

PART 1 - GENERAL

1.1 REFERENCE STANDARDS

- .1 American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME)
 - .1 ANSI/ASME B1.20.1 (Latest Edition), Pipe Threads, General Purpose (Inch).
 - .2 ANSI/ASME B16.18 (Latest Edition), Cast Copper Alloy Solder Joint Pressure Fittings.
- .2 ASTM International
 - .1 ASTM A 276, Standard Specification for Stainless Steel Bars and Shapes.
 - .2 ASTM B 62 (Latest Edition), Standard Specification for Composition Bronze or Ounce Metal Castings.
 - .3 ASTM B 283 (Latest Edition), Standard Specification for Copper and Copper Alloy Die Forgings (Hot-Pressed).
 - .4 ASTM B 505/B 505M (Latest Edition), Standard Specification for Copper-Base Alloy Continuous Castings.
- .3 Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS)
 - .1 MSS-SP-25 (Latest Edition), Standard Marking System for Valves, Fittings, Flanges and Unions.
 - .2 MSS-SP-80 (Latest Edition), Bronze Gate Globe, Angle and Check Valves.
 - .3 MSS-SP-110 (Latest Edition), Ball Valves, Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.

1.2 ACTION AND INFORMATIONAL SUBMITTALS

- .1 Provide submittals in accordance with Section 01 33 00 - Submittal Procedures.
- .2 Product Data:
 - .1 Provide manufacturer's printed product literature and data sheets for equipment and systems and include product characteristics, performance criteria, physical size, finish and limitations.
 - .2 Submit WHMIS MSDS - Material Safety Data Sheets.

1.3 CLOSEOUT SUBMITTALS

- .1 Provide maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 MAINTENANCE MATERIAL SUBMITTALS

- .1 Extra Materials/Spare Parts:

- .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.

1.5 DELIVERY, STORAGE AND HANDLING

- .1 Deliver, store and handle materials in accordance with Section 01 61 00 - Common Product Requirements and with manufacturer's written instructions.
- .2 Delivery and Acceptance Requirements:
 - .1 Deliver materials to site in original factory packaging, labelled with manufacturer's name, address.

PART 2 - PRODUCTS

2.1 MATERIALS

- .1 Valves:
 - .1 Except for specialty valves, to be single manufacturer.
 - .2 Products to have CRN registration numbers.
- .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 or grooved ends to ANSI/ASME B16.18.
- .3 Lockshield Keys:
 - .1 Where lockshield valves are specified, provide 10 keys of each size: malleable iron cadmium plated.
- .4 Gate Valves:
 - .1 Requirements common to gate valves, unless specified otherwise:
 - .1 Standard specification: MSS SP-80.
 - .2 Bonnet: union with hexagonal shoulders.
 - .3 Connections: screwed with hexagonal shoulders.
 - .4 Inspection and pressure testing: to MSS SP-80. Tests to be hydrostatic.
 - .5 Packing: non-asbestos.
 - .6 Handwheel: non-ferrous.
 - .7 Handwheel Nut: bronze to ASTM B 62.
 - .2 NPS 2 and under, non-rising stem, solid wedge disc, Class 125

- .1 Body: with long disc guides, screwed bonnet with stem retaining nut.
 - .2 Operator: Handwheel.
 - .3 NPS 2 and under, rising stem, split wedge disc, Class 125:
 - .1 Body: with long disc guides, screwed bonnet.
 - .2 Disc: split wedge, bronze to ASTM B 283, loosely secured to stem.
 - .3 Operator: handwheel lockshield.
 - .4 NPS 2 and under, rising stem, solid wedge disc, Class 125:
 - .1 Body: with long disc guides, screwed bonnet.
 - .2 Operator: handwheel.
- .5 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.
 - .6 Handwheel: non-ferrous.
 - .7 Handwheel Nut: bronze to ASTM B 62.
 - .2 NPS 2 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, regrindable bronze seat, loosely secured to bronze stem to ASTM B 505.
 - .3 Operator: handwheel.
 - .3 Angle valve, NPS 2 and under, composition disc, Class 150:
 - .1 Body and bonnet: union bonnet.
 - .2 Disc and seat: renewable rotating PTFE disc in slip-on easily removable disc holder having integral guides, regrindable bronze seat, loosely secured to stem.
 - .3 Operator: handwheel.
- .6 Check Valves:
 - .1 Requirements common to check valves, unless specified otherwise:
 - .1 Standard specification: MSS SP-80.
 - .2 Connections: screwed with hexagonal shoulders.
 - .2 NPS 2 and under, swing type, bronze disc, Class 125:
 - .1 Body: Y-pattern with integral seat at 45 degrees, screw-in cap with hex head.
 - .2 Disc and seat: renewable rotating disc, two-piece hinge disc construction; seat: regrindable.
- .7 Ball Valves:
 - .1 NPS 2 and under:
 - .1 Body and cap: cast high tensile bronze to ASTM B 62.
 - .2 Pressure rating: Class 125, 860 kPa steam.
 - .3 Connections: screwed ends to ANSI B1.20.1 and with hexagonal shoulders.
 - .4 Stem: tamperproof ball drive.

- .5 Stem packing nut: external to body.
- .6 Ball and seat: replaceable stainless steel or hard chrome solid ball and Teflon seats.
- .7 Stem seal: TFE with external packing nut.
- .8 Operator: removable lever handle.
- .8 Balancing for TAB:
 - .1 Sizes: Calibrated balancing valves, as specified this section.
 - .2 NPS 2 and under:
 - .1 Copper alloy body threaded and, 2.1 MPa rating, globe style, self sealing measuring ports for temperature or pressure probes, locking tamper proof setting.
 - .2 Mechanical Rooms and Elsewhere: Globe, with plug disc as specified Section 23 05 23.01 – Valves – Bronze.
 - .3 In lieu of standard malleable iron or copper fittings the Contractor may install the following component system:
 - .1 Union port fitting with air vent and pressure/temperature port.
 - .2 Balancing valve, strainer with drain valve, ball valve combination may also be used.
 - .3 NPS 2 ½ and over:
 - .1 Ductile iron body, flanged or grooved connections, 1700 kPa rating minimum, globe style, self sealing measurement parts for temperature or pressure probes, locking tamper proof setting.

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.

3.2 CLEANING

- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .1 Remove surplus materials, excess materials, rubbish, tools and equipment.

END OF SECTION