

SECTION 23 10 00 - VALVES

PART 1 - GENERAL

1.1 WORK INCLUDED

- A. Provide labor, materials, equipment and services as required for the complete installation and related Work designed in Contract Documents.

1.2 SUBMITTALS

- A. Valves and accessories.

PART 2 - PRODUCTS

2.1 VALVES

- A. General: Valves shall have following requirements:
 - 1. Working pressure stamped or cast on bodies.
 - 2. Stem packing serviceable without removing valve from line.
- B. Make:
 - 1. Gate, globe, and check valves: Jenkins, Hammond, Milwaukee, Mueller, Powell, Victaulic.
 - 2. Ball valves: Apollo, Jamesbury, Jenkins, Milwaukee, Powell, Watts, Victaulic.
 - 3. Butterfly valves: DeZurik, Jamesbury, Keystone, Milwaukee, Powell, Watts, Victaulic.
 - 4. Balancing cocks: Nordstrom, Illinois, Sarco, Watts, Armstrong.
 - 5. To establish a standard of quality and identify features, certain manufacturer's numbers are given in the following paragraphs.
- C. Gate Valves:
 - 1. 2-1/2 in. and larger: IBBM, solid wedge disc, OS&Y flanged, rising stem, 125 lb. SWP, Milwaukee F-2891. Provide 250 lb. SWP, Milwaukee F-2894 for high pressure steam at 100 psi and above.
 - 2. 2 in. and smaller: Bronze, solid wedge disc, rising stem, 125 swp, union bonnet. Screwed ends or solder ends.

D. Globe valves:

1. 2-1/2 in. and larger: IBBM, renewable seat and disc, OS&Y, 125 swp, flanged.
2. 2 in. and smaller: Bronze, renewable composition disc, union bonnet, rising stem, 150 swp. Screwed ends.

E. Check Valves:

1. 2-1/2 in. and larger: IBBM, renewable seat and disc, bolted flange cap, flanged ends, 125 swp.
2. 2 in. and smaller: Bronze, swing check, 125 swp. Screwed ends or Solder ends.
3. Silent check valves: Resilient seat globe type, bronze body with bronze trim and stainless steel spring, 125 lb. swp. Conbraco 61-500 Series.

F. Ball Valves:

1. For heatpump, chilled and hot water systems:
 - a) 2 inches and under: Bronze body with Type 316 stainless steel ball and stem, full port opening, PTFE seats, end entrance, 600 #WOG, 150 #WSP. Screwed (threaded) ends, Watts B-6080SS. Solder (sweat) ends, Watts B-6081SS.
 - b) 2½ inches and larger: Bronze body with Type 316 stainless steel ball and stem, full port opening, PTFE seats, end entrance, 400 #WOG, 125 #WSP. Screwed (threaded) ends, Watts FBV-SS. Solder (sweat) ends, Watts FBVS-SS.
2. For low pressure condensate systems. Same as above, except with type 316 stainless steel ball and stem. Rated for 125 lb. saturated steam service, Watts B6000SS.

G. Balancing Cocks:

1. General use 1-1/2 in. and larger: Semi-steel, square head, flanged ends, tapered teflon coated plug, factory lubricated for hot and chilled water, with lubrication fittings, lubricant and gun and proper wrench size; Nordstrom #115, #143, or #165.
2. General use 1-1/4 in. and smaller: Bronze, tight shutoff, permanent balance point set, threaded, union or solder end as required.

H. Valves For Gauges And Instruments:

1. 1/4 in. size: Brass bar stock for 1000 psi and 300°F; Trerice No. 735 needle valve.

I. High Performance Butterfly Valves For Water Service:

1. High performance 100% bubbletight shutoff against listed working pressure of 150 psi. 250 psi as required for system pressure. Keystone AR2.
2. Body: Lug type, carbon steel ASTM A216 or ductile iron ASTM A536 or cast iron ASTM A126B.
3. Disc: 316 stainless steel.
4. Seat: Replaceable, EPDM, reinforced resilient seat, for water temperatures up to 250°F at 150 psi. Buna-N seats for process air applications.
5. Shaft: 316 or 416 stainless steel, mounted within corrosion resistant bearings.
6. Operators: Valves up to 6 in. with lever operators; valves 8 in. and larger with heavy duty manual gear actuators.

J. Butterfly Valves For Low Pressure Steam (Under 15 psig):

1. High performance 100% bubbletight shutoff and throttling service against listed working pressure of 150 psi, Jamesbury Fig. #815L, Class 150 Valve.
2. Body: Lug type, cast or carbon steel.
3. Disc: 316 stainless steel mounted with corrosion resistant bearings.
4. Seat: Replaceable, reinforced resilient seat, fiber filled TFE.
5. Shaft: 17-4 PH stainless steel.
6. Operators: Valves up to 6 in. with lever operators; valves 8 in. and larger with heavy duty manual gear actuators.

K. Gas Valves:

1. 2-1/2 in. and larger: Manual actuated with lever actuators bolted gland type, short pattern, lubricated plug type, 175 lb. WOG, flanged, Nordstrom, Fig. #143, UL listed.
2. 2 in. and smaller: UL listed for natural and LP gas, bronze body, threaded ends, Watts B6000UL.

L. Hose Thread Drain Valves:

1. 1/2" ball valve, bronze body, hardened chrome ball with hose thread end, cap and chain, Watts B6001CC.

M. Fusible Link Valves:

1. Level type gate valve for emergency closing of oil supply line. Spring-operated, self-closing type, with spring and 165°F fusible link. Bronze valve with malleable iron handle. Port full line size. Preferred Utilities Type 110.

N. Liquid Or Vacuum Relief Valves:

1. Bronze base and bronze working parts except steel cadmium-plated springs; suitable for pressures up to 250 psi; nonpop valve suitable for use on boiler feed pump discharge, Lunkenheimer #658.

O. Self-Regulating Flow Control Valves:

1. Miniature threaded iron valves shall consist of ductile iron (A445-70, Class 60-40-18) body and stainless steel flow control cartridge assembly; shall be rated at 450 PSI/250°F; shall have female NPT end connections; shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall be permanently marked to show direction of flow; shall have body tag to indicate flow rate, model number and PSID control range; shall be available in ½", ¾", 1", 1-1/4" and 1-1/2" sizes, with flow rates from 0.33 GPM to 34.0 GPM.
2. Threaded flange valves shall consist of grey iron (ASTM A126-61T, Class 30) body and stainless steel flow control cartridge assembly; shall be rated at 300 PSI/275°F; shall have female NPT threaded flange end connections; shall be supplied with plated steel studs and nuts; shall be supplied with dual pressure or pressure/temperature test valves for verifying accuracy of flow performance for all sizes; shall be permanently marked to show direction of flow; shall have body tag to indicate model number, flow rate and PSID control range; shall be available in 1-1/2", 2" and 2-1/2" sizes, with flow rates from 14.0 GPM to 150.0 GPM. Valves shall be based on pressure rating of 2-32 psig at 20 GPM.
3. For each flow control valve, provide upstream a Y-type strainer. Unit shall have threaded configuration shall be made of bronze (ASTM B584) with a brass cap; shall be rated at 300 PSI; shall be available in sizes ranging from ½" through 2". Strainer screen shall be stainless steel, ported with .055" diameter, 1400 micron holes and easily accessible for cleaning; shall be offered with blow down option.
4. Design Make: Griswold, Flow Design.

PART 3 - EXECUTION

3.1 INSTALLATION

A. General:

1. Provide valves of type called for and where required to service equipment.
2. Provide at major building and systems sections.
3. Provide chain wheels, guides, and chain loops for valves, where called for or in Mechanical Rooms where valves are mounted higher than 8'-0" AFF.
4. Isolating valves for individual fan convectors, room units, terminal units, or other similar apparatus may be inside cabinet or at connection to branch mains where accessible.
5. Locate valves with stems at or above horizontal positions and swing check valves in horizontal position only.
6. Butterfly valves may be used for water and low pressure (under 15 psig) steam service over 2 in. unless otherwise noted.
7. Ball valves may be used for water service through 4 in., unless otherwise noted.
8. Provide hose threaded drain valves at low points, strainers, equipment, and as called for.

- B. Install self-regulating flow control valves as recommended by manufacturer. All flow control valves shall have strainer upstream of valve. Strainer shall be as specified in Section 2 - Self-Regulating Flow Control Valves.

END OF SECTION

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