

THE METROPOLITAN GOVERNMENT OF
NASHVILLE AND DAVIDSON COUNTY

WATER DISTRIBUTION SYSTEM

APPROVED MATERIALS
CONSTRUCTION SPECIFICATIONS
&
DETAILS



1600 SECOND AVENUE NORTH
NASHVILLE, TN 37208-2298

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INTRODUCTION

The Metropolitan Government of Nashville and Davidson County, through its Department of Water Services, presents this manual listing the approved manufacturers and distributors of various materials that may be used for construction of Water Distribution System lines and appurtenances.

Standard specification information is also presented as a guideline to architects and engineers in the preparation of detailed plans and specifications. Private contractors are encouraged to use the manual as a guideline in the purchase of materials for installation in the Water Distribution System.

We encourage users to notify Tommy Dodson at (615) 862-4857 of any inaccuracies, problems of performance of materials, or any changes or modifications necessary for the proper function of MWS facilities.

Manufacturers claiming equal status with listed organizations should apply to Metro Water Services, 1600 Second Avenue North, Nashville, TN 37208 ATTN: Tommy Dodson (615) 862-4857.

DUCTILE IRON PIPE

Ductile Iron Push-on Joint (3" through 48")

Pipe shall be manufactured in accordance with American National Standard Institute (ANSI) A21.511976 and American Water Works Association (AWWA) C151 - 76. Wall Thickness shall be that of Class 52. Pipe Class must be cast or stamped on the outside of pipe permanently and visible. Push-on joint shall be single rubber-gasket joint as described in ANSI A21.11 (AWWA C111). Cement-mortar linings shall be in accordance with ANSI A21.4 (AWWA C104) of latest revision. Coating for use under normal conditions shall be bituminous coating approximately 1 mil thick. The manufacturer shall mark the year in which the pipe was produced and the letters "DI" or "Ductile" shall be cast or stamped on the pipe. Each pipe shall be subjected to a hydrostatic test of not less than 500 psi.

Ductile Iron Mechanical Joint (3" through 48")

Pipe shall be manufactured in accordance with American National Standard Institute (ANSI) A21.51 - 1976 and American Water Works Association (AWWA) C151 - 76. Wall Thickness shall be that of Class 52. Mechanical joint shall be gasketed and bolted joint as detailed in ANSI A21.11 (AWWA C111) of latest revision. The mechanical-joint glands shall be cast iron in accordance with ANSI A21.11 of latest revision, and bolts shall conform to the requirements of the same standard. Cement-mortar linings shall be in accordance with ANSI A21.4 (AWWA C104) of latest revision. Coating for use under normal conditions shall be a bituminous coating approximately 1 mil thick. The manufacturer shall mark, the year in which the pipe was produced and the letters "DI" of "Ductile" shall be cast or stamped on the pipe. Each pipe shall be subjected to a hydrostatic test of not less than 500 psi.

Approved Manufacturers of Ductile Iron Pipe

American Ductile Pipe
United States Pipe and Foundry Company
Griffin Pipe Products Company Division (Amsted Industrial, Inc.)
McWane Cast Iron Pipe Company (Clow now owned by McWane)

PRESTRESSED CONCRETE PRESSURE PIPE

Lined cylinder type (1.1) prestressed concrete steel cylinder pipe and fittings shall be manufactured in accordance with AWWA C301-79 or current revision. This standard shall apply except where the following supplementary specifications supersede it. For "manufacturer" read "contractor" where applicable. Pipe must be supplied from inventory unless specifically stated otherwise in the purchase contract. (1.5.1). Either Type I or Type II cement may be used (2.1.1). Structural steel connections shall be lined and coated (4.4).

The Metropolitan Department of Water and Sewerage Services shall be provided with an original tabulated layout schedule and all revisions to the original (1.5.2). Piping and fittings must bear identification marks according to their positions in the tabulated layout schedule (1.6).

The Metropolitan Department of Water and Sewerage Services shall be furnished with certificates of inspection, sworn to by the factory inspector in the presence of a Notary Public, stating that the piping, fittings and all materials used in their construction conform to the applicable requirements of AWWA C301-79 and these supplementary specifications, and that all tests specified therein have been performed, and all test requirements have been met (1.10). Records of such tests performed, and/or test specimens shall be provided upon request (1.9.3, 1.9.4, 1.9.5, 2.4, 2.11.8).

Where there is any internal operating pressure, transient pressure, external earth load or trench bedding, in excess of that provided for in AWWA C301-79, the manufacturer shall supply this Department with Copies of the manufacturer's design calculations for piping and fittings (4.1, 3.2.1) and details of materials and methods of welding (3.5.2) for approval, prior to manufacture.

Approved Manufacturers of Prestressed Concrete Pressure Pipe

Price Brothers Company

DUCTILE IRON FITTINGS

Mechanical Joint (3" through 48")

Ductile iron mechanical joint fittings shall be manufactured in accordance with ANSI/AWWA C110-77.

Rated Working Pressure:

Size 3" through 24" = 350 psi

Size 30" through 48" = 250 psi

Mechanical joint shall be gasketed and bolted joint as detailed in ANSI A21.11 (AWWA C111) of latest revision. The mechanical joint glands shall be cast iron or ductile iron in accordance with ANSI A21.11 of latest revision, and bolts shall conform to the requirements of the same standard. Cement Mortar Linings shall be in accordance with ANSI A21.4 (AWWA C104) of latest revision. Coating for use under normal conditions shall be a bituminous coating approximately 1 mil thick. Fittings shall have distinctly cast upon them the manufacturer's identification, pressure rating, nominal diameters of openings and the number of degrees or fraction of the circle on all bends along with the letters "DI" or "Ductile". Mechanical joint ductile iron anchor tees, elbows, couplings and anchor pipe similar to those manufactured by Clow Corporation are approved for use with fire hydrant installations.

Wall Thickness shall be as follows:

3-inch diameter	=	0.48-inch thickness
4-inch diameter	=	0.52-inch thickness
6-inch diameter	=	0.55-inch thickness
8-inch diameter	=	0.60-inch thickness
10-inch diameter	=	0.68-inch thickness
12-inch diameter	=	0.75-inch thickness
14-inch diameter	=	0.66-inch thickness
16-inch diameter	=	0.70-inch thickness
18-inch diameter	=	0.75-inch thickness
20-inch diameter	=	0.80-inch thickness
24-inch diameter	=	0.89-inch thickness
30-inch diameter	=	1.03-inch thickness
36-inch diameter	=	1.15-inch thickness
42-inch diameter	=	1.28-inch thickness
48-inch diameter	=	1.42-inch thickness

Approved Manufacturers/Distributors of Ductile Iron Fittings

Mechanical Joint Fittings

American Ductile Iron Pipe

Clow Corporation (now owned by McWane)

Union Foundry Company Division (McWane Cast Iron Pipe Co.)

Griffin Pipe Products Company Division (Amsted Industries, Inc.)

Tyler Pipe (Subsidiary of Tyler Corporation)
United States Pipe and Foundry Company
Star Pipe Products, Inc.
Sigma Corporation/Nappco

Flanged Joint Fittings

American Ductile Iron Pipe (A Division of American Cast Iron Pipe Co.)
Union Foundry Company Division (McWane Cast Iron Pipe Co.)
United States Pipe and Foundry Company
Tyler Pipe (Subsidiary of Tyler Corporation)
Sigma Corporation/Nappco
Star Pipe Products, Inc.

Flanged fittings can be used in meter pits, backflow area and/or above ground stations.

POLICY ON PVC FOR PUBLIC WATER MAINS

In order to provide an adequately-sized water main for normal domestic use (not fire protection) while also maintaining sufficient chlorine residual in certain dead end situations, commencing April 1, 1990, the Department of Water and Sewerage Services will permit the use of polyvinyl chloride (PVC) pipe for use as public water mains within its jurisdiction subject to the following restrictions:

1. Only 3" in diameter is permitted.
2. Only Class 200 (SDR 21) gasketed jointed pipe is permitted.
3. 16 gauge wire with bright orange jacket (or other approved means of above ground location) must be used when installing this pipe.
4. Service taps (3/4" and 1") will be permitted only with double-banded tapping saddles. Taps larger than 1" will require that a tee be cut or tapping sleeve and valve.
5. Valves will be AWWA mechanical joint, iron body-type and fitted with the appropriately sized adapter gaskets to assure compatibility with PVC pipe.
6. All other specifications related to public water main installation must be employed, including standard leakage and pressure testing.

JOINT RESTRAINT

Metro Water Services is open to consider any type of joint restraint systems dependent on pipe size, pipe material, pressures, and location of pipe joint to be restrained. Typically, standard methods of concrete/block kickers and/or rodding are preferred; however, other methods such as "mega lug", field loc gaskets, and others will be considered with proper design and verification by a licensed Engineer.