



Victaulic Copper Connection Grooved Piping System

1.01 General:

A. Specification Includes:

1. General.
2. Materials:
 - a. Tube
 - b. Victaulic Couplings
 - c. Victaulic Fittings
 - d. Victaulic Valves
 - e. Victaulic Roll Grooving Tools
3. Execution.

B. Submittals

1. Copper grooved products shall be shown on drawings and product submittals and shall be specifically identified with the applicable Victaulic series or style designation.

C. Reference:

1. American Society for Testing Materials (ASTM)
 - a. ASTM A-536 – Ductile Iron Castings
 - b. ASTM B-75 – Seamless Copper Tube
 - c. ASTM B-88 – Seamless Copper Water Tube
 - d. ASTM B-152 – Copper Sheet, Strip, Plate and Rolled Bar
 - e. ASTM B584-87 – Copper Alloy Sand Castings for General Applications
 - f. ASTM D-2000 – Standard Classification System for Rubber Products in Automotive Application
2. American National Standards Institute:
 - a. ANSI B16.18 – Cast Copper Alloy Solder Joint Pressure Fittings
 - b. ANSI B16.22 – Wrought Copper and Copper Alloy Soldered Joint Pressure Fittings
 - c.

D. Quality Assurance



1. All grooved copper components (including couplings, fittings, valves and accessories) to be supplied by one manufacturer. Grooving tools shall be of the same manufacturer as the groove components.
2. Grooving tools shall be equipped with roll sets specifically designed for grooving copper tubing at copper-tube dimensions. (Flaring of tube or fitting ends to accommodate IPS sized couplings is not permitted.)

2.01 Materials:

A. Copper Tube: ASTM B-88 (Type K, L, M, or DWV) Roll grooved only in accordance to manufacturer's current listed standards and copper tube dimensions.

B. Couplings for Copper Grooved Tube

1. **Mechanical Couplings:** 2"-8" (DN50-DN200) for copper tubing consisting of ductile iron cast housings, complete with a synthetic rubber gasket of a pressure-responsive design, with plated nuts and bolts to secure unit together. Couplings shall be manufactured to connect copper tubing sized tube and fittings. (Flaring of tube and fitting ends to IPS dimensions is not allowed.)
 - a. **Coupling Housings:** Ductile iron conforming to ASTM A-536, Grade 65-45-12, coated with copper colored alkyd enamel. Housings cast with offsetting, angle-pattern bolt pads to provide rigidity.
 - b. **Coupling Gaskets:** Gasket shall be Grade "EHP" EPDM compound with red color code designed for operating temperatures from -30 deg F to +250 deg F.
 - 1) Reference shall always be made to the latest published Victaulic Selection Guide for Gaskets for proper gasket selection for the intended service.
 - c. **Victaulic Style 607 (Quick-Vic™).** Installation ready rigid coupling for direct stab installation without field disassembly.
2. **Flange Adapters for Copper Tubing:** 2"-6" (DN50-DN150) for copper tubing consisting of ASTM A-536, Grade 65-45-12, ductile iron housing, coated with copper colored alkyd enamel. Flange adapters shall be manufactured for engaging directly into copper tubing sized roll grooved



copper tube and fittings and bolting directly to ANSI Class 125 cast iron and Class 150 steel flanged components. Victaulic Style 641.

3. **Mechanical-T® for Copper Tubing:** 2-1/2”–4” (DN65-DN100) Grooved copper Mechanical-T® shall consist of a cast bronze (C83600 85-5-5-5) upper housing with female NPT threaded outlet and locating collar, ductile iron (ASTM A536) lower housing coated with copper-colored enamel and synthetic rubber gasket. Victaulic Style 622.

C. Grooved-End Copper Fittings

1. **Fittings:** Fittings shall be manufactured to copper tubing sizes, with grooves designed to accept grooved end couplings of the same manufacturer. Fittings shall be wrought copper, conforming to ASTM B-75 alloy C12200 or ASTM B-152 alloy C11000 and ANSI B16.22, or bronze sand casting ANSI B16.18 and UNS-C89836. Victaulic Copper Connection Fittings.

D. Grooved-End Copper Valves

1. **Butterfly Valves:** 2-1/2" - 6" (DN65-DN150), 300 psi (2065 kPa) maximum pressure rating, with copper tubing sized grooved ends. Cast bronze body to UNS C87850. (Alloy code shall be cast or stamped into the valve body.) Elastomer encapsulated ductile iron disc, ASTM A-536, Grade 65-45-12, with integrally cast stem. Bubble tight, dead-end or bi-directional service, with memory stop for throttling, metering or balancing service. Valve may be automated with electric, pneumatic, or hydraulic operators. Victaulic Series 608.

E. Grooving Tools

1. Roll groove only, Types K, L, M, or DWV copper tube using copper rolls and VE26C, VE226C, VE270FSD, VE272FS, or VE416FSD grooving tools.

3.01 Execution

A. Installation:

1. Pipe ends shall be clean and free from indentations, projections and roll marks in the area from pipe end to groove for proper gasket sealing.



2. The gasket style and elastomeric material (grade) shall be verified as suitable for the intended service as specified.
3. Install in accordance with manufacturer's latest recommendations. Follow the instructions listed in the latest published assembly manual for copper-tubing sized fittings and couplings.

B. Training:

1. A Victaulic factory trained representative shall provide on-site training for contractor's field personnel in the use of grooving tools, application of groove, and product installation.

C. Application:

1. Victaulic's representative shall periodically visit the job site and review installation. Contractor shall remove and replace any improperly installed products.
2. Copper-tube dimension grooved products may be used in lieu of soldered and/or brazed couplings and fittings in applicable piping systems 2"(DN50) through 8"(DN200).
3. Gaskets used on potable water systems shall be UL classified in accordance with ANSI/NSF-61.
4. Grooved end product manufacturer to be ISO-9001 certified.