



INSTALLATION AND MAINTENANCE INSTRUCTIONS RP45 - PRESSURE REDUCING VALVES

GENERAL

1. These instructions must be carefully read before any work involving products supplied by VALSTEAM ADCA ENGINEERING S.A. is undertaken.

2. The installation procedure is a critical stage in a life of a valve and care should be taken to avoid damage to the valve or equipment.

Reducing valves are designed to give accurate control of down-stream pressures. They give their maximum performance only when the equipment associated with them is correctly sized and installed in accordance with our recommendations.

Warning !

-At start up , the presence of small particles in the fluid (dirt,scale,weld splatters,etc) may cause an unperfect closure of the seat . If this occur, proceed to an accurate cleaning.

-Do not touch the equipment without appropriate protection during working operation because it may conduct heat if the used fluid is at high temperature.

-Before starting maintenance be sure that the equipment is not pressurized or hot .

-The equipments must be used within the working temperature and pressure limits laid down for them, otherwise they may fail (refer to nameplate and/or IS- Information Sheet).

-Do not remove the nameplate attached to the equipment. Serial number and other useful information is stamped on it.

-The valve is not suitable for oxygen service.

INSTALLATION

1. Before to install remove plastic covers placed on flanges or connection ends. The equipment has an arrow or Inlet/Outlet designations. Be sure that it will be installed on the appropriate direction.

2. Take care with jointing material to ensure that none may be permitted to block or enter the valve.

3. Reducing valves are recommended to be fitted with the centre line of the valve in a vertical position to ensure that the best results are obtained.

4. An ADCA pipeline strainer should be installed upstream of the valve to protect from dirt which could damage the valve or cause mal-functioning.

5. The reducing valve pipework should be properly supported and free from strain and it should not be subjected to undue surges of pressure.

For steam installations we strong recommend that the reducing valve is positioned where condensation is unable to collect or that, alternatively, separators and steam traps are are fitted so that the pipework drains correctly. The start up condition should be considered.

6. A balance pipe must be connected downstream at least 1 metre from valve. See AS.RP45.01.

MAINTENANCE

1. We recommend that the pressure reducing valves are serviced as necessary. Pressure reducing valves should be checked periodically (at least yearly), to verify that they are operating correctly and to clean the internal parts and screen (if any).

2. When reassembling make sure that all gasket faces are clean and always use a new gasket. Tighten cover bolts uniformly in a diagonal sequence.

3. Valves in store for long periods should have their adjusting spring relaxed.

4. For further information refer to the relevant PRV brochure or consult our Sales Office.

LIMITING CONDITIONS

Body design conditions :	PN 16	PN 40
Maximum upstream pressure (steam) :	13 bar	25 bar
Maximum downstream pressure :	13 bar	13 bar
Minimum downstream pressure :	0,15 bar	0,15 bar
Maximum operating temperature :	250 °C	250 °C
Maximum reducing ratio :	25 : 1	25 : 1
Maximum cold hydraulic test :	24 bar	25 bar
Max.hydraulic factory valve body test:	24 bar	60 bar

USEFUL NOTES ON VALVE AND PIPE SIZING

If the flow is unknown it is possible to estimate it based on pipe size or equipment heat requirement-please consult.

CE MARKING (PED - European Directive 97/23/EC)

PN 16 : PN 25 : PN 40 :

DN15 to DN50 DN15 to DN32 DN15 to DN25 : SEP - Art.3, paragraph 3.

DN65 to DN100 DN40 to DN50 DN32 to DN50 : Category 1 (CE marked).

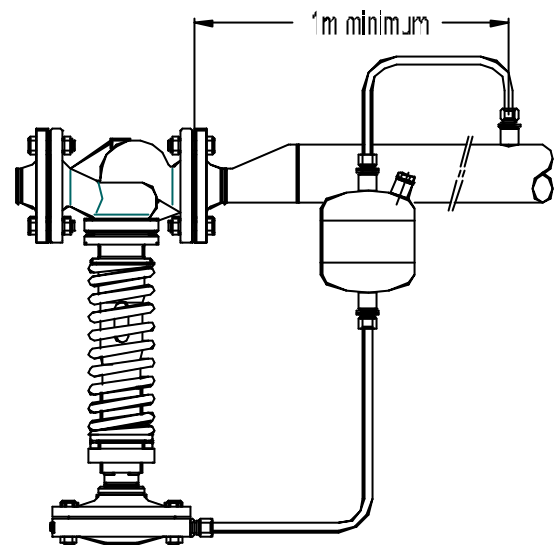
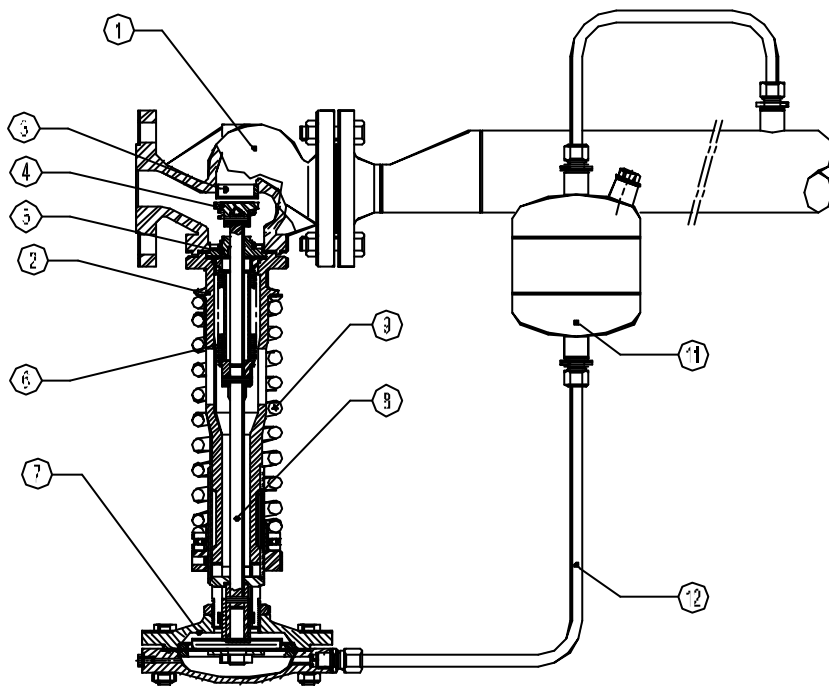
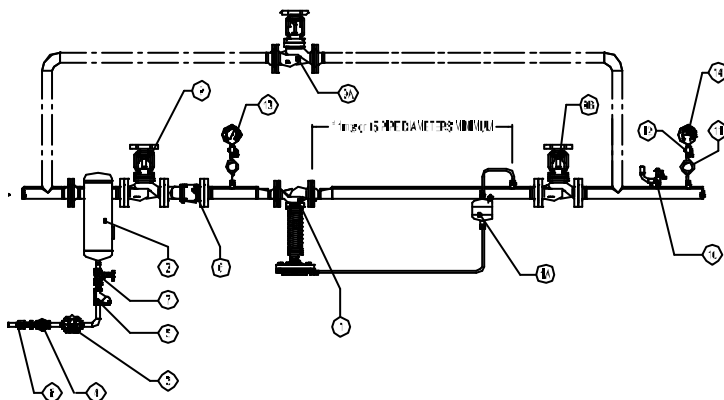
DN65 to DN100 : Category 1 (CE marked).

LOSS OF GUARANTEE : Total or partial disregard of above instructions involves loss of any right to guarantee.



PARTS LIST FOR RP45 PRESSURE REDUCING VALVES :

Code	Designation	ValveSize	Pos.Nr.	Qty.
VR.9530.015	Stainless steel bellows	DN15-DN25	6	1
VR.9530.032	Stainless steel bellows	DN32-DN40	6	1
VR.9530.050	Stainless steel bellows	DN50-DN65	6	1
VR.9530.080	Stainless steel bellows	DN80	6	1
VR.9530.100	Stainless steel bellows	DN100	6	1
Code	Designation	Actuator	Pos.Nr.	Qty.
VR.9550.001	Diaphragm	A1 / A11	--	1
VR.9550.002	Diaphragm	A2 / A21	--	1
VR.9550.003	Diaphragm	A3	--	1
VR.9550.004	Diaphragm	A4	--	1


TYPICAL INSTALLATION

MATERIALS (RP 45)

POS.	DESIGNATION	MODEL
1	PRESSURE REDUCING VALVE	RP 45
1A	WATER SEAL POT	STEEL
2	HUMIDITY SEPARATOR	S 25
3	STEAM TRAP	FLT SERIES
4	SIGH GLASS	SW 12
5	STRAINER	IS 16
6	STRAINER	IS16F
7	STOP VALVE	GLOBE TYPE
8	CHECK VALVE	GLOBE TYPE
9	STOP VALVE	GLOBE OR GATE TYPE
9A*	BY-PASS VALVE	GLOBE TYPE
9B	STOP VALVE	GLOBE OR GATE TYPE
10	SAFETY VALVE	---
11	COIL	---
12	GAUGE COCK	---
13	UPSTREAM PRESSURE GAUGE	---
14	DOWNSTREAM PRESSURE GAUGE	---

Remarks :

* By-pass is optional .In case the by-pass is not allowed than stop valve 9B should be placed after pressure gauge 14 allowing the isolation of safety valve.

PN classes and materials according to the operating pressures.

The balance pipe connection is recommend to enter downstream pipe at a minimum of 1 metre from valve.

Installation instructions are available (IMI - RP45) and typical assembling drawing .

Special assembling designs may be produced on request .

PROPERTIES

The pressure reducing valve type RP45 is designed to reduce steam pressure from an initial high inlet pressure to a lower outlet pressure. The outlet pressure when set is independent of variations of inlet pressure and also of variations of flow. Pressure reduction is achieved in one stage, i.e. with a single valve. However, in order to make best use of the excellent regulation characteristics of the valve, it is advisable not to exceed a pressure ratio of 25:1 in a single stage.

METHOD OF FUNCTIONING

Pressure reduction is achieved by means of variable throttling of the inlet flow at the seat by variation of the flow area between seat and disc. The outlet pressure which is transmitted through the feed-back line to the diaphragm chamber (7) counteracts the spring force acting on the valve spindle (8) and controls the valve aperture corresponding to the spring setting and thus to the required outlet pressure.

PRESSURE SETTING

The spring loading may be varied by means of a spring plate which is attached to the threaded tube which in turn is arranged to a star formed abutment piece, the lugs of which pass through slots in the valve stem body. The pressure forces acting upon the diaphragm are counterbalanced by the spring force applied to the abutment piece by means of a threaded tube. As the diaphragm and its housing are structurally connected only by means of the valve stem body, the spring plate may be adjusted to the required outlet pressure unencumbered by any stays, rods or other structural elements. A thrust bearing between the spring and spring plate facilitates easy adjustment.

INSTALLATION OF PRESSURE REDUCING VALVE

Pressure reducing valves are efficient and sensitive regulating devices but do not serve as stop valves. It is necessary therefore to introduce a stop valve between the pressure source and the pressure reducing valve which can be closed if no flow is required. It is recommended that a filter-strainer should be introduced upstream of the pressure reducing valve to prevent the ingress of rust, scale or other foreign particules.

Correctly installed pressure reducing valves operate with great reliability, nevertheless it is advisable to fit a safety valve for the protection of the downstream pipework and associated equipment, which will guard against any possible failure of the reducing valve.

Pressure reducing valves are to be installed as close as possible to the point where low pressure steam is being used. If the low pressure pipeline should exceed three meters, then a pressure reducing valve one nominal size larger should be used than that selected in accordance with the graph.

SETTING OF THE OUTPUT PRESSURE

In order to achieve the best possible regulation, it is necessary to match the diaphragm area of the pressure reducer to the required outlet pressure. Pressure reducers of type RP45 are available with four sizes of diaphragm and the effective diaphragm area can be further varied by the insertion of special insert rings of specific design.

The pressure reducing valve will be supplied with the appropriate diaphragm in accordance with the required outlet pressure. The outlet pressure can then be varied over a certain range by loading or unloading the spring. The required outlet pressure will be pre-set on assembly. If it is required to increase the outlet pressure, this is done by increasing the spring force by rotating the spring plate on the threaded tube if the outlet pressure is to be reduced, this is achieved by unloading the spring. If the available range of adjustment is found to be insufficient, the spring may be changed and possibly also the effective diaphragm area by changing the diaphragm chamber.

