

METROPOLITAN UTILITIES DISTRICT OF OMAHA  
 OMAHA, NEBRASKA

SPECIFICATIONS FOR  
 DUCTILE IRON PIPE  
 FOR WATER DISTRIBUTION SERVICE

Section 1 – General

Pipe shall be zinc coated in accordance with ISO 8179-1 and conform to AWWA C150 and AWWA C151.

Section 2 – Design of Pipe

2.1– Unless otherwise specified in the contract documents 6” to 16” pipe shall be Special Thickness Class 52.

2.2 – Unless otherwise specified in the contract documents 24” and larger pipe shall be Pressure Class 200.

2.3 – Pipe shall be designed in accordance with AWWA C150 Thickness Design of Ductile Iron Pipe. The pipe shall be designed using the following parameters:

1. 150 psi working pressure
2. 100 psi surge allowance
3. Existing and proposed cover
4. Type 3 trench (unless otherwise specified)
5. 120 pcf earth load
6. H-20 truck load

2.4 – If there are plan and profile drawings for the job, follow the line and grade as closely as possible. Adjust pipe lengths for H.P.I., V.P.I. and other control points such as air taps, automatic air reliefs and line valves as shown on the drawings.

Section 3 – Joints

3.1 - Joints shall comply with the contract drawings and this section. Furnish pipe lube for all pipe. Furnish all joint materials for push joint, restrained joint and ball joint pipe. Joint materials for Mechanical Joint pipe shall be per 3.5.

\* 3.2 – Acceptable push joints are “Tyton” by U.S. Pipe and Foundry Company and McWane Ductile and, “Fastite” by American Cast Iron Pipe Company.

\* 3.3 – Restrained joints and pipe shall withstand 180 PSI hydrostatic test pressure and the thrust for the fitting without thrust blocks. Acceptable restrained joint manufacturers are American Cast Iron Pipe Company, U.S. Pipe Company, and McWane Ductile (Other joints may be considered.) All restrained joint pipe shall be approved by engineer but submittal of data and design must be approved prior to bid submittal.

3.4 – Ball joints and pipe shall withstand 180 psi hydrostatic test pressure after installation. Joints shall withstand the thrust for fittings and large pipe deflections without the use of thrust blocks. Acceptable ball joints are “Flex-lok” by American Cast Iron Pipe Company, “Usiflex” by U. S. Pipe.

Other joints may be considered but submittal of data and design must be approved prior to bid submittal.

3.5 – Mechanical joints and all joint materials including glands, bolts, nuts and gaskets shall meet the latest version of AWWA C111. Accessories for the mechanical joint consisting of the gasket, gland and fasteners shall be furnished and packaged separately from the pipe. All glands shall be ductile iron. All tee-head bolts and hexagon nuts shall be manufactured in the United States by Birmingham Fastener, Inc.

#### Section 4 – Weld-On Outlets/Bosses

Weld-on outlets and bosses are allowed. The nominal diameter of the outlet/boss shall not be greater than 1/3 the nominal diameter of the parent pipe unless otherwise specified on the project drawings. The parent and outlet pipe for weld-on-outlets shall be at a minimum, Special Thickness Class 53. Parent pipe in sizes 24” through 36” with weld-on-bosses shall be at a minimum, Pressure Class 250. Parent pipe in sizes 42” and 48” with weld-on-bosses shall be at a minimum, Pressure Class 350. The thickness of the parent pipe in sizes greater than 48” with weld-on-bosses shall be per pipe manufacturer’s recommendation; however, shall not be less than Pressure Class 350. Weld-on-bosses shall have a minimum working pressure rating of 250 psi. The outlets and bosses shall be factory-welded according to manufacturer recommendations. No pipe shall be used to move the boss away from the parent pipe. No tangential outlets are allowed unless otherwise specified on the project drawings.

#### Section 5 – Test Results

The manufacturer shall provide written transcripts of all testing as required by AWWA C151 on all pipe supplied under this specification as requested by the District.

#### Section 6 – Pipe Marking

Each pipe shall be marked with casting “lot numbers” to link the pipe to written test transcripts. Provide a written procedure for identifying pipe marking of “lot numbers” thus linking individual pipe lengths to pipe in the ground.

#### Section 7 – Delivery

Stack all pipe for shipment on flatbed trucks. Each layer of pipe shall be individually banded with a minimum of two straps. Do not band individual layers to stringers.

Prior to shipping submit a shop drawing for approval indicating how pipe will be shipped.

#### Section 8 – Polyethylene Encasement for Ductile Pipe

The pipe manufacturer shall furnish V-Bio® polyethylene encasement (white in color) for every pipe supplied. Polyethylene encasement (tube) shall comply with AWWA C105 and shall accompany the pipe shipment.

#### Section 9 – Guarantee

The manufacturer guarantees all pipe against defects in materials and workmanship for a period of five years after delivery.