

PART 1 - GENERAL

1.1 REFERENCES

- .1 American Society of Mechanical Engineers (ASME)
 - .1 ASME B16.1, Cast Iron Pipe Flanges and Flanged Fittings.
- .2 ASTM International Inc.
 - .1 ASTM A 49-01, Standard Specification for Heat-Treated Carbon Steel Joint Bars.
 - .2 ASTM A 126-04, Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings.
 - .3 ASTM A 536-84 e1, Standard Specification for Ductile Iron Castings.
 - .4 ASTM B 61-08, Standard Specification for Steam or Valve Bronze Castings.
 - .5 ASTM B 62-02, Standard Specification for Composition Bronze or Ounce Metal Castings.
 - .6 ASTM B 85/B 85M-08, Standard Specification for Aluminum-Alloy Die Castings.
 - .7 ASTM B 209-07, Standard Specification for Aluminum and Aluminum-Alloy Sheet and Plate.
- .3 Manufacturers Standardization Society of the Valve and Fittings Industry, Inc. (MSS)
 - .1 MSS SP-61-03, Pressure Testing of Steel Valves.
 - .2 MSS SP-70-06, Grey Iron Gate Valves, Flanged and Threaded Ends.
 - .3 MSS SP-71-05, Grey Iron Swing Check Valves, Flanged and Threaded Ends.
 - .4 MSS SP-82, Valve Pressure Testing Methods.
 - .5 MSS SP-85, Cast Iron Globe and Angle Valves, Flanged and Threaded 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, specifications and datasheets for valves and include product characteristics, performance criteria, physical size, finish and limitations.
- .3 Shop Drawings:
 - .1 Provide drawings stamped and signed by professional engineer registered or licensed in Province of Newfoundland and Labrador, Canada.

1.3 CLOSEOUT SUBMITTALS .1 Submit maintenance data for incorporation into manual specified in Section 01 78 00 - Closeout Submittals.

1.4 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.

1.5 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.

PART 2 - PRODUCTS

2.1 MATERIAL .1 Valves:
.1 Except for specialty valves, to be of single manufacturer.
.2 Standard specifications:
.1 Gate valves: MSS SP-70.
.2 Globe valves: MSS SP-85.
.3 Check valves: MSS SP-71.
.3 Requirements common to valves, unless specified otherwise:
.1 Body, bonnet: cast iron to ASTM B 209 Class B.
.2 Connections: flanged ends with serrated finish 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 handwheel nut.

2.1 MATERIAL
(Cont'd)

- .3 (Cont'd)
 - .6 Stuffing box: non-galling two-piece ball-jointed packing gland, gland bolts and nuts.
 - .7 Gland packing: non-asbestos.
 - .8 Handwheel: 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.
- .4 All products to have CRN registration numbers.

2.2 GATE VALVES

- .1 NPS 2 1/2 - 8, non rising stem, inside screw, bronze trim, solid wedge disc:
 - .1 Body and multiple-bolted bonnet: with bosses in body and bonnet for taps and drains, full length disc guides designed to ensure correct re-assembly, Class 125.
 - .2 Disc: solid offset taper wedge, bronze to ASTM B 62.
 - .3 Seat rings: renewable bronze to ASTM B 62, screwed into body.
 - .4 Stem: bronze to ASTM B 62.
- .2 NPS 2 1/2-8, outside screw and yoke (OS&Y), bronze trim, solid wedge disc:
 - .1 Body and multiple-bolted bonnet: with bosses in body and bonnet for taps and drains, full length disc guides designed to ensure correct re-assembly, yoke, yoke hub, yoke sleeve and nut. Class 125.
 - .2 Disc: solid offset taper wedge, bronze to ASTM B 62 up to NPS 3, cast iron with bronze disc rings on other sizes, secured to stem through integral forged T-head disc-stem connection.
 - .3 Seat rings: renewable bronze screwed into body.
 - .4 Stem: manganese-bronze.

2.3 BYPASSES FOR GATE AND GLOBE VALVES

- .1 Locations: on valves as indicated.
- .2 Position of bypass valve on main valves: parallel position.
- .3 Size of bypass valve:
 - .1 Main valve up to NPS 8: NPS 3/4.
 - .2 Main valve NPS 10 and over: NPS 1.

- 2.3 BYPASSES FOR GATE AND GLOBE VALVES (Cont'd) .4 Type of bypass valves:
.1 On gate valve: globe, with composition bronze disc, bronze trim, to Section 23 05 23.01 - Valves - Bronze. Pressure rating to match main valve.
.2 On globe valve: globe, with composition bronze disc, bronze trim, to Section 23 05 23.01 - Valves - Bronze. Pressure rating to match main valve.
- 2.4 VALVE OPERATORS .1 Install valve operators as follows:
.1 Handwheel: on valves except as specified.
.2 Handwheel with chain operators: on valves installed more than 2400 mm above floor in boiler rooms and mechanical equipment rooms.
.3 Motors:
.1 Application: as indicated.
- 2.5 CHECK VALVES .1 Swing check valves, Class 125:
.1 Body and bolted cover: with tapped and plugged opening on each side for hinge pin. Grooved or flanged ends: plain faced with smooth finish.
.1 Up to NPS 16: cast iron to ASTM A 126 Class B.
.2 NPS 18 and over: cast iron to ASTM A 126 Class C.
.2 Ratings:
.1 NPS 2 1/2 - 12: 860 kPa steam; 1.4 MPa CWP.
.2 NPS 14 - 16: 860 kPa steam; 1.03 MPa CWP.
.3 NPS 18 and over: 1.03 MPa CWP.
.3 Disc: rotating for extended life.
.1 Up to NPS 6: bronze to ASTM B 62.
.2 NPS 8 and over: bronze-faced cast iron.
.4 Seat rings: renewable bronze to ASTM B 62 screwed into body.
.5 Hinge pin, bushings: renewable bronze to ASTM B 62.
- 2.6 SILENT CHECK VALVES .1 Construction:
.1 Body: malleable or ductile iron with integral seat.
.2 Pressure rating: Class 125, WP = 860 kPa.
.3 Connections: grooved ends.

- 2.6 SILENT CHECK VALVES
(Cont'd)
- .1 Construction:(Cont'd)
 - .4 Disc: bronze renewable rotating disc.
 - .5 Seat: renewable, EPDM.
 - .6 Stainless steel spring, heavy duty.

PART 3 - EXECUTION

- 3.1 INSTALLATION
- .1 Install rising stem valves in upright position with stem above horizontal.
- 3.2 CLEANING
- .1 Clean in accordance with Section 01 74 11 - Cleaning.
 - .2 Clean installed products in accordance to manufacturer's recommendation.