



wafer design  
DN 100

## LOW PRESSURE REDUCER LPR®W

### 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.

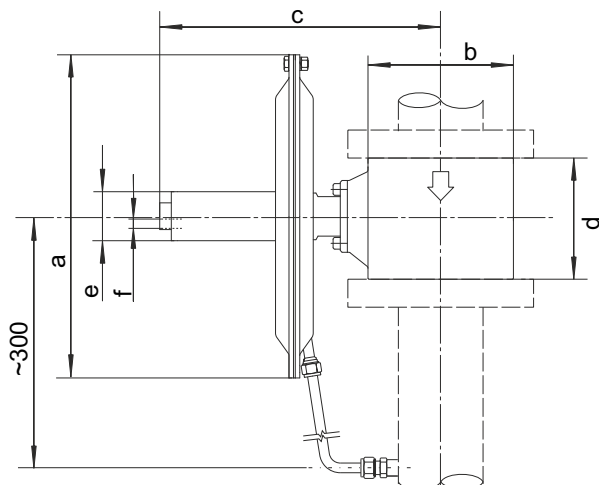
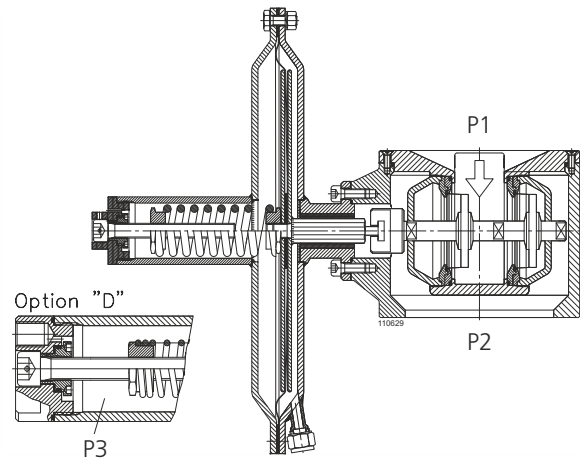
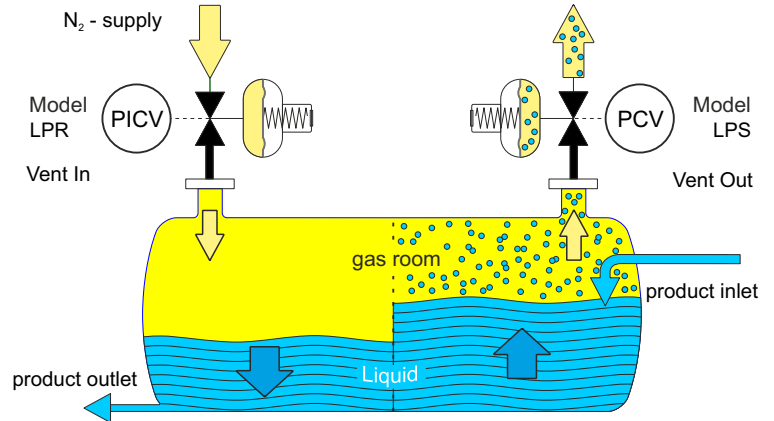
### Design

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, or fluoroelastomer (FKM: Viton®). 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, Tantal or plastic etc. with the appropriate certification.

The surface finish for the stainless-steel version is better than Ra 1.6 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.



### Technical data

<b>Nominal diameter:</b>	DN 100 / 4"
<b>Regulating range P2:</b>	L... to 200 mbar D (pressure difference) to 0,5 bar = P3
<b>Inlet pressure P1:</b>	max. 10 bar
<b>Vakuum proof</b>	
<b>Pressure connections:</b>	Intermediate flange configuration (Special version available on request)
<b>Weight:</b>	30,6 kg
<b>Temperature:</b>	-20 ° to +120 °C for EPDM (Dependent on -20 ° to +130 °C for FKM pressure conditions) -20 ° to +160 °C for PTFE
<b>Testing and inspection:</b>	According to IEC 60534-4
<b>Pressure tightness:</b>	Sealing category V

Model dimensions	pressure connection	a	b	c	d	e	f Option "D"
LPRW-100.-.-.-.-.-	DIN DN100 PN10 ANSI 4" 150 lbs	Ø 360	Ø162	313	135	Ø54 (M48)	G 1/4" female thread





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DN 100



## MODEL CODE LPR<sup>®</sup>W

1			2			3			4			5			6			7		
Design			Nominal diameter DN/ pressure connection			Flow capacity			Regulating pressure range			Material			Options			Specials		
LP	R	W	-	100	.	-	..	-	...	-	...	-	...	-	.	-	Xn			

### 2 Nominal diameter DN/ Pressure connection

D	Flange:	DIN EN 1092-1, B1 DN 100 PN 10
A	Flange:	ANSI B 16.5, 4" 150 lbs and 300 lbs

### 3 Flow capacity

42	Seat	ø42 mm	kv = 35
55	Seat	ø55 mm	kv = 70

### 4 Regulating pressure range P2 (mbar)

L01	2 - 25
L02	4 - 40
L05	8 - 80
L10	16 - 140
L20	30 - 400

### 5 Material (only the same colours can be combined)

Housing/ internal components	Seat seal	Diaphragm/ Regulating range
S 1.4408/ 1.4435 (1.4404)	K FFKM	P PTFE L..
G 1.4408/ HC 22 (2.4602)	V FKM	E EPDM L..
H HC 22 (2.4602)/ HC 22 (2.4602)	E EPDM	V FKM L..
	C FFKM con- forms to FDA	

**Example:** Housing/internal components with material code "G" or "H" (red) are only combined with seat of type "K" or "C" and with diaphragm type "P".

Housing/internal components with material code "S" can be combined with all seat and diaphragm materials (yellow).

### 6 Options

D	Differential-Druckanschluss
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### 7 Specials

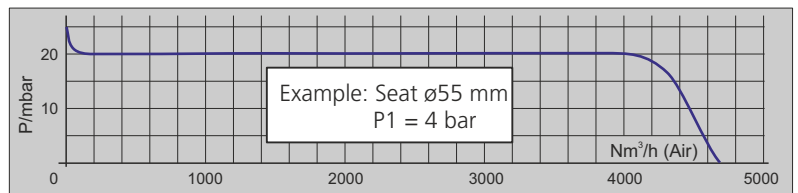
X0	If you require, for example, ATEX, PED, special connections, external control, rain hood, Adapter for Tri Clamp or SMS thread, please enter an X in this field with the number of desired Specials. Each of the specials must be described in writing.
X1	
X2	
Xn	For special versions and certifications, 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	2.5	4.0	6.0	10	Seat size
10	350	460	590	755	890	1175	1645	2350	3290	5170	ø42 mm
	710	925	1180	1510	1880	2350	3290	4700	6580	10340	ø55 mm
20	340	455	585	755	890	1175	1645	2350	3290	5170	ø42 mm
	685	910	1170	1510	1880	2350	3290	4700	6580	10340	ø55 mm
100	220	380	540	730	835	1175	1645	2350	3290	5170	ø42 mm
	440	760	1080	1460	1870	2350	3290	4700	6580	10340	ø55 mm
500	-	-	-	445	815	1150	1645	2350	3290	5170	ø42 mm
	-	-	-	890	1630	2300	3290	4700	6580	10340	ø55 mm

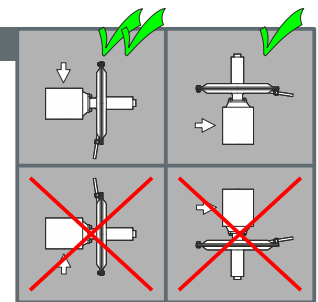
The flow capacity is the same in the supercritical operating range (guide value: P2 < 0.5 x P1). It is recommended to design for operation at a maximum of 70% of the flow values.  
P1 = supply pressure      P2 = regulating pressure

### 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 15 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
  - 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.
- LPRW adjust reduced pressure: (Relative pressure)
  - 2.1 set a light flow (5 Nm<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 LPRW 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.

