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**SAMPLE SPECIFICATION**

**Series 5000 Automatic Control Valves**

GA-S5000-SPEC Rev B

**Description:** The valve shall be a hydraulically operated, single-diaphragm actuated, full-port type, globe body design. The control valve shall consist of three primary components: cast globe body with integral flanges, non-corrosive body seat and lower stem guide; cast cover with non-corrosive upper stem guide; and a diaphragm assembly. The diaphragm assembly shall be the only moving part. The diaphragm assembly shall form a sealed chamber in the upper portion of the valve, separating the operating pressure from line pressure.

**Construction:** The valve body shall be a one-piece casting of ductile iron ASTM A536 including integrally cast ANSI Class 150 flat-faced inlet and outlet flanges. Exposed interior and exterior surfaces shall be coated with NSF-61 certified fusion bond epoxy coating. A non-corrosive body seat and lower stem guide shall be mechanically affixed to the valve body. Valve sizes 6 inch and smaller shall have the body seat threaded into the body. Valve sizes 8 inch and larger shall have the body seat retained in the body by means of stainless steel screws. Body seat with integral lower stem guide shall be a one-piece casting of ASTM A351 Grade CF8M Type 316 stainless steel. Pressed-in bearings and/or multi-piece seat and stem guide designs shall not be permitted.

The valve cover shall be a one-piece casting of ductile iron ASTM A536. The valve cover and body shall incorporate a machined register to insure proper alignment; alignment pins shall not be permitted to align the valve cover with the body. Exposed interior and exterior surfaces shall be coated with NSF-61 fusion bond epoxy coating. The cover shall incorporate a stainless steel upper stem guide. The valve cover shall be attached to the valve body by means of Type 304 stainless steel cap screws or studs with nuts.

The diaphragm assembly shall contain a synthetic rubber disc of nitrile rubber to form a tight seal against the body seat when in the closed position. The rubber disc shall be rectangular in cross-section and retained on three and one-half sides by a disc guide and disc retainer. The flexible, non-wicking, FDA approved (Paragraph C(4) of FDA Regulation 177.2600) diaphragm shall be of nylon-reinforced nitrile rubber. The diaphragm must withstand a Mullen burst test of a minimum 600 psi in accordance with ASTM D751 test standards. The diaphragm shall be fully supported in the valve body and cover by machined surfaces supporting no less than one-half of the total surface area of the diaphragm in either the fully open or fully closed positions.

The diaphragm shall also be retained and supported by the disc retainer and diaphragm washer of the diaphragm assembly. The disc retainer and diaphragm washer shall be contoured to prevent excess diaphragm wear as the diaphragm flexes. The disc retainer and diaphragm washer shall be of ductile iron ASTM A536 and coated with NSF-61 fusion bond epoxy coating. The disc guide shall be stainless steel. The diaphragm assembly shall contain a stainless steel stem. The stem shall be fully guided through 100% of the diaphragm assembly stroke by upper and lower stem guides. The stem shall be a one-piece design and incorporate machined flats to facilitate assembly/disassembly.

**Function**: *Specifier to select the required function as listed below*.

**Pressure Reducing:** The Pressure Reducing Valve shall be a diaphragm actuated, line pressure operated, pilot-controlled valve, certified to NSF/ANSI Standards 61 and 372. The pilot system shall consist of a direct-acting, normally open, spring-loaded diaphragm actuated pressure reducing pilot, a wye-strainer, isolating valves and inlet and outlet pressure gauges. Unless otherwise specified, the reduced pressure shall be field adjustable from 15 to 150 PSI. The Pressure Reducing Valve shall be GA Industries Figure 5450.

**Pressure Reducing with Solenoid Shutoff:** The Pressure Reducing & Solenoid Shutoff Valve shall be a diaphragm actuated, line pressure operated, pilot-controlled valve, certified to NSF/ANSI Standards 61 and 372. The pilot system shall consist of a direct-acting, normally open, spring-loaded diaphragm actuated pressure reducing pilot, a wye-strainer, isolating valves, inlet and outlet pressure gauges and a 120VAC solenoid to close

the main valve on electrical signal. Unless otherwise specified, the reduced pressure shall be field adjustable from 15 to 150 PSI. The Pressure Reducing Valve with Solenoid Shutoff shall be GA Industries Figure 5455.

**Pressure Reducing and Sustaining:** The Pressure Reducing & Sustaining Valve shall be a diaphragm actuated, line pressure operated, pilot-controlled valve, certified to NSF/ANSI Standards 61 and 372. The pilot system shall consist of a direct-acting, normally open, spring-loaded diaphragm actuated pressure reducing pilot, a direct-acting, normally closed, spring-loaded diaphragm actuated pressure sustaining pilot valve with the stem guided between the diaphragm assembly and seat disc, a wye-strainer, isolating valves and inlet and outlet pressure gauges. Unless otherwise specified, the reduced pressure shall be field adjustable from 15 to 150 PSI and the sustained pressure shall be field adjustable from 50 to 200 PSI. The Pressure Reducing and Sustaining Valve shall be GA Industries Figure 5470.

**Non-Modulating Float Valve:** The Float Controlled Valve shall be a single seated, line pressure operated, diaphragm actuated, globe or angle valve certified to NSF/ANSI Standards 61 and 372. The main valve shall be controlled by a stainless steel float pilot with a minimum 6” diameter stainless steel float. Unless otherwise specified, minimum and maximum water level shall be adjustable from 1” to 40”. The Non-Modulating Float Controlled Valve shall be a GA Industries Figure 5560.

**Pressure Relief/Sustaining Valve:** The Pressure Relief/Pressure Sustaining Valve shall be a single seated, line pressure operated, diaphragm actuated, pilot-controlled globe or angle valve certified to NSF/ANSI Standards 61 and 372. The pilot control system shall include a direct-acting, normally closed, spring-loaded diaphragm actuated pressure sustaining/relief pilot valve with the stem guided between the diaphragm assembly and seat disc, a wye-strainer, isolating valves and inlet pressure gauge. Unless otherwise specified, the sustained/relief pressure shall be field adjustable from 30 to 200 PSI. The Pressure Relief / Pressure Sustaining Valve shall be a GA Industries Figure 5670.

**Single Acting (One Way Flow) Altitude Valve:** The Single Acting Altitude Valve shall be a single seated, line pressure operated, diaphragm actuated, pilot-controlled globe or angle valve certified to NSF/ANSI Standards 61 and 372. The pilot control system shall include a spring-loaded diaphragm actuated 3-way altitude pilot valve, closing speed needle valve, a wye-strainer, tank level and inlet pressure gauges, 3-way tank level gauge isolating and sending line flush valve, isolating valves and inlet and outlet pressure gauges. To ensure precise water level control, the pilot valve shall be field adjustable within the water level control range of the appropriate spring. Single Acting Altitude Valve shall be GA Industries Figure 5320.

**Double Acting (Two Way Flow) Altitude Valve:** The Double Acting Altitude Valve shall be a single seated, line pressure operated, diaphragm actuated, pilot-controlled globe or angle valve certified to NSF/ANSI Standards 61 and 372. The pilot control system shall include a spring-loaded diaphragm actuated 3-way altitude pilot valve, closing speed needle valve, a wye-strainer, tank level and inlet pressure gauges, 3-way tank level gauge isolating and sending line flush valve, isolating valves and inlet and outlet pressure gauges. To ensure precise water level control, the pilot valve shall be field adjustable within the water level control range of the appropriate spring. Double Acting Altitude Valve shall be GA Industries Figure 5330.

**Open/Close Solenoid Controlled Valve:** The Open/Close Solenoid Controlled Valve shall be a single seated, line pressure operated, diaphragm actuated, globe or angle valve certified to NSF/ANSI Standards 61 and 372. Unless otherwise specified the main valve shall be controlled by a 120VAC 3-way solenoid pilot for open/close service. Pilot system shall include a wye-strainer and isolating valves. The Solenoid Controlled Valve shall be a VAG/GA Industries Figure 5700.

**Throttling Solenoid Valve: Manufacturer:** The Throttling Solenoid Controlled Valve shall be a single seated, line pressure operated, diaphragm actuated, globe or angle valve certified to NSF/ANSI Standards 61 and 372. Unless otherwise specified the main valve shall be controlled by (2) - 120VAC 2-way solenoid pilot for throttling service. Pilot system shall include a wye-strainer and isolating valves. The Solenoid Controlled Valve shall be a GA Industries Figure 5737.