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LOW-PRESSURE REDUCER LPR®L

lined design
angle design DN 25

Application

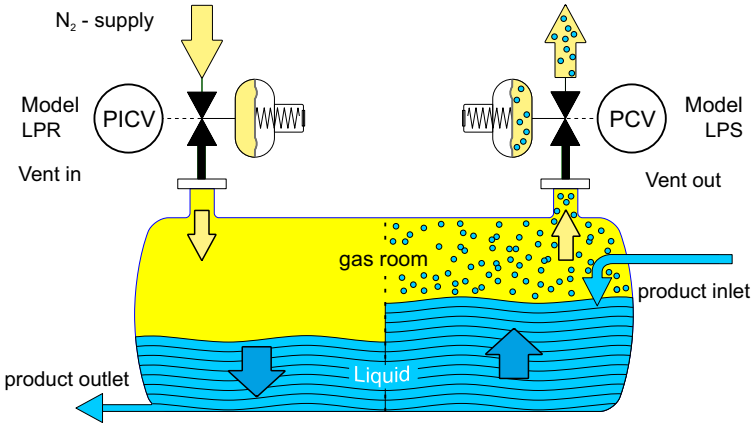
The self contained low pressure reducing regulators and back pressure regulators controls pressure in mbar range. Applications are for inert gas tank blanketing, reactors, centrifuges and agitating tubs with inert gas such as nitrogen. The regulators are designed to meet requirements in the chemical,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

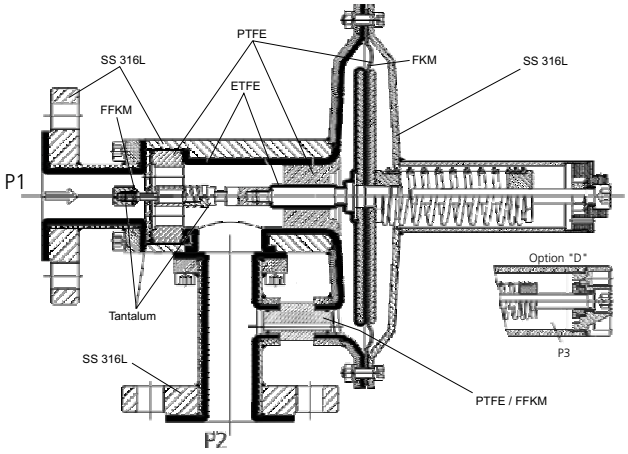
Design

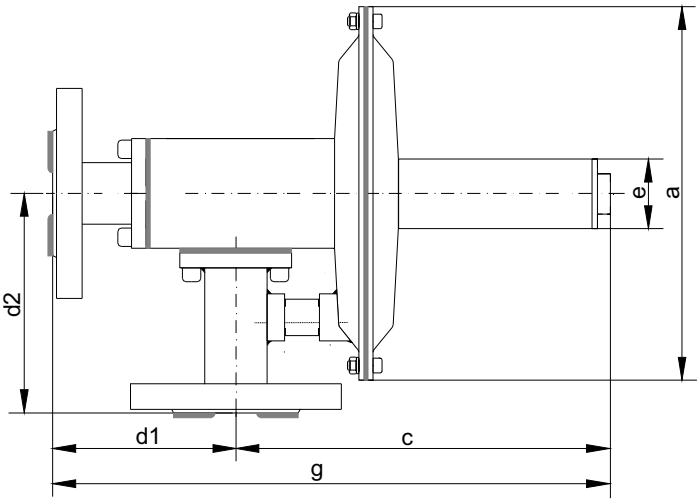
The large proportioned, spring-loaded diaphragm actuator with directly-controlled valve seat ensures precise control with low hysteresis. The regulators function without auxillary power supply. High overpressure strength and safe regulator function is achieved by means of the supported diaphragm with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

Description

The body is made out of SS 316L and lined with ETFE. Wetted parts are only manufactured in ETFE-lined, PTFE, FFKM, Tantalum, or Titanium. The diaphragm and seals are made of PTFE or FFKM and the regulator trim is made out of Tantalum or Titanium and perfluoroelastomer FFKM seat as standard. These materials guarantee high corrosion resistance and excellent sealing, even at zero flow. For all materils FDA conformity can be supplied. The design has a low degree of clearance volume and is good in self-draining. On request, further materials are available. The liner thickness can be from 0.8 to 3.0 mm depending on the need.







Technical data

Nominal diameter:	DN 25 / 1"
Regulating range P2:	L.. to 500 mbar D (pressure difference) to 4 bar = **P3**
Inlet pressure P1:	max. 6 bar ETFE - lined version
Vakuum proof	
Pressure connections:	DN 25 DIN EN 1092-1 ANSI B 16,5 1" 150 lbs
Weight:	6,2 kg to 12,2 kg
Temperature:	-20 ° to +150 °C for all material combination (Dependent on pressure)
Testing and inspection:	According to IEC 60534-4
Pressure tightness:	Bubble tight sealing category VI

Model dimensions	pressure connection	a	c	g	d1 x d2	e	f Option "D"
LPRL-025.-..-...-...-.	DN 25 DIN EN 1092-1 ANSI B 16,5 1" 150 lbs	ø204	200	300	100 x 120	Ø38	G 1/4" female thread

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MODEL CODING LPR®L

lined 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	L	-	025	.	-	..	-	...	-	...	-	.	-	Xn

2 Nominal diameter DN/ Pressure connection

D	Flange: DIN EN 1092-1
A	Flange: ANSI B 16,5 1 " 150 lbs

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
L02	4 - 20	L20	30 - 200
L05	8 - 50	L50	80 - 500

5 Material

Housing/ internal components		Seat seal		Diaphragm	
M	1.4435 (SS 316L) ETFE lined/Tantalum	C	FFKM FDA conform	P	*PTFE
N	1.4435 (SS 316L) ETFE lined/Titanium				

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

* PTFE with FKM back-up diaphragm.

Other materials available on request.

6 Options

D	Differential pressure connection

7 Specials

X0 X1 X2 • • Xn	If you require, for example, ATEX, PED, special connections, 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.

Flow table [flow quantities in Nm³/h]

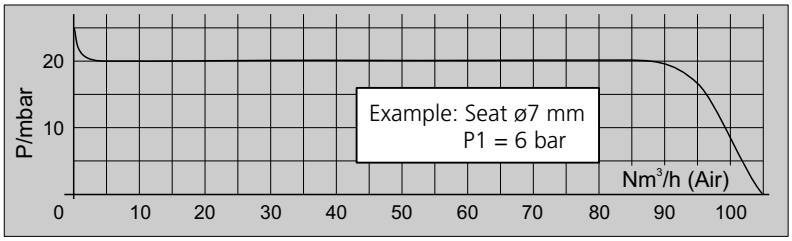
P1 [bar rel.]		0.15	0.25	0.40	0.65	1.0	1.5	2	4	6	10	Seat size
P2 [mbar rel.]	10	10	14	18	22	26	34	42	72	100	155	ø7 mm
		23	31	42	54	65	85	100	168	232	360	ø12 mm
		53	70	85	115	145	180	220	370	510	790	ø16 mm
	100	10	14	18	22	26	34	42	72	100	155	ø7 mm
		23	31	42	54	65	85	100	168	232	360	ø12 mm
		53	70	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 supercritical 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 primary pressure (per -1 bar / +1 bar change in P1)

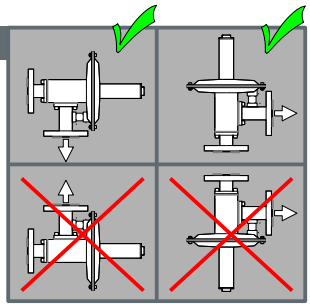
Seat ø7 mm	+3 mbar / - 3 mbar
Seat ø12 mm	+ 8 mbar / - 8 mbar
Seat ø16 mm	+ 13 mbar / - 13 mbar

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

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