



# PUMP CONTROL VALVE with RATE-OF-FLOW FEATURE

01/06

## 980 Series

—Model— **984**  
**684**

### Specifications

The Pump Control Valve with Rate-of-Flow Feature shall be a pilot operated diaphragm valve designed to minimize the surges associated with the starting and stopping of pumps, and automatically limit flow rate to a constant, adjustable, maximum. The throttling action of the valve shall be controlled by an externally mounted modulating control pilot, which senses differential pressure across a remote mounted orifice plate (field installed). The valve shall be designed to open at an adjustable rate upon pump start-up, and close at an adjustable rate upon pump shut-off. When the valve is near closed the limit switch shall be tripped, turning the pump off. The pump shall start and stop against a closed valve. The valve shall have provisions for manual operation in the event of power outage. Solenoid voltage shall be \_\_\_\_\_ and enclosure shall be NEMA 4 General Purpose.

The main valve shall be a hydraulically operated, single diaphragm actuated, globe or angle pattern valve. Y-pattern valves shall not be permitted. The valve shall contain a disc and diaphragm assembly that forms a sealed chamber below the valve cover, separating operating pressure from line pressure. The diaphragm shall be constructed of nylon reinforced Buna-N, and shall not seal directly against the valve seat and shall be fully supported by the valve body and cover. Rolling diaphragm construction will not be allowed and there shall be no pistons operating the main valve or any pilot controls.

The main valve body shall be fabricated 304L with Class D zinc plated steel flanges, utilizing stainless steel seal welds allowing the entire flow path to be stainless steel. External steel components shall be fully primed and painted with a stainless steel paint to prevent surface corrosion. The valve cover and all internal components shall be fabricated 304L Stainless Steel, and the main valve trim and throttling components (cover bearing, valve seat and disc guide) shall be Stainless Steel.

The disc and diaphragm assembly shall contain a Buna-N synthetic rubber disc with a rectangular cross-section that is securely retained on 3-1/2 sides by a disc retainer and disc guide. Diaphragm assemblies utilizing bolts or cap screws for component retention will not be permitted.

The exposed portion of the seat disc shall contact the valve seat and seal drip-tight. The disc and diaphragm assembly must be guided by two separate bearings, one installed in the valve cover and one concentrically located within the valve seat, to avoid deflection and assure positive disc-to-seat contact. Center guided valves will not be permitted. All necessary repairs shall be made from the top of the valve while the body remains in line.

The pilot control system shall contain a 3-Way Solenoid Pilot with screw type Manual Operator, Single Limit Switch, 3-Way Accelerator Pilot with integral orifice, Rate-of-Flow Control Pilot, separate Adjustable Opening and Closing Speed Controls, (2) Check Valves, an external Y-Strainer and Isolation Ball Valves on all body connections. The pilot control system shall utilize copper tubing and brass fittings. The Orifice Plate Assembly shall be included with the valve and field installed 3-5 pipe diameters downstream of the Pump Control Valve. The Orifice Plate Assembly shall be (field) connected to the Rate-of-Flow Control Pilot in accordance with factory piping schematic with minimum 3/8" diameter copper tubing.

The valve shall be AMES Model 984GS / 684GS (Globe) or 984AS / 684AS (Angle) Pump Control Valve with Rate-of-Flow Feature.