

STANDARD SPECIFICATION
SECTION 15122 FLEXIBLE PIPE COUPLINGS

PART 1 - GENERAL

1.01 DESCRIPTION

This section includes materials, installation, and testing of flexible pipe couplings for steel pipe, PVC pressure pipe, PVC distribution pipe, and ductile iron pipe.

1.02 RELATED WORK SPECIFIED ELSEWHERE

- A. Standard Drawings.
- B. Record Drawings and Submittals: STD SPEC 01300.
- C. Painting and Coating: STD SPEC 09900.
- D. Cold Applied Wax Tape Coating: STD SPEC 09952.
- E. Polyethylene Sheet or Tube Encasement: STD SPEC 09954.
- F. Fusion-Bonded Epoxy Lining and Coating: STD SPEC 09961.
- G. Corrosion Control for Buried Piping: STD SPEC 13110.
- H. General Piping Requirements: STD SPEC 15050.
- I. Disinfection of Piping: STD SPEC 15141.
- J. Pressure Testing of Piping: STD SPEC 15144.

1.03 SUBMITTALS

- A. Submit submittal packages in accordance with Standard Specification Section 01300.
- B. Submit manufacturer's catalog data, descriptive literature, and assembly drawings. Show manufacturer's model or figure number for each type of coupling or joint for each type of pipe material for which couplings are used.
- C. Submit manufacturer's recommended torques to which the coupling bolts shall be tightened.
- D. Show dimensions, materials of construction by specification reference and grade, linings, and coatings.
- E. Show number, size and material of construction of the rods and lugs for each joint harness on the project.

PART 2 - MATERIALS

2.01 COUPLING SYSTEM DESIGN AND COMPONENT UNIT RESPONSIBILITY

Gaskets, bolts, nuts, glands, end rings, and hardware for pipe couplings of all types shall be furnished by the manufacturer of the pipe coupling and shall be designed as an integral system by the pipe coupling manufacturer. Gaskets shall be designed for the coupling and appropriately sized to provide a watertight seal at the design pressure and temperature. Gaskets, bolts, nuts, glands, end rings, and hardware for pipe couplings shall be shipped with the pipe coupling and shall be clearly labeled indicating the origin of the material, including place and date of manufacture. Manufacturer's printed installation instructions shall be packaged with each pipe coupling.

2.02 STEEL FLEXIBLE PIPE COUPLINGS

- A. Steel couplings shall have center sleeves and end rings made of carbon steel conforming to AWWA C219, Section 4. Minimum center sleeve length shall be 5 inches for pipe sizes 3/4-inch through 4-1/2 inches; 7 inches for pipe sizes 5 inches through 24 inches; and 10 inches for pipe sizes larger than 24 inches.
- B. Sleeve bolts in exposed service or buried shall be Type 304 stainless steel per AWWA C219, Section 4.
- C. Steel end follower rings shall be cast, forged, or hot rolled in one piece. Do not use rings fabricated from two or more shapes.
- D. Wall thickness of sleeve shall be at least that specified for the size of pipe in which the coupling is to be used.
- E. Gaskets shall be Buna-N.

2.03 DUCTILE IRON FLEXIBLE PIPE COUPLINGS

- A. Couplings shall have center sleeves and end rings made of ductile iron conforming to AWWA C219, Section 4.
- B. Sleeve bolts in exposed service or buried shall be Type 304 stainless steel per AWWA C219, Section 4.
- C. Gaskets shall be Buna-N.

2.04 FLEXIBLE PIPE COUPLINGS FOR PLAIN END STEEL PIPE

Couplings shall be steel, Dresser Style 38, Smith-Blair Type 411, Baker Series 200, or District approved equal.

2.05 FLEXIBLE PIPE COUPLINGS FOR PLAIN END DUCTILE IRON PIPE, PVC PRESSURE PIPE, OR PVC DISTRIBUTION PIPE

Couplings shall be ductile iron, Dresser Style 153, Smith-Blair Type 441, Baker Series 228, or District approved equal.

2.06 TRANSITION COUPLINGS

Couplings for connecting different pipes having different outside diameters shall be steel: Dresser Style 62 or 162, Smith-Blair Series 413 or 415, Baker Series 212 or 220, or District approved equal. Couplings shall have an integral full circumference ring pipe stop at the midpoint of the coupling. Inside diameter of coupling pipe stop shall equal inside diameter of smaller diameter pipe.

2.07 FLANGED COUPLING ADAPTERS FOR STEEL PIPE

Adapters shall be steel, Dresser Style 128, Smith-Blair Type 913, Baker Series 602, or District approved equal. Flange ends shall match the flange of the connecting pipe.

2.08 FLANGED COUPLING ADAPTERS FOR DUCTILE IRON PIPE, PVC PRESSURE PIPE, OR PVC DISTRIBUTION PIPE

Adapters shall be ductile iron or steel, Dresser Style 127 or 128, Smith-Blair Type 912 or 913, Baker Series 601 or 602, or District approved equal. Flange ends shall match the flange of the connecting pipe.

2.09 FLANGED COUPLING ADAPTERS FOR EXISTING ASBESTOS CEMENT PIPE

Adapters shall be ductile iron, Dresser Style 127 or 128, Smith-Blair Series 912, or District approved equal. Flange ends shall match the flange of the connecting pipe. Verify in the field the actual outside diameter of the existing pipe to be connected.

2.10 LINING AND COATING FOR COUPLINGS

Coat interior and exterior ferrous surfaces of flexible pipe couplings, transition couplings, and flanged coupling adapters with fusion-bonded epoxy per Standard Specification Section 09961. Coating shall be holiday free on interior surfaces.

2.11 JOINT HARNESSSES

- A. Provide joint harnesses for flexible pipe couplings located in vaults and structures where the piping is not restrained or anchored. Joint harnesses of this design shall be limited to a maximum pipe size of 8 inches and only applies to steel pipe.
- B. Steel ring plates shall conform to ASTM A 36; ASTM A 283, Grade B, C or D; or ASTM A 285, Grade C. Ring plates shall be as shown on the Drawings.
- C. Tie bolts or studs shall be as shown in the following table. Bolt or stud material shall be high-strength alloy steel conforming to ASTM A 193, Grade B7. Nuts shall conform to ASTM A 194, Grade 2H.

Nominal Pipe Size (inches)	Number of Bolts/Studs	Diameter (inches)
2	2	5/8
3	2	5/8
4	2	5/8
6	2	5/8
8	2	5/8

D. Provide washers for each nut. Washers shall be of the same material as the nuts.

2.12 BOLTS, NUTS AND GASKETS FOR FLANGES

See Standard Specification Section 15050.

2.13 WAX TAPE COATING

See Standard Specification Section 09952.

2.14 POLYETHYLENE ENCASEMENT

See Standard Specification Section 09954.

2.15 CORROSION CONTROL COMPONENTS

See Standard Specification Section 13110.

PART 3 - EXECUTION

3.01 INSTALLING COUPLINGS OR ADAPTERS

- A. Clean oil, grease, scale, and dirt from pipe ends. Repair any damage or holidays in the shop applied coating before installing couplings or adapters. Clean gaskets in flexible pipe couplings, transition couplings, and flanged coupling adapters before installing.
- B. Clean sleeve bolts and nuts by wire brushing before installing in end rings. Lubricate threads of bolts and nuts with oil or graphite prior to installation. Tighten nuts uniformly and in a progressive diametrically opposite sequence, and torque with a calibrated torque wrench.
- C. If couplings or adapters leak under pressure testing, loosen or remove the nuts and sleeve bolts, reset or replace the gaskets, reinstall or retighten the bolts and nuts, and retest the coupling or adapter. Couplings and adapters shall be watertight.
- D. After testing, wrap sleeve bolts and nuts of buried couplings or adapters with wax tape coating per Standard Specification Section 09952.
- E. Wrap buried couplings and adapters with polyethylene material per Standard Specification Section 09954.

- F. Where couplings or adapters are installed on buried metallic pipe, provide bond wires across the coupling and bond the follower ring to the pipe per Standard Specification Section 13110.

3.02 INSTALLING FLANGED JOINTS

See Standard Specification Section 15050 for installation instructions.

3.03 PAINTING AND COATING

Coat flexible pipe couplings, transition couplings, flanged coupling adapters and joint harnesses located aboveground, or in vaults and structures, the same as the adjacent pipes and per Standard Specification Section 09900. Do not apply flame spray coating to fusion-bonded epoxy coated couplings. Apply finish coats in the field. Color of finish coat shall match color of the adjacent piping.

3.04 PRESSURE TESTING

Test couplings and adapters at the same time that the connecting pipelines are pressure tested. See Standard Specification Section 15144 for pressure testing requirements. Repair leaks in piping and retest.

3.05 DISINFECTION

See Standard Specification Section 15141 for chlorination requirements.

END OF SECTION