

STANDARD SPECIFICATIONS

SECTION 15057

COPPER, BRASS, AND BRONZE PIPE
FITTINGS AND APPURTENANCES**PART 1 - GENERAL**A. Description

This section includes materials and installation of copper, brass, and bronze pipe, fittings and appurtenances.

B. Approved Manufacturers

1. All materials shall be the appropriate manufacturer and model number specified in the VWD Approved Material List, latest edition.
2. Copper Tubing
Per VWD Approved Material List, latest edition.
3. Service Saddle
Per VWD Approved Material List, latest edition.
4. Corporation Stop
Per VWD Approved Material List, latest edition.
5. Angle Meter Stop
Per VWD Approved Material List, latest edition.
6. Customer Valve
Per VWD Approved Material List, latest edition.
7. Insulating Pipe Bushings, Unions, or Couplings
Per VWD Approved Material List, latest edition.

PART 2 - MATERIALSA. Copper

1. Copper tubing shall conform to the requirements of ASTM B 88 for seamless copper water tube. Piping located above ground or suspended within vaults shall be Type L. Buried piping shall be Type K, soft. Copper pipe shall be of domestic manufacture.
2. Fittings shall be copper conforming to ASTM B 75 and ANSI B16.22, with solder end joints. Fittings 3/8 inch and smaller may have flared end connections or compression joint connections.
3. Solder shall be silver solder conforming to ASTM B 32, Grade 95TA. Do not use cored solder.

B. Brass Pipe, Nipples, and Fittings

Short threaded nipples, brass pipe and fittings shall conform to ASTM B 43, regular wall thickness, except that nipples and pipe of sizes 1-inch and smaller shall be extra strong. Threads shall conform to ANSI B2.1.

C. Bronze Appurtenances

1. All items specified herein shall be manufactured of bronze conforming to ASTM B 62, "Composition Brass or Ounce Metal Castings."
2. Service saddles shall be of the double-strap type for ACP and DIP. The straps (or bails) shall be flat and shall be manufactured of silnic bronze for ACP and DIP. For C900 PVC, the service saddles shall be of the single-strap type and shall be manufactured of stainless steel. The body shall be manufactured of bronze and shall be tapped for an iron pipe thread. The seal with the pipe shall be made with either a rubber gasket or an O-ring. [Saddles to be installed on the outside of the poly wrap.](#)
3. Corporation stops shall be ball valve type and shall be manufactured of bronze. The inlet fitting shall be a male iron pipe thread when used with saddle and the outlet connection shall be a compression type up to 150 psi. Female iron pipe (FIP) thread shall be used above 150 psi.
4. Angle meter stops shall be ball valve type for 1-inch services and ground inverted key type for 1-1/2-inch and 2-inch services and shall be manufactured of bronze. The inlet connection shall be a compression type up to 150 psi, or female iron-pipe thread above 150 psi and the outlet fitting shall be a meter flange or meter coupling. The inlet and outlet shall form an angle of 90 degrees on a vertical plane through the centerline of the meter stop. A rectangular lug and lock wing shall be provided on the side of the fitting to operate the shutoff mechanism.
5. Customer service valves shall be manufactured of bronze, ball valve type, with lever-type turn handle. The inlet connection shall be a meter flange or a meter coupling and the outlet female iron pipe.

D. Flanges, Gaskets, Bolts, and Nuts

1. Connect to flanged valves and fittings with bronze flanges conforming to ANSI B16.24, Class 125 or Class 150, to match the connecting flange. Use solder end companion flanges.
2. Gaskets for flanged-end fittings shall be 1/16-inch-thick ring gaskets.
3. When both adjoining flanges are bronze, use bronze bolts and nuts. Bolts shall conform to ASTM F 468, Grade C65100 or C63000. Nuts shall conform to ASTM F 467, Grade C65100 or C63000.
4. Connect to buried ferrous flanges with flange insulation kits. Bolts used in flange insulation kits shall conform to ASTM B 193, Grade B7. Nuts shall comply with ASTM A 194, Grade 2H. If the adjoining buried flange is bronze, use bronze bolts and nuts as described above, without a flange insulation kit.

PART 3 - EXECUTION**A. Copper Tubing and Fittings**

1. Cut tubing square and remove burrs. Clean both the inside and outside of fitting and pipe ends with steel wool and muriatic acid before soldering. Prevent annealing of fittings and tubing when making connections. Do not miter joints for elbows or notch straight runs of pipe for tees.
2. Bends in soft copper tubing shall be long sweep. Shape bends with shaping tools. Form bends without flattening, buckling, or thinning the tubing wall at any point.
3. Brazing procedures shall be in accordance with Articles XII and XIII, Section IX, of the ASME Boiler and Pressure Vessel Code. Silver solder shall be used. Solder shall penetrate to the full depth of the cup in joints and fittings. Solderers shall comply with ANSI B31.3, paragraph 328.
4. Buried piping shall be installed with some slack to provide flexibility in the event of a load due to settlement, expansion or contraction. A MINIMUM COVER OF 30 INCHES BELOW THE FINISHED STREET GRADE SHALL BE MAINTAINED. The tubing is to be bedded and covered with sand or select material as determined by the District representative.
5. All domestic service laterals shall be 1-inch minimum size continuous copper tubing. End connections shall be compression or FIP type.
6. All 2-inch size services shall be installed with straight lengths of soft copper water tube Type K. All couplings and adapters shall be silver soldered.
7. The service line shall extend perpendicular to the centerline of the street from the water main to the meter stop or structure, except in a cul-de-sac, where the service shall run in a straight line from the water main to the meter stop.

B. Service Saddle

1. The service saddle shall be no closer than 18 inches to a valve, coupling, joint, or fitting.
2. The surface of the pipe shall be filed to remove all loose material and to provide a hard, clean surface before placing the service saddle.
3. The service saddle shall be tightened per manufacturer's recommendation. Care shall be used to prevent damage or distortion of either the corporation stop or service saddle by over tightening.
4. The tap into the pipe shall be made in accordance with the pipe manufacturer's recommendation.

C. Installing Flange Bolts and Nuts

1. Lubricate bolt threads with anti-seize compound prior to installation.

2. Set flanged pipe with the flange bolt holes straddling the pipe horizontal and vertical centerlines.

D. Insulating Bushings and Unions

Pipe or fittings made of nonferrous metals shall be isolated from ferrous metals by nylon insulating pipe bushings, union, or couplings, [to be submitted for approval by District Engineer.s](#).

E. Backfill Material

The pipe zone material for all service laterals shall be compacted sand per Section 02223.

END OF SECTION