PRESSURE REDUCING VALVE PRV-W ELITE STAINLESS STEEL

FEATURES



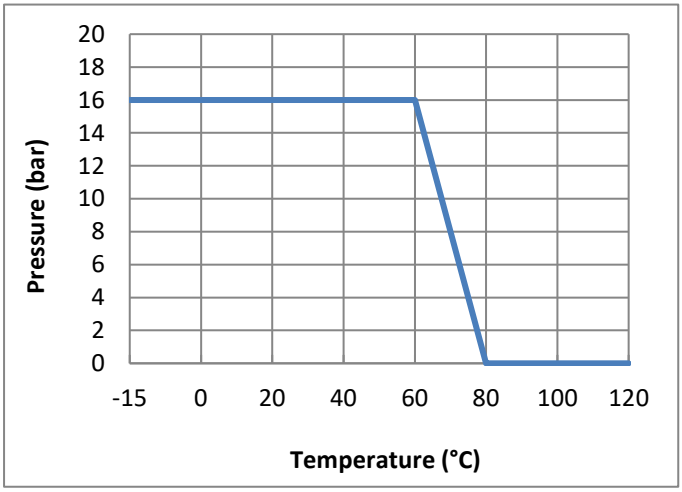
The PRV-W Elite stainless steel pressure reducing valve is designed to reduce the pressure of fluids such as water, uncharged liquids and compatible gases. It is a stainless steel piston valve with an EPDM seal. The downstream pressure is adjusted using a screw. The pressure gauge gives a direct reading of the reduced pressure. This device operates only in the direction indicated by an arrow on the body. The PRV-W is suitable for clean, particle-free fluids and must be protected by an upstream filter.
The PRV-W version has ACS approval for drinking water.

AVAILABLE MODELS

Stainless steel PRV-W: G 1/2'' to G 1''.
Threaded connections G.
Downstream pressure range: 1-6 bar.

LIMITS OF USE

Max allowed fluid pressure : PS	16 bar
ΔP mini:	1 bar
ΔP max:	6 bar
Max allowed fluid temperature : TS	-15°C / +80°C

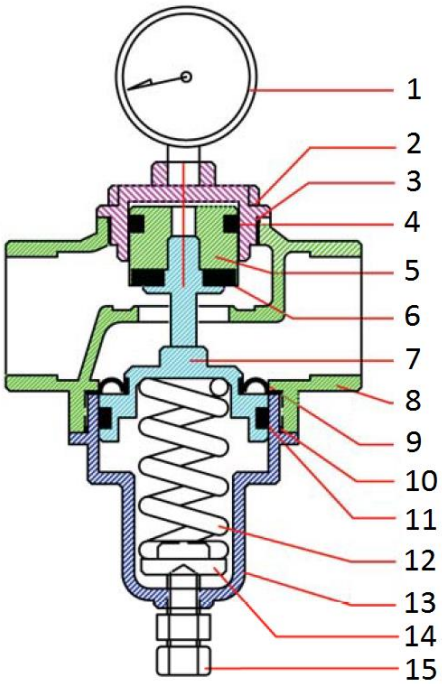


DIRECTIVES AND MANUFACTURING STANDARDS

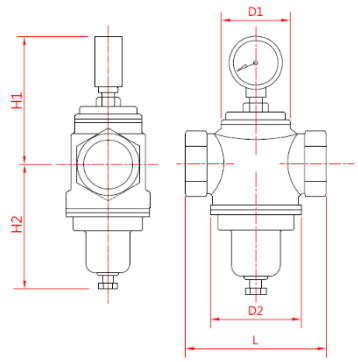
OBJECT	Standard	NB	OBJECT	Standard
Directive PED 2014/68	**DN 15 to 25**: not subject		Conception	ANSI B16.34
Threaded connection	ISO 228		Final test	API 598
Drinkable water	16 ACC LY075			

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CONSTRUCTION

N°	Name	Material	Threaded version
1	Pressure gauge Ø 63	Stainless steel - 1/4 ’’	
2	Upper cover	Stainless steel - 1.4408	
3	O-ring	EPDM	
4	U-ring	EPDM	
5	Shaft	Stainless steel 1.4408	
6	Sealing spacer	EPDM	
7	Seat	Stainless steel 1.4408	
8	Body	Stainless steel 1.4408	
9	Diaphragm	EPDM	
10	O-ring	EPDM	
11	U-H-ring	EPDM	
12	Spring	Spring steel	
13	Spring box	Stainless steel 1.4408	
14	Spring washer	Brass	
15	Adjusting screw	Stainless steel 1.4301	

DIMENSIONS (mm)

DN	L	H1	H2*	D1	D2	Gauge connection	Weight (kg)	Threaded version
15	70	120	80	30	60	1/4’’ G	1,0	
20	85	125	105	35	60		1,2	
25	90	120	105	42	60		1,4	

* Completely unscrewed reticule adjusting screw

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DIMENSIONING

Choice of diameter: It is not necessary to choose a pressure reducer with a diameter equal to that of the pipe, but to determine this diameter using the charts and calculation formulae presented below.

Flow coefficients Kv (m^3/h) of PRV-W :

DN	15	20	25
Kv	2,1	3,4	5,5

Calculation formula for a liquid:

$$Kv = Q\ x\ \sqrt{\frac{\rho}{\Delta P}}$$

Kv : flow coefficient in m^3/h. | *Q : flow in m^3/h* | *ΔP : upstream-downstream pressure difference in bar* | *ρ : voluminal mass kg/dm^3*

Calculation formula for a gas:

If $P2 > P1/2$ $\quad Kv = \frac{Q}{445} x \sqrt{\frac{d\ x\ T}{\Delta P\ x\ P2}}$

If $P2 < P1/2$ $\quad Kv = \frac{Q}{240\ x\ P1}\ x \sqrt{d\ x\ T}$

Kv	*flow coefficient*	*m^3/h*
Q	*Flow in*	*Nm^3/h*
d	*voluminal mass*	*Kg / m^3*
T	*Absolute temperature*	*°K (°C +273)*
P1	*Upstream pressure*	*bar*
P2	*Downstream pressure*	*bar*
ΔP	*Difference upstream/downstream*	*bar*

Minimum pressure differential: The PRV-W pressure reducer has its own pressure drop, resulting in a minimum difference between upstream and downstream pressure. This difference is 15 to 20% of the upstream pressure.

Double pressure reduction: expansion from very high pressure to very low pressure is theoretically possible. GRP-W allows a maximum ΔP of 6 bar. However, noisy operation is to be expected. It is advisable to provide 2-stage expansion by installing two pressure reducers in series. The intermediate pressure is calculated as follows:

$$P\ intermediary = \sqrt{P\ upstream\ x\ P\ downstream}$$

Variation in upstream flow: when the upstream flow rate varies over too wide a range, the downstream pressure may vary from the set pressure, or the set pressure may take some time to recover.

Variation in upstream pressure: when the upstream pressure varies, the downstream pressure varies in the same direction. If the flow rate also changes simultaneously, it becomes even more difficult to ensure the stability of the downstream pressure. A control valve with a downstream pressure transmitter should be preferred if such variation is not acceptable for the intended use.

Pumping phenomenon: when the pressure reducer is too large for the flow rate to be ensured, the device often operates unstably (a phenomenon known as 'pumping'). It is therefore vital to design a device that is neither too large nor too small.

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TABLE OF FLOW RATES FOR WATER

Flow (m^3/h) for water at 20°C												
ΔP (bar)	**1**	**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
DN 15	1,4	2,0	2,4	2,8	3,1	3,4	3,7	4,0	4,2	4,4	4,6	4,8
DN 20	5,3	7,5	9,2	10,6	11,9	13,0	14,0	15,0	15,9	16,8	17,6	18,4
DN 25	6,6	9,3	11,4	13,2	14,8	16,2	17,5	18,7	19,8	20,9	21,9	22,9

TABLE OF FLOW RATES FOR COMPRESSED AIR

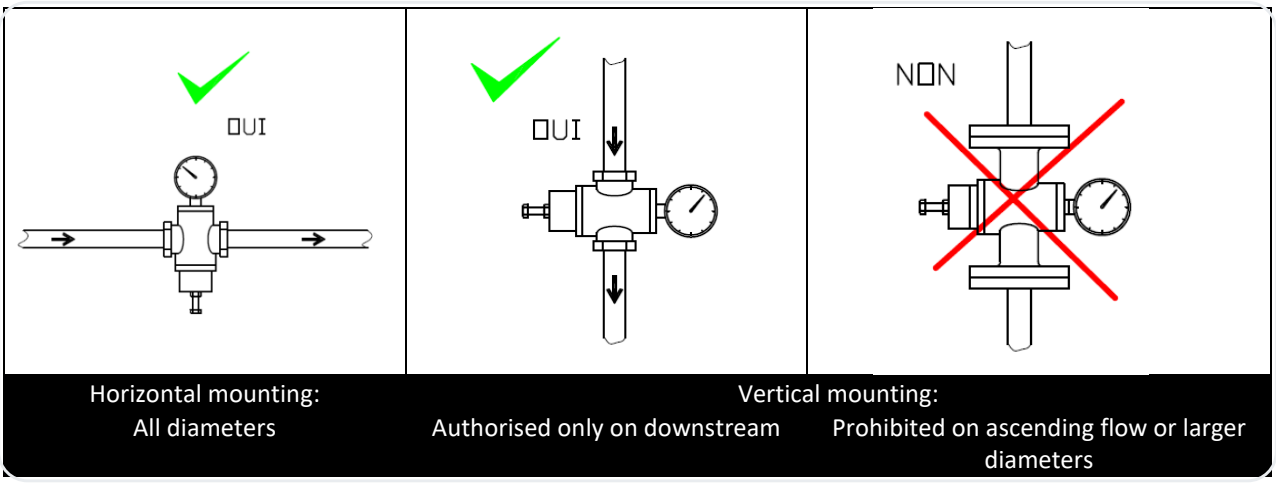
Flow (Nm^3/h) for compressed air at 20°C													
P upstream (bar)			**2**	**3**	**4**	**5**	**6**	**7**	**8**	**9**	**10**	**11**	**12**
Pressure downstream (bar)	1	DN 15	52	78	104	130	155	181	207	233	259	285	311
		DN 20	84	126	168	210	252	294	336	377	419	461	503
		DN 25	136	204	271	339	407	475	543	611	678	746	814
	2	DN 15		78	104	118	136	152	166	180	192	204	215
		DN 20		126	168	190	220	246	269	291	311	330	348
		DN 25		204	271	308	356	398	436	471	503	534	563
	3	DN 15			104	130	155	166	186	204	220	235	250
		DN 20			168	210	252	269	301	330	356	381	404
		DN 25			271	339	407	436	487	534	576	616	654
	4	DN 15				130	155	181	207	215	235	254	272
		DN 20				210	252	294	336	348	381	411	440
		DN 25				339	407	475	543	563	616	666	712
	5	DN 15					155	181	207	233	259	263	284
		DN 20					252	294	336	377	419	426	460
		DN 25					407	475	543	611	678	689	744
	6	DN 15						181	207	233	259	285	311
		DN 20						294	336	377	419	461	503
		DN 25						475	543	611	678	746	814

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INSTALLATION

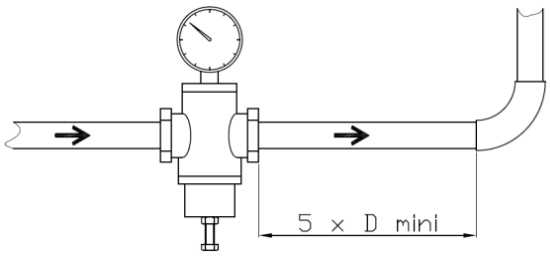
Mounting position: PRV-W is usually installed in a vertical position on horizontal pipes, with the pressure gauge facing upwards. Vertical pipe installation: although not recommended, this installation is possible for diameters DN 15 to DN 25, but only for downflow.



Horizontal mounting:	Vertical mounting:	
All diameters	Authorised only on downstream	Prohibited on ascending flow or larger diameters

Converging and diverging: if the diameter of the PRV-W is smaller than the diameter of the pipe (see sizing section), install a convergent valve upstream.
If the PRV-W is to be used with a gas, the outlet pipe must be one diameter larger than the inlet pipe and connected to it by a diverter, as the expanded gas requires a larger flow section downstream than upstream.

Length of tranquillisation: to ensure good downstream pressure stability and reduce turbulence at the GRP outlet, before any pipe or appliance accident, provide a straight pipe at least 5 x DN long and 10 x DN if possible. In the case of a double expansion valve, allow for identical spacing between the two pressure reducing valves.



Upstream isolation: provide a shut-off valve upstream of the PRV-W reducer. This is not necessarily watertight at zero flow and does not constitute a shut-off device.

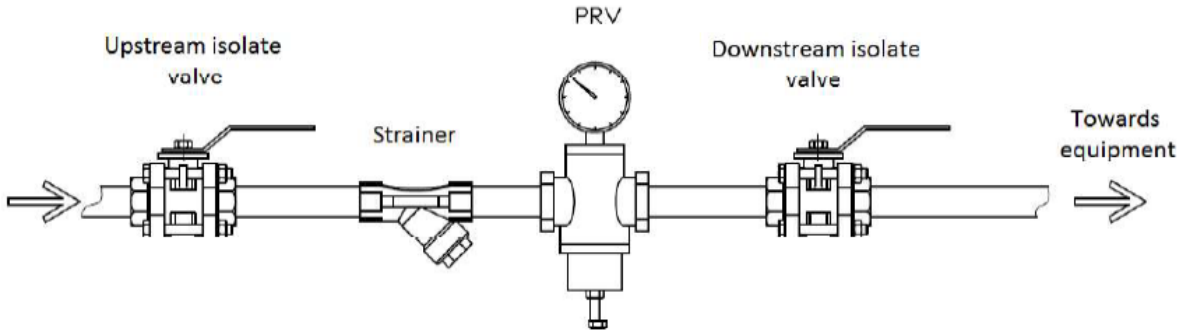
Upstream filtration: To protect the internal mechanism from impurities, fit a protective filter upstream of the GRP with a filtration threshold of approximately 5/10°.

Safety valve: For the pressure reduction of on a gas : the pressure reducer PRV not being necessarily tight in zero
flowrate, the upstream pressures and downstream could balance each other. Plan a safety valve to protect downstream equipment to the PRV-W.

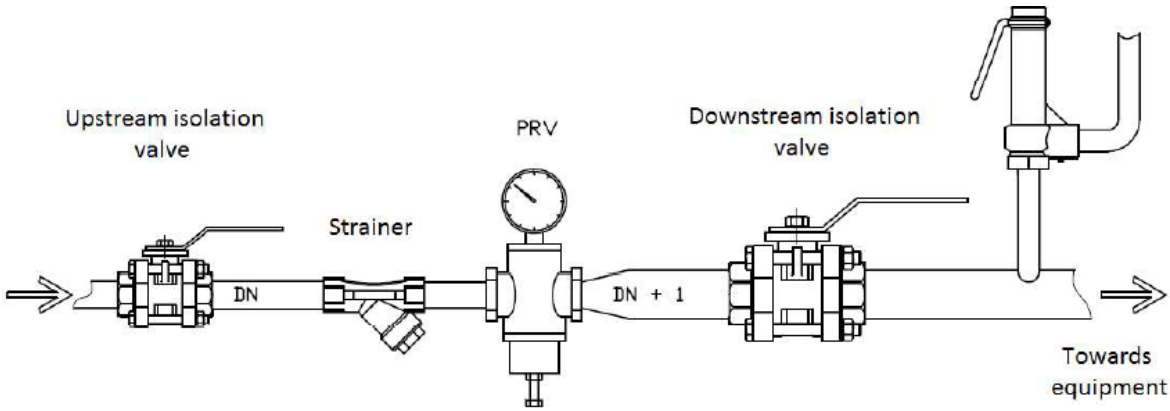
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Example of a pressure reducing system for a liquid :



Example of a pressure reducing system for a gas :



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INSTRUCTIONS OF MOUNTING AND MAINTENANCE

1 - Mounting

Check that the pressure range indicated on the body is adequate for the application. Before installation, isolate the upstream and downstream pipes, depressurise the pipe and bring the system to ambient temperature. Install an isolation valve upstream and another downstream. Also install an upstream filter. Thoroughly clean the pipework of any particles or chips by rinsing with water or blowing with air. Install the PRV reducer in the direction indicated by the arrow on the body, with the pressure gauge facing upwards. Seal the pressure gauge connection. Slowly open the upstream and downstream valves. Use the adjusting screw (15) and the pressure indication on the pressure gauge to set the required downstream pressure.

2 - Maintenance

Before carrying out any work, isolate the upstream and downstream pipes using the valves provided. Depressurise the pipe and bring the system to room temperature. Completely unscrew the adjustment screw (15). Remove the upstream filter plug and clean or replace the strainer. For a complete inspection of the appliance, unscrew parts (2). Check the condition of the seals (3), (4), (6), (9), (10) and (11). Replace if necessary. Also check the condition of the spring (12). Replace if broken or badly corroded. Clean all internal parts. Reassemble all the internal parts in the reverse order of disassembly. Put the appliance back into service by slowly opening the upstream valve and then the downstream valve. Readjust the expansion pressure using the screw (15).

SPARE PARTS

DN	Spring 1-6 bar
Reference	**10**
15	981805
20	981806
25	981807

Spare pressure gauges item 1
1-6 bar
F1616005

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