

BUTTERFLY VALVES

1. GENERAL

1.1 Summary

.1 Section Includes:

.1 Butterfly Valves.

.2 Related Sections:

.1 Section 23 09 43 – Pneumatic Control System for HVAC

1.2 References

.1 American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME).

.1 ANSI/ASME B1.20.1-1983(R2006), Pipe Threads, General Purpose (Inch).

.2 ANSI/ASME B16.1-2010 Cast Iron Pipe Flanges and Flanged Fittings.

.3 ANSI/ASME B16.5-09, Pipe Flanges and Flanged Fittings.

.4 ANSI/ASME B16.11-09, Forged Fittings, Socket-Welding and Threaded.

.5 ANSI/ASME B16.25-2007, Buttwelding Ends.

.6 ANSI/ASME B16.34-2009, Valves - Flanged, Threaded and Welding Ends.

.2 American National Standards Institute (ANSI)/American Petroleum Institute (API).

.1 ANSI/API 609-2009, Lug- and Water-Type Butterfly Valves.

.3 ASTM International, (ASTM).

.1 ASTM A 126-04(09), Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.

.2 ASTM B 62-09, Specification for Composition Bronze or Ounce Metal Castings.

.3 ASTM B 209M-10, Specification for Aluminum and Aluminum-Alloy Sheet and Plate.

.4 Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS).

.1 MSS SP-67-02, Butterfly Valves.

1.3 Submittals

.1 Submittals in accordance with Section 01 33 00 - Submittal Procedures.

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- .1 Submit shop drawings and product data in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Submit data for valves specified this section.
- .2 Closeout Submittals:
 - .1 Submit maintenance data for incorporation into Operating and Maintenance Manual as specified in Section 01 33 00 - Submittal Procedures.

1.4 Maintenance

- .1 Extra Materials:
- .2 Furnish following spare parts:
 - .1 Valve seats: one for every 10 valves each size, minimum 1.
 - .2 Discs: one for every 10 valves, each size, minimum 1.
 - .3 Stem packing: one for every 10 valves, each size, minimum 1.
 - .4 Valve handles: 2 of each size.
 - .5 Gaskets for flanges: two for every 10 flanged joints.

2. PRODUCTS

2.1 Butterfly Valves - Resilient Seat - 200 Psig

- .1 Except to specialty valves, to be of single manufacturer.
- .2 To be suitable for dead-end service.
- .3 CRN registration number required for products.
- .4 Sizes: Lug type: 50mm to 360mm.
- .5 Pressure rating for tight shut-off at temperatures up to maximum for seat material.
 - .1 NPS 50mm to 360m: 1.37 MPa.
- .6 Minimum seat temperature ratings to 135 degrees C.
- .7 Application: on-off operation.
- .8 Full lug body (threaded).
- .9 Operators:
 - .1 Manual: Handles capable of locking in any of ten (10) positions - 0 degrees to 90 degrees. Handle and release trigger - ductile iron. Return spring and hinge pin: carbon

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steel. Latch plate and mounting hardware: cadmium plated carbon steel. Standard coating: black laquer.

- .2 Pneumatic: as specified elsewhere in this section.
- .10 Designed to comply with MSS SP-67 and API 609.
- .11 Compatible with ANSI Class 125/Class 150 flanges.
- .12 Construction:
 - .1 Body: Cast iron ASTM A126 Class B, red epoxy finish.
 - .2 Disc: Ductile iron, Nylon 11 coated, ASTM A536 Gr 65-45-12].
 - .3 Seat: EPDM.
 - .4 Shaft: 416 stainless steel.
 - .5 Taper pin: 316 SS.
 - .6 Key: carbon steel.
 - .7 O-Ring: Buna-N.
 - .8 Bushings: Luberized bronze or Teflon.

2.2 Mounting Flanges

- .1 Class 125 cast iron to ANSI B16.1 or Class 150 steel to B16.5 pipe flanges.

2.3 Pneumatic Actuators

- .1 Operation: rack and pinion to provide linear torque-stroke proportion in compact package.
 - .1 Select torque to suit application. Refer to manufacturer's data sheets.
 - .2 Housing and end caps: hard anodized aluminum, complete with guide and Delrin wear pads for long service life.
 - .3 Actuators internally lubricated to ensure long service life.
- .2 Operators:
 - .1 Double-acting pneumatic actuator using compressed air to energize actuator in both directions.
 - .2 Spring-return fail-safe pneumatic actuator using compressed air to energize actuator in one direction. Use compressed air to compress steel springs within actuator mechanism. Use energy stored in these compressed springs to return actuator to original position at which time air pressure is released.

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- .3 Pneumatic actuator to be convertible to spring return operation.
- .4 Steel travel stop adjuster to allow for maximum turning angle of 95 degrees.

3. EXECUTION

3.1 Preparation

- .1 Valve and mating flange preparation.
 - .1 Inspect adjacent pipeline, remove rust, scale, welding slag, other foreign material.
 - .2 Ensure that valve seats and pipe flange faces are free of dirt or surface irregularities which may disrupt flange seating and cause external leakage.
 - .3 Install butterfly valves with disc in almost closed position.
 - .4 Inspect valve disc seating surfaces and waterway and eliminate dirt or foreign material.

3.2 Installation of Valves

- .1 Install in accordance with manufacturer's instructions.
- .2 Do not use gaskets between pipe flanges and valves unless instructed otherwise by valve manufacturer.
- .3 Verify suitability of valve for application by inspection of identification tag.
- .4 Mount actuator on to valve prior to installation.
- .5 Handle valve with care so as to prevent damage to disc and seat faces.
- .6 Valves in horizontal pipe lines should be installed with stem in horizontal position to minimize liner and seal wear.
- .7 Ensure that valves are centered between bolts before bolts are tightened and then opened and closed to ensure unobstructed disc movement. If interference occurs due, for example to pipe wall thickness, taper bore adjacent piping to remove interference.

3.3 Actuator Installation

- .1 Air hoses or electrical connections to be made by actuator manufacturer.
- .2 Cycle valve operation from fully closed to fully open then back to fully closed.
- .3 At same time, check travel stop settings for proper disc alignment.

END OF SECTION