

Section 02525

TAPPING SLEEVES AND VALVES

PART 1 GENERAL

1.01 SUMMARY

This Section includes tapping sleeves and valves for connections to existing water system.

1.02 MEASUREMENT AND PAYMENT

A. Unit Prices.

1. Payment is on unit price basis for each tap installed. Provide coupon as described in Paragraph 3.03.B.5 to Project Manager prior to payment.
2. Refer to Section 01270 – “Measurement and Payment” for unit price procedures.

B. Stipulated Price (Lump Sum). If Contract is Stipulated Price Contract, payment for Work in this Section is included in total Stipulated Price.

1.03 REFERENCES

- A. ASTM A240/A240M REV B – Standard Specification for Heat-Resisting Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications.
- B. ASTM A193/A193M - Standard Specification for Alloy-Steel and Stainless Steel Bolting Materials for High-Temperature Service.
- C. ASTM A194/A194M - Standard Specification for Carbon and Alloy Steel Nuts for Bolts for High-Pressure or High-Temperature or High Pressure Service and Other Special Purpose Applications.
- D. ANSI A 21.10 (AWWA C 110) - Ductile-Iron and Gray-Iron Fittings
- E. AWWA C 200 - Standard for Steel Water Pipe - 6 in. and Larger.
- F. AWWA C 207 - Standard for Steel Pipe Flanges for Waterworks Service - Sizes 4 in. Through 144 in.
- G. AWWA C 500 - Standard for Metal Seated Gate Valves for Water Supply Service.
- H. AWWA C 223 - Fabricated Steel and Stainless Steel Tapping Sleeves.

1.04 SUBMITTALS

- A. Conform to requirements of Section 01330 – “Submittal Procedures”.
- B. Submit results of tapping sleeves National Pipe Thread (NPT) test opening.
- C. Submit manufacturer's affidavit as required in Section 02521 – “Gate Valves”.

1.05 RELATED REQUIREMENTS

- A. Section 01270 – “Measurement and Payment”
- B. Section 01330 – “Submittal Procedures”
- C. Section 02085 – “Valve Boxes, Meter Boxes, and Meter Vaults”
- D. Section 02317 – “Excavation and Backfill for Utilities”
- E. Section 02521 – “Gate Valves”
- F. Section 02528 – “Polyethylene Wrap”

1.06 – 1.07 NOT USED

1.08 DELIVERY, STORAGE AND HANDLING

Ship steel sleeves in wooden crates that provide protection from damage to epoxy coating during transport and storage.

1.09 – 1.13 NOT USED

PART 2 PRODUCTS

2.01 MANUFACTURER(S) (NOT USED)

2.02 MATERIALS AND/OR EQUIPMENT

- A. Tapping Sleeves:
 - 1. Tapping Sleeve Bodies: AWWA C 110 cast or ductile iron or AWWA C 200 carbon steel in two sections to be bolted together with high-strength, corrosion-resistant, low-alloy steel bolts with mechanical joint ends.
 - 2. Branch Outlet of Tapping Sleeve:
 - a. Flanged, machined recess, AWWA C 207, Class D, ANSI 150 pound drilling.
 - b.

- c. Gasket: Affixed around recess of tap opening to prevent rolling or binding during installation.
3. For welded steel and stainless steel tapping sleeves, comply with AWWA C 223 and as specified below.
 - a. Welded-steel tapping-sleeve bodies may be used in lieu of cast or ductile iron bodies for following sizes and comply with the following:
 - 1) Flange: AWWA C 207, Class D, ANSI 150 pound drilling.
 - 2) Gasket: Affixed around recess of tap opening to prevent rolling or binding during installation.
 - 3) Steel sleeves are restricted to use on pipe sizes 6 inches and larger.
 - 4) Body: Heavy, welded-steel construction; top half grooved to retain neoprene O-ring seal permanently against outside diameter of pipe.
 - 5) Bolts: AWWA C 500 Section 3.5; coated with 100 percent vinyl resin or corrosive resistant material.
 - 6) Steel Sleeves Finish: Fusion-bonded epoxy coated to minimum 12 mil thickness.
 - 7) Finished Epoxy Coat: Free of laminations and blisters; and remain pliant and resistant to impact with non-peel finish.
 - 8) Provide approved steel tapping sleeves.
 - 9) Tapping Sleeves: Provide with 3/4-inch NPT test opening for testing prior to tapping. Provide 3/4-inch bronze plug for opening.
 - 10) Do not use steel sleeves for taps greater than 75 percent of pipe diameter.
 - 11) Comply with AWWA C 223 – Fabricated Steel and Stainless Steel Tapping Sleeves.
 - b. Stainless Steel tapping-sleeve bodies and flange may be used in lieu of cast or ductile iron bodies for following sizes and comply with the following:
 - 1) Flange: ASTM A 240 Stainless Steel, Type 304, ANSI 150 pound drilling.

- 2) Gasket: Full circumferential, affixed around recess of tap opening to prevent rolling or binding during installation, compounded for water and sewer service.
- 3) Stainless Steel sleeves are restricted to use on pipe sizes 4 inches and larger.
- 4) Body: ASTM A 240 Stainless Steel, Type 304
- 5) Bolts: ASTM A 193 Stainless Steel, Type 304
- 6) Nuts: ASTM A 194 Stainless Steel, Type 304
- 7) Branch Outlet: Heavy Stainless Steel Pipe
- 8) Provide approved stainless steel tapping sleeves.
- 9) Do not use stainless steel sleeves for taps greater than 75 percent of pipe diameter.
- 10) Comply with AWWA C 223 – Fabricated Steel and Stainless Steel Tapping Sleeves.

B. Tapping Valves:

1. Meet requirements of Section 02521 – “Gate Valves”:
2. Inlet Flanges are required to comply with AWWA C 110; Class 150 and higher: Minimum 8-hole flange.
3. Outlet: Standard mechanical or push-on joint to fit any standard tapping machine.
4. Valve Seat Opening: Accommodate full-size shell cutter for nominal size tap without contact with valve body; double disc.

C. Valve Boxes: Standard Type “A” valve boxes conforming to requirements of Section 02085 – “Valve Boxes, Meter Boxes, and Meter Vaults”.

2.03 – 2.04 NOT USED

PART 3 EXECUTION

3.01 – 3.02 NOT USED

3.03 ERECTION/INSTALLATION APPLICATION AND/OR CONSTRUCTION

A. Application

1. Install tapping sleeves and valves at locations and of sizes shown on Plans. Install sleeve so valve is in horizontally level position unless otherwise indicated on Plans.
2. Clean tapping sleeve, tapping valve, and pipe prior to installation and in accordance with manufacturer's instructions.
3. Hydrostatically test installed tapping sleeve to 150 psig for minimum of 15 minutes. Inspect sleeve for leaks, and remedy leaks prior to tapping operation.
4. When tapping concrete pressure pipe, size on size, use shell cutter one standard size smaller than water line being tapped.

B. Installation

1. Verify outside diameter of pipe to be tapped prior to ordering sleeve.
2. Tighten bolts in proper sequence so that undue stress is not placed on pipe.
3. Align tapping valve properly and attach to tapping sleeve. Insert insulation sleeves into flange holes of tapping valve and pipe. Make insertions of sleeves on pipe side of tapping valve. Do not damage insulation sleeves during bolt tightening process.
4. Make tap with sharp, shell cutter:
 - a. For 12-inch and smaller tap, use minimum cutter diameter one-half inch less than nominal tap size.
 - b. For 16-inch and larger tap, use manufacturer's recommended cutter diameter.
5. Withdraw coupon and flush cuttings from newly-made tap. Provide coupon to Project Manager.
6. Wrap:
 - a. For 12-inch and smaller tap, wrap completed tapping sleeve and valve in accordance with Section 02528 – “Polyethylene Wrap”.
 - b. For 16-inch and larger tap, apply coal tar epoxy around completed tapping sleeve and valve. The coal tar epoxy shall be applied with minimum of two (2) coats. Each coat of coal tar epoxy shall have minimum dry film thickness of 16 mils.

7. Place concrete thrust block behind tapping sleeve (not over tapping sleeve and valve).
8. Request inspection of installation prior to backfilling.
9. Backfill in accordance with Section 02317 – “Excavation and Backfill for Utilities”.

3.04 – 3.10 NOT USED

END OF SECTION