

SECTION 22 11 19 - DOMESTIC WATER PIPING SPECIALTIES

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. Vacuum breakers.
 - 2. Temperature-actuated, water mixing valves.
 - 3. Strainers for domestic water piping.
 - 4. Hose bibbs.
 - 5. Water-hammer arresters.
- B. Related Requirements:
 - 1. Section 22 05 00 "Common Work Results for Plumbing" for thermometers, pressure gauges, and flow meters in domestic water piping.

1.3 DEFINITIONS

- A. AMI: Advanced Metering Infrastructure.
- B. AMR: Automatic Meter Reading.
- C. FKM: A family of fluoroelastomer materials defined by ASTM D1418.

1.4 ACTION SUBMITTALS

- A. Product Data: For each type of product.

1.5 INFORMATIONAL SUBMITTALS

- A. Test and inspection reports.

1.6 CLOSEOUT SUBMITTALS

- A. Operation and Maintenance Data: For domestic water piping specialties to include in emergency, operation, and maintenance manuals.

PART 2 - PRODUCTS

2.1 GENERAL REQUIREMENTS FOR PIPING SPECIALTIES

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

2.2 PERFORMANCE REQUIREMENTS

- A. Minimum Working Pressure for Domestic Water Piping Specialties: 125 psig unless otherwise indicated.

2.3 VACUUM BREAKERS

- A. Water Heater Anti-Siphon Vacuum Breakers:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Ames Fire & Waterworks; A WATTS Brand
 - b. Apollo Flow Controls; Conbraco Industries, Inc.
 - c. Watts. (Basis of Design, LFN36-M1)
 - d. Zurn Industries, LLC.
 - 2. Standard: ASSE Z21.22.
 - 3. Application: Low -ressure steam or water service.
 - 4. Operation: The vacuum relief valve shall have an all brass body and include a protective cap for automatic venting of a closed system to atmosphere when a vacuum is created
 - 5. Material: Lead free-brass body.

2.4 TEMPERATURE-ACTUATED, WATER MIXING VALVES

- A. Water-Temperature Limiting Devices TMV-2:
 - 1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Engineering Company; a Division of Morris Group International.
 - b. Apollo Flow Controls; Conbraco Industries, Inc.
 - c. Chicago Faucet. (Basis of Design, 131-CFMAB)
 - d. Leonard Valve Company.
 - e. POWERS; A WATTS Brand.
 - f. Symmons Industries, Inc.
 - g. WATTS.
 - 2. Standard: ASSE 1070.

3. Pressure Rating: 125 psig.
4. Type: Thermostatically controlled, water mixing valve.
5. Material: Bronze body with corrosion-resistant interior components.
6. Connections: Threaded, union or compression inlets and outlet.
7. Accessories: Check stops on hot- and cold-water supplies, and adjustable, temperature-control handle.
8. Tempered-Water Setting: Refer to drawings.
9. Tempered-Water Design Flow Rate: Refer to drawings
10. Valve Finish: .

B. Primary (Master Mixer), Electronic, Water Mixing Valve Assemblies TMV-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Acorn Engineering Company; a Division of Morris Group International.
 - b. Leonard Valve Company.
 - c. POWERS; A WATTS Brand. (Basis of Design, Intellistation JR)
2. Standard: ASSE 1017.
3. Pressure Rating: 125 psig minimum unless otherwise indicated.
4. Type: Exposed, electronically controlled, water mixing valve.
5. Material: Bronze body with corrosion-resistant interior components.
6. Connections: Threaded or solder joint inlets and outlet.
7. Accessories: Manual temperature override control, check stops on hot- and cold-water supplies, and automatic hot- and cold-water shutoff upon inlet supply failure.
8. Valve Finish: Bronze.
9. Digital temperature control and monitoring module.
 - a. Controls temperature within plus or minus 2 deg F.
 - b. User programmable at module or through BAS.
 - c. ASHRAE 188 compliance.
 - d. Local and remote monitoring.
 - e. BACNet protocol language(s).
 - f. 115 V ac, 60 Hz.
 - g. Battery backup.

2.5 STRAINERS FOR DOMESTIC WATER PIPING

A. Y-Pattern Strainers:

1. Pressure Rating: 125 psig minimum unless otherwise indicated.
2. Body: Bronze for NPS 2 and smaller; cast iron with interior lining that complies with AWWA C550 or that is FDA approved, epoxy coated and for NPS 2-1/2 and larger.
3. End Connections: Threaded for NPS 2 and smaller; flanged for NPS 2-1/2 and larger.
4. Screen: Stainless steel with round perforations unless otherwise indicated.
5. Perforation Size:
 - a. Strainers NPS 2 and Smaller: 0.020 inch.
 - b. Strainers NPS 2-1/2 to NPS 4: 0.125 inch.
 - c. Strainers NPS 5 and Larger: 0.25 inch.
6. Drain: Pipe plug or Factory-installed, hose-end drain valve.

2.6 HOSE BIBBS

A. Hose Bibbs, Service Area, HB- 1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. Chicago Faucet (Basis of Design, 293-E27CP)
 - b. T&S Brass
2. Standard: ASME A112.18.1 for sediment faucets.
3. Body Material: Bronze.
4. Seat: Bronze, replaceable.
5. Supply Connections: NPS 1/2 or NPS 3/4 threaded or solder-joint inlet.
6. Outlet Connection: Garden-hose thread complying with ASME B1.20.7.
7. Pressure Rating: 125 psig.
8. Vacuum Breaker: Integral, nonremovable, drainable, hose-connection vacuum breaker complying with ASSE 1011.
9. Finish for Equipment Rooms: Chrome or nickel plated.
10. Operation for Finished Rooms: 1/4 turn ADA compliant lever.
11. Include integral wall flange with each chrome- or nickel-plated hose bibb.

2.7 WATER-HAMMER ARRESTERS

A. Water-Hammer Arresters WHA-1:

1. Manufacturers: Subject to compliance with requirements, provide products by one of the following:
 - a. AMTROL, Inc.
 - b. Jay R. Smith Mfg Co. (Basis of Design, Hydrotrol).
 - c. Josam Company.
 - d. MIFAB, Inc.
 - e. Sioux Chief.
 - f. WATTS.
 - g. Zurn Industries, LLC.
2. Standard: ASSE 1010 or PDI-WH 201.
3. Material: Copper or Stainless steel.
4. Size: ASSE 1010, Sizes AA and A through F, or PDI-WH 201, Sizes A through F.

PART 3 - EXECUTION

3.1 INSTALLATION OF PIPING SPECIALTIES

- A. Balancing Valves: Install in locations where they can easily be adjusted. Set at indicated design flow rates.
- B. Temperature-Actuated, Water Mixing Valves: Install with check stops or shutoff valves on inlets and with shutoff valve on outlet.

1. Install cabinet-type units recessed in or surface mounted on wall as specified.

C. Y-Pattern Strainers: For water, install on supply side of each .

D. Water-Hammer Arresters: Install in water piping in accordance with PDI-WH 201.

3.2 PIPING CONNECTIONS

A. Drawings indicate general arrangement of piping, fittings, and specialties.

B. When installing piping specialties adjacent to equipment and machines, allow space for service and maintenance.

3.3 IDENTIFICATION

A. Plastic Labels for Equipment: Install engraved plastic-laminate equipment nameplate or sign on or near each of the following:

1. Vacuum breakers.
2. Temperature-actuated, water mixing valves.

B. Distinguish among multiple units, inform operator of operational requirements, indicate safety and emergency precautions, and warn of hazards and improper operations, in addition to identifying unit. Nameplates and signs are specified in Section 22 05 53 "Identification for Plumbing Piping and Equipment."

3.4 ADJUSTING

A. Set field-adjustable temperature set points of temperature-actuated, water mixing valves.

B. Adjust each pressure vacuum breaker in accordance with manufacturer's written instructions, authorities having jurisdiction and the device's reference standard.

3.5 FIELD QUALITY CONTROL

A. Testing Agency: Engage a qualified testing agency to perform tests and inspections.

B. Perform the following tests and inspections.

1. Test each pressure vacuum breaker according to authorities having jurisdiction and the device's reference standard.
2. Leak Test: After installation, charge system and test for leaks. Repair leaks and retest until no leaks exist.
3. Operational Test: After electrical circuitry has been energized, start units to confirm unit operation.
4. Test and adjust controls and safeties. Replace damaged and malfunctioning controls and equipment.

- C. Domestic water piping specialties will be considered defective if they do not pass tests and inspections.
- D. Prepare test and inspection reports.

END OF SECTION