GENERAL SPECIFICATIONS
Model 118-3 Surge Anticipation Valve – Electro-Hydraulic Type

1.1 General

The surge anticipation valve shall be installed on a bypass line downstream of the pump check valve(s). It shall function to prevent potentially damaging pressure surges by (a) opening immediately in the event of an electrical power failure, remaining open for a predetermined period of time, then slowly re-closing whether or not power is restored, (b) opening rapidly if main line pressure should exceed a predetermined set point, then slowly re-closing after pressure has returned to normal, and (c) opening rapidly in the event of a down-surge in pressure below a predetermined set point, remaining open for a predetermined period of time, then slowly re-closing whether or not pressure returns to normal. The power failure opening cycle shall be controlled by a three-way solenoid pilot, a metering valve, a small accumulator and a closing speed control. The high pressure opening cycle shall be controlled by an adjustable, normally closed pressure relief pilot that opens when the sensed pressure exceeds the spring setting. The low pressure opening cycle shall be controlled by a pressure switch wired in series with the solenoid, thus simulating a power failure when a down-surge in pressure occurs. The surge anticipation valve shall be a <size> Model 118-3, <globe pattern, angle pattern>, with <150# flanged, 300# flanged, threaded, grooved> end connections, as manufactured by OCV Control Valves, Tulsa, Oklahoma, USA.

1.2 Design

The surge anticipation valve shall be a single seated, diaphragm actuated, pilot controlled globe valve. The valve shall seal by means of a corrosion-resistant seat, and resilient, rectangular seat disc. These and other parts shall be replaceable in the field without removing the valve from the line. The stem of the main valve shall be guided top and bottom by integral bushings. Alignment of the body, bonnet and diaphragm assembly shall be by precision dowel pins. The main valve and its control system shall contain no packing glands or stuffing boxes. The diaphragm shall not be used as a seating surface, nor shall pistons be used as an operating means. The pilot system shall be complete and installed on the main valve, and shall include a closing speed control, a Y-strainer, and ball valves for isolating the pilot system from the main valve. The surge anticipation valve shall be operationally and hydrostatically tested prior to shipment.

1.3 Materials of Construction

The main valve body and bonnet shall be ductile iron per ASTM A536, Grade 65-45-12. End connections shall be <ANSI B16.42 Class 150# flange > <ANSI B16.42 Class 300# flange, > <ANSI B1.20.1 threaded > <grooved ends >. All ferrous surfaces shall be coated with a minimum of 4 mils of an NSF-61 approved epoxy. The main valve seat ring shall be bronze. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. The control pilots shall be bronze. The solenoid pilot, closing speed control, and isolation ball valves shall be brass and control line tubing shall be copper. The solenoid coil shall be suitable for operation on 110/120 VAC, 50-60 Hz, and shall be weatherproof per NEMA 4.

1.4 Operating Conditions

The surge anticipation valve shall be capable of limiting main line pressure to a maximum of **<X>** psi, based on a main line maximum flow rate of **<X>** gpm and a static pressure of **<X>** psi, with valve discharge to atmosphere.