

City of Milwaukee
Department of Public Works

Milwaukee Water Works

Material Specifications for
Couplings – Straight and Transition
20" through 54"



City of Milwaukee Specification No. 30-D-5
Revised March 19, 2018

- 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. **MATERIALS FURNISHED UNDER THIS SPECIFICATION SHALL COMPLY WITH AND BE CERTIFIED WITH THE PROVISIONS OF THE CITY OF MILWAUKEE ORDINANCE 310-18.9 AND THE AMERICAN IRON AND STEEL REQUIREMENT (AIS) OF THE DRINKING WATER STATE REVOLVING FUND (DWSRF).**
- II. **TECHNICAL REQUIREMENTS**
- A. **Description:** Couplings as described herein consist of one (1) steel middle ring /sleeve, two (2) rubber compound wedge style gaskets, two (2) steel followers/flanges and stainless steel nuts and bolts. Straight couplings are to be used to connect equivalent diameter (outside) ductile iron or cast iron pipe. Transition couplings are to be used to connect equivalent diameter (inside) ductile iron pipe to cast iron pipe.
- B. **Standards:** All couplings shall conform to the latest revision of the following American Water Works Association Standards (AWWA):
1. AWWA C219 Bolted, Sleeve-type Couplings for Plain-end Pipe
 2. AWWA C213 Fusion Bonded Epoxy Coating for the Interior and Exterior of Steel Water Pipelines
- C. **Material:**
1. Middle ring shall be made of carbon steel conforming to ASTM A36, A283C, A513, A635 or ASME SA675.
 2. Rubber gaskets shall be virgin Nitrile (Buna-N) NSF 61 listed, unless otherwise noted.
 3. Followers shall be made of carbon steel conforming to AISI C1020, C1012, or ASME SA36.
 4. Bolts, nuts and washers used to join the followers and compress the rubber gaskets shall meet ASME B18.2.2, be a minimum of 5/8" diameter and made of 304 18-8 Stainless Steel. Nuts or bolts shall be coated with an anti-seizing material to prevent galling during tightening.

D. Design Features:

1. Nominal Sizes: The nominal water main sizes are 20", 24", 30", 36", 42", 48" and 54" diameter.

a. The straight couplings in each size shall be suitable to connect pipe having the following outside diameters. All dimensions are in inches:

Nominal Size	O.D. of Class 55 D.I. Pipe ¹	O.D. of Pit Cast Pipe ¹
20"	21.60" +/-0.08	—
24"	25.80" +/-0.10	—
30"	32.00" +/-0.10	—
36"	38.30" +/-0.10	—
42"	44.50" +/-0.12	45.22" +0.12 / -0.24**
48"	50.80" +/-0.12	51.52" +0.12 / -0.24**
54"	57.56" +/-0.12	57.92" +0.12 / -0.24**

b. The transition couplings in each size shall be suitable to transition from cast iron pipe (Class C) to ductile iron pipe having the following outside diameters. All dimensions are in inches:

Nominal Size	O.D. of Pit Cast Pipe ¹	O.D. of Class 55 D.I. Pipe ¹
20"	22.14" +0.08 / -0.16**	21.60" +/-0.08
24"	26.42" +0.10 / -0.20**	25.80" +/-0.10
30"	32.50" +0.10 / -0.20**	32.00" +/-0.10
36"	38.80" +0.10 / -0.20**	38.30" +/-0.10
42"	45.22" +0.12 / -0.24**	44.50" +/-0.12
48"	51.52" +0.12 / -0.24**	50.80" +/-0.12
Alt#1* - 54"	57.92" +0.12 / -0.24**	57.10" +/-0.12
Alt#2* - 54"	57.92" +0.12 / -0.24**	57.56" +/-0.12

* As of 6/16/2010, both 54" D.I. pipe sizes are currently in City pipe stock – Alt # to be specified in bid or purchase documents

** Specified tolerance to be obtained by use of gaskets of differing thickness.

c. The middle ring shall have a minimum width of 12" for all sizes and in each size shall have the following minimum wall thickness. All dimensions are in inches:

<u>Pipe Size</u>	<u>Thickness</u>
20, 24, 30	$\frac{3}{8}$ "
36, 42, 48, 54	$\frac{1}{2}$ "

2. Accessories: The coupling shall be furnished complete with all followers, gaskets, bolts, nuts and washers. A coating repair kit shall be furnished with each coupling.
 3. Pressure: Couplings shall be designed for water working pressure of 150 psi and a test pressure of 250 psi.
 4. A minimum of one lifting eye shall be attached by welding to the middle ring before coating.
- E. Coating:** Interior and exterior of middle ring and followers shall be coated with fusion bonded epoxy in accordance with AWWA C213.
- F. Instructions:** Installation instruction shall be furnished with each coupling
- G. Certification by Manufacturer:** Upon request, the contractor shall submit to the Superintendent of Milwaukee Water Works the manufacturer's certification verifying the conformance of the couplings to the requirements of this specification. Certification to AIS must be furnished.
- III. ACCEPTABLE BRANDS:** The following brands and model numbers are acceptable to the City of Milwaukee:
- Dresser Style 38 and 62
 - JCM Style 201 and 203
 - Smith-Blair Style 411 and 413
- IV. INSPECTION BY THE CITY**
- A.** The Superintendent of Milwaukee Water Works or a duly authorized representative shall inspect the materials furnished under this specification.
- B.** Any steel coupling found not conforming to this specification will be rejected and shall be replaced. Replacements for couplings that have failed the inspection shall conform to all the requirements of this specification.

¹ On projects where couplings are to be furnished by contractor, the contractor will be required to excavate, expose and measure O.D. of existing pipe and/or verify the O.D. of the proposed pipe prior to ordering couplings.