Anvil CSI 3 Part MasterFormat Specifications

PIPING SPECIALTIES SECTION 23 50 00

PART 16 GENERAL

16.1 SECTION INCLUDES

A. Specialty piped systems.

16.2 RELATED SECTIONS

A. Section 07 84 13 - Penetration Firestopping Mortars.

B. Section 08 31 16 - Access Panels and Frames.

C. Section 23 05 00 - Common Work Results for HVAC.

D. Section 23 05 29 - Hangers and Supports for HVAC Piping and Equipment.

16.3 REFERENCES

A. American Society of Mechanical Engineers (ASME) B31.1 - Power Piping (SI Edition).

B. American Society of Mechanical Engineers (ASME) B31.3 - Chemical Plant and Petroleum Refinery Piping.

C. Manufacturers Standardization Society of the Valve and Fittings Industry (MSS) SP-127 Bracing for Piping Systems Seismic-Wind-Dynamic Design, Selection, Application.

16.4 SYSTEM DESCRIPTION

A. Grooved products for steel and copper piping specialty systems shall be used. Refer to Section 23 05 00 - Common Work Results for HVAC for related materials.
   1. Galvanized fittings to be used with galvanized pipe.
   2. Schedule 10 Type 304 or 316 grooved stainless steel pipe and grooved stainless steel fittings shall be used in conjunction with copper systems 8 inch diameter and above.
   3. Couplings shall not be galvanized unless system is exposed to a corrosive environment.
   4. Copper fittings shall be 99.9 percent lead free.

B. Contractor Design Requirements:
   1. Incorporate in construction pipe hangers and supports to manufacturer's recommendations utilizing manufacturer's regular production components, parts and assemblies.

16.5 SUBMITTALS

A. Submit under provisions of Section 01 30 00.

B. [Product Data]: Manufacturer's data sheets on each product to be used, including:
   1. Preparation instructions and recommendations.
   2. Installation methods.

C. Certifications:
   1. Product certificates signed by manufacturer certifying materials comply with specified performance characteristics and criteria and physical requirements. Certificates shall be furnished only as required by specific codes, upon request.

D. Shop Drawings:
   1. Submit shop drawings and [Product Data] grouped to include complete submittals of related systems, products, and accessories in a single submittal.

E. Selection Samples: For each finish product specified, two complete sets of color chips representing manufacturer's full range of available colors and patterns.

F. Verification Samples: For each finish product specified, two samples, minimum size 6 inches square, representing actual product, color, and patterns.

G. Closeout Submittals:
   1. Warranty: Warranty documents.
   2. Operation and Maintenance Data: Operation and maintenance data for installed products in accordance with Division 1 Closeout Submittals (Maintenance Data and Operation Data) Section. Include methods for maintaining installed products, and precautions against cleaning materials and methods detrimental to finishes and performance.

16.6 QUALITY ASSURANCE

A. Manufacturer Qualifications:

1. Manufacturing facilities shall be registered to ISO 9001:2000 and assessed to ISO 9000.2000 standard. A copy of the current certificate shall be available upon request.

B. Installer Qualifications:
1. Contractor shall obtain all necessary permits and licenses pertaining to this Division (expense borne by the Contractor) and comply with Municipal and State Codes, Laws, Ordinances and Regulations, and the requirements of the National Fire protection Association, and pay all fees and sales taxes as required, and post all bonds incident thereto.

C. Conduct pre-installation meeting to verify project requirements, coordinate with other trades, establish condition and completeness of substrate. Review manufacturer's installation instructions and manufacturer's warranty requirements.

16.7 DEFINITION

A. "Piping" includes all pipe, fittings, valves, hangers, and other supports and accessories related to such piping.

B. "Concealed" means hidden from sight in chases, furred spaces, shafts, hung ceilings, embedded in construction, in crawl spaces or buried.

C. "Exposed" means not installed underground or "concealed" as defined above.

D. "Fire Protection Work" is all of the work Indicated or required by the Contract Documents.

E. "Or equivalent" means to possess the same performance qualities and characteristics and fulfill the utilitarian function without any decrease in quality, durability or longevity.

F. "Provide" means the Contractor shall "furnish and install" work and/or equipment.

G. "FPC" means the Fire Protection Contractor.

16.8 DELIVERY, STORAGE, AND HANDLING

A. Store products in manufacturer's unopened packaging until ready for installation.

B. Store and dispose of solvent-based materials, and materials used with solvent-based materials, in accordance with requirements of local authorities having jurisdiction.

16.9 PROJECT CONDITIONS

A. Maintain environmental conditions (temperature, humidity, and ventilation) within limits recommended by manufacturer for optimum results. Do not install products under environmental conditions outside manufacturer's absolute limits.

16.10 WARRANTY

A. Contractor shall guarantee, in writing, that all work installed shall be free from any and all defects in workmanship and materials; that all apparatus shall develop capacities and characteristics specified; and that if, during the period of one year, or as otherwise specified, from the date of substantial completion, any defects in workmanship, material or performance appear, the Contractor shall, without cost to the Owner, remedy such defects within a reasonable time as specified in notice from the Owner's Representative. In default thereof, the Owner's Representative shall have the work done and charge the cost of the work to the Contractor.

B. Furnish manufacturers written warranties for all equipment, stating effective date of Warranty, to the Owner's Representative.

PART 17 PRODUCTS

17.1 MANUFACTURERS

A. Acceptable Manufacturer: Anvil International, which is located at: 2 Holland Way; Exeter, NH 03833; Tel: 603-418-2800; Email: bgunnell@anvilintl.com; Web: www.anvilintl.com

B. Substitutions: Not permitted.

C. Requests for substitutions will be considered in accordance with provisions of Section 01 60 00.

17.2 MANUFACTURED UNITS

A. Grooved Butterfly Valve: Gruvlok Series 7700 and Series 8000GR grooved butterfly valves for On/Off service.
1. Series 7700: Butterfly Valve - Sizes 2 inches to 12 inches.
    a. Listed in accordance with MSS SP-67.
    b. Bubble tight at 300 psig (2.1 MPa).
    c. Body - Ductile Iron ASTM A-536 65-45-12 with nylon body coating.
    d. Disc- Ductile Iron ASTM A-536 65-45-12.
        1. EPDM encapsulation - Operating temperature -40 degrees F to 230 degrees F (-40 degrees C to 110 degrees C).
        2. Nitrile Disc encapsulation - Operating temperature up to +180 degrees F (82 degrees C)
    e. Trim - 416 s/s. Rated for "Dead-end" service.
2. Disc-to-stem attachment shall be made with splined stainless steel stems attached to disc by cold fusion process.
    a. Disc/stem seals shall be triple redundant as follows: 1. Disc-to-valve body; 2. EPDM seat-to-stem; 3. EPDM O-rings

in upper and lower shaft.

3. Series 8000GR: Butterfly Valve
   a. Size range 14 inches to 24 inches.
   b. Bubble tight to 200-psig (1.4 MPa).
   c. Body: Cast Iron to ASTM A-126 CL.B.
   d. Disc- Nickel-Plated Ductile, Aluminum Bronze or Stainless Steel.
   e. Liner- Standard EPDM or Nitrile. Operating temperature same as 7700 series.
   f. Bearings: Upper and lower bearings Teflon reinforced.
   g. Trim - 316 and 416 s/s. Low Torque. Rated for "Dead-end" service.
4. BFV Operators/Handles - Series 7700 and 8000GR available in 2 position, 10 position latch lock, Infinite position with memory stop for sizes 2 inches through 8 inches, Double "D" with gear operators, chain wheel, and pneumatic or electric actuated for sizes 2 inches through 12 inches.

B. Grooved Ball Valve - Shall be Gruvlok Series 7500.
   1. Sizes 2 inches to 6 inches.
   2. Standard port design rated for 740 psig (5.1 KPa) cwp.
   3. Meets MSS SP-72 body and 100 percent hydro pressure tested. Bi-directional flow. Low torque operation.
   4. Body and End Caps - Ductile Iron ASTM 395
   5. Ball and Stem - chrome plated carbon steel 0r 316 Stainless Steel.
   6. RPTFE and Nylon Seats and fluorocarbon stem and body seals.
   7. Two position handle standard.

C. Grooved (Non- Slam) Check Valve: Shall be Gruvlok Series 7800.
   1. Sizes 2 inches to- 12 inches. 300-psig (1.9 KPa).
   2. Body- Ductile. Exterior body coated with rust Inhibiting lead free coating.
   3. Clapper- sizes 2 inches to 12 inches - Ductile Iron. Clapper facing- EPDM or Nitrile.
   4. Seat ring, spring, and hinge pin: - Type 302 or 304 SS.
   5. Bronze hinge pin bushings.
   6. Iron hinge pin plugs and drain.
   7. A low service pressure of 1 psi (28 inch water head) (6895 Pa).
   8. Replaceable clapper.
   9. Horizontal or vertical service usage.
   10. MSS SP-71 & SP-80. 100 percent Shell Test & Hydro Seat test pressure 100 percent.

D. Grooved (Globe Type) Silent Check Valve: Shall be Gruvlok Series 400 G.
   1. Sizes 2 inches to 10 inches.
   2. Rated for 200-psi(1.3 KPa) maximum working pressure.
   3. Operating temperature to 150 degrees F (65 degrees C).
   4. Body- Cast Iron A-48 Class 35
   5. Bronze Seat, Plug and Bushing.
   6. Gasket – non Asbestos.
   7. Trim- Metal on Metal.
   8. Optional Trim- Bronze w/ Nitrile Seat, SS and SS w Nitrile seat.
   9. Center-guided plug. (Positive noiseless opening and closing) Plug activated at 1/4 to 1/2 psi (1723 Pa to 3448 Pa).

E. DI-LOK Gruvlok CTS Groove to IPS Groove Dielectric Fitting.
   1. Carbon steel conforming to ASTM A106, Nylon coated
   2. Operating Temperature -40 degrees F to +230 degrees F (-40 degrees C to 100 degrees C).
   3. Size range 2 inch to 6 inch.
   4. NSF-61, low lead approved.

F. Di-Electric Insulated Pipe Connections: Di-LOK Figure 7088 or 7089 grooved by grooved or grooved by thread insulating nipples.
   1. Shall inhibit the formation of a galvanic cell between dissimilar metals.
   2. Housing: Steel tube to comply with ASTM A513; zinc plated.
   3. Liner: Polypropylene rated at 300 psig (2 MPa).
   4. Operating Temperature -40 degrees F to +230 degrees F (-40 degrees C to 100 degrees C).
   5. Size range is 1 inch to 6 inches diameter.

G. Grooved Strainers: Shall be Gruvlok Series 7260-T ("Tee" Type) or 758-G ("Wye" Type) strainers.
   1. Tee Strainer Series 7260:

a. Sizes 2 inches to 18 inches.
b. Strainer in-line, twin-fold basket provides 100 percent of the projected pipe area for open flow.
c. Body- Ductible ASTM A-536 65-45-12, 2 inches to 12 inches
c. Body – Carbon Steel Pipe ASTM A-53, Size 14 inches to 18 inch.
d. Basket- Stainless steel Type 304-basket standard #12 mesh (1/16 inch perf.)through 3 inches.
Sizes 4 inches and larger standard with #6 mesh (1/8 inch perf.)
e. Horizontal or vertical service usage.

2. Wye Strainers 758-G.
a. Size range 2 inches to 12 inches.
b. Body- Ductile iron. ASTM A-536, Ratee Working Pressure of 300 psig (1.9 KPa).
c. Baskets- Same as Tee Series.

H. Grooved Suction Diffusers: Shall be Gruvlok Series 7250.
1. Sizes 2-1/2 inches to 16 inches.
2. Body- Ductile or Malleable Iron body for sizes 2-1/2 inches by 2-1/2 inches through 10 inches by 8 inches
3. Body- Carbon steel

, rated working pressure, 300 psig (1.9 KPa).

4. Strainer Basket- Stainless steel (3/16 inch perf.) With start-up #16 mesh pre-filter removable screen. Blow-down and gage plug standard.

I. Flexible Connectors: Sizes 2 inches to 12 inches. Stainless steel tube and braid design. Carbon steel grooved, threaded & flanged end. Rated working pressure 150 to 300 psi (1.0 to 2.0 KPa).

J. Triple Duty Combination Valves: Shall be Gruvlok “Tri-Service” (FTV-A/FTV-S) service valves.
1. Sizes 2-1/2 inches to 12 inches.
2. Services
a. Combination shut-off,
b. Non-slam silent check
c. Full throttling. Throttling flow indicator is standard.
3. Horizontal or vertical service usage.
4. Flow measurement ports on either side of valve body.
5. Fixed or portable meters available for differential pressure measurement.

K. Calibrated Circuit (Setter) Balancing Valves: Shall be GBV-Gruvlok “Circuit Balancing” Valve.
1. Sizes 1/2 inch to 12 inches.
2. Multi-turn adjustment.
3. Positive shut-off.
4. Tamper-proof memory stop.
5. Pressure differential read-out ports.
6. Differential Pressure Meter- Provide CBV differential pressure meter/transducer as required.
7. Direct Flow readout. Proportional balancing.

L. Automatic Air Vents - Gruvlok Models GAV-15 rated 150 psig and GAV-30 rated 300 psig.

17.3 PIPING

A. Steel Piping:
1. Refer to Section 23 05 00 - Common Work Results for HVAC.

B. Copper Piping:
1. Refer to Section 23 05 00 - Common Work Results for HVAC.

C. Stainless Steel Piping:
1. Refer to Section 23 05 00 - Common Work Results for HVAC.

D. Aluminum Piping:
1. Refer to Section 23 05 00 - Common Work Results for HVAC.

E. Steel Piping:
1. Refer to Section 23 05 00 - Common Work Results for HVAC.

F. Plastic Piping:
   1. Refer to Section 23 05 00 - Common Work Results for HVAC.

17.4 ACCESS PANELS

A. Provide access panels as required by Section 08 31 16 - Access Panels and Frames.

17.5 FIRESTOPPING MATERIALS

A. Provide fire stopping assemblies as required by Section 07 84 13 - Penetration Firestopping Mortars.

17.6 EQUIPMENT SUPPORTS

A. Fabricate equipment supports not provided by equipment manufacturer from structural grade steel meeting requirements of Section 05 12 16 - Fabricated Fireproofed Steel Columns.

17.7 EQUIPMENT ANCHOR BOLTS AND TEMPLATES

A. Provide templates to ensure accurate location of anchor bolts.

PART 18 EXECUTION

18.1 EXAMINATION

A. Do not begin installation until substrates have been properly prepared.

B. If substrate preparation is the responsibility of another installer, notify Architect of unsatisfactory preparation before proceeding.

18.2 PREPARATION

A. Clean surfaces thoroughly prior to installation.

B. Prepare surfaces using the methods recommended by the manufacturer for achieving the best result for the substrate under the project conditions.

C. Provide openings as necessary to permit installation of piping or any other part of work under this Section.

D. Provide sleeves for piping penetrating floor and masonry walls.

E. This Contractor shall be responsible for establishing sizes and locations of all openings and lintels in new work and to transmit this information to the Contractor whose work is involved at such time as to avoid cutting and patching.

F. All patching shall match adjacent surfaces.

G. Contractor shall inspect and take note of existing conditions along with the Owner’s Representative to avoid disputes regarding the condition of existing surface before work began.

H. Openings through existing concrete shall be core-drilled or saw cut.

18.3 INSTALLATION

A. Install in accordance with manufacturer’s instructions.

18.4 PROTECTION

A. Protect installed products until completion of project.

B. Touch-up, repair or replace damaged products before Substantial Completion.

END OF SECTION