

Part 1 General**1.1 RELATED REQUIREMENTS**

- .1 Section 21 05 01 – Common Work Results for Mechanical.

1.2 REFERENCES

- .1 American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME)
 - .1 ANSI/ASME B1.20.1-2013, Pipe Threads, General Purpose (Inch).
 - .2 ASME B16.1-2010, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125 and 250.
 - .3 ANSI/ASME B16.5-2013, Pipe Flanges and Flanged Fittings: NPS 1/2 through 24.
 - .4 ANSI/ASME B16.11-2011, Forged Fittings, Socket-Welding and Threaded.
 - .5 ANSI/ASME B16.25-2012, Buttwelding Ends.
 - .6 ANSI/ASME B16.34-2013, Valves - Flanged, Threaded and Welding Ends.
- .2 American Petroleum Institute (API)
 - .1 API Std. 609 oct. 2009, Butterfly Valves: Double Flanged, Lug- and Wafer-Type.
- .3 ASTM International Inc.
 - .1 ASTM A126-04 (2014), Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - .2 ASTM A536-84 (2014), Standard Specification for Ductile Iron Castings.
 - .3 ASTM B62-09, Standard Specification for Composition Bronze or Ounce Metal Castings.
 - .4 ASTM B209M-14, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate Metric.
- .4 Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS)
 - .1 MSS SP-67 2011, Butterfly Valves.

1.3 CLOSEOUT SUBMITTALS

- .1 Submit maintenance data for incorporation into manual specified in Section 01 00 10 – General Instructions.

1.4 DELIVERY, STORAGE AND HANDLING

- .1 Delivery and Acceptance Requirements:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.
- .2 Packaging Waste Management: remove for reuse and return of pallets, crates, padding and packaging materials in accordance with Section 01 00 10 - General Instructions.

1.5 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Materials/Spare Parts in accordance with Section 01 00 10 – General Instructions.
- .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: one for every 10 flanged joints.
- .3 Tools:
 - .1 Furnish special tools for maintenance of systems and equipment.

Part 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:
 - .1 Lug type: NPS 2 to 30.
- .5 Pressure rating for tight shut-off at temperatures up to maximum for seat material.
 - .1 NPS 2 - 12: 200 psig.
- .6 Minimum seat temperature ratings to 135 degrees C.
- .7 Application: on-off operation.
- .8 Full lug body (threaded).
- .9 Operators:
 - .1 NPS 2 - 6: 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 steel. Latch plate and mounting hardware: cadmium plated carbon steel. Standard coating: black laquer.
- .10 Designed to comply with MSS SP-67 and API 609.
- .11 Compatible with ANSI Class 125/Class 150 flanges.
- .12 Construction:
 - .1 Body ss.
 - .2 Disc: 316 SS
 - .3 Seat: EPDM.

- .4 Shaft: 316 stainless steel.
- .5 Taper pin: 316 SS.
- .6 Key: stainless.
- .7 O-Ring: EPDM.
- .8 Bushings: 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 ELECTRIC ACTUATORS

- .1 Operation: designed to provide precise quarter turn electric operation.
 - .1 Torque range: up to 1.130 N-m and speed ranges from 10 seconds to 30 seconds to move from fully open to fully closed.
 - .2 Gear train within actuator to provide smooth continuous rotary power stroke for accurate automatic valve positioning. Factory-set, field adjustable cam-actuated travel limit switches to provide precise control of shaft rotation.
- .2 Construction:
 - .1 Castings: heavy duty industrial grade for rugged use.
 - .2 Actuators: continuous duty with high efficiency single phase reversing capacitor motor with thermal overload protection.
 - .3 Gears and pinions constructed from hardened steel.
 - .4 Gear train to be permanently lubricated.
 - .5 Mechanical brake to ensure that gear is locked in precise position.
- .3 Electrical:
 - .1 Standard voltage: 120 VAC. 60 Hz.
 - .2 Control options: 0-10 V DC.
 - .3 CSA approved.
 - .4 Electrical rating: NEMA IV.

Part 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 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.

3.4 CLEANING

- .1 Clean in accordance with Section 01 00 10 – General Instructions.

END OF SECTION