SECTION 230523.13 - BUTTERFLY VALVES FOR HVAC PIPING

PART 1 - GENERAL

1.1 SUMMARY

- A. Section Includes:
 - 1. Iron, single-flange butterfly valves.
 - 2. Stainless steel butterfly valves.
 - 3. High-performance butterfly valves.

1.2 DEFINITIONS

- A. CWP: Cold working pressure.
- B. EPDM: Ethylene propylene copolymer rubber.
- C. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
- D. SWP: Steam working pressure.

1.3 ACTION SUBMITTALS

A. Product Data: For each type of valve.

1.4 DELIVERY, STORAGE, AND HANDLING

- A. Prepare valves for shipping as follows:
 - 1. Protect internal parts against rust and corrosion.
 - 2. Protect threads, flange faces, grooves, and weld ends.
 - 3. Set butterfly valves closed or slightly open.
- B. Use the following precautions during storage:
 - 1. Maintain valve end protection.
 - 2. Store valves indoors and maintain at higher-than-ambient-dew-point temperature. If outdoor storage is necessary, store valves off the ground in watertight enclosures.
- C. Use sling to handle large valves; rig sling to avoid damage to exposed parts. Do not use handwheels or stems as lifting or rigging points.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR VALVES

- A. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.
- B. ASME Compliance:
 - 1. ASME B16.1 for flanges on iron valves.
 - 2. ASME B16.5 for pipe flanges and flanged fittings, NPS 1/2 through NPS 24.
 - 3. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
 - 4. ASME B31.1 for power piping valves.
 - 5. ASME B31.9 for building services piping valves.
- C. AWWA Compliance: Comply with AWWA C606 for grooved-end connections.
- D. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
- E. Valve Sizes: Same as upstream piping unless otherwise indicated.
- F. Valve Actuator Types:
 - 1. Gear Actuator: For valves NPS 8 and larger.
 - 2. Handlever: For valves NPS 6 and smaller.
 - 3. Chainwheel: Device for attachment to gear, stem, or other actuator of size and with chain for mounting height, according to "Valve Installation" Article.
- G. Valves in Insulated Piping: With 2-inch stem extensions with extended necks.

2.2 IRON, SINGLE-FLANGE BUTTERFLY VALVES

- A. Iron, Single-Flange Butterfly Valves with 304 or 316 SS Disc:
 - 1. Manufacturers:
 - a. Keystone
 - b. Crane Valve, North America.
 - c. Hammond Valve.
 - d. Milwaukee Valve Company.
 - e. NIBCO, Inc.
 - 2. Description:
 - a. Standard: MSS SP-67, Type I.
 - b. CWP Rating: 250 psig.
 - c. Body Design: Lug type; suitable for bidirectional dead-end service at full rated pressure without use of downstream flange.
 - d. Body Material: ASTM A 126, cast iron.

- e. Seat: EPDM.
- f. Stem: One- or two-piece stainless steel.
- g. Disc: 304 or 316 SS.

2.3 STAINLESS STEEL BUTTERFLY VALVES

- A. Stainless steel, Butterfly Valve with 316 SS Disc.
 - 1. Manufacturers
 - a. Keystone or equal
 - 2. Description
 - a. Body Design: Lug type, 316 Stainless Steel, Class 150
 - b. Body Material: ASTM A 351, CF8M.
 - c. Seat: Lugged.
 - d. Stem: 316 stainless steel, blow-out proof.
 - e. Disc: 316 SS.

2.4 HIGH-PERFORMANCE BUTTERFLY VALVES

- A. Single-Flange, High-Performance Butterfly Valves, Double Offset Design, Class 150:
 - 1. Manufacturers:
 - a. Keystone
 - b. Crane Valve, North America.
 - c. Hammond Valve.
 - d. Milwaukee Valve Company.
 - e. NIBCO, Inc.
 - 2. Description:
 - a. Standard: MSS SP-68.
 - b. CWP Rating: 285 psig at 100 deg F.
 - c. Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.
 - d. Body Material: Carbon steel, cast iron, ductile iron, or stainless steel.
 - e. Seat: Reinforced PTFE or metal.
 - f. Stem: Stainless steel; offset from seat plane.
 - g. Disc: Stainless steel.
 - h. Service: Bidirectional.

PART 3 - EXECUTION

3.1 EXAMINATION

- A. Examine valve interior for cleanliness, freedom from foreign matter, and corrosion. Remove special packing materials, such as blocks, used to prevent disc movement during shipping and handling.
- B. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
- C. Examine mating flange faces for damage. Check bolting for proper size, length, and material. Verify that gasket is of proper size, that its material composition is suitable for service, and that it is free from defects and damage.
- D. Do not attempt to repair defective valves; replace with new valves.

3.2 VALVE INSTALLATION

- A. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
- B. Locate valves for easy access and provide separate support where necessary.
- C. Install valves in horizontal piping with stem at or above center of pipe.
- D. Install valves in position to allow full stem movement.
- E. Install valve tags. Comply with requirements in Section 230553 "Identification for HVAC Piping and Equipment" for valve tags and schedules.

3.3 ADJUSTING

A. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. Replace valves if persistent leaking occurs.

3.4 CHILLED-WATER VALVE SCHEDULE

- A. Pipe NPS 2-1/2 and Larger:
 - 1. Iron, Single-Flange Butterfly Valves, NPS 2-1/2 to NPS 12: 304 or 316 SS disc, 250 CWP, and EPDM seat.

3.5 PROCESS CHILLED-WATER VALVE SCHEDULE

A. Pipe NPS 2-1/2 and Larger:

1. Stainless Steel Butterfly Valves, NPS 2-1/2 to NPS 12: 316 SS disc, 250 CWP, and lugged seat.

3.6 HEATING-WATER VALVE SCHEDULE

- A. Pipe NPS 2-1/2 and Larger:
 - 1. Iron, Single-Flange Butterfly Valves, NPS 2-1/2 to NPS 12: 304 or 316 SS disc, 250 CWP, and EPDM seat.

3.7 HIGH-PRESSURE STEAM VALVE SCHEDULE (MORE THAN 15 PSIG

A. Pipe NPS 2-1/2 and Larger: High-performance butterfly valves, single flange, Class 150.

3.8 STEAM-CONDENSATE VALVE SCHEDULE

A. Pipe NPS 2-1/2 and Larger: High-performance butterfly valves, single flange, Class 150.

END OF SECTION 230523.13