

**Part 1 General**

**1.1 GENERAL REQUIREMENTS**

- .1 The Contractor shall be responsible to carry out all the Work set out or referred to in this Section 23 05 23.01.

**1.2 SUMMARY**

- .1 Section Includes:
  - .1 Bronze - valves.
- .2 Sustainable requirements for construction and verification. Refer to General Specs.
- .3 Related Sections:
  - .1 Division 01 – General Requirements
  - .2 Section 23 05 05 - Installation of Pipework.

**1.3 REFERENCES**

- .1 American National Standards Institute (ANSI)/ American Society of Mechanical Engineers (ASME):
  - .1 ANSI/ASME B1.20.1-1983 (R2001), Pipe Threads, General Purpose (Inch).
  - .2 ANSI/ASME B16.18-2001, Cast Copper Alloy Solder Joint Pressure Fittings.
- .2 American Society for Testing and Materials International, (ASTM):
  - .1 ASTM A276-04, Specification for Stainless Steel Bars and Shapes.
  - .2 ASTM B62-02, Specification for Composition Bronze or Ounce Metal Castings.
  - .3 ASTM B283-99a, Specification for Copper and Copper Alloy Die Forgings (Hot-Pressed).
  - .4 ASTM B505/B505M-02, Specification for Copper-Base Alloy Continuous Castings.
- .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-80-2003, Bronze Gate Globe, Angle and Check Valves.
  - .3 MSS-SP-110-1996, Ball Valves, Threaded, Socket-Welding, Solder Joint, Grooved and Flared Ends.
  - .4 ASTM B584-00, Specification for Copper Alloy Sand Castings for General Applications.

**1.4 SUBMITTALS**

- .1 Submittals: in accordance with Division 01 – General Requirements.
- .2 Product Data: submit WHMIS MSDS - Material Safety Data Sheets:
  - .1 Submit shop drawings and product data in accordance with Division 01 – General Requirements.

.2 Submit data for valves specified in this section.

.3 Closeout Submittals:

.1 Provide maintenance data for incorporation into manual specified in Division 01 – General Requirements.

## 1.5 QUALITY ASSURANCE

.1 Health and Safety:

.1 Construction occupational health and safety in accordance with Division 01 – General Requirements.

.2 All grooved joint couplings, fittings, valves, and specialties shall be the products of a single manufacturer. Grooving tools shall be of the same manufacturer as the grooved components.

## 1.6 DELIVERY STORAGE AND DISPOSAL

.1 Waste Management and Disposal:

.1 Separate and recycle waste materials in accordance with Division 01 – General Requirements.

.2 Collect and separate for disposal paper, plastic, polystyrene, corrugated cardboard packaging material in appropriate on-site bins for recycling in accordance with Waste Management Plan.

## 1.7 MAINTENANCE

.1 Provide Maintenance Data.

## Part 2 Products

**General Note: All components used for the domestic water system shall be lead-free.**

## 2.1 MATERIALS

.1 Sustainable Requirements:

.1 Materials and resources in accordance with Division 01 – General Requirements.

.2 Valves:

.1 Except for specialty valves, to be single manufacturer.

.2 All products to have CRN registration numbers.

.3 Install extension stems for insulated piping.

.3 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.

.1 Grooved ends to copper tube dimensions and CSA B242.

- .4 Lock shield Keys:
  - .1 Where lock shield valves are specified, provide 2 spare keys of each size to the users: malleable iron cadmium plated.
  
- .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: in accordance with 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 B62.
  - .2 NPS 2 and under, composition disc, Class 125:
    - .1 Body and bonnet: screwed bonnet.
    - .2 Disc and seat: renewable rotating PTFE disc re-grindable bronze seat, loosely secured to bronze stem to ASTM B505.
    - .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, re-grindable bronze seat, loosely secured to bronze stem to ASTM B505.
    - .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 A276, 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, re-grindable 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: re-grindable.
- .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 Disc and seat: renewable rotating disc, two piece hinge disc construction; seat: re-grindable.
- .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 B62.
- .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 B62 with integral seat.
    - .2 Pressure rating: Class 125.
    - .3 Connections: screwed ends in accordance with ANSI B1.20.1 and with hex shoulders.
    - .4 Disc and seat: renewable rotating disc.
    - .5 Stainless steel spring, heavy duty.
    - .6 Seat: re-grindable.
- .8 Ball Valves:
  - .1 NPS 2 and under:
    - .1 Body and cap: cast high tensile bronze in accordance with ASTM B62.
    - .2 Pressure rating: Class 125.
    - .3 Connections: Screwed ends in accordance with 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.

- .9 Butterfly Valves:
  - .1 NPS 2-1/2 through NPS 6:
    - .1 Body: cast bronze per CDA-836 (85-5-5-5).
    - .2 Pressure rating: 2065-kPa CWP.
    - .3 Connections: copper tube dimensioned grooved ends.
    - .4 Disc: ductile iron per ASTM A536 with elastomer coating.
    - .5 Stem: integrally cast with disc.
    - .6 Stem Nuts: nickel plated 416 stainless steel.
    - .7 Operator: lever operator.
    - .8 Victaulic Series 608.

### **Part 3 Execution**

#### **3.1 INSTALLATION**

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

#### **3.2 VERIFICATION**

- .1 Verification requirements in accordance with Division 01 – General Requirements, include:
  - .1 Materials and resources.
  - .2 Storage and collection of recyclables.
  - .3 Construction waste management.
  - .4 Resource reuse.
  - .5 Local/regional materials.
  - .6 Low-emitting materials.

END OF SECTION