
Part 1 General

1.1 RELATED REQUIREMENTS

- .1 Section 23 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 B1.20.1-1983(R2006), Pipe Threads, General Purpose (Inch).
- .2 ANSI/ASME B16.18-2018, Cast Copper Alloy Solder Joint Pressure Fittings.
- .3 ASME B16.1, Cast Iron Pipe Flanges and Flanged Fittings.
- .4 ASME B1.20.1-1983(R2006), Pipe Threads General Purpose (Inch).
- .5 ASME B16.1-20, Gray Iron Pipe Flanges and Flanged Fittings: Classes 25, 125 and 250.
- .2 ASTM International
- .1 ASTM A 276-17, Standard Specification for Stainless Steel Bars and Shapes.
- .2 ASTM B 62-17, Standard Specification for Composition Bronze or Ounce Metal Castings.
- .3 ASTM B 283-10a, Standard Specification for Copper and Copper Alloy Die Forgings (Hot-Pressed).
- .4 ASTM B 505/B 505M-18a, Standard specification for copper-base alloy continuous castings.
- .5 ASTM A 49-01(2006), Standard Specification for Heat-Treated Carbon Steel Joint Bars.
- .6 ASTM A 126-04, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- .7 ASTM A 536-84(2014) e1, Standard Specification for Ductile Iron Castings.
- .8 ASTM B 61-08, Standard Specification for Steam or Valve Bronze Castings.
- .9 ASTM B 62-02, Standard Specification for Composition Bronze or Ounce Metal Castings.
- .10 ASTM B 85/B 85M-08, Standard Specification for Aluminum-Alloy Die Castings.
- .11 ASTM B 209-07, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .12 ASTM A 126-04(2014), Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
- .3 Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS)
- .1 MSS-SP-25-1998, Standard Marking System for Valves, Fittings, Flanges and Unions.
- .2 MSS-SP-80-2008, Bronze Gate Globe, Angle and Check Valves.
- .3 MSS-SP-110-1996, Ball Valves, Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.
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- .4 MSS SP-61-03, Pressure Testing of Steel Valves.
- .5 MSS SP-70-06, Grey Iron Gate Valves, Flanged and Threaded Ends.
- .6 MSS SP-71-05, Grey Iron Swing Check Valves, Flanged and Threaded Ends.
- .7 MSS SP-82-1992, Valve Pressure Testing Methods.
- .8 MSS SP-85-2002, Cast Iron Globe and Angle Valves, Flanged and Threaded Ends.

Part 2 Products

2.1 VALVES

- .1 Except for specialty valves, to be single manufacturer.
- .2 Products to have CRN registration numbers.
- .3 Cast steel or iron:
 - .1 Body, bonnet: cast iron to ASTM B 209 Class B
 - .2 Connections: flanged ends plain face to ANSI B16.1.
 - .3 Inspection and pressure testing: to MSS SP-82.
 - .4 Bonnet gasket: non-asbestos.
 - .5 Stem: to have precision-machined Acme or 60 degrees V threads, top screwed for hand wheel nut.
 - .6 Stuffing box: non-galling two-piece ball-jointed packing gland, gland bolts and nuts.
 - .7 Gland packing: non-asbestos.
 - .8 Hand wheel: die-cast aluminum alloy to ASTM B 85/B 85M or malleable iron to ASTM A 49. Nut of bronze to ASTM B 62.
 - .9 Identification tag: with catalogue number, size, other pertinent data.

2.2 END CONNECTIONS:

- .1 Connection into adjacent piping/tubing:
 - .1 Steel pipe systems: screwed ends to ANSI/ASME B1.20.1.
 - .2 Copper tube systems: solder ends to ANSI/ASME B16.18.

2.3 GLOBE VALVES:

- .1 Requirements common to globe valves, unless specified otherwise:
 - .1 Standard specification: MSS SP-80.
 - .2 Bonnet: union with hexagonal shoulders.
 - .3 Connections: screwed with hexagonal shoulders.
 - .4 Pressure testing: to MSS SP-80. Tests to be hydrostatic.
 - .5 Stuffing box: threaded to bonnet with gland follower, packing nut, high grade non-asbestos packing.

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- .6 Hand wheel: non-ferrous.
 - .7 Hand wheel Nut: bronze to ASTM B 62.
 - .8 DN 50 and under, composition disc, Class 125:
 - .1 Body and bonnet: screwed bonnet.
 - .2 Disc and seat: renewable rotating PTFE disc composition to suit service conditions, re-grindable bronze seat, loosely secured to bronze stem to ASTM B 505.
 - .3 Operator: hand wheel

2.4 BALL VALVES:

- .1 DN 50 and under:
 - .1 Body and cap: cast high tensile bronze to ASTM B 62
 - .2 Pressure rating: Class125, 860 kPa steam.
 - .3 Connections: screwed ends to ANSI B1.20.1 and with hexagonal shoulder & solder ends to ANSI.
 - .4 Stem: tamperproof ball drive.
 - .5 Stem packing nut: external to body.
 - .6 Ball and seat: replaceable stainless steel solid ball and Teflon seats.
 - .7 Stem seal: TFE with external packing nut.
 - .8 Operator: removable lever handle.

2.5 BUTTERFLY VALVES:

- .1 DN 65 through DN 150, 2068 kPa with flanged ends:
 - .1 Body: cast bronze, with copper-tube dimensioned grooved ends.
 - .2 Disc: elastomer coated ductile iron with integrally cast stem.
 - .3 Operator: 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.

Part 3 Execution

3.1 INSTALLATION

- .1 Install rising stem valves in upright position with stem above horizontal.
- .2 Remove internal parts before soldering.
- .3 Install valves with unions at each piece of equipment arranged to allow servicing, maintenance, and equipment removal.