

**SECTION 15171**  
**TAPPING SLEEVES, SADDLES AND VALVES**  
**(Contractor Furnished)**

**PART 1: GENERAL**

**1.01 SCOPE**

Furnish and install and test all tapping sleeves, tapping valves, and tapping saddles shown on the Drawings and as described in Section 01000 Summary of Work and Section 01011 Specifications Special Conditions.

**1.02 RELATED WORK**

Specification Section 15000 - Piping - General Provisions

**1.03 SUBMITTALS**

Submit shop drawings and manufacturer's literature to the Engineer for approval in accordance with Specification Section 1300.

**1.04 REFERENCES**

Refer to current ANSI/AWWA Standards:

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

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

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

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

ANSI/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

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

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

ANSI/AWWA C200 -- AWWA Standard for Steel Water Pipe 6" and Larger

ANSI/AWWA C207 -- AWWA Standard for Steel Pipe Flanges for Waterworks Service-Sizes 4" Through 144"

ANSI/AWWA C208 -- AWWA Standard for Dimensions for Fabricated Steel Water Pipe Fittings

ANSI/AWWA C210 -- AWWA Standard for Liquid-Epoxy Coating Systems for Interior and Exterior of Steel Water Pipelines

ANSI/AWWA C213 -- AWWA Standard for Fusion-Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines

ANSI/AWWA C220 -- AWWA Standard for Stainless-Steel Pipe, ½" and Larger

ANSI/AWWA C223 -- AWWA Standard for Fabricated Steel and Stainless-Steel Tapping Sleeves

ANSI/AWWA C228 -- AWWA Standard for Stainless-Steel Pipe Flanges for Water Service – Sizes 2" Through 72"

ANSI/AWWA Standard C509.

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

## **PART 2: PRODUCTS**

### **2.01 GENERAL**

All tapping sleeves, saddles and valves shall be designed for a normal working pressure of at least 250 psi for 12-inch and smaller. The valves shall be designed for a minimum differential pressure of 250 psi and a minimum internal test pressure of 500 psi unless otherwise noted on the plans. Tapping sleeves and tapping saddles and all supplied appurtenances of the tapping sleeves and tapping saddles shall be designed for an internal test pressure of 300psi.

### **2.02 DUCTILE IRON TAPPING SLEEVES**

Verify the type of existing pipe and the outside diameter of the parent pipe on which the tapping sleeve is to be installed.

Tapping sleeves shall be ductile iron dual compression type unless otherwise specified on the Drawings. Tapping sleeves shall meet the requirements of ANSI/AWWA C110. Tapping sleeves shall be made in two halves which can be assembled and bolted around the parent pipe. Tapping sleeves, gaskets, seals, and outlets shall meet the requirements of NSF 61. Flange outlets shall conform to the requirements of ANSI/AWWA C110 and ANSI/AWWA C111 with flange gaskets that meet the requirements of ANSI/AWWA C207 Class E Mechanical Joint outlets and gaskets shall conform to the requirements of ANSI/AWWA C110 and ANSI/AWWA C111.

Acceptable manufacturers: McWane (Clow and M&H), U.S. Pipe (Mueller), and AFC (Waterous).

### **2.03 TAPPING VALVES**

See Specification 15151 2.01 Small Gate Valves

### **2.04 FABRICATED STAINLESS STEEL TAPPING SLEEVES**

Fabricated stainless steel tapping sleeves, outlets, seals, and gaskets shall meet the requirements of ANSI/AWWA C223 and be NSF 61 approved. Flange outlets and flange gaskets shall meet the requirements of ANSI/AWWA C207 Class E. Flanged outlets shall be recessed for tapping valve meeting the requirements of MSS-SP60. Mechanical Joint outlets shall meet the requirements of ANSI/AWWA C207 with mechanical joint dimensions and gaskets meeting the requirements of ANSI/AWWA C111 and be suitable for use with standard mechanical joint by mechanical joint resilient wedge gate valves per ANSI/AWWA C509.

Acceptable manufacturers: JCM and ROMAC

### **2.05 FABRICATED STEEL TAPPING SLEEVES**

Fabricated steel tapping sleeves, outlets, seals, and gaskets shall meet the requirements of ANSI/AWWA C223 and be NSF 61 approved. Flange outlets and flange gaskets shall meet the requirements of ANSI/AWWA C207 Class E. Flanged outlets shall be recessed for tapping valve meeting the requirements of MSS-SP60. Mechanical Joint outlets shall meet the requirements of ANSI/AWWA C207 with mechanical joint dimensions and gaskets meeting the requirements of ANSI/AWWA C111 and be suitable for use with standard mechanical joint by mechanical joint resilient wedge gate valves per ANSI/AWWA C509. Fabricated steel tapping sleeves and outlets interior and exterior shall be epoxy coated meeting or exceeding the requirements of ANSI/AWWA C210 or ANSI/AWWA C213.

Acceptable manufacturers: JCM and ROMAC

### **2.06 TAPPING SADDLES**

Verify the type of existing pipe and the outside diameter of the parent pipe on which the tapping saddle is to be installed.

Tapping saddles shall consist of ductile iron outlet castings meeting the requirements of ANSI/AWWA C110 furnished by the casting manufacture with straps, gaskets, and bolts to provide a complete installation. The outlet castings shall be fabricated with alloy steel

straps that attach the ductile iron outlet to the parent pipe capable to support the weight of the tapping valve during installation. Gaskets, seals, and outlets shall be NSF 61 approved. Castings shall be designed to meet or exceed a normal operating pressure of 250 psi. Castings shall be designed with an O-ring gasket that seals to the parent pipe meeting or exceeding 250psi normal operating pressure and meets the material requirements for sleeve gaskets of ANSI/AWWA C223. Flange gaskets shall meet the requirements of ANSI/AWWA C207 Class E gaskets. Flange outlets shall conform to the requirements of ANSI/AWWA C110 and ANSI/AWWA C111 with flanged outlets recessed for use with tapping valves and tapping equipment meeting MSS-SP60. Mechanical Joint outlets and gaskets shall conform to the Mechanical Joint requirements of ANSI/AWWA C110 and ANSI/AWWA C111 and be suitable for use with standard mechanical joint by mechanical joint resilient wedge gate valves per ANSI/AWWA C509.

Acceptable manufacturers: ACIPCO

## **2.07 BOLTS**

Bolts, nuts and washers shall meet or exceed the bolt requirements of ANSI/AWWA C223.

Fabricated stainless steel tapping sleeves shall be furnished with stainless steel bolts, nuts, and washers that meet or exceed the stainless steel bolt requirements of ANSI/AWWA C223.

Ductile iron tapping sleeves and ductile iron tapping saddles along with fabricated steel tapping sleeves shall each be furnished with bolts, nuts and washers that meet or exceed the steel bolt requirements of ANSI/AWWA C223. The steel bolts, nuts, and washers shall be furnished by the manufacture with epoxy coatings that meet Section 15131.2.02.A PTFE coatings Xylan or FluoroKote #1 or approved equal.

## **PART 3: EXECUTION**

### **3.01 INSTALLATION**

Install the tapping sleeves, saddles, and valves in strict accordance with the requirements of Specification Section 15000. Install the tapping sleeves, tapping saddles, and tapping valves in accordance with the manufacturer's instructions. The tapping procedure is to be in accordance with the tapping machine manufacturer's instructions.

### **3.02 PROTECTION**

After field installation of the valve all external bolts except the operating nut shall receive a layer of tape coating or approved rubberized-bitumen based spray-on undercoating applied before backfill. If polyethylene is applied to the pipe, the entire sleeve and valve assembly shall be encased in polyethylene encasement prior to backfill. The

polyethylene encasement shall be installed up to the operating nut leaving the operating nut of the tapping valve exposed and free to be operated

### **3.03 PRELIMINARY TESTING**

Perform a hydrostatic test of the tapping sleeve or saddle and valve assembly in accordance with Specification Section 15030 after installation of the tapping sleeve or saddle and valve, but prior to making the tap. The test shall be made with the valve open using a tapped mechanical joint cap. No leakage is acceptable. The test pressure shall be maintained for a minimum of 15 minutes.

**END OF SECTION**