



***CONNECTICUT WATER SERVICE***

***PURCHASING STANDARDS  
FOR  
WATERWORKS MATERIAL***

***FOR ALL SUBSIDIARY COMPANIES***

***August 2017***



## **FORWARD**

The purpose of Purchasing Standards for Waterworks Materials is to identify a set of materials that provide reliable service at reasonable life cycle cost under the range of conditions and over the life expected of the Company's distribution systems. This edition includes substantial updates of the AWWA Standard references, a careful review of each item included and meter installation drawings.

The choices include the collective consideration of Connecticut and Maine Water Company's (MWC) Operations, Field Service, Construction, Engineering and Procurement personnel. Connecticut Water Company also includes the recently acquired Heritage Village and Avon Water Companies and will be collectively referred herein as CWC.

Utility experience, availability, material design factors, design life, standardization for repair replacement and spares are all part of the evaluation process for the regular use of these materials. Installations involving above or below grade crossings, high operating pressure, corrosive and/or contaminated or suspected contaminated soils and for other special service conditions or use of non-standard materials, consult with the Engineering Group to confirm a selection that is appropriate and approved for the project or duty.

**All material supplied to and used by CWC/MWC is to be manufactured in the USA or Canada unless specific exception is noted or given by CWC/MWC.**

**CWC/MWC reserves the right to reject some or all of any material delivered should there be any deficiencies in our quality inspection.**

**All brass items shall conform to the "Lead Free Brass Standards" as approved by the AWWA.**

**These specifications dated August, 2017 shall supersede all previous published documents.**

# PURCHASING STANDARDS FOR WATERWORKS MATERIAL

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## WATER MAIN MATERIALS

### DUCTILE IRON PIPE

Pipe shall be minimum thickness Class 52 or pressure class 350 ductile-iron as specified per installation location, double cement mortar-lined, double bituminous seal coated inside, manufactured and finished in The United States of America or Canada and in accordance with ANSI/AWWA C151/A21.51-02 or the latest revisions thereof.

All pipe joints shall be the push-on type, unless otherwise specified, employing a single, elongated grooved rubber gasket to affect the joint seal. All joints shall conform to the applicable requirements of ANSI/AWWA C111/A21.11-07 or the latest revision thereof. Where push-on locking or mechanical joint locking gaskets are specified, they shall be "Field Lok" (red in color) by U.S. Pipe, "Sure Stop 350" by McWane or 'Fast-Grip' by American Pipe.

If flanged pipe is used, it shall be flanged ductile iron pipe with threaded flanges in accordance with ANSI/AWWA C115/A21.15-05 or the latest revision thereof. Flanged pipe shall have a minimum thickness of special Class 53 and be furnished with ductile iron flanges.

All pipes shall be double cement mortar-lined and double seal coated in accordance with ANSI/AWWA C104/A21.4-03.

#### Approved Manufacturers of Ductile Iron Pipe

McWane Ductile  
American Cast Iron Pipe Company  
United States Pipe & Foundry Company

#### Approved Manufacturers for Restrained Joint Ductile Iron Pipe Class

United States Pipe & Foundry Company (TR Flex)  
McWane Ductile (Super-Lock)

### PRE-INSULATED PIPE

#### **Service Pipe:**

**The service pipe shall be Ductile** Iron manufactured in accordance with ANSI/AWWA C151/A21-51. Push-on joints and mechanical joints shall be in accordance with ANSI/AWWA C111/A21.11

#### **Insulation:**

The insulation shall be a foamed in place closed cell polyurethane which completely fills the annular space between the carrier pipe and the exterior casing. The insulation shall have the following physical properties:

Minimum Density (lb./cu. ft.) 2.0 ASTM D-1621  
“K” Factor BTU/Hr. sq. ft. °F/in. .147 ASTM C-177  
90-95 % Closed Cell ASTM D-2856

**Exterior Casing: \***

The exterior casing shall be

- (1) Seamless, extruded white PVC Type 1, Grade 1, Class 12454-B per ASTM D-1784 **or**
- (2) Seamless, High Density Polyethylene (H.D.P.E.) ASTM D-1248 with the following physical properties:

ASTM D-638.....Ultimate Elongation 850%  
ASTM D-638.....Tensile Yield Strength 3300 psi  
ASTM D-3350.....Resin Type III, Grade P34  
ASTM D-790.....Tangent Flexural Modules 175,000 psi

**No tape casings will be allowed.**

**Fittings:**

All fittings shall be mechanical joint and restrained with a mechanical retainer gland or a concrete poured thrust block.

Fittings shall be in accordance with AWWA C110 and AWWA C111.

**Approved Manufacturers:**

Tricon Piping Systems, Inc.  
Urecon Pre-insulated Pipe

**HDPE**

Pipe and fittings shall be made from the same resin meeting the requirements of the Plastic Pipe Institute (PPI) material designation PE 3408 with an ATSM D3350 minimum cell classification of PE 345464C. The material shall have a minimum Hydrostatic Design Basis (HDB) of 1,600 psi at 73 degrees F.

All materials which come in contact with water, including lubricants, shall be evaluated, tested, and certified for conformance with ANSI/NSF Standard 61. All pipe and fittings shall be manufactured in ductile iron pipe sizes (DIPS) only in accordance with AWWA Standard C906.

The pipe shall contain no recycled compound except for rework material generated in the manufacturer’s own plant that has the same cell classification as the material to which it is being added. The pipe shall be homogeneous throughout and free of visible cracks, holes, voids, foreign inclusions, or other defects that may affect the wall integrity. Permanent identification of water piping service shall be provided by co-extruding longitudinal blue stripes into the pipe outside surface. The striping material shall be the same material as the pipe material except for color. Stripes printed or painted on the outside surface shall not be acceptable.

The nominal pipe diameter is specified on the Contract Drawings. The DR (dimension ratio) and the pressure rating of the pipe shall be as noted on the plans. The minimum pressure rating will be 200 psi.

Plain end butt fused fittings and electro-fusion couplings shall be used when joining polyethylene materials. Mechanical joint fusion adaptors shall be used when joining polyethylene materials to different piping materials for 4 inch and greater diameter. Mechanical (compression) fittings shall be used only when joining polyethylene materials to different piping materials for less than 4 inch diameter and approved by MWC.

**MAIN LINE FITTINGS**

Fittings shall be ductile-iron, double cement mortar-lined, double bituminous seal coated inside with mechanical or flanged joints, as specified, manufactured in the United States or Canada and in accordance with C153/A21.53-06 (Ductile iron Compact fittings) or the latest revision thereof. This standard includes tees, bends, offsets, sleeves, crosses, reducers, caps, plugs and connecting pieces. Gray iron fittings (ANSI/AWWA C110/A21.10.03) will only be used where specified.

Exterior coating for mechanical joint fittings shall be bituminous seal coat OR. Exterior coating for flanged fittings shall be bituminous seal coat or primer coated as specified.

All fittings shall meet the following required working pressure rating:

| <u>ANSI/AWWA Standard</u> | <u>Pipe Material</u> | <u>Pipe Diameter (inches)</u> | <u>Type of Joint</u> | <u>Working Pressure Rating (psig)</u> |
|---------------------------|----------------------|-------------------------------|----------------------|---------------------------------------|
| C153/A21.53-06            | Ductile-Iron         | 3-64                          | Mechanical           | 350                                   |
| C110/A21.10-03            | Ductile-Iron         | 3-48                          | Mechanical           | 250                                   |
| C115/A21.15-05            | Ductile-Iron         | 3-48                          | Flanged              | 250                                   |

Approved Manufacturers

Tyler Union

**RETAINER GLANDS FOR MECHANICAL JOINTS**

CWC – Shall only use Megalug Series 1100, manufactured by EBAA Iron Inc.,  
MWC Only – Romac Grip Ring for DIP sizes 4 – 12 inch, greater than 12 inch, Megalug noted above shall be used-

**BOLT THROUGH MJ ADAPTER FOR JOINT RESTRAINT**

In-Fact Corporation Foster Adapter 6-12 inches for the direct connection of MJ fittings.  
In-Fact Compact Restrained Joint fittings (As specified by application)

**MAIN LINE RESILIENT-SEATED GATE VALVES**

(Up to and including 12")

Resilient-seated gate valves shall be full weight Ductile iron body, non-rising stem, mechanical or flanged joint\* complete with stainless steel trim, as specified, O-ring seal with a 2" x 2" operating nut, manufactured in the United States or Canada and in accordance with ANSI/AWWA C509-01 or the latest revision thereof. *Note: Lightweight/thin wall ductile iron body valves are **not** accepted.*

As a minimum, the inside of the valve body and bonnet are to be coated with a fusion bonded epoxy in accordance with ANSI/AWWA C550-05 or the latest revision thereof. All bolts shall be stainless steel ASTM F593.

\* Refer to ANSI/AWWA C111/A21.11-007 or the latest revision thereof.

Valves shall meet the following required working pressure rating:

| <u>Pipe Diameter (inches)</u> | <u>Working pressure rating (psig)</u> |
|-------------------------------|---------------------------------------|
| Up to 12                      | 200                                   |

Gate valves opening direction should be ordered specific to each MWC or CWC Region System. Opening directions may be found in the Appendix.

Approved Manufacturers and Products

Mueller Company A-2362-20 (MJ); A2362-6 (Flanged)  
U.S. Pipe Resilient Seat Valve A USP223

**MAIN LINE BUTTERFLY VALVES**

(16" and larger)

Butterfly valves shall be Class 150B iron-body, bronze-mounted, mechanical ~~or flanged joint\*~~, as specified, rubber seated with a 2" x 2" operating nut, manufactured in the United States or Canada and in accordance with ANSI/AWWA C504-06 or the latest revision thereof. Valve seats shall be designed to provide tight shutoff at a pressure of 150 psig.

All flanged joint butterfly valves are to have hand wheel and position indicators.

If specified, all interior ferrous metal surfaces of each valve except finished or bearing surfaces shop painted with epoxy paint shall be in accordance with ANSI/AWWA C-550-05 or latest revision thereof. All Bolts shall be stainless steel ASTM F593.

\* Refer to ANSI/AWWA C111/A21.11-07 or the latest revision thereof.

Valve operators shall be furnished complete with the valves and ordered specific to each Region as indicated in the Appendix.

Approved Manufacturers

Henry Pratt Co., "Groundhog"  
Mueller Co., "Linesal III"



VAL-Matic American - BFV  
M&H Valve Co.

### **STAINLESS STEEL TAPPING SLEEVES**

All Tapping Sleeves shall be stainless steel unless ductile iron is called for on specific installations. Ductile specifications may be found in the Appendix. Only TPS brand stainless tapping sleeves may be used on Ductile Iron, Cast Iron and Transite water mains for size on size taps. Outlet flange to be Stainless. All nuts, bolts, etc. should be stainless steel and conform to AWWA Standard for Fabricated Steel and Stainless Steel Tapping Sleeves C223-02. Additional installation requirements may be project specific.

#### **Approved Manufacturers:**

##### Standard MJ Valve Sleeves

Total Piping Solutions – TPS Standard and Flanged Tapping Sleeves

Power Seal #3490MJ

Mueller H-304MJ

*\*Ductile Iron Tapping Sleeves may be required for certain installations. See Appendix for Specifications*

### **VALVE BOXES**

Valve boxes shall be iron-body with close fitting dirt-tight covers, 2-piece (26 inch top, 36 inch bottom,) 5 ¼-inch shaft adjustable slide type. The top of the cover shall be flush with the top of the box rim with the word “WATER” clearly marked.

All Boxes for CWC & MWC lengths shall be sized as indicated above with the exception of:

Greenville and Millinocket Maine Typically 36” tops, 48” bottoms

#### Approved Manufacturers

Bingham & Taylor #4908

Bibby St. Croix #V683 (5664)

Tyler/Union Foundry #7126

### **FIRE HYDRANTS**

Fire hydrants shall be Mueller Super Centurion 250 A423 with a D-150 shoe, dry-barrel, iron-body with one 4 ½-inch pumper\* and two 2 ½-inch hose connections with National Standard Thread manufactured in the United States or Canada and in accordance with ANSI/AWWA C502-05 or the latest revision thereof. All CWC hydrants shall be of the automatic drain type to prevent freezing. All MWC hydrants shall NOT be of the automatic drain type; DRAINS MUST BE PLUGGED. All hydrants must have a minimum working pressure of 150 psig. Fire hydrants shall be ordered for the correct depth of bury for the application.

The hydrant main valve shall be designed to remain closed in the event of a break in the hydrant above or near grade level. The hydrant base inlet shall be 6 inches in diameter with mechanical joint ends for connection to a 6-inch M.J. gate valve and mechanical joint anchoring tee.

All fire hydrants shall be factory coated only, provided with a stenciled CWC identification label and be provided with a letter of verification from Mueller as to the origin, coating and distributor account for warranty verification. The Distributors Account Number is required to be stenciled on the barrel for identification.

\*If CWC/MWC determines the hydrant is for use on a 6-inch main with available flow 500 gpm or less, use a Mueller Super Centurion 250 A422 (only two – 2 ½” hose connections).

Hydrant information specific to each CWC or MWC System may be found in the Appendix.

### **POLYETHYLENE ENCASEMENT**

Polyethylene sheeting and tubing used for the external corrosion protection of buried ductile-iron pipe, fittings and appurtenances shall meet American Water Works Association ANSI-AWWA C105/A21.5-99(10) standards. The material shall be produced from a low density polyethylene with a density of 0.910 to 0.935 and a minimum thickness of .008 inches (8MIL) or if designated by the Company a high density cross laminated polyethylene with a high density of 0.940 to 0.960 and a minimum thickness of .004 inches or (4Mils) and shall be Black in color.

Unless otherwise specified or approved, all material supplied shall be either as a continuous rolls, perforated at either 20 or 22 foot intervals. It shall be marked with the following information:

- A.) Name of manufacturer
- B.) ANSI/AWWA C015-A21.5
- C.) 8 MIL LLDPE or 4 MIL CLHDPE
- D.) Applicable range of nominal pipe diameter
- E.) Warning – Corrosion Protection – Repair Any Damage

**Each shipment shall contain certification that the material meets the minimum requirements specified by American Water Works Association Specification ANSI-AWWA C105/A21.5-99.**

### **AIR VENTS - BLOWOFFS (If Specified – See Standard Details [SD5](#) and [SD5A](#))**

Kupferle – TF500, all brass blow-off hydrant

Blowoff valves shall be a 2inch gate valve. Open direction shall be same as Region valves as specified in the appendix.

SDP top mount air vent, 1inch only

### **WARNING TAPE**

Warning tape shall be a minimum 3-inch wide, 4.0 mil polyethylene film suitable for buried service. The tape shall be blue in color per the A.P.W.A. National Color Code and shall be permanently imprinted with a warning label indicating a “Water Main Buried Below.”

**SUBSURFACE INSULATION – Specified on a job by job basis.**

**CHLORINE TABLETS**

5 gram calcium hypochlorite tablets, **non-stabilized**, installed per the Disinfection Section of the project specifications, and in accordance with AWWA C651-05. Chlorine Tablet Adhesive shall be Dow Corning 732 100% silicone rubber sealant.

**REPAIR CLAMPS – MISCELLANEOUS FITTINGS**

All repair clamps and miscellaneous fittings should be stainless steel, epoxy, or nylon coated and use all stainless steel nuts, bolts, etc. and full face rubber gaskets where available.

Approved Manufacturers

Ford  
Smith Blair  
Romac  
Mueller  
Dresser

Wide range transition couplings approved for use up to and including 12”

Mueller : Maxi-Range  
TPS – Quick Cam  
Hymax for non-uniform size only  
Romac – MACRO – Trial basis

Wide range transition couplings approved for use over 12”

Smith Blair # 44  
Romac # 501

## **SERVICE LINES AND ACCESSORIES**

### **SERVICE LINES**

Service lines shall be type “K”, soft seamless copper tubing with no soldered joints underground. Copper tubing to be manufactured in the United States or Canada and ordered in 60-foot (100-foot for special projects) single flat coils for 3/4”, 1” and 1 ½” sizes or 40-foot single flat coils for 2” size (standard minimum service size is 1”).

Service line connections from corporation main valve to curb valve **shall only be type K copper** unless otherwise approved by CWC/MWC.

As specified by the Company the use of plastic pipe on the customer side of curb valve may be approved by the Company; such pipe shall be PE 3608 polyethylene copper tubing size, rated for 200 psi working pressure or PE 4710 polyethylene, rated for 160 psi working pressure, meeting AWWA C901-02, with this information and the NSF seal appearing on the pipe. Stainless Steel inserts to be provided at compression connections.

Service lines larger than 2 inch in size shall be ductile iron pipe in accordance with the material specifications for water mains.

Nonmetallic pipe must be paralleled by a metallic wire for ease of locating. Said wire shall be 12AWG stranded copper with an HMW-PE jacket.

### **STRAP SERVICE SADDLES** (for 1 inch and above taps)

Double strap service saddles shall have epoxy or nylon coated body and stainless steel nuts, bolts and double straps. Taps shall be CC (Mueller) Thread unless otherwise noted.

#### Approved Manufacturers

Smith-Blair #313 or #317 or #239

Romac #202N

Ford FCD 202

Mueller #DE2S

U.S. Pipe #DR2S

### **CORPORATION STOPS (valves)**

Corporation stops shall be Mueller ball type corporations B25008N1 rated for 300 psi bronze-body ground key design manufactured in the United States or Canada in accordance with ANSI/AWWA Standard C800-05. The inlet shall have a standard AWWA corporation valve inlet thread (Mueller - CC) and the outlet shall be a compression connection for copper tubing.

### **CURB STOPS (valves)**

Curb stop valves shall be bronze-body and manufactured in the United States or Canada in accordance with ANSI/AWWA Standard C800-5. Both ends of curb stop valves shall be compression connections for copper service tubing. MWC Standard shall be Ball Valve style rated for 300 psi. CWC shall be Mueller Mark II Oriseal H-15209.

Approved Manufacturers

Mueller Mark II Oriseal H-15209, Mueller 300 Ball Valve B-25209

Ford B44-444-Q

A.Y. McDonald – 6100-Q

If a curb stop valve is needed with a drain (stop and waste), it shall be a Mueller Mark II Oriseal H-15219 or other approved manufacturer.

**CURB BOXES**

Curb boxes shall be iron-body with close fitting, dirt tight or screw type covers. The top of the cover shall be flush with the top of the box rim with the word ‘WATER’ clearly marked.

Curb boxes for MWC shall be Erie Style with Stainless Steel Rods with lengths specific to each installation. Curb boxes for CWC are ordered specific to each Region and may be found in the Appendix. Any Erie style boxes for CWC shall also be equipped with Stainless Steel Rods.

**METER PITS**

Meter Pits shall be .486 inch minimum wall PVC or polyethylene, eighteen inch in diameter per CWC drawing SMS-3, dated 10/31/07 for 5/8 x 3/4” and 3/4” meters. Twenty-two inch diameter meter pits per drawing, SMS-3A dated 10/31/07, shall be used for 1” meters. Meter pits are to be furnished with cast iron frame and 15” or 18” diameter lid to say “Water.” Covers to be drilled for touch pad reader and supplied with plug. Frames and covers also to include full diameter foam insulation pad with cutout for meter access.

Approved Manufacturers:

Mueller/McCulloch

QWP

A.Y. McDonald

**METER YOKES (HORNS) – Required for CWC only**

Meter Yokes shall be corner style with locking corner brass valves for sizes 5/8” x 3/4”, 3/4” or 1” per CWC drawing SMS-1, dated 4/6/04 or SMS-2, dated 4/13/04 with pressure-reducing valve for size 5/8” x 3/4”. With exception of Avon Water, the Meter Yoke shall be a Ford No. 2 copper horn.

Approved Manufacturers:

Mueller Company

Ford Meter Box Co.

A.Y. McDonald

# Appendix

## CWC & MWC Gate and Butterfly Valve Opening Directions

| <u>CWC Systems</u>             | <u>MWC Systems</u>           | <u>MWC Contracts</u>        |
|--------------------------------|------------------------------|-----------------------------|
| Shoreline - Open Right         | Biddeford Saco - Open Right  | South Freeport - Open Right |
| Naguatuck - Open Right         | Camden Rockland - Open Right | Waldoboro - Open Right      |
| Terryville - Open Left         | Union & Warren - Open Right  | Vinalhaven - Open Left      |
| Thomaston - Open Left          | Skowhegan - Open Right       |                             |
| Unionville - Open Left         |                              |                             |
| Avon – Open Left               | Oakland – Open Left          |                             |
| Collinsville - Open Left       | Hartland - Open Right        |                             |
| Northern - Open Left           | Bucksport - Open Left        |                             |
| Rockville - Open Right         | Millinocket - Open Left      |                             |
| Vernon - Open Right            | Greenville - Open Left       |                             |
| Ellington-Open Right           |                              |                             |
| Crystal Systems - Open Left    | Freeport - Open Right        |                             |
| Gallap System - Open Right     | Kezar Falls - Open Left      |                             |
| Mansfield - Open Left          |                              |                             |
| *Heritage Village – Open Right |                              |                             |

\*Heritage Village 'In the Village' is Open Left

### MWC Hydrant Information

| <u>MWC System</u>            | Color  | Bury           | <u>MWC Contracts</u>        | Color  |               |
|------------------------------|--------|----------------|-----------------------------|--------|---------------|
| Biddeford Saco - Open Right  | Yellow | 5'6"-6'0"      | South Freeport - Open Right | Yellow | 6'0"          |
| Camden Rockland - Open Right | Red    | 5'6"-6'0"      | Waldoboro - Open Right      | Red    | 5'6"-<br>6'0" |
| Union & Warren - Open Right  | Red    | 5'6"-6'0"      | Vinalhaven - Open Left      | Red    | 6'0"          |
| Skowhegan - Open Right       | Red    | 6'0"           |                             |        |               |
| Oakland - Open Left          | Red    | 6'0"           |                             |        |               |
| Hartland - Open Right        | Red    | 6'0"           |                             |        |               |
| Bucksport - Open Left        | Yellow | 6'0" +<br>7'0" |                             |        |               |
| Millinocket - Open Left      | Orange | 6'0"           |                             |        |               |
| Greenville - Open Left       | Orange | 6'0"           |                             |        |               |
| Freeport - Open Right        | Yellow | 6'0"           |                             |        |               |
| Kezar Falls - Open Left      | Yellow | 5'6"           |                             |        |               |

CWC Hydrant Specifications

| <u>CWC System</u> | <u>Hydrant Main Valve</u> |                         | <u>Paint Scheme</u>                        |
|-------------------|---------------------------|-------------------------|--|
|                   | <u>Direction</u>          | <u>Opening (inches)</u> |  |
| Shoreline         | Open Right                | 5 ¼                     | Yellow Barrel with White Reflective Bonnet |
| Naugatuck         | Open Left                 | 5 ¼                     | Red with White Reflective Caps and Bonnet  |
| Northern          | Open Left                 | 5 ¼                     | Yellow Barrel with White Reflective Bonnet |
| Crystal           | Open Left                 | 5 ¼                     | Red  |
| Gallup            | Open Right                | 5 ¼                     | Red  |
| Unionville        | Open Left                 | 5 ¼                     | Red  |
| Avon              | Open Left                 | 5 ¼                     | Red  |
| Mansfield         | Open Left                 | 5 ¼                     | Red  |
| Heritage Village  | Open Left                 | 5 ¼                     | Red  |

CWC Curb Box Specifications

| <u>Region</u> | <u>Service Size</u> | <u>Type</u>   | <u>Manufacturer &amp; Model</u>                   |
|---------------|---------------------|---|---|
| Shoreline     | 1”<br>&<br>1 ½”     | Extension type<br>With 27” long stationary rod<br>(Mueller # 82863)<br>(SS rod for use in salt water areas) | Mueller H-10314<br>QWP “Laroache”<br>Bibby #R1500 |
| Shoreline     | 2”                  | Extension type<br>With 30” stationary rod<br>(Mueller # 580562)   | Mueller H-10386                                   |



|  |                     |  |   |
|--|---------------------|--|---|
| Naugatuck<br>Northern<br>Crystal<br>Gallup<br>Heritage Village | 1”<br>through<br>2” | Slide type<br>2 ½-inch shaft   | Bingham & Taylor 95E<br>Slip<br>Bibby St. Croix #V213   |
| Unionville   | 1”<br><br>1 ½” – 2” | Extension type<br>With 33” long stationary rod<br>(Mueller # 82864)<br>Extension type<br>With 33” long stationary rod<br>(Mueller # 82864)<br><i>and</i><br>Installed over enlarged base | Mueller H-10314<br>QWP “Laroache”<br>Bibby #R1500<br><br>Mueller H-10314<br>QWP “Laroache”<br>Bibby #R1500<br>Bibby #V313 |
| Mansfield  | 1”<br>through<br>2” | Extension type<br>With 27” long stationary rod<br>Or<br>Slide type<br>2 1/2 inch shaft   | Mueller H-10314<br>QWP “Laroache”<br>Bibby #R1500<br>Bingham & Taylor 95E<br>Slip<br>Bibby St. Croix #V213                |
| Avon   | 1” through<br>2”    | Erie #1 Curb Box & Rod<br>with 30” stationary rod.   |   |

**Note: Enlarged base section may need to be used on service lines with 2in ball valves and larger**

### **DUCTILE IRON TAPPING SLEEVES**

Tapping sleeves are to be manufactured from ductile iron. Tapping sleeves are to only be used in conjunction with a mating tapping valve from same manufacturer. All sleeves are to include the end joint accessories and split glands necessary to assemble sleeve to pipe. MJ bolts and nuts are to conform to ANSI/AWWA C111/A21.11-07. Inside and outside of all tapping sleeves to be coated in accordance with AWWA Standard for Ductile Iron Compact Fittings ANSI/AWWA C153/A21.53-06 Section 4.3.

#### Approved Manufacturers

Mueller Company – H-615 (for use on C.I. & D.I. pipe), H-616 (for use on Pit Cast C.I. pipe)