

PART 1 - GENERAL

1.1 REFERENCES

- .1 American National Standards Institute (ANSI)/American Society of Mechanical Engineers (ASME)
  - .1 ANSI/ASME B1.20.1(R2006), Pipe Threads, General Purpose (Inch).
  - .2 ANSI/ASME B16.18, Cast Copper Alloy Solder Joint Pressure Fittings.
- .2 ASTM International
  - .1 ASTM A 276-08, Standard Specification for Stainless Steel Bars and Shapes.
  - .2 ASTM B 62-02, Standard Specification for Composition Bronze or Ounce Metal Castings.
  - .3 ASTM B 283-08a, Standard Specification for Copper and Copper Alloy Die Forgings (Hot-Pressed).
  - .4 ASTM B 505/B 505M-08a, Standard Specification for Copper-Base Alloy Continuous Castings.
- .3 Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS)
  - .1 MSS-SP-25, Standard Marking System for Valves, Fittings, Flanges and Unions.
  - .2 MSS-SP-80, Bronze Gate Globe, Angle and Check Valves.
  - .3 MSS-SP-110, 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.
- .3 Shop Drawings:
  - .1 Submit drawings stamped and signed by professional engineer registered or licensed in Province of Newfoundland and Labrador.
  - .2 Submit data for valves specified in this Section.

- 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:
- .1 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.
  - .2 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 to ANSI/ASME B16.18.
- .3 Lockshield Keys:
  - .1 Where lockshield valves are specified, provide 10 keys of each size: malleable iron cadmium plated.

2.1 MATERIALS  
(Cont'd)

- .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, non-rising stem, solid wedge disc, Class 150:
    - .1 Body: with long disc guides, screwed bonnet with stem retaining nut.
    - .2 Operator: handwheel.
  - .4 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.
  - .5 NPS 2 and under, rising stem, solid wedge disc, Class 125:
    - .1 Body: with long disc guides, screwed bonnet.
    - .2 Operator: handwheel.
  - .6 NPS 2 and under, rising stem, solid wedge disc, Class 150:
    - .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.

2.1 MATERIALS  
(Cont'd)

- .5 Globe Valves: (Cont'd)
  - .2 NPS 2 and under, composition disc, Class 125:
    - .1 Body and bonnet: screwed bonnet.
    - .2 Disc and seat: renewable rotating disc composition to suit service conditions, regrindable bronze seat, loosely secured to bronze stem to ASTM B 505.
    - .3 Operator: handwheel.
  - .3 NPS 2 and under, composition disc, Class 150:
    - .1 Body and bonnet: union bonnet.
    - .2 Disc and seat: renewable rotating PTFE disc in easily removable disc holder, regrindable bronze seat, loosely secured to bronze stem to ASTM B 505.
    - .3 Operator: handwheel.
  - .4 NPS 2 and under, plug disc, Class 150, screwed ends:
    - .1 Body and bonnet: union bonnet.
    - .2 Disc and seat ring: tapered plug type with disc stem ring of AISI S420 stainless steel to ASTM A 276, loosely secured to stem.
    - .3 Operator: handwheel.
  - .5 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.
  - .3 NPS 2 and under, swing type, bronze disc:
    - .1 Body: Y-pattern with integral seat at 45 degrees, screw-in cap with hex head.

2.1 MATERIALS  
(Cont'd)

- .6 Check Valves: (Cont'd)
  - .3 (Cont'd)
    - .2 Disc and seat: renewable rotating disc, two-piece hinge disc construction; seat: regrindable.
  - .4 NPS 2 and under, swing type, composition disc, Class 200:
    - .1 Body: Y-pattern with integral seat at 45 degrees, screw-in cap with hex head.
    - .2 Disc: renewable rotating disc of number 6 composition to suit service conditions, bronze two-piece hinge disc construction.
  - .5 NPS 2 and under, horizontal lift type, composition disc, Class 150:
    - .1 Body: with integral seat, union bonnet ring with hex shoulders, cap.
    - .2 Disc: renewable PTFE rotating disc in disc holder having guides top and bottom, of bronze to ASTM B 62.
  - .6 NPS 2 and under, vertical lift type, bronze disc, Class 125:
    - .1 Disc: rotating disc having guides top and bottom, disc guides, retaining rings.
- .7 Silent Check Valves:
  - .1 NPS 2 and under:
    - .1 Body: cast high tensile bronze to ASTM B 62 with integral seat.
    - .2 Pressure rating: Class 125.
    - .3 Connections: screwed ends to ANSI B1.20.1 and with hex. shoulders.
    - .4 Disc and seat: renewable rotating disc.
    - .5 Stainless steel spring, heavy duty.
    - .6 Seat: regrindable.
- .8 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 solid ball and Teflon seats.
    - .7 Stem seal: TFE with external packing nut.
    - .8 Operator: removable lever handle.

2.1 MATERIALS  
(Cont'd)

- .9 Butterfly Valves:
  - .1 NPS 2 1/2 through NPS 6, with grooved ends.
    - .1 Body: cast bronze, with copper-tube dimensioned grooved ends.
    - .2 Disc: elastomer coated ductile iron with integrally cast stem.
    - .3 Operator: lever.

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.