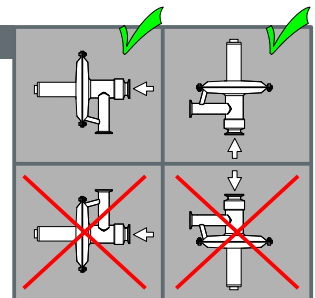


Installation

The preferred installation position is with vertical diaphragm housing and horizontal input. Pressure fixed unit is adjusted in this position.

The output pressure increases by approximately 4 mbar for installation with horizontal diaphragm housing.

The installation position must be specified.



Mounting and start up

- Before connecting the pressure regulator please make sure
- LPRF adjust reduced pressure: (Relative pressure)
- 1.1 to compare the plant data with the name plate
- 2.1 set a light flow (1Nm³/h). Set the pressure +/- as required using a hexagonal wrench
- 1.2 the values marked on the name plate are the values measured during our functional inspection
- 2.2 the setting can be secured with a seal.
- 1.3 to check the corrosion resistance of the material
- 3 Adjust the LPRF differential pressure (-D) with the servo-regulator
- 1.4 to blow out impurities in the pipes
- 3.1 if the D-connection is pressurised with the servo-pressure, the working pressure is added by the servo-pressure.
- 1.5 to note the flow direction – it is marked with an arrow on the housing
- 1.6 to open inlet pipes slowly.