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## SECTION 220523.15 - GATE VALVES FOR PLUMBING PIPING

### PART 1 - GENERAL

#### 1.1 RELATED DOCUMENTS

- A. Drawings and general provisions of the Contract, including General and Supplementary Conditions and Division 01 Specification Sections, apply to this Section.

#### 1.2 SUMMARY

- A. Section Includes:

1. Brass gate valves
2. Bronze gate valves.
3. Iron gate valves.
4. Chainwheels.

#### 1.3 DEFINITIONS

- A. ANSI: American National Standards Institute.
- B. Buna-N: Nitrile copolymer of butadiene and acrylonitrile.
- C. CSA: Canadian Standards Association.
- D. CWP: Cold working pressure.
- E. DZR: Dezincification Resistant.

## GATE VALVES FOR PLUMBING PIPING

- F. FM: Factory Mutual.
- G. LF: Lead Free (Brass).
- H. MSS: Manufacturer's Standardization Society.
- I. NBR: Acrylonitrile-butadiene, Buna-N, or nitrile rubber.
- J. NRS: Nonrising stem.
- K. NSF: National Sanitation Foundation.
- L. Pb: Lead.
- M. PTFE: Polytetrafluoroethylene.
- N. RPTFE: Reinforced Polytetrafluoroethylene.
- O. OS&Y: Outside screw and yoke.
- P. RS: Rising stem.
- Q. TFM: Modified Polytetrafluoroethylene (Hostaflon).
- R. T.E.A.: Ternary Ecological Alloy.
- S. UL: Underwriters Laboratory.
- T. WOG: Water, Oil, and Gas.
- U. WSP: Working steam pressure.

#### 1.4 ACTION SUBMITTALS

- A. Product Data: For each type of valve.
  - 1. Certification that products comply with NSF 61 Annex G.

#### 1.5 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 gate valves closed to prevent rattling.
- 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 B1.20.1 for threads for threaded end valves.
  2. ASME B16.1 for flanges on iron valves.
  3. ASME B16.10 and ASME B16.34 for ferrous valve dimensions and design criteria.
  4. ASME B16.18 for solder joint.
  5. ASME B31.9 for building services piping valves.
- C. NSF Compliance: NSF 61 Annex G for valve materials for potable-water service.
- 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. RS Valves in Insulated Piping: With **2-inch (50-mm)** stem extensions.
- G. Valve Bypass and Drain Connections: MSS SP-45.

### 2.2 BRASS GATE VALVES

- A. Class 125, NRS, Brass Gate Valves:
1. Basis-of-Design Product: Subject to compliance with requirements, provide Jomar Valve; [**T-301G**] [**S-301G**] or comparable product by one of the following:
    - a. **<Insert manufacturer's name>**.
  2. Description:
    - a. CWP Rating: **200 psig (1380 kPa)**.
    - b. Body Material: Brass with integral seat and screw-in bonnet.
    - c. Ends: Threaded or solder joint.
    - d. Stem: Brass.
    - e. Disc: Solid wedge; brass.

- f. Packing: Graphite.
- g. Handwheel: Malleable iron, bronze, or aluminum.

### 2.3 BRONZE GATE VALVES

#### A. Class 125, NRS, Bronze Gate Valves:

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings] <Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
  - a. American Valve, Inc.
  - b. Crane Co.; Crane Valve Group; Crane Valves.
  - c. Crane Co.; Crane Valve Group; Jenkins Valves.
  - d. Crane Co.; Crane Valve Group; Stockham Valves.
  - e. Hammond Valve.
  - f. Kitz Corporation.
  - g. The Macomb Groups.
  - h. Milwaukee Valve Company.
  - i. NIBCO INC.
  - j. Powell Valves.
  - k. Red-White Valve Corporation.
  - l. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
  - m. **<Insert manufacturer's name>**.
3. Description:
  - a. Standard: MSS SP-80, Type 1.
  - b. CWP Rating: **200 psig (1380 kPa)**.
  - c. Body Material: Bronze with integral seat and screw-in bonnet.
  - d. Ends: Threaded or solder joint.
  - e. Stem: Bronze.
  - f. Disc: Solid wedge; bronze.
  - g. Packing: Asbestos free.
  - h. Handwheel: Malleable iron, bronze, or aluminum.

#### B. Class 125, RS, Bronze Gate Valves:

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings] <Insert manufacturer's name; product name or designation>** or comparable product by one of the following:

## PRODUCT MASTERSPEC LICENSED BY ARCOM TO JOMAR VALVE

- a. American Valve, Inc.
  - b. Crane Co.; Crane Valve Group; Crane Valves.
  - c. Crane Co.; Crane Valve Group; Jenkins Valves.
  - d. Crane Co.; Crane Valve Group; Stockham Valves.
  - e. Hammond Valve.
  - f. Kitz Corporation.
  - g. The Macomb Groups.
  - h. Milwaukee Valve Company.
  - i. NIBCO INC.
  - j. Powell Valves.
  - k. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
  - l. <Insert manufacturer's name>.
3. Description:
- a. Standard: MSS SP-80, Type 2.
  - b. CWP Rating: 200 psig (1380 kPa).
  - c. Body Material: Bronze with integral seat and screw-in bonnet.
  - d. Ends: Threaded or solder joint.
  - e. Stem: Bronze.
  - f. Disc: Solid wedge; bronze.
  - g. Packing: Asbestos free.
  - h. Handwheel: Malleable iron, bronze, or aluminum.
- C. Class 150, NRS, Bronze Gate Valves:
1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
  2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings] <Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
    - a. Hammond Valve.
    - b. Kitz Corporation.
    - c. Milwaukee Valve Company.
    - d. NIBCO INC.
    - e. Powell Valves.
    - f. Red-White Valve Corporation.
    - g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
    - h. <Insert manufacturer's name>.
  3. Description:
    - a. Standard: MSS SP-80, Type 1.
    - b. CWP Rating: 300 psig (2070 kPa).
    - c. Body Material: Bronze with integral seat and union-ring bonnet.
    - d. Ends: Threaded.
    - e. Stem: Bronze.
    - f. Disc: Solid wedge; bronze.

- g. Packing: Asbestos free.
- h. Handwheel: Malleable iron, bronze, or aluminum.

D. Class 150, RS, Bronze Gate Valves:

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
  - a. Crane Co.; Crane Valve Group; Crane Valves.
  - b. Crane Co.; Crane Valve Group; Stockham Valves.
  - c. Hammond Valve.
  - d. Kitz Corporation.
  - e. The Macomb Groups.
  - f. Milwaukee Valve Company.
  - g. NIBCO INC.
  - h. Powell Valves.
  - i. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
  - j. <Insert manufacturer's name>.
3. Description:
  - a. Standard: MSS SP-80, Type 2.
  - b. CWP Rating: 300 psig (2070 kPa).
  - c. Body Material: Bronze with integral seat and union-ring bonnet.
  - d. Ends: Threaded.
  - e. Stem: Bronze.
  - f. Disc: Solid wedge; bronze.
  - g. Packing: Asbestos free.
  - h. Handwheel: Malleable iron, bronze, or aluminum.

## 2.4 IRON GATE VALVES

A. Class 125, NRS, Iron Gate Valves:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Jomar Valve; 550 Series or comparable product by one of the following:
  - a. Hammond Valve.
  - b. Kitz Corporation.
  - c. Milwaukee Valve Company.
  - d. Red-White Valve Corporation.
  - e. <Insert manufacturer's name>.
2. Description:

## PRODUCT MASTERSPEC LICENSED BY ARCOM TO JOMAR VALVE

- a. Standard: MSS SP-70, Type I.
- b. CWP Rating: 200 psig (1380 kPa).
- c. Body Material: Gray iron with bolted bonnet.
- d. Ends: Flanged.
- e. Trim: Bronze.
- f. Disc: Solid wedge.
- g. Packing and Gasket: Asbestos free.

## B. Class 125, OS&amp;Y, Iron Gate Valves:

1. Basis-of-Design Product: Subject to compliance with requirements, provide Jomar Valve; 553 Series or comparable product by one of the following:
  - a. Hammond Valve.
  - b. Kitz Corporation.
  - c. Milwaukee Valve Company.
  - d. Red-White Valve Corporation.
  - e. <Insert manufacturer's name>.
2. Description:
  - a. Standard: MSS SP-70, Type I.
  - b. CWP Rating: 200 psig (1380 kPa).
  - c. Body Material: Gray iron with bolted bonnet.
  - d. Ends: Flanged.
  - e. Trim: Bronze.
  - f. Disc: Solid wedge.
  - g. Packing and Gasket: Asbestos free.

## C. Class 250, NRS, Iron Gate Valves:

1. Manufacturers: Subject to compliance with requirements, [provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:
2. Basis-of-Design Product: Subject to compliance with requirements, provide [product indicated on Drawings] <Insert manufacturer's name; product name or designation> or comparable product by one of the following:
  - a. Crane Co.; Crane Valve Group; Crane Valves.
  - b. Crane Co.; Crane Valve Group; Stockham Valves.
  - c. NIBCO INC.
  - d. <Insert manufacturer's name>.
3. Description:
  - a. Standard: MSS SP-70, Type I.
  - b. CWP Rating: 500 psig (3450 kPa).
  - c. Body Material: Gray iron with bolted bonnet.
  - d. Ends: Flanged.
  - e. Trim: Bronze.

- f. Disc: Solid wedge.
- g. Packing and Gasket: Asbestos free.

D. Class 250, OS&Y, Iron Gate Valves:

1. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
2. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
  - a. Crane Co.; Crane Valve Group; Crane Valves.
  - b. Crane Co.; Crane Valve Group; Stockham Valves.
  - c. Hammond Valve.
  - d. Milwaukee Valve Company.
  - e. NIBCO INC.
  - f. Powell Valves.
  - g. Watts Regulator Co.; a division of Watts Water Technologies, Inc.
  - h. **<Insert manufacturer's name>**.
3. Description:
  - a. Standard: MSS SP-70, Type I.
  - b. CWP Rating: **500 psig (3450 kPa)**.
  - c. Body Material: Gray iron with bolted bonnet.
  - d. Ends: Flanged.
  - e. Trim: Bronze.
  - f. Disc: Solid wedge.
  - g. Packing and Gasket: Asbestos free.

2.5 CHAINWHEELS

- A. Manufacturers: Subject to compliance with requirements, **[provide products by the following] [provide products by one of the following] [available manufacturers offering products that may be incorporated into the Work include, but are not limited to, the following]:**
- B. Basis-of-Design Product: Subject to compliance with requirements, provide **[product indicated on Drawings]** **<Insert manufacturer's name; product name or designation>** or comparable product by one of the following:
  1. Babbitt Steam Specialty Co.
  2. Roto Hammer Industries.
  3. Trumbull Industries.
  4. **<Insert manufacturer's name>**.
- C. Description: Valve actuation assembly with sprocket rim, chain guides, chain[, **and attachment brackets for mounting chainwheels directly to hand wheels**].



1. 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.**]
2. Chain: [**Hot-dip galvanized steel**] [**Brass**] [**Stainless steel**], of size required to fit sprocket rim.

## 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 threads on valve and mating pipe for form and cleanliness.
- D. 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.
- E. 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 chainwheels on operators for gate valves [**NPS 4 (DN 100)**] <Insert size> and larger and more than [**96 inches (2400 mm)**] <Insert dimension> above floor. Extend chains to [**60 inches (1520 mm)**] <Insert dimension> above finished floor.
- F. Install valve tags. Comply with requirements in Section 220553 "Identification for Plumbing 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.

## GATE VALVES FOR PLUMBING PIPING

### 3.4 GENERAL REQUIREMENTS FOR VALVE APPLICATIONS

- A. Use gate valves for shutoff service only.
- B. If valves with specified CWP ratings are unavailable, the same types of valves with higher CWP ratings may be substituted.
- C. For Grooved-End [**Copper Tubing**] [**and**] [**Steel Piping**]: Valve ends may be grooved.

### 3.5 LOW-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE (150 PSIG ((1035 kPa)) OR LESS)

- A. Pipe **NPS 2 (DN 50)** and Smaller: Bronze gate valves, [**Class 125**] [**Class 150**], [**NRS**] [**RS**] with [**soldered**] [**threaded**] ends.
- B. Pipe **NPS 2-1/2 (DN 65)** and Larger: Iron gate valves, [**Class 125**] [**Class 250**], [**NRS**] [**OS&Y**] with flanged ends.

### 3.6 HIGH-PRESSURE, COMPRESSED-AIR VALVE SCHEDULE (150 TO 200 PSIG ((1035 TO 1380 kPa)))

- A. Pipe **NPS 2 (DN 50)** and Smaller: Bronze gate valves, [**Class 125**] [**Class 150**], [**NRS**] [**RS**] with [**soldered**] [**threaded**] ends.
- B. Pipe **NPS 2-1/2 (DN 65)** and Larger: Iron gate valves, [**Class 125**] [**Class 250**], [**NRS**] [**OS&Y**] with flanged ends.

### 3.7 DOMESTIC HOT- AND COLD-WATER VALVE SCHEDULE

- A. Pipe **NPS 2 (DN 50)** and Smaller: Bronze gate valves, [**Class 125**] [**Class 150**], [**NRS**] [**RS**] with [**soldered**] [**threaded**] ends.
- B. Pipe **NPS 2-1/2 (DN 65)** and Larger: Iron gate valves, [**Class 125**] [**Class 250**], [**NRS**] [**OS&Y**] with flanged ends.

END OF SECTION 220523.15