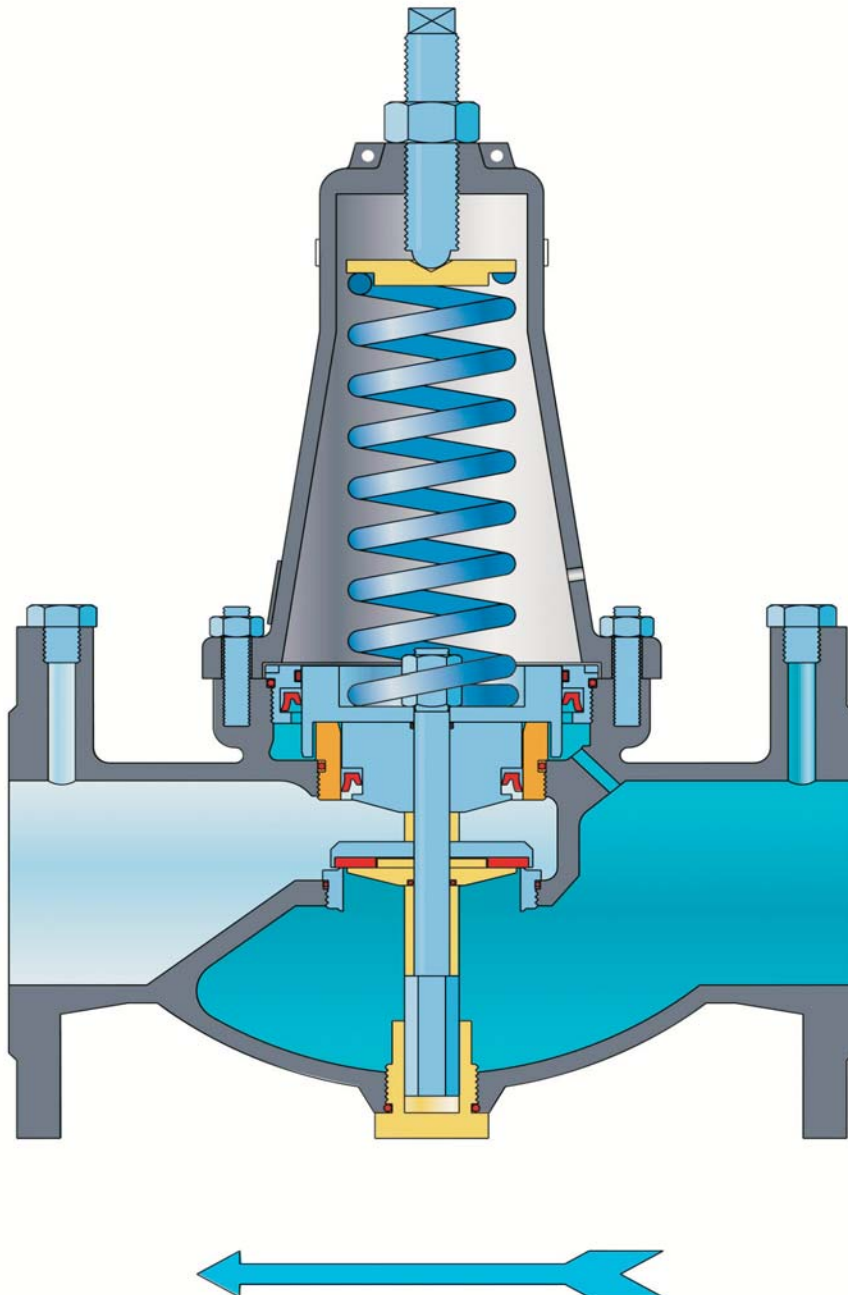


Pressure relief/sustaining valve Series VSM

It automatically maintains and sustains a preset upstream pressure discharging any overpressure downstream. VSM is mostly used:

- in aqueducts as a pressure relief/discharge valve;
- in fire fighting systems to discharge overpressure caused by pumps;
- in irrigation systems as an effective protection against water hammer and to prevent pumps from cavitating;
- in industrial plants, civil buildings and more;



Principle of operation

Taking its cue from the pressure reducer series VRCD a piston, provided with two lip seals, moves inside two rings. The upstream pressure, acting on the lower side of the obturator and, by means of a particular hole obtained through the body, on the compensation chamber, opposes the spring compression which is preset using the threaded rod. When the upstream pressure becomes lower than the preset value the spring pushes the obturator down to its closing position, therefore interrupting the water supply. Vice versa, the rise in upstream pressure will lift the obturator discharging the exceeding values downstream. A hexagonal tightening screw, which is guided by the lower tap, makes sure that the piston movement is always perfectly vertical preventing the metals from rubbing one against the other.

Main applications - As a pressure sustaining valve

To rise the HGL in order to supply an elevated area of customers. It maintains this area to a minimum preset pressure preventing it from dropping as a consequence of rapid increase in demand.

To supply a downstream network or a reservoir with the exceeding pressure coming from upstream. To do that it is necessary to have an overpressure of the upstream network for many hours during the day in order to create a valuable water supply.

Simply by acting on the VSM pressure settings we will obtain the following:

-valve closed until the upstream pressure remains below the preset value;

-valve opened, therefore supplying of network and/or tanks, when the upstream pressure rises above the preset value;

To protect a pump against cavitation effects; in case of pumping into an empty pipe we are likely to have the pumps working below their efficiency point reaching rpm values that could engender cavitation damaging the entire system.

Simply using VSM right downstream of the pump, and adjusting the pressure to the minimum possible value, we can solve this problem. Once the pipe is no longer empty, the valve will sense the increase in pressure and open completely.

Main applications - As a pressure relief valve

To protect a pump against low flow rate conditions in case of:

-water supply of a reservoir with flow valves totally shut;

-pump start against a control valve with a very delayed opening time;

-electronically controlled pump shut off operation in case of pipe totally closed;

It is always advisable to install a VSM on a discharge line in derivation from the main line, to guarantee a minimum flow rate and avoid dangerous overpressure as well as overheating.

To protect the system against overpressure, that can occur during pump start up and pump failure, discharging directly into atmosphere or in a tank.

To limit the pressure of an upstream network discharging the exceeding values to the system downstream, towards a drain or a reservoir.

Sizing

The DN of the valve has to be chosen according to the maximum flow rate and the actual working conditions, not based on the pipe DN. To facilitate the sizing process we include in the following chart the suggested maximum flow rate, calculated assuming an inlet velocity of 2,5 m/sec. It goes without saying that VSM can work with flow rates that are even larger than this threshold to the detriment of the precision.

Dn 50 = 4.8 l/s

Dn 65 = 8 l/s

Dn 80 = 12 l/s

Dn 100 = 19 l/s

Dn 125 = 29 l/s

Dn 150 = 43 l/s

Working conditions

Potable water, please consult our tech support for different fluids.

Minimum difference in pressure upstream and downstream = 1,5 bar.

Minimum downstream pressure = 1/5 upstream pressure.

Maximum temperature : 70°C

Maximum inlet pressure : 40 bar



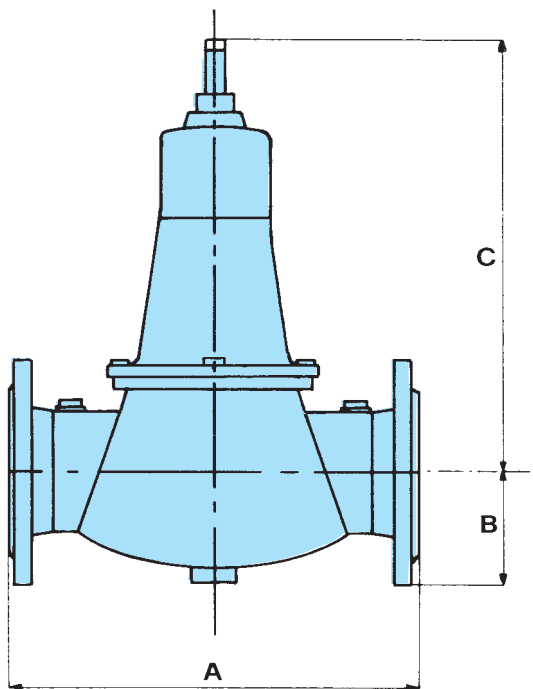
Pressure measurement KIT composed of:
Pressure gauges with case in stainless steel placed upstream and downstream
Isolating ball valve with pressure relief mechanism

Installation

The VSM must be installed in a horizontal position in order to obtain maximum efficiency and to avoid wear of the moving parts. However, a vertical installation is also feasible (up to DN 80). We recommend to proceed with an accurate cleaning of the water pipe before installation thus avoiding damage of the seat and bushings caused by pebbles, stones or other building materials. Make sure that the pit is sufficiently large and easy accessible for maintenance operations and the control of pressure gauges. The pit must be equipped with adequate drainage for cleaning the filter. The positioning of the VSM must be carried out according to the arrow on the body and for maintenance purposes also place two gate-valves and a filter before the valve.

Operation and maintenance

For the installation, operations and maintenance advice please refer to the handbook which is enclosed with each valve.



DN	50	65	80	100	125	150
A	230	290	310	350	400	450
B	83	93	100	117	135	150
C	280	320	350	420	590	690
KG	12	19	24	34	56	74

Design features

PN10/16/25/40

Body and cap: GJS 500-7 entirely coated with epoxy powder FBT applied.

Spring: 55sicr6.

Upper bushing: stainless steel.

Lower bushing: stainless steel.

Seat: stainless steel

Obturator: stainless steel.

Packing & O-ring: NBR/Vulkollan/viton

Tightening screw & drive: stainless steel

Nuts and bolts: stainless steel

Guide ring: ptfе

Conformity to standards:

EN 1092-2