

SECTION 02640

VALVES AND FIRE HYDRANTS

PART 1 - GENERAL

1.01 DESCRIPTION

A. The work of this section includes, but is not limited to:

- 1. Water valves
- 2. Fire hydrants

B. Related work specified elsewhere:

- 1. Trenching, Backfilling, and Compacting: Section 02221
- 2. Water Mains: Section 02615
- 3. Water Service Connections: Section 02642

C. Definitions:

NONE

D. Applicable Standard Details:

NONE

1.02 QUALITY ASSURANCE

A. Reference Standards:

1. American Water Works Association (AWWA):

- C500 Gate Valves, 3" through 48", for Water and Other Liquids
- C502 Dry-Barrel Fire Hydrants
- C504 Rubber-Seated Butterfly Valves
- C509 Resilient Seated Gate Valves for Water and Sewerage Systems
- C512 Air-Released, Air/Vacuum, and Combination Air Valves for Waterworks Service

1.03 SUBMITTALS

A. Certificates:

- 1. Submit two copies of manufacturer's certification attesting that valves, hydrants, and accessories meet or exceed AWWA Standards and specification requirements.

B. Product Data:

1. Submit two copies of manufacturer's latest published literature including illustrations, installation instructions, maintenance instructions and parts lists.

1.04 JOB CONDITIONS: Section not utilized.

1.05 PRODUCT DELIVERY, STORAGE, AND HANDLING

A. Prepare valves, hydrants, and accessories for shipment according to AWWA Standards and:

1. Seal valve, hydrant, and meter ends to prevent entry of foreign matter into product body.
2. Box, crate, completely enclose, and protect products from accumulations of foreign matter.

B. Store products in areas protected from weather, moisture, or possible damage.

C. Do not store products directly on ground.

D. Handle products to prevent damage to interior or exterior surfaces.

PART 2 - PRODUCTS

2.01 GATE VALVES

- A. AWWA C-500, bronze mounted double disc, hand operated.
- B. Open counter-clockwise unless otherwise approved.
- C. Mechanical joint ends.
- D. AWWA C-509 resilient wedge/resilient seat may be used if authorized and approved by the Municipality.

2.02 BUTTERFLY VALVES

- A. AWWA C504, Class 150B.
- B. Iron body, stainless steel shaft, nylon bearings.
  1. Sizes 2" through 20": 200 psi rated.
  2. Sizes 24" through 48": 150 psi rated.
- C. Flanged, wafer, or mechanical joint end.
- D. Worm gear manual actuators, sealed and permanently lubricated.

1. Vertical, right angle, or buried type; handwheel, crank handle, or square nut as indicated.
2. Stem extension and valve box for buried valves.
3. Open counterclockwise unless otherwise indicated.

### 2.03 VALVE BOXES

#### A. 12" valves and smaller:

1. Domestic cast iron, two-piece, screw type, flared base.
2. 3/16" min. wall thickness.

#### B. Valves larger than 12" and blowoffs:

1. Domestic cast iron, three-piece, screw type.
2. Round base.

#### C. Cast iron lid, "Water" lettered in cover.

### 2.04 AIR RELEASE VALVES

#### A. AWWA C512.

#### B. Cast iron body and cover; stainless steel float, orifice seat, linkage mechanism, mountings and trim. Buna-N orifice valve. 150 psi minimum rated working pressure.

#### C. Provide with orifice size determined by the Municipality.

### 2.05 FIRE HYDRANTS

#### A. Dry-barrel break-away type conforming to AWWA C502. Hydrants shall be Kennedy K81A or Darling B62B only.

#### B. 6" mechanical joint inlet connection, 2 - 2-1/2" hose connections, and 1 - 4-1/2" hose connection.

#### C. "York" thread for pumper connection.

#### D. Bury depth over connecting pipe - 42".

### 2.06 TAPPING SLEEVES AND VALVES

#### A. Mechanical joint tapping sleeves shall be Mueller No. H-615 or approved equal.

#### B. 200 psi working pressure.

#### C. Saddle type tapping sleeves not permitted.

- D. Tapping valves shall be full diameter, resilient wedge, or double-disc type, as determined by the Municipality.
- E. Tapping Valves:
  - 1. AWWA C500.
  - 2. Inlet flange, Class 125.

<b>TABLE 1 - CLASS 125 PLATE FLANGES (ASME B16.1 - 1989)</b>				
<b>Pipe Size</b>	<b>Outside Diameter</b>	<b>Number of Bolt Holes</b>	<b>Bolt Hole Diameter</b>	<b>Bolt Circle</b>
2"	6"	4	3/4"	4-3/4"
2-1/2"	7"	4	3/4"	5-1/2"
3"	7-1/2"	4	3/4"	6"
3-1/2"	8-1/2"	8	3/4"	7"
4"	9"	8	3/4"	7-1/2"
5"	10"	8	7/8"	8-1/2"
6"	11"	8	7/8"	9-1/2"
8"	13-1/2"	8	7/8"	11-3/4"
10"	16"	12	1"	14-1/4"
12"	19"	12	1"	17"
14"	21"	12	1-1/8"	18-3/4"
16"	23-1/2"	16	1-1/8"	21-1/4"

2.07 TIE RODS

- A. Tie rod restraint system - 3/4" diameter rods, mini-tensile strength 7,000 psi each.
- B. Star National Products, 1323 Holly Avenue, P.O. Box 258, Columbus, OH 43316

PART 3 - EXECUTION

3.01 GENERAL

- A. Determine the exact location and size of valves and hydrants from the Construction Drawings and in consultation with the Municipality.

- B. Perform trench excavation, backfilling and compaction in accordance with Section 02221.

### 3.02 GATE AND BUTTERFLY VALVES

- A. Install valves in conjunction with pipe laying. Set valves and valve boxes plumb.
- B. Provide buried valves with valve boxes installed flush with finished grade.
- C. Furnish one tee wrench to the Municipality.

### 3.03 AIR RELEASE VALVES

- A. Orient, locate, and install air release valves including valve vault as directed by the Municipality.
- B. Set air release valves and vault plumb.
- C. Verify there are no leaks and that the valve functions correctly.

### 3.04 FIRE HYDRANTS

- A. Install fire hydrants as directed by the Municipality. Provide support blocking and drainage gravel as shown.
  - 1. Set hydrants plumb with pumper nozzle facing the curb or street.
  - 2. Set hydrants with nozzles at least 12 inches above the ground and the safety flange not more than 6 inches nor less than 2 inches above grade.
  - 3. Do not block drain hole.
  - 4. Paint hydrants in accordance with local color scheme.
- B. After hydrostatic testing, flush hydrants and check for proper drainage.

### 3.05 BLOWOFFS

- A. Install a blowoff on the dead ends of all water mains or where shown on the Construction Drawings.
- B. Construct blowoffs as directed by the Municipality.

### 3.06 SURFACE RESTORATION

- A. Restore unpaved areas in accordance with Section 02221.
- B. Restore other areas in accordance with local regulations.

END OF SECTION