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**SAMPLE SPECIFICATION**

**3” to 20” Electric Check Valve for Pump Control Valve**

GA-ECV1-SPEC Rev B

1.0 GENERAL

1.1 Manufacturer shall have a minimum of ten (10) years’ experience in the manufacture of pilot operated valves for pump control and when requested shall provide a list of installations of similar size that have been in operation for at least 5 years.

1.2 Manufacturer shall have an ISO-9001 quality management system certified by an accredited body.

1.3 When requested, manufacturer shall provide detailed product data and descriptive literature including dimensions, weight, capacity, pressure rating, materials of construction and cross-sectional drawings clearly illustrating the individual components.

2.0 PRODUCT

2.1 The Electric Check Valve shall consist of a main valve assembly and a system of electro-hydraulic controls, completely assembled and tested as a unit and ready for field installation and wiring.

* 1. Main valve body shall be globe or angle style with integral flanges, faced and drilled per ANSI B16.1 Class 125 or 250, as shown on the plans or in the valve schedule.
  2. The valve shall be "full-ported" with a flow area no less than the internal area of its nominal pipe size. Globe valves shall have an integral bottom pad or feet permitting support directly under the valve body.
  3. The main valve shall operate on the differential piston principle such that the area on the underside of the piston is no less than the pipe area and the area on the upper surface is greater than that of the underside. There shall be no diaphragms or springs in the main valve.
  4. The valve piston shall be fully guided on its outside diameter and all guiding and sealing surfaces shall be lead free bronze. To minimize the consequences of throttling, throttling shall be by long, stationary vee-ports located downstream of the seat and not by the seat itself. Sawtooth attachments or other add-on devices are not permitted.
  5. A visual position indicator shall be provided

2.7 The valve shall be fully capable of operating in any position without the need of springs and shall not incorporate stems, stem guides or spokes in the waterway.

2.8 The main valve shall be serviceable in the line through a single flanged cover that provides easy access to all internal components.

3.0 MATERIALS

3.1 The valve body shall be made from cast iron conforming to ASTM A126 Class B

3.2 The piston, liner and seat shall be made from Alloy C95400 lead free bronze. The piston shall contain a replaceable resilient seat made from Buna-N rubber retained by a follower ring and stainless steel screws.

3.3 The valve cover shall be secured with zinc plated steel fasteners

3.4 The valve body and cover shall be factory coated with NSF-61 certified epoxy.

4.0 OPTIONS

4.1 Specify in lieu of 3.3 when required: The valve cover shall be secured with 316 stainless steel cover fasteners.

5.0 CONTROLS

5.1 Provide a system of electro-hydraulic controls to enable the valve to perform the functions listed below. All controls and control piping shall be non-corrosive and suitable for the working pressure and electrical conditions.

5.2 Controls shall consist of a 120VAC normal solenoid pilot with manual operator, independently adjustable normal opening and closing speed controls, 120VAC emergency solenoid with separate, adjustable closing speed control, y-strainer, isolating valves and a SPDT double break limit switch mounted on the valve cover and actuated by the visual travel indicator.

5.2 All pilot control piping, fittings and controls shall be lead free bronze, brass or stainless steel.

6.0 FUNCTION

6.1 The valve shall function to control surges associated with the starting and stopping of pumps. Valve operation shall be by means of solenoid pilots and powered by water pressure obtained from the inlet or outlet side of the main valve.

6.2 Pump Start: The valve shall open at a controlled rate of speed whenever both the normal and emergency solenoid pilots are energized. Upon opening, the indicator rod shall close contacts in the limit switch that are tied in with the motor starter circuit.

6.3 Normal Pump Shutdown: De-energizing the normal solenoid pilot shall initiate a normal, controlled valve closure. At an adjustable point near the seated position, the retracting indicator rod shall open the limit switch, contacts which shall simultaneously disengage the pump motor and de-energize the emergency solenoid pilot.

6.4 Emergency Operation: Anytime the pump motor disengages while the valve mounted limit switch contacts are closed constitutes an emergency pump stoppage. In that case, both the normal and the emergency solenoids shall simultaneously de-energize to initiate a more rapid valve closure.

7.0 MANUFACTURER

7.1 The valve shall be GA Industries Electric Check Valve, as manufactured by VAG USA, LLC Mars, PA USA.