

SECTION 23 2113 HYDRONIC PIPING

PART 1 GENERAL

1.01 SECTION INCLUDES

- A. Hydronic system requirements.
- B. Equipment drains and overflows.
- C. Pipe hangers and supports.
- D. Unions, flanges, mechanical couplings, and dielectric connections.

1.02 RELATED REQUIREMENTS

- A. Section 23 0516 - Expansion Fittings and Loops for HVAC Piping.
- B. Section 23 2500 - HVAC Water Treatment: Pipe cleaning.

1.03 REFERENCE STANDARDS

- A. ASME B16.18 - Cast Copper Alloy Solder Joint Pressure Fittings; 2021.
- B. ASME B16.22 - Wrought Copper and Copper Alloy Solder-Joint Pressure Fittings; 2021.
- C. ASME B31.9 - Building Services Piping; 2025.
- D. ASTM B32 - Standard Specification for Solder Metal; 2020.
- E. ASTM B88 - Standard Specification for Seamless Copper Water Tube; 2022.
- F. ASTM B88M - Standard Specification for Seamless Copper Water Tube (Metric); 2020.
- G. ASTM D1785 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe, Schedules 40, 80, and 120; 2021a.
- H. ASTM D2241 - Standard Specification for Poly(Vinyl Chloride) (PVC) Pressure-Rated Pipe (SDR Series); 2025a.
- I. ASTM D2466 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 40; 2024.
- J. ASTM D2467 - Standard Specification for Poly(Vinyl Chloride) (PVC) Plastic Pipe Fittings, Schedule 80; 2024.
- K. ASTM D2855 - Standard Practice for the Two-Step (Primer and Solvent Cement) Method of Joining Poly (Vinyl Chloride) (PVC) or Chlorinated Poly (Vinyl Chloride) (CPVC) Pipe and Piping Components with Tapered Sockets; 2020 (Reapproved 2024).
- L. ASTM F708 - Standard Practice for Design and Installation of Rigid Pipe Hangers; 2024.
- M. MSS SP-58 - Pipe Hangers and Supports - Materials, Design, Manufacture, Selection, Application, and Installation; 2025.

1.04 SUBMITTALS

- A. See Section 01 3000 - Administrative Requirements for submittal procedures.
- B. Product Data:
 - 1. Include data on pipe materials, pipe fittings, valves, and accessories.
 - 2. Provide manufacturers catalog information.

1.05 DELIVERY, STORAGE, AND HANDLING

- A. Provide temporary end caps and closures on piping and fittings. Maintain in place until installation.
- B. Protect piping systems from entry of foreign materials by temporary covers, completing sections of the work, and isolating parts of completed system.

PART 2 PRODUCTS

2.01 HYDRONIC SYSTEM REQUIREMENTS

- A. Comply with ASME B31.9 and applicable federal, state, and local regulations.
- B. Piping: Provide piping, fittings, hangers, and supports as required, as indicated, and as follows:
 - 1. Where more than one piping system material is specified, provide joining fittings that are compatible with piping materials and ensure that the integrity of the system is not jeopardized.
 - 2. Use non-conducting dielectric connections whenever jointing dissimilar metals.
 - 3. Grooved mechanical joints are not permitted in any location.
 - 4. Provide pipe hangers and supports in accordance with ASME B31.9 or MSS SP-58 unless indicated otherwise.
- C. Pipe-to-Valve and Pipe-to-Equipment Connections: Use flanges or unions to allow disconnection of components for servicing; do not use direct welded, soldered, or threaded connections.

2.02 EQUIPMENT DRAINS AND OVERFLOWS

- A. Copper Tube: ASTM B88 (ASTM B88M), Type K (A), drawn; using one of the following joint types:
 - 1. Solder Joints: ASME B16.18 cast brass/bronze or ASME B16.22 solder wrought copper fittings; ASTM B32 lead-free solder, HB alloy (95-5 tin-antimony) or tin and silver.
- B. PVC Pipe: ASTM D1785, Schedule 40, or ASTM D2241, SDR 21 or 26.
 - 1. Fittings: ASTM D2466 or D2467, PVC.
 - 2. Joints: Solvent welded in accordance with ASTM D2855.
 - 3. Insulation not required for PVC piping.

2.03 PIPE HANGERS AND SUPPORTS

- A. Provide hangers and supports that comply with MSS SP-58.
 - 1. If type of hanger or support for a particular situation is not indicated, select appropriate type using MSS SP-58 recommendations.
 - 2. Hangers for Pipe Sizes 1/2 to 1-1/2 Inches (13 to 38 mm): Malleable iron, adjustable swivel, split ring.
 - 3. Hangers for Cold Pipe Sizes 2 Inches (50 mm) and Greater: Carbon steel, adjustable, clevis.

2.04 UNIONS, FLANGES, MECHANICAL COUPLINGS, AND DIELECTRIC CONNECTIONS

- A. Unions for Pipe of 2 Inches (50 mm, DN) and Less:
- B. Flanges for Pipe 2 Inches (50 mm, DN) and Greater:

PART 3 EXECUTION

3.01 PREPARATION

- A. Ream pipe and tube ends. Remove burrs. Bevel plain end ferrous pipe.
- B. Remove scale and dirt on inside and outside before assembly.
- C. Prepare piping connections to equipment using jointing system specified.
- D. Keep open ends of pipe free from scale and dirt. Protect open ends with temporary plugs or caps.
- E. After completion, fill, clean, and treat systems. See Section 23 2500 for additional requirements.

3.02 INSTALLATION

- A. Install in accordance with manufacturer's instructions.
- B. PVC Pipe: Make solvent-welded joints in accordance with ASTM D2855.
- C. Route piping in orderly manner, parallel to building structure, and maintain gradient.

- D. Install piping to conserve building space and to avoid interference with use of space.
- E. Group piping whenever practical at common elevations.
- F. Sleeve pipe passing through partitions, walls, and floors.
- G. Slope piping and arrange to drain at low points.
- H. Install piping to allow for expansion and contraction without stressing pipe, joints, or connected equipment. See Section 23 0516.
- I. Pipe Hangers and Supports:
 - 1. Install in accordance with ASME B31.9, ASTM F708, or MSS SP-58.

END OF SECTION

BUILDING FOR ROGERS FACILITIES DEPARTMENT
ROGERS, AR

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DEMX ARCHITECTURE
FAYETTEVILLE, AR