

SECTION 15105

DUCTILE IRON PIPE AND FITTINGS **(Owner Furnished)**

PART 1: GENERAL

1.01 COORDINATION OF WORK

Connection to existing pipelines may require shutdown of Owner facilities. Closely coordinate construction work and connections with the Owner through the Engineer. The Engineer, in consultation with the Owner, may select the time for connection to existing pipelines, including Saturdays, Sundays, or holidays, which, in the opinion of the Engineer, will cause the least inconvenience to the Owner and/or its customers,. Make such connections at such times as may be directed by the Owner, at the Contract prices, with no claim for premium time or additional costs.

1.02 RELATED WORK

Piping - General Provisions - Specification Section 15000

1.03 REFERENCES

Refer to current AWWA Standards:

AWWA C104 - American National Standard for Cement-Mortar Lining for Ductile-Iron Pipe and Fittings for Water

AWWA C105 - American National Standard for Polyethylene Encasement for Ductile-Iron Pipe Systems

AWWA C110 - American National Standard for Ductile-Iron and Gray-Iron Fittings, 3-inch through 48-inch, for Water and Other Liquids

AWWA C111 - American National Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings

AWWA C115 - American National Standard for Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flanges

AWWA C116 - American National Standard for Protective Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile-Iron and Gray-Iron Fittings for Water Supply Service

AWWA C150 - American National Standard for the Thickness Design of Ductile-Iron Pipe

AWWA C151 - American National Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water

AWWA C153 - American National Standard for Ductile-Iron Compact Fittings, 3-inch through 24-inch and 54-inch through 64-inch, for Water Service

AWWA C600 -- AWWA Standard for Installation of Ductile-Iron Water Mains
and Their Appurtenances

PART 2: PRODUCTS

Refer to Specification Section SSC-1000.1.03 for material to be furnished by the Owner.

2.01 PIPE MATERIAL

Install all ductile iron pipe and fittings furnished by the Owner. The Owner will furnish the list of materials provided.

Research has documented that certain pipe materials (such as polyvinyl chloride, polyethylene, and polybutylene) and certain elastomers (such as those used in gasket material) may be subject to permeation by lower-molecular weight organic solvents or petroleum products. Products supplied under this Specification Section assume that petroleum products or organic solvents will not be encountered. If during the course of pipeline installation the Contractor identifies, or suspects the presence of petroleum products or any unknown chemical substance, notify the Engineer immediately. Stop installing piping in the area of suspected contamination until direction is provided by the Engineer.

PART 3: EXECUTION

3.01 INSTALLATION

Follow the provisions of Specification Section 15000 and 02210 in addition to the following requirements:

A. Push-On Joints

Clean the surfaces that the gasket will contact thoroughly, just prior to assembly using a bacteria free solution (Mild bleach solution or NSF approved material). Insert the gasket into the groove in the bell. Apply a liberal coating of special lubricant in accordance with Section 15000.3.02.E to the gasket and the spigot end of the pipe before assembling the joint. Center the spigot end in the bell and push home the spigot end.

B. Mechanical Joints

Clean the surfaces that the gasket will contact thoroughly, just prior to assembly using a bacteria free solution (Mild bleach solution or NSF approved material). Apply a liberal coating of special lubricant in accordance with Section 15000.3.02.E to all the surfaces that the gasket will contact. Slip the follower gland and gasket over the pipe plain end making sure that the small side of the gasket and lip of the gland face the bell socket. Insert the plain end into socket. Push gasket into position with fingers. Seat gasket evenly. Slide gland into position, insert bolts, and tighten nuts by hand. Tighten bolts alternately (across from one another) to the recommended manufacturing rating or if not provided, to the following normal torques:

| <u>Bolt Size</u> | <u>Range of Torque In Foot-Pounds</u> |
|------------------|---|
| 5/8" | 40 - 60 |
| 3/4" | 60 - 90 |
| 1" | 70 - 100 |
| 1-1/4" | 90 - 120 |

After field installation, all bolts shall receive petrolatum tape or petroleum wax protection or other approved coating material. Protection shall be applied before polyethylene encasement is applied per specification 15131.

C. Restrained Joints

(1) Ball and Socket

Assemble and install the ball and socket joint according to the manufacturer's recommendations. Thoroughly clean and lubricate the joint. Check the retainer ring fastener.

(2) Push-On

Assemble and install the push-on joint according to the manufacturer's recommendations. Thoroughly clean and lubricate the joint. Check the retainer ring fastener. No Field Lok gaskets are permitted on valves or fittings.

(3) Mechanical Joint

Assemble and install the mechanical joint according to the manufacturer's recommendations. Thoroughly clean and lubricate the joint. Use mega lug fastener with core-blue bolts on fittings and vales where required and approved for use by Engineer.

D. Pipe Protection Protect pipe from damage from the jacking device (backhoe bucket, pipe jack, etc.) when "pushing home" any pipe by using wood or other suitable (non metallic) material.

E. Gaskets The gaskets shall be as provided by the manufacturer and satisfy AWWA standard C111 in all respects. As noted in the products section of this specification, some gasket materials are prone to permeation of certain hydrocarbons which may exist in the soil (see part 2). Under these conditions and at the Engineer's discretion FKM (Viton, Flourel) gasket material may be provided by the Owner.

END OF SECTION