GENERAL SPECIFICATIONS
Model 118-4 Surge Anticipation Valve – Electronic 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 reacting as described if the flowing occurs while a pump is running. In Mode A, the valve shall open immediately in the event of an electrical power failure that is accompanied by a down-surge in pressure and remaining open for a predetermined period of time, then slowly closing whether or not power is restored. In Mode B, the valve shall open immediately on a power failure or a down-surge in pressure. In either mode, the valve shall remain open for a predetermined period of time, then slowly close whether or not power has been restored. The valve shall also open if main line pressure should exceed a predetermined set point, then slowly close after pressure has returned to normal. The power failure opening cycle shall be controlled by a two-way solenoid pilot and a closing speed control, directed by the signals from the electronic surge control panel. The low pressure opening cycle shall be controlled by a pressure switch which will activate the control circuit in the surge panel similar to a power failure. 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 valve shall be equipped with a stem-actuated limit switch which shall be wired into the surge control panel. The surge anticipation valve shall be a <size> Model 118-4, globe pattern with Surge Commander electronic control panel, 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. The surge control panel shall be furnished by the valve manufacturer for remote mounting. It shall include, but is not limited to a 12 volt, 8 amp-hour battery, 1.0 amp charger unit, timers for setting the pump start interval, pump shutdown interval, and duration of valve opening, a system test switch, indicator lights for system status, battery condition, and valve position, and terminals for field wiring of 120 VAC power, solenoid pilot, pressure switch, limit switch and auxiliary pump starter contacts. The panel enclosure shall measure no more than 18 in. high x 14.5 in. wide x 9 in. deep and shall be rated NEMA 4X.

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 per ASTM B62. Elastomers (diaphragms, resilient seats and O-rings) shall be Buna-N. The control pilots shall be ASTM B62 bronze with stainless steel internals. 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 12 VDC, and shall be weatherproof per NEMA 4. The limit switch shall have SPDT contacts rated at 15 amps at 125-480 VAC and shall have a weatherproof enclosure 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.