Deep well pump control valve **Mod. XLC 390-DC-DW and XLC 490-DC-DW**

The CSA double chamber deep well control valve is a globe pattern hydraulically and electronically operated diaphragm automatic control valve, that prevents water hammer events in deep well applications by allowing a pump flow circulation. The valve opens and shuts off in response to electric signals generated during the pump starting and stopping operations. Produced with PN 25 bar pressure class body and entirely made in ductile cast iron FBT epoxy painted and stainless steel, the valve is designed to work with low differential pressure values, reduce head loss, throttling noise and cavitation damage.

Applications

- Downstream of deep well pumps to avoid pressure surges.

Additional features

- XLC 392/492-DC-DW deep well pump control with pressure sustaining function.

Accessories

- Pressure measurement kit.
- Self-flushing and high capacity filter.

Working conditions

- Fluid: treated water.
- Minimum operating pressure: 0,7 bar.
- Maximum operating pressure: 16 bar. Higher on request.
- Maximum temperature: 70°C.

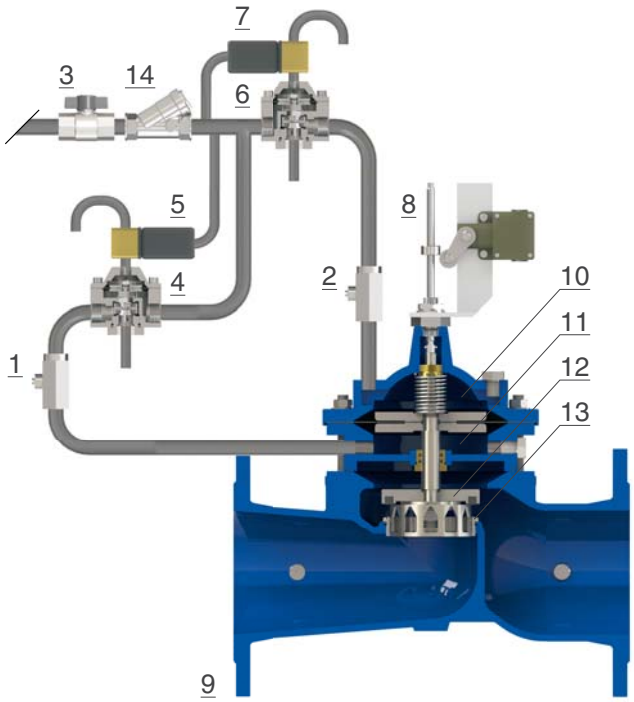
Note to the engineer

- For the proper sizing check the pump flow when and the static pressure value acting on the valve. When the pump is running at full flow the combined head losses of the control valve, piping and discharge line should not exceed 85% of the static pressure.

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 CSA model XLC 390/490-DC-DW is a double chamber automatic control valve operated by a 2 hydraulic circuits supplied by filtered pressure sensed (14) downstream of the check valve on the main line. The first going to the intermediate chamber through a two ways hydraulic relay (4), the second going to the upper control chamber acting on another two ways relay (6). The three ways solenoid valves (5) and (7) keep the relays normally closed in absence of impulses. Prior to the pump start up a signal is sent to the solenoid (5) in order to open the control valve, with the needle valve (1) controlling the opening rate. The limit switch will provide confirmation of the full opening of the valve while the pressure is gradually transferred to the main line. Impulses are now being sent to the solenoid (7) to pressurize the upper chamber, also in this case a second needle valve (2) will allow for the closing speed control.
Prior to pump shut off the valve is open with the same procedure to divert flow to the discharge line and allowing for absence of unwanted surges.

Installation layout

The valve must be installed in derivation from the line discharging at first air, water and sand once the pump is started, and connected with a pressure port downstream the check valve. The recommended installation layout includes sectioning devices for maintenance operations, anti-surge combination air valves FOX 3F AS on the manifold to prevent negative pressure conditions during power failure along with CSA XLC 321/421 surge anticipating control valve, to avoid further pressure surges.