

SECTION 400520 - PIPE AND FITTINGS

PART 1 – GENERAL

1.01 DESCRIPTION

- A. Work Included: This section covers plant (Interior) piping systems, fittings, pipe support systems, and installation requirements.
- B. Related Work:
 - 1. Section 400551, Plant Valves

1.02 SUBMITTALS

- A. Certification: Submit manufacturer's certification that products meet requirements of referenced specifications, in accordance with Section 013300.
- B. Submit drawings and data showing details of joints, gasket material and pipe length, in accordance with Section 013300.

1.03 PRODUCT DELIVERY, STORAGE AND HANDLING

- A. Ship and stack pipe in accordance with manufacture's recommendations.
- B. Do not drop or damage pipe through impact.
- C. Ship and store rubber gaskets in cartons away from grease, oil, sunlight, and ozone producing motors.
- D. Store pipe on a flat surface which provides even support for the barrel with bell ends overlapping.
- E. Do not stack pipe higher than 5 feet.
- F. Use only nylon protected slings or bands to handle pipe. Do not use hooks or bare cables.

1.04 BUY AMERICAN REQUIREMENTS

- A. Provide certificates to show that all products meet the following requirements.
 - 1. American Iron and Steel (AIS)
 - 2. Build America, Buy America Act
- B. See Supplementary Conditions for details.

PART 2 – PRODUCTS

2.01 DUCTILE IRON PIPE

- A. Ductile Iron Pipe

1. Ductile iron pipe shall be manufactured in accordance with standards ANSI 21.51 (AWWA C-151). Cement mortar lining and bituminous coatings shall conform to ANSI 21.4 AWWA C-104).
2. Ductile iron pipe shall be as specified on the drawings.
3. Protective coating shall be bituminous and 1 mil thick.
4. Joints shall be flanged ductile iron pipe shall conform to ANSI A21.15 (AWWA C115), flat faced unless specified otherwise in the drawings.

2.02 DUCTILE IRON FITTINGS

- A. Cement Mortar Lining, ANSI A21.4 (AWWA C-104):
- B. Ductile Iron Fittings
 1. Mechanical Joints: 250 PSI, ANSI A21.53/AWWA C153; Gaskets, ANSI A21.11/AWWA 111.
 2. Flanged Joints: 250 PSI, ANSI A21.10/AWWA C-110; Drilling, ASA-- B16.1, Class 125.
- C. Ductile Couplings
 1. Mechanical compression sleeve.
 2. Dresser Style 38 or approved equal.

PART 3 – EXECUTION

3.01 GENERAL

- A. Do not install cracked, chipped, dented, abraded, or otherwise defective pipe.
- B. Install in accordance with manufacturer's recommendations.

3.02 CUTTING PIPE

- A. Ductile Iron Pipe
 1. Cut pipe smooth using saws or abrasive wheels.
 2. Pipe shall be cut at right angles to the pipe axis or angles as needed to properly seat in fittings.
 3. Do not damage coating or lining by cutting.
 4. Use flanged joints unless otherwise noted

3.03 JOINT INSTALLATION FOR DUCTILE IRON PIPE

A. Flanged Joints:

1. Extend pipe completely through screwed-on flanges.
2. Machine finish the pipe and end flange face in a single operation.
3. Eliminate any restraints on the pipe which would prevent uniform gasket compression or cause unnecessary stress in the flanges.
4. Do not assemble mechanical connections until all flanged joints affected thereby have been tightened.
5. Alternately tighten bolts spaced on opposite sides of the pipe to ensure uniform gasket compression.
6. Holes in flanges shall straddle the top (or side for vertical piping) centerline.

B. Mechanical Couplings (where specified):

1. Clean and smooth pipe ends.
2. 1/4 inch to less than one inch space between pipe ends.

C. Mechanical Joints (where specified):

1. Clean the inside of the bell and outside of spigot such that both are free of oil, dirt or other foreign material.
2. Insert the plain end completely into the bell end and block the fitting into place until the joint is completed.
3. Tighten nuts alternating opposite sides of pipe to ensure even pressure on the retainer gland.
4. Use a torque limiting wrench and do not exceed the following maximum torque values:

Bolt Size (Dia.)	Torque (ft.-lbs.)
5/8	75
3/4	85

5. Holes in mechanical joint bells shall straddle the top (or side for vertical piping) centerline.

3.04 INSPECTION

- A. Examine the pipe and fittings for cracks, dents, abrasions, or other flaws prior to installation.
- B. Mark rejected pipe and remove from site.

END OF SECTION

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