

City of Milwaukee
Department of Public Works

Milwaukee Water Works

Material Specifications for
Stainless Steel Tapping Sleeves
Sizes 6" Through 20"



City of Milwaukee Specification No. 30-B-20
Revised January 9, 2015

I. **GENERAL REQUIREMENTS:** Vendors bidding through the Department of Administration – Business Operations Division, Procurement Services Section, shall comply with the latest version of City of Milwaukee Specification No. 70b-D-7, except as modified herein. **ITEMS FURNISHED UNDER THIS SPECIFICATION SHALL COMPLY WITH THE PROVISIONS OF CITY OF MILWAUKEE ORDINANCE 310.18.9.**

II. **TECHNICAL REQUIREMENTS**

A. **Description:** Tapping sleeve, all stainless steel, as described herein, shall consist of a split stainless steel tee which shall have a rubber liner completely enclosed in the stainless steel assembly; all of which is galvanically passive to gray or ductile iron.

Tapping sleeve shall be capable of maintaining a watertight seal around the exterior of the tapped pipe within the limits of the split shell.

B. **Standards:** Unless otherwise stated, the tapping sleeves shall conform to the latest revisions of the following American Water Works Association Standards:

1. AWWA C111 Standard for Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
2. AWWA C207 Standard for Steel Pipe Flanges for Waterworks Service, Sizes 4 In. through 144 In.
3. AWWA C220 Standard for Stainless-Steel Pipe, ½ In. and Larger
4. AWWA C223 Standard for Fabricated Steel and Stainless-Steel Tapping Sleeves

C. **Types of Tapping Sleeves:** Tapping sleeve with a flanged outlet end shall be used with tapping valve with tap flanged end x mechanical joint end. Tapping sleeve with a mechanical joint outlet end shall be used with a resilient wedge gate valve with mechanical joint ends.

D. **Materials:**

1. Tapping sleeve shell, lugs, flanged outlet end and M.J. outlet end and the test plug shall be stainless steel type 304, conforming to ASTM A-276. Bolts, nuts and washers shall be stainless steel type 304, in conformance with ASTM A-276.
2. The outlet branch shall be welded to the flange or M.J. outlet and the shell on the inside and outside. All welds shall be free from pinholes and shall be fully passivated in accordance with ASTM A-380.
3. Tapping sleeve shell gasket and the branch sealing gasket shall be made of virgin SBR, NBR or EPDM and must be permanently attached to the tapping sleeve at the factory.
4. Nuts shall be coated with an anti-seizing material such as Xylan to prevent galling during tightening.

5. The test port shall be welded to the outlet branch wall.
6. The test plug shall have PTFE tape or compound on threads to assist sealing and prevent galling.

E. Design:

1. Nominal Sizes: Tapping sleeve, all stainless steel, will be used on 6", 8", 12", 16" and 20" size water main with maximum branch sizes of 4", 6", 8", 12" and 16", respectively. The sleeve halves in each size shall be suitable for use on ductile iron or cast iron pipe having the following outside diameters. 20" size OD range will be specified at time or order.

| Nominal Size | Outside Diameter Range | |
|--------------|------------------------|--------|
| 6" | 6.90" | 7.20" |
| 8" | 9.05" | 9.40" |
| 12" | 13.20" | 13.60" |
| 16" | 17.40" | 17.90" |
| 20" (DI) | 21.40" | 21.80" |
| 20" (CI) | 21.90" | 22.30" |

2. The tapping sleeve shell with the branch outlet shall be 11 gauge (.12") minimum thickness. The connecting shell of the sleeve shall be 14 gauge (.07") minimum thickness. Branch outlet shall be 14 gauge (.07") minimum thickness.
3. Branch outlet flange for tapping sleeve with flanged end shall be in accordance with AWWA Standard C-207 Class D and shall be drilled to conform to class 125 of ANSI standard B16.1 and faced to conform to MSS SP-60 for mating to a tapping valve.
4. Tapping sleeves with a mechanical joint outlet end shall be one piece cast stainless steel and in conformance with AWWA C111. Tabulated mechanical joint dimensions shall conform to AWWA C110.
5. Joint lugs shall be furnished with a maximum bolt spacing of 3". The lugs shall be 7 gauge (0.18") minimum thickness and shall be adequately secured by welding to the body of the sleeve and shall be designed to prevent bending of the bolts.
6. The nuts and bolts shall have UNC rolled threads and shall be a minimum of 5/8" diameter. Two or more bolts shall be of extra length to assist in installation of the tapping sleeve on the pipe.

7. The shell gasket shall be molded to a nominal thickness of 1/4" and shall be resistant to crystallizing, aging and permanent set.

8. The test plug shall be a 3/4" NPT plug.

F. **Hydraulic Capability:** All components of the tapping sleeve shall be structurally adequate to withstand a minimum working pressure of 150psi and a test pressure of 300psi.

G. **Accessories:** Tapping sleeve shall be furnished complete with all gaskets, test plug, stainless steel bolts, washers and nuts to secure the shell halves of the sleeve. A full faced gasket shall be furnished and factory affixed to the stainless steel flange of the tapping sleeve with flanged end. The mechanical joint tapping sleeve shall have a mechanical joint outlet gasket that shall come assembled on the mechanical joint outlet branch. Bolts and nuts for the outlet flange are not required under this specification.

H. **Marking:** Each tapping sleeve shall bear indelible markings indicating:

1. Nominal Size of the Sleeve
2. Manufacturer's Name
3. Part Number
4. Date of Manufacture
5. Rated Working Pressure
6. Test Pressure
7. Certified to NSF-61
8. Range of pipe diameter that the sleeve will fit

I. **Installation Instruction:** Each sleeve shall have installation instructions attached.

J. **Certificates:** Upon request, the furnishing contractor shall submit in duplicate the following to the Superintendent of Milwaukee Water Works:

1. Manufacturer's certification verifying the conformance of the tapping sleeve and components to the requirements and the test pressure of this specification.
2. Manufacturer's certification of compliance in accordance with Section 6.3 of AWWA C223.

III. **ACCEPTABLE BRANDS:** The following brands and model numbers have been approved in accordance with City of Milwaukee Specification No. 70b-D-7 and are acceptable to the City of Milwaukee.

- A. Tapping sleeve with flanged end
Cascade Style CST-EX
Power Seal Model 3490
- B. Tapping sleeve with mechanical joint outlet end

Power Seal Model 3490MJ
JCM Industries, Inc. Model 439

Manufacturers may request approval from the City of Milwaukee in accordance with City of Milwaukee Specification No. 70b-D-7.