Differential pressure sustaining valve **Mod. XLC 395/495**

The CSA Model XLC 395/495 is a globe pattern hydraulically operated automatic control valve that sustains a minimum upstream pressure differential value between two points, pre-set and adjustable, regardless of variations in demand. Entirely made in ductile cast iron with FBT epoxy (fluid bed technology) coating with internals in stainless steel, the valve has been designed to reduce head loss, throttling noise and cavitation damage.

Applications

- On the main supply line of pumping stations to prevent overload and to avoid cavitation.
- On cooling systems for pressure balancing between circuits.
- On filtration systems for emergency by-pass.

Additional features

- XLC 395/495-FR differential upstream pressure sustaining valve with back-flow prevention.
- XLC 395/495-5 differential upstream pressure sustaining valve with solenoid control.

Accessories

- Linear position transmitter with 4-20 mA output Mod. CSA CSPL.
- On-off position transmitter Mod. CSA CSPO.
- Pressure measurement kit.
- Self-flushing and high capacity filter.

Working conditions

- Fluid: treated water.
- Minimum operating pressure: 0,7 bar.
- Maximum operating pressure: 25 bar.
- Maximum temperature: 70°C.

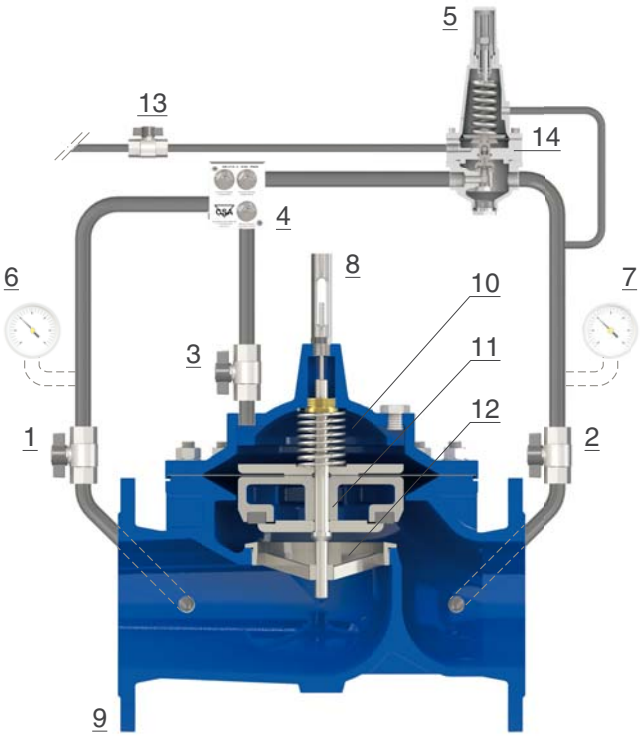
Note to the engineer

- Inlet pressure, outlet pressure, flow rate and application are required for the proper sizing and cavitation analysis.
- For flow rate and operating conditions use the charts on XLC series engineering.
- A minimum length of 3 DN upstream of both pressure ports is recommended for the proper operation and the best accuracy.

Upstream pressure pilot adjustment range

- Blue spring: 0,7 to 7 bar.
- Red spring: 1,5 to 15 bar.
- Higher values up to 25 bar on request.
- Values lower than 0,7 available on request.

Operating principle



The CSA Model XLC 395/495 is operated by a two ways pilot (5), with pre-set and adjustable set point value, sensing two pressures points in order to maintain a required differential between them.
The first point is actually the downstream pressure (7) acting on the pilot's cover, while the second (13) is the upstream pressure, sensed either upstream or through an external port away from the valve, and connected to the pilot's intermediate body (14). Both values are required for the valve to work, creating the differential pressure needed for the design, whose circuit is controlled by the exclusive CSA unit flow control device GR.I.F.O (4) for the best accuracy and proper response time. Should the difference in pressure rise above the pilot's set point the latter will open thus discharging the main chamber (10) and moving the obturator (11) towards the open position. Should the difference in pressure be lower than the pilot's set point the latter with throttle, diverting all pressure towards the main chamber (10) thus pushing the obturator (11) onto the seat (12) and reducing the flow rate through the main supply line.

Installation layout

The picture shows the installation lay-out of the CSA XLC 395/495 used for pump control, to avoid overload and cavitation, where pressure is taken before and after the pump (1) in order to maintain the required difference in pressure. In case of by-pass, needed for maintenance, the pressure sustaining valve VSM (2) is the best choice thanks to its reliability also after long periods of inactivity. Anti-surge combination air valves FOX 3F AS (3, 4) are recommended upstream and downstream of the installation.