

**City of Duluth, Minnesota Public Works and Utilities Department –
Engineering Division
Standard Construction Specifications 2011 Edition**

- e. Hydrant operating mechanisms shall be provided with Buna-N “O” ring seals preventing entrance of moisture and shall be lubricated through an opening in the operating nut or bonnet.
- f. The exterior of the hydrant base shall be supplied with an epoxy coating.
- g. Connection shall be a 6 inch mechanical joint with an anchoring tee, tapping tee or tee complete with gland, Cor-Ten or similar low corrosion type bolts, and harnessing lugs. Zinc anode caps conforming to ASTM B-418 shall be installed on the bolts on all mechanical joint fittings. The anode size shall be regular.
- h. Operating and nozzle cap nuts shall be a pentagon, 1-1/2 inches point to face. Operating nut shall have an O-ring or seal ring to keep water and dirt from entering the bonnet. Opening shall be counterclockwise.
- i. Design of hydrant shall allow for removal of the main and waste valve seats without excavating or disturbing the ground.
- j. Portions of City owned hydrants above the ground line shall be primed and painted chrome yellow. Privately owned hydrants shall be primed and painted blue. Coating below the ground line shall be according to standards.
- k. A traffic flange and operating rod coupling shall be located not more than 2 inches above the ground line and be designed so that in the event of an accident or breaking of the hydrant above the ground line, the main valve will remain closed.
- l. Lower flange on the nozzle section shall be the swivel type.
- m. Hydrants shall be provided with outlets for drainage in the base or barrel, or between the base and barrel, unless the Special Provisions require that drain outlets be omitted or plugged.
- n. Bolts and nuts below grade shall be stainless steel.
- o. All drains on hydrants shall be plugged. Hydrant shall have a permanently affixed tag stating “NO DRAIN – Pump After Using.”

12 Valves

Valve sizes ten inches (10”) and smaller shall be gate type. Valves twelve inches (12”) and larger shall be butterfly type exclusively.

13. Gate Valves (10” and smaller only)

Gate valves shall be manufactured and furnished in accordance with an approved pattern and shall conform to the requirements of AWWA C509 or C515 for resilient seated gate valves, and all gate valves must meet such supplementary requirements as may be stipulated in the Contract Drawings or Special Provisions and the provisions hereof. Unless otherwise specified, the valves furnished shall comply with the following supplementary requirements.

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TAPPING VALVES WILL BE
THE SAME EXCEPT ONE END
OF VALVE WILL BE FLANGE, AND
ONE END N.S.

- a. Gate valves shall be solid disc with resilient seating.
- b. All valves shall be furnished with O-Ring stem seals.
- c. Valves shall have a two inch square operating nut opening counter-clockwise.
- d. All valves shall be of the non-rising stem type.
- e. Each valve shall have mechanical joint ends complete with gasket, gland, and bolts. Bolts or valve flange shall be provided with means for preventing the bolt from slipping in the slotted holes.
- f. The exterior of the valve shall be supplied with an epoxy coating. Mechanical joint bolts shall be Cor-Ten or similar low corrosion bolts with zinc anode caps conforming to ASTM B-418 for regular anode size.
- g. All exposed bolts on the valve shall be stainless steel.

14. Butterfly Valves (12" and larger sizes only)

Butterfly valves shall conform to the requirements of AWWA C504, Class 150B unless otherwise specified, with manual actuator equipped with standard 2-inch square operating nut, split V type or O-ring stem seal and enclosed in a lubricating gear box. For buried installations, valves shall be equipped with a side-mounted actuator designed to accept a valve box. Valve disc shall be cast iron conforming to ASTM 126, Class B or ASTM A48, Class 40, alloy cast iron conforming to ASTM A436 or A439, or ductile iron conforming to ASTM A536. The exterior of the valve shall be supplied with an epoxy coating. All exposed bolts on the valve shall be stainless steel. They shall be furnished with mechanical joint ends and open counter-clockwise. The exterior of the valve shall be supplied with an epoxy coating. Mechanical joint bolts shall be Cor-Ten or similar low corrosion bolts with zinc anode caps conforming to ASTM B-418 for regular anode size.

15. Valve Boxes

Valve Boxes shall be 5 1/4" cast iron screw-type, consisting of the following parts:

Cover	Stay-put type, "WATER" cast thereon, with solid edges (no grooves or flutes on edge)
Top Section	26" length
Extension Section	30" length
Bottom Section	30" length
Base	#6 Round Base

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Pipe Size	Steel OD (In.)	Ductile or Cast Iron OD (In.)
2"	2.35 – 2.63	-
3"	3.36 – 3.60	3.73 – 4.00
4"	4.45 – 4.73	4.80 – 5.10
6"	6.56 – 6.96	6.90 – 7.20
8"	8.54 – 8.94	9.05 – 9.45
10"	10.64 – 11.04	11.10 – 11.40
12"	12.60 – 13.00	13.20 – 13.50
16"	-	17.13 – 17.90

10. Tapping Sleeves

(4" though 10" tap on 6" through 30" cast iron, ductile iron or steel mains.) Sleeves shall consist of two sections of heavy welded steel which bolt together on a main pipe and seal against a gasket around the top opening. Flange shall be AWWA C207 Class D, ANSI 150 pound and have recess cavity for mating to a standard tapping valve. Outlet body shall have a 3/4 inch NST test plug. Fitting shall be coated with 12 mil fusion bonded epoxy. Bolts and nuts shall be Type 304 stainless steel. Fitting shall be similar or equal to Rockwell 622 or Ford FTSC Tapping Sleeve, and in the sizes and O.D. ranges specified.

An approved alternate tapping sleeve shall consist of two sections of heavy welded stainless steel which bolt together on a main pipe and seal against a full encirclement gasket. Flange shall be AWWA C207 Class D, ANSI 150 pound suitable for mating to a standard mechanical joint gate valve. Outlet body shall have a 3/4 inch NST test plug. Fitting shall be stainless steel. Bolts and nuts shall be Type 304 stainless steel. Fitting shall be similar or equal to PowerSeal 3490MJ Tapping Sleeve and in the sizes and O.D. ranges specified.

11. Fire Hydrants

Fire Hydrants shall be Waterous Pacer Traffic Model WB67-250 or Mueller Super Centurion 250 conforming to the requirements of AWWA C502 and the following supplemental requirements:

- a. Main Valve Opening – 5 1/4 inches nominal diameter.
- b. Bury Depth – 7 1/2 feet measured from the bottom of the branch pipe connection to the finished ground line at the hydrant.
- c. Upper Standpipe Length – 22 inches or 16 inches with an extension
- d. Nozzles – One steamer connection, 4 1/2 inch (ID), City of Duluth Standard threads, 7 threads per inch and two hose nozzles, 2 1/2 inch (ID), with National Standard Fire Hose Coupling Screw Threads.