



## LOW-PRESSURE REDUCER LPR<sup>®</sup>Z sterile 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 chemical, pharmaceutical and biotechnology industries and are particularly corrosion resistant and reliable.

### Design

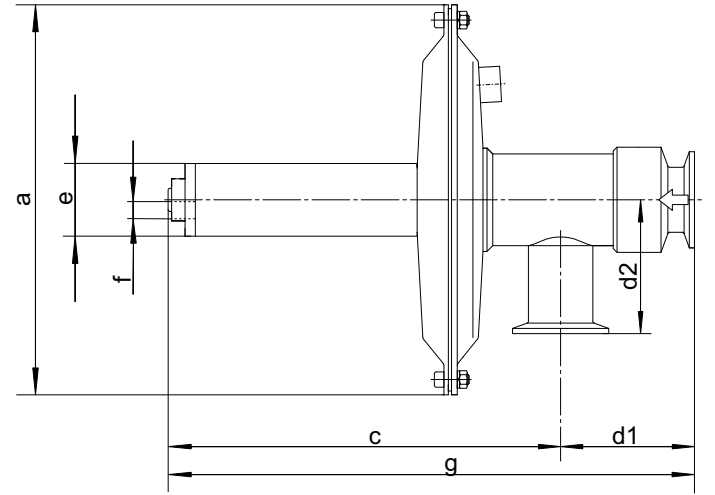
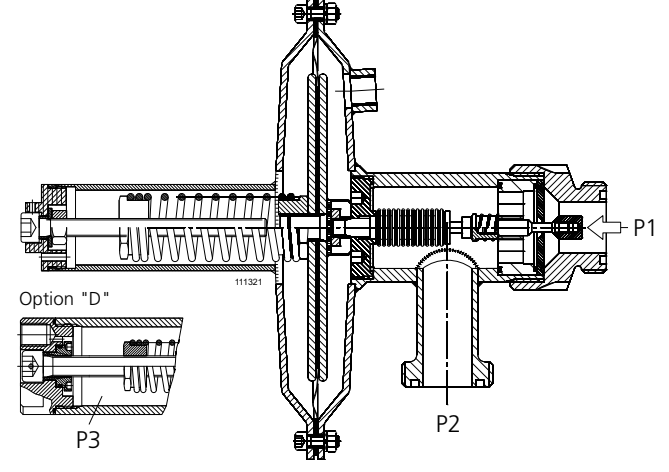
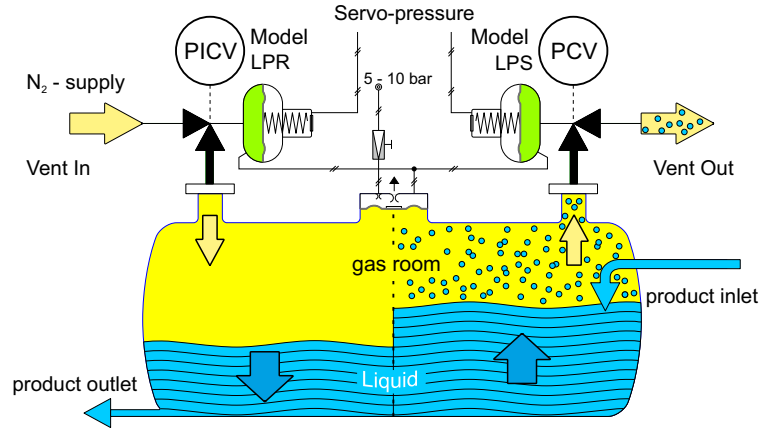
The large proportioned, spring-loaded diaphragm actuator with directly-controlled valve seat ensures precise control with low hysteresis. The regulators function without auxiliary power supply. High overpressure strength and safe regulator function is achieved by means of the supported diaphragm with 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. 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). On request, we can supply regulators in Hastelloy, Tantalum or plastic etc. with the appropriate certification. The surface finish for the stainless-steel version is better than Ra 0.6 for housing parts in contact with the medium, better than Ra 0.6 for internal functional parts and better than Ra 3.2 for the outer housing.

### Technical data

<b>Nominal diameter:</b>	DN 25 / 1"
<b>Regulating range P2:</b>	L.. to 500 mbar M.. to 1 bar D (pressure difference) to 4 bar = P3
<b>Inlet pressure P1:</b>	max. 10 bar max. 6 bar PTFE / ECTFE - lined version
<b>Vakuum proof</b>	
<b>Pressure connections:</b>	Tri-Clamp Iso Schd. 5 Special food connection (Special version available on request) DN 25 DIN EN 1092-1 ANSI B 16,5 1" 150 lbs
<b>Weight:</b>	6,0 kg to 12,0 kg
<b>Temperature:</b>	-20 ° to +120 °C for EPDM (Dependent on pressure conditions) -20 ° to +160 °C for PTFE -20 ° to +160 °C for ECTFE
<b>Testing and inspection:</b>	According to IEC 60534-4
<b>Pressure tightness:</b>	Bubble tight sealing category VI



Model dimensions	pressure connection	a	c	g	d1 x d2	e	f Option "D"
LPRZ-025-...-...-...	Tri-Clamp ISO Schd.5 SMS DN 1"	ø204	208	275	Standard 70 x 70	Ø54 (M48)	G 1/4" female thread
	DN 25 ..DIN EN 1092-1 ANSI B 16,5 1" 150 lbs			308	100 x 120		



## MODEL CODING LPR<sup>®</sup>Z

sterile 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	Z	-	025	.	-	..	-	...	-	...	-	...	-	.	-	-	Xn		

### 2 Nominal diameter DN/ Pressure connection

T	Tri-Clamp EN ISO 1127, NW 25
S	SMS DN 1" (Rd40 x 1/6")
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	M01	200 - 1000
L02	4 - 20	L20	30 - 200		
L05	8 - 50	L50	80 - 500		

### 5 Material

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

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

N and M housing only with Flanges according DIN or ANSI  
\* PTFE with FKM back-up diaphragm.

Special materials available on request.

### 6 Options

D	Differential pressure connection
P	P2 - Pneumatic pressure transformer

### 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.
X1	
X2	
•	
•	
Xn	For special versions and certifications, please contact the manufacturer or the appropriate sales representative.

### Flow table [flow quantities in Nm<sup>3</sup>/h]

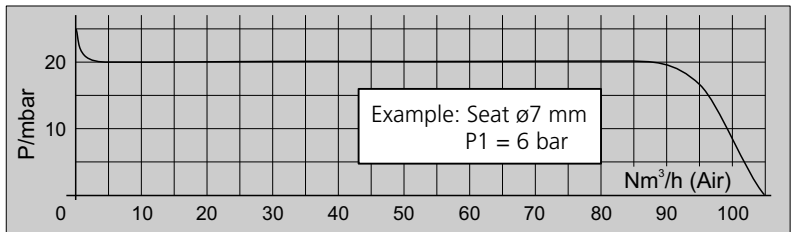
P1 [bar rel.]	0.15	0.25	0.40	0.65	1.0	1.5	2	4	6	10	Seat size
10	10	14	18	22	26	34	42	72	100	155	ø7 mm
	23	31	42	54	65	85	100	168	232	360	ø12 mm
	53	70	85	115	145	180	220	370	510	790	ø16 mm
100	10	14	18	22	26	34	42	72	100	155	ø7 mm
	23	31	42	54	65	85	100	168	232	360	ø12 mm
	53	70	85	115	145	180	220	370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

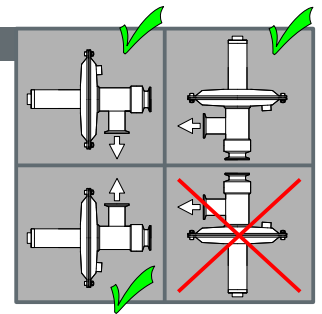
Seat ø7 mm	+3 mbar / - 3 mbar	Seat ø16 mm	+ 13 mbar / - 13 mbar
Seat ø12 mm	+ 8 mbar / - 8 mbar		

### 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. A 1:1 pressure transducer is needed for sterile installation



### Mounting and start up

- 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.
- LPRZ adjust reduced pressure: (Relative pressure)
  - 2.1 set a light flow (1Nm<sup>3</sup>/h). Set the pressure +/- as required using a hexagonal wrench
  - 2.2 the setting can be secured with a seal.
- Adjust the LPRZ 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.