

**SAMPLE SPECIFICATION**

**Figure 5670/5670R Pressure Relief/Sustaining Valve**

GA-5670-SPEC

**Design:** The valve shall be a hydraulically operated, single-diaphragm actuated design. The control valve shall consist of three primary components: globe (or angle) body with integral flanged (or NPT) ends, 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.

**Description:** The valve body shall be a one-piece casting of ductile iron ASTM A536 with integrally cast ANSI flat-faced flanged inlet and outlet sizes 2” to 16” or NPT sizes 1¼” to 3”. Exposed interior and exterior ferrous 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 304 stainless steel screws. Body seat with integral lower stem guide shall be a one-piece casting of 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 non-corrosive upper stem guide of Type 316 stainless steel. 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 diaphragm assembly shall contain a Type 304/304L 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:** The Figure 5670 Pressure Relief/Sustaining Control Valve is closed until the inlet pressure exceeds a pre-determined set pressure. Once open, the valve shall throttle as needed to maintain the inlet pressure at its set pressure and open fully if the inlet pressure rises above the minimum. The valve shall open as fast as necessary but slowly close when the inlet pressure falls below the pressure set on its pilot. The pilot control system shall include a direct-acting, normally closed, spring-loaded diaphragm actuated pressure sustaining/relief pilot valve, 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.

**Manufacturer:** The Pressure Relief/Sustaining Valve shall be GA Industries Figure 5670 Full Port or Figure 5670R Reduced Port.