SECTION 220523.13 - BUTTERFLY VALVES FOR PLUMBING PIPING

Revise this Section by deleting and inserting text to meet Project-specific requirements.

Verify that Section titles referenced in this Section are correct for this Project's Specifications; Section titles may have changed.

1. GENERAL
	* + 1. RELATED DOCUMENTS

Retain or delete this article in all Sections of Project Manual.

* + - * 1. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.
			1. SUMMARY
				1. Section Includes:

Iron, single-flange butterfly valves.

Iron, grooved-end butterfly valves.

Chainwheels.

* + - 1. DEFINITIONS

Retain terms that remain after this Section has been edited for a project.

* + - * 1. CWP: Cold working pressure.
				2. EPDM: Ethylene propylene-diene terpolymer rubber.
				3. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
			1. SUBMITTALS
				1. Product Data: For each type of valve.
				2. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
				3. Manufacturer’s installation instructions shall be provided along with product data.
				4. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).

Retain subparagraph below if products come into contact with potable water.

* + - * 1. Product Data: For each type of valve

Certification that products comply with NSF 61 Annex G[**and NSF 372**].

* + - 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. GENERAL REQUIREMENTS FOR VALVES

Plumbing valve applications specified in this Section are limited to NPS 12 (DN 300). Many valves specified are available in larger sizes.

* + - * 1. Source Limitations for Valves: Obtain each type of valve from single source from single manufacturer.
				2. 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 service piping valves.

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

Retain "NSF Compliance" paragraph below if products come into contact with potable water.

* + - * 1. NSF Compliance: NSF 61 Annex G[**and NSF 372**] for valve materials for potable-water service.

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 8 inch and larger.

Handlever: For valves 6 inch and smaller.

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

* + - * 1. Valves in Insulated Piping: With 2-inch stem extensions.
			1. IRON, SINGLE-FLANGE BUTTERFLY VALVES

Retain one or more of paragraphs below if iron, single-flange butterfly valves are required. MSS SP-67 covers iron, single-flange butterfly valves from NPS 1-1/2 to NPS 72 (DN 40 to DN 1800).

* + - * 1. Iron, Single-Flange Butterfly Valves with Aluminum-Bronze Disc:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9511) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[ABZ Valve and Controls](http://www.specagent.com/Lookup?uid=123457114066).

[Apollo Valves; a part of Aalberts Integrated Piping Systems](http://www.specagent.com/Lookup?uid=123457114067).

[Bray International, Inc](http://www.specagent.com/Lookup?uid=123457196883).

[Center Line; a Crane Co. brand](http://www.specagent.com/Lookup?uid=123457196884).

[DeZURIK](http://www.specagent.com/Lookup?uid=123457114071).

[DynaQuip Controls](http://www.specagent.com/Lookup?uid=123457196885).

[Flo Fab Inc](http://www.specagent.com/Lookup?uid=123457114072).

[FNW; Ferguson Enterprises, Inc](http://www.specagent.com/Lookup?uid=123457114082).

[Hammond Valve](http://www.specagent.com/Lookup?uid=123457114073).

[Jamesbury; Metso](http://www.specagent.com/Lookup?uid=123457196886).

[Milwaukee Valve Company](http://www.specagent.com/Lookup?uid=123457114076).

[NIBCO INC](http://www.specagent.com/Lookup?uid=123457114077).

[Viega LLC](http://www.specagent.com/Lookup?uid=123457196891).

[WATTS](http://www.specagent.com/Lookup?uid=123457114081).

Or equal.

Description:

Standard: MSS SP-67, Type I.

CWP Rating: [**200 psig**] [**250 psig**].

Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.

Body Material: ASTM A126, cast iron or ASTM A536, ductile iron.

Seat: [**EPDM**] [**NBR**].

Stem: One- or two-piece stainless steel.

Disc: Aluminum bronze.

* + - * 1. Iron, Single-Flange Butterfly Valves with Ductile-Iron Disc:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9512) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Apollo Valves; a part of Aalberts Integrated Piping Systems](http://www.specagent.com/Lookup?uid=123457114086).

[Flo Fab Inc](http://www.specagent.com/Lookup?uid=123457114091).

[Hammond Valve](http://www.specagent.com/Lookup?uid=123457114092).

[Jenkins Valves; a Crane Co. brand](http://www.specagent.com/Lookup?uid=123457114088).

[Kennedy Valve Company; a division of McWane, Inc](http://www.specagent.com/Lookup?uid=123457200225).

[Lance Valves](http://www.specagent.com/Lookup?uid=123457200226).

[Milwaukee Valve Company](http://www.specagent.com/Lookup?uid=123457114095).

[NIBCO INC](http://www.specagent.com/Lookup?uid=123457114097).

[Viega LLC](http://www.specagent.com/Lookup?uid=123457200228).

[WATTS](http://www.specagent.com/Lookup?uid=123457114101).

Or equal.

Description:

Standard: MSS SP-67, Type I.

CWP Rating: [**200 psig**] [**250 psig**].

Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.

Body Material: ASTM A126, cast iron or ASTM A536, ductile iron.

Seat: [**EPDM**] [**NBR**].

Stem: One- or two-piece stainless steel.

Disc: Nickel-plated [**or**] [**nickel-coated**] ductile iron.

* + - * 1. Iron, Single-Flange Butterfly Valves with Stainless-Steel Disc:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9513) Subject to compliance with requirements, provide products by one of the following:

[Apollo Valves; a part of Aalberts Integrated Piping Systems](http://www.specagent.com/Lookup?uid=123457114106).

[Flo Fab Inc](http://www.specagent.com/Lookup?uid=123457114111).

[Hammond Valve](http://www.specagent.com/Lookup?uid=123457114112).

[Kennedy Valve Company; a division of McWane, Inc](http://www.specagent.com/Lookup?uid=123457200235).

[Milwaukee Valve Company](http://www.specagent.com/Lookup?uid=123457114115).

[NIBCO INC](http://www.specagent.com/Lookup?uid=123457114117).

[WATTS](http://www.specagent.com/Lookup?uid=123457114122).

Or equal.

Description:

Standard: MSS SP-67, Type I.

CWP Rating, 12 inch and Smaller: [**200 psig**] [**250 psig**].

Body Design: Lug type; suitable for bidirectional dead-end service at rated pressure without use of downstream flange.

Body Material: ASTM A126, cast iron or ASTM A536, ductile iron.

Seat: [**EPDM**] [**NBR**].

Stem: One- or two-piece stainless steel.

Disc: Stainless steel.

* + - 1. DUCTILE-IRON, GROOVED-END BUTTERFLY VALVES

Retain "Ductile Iron, Grooved-End Butterfly Valves, 175 CWP" or "Ductile Iron, Grooved-End Butterfly Valves, 300 CWP" paragraph below, or both, if iron, grooved-end butterfly valves are required. MSS SP-67 covers iron, grooved-end butterfly valves from NPS 1-1/2 to NPS 72 (DN 40 to DN 1800).

* + - * 1. Ductile Iron, Grooved-End Butterfly Valves, 175 CWP:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9514) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Hammond Valve](http://www.specagent.com/Lookup?uid=123457200239).

[Kennedy Valve Company; a division of McWane, Inc](http://www.specagent.com/Lookup?uid=123457114125).

[NIBCO INC](http://www.specagent.com/Lookup?uid=123457200240).

[Red-White Valve Corp](http://www.specagent.com/Lookup?uid=123457200242).

[Victaulic Company](http://www.specagent.com/Lookup?uid=123457114128).

Or equal.

Description:

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. Ductile Iron, Grooved-End Butterfly Valves, 300 CWP:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9515) Subject to compliance with requirements, provide products by one of the following:

[Hammond Valve](http://www.specagent.com/Lookup?uid=123457192235).

[Kennedy Valve Company; a division of McWane, Inc](http://www.specagent.com/Lookup?uid=123457114132).

[NIBCO INC](http://www.specagent.com/Lookup?uid=123457114134).

[Victaulic Company](http://www.specagent.com/Lookup?uid=123457114137).

[WATTS](http://www.specagent.com/Lookup?uid=123457192238).

Or equal.

Description:

Standard: MSS SP-67, Type I.

CWP Rating, 8 inch and Smaller: 300 psig.

CWP Rating, 10 inch and Larger: 200 psig.

Body Material: Coated, ductile iron.

Stem: Two-piece stainless steel.

Disc: Coated, ductile iron.

Seal: [**EPDM**] [**NBR**].

* + - 1. CHAINWHEELS

Retain option in "Description" paragraph below if chainwheel does not mount directly to valve stem or gearbox shaft.

* + - * 1. Description: Valve actuation assembly with sprocket rim, chain guides, chain[**, and attachment brackets for mounting chainwheels directly to handwheels**].

In "Sprocket Rim with Chain Guides" subparagraph below, consider specifying aluminum or zinc or epoxy coatings for corrosive operating conditions. Specify bronze for severe operating conditions. See the Evaluations.

Sprocket Rim with Chain Guides: [**Ductile iron**] [**Ductile or cast iron**] [**Cast iron**] [**Aluminum**] [**Bronze**], of type and size required for valve.[**Include zinc or epoxy coating.**]

In "Chain" subparagraph below, choose chain material appropriate for chosen sprocket rim material.

Chain: [**Hot-dip, galvanized steel**] [**Brass**] [**Stainless steel**], of size required to fit sprocket rim.

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.
			2. VALVE INSTALLATION
				1. Install valves with unions or flanges at each piece of equipment arranged to allow service, maintenance, and equipment removal without system shutdown.
				2. Locate valves for easy access and provide separate support where necessary.
				3. Install valves in horizontal piping with stem at or above center of pipe.
				4. Install valves in position to allow full stem movement.
				5. Install chainwheels on operators for butterfly valves [**4 inch**] <**Insert size**> and larger and more than [**96 inches**] <**Insert dimension**> above floor. Extend chains to [**60 inches**] <**Insert dimension**> above finished floor.
				6. Install valve tags.
			3. ADJUSTING
				1. 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.

If using the same valve for both low- and high-pressure applications, consider deleting "Low-Pressure, Compressed-Air Valve Schedule (150 psig) or Less" or "High-Pressure, Compressed-Air Valve Schedule (150 to 200 psig)" Article below and modifying the remaining article title by removing reference to low or high pressure.

* + - 1. LOW-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE (150 PSIG OR LESS)
				1. Pipe 2-1/2 inch and Larger:

Retain "Iron, Single-Flange Butterfly Valves" or "Ductile-Iron, Grooved-End Butterfly Valves" subparagraph below.

Iron, Single-Flange Butterfly Valves: 200 CWP, NBR seat, [**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 2-1/2 inch and Larger:

Retain "Iron, Single-Flange Butterfly Valves" or "Ductile-Iron Grooved-End Butterfly Valves" subparagraph below.

Iron, Single-Flange Butterfly Valves: 200 CWP, NBR seat, [**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 2-1/2 inch and Larger:

Retain "Iron, Single-Flange Butterfly Valves" or "Ductile-Iron, Grooved-End Butterfly Valves" subparagraph below.

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

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

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

END OF SECTION 220523.13