Revisions made to the original MasterSpec text are made solely by the Licensee and are not endorsed by, or representative of the opinions of, Deltek or The American Institute of Architects (AIA). Neither AIA nor Deltek are liable in any way for such revisions or for the use of this Section by any end user. A qualified design professional should review and edit the document to suit project requirements.

SECTION 220523.13 - BUTTERFLY VALVES FOR PLUMBING PIPING

1. GENERAL
   * + 1. SUMMARY
          1. Section Includes:
       2. DEFINITIONS

Retain terms that remain after this Section has been edited for a project. Include only essential definitions or acronyms not well understood by the affected industry or trade.

* + - * 1. CWP: Cold working pressure.
        2. EPDM: Ethylene propylene-diene terpolymer rubber.
        3. NBR: ABS, Buna-N, or nitrile butadiene rubber.
      1. ACTION SUBMITTALS

Action submittals are submittals requiring responsive action and return of reviewed documents to Contractor.

* + - * 1. Product Data: For each type of valve.
      1. DELIVERY, STORAGE, AND HANDLING

Information in this article is paraphrased from MSS publications.

* + - * 1. Prepare valves for shipping as follows:

Protect internal parts against rust and corrosion.

Protect threads, flange faces, grooves, and weld ends.

Set butterfly valves closed or slightly open.

* + - * 1. Use the following precautions during storage:

Maintain valve end protection.

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.

* + - * 1. 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.

1. PRODUCTS
   * + 1. SOURCE LIMITATIONS
          1. Obtain each type of valve from single source from single manufacturer.
       2. PERFORMANCE REQUIREMENTS
          1. Standards:

The U.S. Safe Drinking Water Act (SDWA) requires national compliance with less than or equal to 0.25 percent weighted average lead content at wetted surfaces for pipe, fittings, and devices intended to convey or dispense water for human consumption. The IPC and the UPC have the same requirements. Items in compliance with NSF 61 and NSF 372 also meet this requirement. Some manufacturers choose to meet this requirement through independent testing and have "Certified Lead-Free" products, which may or may not have NSF 61 or NSF 372 certification.

Domestic water piping specialties intended to convey or dispense water for human consumption must comply with the SDWA, requirements of authorities having jurisdiction, and NSF 61 and NSF 372, or must be certified to be in compliance with NSF 61 and NSF 372 (by an ANSI-accredited third-party certification body) that the weighted average lead content at wetted surfaces is less than or equal to 0.25 percent.

* + - * 1. ASME Compliance:

ASME B16.1 for flanges on iron valves.

ASME B16.5 for flanges on steel valves.

ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.

ASME B31.9 for building services valves.

* + - * 1. AWWA Compliance: Comply with AWWA C606 for grooved-end connections.

Caution: Revise pressure ratings and insert temperature ratings in valve articles if valves with higher ratings are required. Valves larger than NPS 12 (DN 300) typically have a lower pressure rating than smaller valves. Verify pressure requirements for large valves.

* + - * 1. Valve Pressure-Temperature Ratings: Not less than indicated and as required for system pressures and temperatures.
        2. Valve Sizes: Same as upstream piping unless otherwise indicated.
        3. Valve Actuator Types:

Gear Actuator: For valves NPS 8 and larger.

Hand lever: For valves NPS 6 and smaller.

Chainwheel: Device for attachment to gear, handlever, or stem; of size and with chain for mounting height, according to "Installation of Valves" Article.

* + - * 1. Valves in Insulated Piping: Provide 2-inch extended neck stems.
      1. DUCTILE-IRON, GROOVED-END BUTTERFLY VALVES
         1. Ductile Iron, Grooved-End Butterfly Valves, 175 CWP:

Retain "Basis-of-Design Product" Subparagraph and list of manufacturers below to identify a specific product or a comparable product from manufacturers listed.

Basis-of-Design Product: Subject to compliance with requirements, provide **Zurn Industries, LLC; Model 49** or comparable product by one of the following:

<**Insert manufacturer's name**>

Standard: MSS SP-67, Type I.

CWP Rating: 175 psig.

Body Material: Coated, ductile iron.

Stem: Two-piece stainless steel.

Disc: Coated, ductile iron.

Seal: EPDM.

1. EXECUTION
   * + 1. EXAMINATION
          1. 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.
          2. Operate valves in positions from fully open to fully closed. Examine guides and seats made accessible by such operations.
          3. 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.
          4. Do not attempt to repair defective valves; replace with new valves. Remove defective valves from site.
       2. INSTALLATION OF VALVES
          1. Install valves with unions or flanges at each piece of equipment arranged to allow space for service, maintenance, and equipment removal without system shutdown.
          2. Provide support to piping adjacent to valves such that no force is imposed upon valves.
          3. Locate valves for easy access.
          4. Install valves in horizontal piping with stem at or above center of pipe.
          5. Install valves in position to allow full valve actuation movement.
          6. Install chainwheels on actuators for butterfly valves [**NPS 4**] <**Insert pipe size**> and larger and more than [**96 inches**] <**Insert dimension**> above floor. Extend chains to [**60 inches**] <**Insert dimension**> above finished floor.
          7. Valve Tags: Comply with requirements in Section 220553 "Identification for Plumbing Piping and Equipment" for valve tags and schedules.
       3. ADJUSTING
          1. Adjust or replace valve packing after piping systems have been tested and put into service but before final adjusting and balancing. If leakage cannot be repaired, replace valves.
       4. LOW-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE - 150 PSIG OR LESS
          1. Pipe NPS 2-1/2 and Larger:

Retain "Iron, Single-Flange (Lug-Type) Butterfly Valves," "Iron, Flangeless (Wafer-Type) Butterfly Valves" or "Ductile-Iron, Grooved-End Butterfly Valves" Subparagraph below.

Iron, Single-Flange (Lug-Type) Butterfly Valves: 200 CWP, NBR seat, and [**aluminum-bronze**] [**ductile-iron**] [**stainless steel**] disc.

Iron, Flangeless (Wafer-Type) Butterfly Valves: 200 CWP, NBR seat, and [**aluminum-bronze**] [**ductile-iron**] [**stainless steel**] disc.

Ductile-Iron, Grooved-End Butterfly Valves: [**175**] [**300**] CWP.

* + - 1. HIGH-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE - 150 TO 200 PSIG
         1. Pipe NPS 2-1/2 and Larger:

Retain "Iron, Single-Flange (Lug-Type) Butterfly Valves"; "Iron, Flangeless (Wafer-Type) Butterfly Valves"; or "Ductile-Iron Grooved-End Butterfly Valves" Subparagraph below.

Iron, Single-Flange (Lug-Type) Butterfly Valves: 200 CWP, NBR seat, and [**aluminum-bronze**] [**ductile-iron**] [**stainless steel**] disc.

Iron, Flangeless (Wafer-Type) Butterfly Valves: 200 CWP, NBR seat, and [**aluminum-bronze**] [**ductile-iron**] [**stainless steel**] disc.

Ductile-Iron, Grooved-End Butterfly Valves: [**175**] [**300**] CWP.

* + - 1. DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE
         1. Pipe NPS 2-1/2 and Larger:

Retain "Iron, Single-Flange (Lug-Type) Butterfly Valves"; "Iron, Flangeless (Wafer-Type) Butterfly Valves"; or "Ductile-Iron, Grooved-End Butterfly Valves" Subparagraph below.

Iron, Single-Flange (Lug-Type) Butterfly Valves: 200 CWP, [**EPDM**] [**NBR**] seat, and [**aluminum-bronze**] [**ductile-iron**] [**stainless steel**] disc.

Iron, Flangeless (Wafer-Type) Butterfly Valves: 200 CWP, [**EPDM**] [**NBR**] seat, and [**aluminum-bronze**] [**ductile-iron**] [**stainless steel**] disc.

Ductile-Iron, Grooved-End Butterfly Valves: [**175**] [**300**] CWP.

The majority of, but not all, manufacturers offer CPVC and PVC butterfly valves in NPS 2-1/2 (DN 75) and larger. Coordinate with manufacturers and with Section 220523.12 "Ball Valves for Plumbing Piping."

* + - * 1. CPVC Pipe [**NPS 2-1/2**] [**NPS 5**] and Larger: CPVC butterfly valve.
        2. PVC Pipe [**NPS 2-1/2**] [**NPS 5**] and Larger: PVC butterfly valve.
        3. Stainless Steel Pipe NPS 2-1/2 and Larger: Stainless steel, grooved-end butterfly valve.

END OF SECTION 220523.13