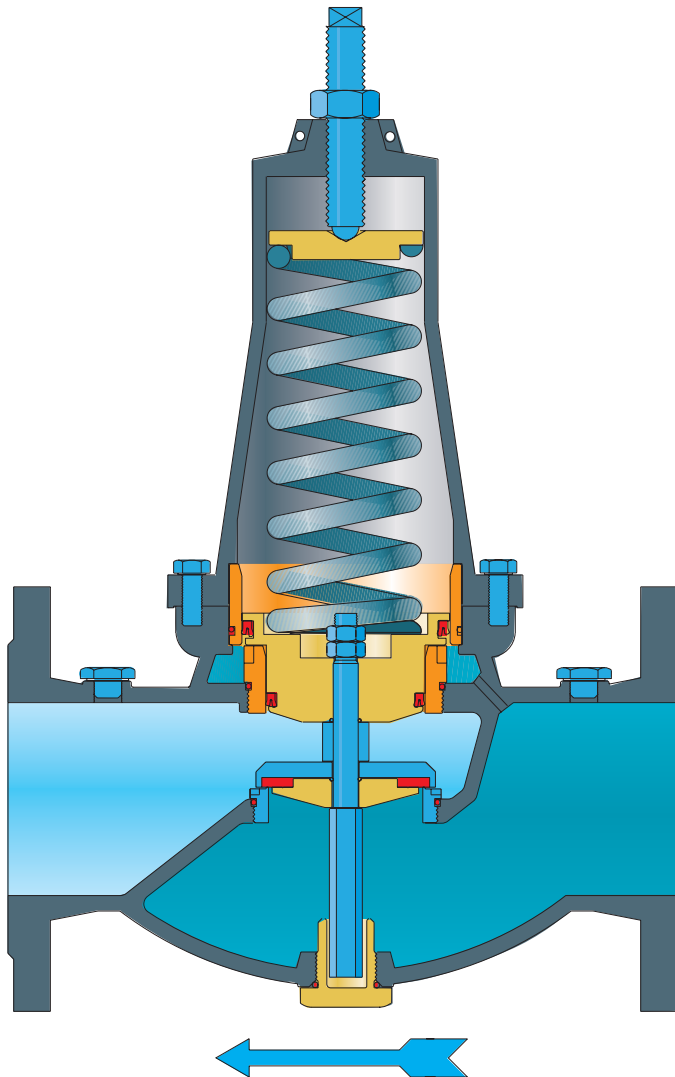


Pressure relief/sustaining valve Series VSM

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

- **in aqueducts** as a pressure relief/sustaining valve;
- **in firefighting systems** to discharge overpressures 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, is moving 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 is pushing the obturator down to its closing position, therefore interrupting the water supply. Viceversa, the rise in upstream pressure will lift the obturator discharging the exceeding values downstream. An hexagonal tightening screw, which is guided by the lower tap, makes sure that the piston movement is always perfectly vertical preventing the metals from scrubbing one against the other.

Main applications - As a pressure sustaining valve

To rise the HGL in order to supply an elevated area of consumers. It will maintain this area to a minimum preset pressure preventing it to drop 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 so that 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 will remain below the preset value;
- valve opened, therefore the supply 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 a 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 opening 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 operations 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 overpressures as well as overheatings.

To protect the system against overpressures, that can occur during pump start up and pump failure, discharging those 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 will include in the following chart the maximum suggested flow rate, calculated assuming an inlet velocity of 2.5m/sec. It goes without saying that VSM can work with flow rates that are even larger than this threshold to the detriment of precision.

DN	50	65	80	100	125	150
l/s	4,8	8	12	19	29	43

Working conditions

Potable water, please consult with our tech support for different applications.

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

Minimum downstream pressure = 1/5 Upstream pressure

Maximum temperature: 70°C

Maximum inlet pressure : 40 bar

Relief/sustaining pressure:



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