Flow automatic control valve with solenoid control
Mod. XLC 335/435

The CSA Model XLC 335/435 is a globe pattern hydraulically operated automatic control valve that, working in combination with an orifice plate assembly, limits the maximum flow to a maximum pre-set value, adjustable and regardless of pressure variations. In case of flow rate lower than the required set point the valve will be fully opened. The circuit is also equipped with a solenoid and flow accelerator to enable on-off control in response to signals. Entirely made in ductile cast iron with FBT (fluid bed technology) epoxy coating and stainless steel, the valve reduces head loss, throttling noise and cavitation damages.

Applications

- Downstream of pumps to prevent overload and for cavitation protection with on-off control in case of alarms and emergencies.
- On the inlet supply lines of tanks to prevent excessive flow with the possibility of electric float back up.
- In main transmission lines and water distribution systems to equalize operating supply hours between valves and limit the flow for various regimes.

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.

Note to the engineer

- Inlet and outlet pressure, flow rate are required for the proper sizing.
- CSA anti-cavitation low flow stability plugs are recommended to provide an accurate regulation in case of low flow conditions.
- For the best accuracy leave 5 DN between the valve and the orifice plate and 3 DN downstream of it (picture in the next page).

Additional features

- XLC 335/435-FR flow regulation with solenoid control valve with back flow prevention system.
- XLC 335/435-H flow regulation with solenoid control valve with high sensitivity pilot.

Working conditions

- Fluid: treated water.
- Minimum operating pressure: 1,2 bar.
- Max. operating press.: 16 bar. Higher on request.
- Maximum temperature: 70°C.

Flow rate control pilot adjustment range

- The orifice plate assembly is calculated and machined according to the maximum flow rate. An adjustment range of the value is possible according to the regulation flow chart supplied with the valve.

Solenoid electrical data

- Voltages: 24 V DC, 24 V/50 Hz, 230 V/50 Hz. Other voltages on request.
- Power consumption: inrush AC (VA) 24, hold AC (VA) 17 (8 W), DC hot/cold coil 8/9 W.

Operating principle
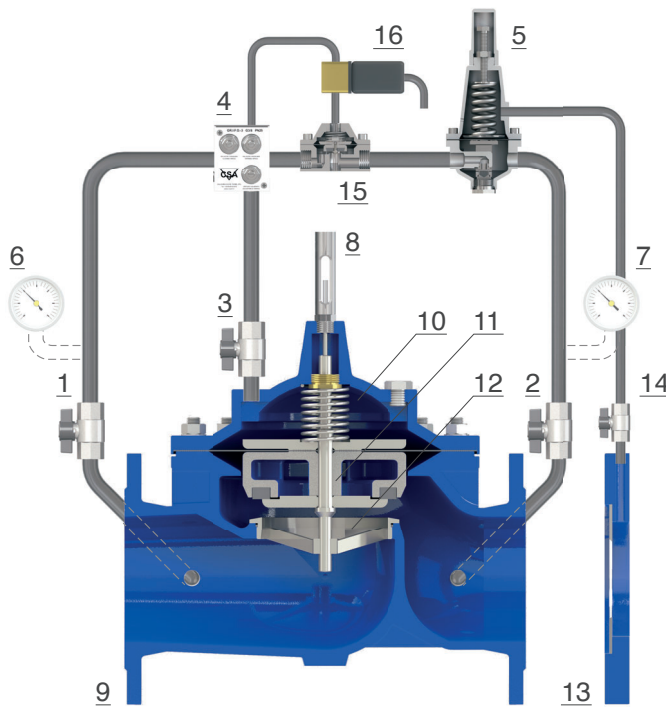
The XLC 335/435 is operated by a 2 ways pilot (5), for flow control with pre-set and adjustable values, sensing the drop in pressure produced by the orifice plate (13). Should the flow exceed the maximum value the differential pressure will increase and pilot (5) will throttle and limit the flow, to direct inlet pressure to the main chamber (10) and generate the head loss required through the seat (12) for the valve (9) to control the flow rate. Should the flow remain below the pilot's set-point, the differential pressure across the orifice plate (13) will be less then the pilot's (5) spring force, therefore the valve will remain fully open. A solenoid valve (16) working in combination with an hydraulic accelerator (15) is either interrupting the flow through the circuit pushing the valve (9) to the closed position, or discharging the main chamber (10) to by-pass the flow control pilot (5) and open the main valve (9) completely. Pressure in and out of the main chamber (10) is controlled by the CSA exclusive regulation device with filter called GR.I.F.O. (4), needed for the valve's response time and accuracy.

Installation layout

In the picture the CSA XLC 335/435 is linked to CSA controller (10) or any other electronic device sending impulses according to the function required. The flange orifice (8) is connected to the valve's pilot (9). Sectioning devices (1, 2) and a by-pass with CSA pressure control valves (4) are needed for maintenance operations. Anti-surge air valves CSA FOX 3F AS (6, 7) are recommended for air release and commissioning, as well as a pressure relief valve CSA VSM (5) to prevent rise in pressure.

Automatic valves XLC