



## VACUUM REDUCER LPR®W wafer design DN 100

### Application

The directly-controlled stainless steel regulators act as low pressure reducing and overflow valves, controlling pressures in the mbar range. They are used for inert-gas blanketing tanks, reactors, centrifuges and agitating tubs etc., with inert gases such as nitrogen

The regulators have been developed to meet requirements in the chemical, pharmaceutical and biotechnology industries and are particularly corrosion resistant and reliable.

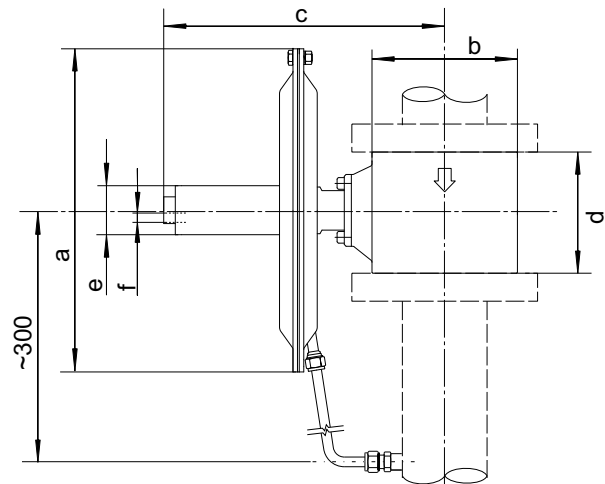
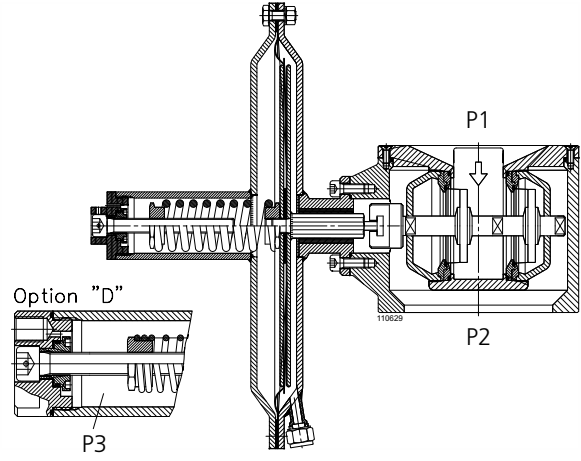
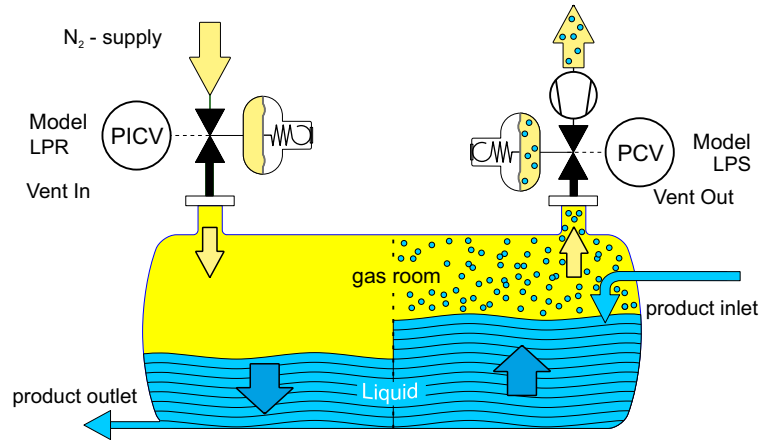
### Design

The generously proportioned, spring-loaded diaphragm actuator with directly-controlled valve seat ensures precise control with low hysteresis. The regulators function without auxiliary power. 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-emptying, as far as is possible.

### Description

The components coming in to 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-emptying (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>Entry pressure P1:</b>	max. 10 bar
<b>Vakuum proof</b>	
<b>Connections to process:</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 pressure conditions) -20 ° to +130 °C for FKM -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	Connection to process	a	b	c	d	e	f Option "D"
LP.W-100.-.-N...-.-.-.	DIN DN100 PN10 ANSI 4" 150 lbs	Ø 360	Ø162	313	135	Ø54 (M48)	G 1/4" female thread



## MODEL CODE LPR®W wafer design DN 100

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

55	Seat	ø55 mm	kv = 70
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### Flow table for seat ø55 [flow quantities in Nm³/h]

P2 [mbar rel.]	-2	-5	-10	-16	-25	-40	-60	-100	-160	-250	-400	-600
P1 Atm.	84	132	187	235	295	368	446	565	690	815	920	940

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

### 4 Regulating pressure range P2 (mbar)

N01	-2 to -10
N02	-4 to -20
N05	-8 to -50
N10	-16 to -100
N20	-30 to -200

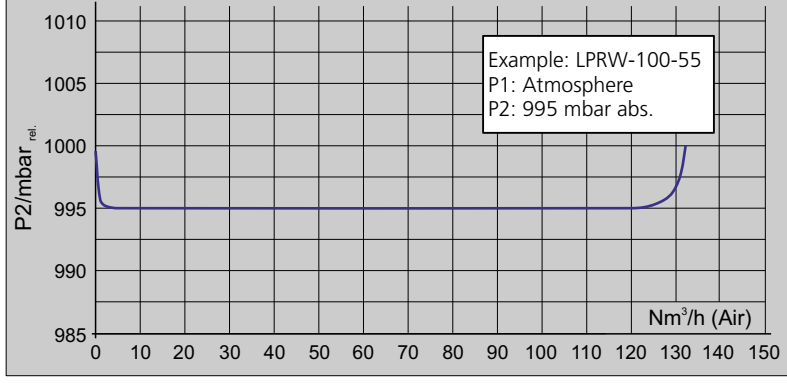
### 5 Material (only the same colours can be combined)

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 1.4408/ 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".

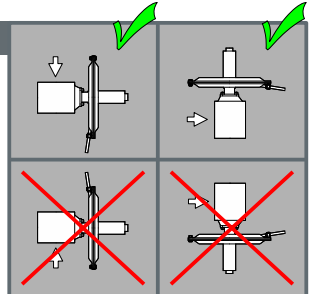
Housing/internal components with material code "S" can be combined with all seat and diaphragm materials (yellow).

### 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.



### 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 ..., 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.

### 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 Nm³/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.