

## INSTALLATION AND MAINTENANCE INSTRUCTIONS

### PS - PRESSURE SUSTAINING VALVES

#### PS45 (EN) / PS45 (ANSI)

#### GENERAL

- These instructions must be carefully read before any work involving products supplied by VALSTEAM ADCA ENGINEERING S.A. is undertaken.
- The installation procedure is a critical stage in the valve life and care should be taken to avoid damage to the valve or equipment.
- Sustaining valves are designed to give accurate control of upstream pressures. They give their maximum performance only when the equipment associated with them is correctly sized and installed in accordance with our recommendations.

#### **Warning!**

- If malfunction of any other equipment or system operation failure may result in a dangerous overpressure, over temperature or even vacuum condition, a safety device must be included in the system to prevent such situations.
- At start up, the presence of small particles in the fluid (dirt, scale, weld splatters, etc) may cause an imperfect closure of the seat. If this occurs, 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 stamped on it.
- This valve is not suitable for oxygen service.

#### INSTALLATION



- Before installation 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.
- Take care with jointing material to ensure that none may be permitted to block or enter the valve.
- 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.
- An ADCA pipeline strainer should be installed upstream of the valve to protect from dirt which could damage the valve or cause mal-functioning.
- 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 strongly recommend that the reducing valve is positioned where condensation is unable to collect or that, alternatively, separators and steam traps are fitted so that the pipework drains correctly. The startup condition should be considered.

- A balance pipe must be connected upstream at least 1 meter from valve. See IS.SP45.
- PS45 is designed primarily for steam, compressed air and non inflammable gases. Please consult the factory.

At service conditions where the temperature is more than 100°C it is necessary to protect the diaphragm against overheating by using a seal pot.

Never size the valve according to the pipe diameter in which it has to be fitted but according to the required actual flow .Pipe sizing must also respect the maximum recommended flow velocities according to the medium.

- **Service conditions less than 100°C:** with gases the valve is ready to work. In case of liquids the actuator must be filled completely with liquid, so, the vent screw (12) should be open till the water flow without bubbles.

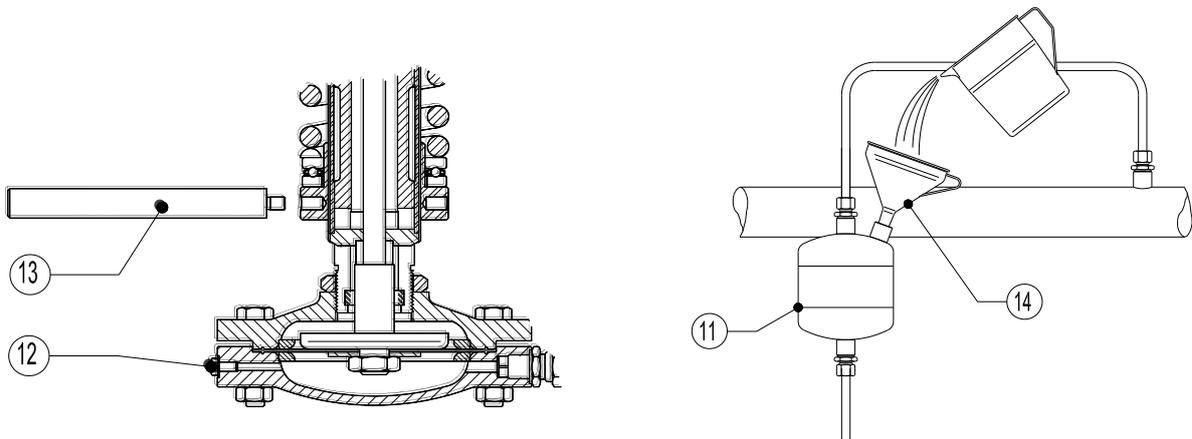
The valve can be installed with the diaphragm pointing upwards or downwards.

**Service conditions more than 100°C :** Fill the seal pot (11) using a funnel (14) until the water emerges from the actuator vent (12) without bubbles. Close the actuator vent screw (12) and proceed filling the pot until the water reaches the top and close it with the plug. The valve is now ready to work.

The valve must be installed with the diaphragm pointing downwards.

Upstream pressure should be adjusted with the key (13). Compressing the spring, spring force increase and upstream pressure aperture increase. Relaxing the spring, spring force decrease and upstream pressure aperture decrease.

The valve closes when the upstream pressure decreases.



#### Installation area requirements:

- The installation area should have easy access and provide enough space for maintenance and removing operations.
- The installation area should have the necessary firing system to prevent damage of the equipment due to over temperature/pressure cause by fire.

#### MAINTENANCE

- We recommend that the pressure sustaining valves to be serviced as necessary. Pressure sustaining 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).
- When reassembling make sure that all gasket faces are clean and always use a new gasket. Tighten cover bolts uniformly in a diagonal sequence.
- Valves in store for long periods should have their adjusting spring relaxed.
- For further information refer to the relevant PS brochure or consult our Sales Office.

CE MARKING (PED - European Directive 97/23/EC)		
PN 16	PN 40	Category
DN15 to DN 50	DN15 to DN 32	SEP - art. 3, paragraph3
DN65 to DN100	DN40 to DN80	1 (CE Marked)
/	DN100	2 (CE Marked)



CE MARKING (PED - European Directive 97/23/EC)		
ANSI 150	ANSI 300	Category
1" - 2" (DN25-50)	1" (DN25)	SEP - art. 3, paragraph 3
3" - 4" (DN80-100)	1 1/2"-4" (DN40-100)	1 (CE Marked)

LIMITING CONDITIONS									
	PS45G	PS45S	PS45I	PS45GT	PS45ST	PS45IT	PS45GN*	PS45SN *	PS45IN *
Body design conditions	PN16	PN40	PN40	PN16	PN40	PN40	PN16	PN40	PN40
Max.upstream pressure **	13 bar								
Max.downstream pressure	13 bar								
Min.upstream pressure	0,15 bar								
Max.operating temperature	200°C	250°C	250°C	200 °C	220 °C	220 °C	90 °C	90 °C	90 °C
Max.pressure ratio	25:1	25:1	25:1	25:1	25:1	25:1	25:1	25:1	25:1
Rangeability	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1	10:1
Max.cold hydraulic test	24 bar	25 bar	25 bar	24 bar	25 bar	25 bar	24 bar	25 bar	25 bar
Max.hydr. factory valve body test	24 bar	60 bar	60 bar	24 bar	60 bar	60 bar	24 bar	60 bar	60 bar

\*Suffix N : - a maximum turndown ratio 10:1 should be observed. Other soft materials on request.

\*\* Others on request with bellows or piston actuator

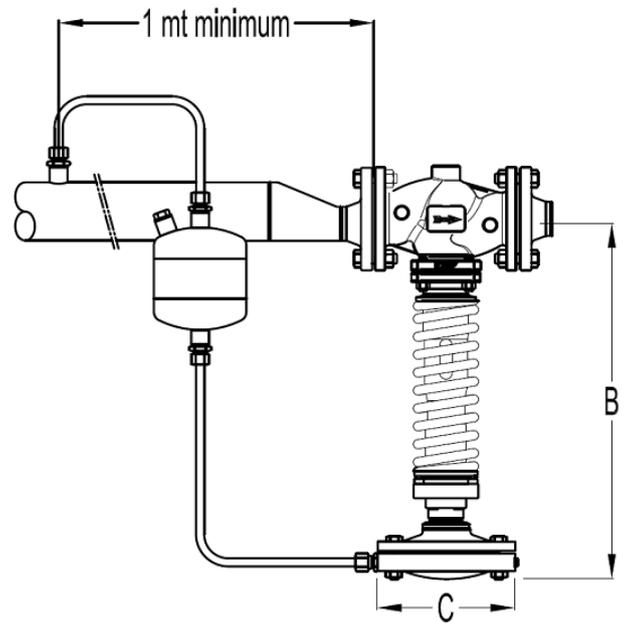
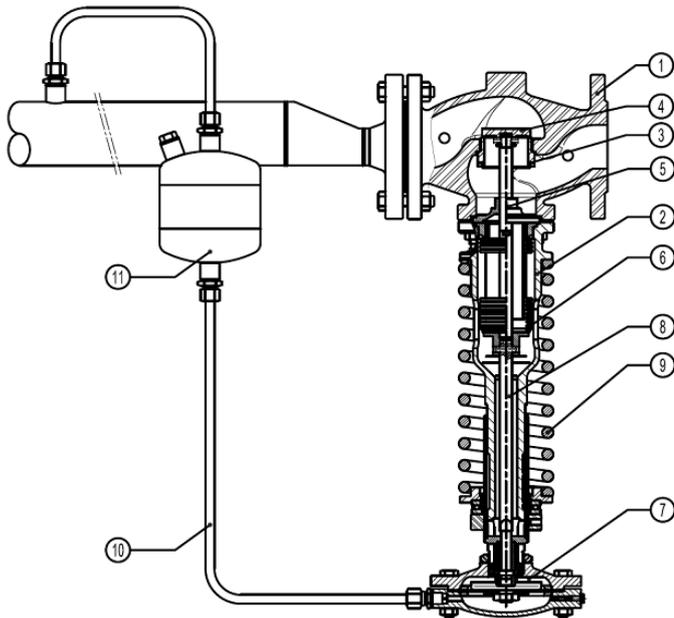
#### USEFUL NOTES ON VALVE AND PIPE SIZING

Two regulators in parallel should be used on larger systems where minimum flow is less than 10% of maximum. If the flow is unknown it's possible to estimate it based on pipe size or equipment heat requirement - please consult.

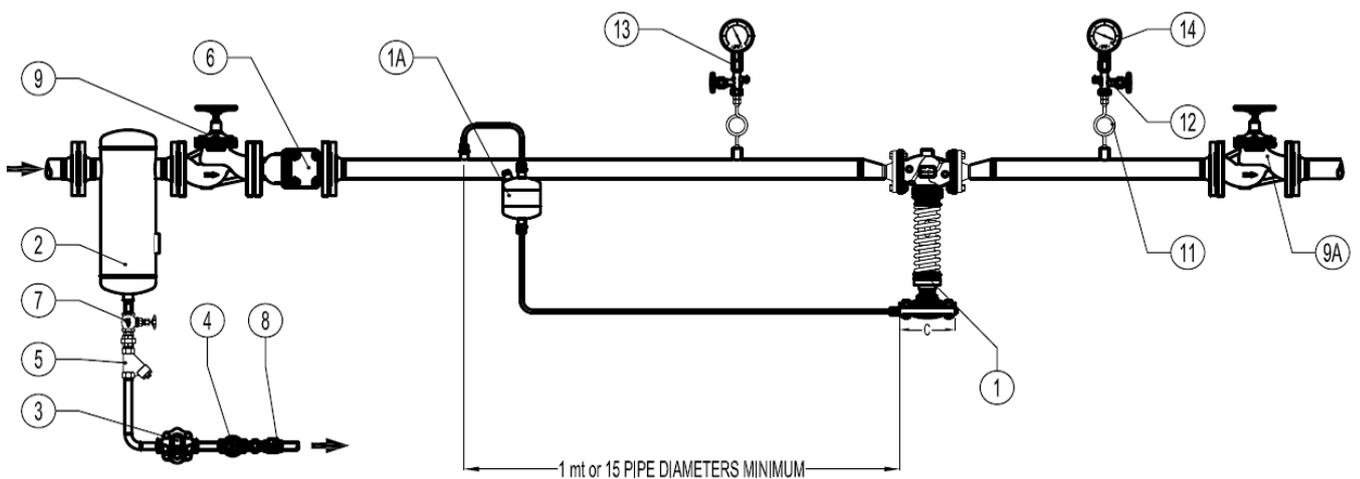
#### PARTS LIST FOR PS45:

CODE	DESIGNATION	VALVE SIZE DN	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
VR.9455.060	Regulating spring nr 60	DN15-DN40	9	1
VR.9455.061	Regulating spring nr 61	DN50-DN65	9	1
VR.9455.062	Regulating spring nr 62	DN80	9	1
VR.9455.063	Regulating spring nr 63	DN100	9	1
VR.9455.064	Regulating spring nr 64	DN50-DN65	9	1
VR.9455.065	Regulating spring nr 65	DN80	9	1
VR.9455.066	Regulating spring nr 66	DN15-DN40	9	1
VR.9455.067	Regulating spring nr 67	DN50-DN65	9	1
VR.9455.068	Regulating spring nr 68	DN80	9	1
VR.9455.069	Regulating spring nr 69	DN100	9	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		
POS.	DESIGNATION	MODEL
1	Pressure sustaining valve	ADCA PS45
1A	Water seal pot	POT
2	Humidity separator	ADCA S 25
3	Steam trap	ADCA FLT series
4	Sigh glass	ADCA SW 12
5	Y Strainer	ADCA IS 16
6	Y Strainer	ADCA IS16F
7	Stop valve	ADCA GV32B
8	Check valve	ADCA RT
9	Stop valve	ADCA VF16
9A	Stop valve	ADCA VF16
11	Coil	ADCA GSC-40
12	Gauge cock	ADCA GC-400
13	Upsteam pressure gauge	ADCA MAN-100
14	Downstream pressure gauge	ADCA MAN-100

**Remarks:**

\* By-pass is optional. In case the by-pass is not allowed than stop valve 9A 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 recommended to enter upstream pipe at a minimum of 1 meter from the valve.

Information sheet are available (IS - RP45) and typical assembling drawing.

Special assembling designs may be produced on request.


**ATTENTION**

- **LOSS OF WARRANTY:** Total or partial disregard of above instructions involves loss of any right to warranty.