



8560 Arlington Boulevard  
Fairfax, Virginia 22031

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# APPROVED PRODUCTS LIST



June 2011

# Fairfax Water

## Approved Products List

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# **Fairfax Water**

## **Approved Products List**

### **General Notes**

1. Questions or comments regarding the Approved Product List should be directed to Fairfax Water's Manager of Engineering at (703) 289-6378.
2. Fairfax Water has established procedures for the review and approval of products used in the water system. All products considered for use in the water system must be reviewed and approved by the Product Review Committee prior to being included in the Approved Product List.
3. It is understood that all standards referenced in the Approved Product List shall be the latest version of that standard, regardless of the year or date indicated.
4. After an item is approved, the Manufacturer or representative must inform Fairfax Water, in writing, of any modifications in design or material. Changes in design or material may require further evaluation and approval of the product.
5. Fairfax Water may withdraw any approval as a result of design change, field observation, testing, product failure, or other factors which, in Fairfax Water's opinion, warrant such withdrawal.

Revised: 6/5/2008

**Fairfax Water  
Approved Products List  
General Notes**

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# DIVISION 2 – SITEWORK

## 02300 Earthwork

### 02371 Geotextiles

## Geotextiles

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM D751 Standard Test Methods for Coated Fabrics
- B. ASTM D1117 Standard Methods of Testing Non-woven Fabrics
- C. ASTM D1682 Standard Test Methods for Breaking Load and Elongation of Textile Fabrics
- D. Virginia Department of Transportation (VDOT) Road and Bridge Specifications

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall conform with Section 245 of VDOT Road and Bridge Specifications.
- B. Geotextile fabric shall be pervious and shall consist of either woven or non-woven sheets of polypropylene yarn.
- C. The geotextile fabric shall be free of defects or flaws that may significantly affect physical properties.
- D. All edges of woven geotextile fabric shall be salvaged.
- E. The fabric shall be treated to provide resistance to degradation from ultraviolet radiation for a minimum period of 180 days.

- F. Minimum Strength:

<u>Strength Test</u>	<u>Certified Minimum Average Roll Values</u>	
	<u>Type I</u>	<u>Type II</u>
Grab Strength (ASTM 1682)	270 lbs.	180 lbs.
Puncture Strength (ASTM 751)	110 lbs.	75 lbs.
Mullen Burst Strength (ASTM 751)	430 psi	290 psi
Trapezoid Tear Strength (ASTM 1117)	75 psi	50 psi
Permittivity	1.05 sec.-1	1.45 sec.-1

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Belton, Industries, Inc., Beltech 200 Polypropylene

### PART 3 – EXECUTION

#### **NOT USED**

**END OF SECTION**

## **02400 Tunneling, Boring, and Jacking**

### **Casing Insulators (Spacers)**

### **Casing Insulators (Spacers)**

#### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

##### ***Summary***

##### **References**

Product shall adhere to the latest version of:

- A. NONE

##### ***System Description***

##### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Hot rolled, 14-gauge Carbon steel with polyvinyl chloride coating.
- B. 304 Stainless steel material.
- C. All hardware shall be electroplated steel.
- D. All stainless steel welds shall be chemically passive.
- E. Minimum 7-inch width for 12-inch diameter pipe or smaller.
- F. Minimum 11-inch width for 14-inch diameter or larger.
- G. Runners shall be made of reinforced, high strength polymer with high abrasion resistance and a low coefficient of friction.
- H. Minimum of three casing insulators required per pipe length, or more as required by the manufacturer, with a maximum separation of six feet.
- I. Minimum 2-inch width runners.

#### **PART 2 – PRODUCTS**

##### ***Manufacturers***

##### **Approved Manufacturer(s):**

- A. Cascade Waterworks Manufacturing Company (Stainless Steel)
- B. Pipeline Seal and Insulator, Inc. (Carbon Steel with polyvinyl chloride coating)
- C. Advanced Products & Systems, Inc. Model SI
- D. RACI (Polyethylene)
- E. PowerSeal Pipeline Products Corp./Model 4810
- F. BWM
- G. CCI Pipeline Systems (Stainless Steel)

#### **PART 3 – EXECUTION**

##### ***NOT USED***

END OF SECTION

Revised: 6/1/2011



## Liner Plate

# Liner Plate

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A123 Standard Specification for Zinc (Hot-Dip Galvanized) Coatings on Iron and Steel Products
- B. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength
- C. ASTM A153 Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Hot-dipped galvanized steel, ASTM A123.
- B. Thickness shall be a minimum of 8 ga. in thickness and should be capable of supporting an AASHTO HS20 loading as well as all other superimposed loads.
- C. Each section shall be certified by the manufacturer for thickness and material quality, galvanizing quality, and quality of bituminous coating.
- D. Loading requirements for railway crossings in accordance with AREA Manual for Railway Engineering or the railroad company whose track is being crossed, whichever is stricter.
- E. One grout hole minimum for every three liner plate rings.
- F. Grout holes shall be 2-inch half couplings provided with 2-inch cast iron plugs.
- G. Bolts and nuts shall conform to ASTM A307, Grade B.
- H. Bolts and nuts shall be hot-dipped galvanized in accordance with ASTM A153.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Contech Construction Products (formerly Armco, Inc.)
- B. Republic Steel Corporation
- C. Commercial Pantex Sika, Inc.

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## **02500 Utility Services**

### 02510 Water Distribution

#### **Pipes**

##### Ductile Iron Pipe (DIP)

## **Ductile Iron Pipe (DIP)**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C151/A21.51 Ductile-Iron Pipe, Centrifugally Cast, for Water
- B. ANSI/AWWA C104/A21.4 Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Class 52.
- B. Mark manufacturer, weight, class, and thickness on outside of each pipe.
- C. Mark DI or DUCTILE.
- D. Cement Mortar Lining in accordance with ANSI/AWWA C104/A21.4 and thickness as follows:
  - 1/8-inch cement lining for 12 inch and smaller pipe diameter (double thickness)
  - 3/16-inch cement lining for 14 inch through 24 inch pipe diameter (double thickness)
  - 1/4-inch cement lining for 30 inch through 54 inch pipe diameter (double thickness)

This shall include the bituminous seal coat.

### **PART 2 – PRODUCTS**

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. American Ductile Pipe Company
- B. Atlantic States Cast Iron Pipe Company
- C. Clow Water Systems Company
- D. Griffin Pipe Products Company
- E. McWane, Inc.
- F. Pacific States Cast Iron Pipe Company
- G. U.S. Pipe and Foundry Company

### **PART 3 – EXECUTION**

#### **NOT USED**

END OF SECTION

Revised: 3/16/2010

## Steel Pipe

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C200 Steel Water Pipe 6 inches and Larger
- B. ANSI/AWWA C203 Coal Tar Protective Coatings and Linings for Steel Water Pipelines – Enamel and Tape-Hot Applied
- C. ANSI/AWWA C205 Cement-Mortar Protective Lining and Coating for Steel Water Pipe 4-inch and Large Shop Applied
- D. ANSI/AWWA C206 Field Welding of Steel Water Pipe
- E. ANSI/AWWA C210 Liquid Epoxy Coating Systems for the Interior and Exterior of Steel Water Pipelines
- F. ANSI/AWWA C214 Tape Coating Systems for the Exterior of Steel Water Pipelines
- G. ANSI/AWWA M11 Steel Pipe: A Guide for Design and Installation
- H. ANSI/ASME B36.10 Welded and Seamless Wrought Steel Pipe

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Steel pipe may be either fabricated or mill type.
- B. The specified size of the fabricated pipe shall be the actual inside diameter of pipe, for pipe 14 inches and larger.
- C. The specified size of mill pipe shall be the nominal pipe size set forth in ANSI/ASME B36.10.
- D. Pipe wall thickness requirements vary with diameter and are provided in project specifications.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Northwest
- B. American Pipe Company
- C. Permalok (for use as steel casing pipe only)

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

Prestressed Concrete Cylinder Pipe (PCCP)

## **Prestressed Concrete Cylinder Pipe (PCCP)**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA 301 Prestressed Concrete Pressure Pipe, Steel Cylinder, for Water and Other Liquids
- B. ASTM Standard Specification for Portland Cement, Designation C 150, Type I

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. The working pressure shall be stenciled thereon, including any special stationing requirements.
- B. Cement used shall comply with ASTM standard for C150, Type I.
- C. Steel cylinder shall withstand design lateral forces and overburden.
- D. No welded joints allowed.
- E. Dead Load Allowance for Soil Weight – 120lb/cf
- F. Coefficient of Friction – 0.3
- G. All exterior surfaces shall receive shop-applied exterior coat of polyamide epoxy-cal tar, minimum dry film thickness of 20 mils. Manufacturer shall certify coating before shipping.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Price Brothers

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

## HDPE Pipe

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C901 – Polyethylene Pressure Pipe and Tubing, ½ -inch through 3-inch for water service
- B. ANSI/AWWA C906 – Polyethylene Pressure Pipe and Fittings, 4-inch through 12-inch for water distribution
- C. National Science Foundation – Standard 61 Drinking Water System Components

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall be NSF 61 approved for use in potable water systems.
- B. 2-inch through 8-inch diameter.
- C. Minimum working pressure of 160 psi, DR 11
- D. 4000 Series (DIPS)
- E. Pipe shall be heat fused with zero leakage joints.
- F. Standard 40 feet lengths shall be provided.
- G. A minimum of two-percent of carbon black content to protect against ultraviolet degradation.
- H. Pipe color scheme shall be: Black pipe with blue lettering or a blue line on the pipe.
- I. Writing color on exterior of pipe shall be blue.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Performance Pipe

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## **Fittings**

Standard Pattern Mechanical Joint Fittings

### **Standard Pattern Mechanical Joint Fittings**

#### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

##### **Summary**

##### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C104/A21.4 Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water
- B. ANSI/AWWA C110/A21 Ductile Iron and Gray Iron Fittings 3-inch through 48-inch for Water
- C. ANSI/AWWA C111/A21 Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
- D. ANSI/AWWA C116/A21 Protection Fusion Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile Iron and Gary-Iron Fittings for Water Supply Service
- E. ANSI/AWWA C550/A21 Standard for Protective Epoxy Interior Coatings for Valves and Hydrants
- F. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60 000 PSI Tensile Strength

##### **System Description**

##### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Cast gray iron, minimum rated 250 psi.
- B. Ductile iron, minimum rated 350 psi 24-inch diameter or smaller.
- C. Ductile-Iron minimum rated 250 psi 30-inch diameter or larger.
- D. Cement Lining (ANSI/AWWA C104/A21.4)
  - 1/16-inch – 1-inch through 12-inch
  - 3/32-inch – 14-inch through 24-inch
  - 1/8 inch – 30-inch through 54-inchThis shall include the bituminous seal coat. Fusion bonded epoxy with 6-8 mils thickness is also acceptable. Sleeves, plugs and caps shall not be cement lined.
- E. Mechanical joint bolt holes shall straddle the centerline of fittings.
- F. Bolts and nuts shall be low-carbon steel, ASTM A307, in accordance with ASTM A307, Grade B.
- G. Plugs shall be flat faced, push-on or mechanical joint.
- H. Sleeves shall be long pattern.

#### **PART 2 – PRODUCTS**

##### **Manufacturers**

##### **Approved Manufacturer(s):**

- A. American Cast Iron Pipe Company
- B. Clow Water Systems Company
- C. Tyler / Union
- D. U.S. Pipe and Foundry Company
- E. Sigma Corporation
- F. Star Pipe Products

#### **PART 3 – EXECUTION**

##### **NOT USED**

END OF SECTION

Revised: 9/9/2009

## Compact Mechanical Joint Fittings

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA 104/A21.4 Cement Mortar Lining for Ductile Iron Pipe and Fittings for Water Service
- B. ANSI/AWWA C153/A21.53 Ductile-Iron Compact Fittings, 3 in. through 24 in. (76 mm Through 610 mm) and 54 in. through 64 in. (1,400 mm Through 1,600 mm), for Water Service
- C. ASTM A307 Standard Specification Carbon Steel Bolts and Studs, 60,000 psi tensile strength,

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Class 350
- B. Cement lining in accordance with ANSI/AWWA C104/A21.4
  - 1/16-inch – 1-inch through 12-inch
  - 3/32-inch – 14-inch through 24-inch
  - 1/8 inch – 30-inch through 54-inchThis shall include the bituminous seal coat. Fusion bonded epoxy with 6-8 mils thickness is also acceptable. Sleeves, plugs and caps shall not be cement lined.
- C. Mechanical joint bolt holes shall straddle the centerline of fittings.
- D. Bolts and nuts shall be low-carbon steel, ASTM A307, Grade B.
- E. Fitting design shall prevent T-head bolts from rotating.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Sigma Corporation
- B. Tyler / Union
- C. U.S. Pipe and Foundry Company
- D. Star Pipe Products
- E. American Cast Iron Pipe Company

### PART 3 – EXECUTION

#### **NOT USED**

**END OF SECTION**

Revised: 7/26/2010

# Swivel Fittings

## PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

### *Summary*

### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C104/A21 Cement Mortar Lining for Ductile Iron Pipe and Fittings for Water Service
- B. ANSI/AWWA C110/A21.10 Ductile-Iron and Gray-Iron Fittings, 3 in through 48 in (75mm through 1200mm) for Water and Other Liquids
- C. ANSI/AWWA C153/A21.53 Ductile-Iron Compact Fittings, 3 in. through 24 in. (76 mm Through 610 mm) and 54 in. through 64 in. (1,400 mm Through 1,600 mm), for Water Service
- D. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi tensile strength

### *System Description*

### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Cement lining (ANSI/AWWA C104/A21.4)
  - 1/16-inch – 1-inch through 12-inch
  - 3/32-inch – 14-inch through 24-inchThis shall include the bituminous seal coat. Fusion bonded epoxy with 6-8 mils thickness of is also acceptable.
- B. Mechanical joint bolt holes shall straddle the centerline of fittings.
- C. Bolts and nuts shall be low-carbon steel, ASTM A307, Grade B.
- D. Fitting design shall prevent T-head bolts from rotating.

## PART 2 – PRODUCTS

### *Manufacturers*

### **Approved Manufacturer(s):**

- A. Tyler / Union
- B. U.S. Pipe and Foundry Company
- C. NAPP/CO/Sigma Corporation
- D. Star Pipe Products

## PART 3 – EXECUTION

### **NOT USED**

END OF SECTION



## 2-Inch Brass, Ductile and Galvanized Fittings & Pipe

### PART 1 – GENERAL

**Section includes: applicable referenced standards and technical requirements of the product.**

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM B687-88
- B. ASTM B62-93
- C. ASTM A153 Hot-Dipped Galvanized
- D. ANSI B16.3
- E. ASTM B43
- F. ASTM A53

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements consisting of, but not limited to material type, dimensions, and conditions.

- A. Pipe sizes 2-inch for blow-offs and air release valves
- B. Malleable Iron Threaded Fittings, Class 150 and 300.
- C. Steel Welded Nipples Schedule 40 and Schedule 80.
- D. Bronze threaded Fittings Class 125.
- E. Seamless Red Brass Nipples Schedule 40.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Merit Brass
- B. Smith Cooper
- C. General Pipe Works
- D. Harco
- E. Anvil International

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

Revised: 6/1/2010

## Brass and Copper Service Fittings

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. AWWA C800 Underground Service Line Valves and Fittings
- B. ASTM F1807 Standard Specification for Metal Insert Fittings Utilizing a Copper Crimp Ring for SDR-9 Cross-linked Polyethylene Tubing

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Brass goods shall be made of copper alloy containing nominally 85-percent copper and 5-percent each tin, lead, and zinc.
- B. An independent laboratory certification must be provided giving evidence that the brass goods comply with the material standards listed above.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Ford Meter Box Company, Inc.
- B. Mueller Company
- C. Cambridge-Brass
- D. A.Y. McDonald Manufacturing Company

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## HDPE Fittings

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C906 – Polyethylene Pressure Pipe and Fittings, 4-inch through 12-inch for water distribution
- B. National Science Foundation – Standard 61 Drinking Water System Components

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall be NSF 61 approved for use in potable water systems.
- B. 2-inch through 8-inch diameter.
- C. Minimum working pressure of 160 psi, DR 11
- D. 4000 Series (DIPS)
- E. Fittings shall be heat fused or electrofused (couplings only) with zero leakage joints.
- F. A minimum of two-percent of carbon black content to protect against ultraviolet degradation.
- G. Fitting color shall be black

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Performance Pipe
- B. Central Plastics Company

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## **Valves**

### Air Release Valves

## **Air Release Valves (Automatic)**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C512 Air Release Air/Vacuum, and Combination Air Valves for Waterworks Service

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. 1-inch inlet connection.
- B. Rated 300 psi working pressure.
- C. Floats and ball shall be stainless steel .
- D. All working parts shall be constructed of brass, stainless steel, or other non-corrosive material.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. APCO Valve & Primer Corporation
- B. GA Industries
- C. Valmatic

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

## Butterfly Valves

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C504 Rubber Seated Butterfly Valves

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Minimum size 16-inch.
- B. Short body type Class 150B conforming to ANSI/AWWA C504.
- C. Seats shall be rubber, permanently bonded and/or mechanically retained to the valve body.
- D. Mechanical joint and valves Class 150B conforming to ANSI/AWWA C504.
- E. All fasteners exposed on the valve's exterior to be T-304 stainless steel (ie. bolts that fasten bonnets, packings of stems and operator gear boxes).

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Henry Pratt Company - Groundhog
- B. Dezurick - BAW Model 150B
- C. Mueller Company - Lineseal III

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Butterfly Valve Operators

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C504 Rubber Seated Butterfly Valves
- B. ASTM 304 Standard Specification Stainless Steel Bolts and Studs, 60,000 psi tensile strength

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. All operators must be capable of operating Class 150B valves.
- B. All operators shall be capable of developing the maximum torque listed in Table 4 of ANSI/AWWA C504 for Class 150B valves.
- C. Bolts and nuts shall be stainless steel, ASTM 304.
- D. Counter-clockwise rotation of operating nuts to open.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Mueller Company
- B. Philadelphia Gear Corporation (Limitorque - electrical operators only)
- C. Henry Pratt Company

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Gate Valves

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C509 Resilient-Seated Gate Valves for Water Supply Service
- B. ASTM T-304 Stainless Steel Bolts and Studs, 60,000 psi tensile strength

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. All requirements apply to Double-Disc and Resilient-Seated Gate Valves.
- B. Maximum size - 14-inch.
- C. 2-inch and smaller shall be furnished with threaded ends.
- D. 3-inch and larger shall have mechanical joint ends.
- E. Provide O-ring seals.
- F. Counter-clockwise rotation of operating nut to open.
- G. Non-rising stem.
- H. Bolts and nuts shall be ASTM T-304 Stainless Steel.
- I. Gate valve body to be ductile iron with bronze stem

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Clow Valve Company (Resilient Wedge) - Model 2639-F6100 w/NDZ, specify heavy stem (2"-12" only)
- B. Kennedy Valve Company, - Model 8571DBYSS
- C. M&H Valve Company - Model 4067-DINDZ
- D. Mueller Company (Resilient-Seated only) - Model A2362-9000
- E. U.S. Pipe (Resilient-Seated only) - AUSP2-9000.

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Pressure Reducing Valves

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A536 Standard Specification for Ductile Iron Castings

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall provide tight shut off under conditions of no flow and shall not "hunt" under ordinary flow.
- B. Furnish each valve with all catalog-listed "optional" features, including, but not be limited to: flow clean strainer.
- C. Three shut-off cocks are required.
- D. Valve position indicator is required.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Cla-Val Company

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION



## Flow Control Valves

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A536 Standard Specification for Ductile Iron Castings

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall provide tight shut off under conditions of no flow and shall not "hunt" under ordinary flow.
- B. Furnish each valve with all catalog-listed "optional" features, including, but not be limited to: flow clean strainer.
- C. Three shut-off cocks are required.
- D. Valve position indicator is required.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Cla-Val Company

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Swing Check Valve

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. AWWA C508 Swing-Check Valves for Waterworks Service, 2 in (50 mm) through 24 in (600 mm)
- B. ASTM A536 Standard Specifications for Ductile Iron Castings
- C. National Science Foundation 61 Drinking Water System Components

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. 175 psi working pressure.
- B. Body and cover shall be made of ductile iron in accordance with ASTM 536.
- C. If rubber faced disk, the disk shall be of high quality elastomer.
- D. Shall be NSF 61 approved for use in potable water systems.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. APCO Valve & Primer Corporation - Series 6000 and Series 100 rubber-faced disc
- B. Cla-Val Company Model 584 Flex Check Valve
- C. Kennedy Valve Company , Figure 106A (rubber-faced disc)
- D. Mueller Company Series A2600 (rubber-faced disc)
- E. Valmatic Series 500 (rubber-faced disc)

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Vacuum Valves

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A126 Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
- B. ASTM A216 Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High- Temperature Service
- C. ASTM A536 Standard Specification for Ductile Iron Castings

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. The valve body, cover, and baffle shall be of ASTM A126 cast iron and ASTM 536 ductile iron, as applicable.
- B. The float, guide, shafts, and bushings shall be of Type 304 Stainless Steel.
- C. Seats shall provide a tight shutoff and be of Buna-N material.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. APCO Valve & Primer Corporation
- B. Valmatic

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Valve Boxes

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A48 Standard Specification for Gray Iron Castings

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Cast Iron material shall be in accordance with ASTM A48, Class 25 minimum.
- B. All boxes shall have an outside ledge under the top ring.
- C. Top outside slip pipe shall not have flange at bottom.
- D. Valve boxes shall comply with Fairfax Water standard details.
- E. The manufacturer identification and country of origin, if other than U.S., shall be cast into all parts
- F. Minimum weights shall be as follows: Cover 12.5 lbs.  
Upper Section 37.5 lbs.  
Lower Section 47.0 lbs.  
Extension Section 17.0 lbs.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Bingham & Taylor, Fig. 4908
- B. R.B. Argawalla (India)/Capital Foundry
- C. Fastener Technologies (India)
- D. Crestwell Trading Company, Model A-1 (India)

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Valve Stem Extensions

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A53 Standard Specification for steel pipe
- B. ASTM A36-05 Standard Specification for carbon structural steel

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Operating Nut shall be 2-inch square
- B. All extensions shall have a 4-inch X 1/4-inch welded steel centering ring
- C. Solid Steel Bar shall be 1-inch diameter minimum.
- D. Welded Square Tube shall be 2 ½-inches

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. BH Runyon Company
- B. Sigma Corporation
- C. Water Key

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Hydrants

### Fire Hydrants

#### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

##### **Summary**

##### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C502 Hydrants, Dry-Barrel Fire

##### **System Description**

##### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Fire hydrants shall be of 3-way class with a 5 1/4-inch main valve opening, with one 4-1/2-inch pumper outlet and two 2-1/2-inch hose outlets all with National Standard fire hose coupling threads.
- B. The hydrant shoe shall have at least one all bronze drain outlet.
- C. The hydrant shoe and barrel may be made of different material.
- D. The complete interior of the shoe shall have epoxy coating if the o-ring is in contact with cast iron.
- E. If the bottom o-ring is in contact with brass, no epoxy coating of the interior of the shoe is required.
- F. Hydrants shall be furnished with a breakaway feature that will break cleanly on the underside of flange upon impact. This shall consist of a break flange with a breakable stem coupling. Breakable bolts will not be accepted. This break flange shall also permit 360° rotation of the upper barrel to position nozzles in any desired position.
- G. Repair of hydrants shall be with Original Equipment Manufacturer's (O.E.M.) parts.

#### PART 2 – PRODUCTS

##### **Manufacturers**

##### **Approved Manufacturer(s):**

- A. Kennedy Valve Company K81D 5 1/4-inch (UL/FM)
- B. Mueller Company Centurion 250A-423-5 1/4-inch (UL/FM)

#### PART 3 – EXECUTION

##### **NOT USED**

END OF SECTION

Revised: 6/2/2009

## **Meters**

### Cold Water Meters

## **Cold Water Meters**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C700 Cold-Water Meters - Displacement Type, Bronze Main Case
- B. ANSI/AWWA C702 Cold Water Meters - Compound Type
- C. ANSI/AWWA C707 Water Meters, Encoder-Type, Remote-Registration Systems for Cold Water Meters
- D. ANSI/AWWA C701-07 Cold Water Meters – Turbine Type

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Domestic/Commercial Sizes 5/8-inch through 2-inch.
- B. Compound Sizes 3-inch through 8-inch.
- C. Remote Registration.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

Sizes 5/8-inch through 2-inch

- A. Badger Meter, Inc.
- B. Invensys Technologies (Sensus)
- C. Hersey Meter
- D. Neptune Technology Group
- E. AMCO Water Metering Systems, Inc.
- F. Master Meter

Sizes 3-inch through 8-inch

- A. Invensys Technologies (Sensus) C2, T2
- B. Neptune Technology Group

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

Revised: 6/1/2011

## Fire Line Meters

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C703 Cold Water Meters – Fire Service Types

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Size 6-inch, 8-inch and 10-inch.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Invensys Technologies (Sensus)
- B. Neptune Technology Group

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION



## Wholesale Meters

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C700 Standard for Cold Water Meters – Displacement Type, Bronze Main Case

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall conform to AWWA C700.
- B. The assemblies shall consist of valves, meters, strainers, and by-pass piping.
- C. Strainer shall be made of stainless steel, and the strainer housing shall be of ductile iron.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Invensys Technologies (Sensus)

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Meter Boxes

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C800 Underground Service Line Valves and Fittings (Also Included: Collected Standards for Service Line Materials)

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall be made of PVC only. No molded plastic.
- B. 18-inch inside diameter x 24-inch L.
- C. 27-inch inside diameter x 30-inch L.
- D. Non-tapered.
- E. Cut-outs are not permitted.
- F. Minimum Wall Thickness of 1/2-inch.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Bingham & Taylor
- B. Hunt Industries/Mueller Company

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Meter Box Covers

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A48 Standard Specification for Gray Iron Castings

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Class 25 minimum.
- B. Meter Box Cover shall comply with FCWA standard detail.
- C. Foreign castings are allowed, subject to testing and approval.
- D. Country of origin must be cast into to production.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. R.B. Argawalla/Capital Foundry
- B. Crestwell Trading Company
- C. Bingham & Taylor
- D. Fastener Technologies
- E. Uma Foundry

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## **Joints**

### Flanged Joints

## **Flanged Joints**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C110/A21.10 Ductile-Iron and Gray-Iron Fittings, 3 in through 48 in (75mm through 1200mm) for Water and Other Liquids
- B. ANSI/AWWA C115/A21.15 Water Treatment – Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Flanges
- C. ASTM A 307 Standard Specification for Carbon Steel Bolts and studs, 60,000 psi tensile strength

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Drilled to ANSI Class 125 standard template in accordance with ANSI B16.1
- B. Gaskets - 12-inch diameter and smaller shall be full faced 1/16-inch thick.
- C. Gaskets shall extend to inside of bolt holes.
- D. Drop-in type gaskets may be used upon approval.
- E. Gasket by Crane Packing Company, Garlock Packing Company, and U.S. Rubber Company.
- F. Bolts and nuts shall be low-carbon steel in accordance ASTM A307, Grade B.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. American Cast Iron Pipe Company
- B. U.S. Pipe and Foundry Co.
- C. Fast Fabricators

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

Revised: 6/6/2006

## Mechanical Joints

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

Mechanical joint pipe will only be approved on a case by case basis. Push-on joint ductile iron pipe is the approved standard.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C111/A21.11 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ASTM 307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi tensile strength

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Mechanical joint bolt holes shall straddle the centerline of fittings.
- B. Bolts and nuts shall be low-alloy steel ASTM A307, Grade B.
- C. The minimum hardness shall be 370 BHN.
- D. The minimum working pressure shall be 250 psi.
- E. The minimum safety factor shall be 2:1.

<b>Bolt Size (inches)</b>	<b>Torque (ft-lbs)</b>	<b>Bolt Size (mm)</b>	<b>Torque (N-m)</b>
5/8-inch	45-60 ft-lbs	16mm	61-81 N-m
3/4-inch	75-90 ft-lbs	19mm	102-122 N-m
1-inch	100-120 ft-lbs	25mm	136-163 N-m
1 1/4-inch	120-150 ft-lbs	32mm	163-203 N-m

### PART 2 – PRODUCTS

#### **Approved Manufacturer(s):**

- A. American Cast Iron Pipe Company
- B. Atlantic States Cast Iron Pipe Company
- C. Clow Water Systems Company
- D. Pacific States Cast Iron Pipe Company
- E. Griffin Pipe Products Company
- F. U.S. Pipe and Foundry Co.

### PART 3 – EXECUTION

*NOT USED*

*END OF SECTION*

## Push-on Joints

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C115/A21 Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flange
- B. ANSI/AWWA C150 Thickness Design of Ductile-Iron Pipe
- C. ANSI/AWWA C151 Ductile-Iron Pipe, Centrifugally Cast for Water or Other Liquids

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Rubber face gasket shall be bell and spigot type single elongated grooved basket.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s) and style(s) accepted:**

- A. American Cast Iron Pipe Company - Fastite
- B. Griffin Pipe Products Company- Fastite, 30-inch to 48-inch
- C. U.S. Pipe and Foundry Company - Tyton Joint
- D. Atlantic States Cast Iron Pipe Company. -Tyton Joint
- E. Pacific States Cast Iron Pipe Company - Tyton Joint
- F. Clow Water Systems Company - Tyton Joint.

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Restrained Joints

### PART 1 – GENERAL

**Section includes: applicable referenced standards and technical requirements of the product.**

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSW/AWWA C111/A21.11 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ASTM A307 Standard Specification for Carbon Steel Bolts and studs, 60,000 psi tensile strength

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Field welding of restraining components is not permitted, unless authorized by Engineer.
- B. No Flexible adapters.
- C. Add bolt for sizes 4-inch to 16-inch.
- D. Foster bolt through restrained joints – “Foster Adapter”.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s) and Joint Accepted**

- A. American Ductile Iron Pipe Company - Fast Grip Gasket (16" and under), Lok-Ring Joint, Flex Ring (4" - 48")
- B. Griffin Pipe Products Company - Snap-Lok and Bolt-Lok, for 6-inch to 48-inch
- C. U.S. Pipe and Foundry Company - TR Flex, Field-Lok 350 Gaskets (16" and under), HP Lok (30" - 64")
- D. Atlantic States Cast Iron Pipe Company /Clow Manufactures - Super Lok
- E. Infact Corporation – Foster Adapters

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

Revised: 5/13/2009

## Couplings

### Couplings

## Couplings

### PART 1 – GENERAL

**Section includes: applicable referenced standards and technical requirements of the product.**

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C111/A21 Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ASTM 304 Standard Specification for Stainless Steel Bolts and studs, 60,000 psi tensile strength
- C. ASTM A536 Standard Specification for Ductile Iron Castings

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. 24-inch diameter or smaller.
- B. The body of the couplings shall be ductile iron or steel.
- C. Unless otherwise specified, MJ solid sleeves shall be used to join pipe of the same outside diameter.
- D. Bolts and nuts shall be stainless steel in accordance with ASTM 304.
- E. Gaskets shall be oil resistant synthetic rubber.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Ford Meter Box Company, Inc. Model FC1, FC2 and FC2W
- B. JCM Industries, Model 210, 212 and 301
- C. Romac Industries, Inc., Style 501 and Style FCA 501
- D. Smith-Blair, Inc. (Rockwell), Type 431, 441, 433, 435, 913, Quantum 461
- E. Dresser, Inc., Style 38, 53, 3153, Hymax 2000
- F. PowerSeal Pipeline Products Corp, Model 3500
- G. Mueller Maxifit

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

Revised: 12/11/2008



## Flanged Adapters

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C11/A21 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and fittings
- B. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi tensile strength
- C. ASTM A536 Standard Specification for Ductile Iron Castings
- D. National Science Foundation 61 Drinking Water System Components

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Sizes 3-inch to 12-inch and shall conform with AWWA C111.
- B. Ductile Iron shall be in accordance with ASTM A536.
- C. All bolt circles, sizes and spacing shall conform to ANSI 150lb flange drilling.
- D. Gasket shall be made of nitrile and be resistant to water and chemicals.
- E. O-rings shall be made of nitrile.
- F. Each item shall be shipped complete with bolts, nuts, and gaskets.
- G. Shall be NSF 61 approved for use in potable water systems.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Smith-Blair, Inc. 912 and 913
- B. Mueller Company – MAXIDAPTER
- C. Star – Series 3200

### PART 3 – EXECUTION

#### **NOT USED**

**END OF SECTION**

## **Tapping Materials**

### Tapping Valves

# **Tapping Valves for Cast Iron, Asbestos Concrete, Prestressed Concrete Cylinder or Ductile Iron Pipe**

## **PART 1 – GENERAL**

**Section includes:** applicable referenced standards and technical requirements of the product.

### ***Summary***

### **References**

Product shall adhere to the latest version of:

- A. AWWA C509 Resilient Seated Gate Valves for Water Supply Services
- B. ANSI/AWWA C111/A21 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and fittings
- C. ASTM D429 Standard Specification for Rubber Metal Bond
- D. AWWA C550 Protective Interior Coatings for Valves and Hydrants

### ***System Description***

### **Design and Performance Requirements**

Section includes: technical requirements consisting of, but not limited to material type, dimensions, and conditions.

- A. Pipe sizes 4-inch to 12-inch.
- B. Gate valve body to be ductile iron with bronze stem.
- C. ANSI B16.1 Class 125 flanged end with centering ring.
- D. Bolts and Nuts shall be stainless steel in accordance with ASTM 304.
- E. Rubber seal gaskets shall have a 250psi pressure rating.
- F. Shall be NSF 61 approved for use in potable water systems.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

### **Approved Manufacturer(s):**

- A. Kennedy, C-509 Resilient Wedge, Model 8950DBYSS
- B. Clow, C-509 Resilient Wedge, Model 2639-F6114 w/ NDZ
- C. Mueller Company, T2362-9000 Resilient Wedge
- D. US Pipe, T2362-9000 Resilient Wedge
- E. M&H, C-509 Resilient Wedge , Model 4751-DINDZ

## **PART 3 – EXECUTION**

### ***NOT USED***

END OF SECTION

Revised: 7/26/2010

## **Tapping Saddle for Cast Iron and Ductile Iron Pipe**

### **PART 1 – GENERAL**

**Section includes: applicable referenced standards and technical requirements of the product.**

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C111/A21 Rubber-gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ANSI/AWWA C151/A21 Ductile-Iron Pipe, Centrifugally Cast for Water or Other Liquids
- C. ASTM 304 Standard Specification for Stainless Steel Bolts and Studs, 60,000 psi tensile strength

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Minimum pipe size 16-inch diameter.
- B. Ductile Iron body in conformance with AWWA C151.
- C. Shall have stainless steel straps and nuts with anti-seize threads.
- D. Rubber seal gaskets shall have a 250psi pressure rating.
- E. Shall provide O-ring SBR sealing gasket conforming to AWWA C111.
- F. Maximum tapping size approved for various pipe sizes: 16-inch x 8-inch, 20-inch x 10-inch, 18-inch x 8-inch, 24-inch x 12-inch. Larger sizes may be considered on a case by case basis.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. American Cast Iron Pipe Company
- B. U.S. Pipe and Foundry Company

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

Revised: 12/11/2008

## Tapping Sleeves for Cast Iron, Asbestos Concrete or Ductile Iron Pipe

# Tapping Sleeves for Cast Iron, Asbestos Concrete or Ductile Iron Pipe

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM 304 Standard Specification for Stainless Steel Bolts and Studs, 60,000 psi tensile strength

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Cast iron or ductile iron material, or steel (MJ x MJ x Flange and epoxy coating required)
- B. End gasket on all sizes.
- C. Tap sizes up to one pipe size smaller than pipe being tapped for CIP and ACP.
- D. Tap sizes up to same pipe size being tapped for DIP (size on size).
- E. Mechanical joint.
- F. Bolts and nuts shall be stainless steel, ASTM 304 Standard Specification stainless steel bolts and studs, 60,000 psi tensile strength, Grade B.
- G. Minimum rated water pressure of 150 psi and test to 300psi.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. American Cast Iron Pipe Company
- B. American Flow Control
- C. Clow Water Systems Company
- D. Mueller Company
- E. Tyler / Union
- F. U.S. Pipe and Foundry Company
- G. Waterous
- H. Smith-Blair, Inc. No. 624

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Tapping Saddles for PCCP

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A536 Standard Specification for Ductile Iron Casting
- B. ASTM 304 Standard Specification for Stainless Steel Bolts and Studs, 60,000 psi tensile strength

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. 16-inch x 6-inch and 8-inch
- B. 20-inch x 6-inch, 8-inch and 12-inch
- C. 24-inch x 6-inch, 8-inch and 12-inch
- D. 30-inch x 6-inch, 8-inch and 12-inch
- E. 36-inch x 6-inch, 8-inch, 12-inch, and 16-inch
- F. 42-inch x 6-inch, 8-inch, 12-inch, 16-inch and 20-inch
- G. 48-inch x 6-inch, 8-inch, 12-inch, 16-inch, 20-inch, and 24-inch
- H. Strap type tap only for connections 3/4-inch through 2-1/2-inch (wire or strapless not allowed)
- I. Bolts and Nuts shall be stainless steel in accordance with ASTM 304.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Price Brothers Company - Drawing No. 3211-B
- B. JCM Industries No. 415
- C. Romac Industries, Inc. No. FTS435
- D. Smith-Blair, Inc. No. 362 (tapping saddle for services)
- E. Smith-Blair, Inc. No. 625

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Weld-On Saddles for Steel Pipe

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A536 Standard Specifications for Ductile Iron Castings

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall comply with ASTM A536.
- B. Gaskets shall be of Buna- N

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. JCM Industries
- B. Smith-Blair, Inc.

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## **Other**

Backflow Preventer

# **Backflow Preventer**

## **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

### ***Summary***

### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C510 Double Check Valve Backflow-Prevention Assembly

### ***System Description***

### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall conform with AWWA C510.
- B. Dual check valve assembly with reduced pressure zone between the check valves.
- C. Bronze body with threaded end connections.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

### **Approved Manufacturer(s):**

- A. Cla-Val Company
- B. Hersey Beeco Company

## **PART 3 – EXECUTION**

### ***NOT USED***

END OF SECTION

## Copper Tubing

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM B88 Standard Specification for Seamless Copper Water Tube

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Type "K" soft copper.
- B. Product shall conform to ASTM B88.
- C. Packaging - pancake coils through 1-1/2-inch, regular coil through 2-inch.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Cambridge -Lee
- B. Cerro
- C. Halstead
- D. Howell
- E. Mueller Industries
- F. Reading

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION



## Service Saddles

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. National Science Foundation 61 Drinking Water System Components
- B. ASTM A536 Standard Specifications for Ductile Iron Castings
- C. ASTM A283 Standard Specification for Low and Intermediate Tensile Strength Carbon Steel Plates

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Body and tapped inserts shall be of ASTM A536 Ductile Iron.
- B. Straps, washers and nuts shall be of 18-8 Type 304 Stainless Steel.
- C. Gaskets shall be made of a rubber compound resistant to water, oil, and other chemicals.
- D. Shall withstand a working pressure of 300 psi for pipes 24-inch and smaller, and 250 psi for pipes greater than 24-inch.
- E. Shall be fusion-bonded epoxy coated for corrosion resistance.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. JCM Industries 406, 418
- B. Smith-Blair, Inc. 317
- C. Mueller Company DR1S, DR2S
- D. Ford Meter Box Company, Inc. FC101, FC202
- E. Romac Industries, Inc. R101N, R202NS

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## HDPE Tracer Wire

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

**Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.**

- A. 6-ga. single conductor coated copper wire installed approximately 3 inches (75mm) above water main.
- B. Where HDPE pipe is placed by the directional drill method, the tracer wire shall be taped to the pipe every 5 feet (1500mm) before installation.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. NONE

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## **Restrained Joint Identification Tape**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Tape shall be marked "Caution Restrained Joint Below".
- B. All restrained joint piping shall be identified in the field with identification tape to be installed during backfill operations and placed one-foot above water main piping.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Northtown Company
- B. Pro-Line Safety Products Company

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

## Tangent (Offset) Tee

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C110/A21.10 Ductile-Iron and Gray-Iron Fittings, 3 in through 48 in (75 mm through 1200 mm), for Water and Other Liquids
- B. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi tensile strength

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. See Technical Requirements for Standard Pattern Fittings.
- B. Bolts and nuts shall be low-carbon steel, ASTM A307, Standard Specification carbon steel bolts and studs, 60,000 psi tensile strength, Grade B.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Backman Foundry

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Split Swivel Glands

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi tensile strength

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Product shall be made of ductile iron.
- B. Bolts and nuts shall be low-carbon steel ASTM A307, Grade B.
- C. Side flanged and overlapping ears are permitted by appropriate manufacturers listed below.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Eagle Foundry/Central Castings Company - bolt
- B. U.S. Pipe and Foundry Company - bolt
- C. Sigma Corporation - bolt
- D. Tyler / Union - bolt and overlapping ears

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Utility Crossings

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Separation of 6 inches or less requires expansion material.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. A.W.R. Grace and Co. – Rodofam No. 327, Vinylfoam No. 327
- B. Sonneborn-Lotech – Vinylfoam No. 327

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

02512 Thrust Restraints  
**Mechanical Joint Glands**

## **Mechanical Joint Glands**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C111/A21.11 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ASTM A307 Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi tensile strength

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Ductile Iron - all sizes.
- B. Bolts and nuts shall be low-carbon steel, ASTM A307, Standard Specification carbon steel bolts and studs, 60,000 psi tensile strength, Grade B.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. American Cast Iron Pipe Company
- B. Griffin Pipe Products Company
- C. Tyler / Union
- D. Eagle Foundry/Central Castings Company
- E. U.S. Pipe and Foundry Company
- F. Sigma Corporation/Russell Pipe
- G. Jinan Kinger Industrial Corporation / Proselect
- H. Star Pipe Products

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

Revised: 6/1/2011

## Restraining Glands

# Restraining Glands

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A536 Standard Specification for Ductile-Iron Castings
- B. ANSI/AWWA C111/A21.11 Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- C. ANSI/AWWA C153/A21.53 Ductile-Iron Compact Fittings 3 in through 24 in (76 mm through 610mm) and 54 in through 64 in (1,400 mm through 1,600 mm), for Water Service

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Glands shall be made of ductile iron conforming to ASTM A536.
- B. Restraining devices shall be manufactured of ductile iron, heat treated to a minimum hardness of 370 BHN.
- C. Dimensions of the gland shall be such that it can be used with the standardized mechanical joint bell and tee-head bolts conforming to AWWA C111 and AWWA C153.
- D. Twist off bolts shall be used to ensure proper actuating of the restraining devices.
- E. 3-inch - 16-inch: pressure rating of 350 psi  
18-inch - 48-inch: pressure rating of 250 psi.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. EBBA Iron Sales, Inc.,- Megalug Series 1100
- B. Sigma Corporation - One-Lok (Ductile Iron pipe only)
- C. Ford Meter Box Company, Inc. - 1400 Uniflange
- D. U.S. Pipe - MJ Field Lok Gasket (12" and under)
- E. Star Pipe Products - Stargrip Series 3000
- F. Tyler / Union - TuffGrip TLD for DIP
- G. Smith-Blair, Inc - Cam Lock Model 111 (DIP)



**PART 3 – EXECUTION**

***NOT USED***

END OF SECTION

## **DIVISION 3 – CONCRETE**

### **03400 Precast Concrete**

#### **Precast Vaults**

### **Pre-Cast Vaults**

#### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

##### ***Summary***

##### **References**

Product shall adhere to the latest version of:

- A. ASTM C857 Standard Practice for Minimum Structural Design Loading for Underground Precast Concrete Utility Structures
- B. ASTM C858 Standard Specification for Underground Precast Concrete Utility Structures

##### ***System Description***

##### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Type A concrete.
- B. Three maximum number of joints allowed, to consist of base/wall section, middle section, and top/lid section. Wall of base/wall section to be a minimum of 1-foot above crown of pipe.
- C. Joints shall be keyed and mastic type rope sealant applied, as manufactured by MultiSeal, Inc. or approved equal.
- D. Factory applied exterior bitumastic waterproofing, minimum dry thickness required 9 – 12 mils.
- E. 12-inch minimum floor thickness with 8-inch deep by 16-inch diameter minimum sump.
- F. 6-inch flanged bottom.
- G. Interior vault piping to be painted with 3 coats of Sherwin Williams Macropoxy 646 as follows:
  - Coat 1 – Fairfax Water Green (# 52300049563), 3-4 mils dry film thickness, minimum drying time 8 hours at 77° F
  - Coat 2 – Pillar White (# SW4029), 3-4 mils dry film thickness, minimum drying time 8 hours at 77° F
  - Coat 3 - Fairfax Water Green (# 52300049563), 3-4 mils dry film thickness, minimum drying time 8 hours at 77° F

#### **PART 2 – PRODUCTS**

##### ***Manufacturers***

##### **Approved Manufacturer(s):**

- A. Cattleguard
- B. Smith-Midland
- C. Oldcastle Precast
- D. Clearflow / Americast

Revised: 7/26/2010

**PART 3 – EXECUTION**

***NOT USED***

END OF SECTION

Revised: 12/1/2009

## Vault Wall Seals

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. ASTM C923 Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals
- B. ASTM A240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications
- C. ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. For Steel or Resilient materials.
- B. Provide corrosion protection when applicable.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. NPC, Inc - Kor-N-Seal

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## **DIVISION 5 – METALS**

### **05500 Metal Fabrications**

#### **Access Doors**

### **Access Doors**

#### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

##### **Summary**

##### **References**

Product shall adhere to the latest version of:

- A. ASTM B26 Standard Specification for Aluminum-Alloy Sand Castings

##### **System Description**

##### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Door shall have gasket and a padlock clasp.
- B. Aluminum castings shall meet the requirements of ASTM B26.
- C. Door leaf shall be 1/4-inch aluminum diamond pattern.
- D. Door shall be reinforced to withstand an HS-20 loading (300 psf) where specified.
- E. Channel Frame shall be 1/4-inch aluminum with a full anchor flange around the perimeter.
- F. Each door leaf shall be equipped as follows:
  - Heavy forged brass hinges
  - Automatic hold-open arm with release handle
  - Snap lock with removable handle and recessed hasp covered by a hinged lid flush with surface.
- G. Frame shall have 1 1/2-inch drainage coupling in the front right corner of the channel frame.
- H. Hardware shall be zinc plated and chromate sealed.
- I. Mill finish with bituminous coating applied to exterior of the frame.
- J. Must have recessed locking device.

#### **PART 2 – PRODUCTS**

##### **Manufacturers**

##### **Approved Manufacturer(s):**

- A. Bilco Company – Type J, JD, or PDCM
- B. Syracuse Castings Sales Corp.
- C. East Jordan Iron Works, Inc.
- D. Pennsylvania Insert Corporation

#### **PART 3 – EXECUTION**

##### **NOT USED**

END OF SECTION

## Vault Ladder Safety Post

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall be manufactured of high strength steel with telescoping tubular Section that locks automatically when fully extended.
- B. Upward and Downward Movement controlled by a Stainless Steel balancing mechanism.
- C. Finish shall be hot dip galvanized.
- D. Unit shall be completely assembled with fasteners for securing to the ladder rungs.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Bilco Company Model 2 “Ladder Up”
- B. Syracuse Castings Sales Corp.

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

# DIVISION 13 – SPECIAL CONSTRUCTION

## 13110 Cathodic Protection

### Corrosion Rate Probes

## Corrosion Rate Probes

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Probe shall be constructed of molded epoxy.
- B. Sensing element: mild steel, 2.0-inch thick.
- C. Separate ground connection for cable termination.
- D. Cables shall be heavy duty.

### PART 2 - PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Rohrback Cosaco Systems, Inc, - Model 620HD-1-S20-K03005
- B. Cortest Instrument Systems – Model PR11000-S20-620

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Dielectric Coating – External Pipe Surfaces

### Dielectric Coating

#### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

##### ***Summary***

##### **References**

Product shall adhere to the latest version of:

- A. AWWA C214 Tape Coating Systems for the Exterior of Steel Water Pipelines
- B. AWWA C209 (Shop Applied) Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines

##### ***System Description***

##### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Fast drying within two hours.
- B. Cold-applied bitumen, with minimum volume resistivity of  $10^{12}$  ohm-cm.
- C. Only one coating material per entire project.

#### PART 2 – PRODUCTS

##### ***Manufacturers***

##### **Approved Manufacturer(s):**

- A. Royston Laboratories Division (Royston R-28)
- B. Carboline (Bitumastic No. 50)

#### PART 3 – EXECUTION

##### ***NOT USED***

END OF SECTION



## Electrical Coating Compound

# Electrical Coating Compound

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. NONE

### **PART 2 - PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. 3M Company, Scotchkote

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

Electric Tape

## Electric Tape

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Applies to vinyl plastic and rubber splicing.

### PART 2 - PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. 3M Company

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Insulating Devices

### PVC Pipe Inserts

## PVC Pipe Inserts

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. AWWA C900 Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings 4-inch through 12-inch for Water Distribution
- B. National Science Foundation Standard 61 Drinking Water System Components

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Plain end piece, minimum three feet long.
- B. Shall be 150 psi (DR 18) pressure class.
- C. Outside diameter same as adjacent pipe.
- D. Shall meet the requirements of AWWA C900.
- E. Shall be NSF 61 approved for use in potable water systems.

### PART 2 - PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Diamond Plastics Corporation
- B. National Pipe and Plastics, Inc. – Dura-Blue
- C. North American Pipe Corporation

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Insulated Flange

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Insulating Gasket: Type "E" Neoprene-faced Phenolic machined to match pipe material being used. Inside diameter shall be 3/32-inch less than the net inside diameter of pipe and internal coating or lining.
- B. Insulating Sleeves: G-10 Epoxy/Glass.
- C. Insulating Washers: G-10 Epoxy/Glass. Provide two washers for each bolt.
- D. Steel Washers: 1/8-inch thick plated hot rolled steel. Provide two washers for each bolt.

### PART 2 - PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. PSI Industries, Inc.
- B. Advanced Products & Systems, Inc.

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Insulated Union

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A105 Standard Specification for Carbon Steel Forgings for Piping Application

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Materials shall comply with ASTM A105.
- B. Nylon shall be non-brittle and capable of withstanding impacts and loads

### PART 2 - PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Central Plastics Company - Nylon
- B. Mueller Co.

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Insulated Flange Kit (Isolation Inserts) – Internal Pipe Coating

### **Insulated Flange Kit**

#### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

##### ***Summary***

##### **References**

Product shall adhere to the latest version of:

- A. National Science Foundation Standard 61 Drinking Water System Components

##### ***System Description***

##### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Shall be NSF-61 approved for use in potable water systems.
- B. Two component, high or 100% solids epoxy.

#### **PART 2 – PRODUCTS**

##### ***Manufacturers***

##### **Approved Manufacturer(s):**

- A. American Chemical Company (Aquatapoxy Coating System A-6)
- B. Dupont Coatings (Corlar 525TL Epoxy Tank Lining)
- C. Advanced Products & Systems, Inc.

#### **PART 3 – EXECUTION**

##### ***NOT USED***

END OF SECTION

Revised: 4/1/2003

## Petrolatum Tape Coating

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### *Summary*

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C217 Cold-Applied Petrolatum Tape and Petrolatum Wax tape Coated for the Exterior of Special Sections, Connections, and Fittings for Buried Steel Water Pipe

#### *System Description*

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Product shall be non-toxic and non-carcinogenic.
- B. Shall be in compliance with AWWA C217.
- C. Compatible primer.
- D. Mastic for profiling around joints, bolts, and other irregular shapes.
- E. Petrolatum impregnated fabric tape that is compatible with other coatings
- F. Outer protective wrap.
- G. All materials shall be from the same manufacturer.

### PART 2 – PRODUCTS

#### *Manufacturers*

#### **Approved Manufacturer(s):**

- A. Denso North America Inc.
- B. Trenton Corporation (Wax-Tape)

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Polyethylene Tubing (Encasement)

# Polyethylene Tubing

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C105/A21.5 Class B Polyethylene Encasement for Ductile-Iron Pipe Systems

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions

- A. Seamless 4mils. (.1mm) thick high-density cross-laminated polyethylene.
- B. Flat tube form, minimum width based on normal pipe diameter.
- C. 2 ft. (600mm) overlap between sections.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Illinois Tool Works, Inc. / Valeron Strength Films
- B. AA Thread Seal Tape, Inc.

***NOT USED***

END OF SECTION



## Polyurethane Coating

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. AWWA C209 (Shop Applied) Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines
- B. AWWA C214 Tape Coating Systems for the Exterior of Steel Water Pipelines

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Applies to line pipe, valves, and fittings.
- B. Shop Applied Materials shall be 100-percent polyurethane with the following minimum properties, or approved equal:
  - 1. Adhesion to steel greater than or equal to 2,000 psi
  - 2. Cathodic disbondment less than 15 mm rad.
  - 3. Resistivity  $1 \times 10^{14}$  ohms per  $\text{cm}^2$  minimum
  - 4. Dielectric strength greater than 200 volts per mill
  - 5. Final coating shall have minimum dry film thickness of 20 mils.
- C. Field Applied Materials (pipe surfaces not shop coated, other than insulated flange) shall have materials compatible with and approved by shop applied coat manufacturer.
- D. Valves may be painted with two (2) coats of Tnemec Series 140F Pota-Pox Plus, minimum 4.0 mils DFT per coat. Total required paint coating shall be 0.8 mils dry film thickness minimum, applied per manufacturer's recommendations.

### PART 2 – PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Shop Applied:
  - 1. Madison Chemical Industries, Milton, ON, Canada: Corropipe II TX-15
  - 2. Futura Coatings, St. Louis, MO: Protec II
- B. Field Applied:
  - 1. Madison Chemical Industries, Milton, ON, Canada: Corropipe TX-II Touch-up
  - 2. Futura Coatings, St. Louis, MO: Futura-Bond 322 and Futura-Sticks 1755 for small repairs only
  - 3. Royston Laboratories Division, Pittsburgh, PA: Royston One Step Tape (for repairs only)

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Reference Electrodes

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Permanent copper-copper sulfate reference electrode.
- B. Wire: No. 14 AWG minimum stranded copper, high molecular weight polyethylene or RHH/RHW insulation.
- C. Fifteen years minimum service life.
- D. No greater than +/- 0.01 volt variation.
- E. Packaged backfill to provide a homogenous environment.
- F. Unpackaged electrodes not acceptable.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Borin Manufacturing
- B. Corpro Companies
- C. Electrochemical Devices

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Steel Hand Stamp

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. 3/8-inch letter/numeral height marked as such on the thumb-side.

### PART 2 - PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. C.H. Hanson Company – Model Nos. 22450/22981

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Survey Markers

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. 2-inch, flat, brass, monument.

### PART 2 - PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Sokkia Corporation, Model No. 813403

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Test Stations

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Flush Mount: standard Fairfax Water cast iron valve box with custom logo, "FAIRFAX WATER CP TEST" shall be cast into cast iron lid in 1-inch high letters, lid shall be coated with two coats of shop applied OSHA safety blue polyurethane or epoxy paint.
- B. Vaults: cast aluminum test head and cover; terminal block. Double hub with slop fir for 1 ¼-inch pipe, "FAIRFAX WATER" cast into lid, two coats of shop applied OSHA safety blue polyurethane, or epoxy paint, 8-terminal block with on 0.01-ohm shunt and nickel-plated brass or copper bonding strap.
- C. Post Mount: Cast aluminum test head and cover, terminal block. Single hub suitable for thread mounting to 2 ½- inch schedule 40 steel conduit, "FAIRFAX WATER" cast into lid, two coats of shop applied OSHA safety blue polyurethane or epoxy paint. 8-terminal block with one 0.01-ohm shunt and nickel-plated brass or copper bonding strap, 2 ½- inch galvanized steel conduit. Provided by test station manufacture, factory painted same as test head and cover.

### PART 2 - PRODUCTS

#### **Manufacturers**

#### **Approved Manufacturer(s):**

- A. Bingham & Taylor – Flush Mount Standard
- B. Gerome Manufacturing Company , Inc. – Vaults, Testox Model 1003
- C. Gerome Manufacturing Company , Inc. – Post Mount, Testox Model 2006
- D. C.P. Kearney Test Services

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Thermite Welding Equipment

# Thermite Welding Equipment

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Mold, weld metal, other material and equipment per manufacturer's recommendations for particular pipe/cable material and size.
- B. Material and equipment shall be from same manufacturer.
- C. Utilize adapter sleeve for all thermite welds.

### PART 2 - PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Erico Products, Inc. – Cadweld
- B. Continental Industries, Inc. - Thermoweld

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## **Thermite Weld Coating Materials**

### **PART 1 – GENERAL**

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Product shall form a highly resistant electrical insulation seal over a weld site and at the end of a lead wire.

### **PART 2 - PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Royston Laboratories Division – Handy Cap with 747 Primer

### **PART 3 – EXECUTION**

#### ***NOT USED***

END OF SECTION

## Utility Warning Tape

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. 3-inch or 6-inch wide, red or yellow tape.
- B. Shall have one or more stainless steel tracer wire laid in sinusoidal wave pattern and laminated between two layers of lead free rot resistant polyethylene.
- C. Tape shall be marked "Caution Cathodic Protection Cable Buried Below" at maximum 36-inch intervals.
- D. Shall have a top layer coating to protect wires and warning message.

### PART 2 – PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Allen Systems (Detectatape)
- B. Lineguard, Inc. (Lineguard Super Tuff III)

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION



## Wire Connectors and Terminations

### Terminal Lugs

## Terminal Lugs

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### ***Summary***

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### ***System Description***

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. One hole non-insulated terminal lug for ¼-inch bolt.

### PART 2 - PRODUCTS

#### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Thomas and Betts Corporation – Series 54100 and Model C10-14

### PART 3 – EXECUTION

#### ***NOT USED***

END OF SECTION

## Butt Splices

## Butt Splices

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### *Summary*

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### *System Description*

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Non-insulated style.

### PART 2 - PRODUCTS

#### *Manufacturers*

#### **Approved Manufacturer(s):**

- A. Thomas and Betts Corporation, Series 5450 and Model 210

### PART 3 – EXECUTION

#### **NOT USED**

END OF SECTION

## Magnesium Anodes

## Magnesium Anodes

### PART 1 – GENERAL

Section includes: applicable referenced standards and technical requirements of the product.

#### **Summary**

#### **References**

Product shall adhere to the latest version of:

- A. NONE

#### **System Description**

#### **Design and Performance Requirements**

Section includes: technical requirements of the product, consisting of, but not limited to material type, dimensions, and conditions.

- A. Materials: Packaged high potential type comprised of magnesium ingot, wire, and prepared backfill.

1. Ingot Weight: 20 pounds.
2. Ingot Nominal Dimensions: 58.75 inches long and D-shaped (2.5 inches by 2.5 inches by 2.375 inches).
3. Composition of the anode shall be as follows:

ELEMENT	PERCENT
Aluminum	0.010% Maximum
Manganese	0.50 to 1.30%
Copper	0.02% Maximum
Nickel	0.001% Maximum
Zinc	0.05% Maximum
Iron	0.03% Maximum
Silicon	0.05% Maximum
Other	0.05% each or 0.30% Maximum Total
Magnesium	Remainder

4. Packaging and Backfill: The anode shall be vibratory packaged in a permeable cardboard box (minimum 71 inches long by 4.5 inches on each side) containing a minimum of 40 pounds of prepared backfill.
5. Backfill composition by weight:

MATERIAL	PERCENT
Hydrated Gypsum	75%
Bentonite	20%
Sodium Sulfate	5%

Revised: 12/06/2005

6. Wire: AWG No. 12 solid copper wire with TW insulation (black) shall be attached to the anode. Wire to anode attachment shall be by silver solder and sealed to prevent any moisture penetration. Length to meet specific field conditions with no splices other than to common header cable, where indicated.
7. Open Circuit Potential: Minimum negative potential of 1.6 volts referenced to copper/copper sulfate.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

#### **Approved Manufacturer(s):**

- A. Stuart Steel Protection Company – Viboxed Maxmag
- B. Piping and Corrosion Specialties - Galvamag

## **PART 3 – EXECUTION**

### ***NOT USED***

END OF SECTION

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# Fairfax Water

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