SECTION 230523.16 - PLUG VALVES FOR HVAC 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:

Lubricated plug valves.

Eccentric plug valves.

* + - 1. DEFINITIONS

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

* + - * 1. CWP: Cold working pressure.
      1. SUBMITTALS
         1. Submittals for this section are subject to the re-evaluation fee identified in Article 4 of the General Conditions.
         2. Manufacturer’s installation instructions shall be provided along with product data.
         3. Submittals shall be provided in the order in which they are specified and tabbed (for combined submittals).
         4. Product Data: For each type of valve.
      2. DELIVERY, STORAGE, AND HANDLING

Information in this article is paraphrased from MSS.

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

Protect internal parts against rust and corrosion.

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

Set plug valves open to minimize exposure of functional surfaces.

* + - * 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

See Editing Instruction No. 1 in the Evaluations for cautions about named manufacturers and products. For an explanation of options and Contractor's product selection procedures., see Section 016000 "Product Requirements."

* + - 1. GENERAL REQUIREMENTS FOR VALVES

HVAC valve applications specified in this Section are limited to NPS 24 (DN 600). 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 B1.20.1 for threads for threaded-end valves.

ASME B16.1 for flanges on iron valves.

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

ASME B31.1 for power piping valves.

ASME B31.9 for building services piping 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 and 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: Wrench. Furnish Owner Director’s Representative with one wrench for every [**five**] [**10**] <**Insert number**> plug valves, for each size square plug-valve head.
        4. Valves shall be first quality, free from all imperfections and defects, with body markings indicating manufacturer and rating.
        5. Valve parts of same manufacturer, size and type shall be interchangeable.
      1. LUBRICATED PLUG VALVES

Retain one or more of eight paragraphs in this article if lubricated plug valves are required. MSS SP-78 covers lubricated plug valves of NPS 1 to NPS 24 (DN 25 to DN 600).

* + - * 1. Class 125, Lubricated Plug Valves with Threaded Ends:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9885) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Nordstrom Valves, Inc](http://www.specagent.com/Lookup?uid=123456944796).

Homestead Valve

American Production Valve

Approved equivalent.

Description:

Standard: MSS SP-78, Type I single gland.

NPS 2-1/2 to NPS 4and smaller (DN 65 to DN 100), CWP Rating: 1200 psig (1380 kPa).

Body Material: ASTM A48/A48M or ASTM A126, cast iron with lubrication-sealing system.

Pattern: [**Regular**] [**or**] [**short**] [**venturi**].

Plug: Cast iron or bronze with sealant groove.

* + - * 1. Class 125, Lubricated Plug Valves with Flanged Ends:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9886) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[Nordstrom Valves, Inc](http://www.specagent.com/Lookup?uid=123456944797).

Homestead Valve

American Production Valve

Approved equivalent.

Description:

Single-gland valves with two-bolt bonnets are usually limited to NPS 5 (DN 125) and under. Regular-gland valves with bolted glands are manufactured in the entire size range specified below.

Standard: MSS SP-78, [**Type I single gland**] [**or**] [**Type II regular gland**].

NPS 2-1/2 to NPS 12 (DN 65 to DN 300), CWP Rating: 200 psig (1380 kPa).

NPS 14 to NPS 24 (DN 350 to DN 600), CWP Rating: 150 psig (1035 kPa).

Body Material: ASTM A48/A48M or ASTM A126, cast iron with lubrication-sealing system.

Pattern: [**Regular**] [**or**] [**short**] [**venturi**].

Plug: Cast iron or bronze with sealant groove.

* + - * 1. Class 125, Cylindrical, Lubricated Plug Valves with Threaded Ends:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9887) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[R & M Energy Systems; Robbins & Myers](http://www.specagent.com/Lookup?uid=123456944798).

DeZurick Inc.

Swissfluid AG

Approved equivalent.

Description:

Standard: MSS SP-78, Type IV.

NPS 2-1/2 to NPS 4and smaller (DN 65 to DN 100), CWP Rating: 2100 psig (1380 kPa).

Body Material: ASTM A48/A48M or ASTM A126, cast iron with lubrication-sealing system.

Pattern: [**Regular**] [**or**] [**short**] [**venturi**].

Plug: Cast iron or bronze with sealant groove.

* + - * 1. Class 125, Cylindrical, Lubricated Plug Valves with Flanged Ends:

[Manufacturers:](http://www.specagent.com/Lookup?ulid=9888) Subject to compliance with requirements, available manufacturers offering products that may be incorporated into the Work include, but are not limited to the following:

[R & M Energy Systems; Robbins & Myers](http://www.specagent.com/Lookup?uid=123456944799).

DeZurick Inc.

Swissfluid AG

Approved equivalent.

Description:

Standard: MSS SP-78, Type IV.

NPS 2-1/2 to NPS 12 (DN 65 to DN 300), CWP Rating: 200 psig (1380 kPa).

Body Material: ASTM A48/A48M or ASTM A126, cast iron with lubrication-sealing system.

Pattern: [**Regular**] [**or**] [**short**] [**venturi**].

Plug: Cast iron or bronze with sealant groove.

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 threads on valve and mating pipe for form and cleanliness.
          4. Examine mating flange faces for conditions that might cause leakage. 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.
          5. 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 valve tags. Comply with requirements for valve tags and schedules in Section 230553 "Identification for HVAC Piping and Equipment."
       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.
       4. GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

The Section Text is arranged to provide bronze or brass valves in NPS 2 (DN 50) and smaller and iron valves in NPS 2-1/2 to NPS 24 (DN 65 to DN 600).

Caution: Verify that valve classes and pressure and temperature ratings are adequate for system fluid. Repeat each category listing if necessary and insert required pressure range for each listing. Indicate location of each different pressure system on Drawings.

Retain and revise valve applications in this article. Coordinate with valves specified in Part 2.

* + - * 1. If valve applications are not indicated, use the following:

Shutoff Service: Plug valves.

* + - * 1. If valves with CWP ratings are unavailable, the same types of valves with higher CWP ratings may be substituted.
        2. Select valves with the following end connections:

For Copper Tubing, NPS 2 (DN 50) and Smaller: Threaded ends.

For Copper Tubing, NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Flanged ends except where threaded valve-end option is indicated in valve schedules.

For Copper Tubing, NPS 5 (DN 125) and Larger: Flanged ends.

For Steel Piping, NPS 2 (DN 50) and Smaller: Threaded ends.

For Steel Piping, NPS 2-1/2 to NPS 4 (DN 65 to DN 100): Flanged ends except where threaded valve-end option is indicated in valve schedules.

For Steel Piping, NPS 5 (DN 125) and Larger: Flanged ends.

* + - 1. NATURAL GAS VALVE SCHEDULE
         1. Pipe NPS 2 and Smaller

Lubricated Plug Valves: [Class 125], [regular gland] [cylindrical],[threaded]

* + - * 1. Pipe NPS 2-12/ and Larger:

Lubricated Plug Valves: [Class 125] [regular gland] [cylindrical] [flanged]

END OF SECTION 230523.16