

**Automated Butterfly Valves**

**Bodies:** Butterfly valves shall contain grooved end connections (adapter flanges will not be accepted). Body material shall be malleable iron. Butterfly valves shall be rated to 300 psi, bi-directional, bubble tight shut off. An ISO conforming actuator mounting pad shall be integral to the body.

**Trim:** Disc shall be offset for torque reduction. Stem shall be 2 piece stainless steel engineered to offer no fasteners in the flow stream. Seating material shall be EPDM rated to 230Deg F, seat ring shall be pressure-responsive increasing sealing effect with flow from either direction. Valve shall have upper and lower TFE impregnated bearings and upper pressure-responsive stem seals.

Valves shall be Victaulic Vic- 300 MasterSeal.

**Electric Operator**

Electric motor operators shall be 120 vac rated for continuous duty and protected by an integral thermal overload and operate on a 30 second timing cycle. Each actuator shall be equipped with minimum of two form "C" limit switches for indication and mechanical travel stops. Operators will accept a 3 point signal or in modulating applications come equipped with a servo. Servo inputs and feedback outputs shall be field selectable to accept 4-20 ma, 0-20 ma, 0-5 vdc or 0-10 vdc ranges. Actuators used outdoors shall be equipped with a thermostatically controlled 120 vac heating element.

Operator enclosure shall be NEMA 4 rated for outdoor use. Cover removal shall require less than 4 inches of head-room. Operators shall be equipped with a minimum of two conduit entries, captive cover bolts, a prominent color-coded beacon style position indicator, and a de-clutching manual hand wheel override which when operates a power cut off switch on engagement.

All valves and actuators shall be factory assembled and tested as a unit.

Operators shall be Bray Series 70 or approved equivalent.

**Pneumatic Operators**

Pneumatic operators shall be of the piston driven rack and pinion type designed to operate at 80 psi supply air. All operators shall be equipped with integral end stops and shaft position indicators. Fail safe operators shall contain return springs.

Two position valves shall be equipped with body mounted NEMA 4, 120 vac solenoids. Modulating valves shall be equipped with pilot positioners.

All two position actuators on valves larger than 12 inches shall be equipped with proper speed controls to avoid water hammer.

All pneumatic actuators shall be fitted with a manual de-clutching override and NEMA 4 end switches.

All valves and actuators shall be factory assembled and tested as a unit.

Operators shall be Bray Series 90/92 or approved equivalent.