



8560 Arlington Boulevard  
Fairfax, Virginia 22031

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# APPROVED PRODUCTS LIST



**JUNE 2018**

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# Fairfax Water

## Approved Products List

### Table of Contents

DIVISION 2 – SITEWORK.....	1
<b>02300 Earthwork.....</b>	<b>1</b>
02371 Geotextiles.....	1
<b>02400 Tunneling, Boring, and Jacking.....</b>	<b>2</b>
Casing Insulators (Spacers).....	2
Liner Plate.....	3
<b>02500 Utility Services .....</b>	<b>4</b>
02510 Water Distribution .....	4
Pipe Materials .....	4
Ductile Iron Pipe (DIP).....	4
Steel Pipe .....	5
Prestressed Concrete Cylinder Pipe (PCCP).....	6
High Density Polyethylene Pipe (HDPE).....	7
Fittings .....	8
Standard Pattern Mechanical Joint Fittings.....	8
Compact Mechanical Joint Fittings.....	10
Swivel Fittings .....	12
2-Inch Brass, Ductile and Galvanized Fittings & Pipe .....	14
Brass and Copper Service Fittings.....	16
High Density Polyethylene Fittings (HDPE) .....	17
Valves .....	18
Air Release Valves .....	18
Butterfly Valves .....	19
Gate Valves.....	21
Flow and Pressure Control Valves .....	23
Swing Check Valves.....	24
Vacuum Valves .....	25
Valve Boxes .....	26
Valve Stem Extensions .....	27
Hydrants.....	28
Meters .....	30
Cold Water Meters .....	30
Fire Line Meters .....	32
Wholesale Meters.....	33
Meter Boxes .....	34
Meter Box Covers.....	35
Pipe Joints .....	36
Flanged Joints - Pipe.....	36
Push-on Joints - Pipe .....	37
Restrained Joints - Pipe .....	38
Couplings.....	39
Couplings .....	39
Flanged Adapters.....	40
Tapping Materials .....	41
Tapping Valves.....	41
Tapping Saddles for Cast Iron and Ductile Iron Pipe .....	43
Tapping Sleeves for Cast Iron, Asbestos Concrete or Ductile Iron Pipe.....	44
Tapping Saddles for PCCP .....	45

Weld-On Saddles for Steel Pipe.....	46
Other .....	47
Backflow Preventer .....	47
Copper Tubing.....	48
Service Saddles .....	49
HDPE Tracer Wire.....	50
Restrained Joint Identification Tape .....	51
Split Swivel Glands.....	52
Utility Crossings.....	53
02512 Thrust Restraints .....	54
Mechanical Joint Glands .....	54
Ductile Iron Restraining Glands & Gaskets.....	55
PVC Restraining Glands .....	57
DIVISION 3 – CONCRETE.....	58
<b>03400 Precast Concrete.....</b>	<b>58</b>
Precast Vaults .....	58
Vault Wall Seals .....	60
DIVISION 5 – METALS.....	61
<b>05500 Metal Fabrications.....</b>	<b>61</b>
Access Doors .....	61
Vault Ladder Safety Post.....	62
Vault Ladder .....	63
DIVISION 13 – SPECIAL CONSTRUCTION.....	64
<b>13110 Cathodic Protection .....</b>	<b>64</b>
Mastic Coating – External Pipe Surfaces .....	64
Electric Tape.....	65
Insulating Devices .....	66
PVC and HDPE Pipe Inserts.....	66
Insulated Flange .....	67
Insulated Union .....	68
Insulated Flanges – Internal Pipe Coating.....	69
Petrolatum Tape Coating.....	70
Polyethylene Tubing (Encasement).....	71
Polyurethane Coating.....	72
Test Stations.....	73
Thermite Welding Equipment .....	74
Thermite Weld Coating Materials .....	75
Utility Warning Tape .....	76
Wire Connectors and Terminations .....	77
Terminal Lugs .....	77
Butt Splices .....	78
Magnesium Anodes.....	79

# **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) 289-6302.
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.

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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

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. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes

##### **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 or AISI Type 304 stainless steel (ASTM A276) with PVC interior lining.
- B. All hardware shall be electroplated steel.
- C. All stainless steel welds shall be chemically passive.
- D. Minimum 7-inch width for 12-inch diameter pipe or smaller.
- E. Minimum 11-inch width for 14-inch diameter or larger.
- F. Runners shall be made of reinforced, high strength polymer with high abrasion resistance and a low coefficient of friction.
- G. Minimum of three casing insulators required per pipe length, or more as required by the manufacturer, with a maximum separation of six feet.
- H. Minimum 2-inch width runners.

##### **PART 2 – PRODUCTS**

##### **Manufacturers**

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

- A. Cascade Waterworks Manufacturing Company
- B. GPT
- C. Advanced Products & Systems, Inc. - Model SI
- D. Raci - High-Density Polyethylene
- E. PowerSeal Pipeline Products Corp. - Model 4810
- F. BWM
- G. CCI Pipeline Systems

END OF SECTION

Revised: 7/10/2017

## 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 A153 - Standard Specification for Zinc Coating (Hot-Dip) on Iron and Steel Hardware
- C. 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. Hot-dipped galvanized steel, ASTM A123.
- B. Thickness shall be a minimum of 8 gauge 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
- B. Republic Steel Corporation
- C. Commercial Pantex Sika, Inc.

END OF SECTION

Revised: 6/1/2011

## **02500 Utility Services**

### 02510 Water Distribution

#### **Pipe Materials**

##### 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 C104/A21.4 - Cement Mortar Lining for Ductile-Iron Pipe and Fittings for Water
- B. ANSI/AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast, for Water
- C. ISO 8179 - Ductile Iron Pipes, External Zinc Coating
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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.
- E. Zinc Coating of pipe exterior in accordance with ISO 8179 with finishing layer of standard shop-applied bituminous topcoat. Markings shall include the word ZINC.
- F. Shall be NSF/ANSI 61 compliant.

### **PART 2 – PRODUCTS**

#### **Manufacturers**

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

- A. American
- B. U.S. Pipe (Forterra)
- C. McWane, Inc.

END OF SECTION

## 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
- I. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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.
- E. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

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

END OF SECTION

## **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 C150 - Standard Specification for Portland Cement
- C. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### ***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 be ASTM 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-coal tar, minimum dry film thickness of 20 mils. Manufacturer shall certify coating before shipping.
- H. Shall be NSF/ANSI 61 compliant.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

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

- A. Forterra

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. NSF/ANSI 61 - Drinking Water System Components - Health Effects

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

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Performance Pipe

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/A21.10 - Ductile Iron and Gray Iron Fittings 3-inch through 48-inch for Water
- C. ANSI/AWWA C111/A21.11 - Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
- D. ANSI/AWWA C116/A21.16 - Protection Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile Iron and Gray-Iron Fittings for Water Supply Service
- E. ANSI/AWWA C550/A21 - Standard for Protective Epoxy Interior Coatings for Valves and Hydrants
- F. ISO 8179 - Ductile Iron Pipes, External Zinc Coating
- G. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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-inch
  - This shall include the bituminous seal coat. Sleeves, plugs and caps shall not be cement lined.
- E. Zinc Coating of exterior in accordance with ISO 8179 with finishing layer of standard shop-applied bituminous topcoat. Fusion-bonded epoxy coating (6-8 mils thickness) of interior and exterior surfaces is an acceptable alternative to zinc coating with cement lining.
- F. Mechanical joint bolt holes shall straddle the centerline of fittings.
- G. Bolts and nuts shall be high-strength, low-alloy steel in accordance with ANSI/AWWA C111/A21.11.
- H. Plugs shall be flat faced, push-on or mechanical joint.
- I. Sleeves shall be long pattern.
- J. When tapped, dished plugs or caps shall be provided with a boss outlet so the 2" tap is perpendicular to the plug or cap.
- K. Shall be NSF/ANSI 61 compliant.

**PART 2 – PRODUCTS**

***Manufacturers***

**Approved Manufacturer(s):**

- A. American
- B. U.S. Pipe (Forterra)
- C. Tyler Union (McWane, Inc.)
- D. SIGMA Corporation
- E. Star Pipe Products
- F. SIP Industries

END OF SECTION

## 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 C111/A21.11 - Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
- C. ANSI/AWWA C153/A21.53 - Ductile-Iron Compact Fittings
- D. ANSI/AWWA C116/A21.16 - Protection Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile Iron and Gray-Iron Fittings for Water Supply Service
- E. ISO 8179 - Ductile Iron Pipes, External Zinc Coating
- F. ASTM A307 - Standard Specification Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
- G. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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-inch
  - This shall include the bituminous seal coat. Sleeves, plugs and caps shall not be cement lined.
- C. Zinc Coating of exterior in accordance with ISO 8179 with finishing layer of standard shop-applied bituminous topcoat. Fusion-bonded epoxy coating (6-8 mils thickness) of interior and exterior surfaces is an acceptable alternative to zinc coating with cement lining.
- D. Mechanical joint bolt holes shall straddle the centerline of fittings.
- E. Bolts and nuts shall be high-strength, low-alloy steel in accordance with ANSI/AWWA C111/A21.11.
- F. Fitting design shall prevent T-head bolts from rotating.
- G. When tapped, dished plugs or caps shall be provided with a boss outlet so the 2" tap is perpendicular to the plug or cap.
- H. Shall be NSF/ANSI 61 compliant.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. American
- B. U.S. Pipe (Forterra)
- C. Tyler Union (McWane, Inc.)
- D. SIGMA Corporation
- E. Star Pipe Products
- F. SIP Industries

**END OF SECTION**

Revised: 7/10/2017

## 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/A21.4 Cement Mortar Lining for Ductile Iron Pipe and Fittings for Water Service
- 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
- D. ANSI/AWWA C116/A21.16 - Protection Fusion-Bonded Epoxy Coatings for the Interior and Exterior Surfaces of Ductile Iron and Gray-Iron Fittings for Water Supply Service
- E. ISO 8179 - Ductile Iron Pipes, External Zinc Coating
- F. NSF International – Standard 61 Drinking Water 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. Cement lining (ANSI/AWWA C104/A21.4)
  - 1/16-inch – 1-inch through 12-inch
  - 3/32-inch – 14-inch through 24-inch
  - This shall include the bituminous seal coat.
- B. Zinc Coating of exterior in accordance with ISO 8179 with finishing layer of standard shop-applied bituminous topcoat. Fusion-bonded epoxy coating (6-8 mils thickness) of interior and exterior surfaces is an acceptable alternative to zinc coating with cement lining.
- C. Mechanical joint bolt holes shall straddle the centerline of fittings.
- D. Bolts and nuts shall be high-strength, low-alloy steel in accordance with ANSI/AWWA C111/A21.11.
- E. Fitting design shall prevent T-head bolts from rotating.
- F. Shall be NSF International 61 approved for use in potable water systems.

**PART 2 – PRODUCT**

***Manufacturers***

**Approved Manufacturer(s):**

- A. American
- B. U.S. Pipe (Forterra
- C. Tyler Union (McWane, Inc.)
- D. SIGMA Corporation
- E. Star Pipe Products
- F. SIP Industries

END OF SECTION

Revised: 7/10/2017

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

### PART 1 – GENERAL

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

#### ***Summary***

#### ***Legislation***

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. ANSI B16.3 - Malleable and Ductile Iron Threaded Fittings ASTM B687 - Standard Specification for Brass, Copper, and Chromium-Plated Pipe Nipples
- B. ASTM B43 - Standard Specification for Seamless Red Brass Pipe, Standard Sizes
- C. ASTM A53 - Standard Specification for Pipe, Steel, Black and Hot-Dipped, Zinc-Coated, Welded and Seamless
- D. ASTM B62 - Standard Specification for Composition Bronze or Ounce Metal Castings
- E. ASTM A153 - Hot-Dipped Galvanized
- F. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- G. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### ***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.
- F. An independent laboratory certification must be provided giving evidence that the brass goods comply with the material standards listed above.
- G. Malleable Iron Fittings and steel welded nipples are exempt from certification and marking requirements.
- H. Shall be NSF/ANSI 61 and 372 compliant.
- I. Product must be marked with a lead-free identifier (such as "NL" or LF") and with the verifying agency's mark.

**PART 2 – PRODUCTS**

***Manufacturers***

**Approved Manufacturer(s):**

- A. Merit Brass
- B. Harco (Ductile Iron Products only)

END OF SECTION

## Brass and Copper Service Fittings

### PART 1 – GENERAL

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

#### **Summary**

#### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/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
- C. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- D. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### **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. An independent laboratory certification must be provided giving evidence that the brass goods comply with the material standards listed above.
- B. Shall be NSF/ANSI 61 and 372 compliant.
- C. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

### 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

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. NSF/ANSI 61 - Drinking Water System Components - Health Effects

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

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Performance Pipe
- B. Central Plastics Company

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***

#### ***Legislation***

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C512 - Air Release Air/Vacuum, and Combination Air Valves for Waterworks Service
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- C. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### ***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.
- E. Shall be NSF/ANSI 61 and 372 compliant.
- F. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

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

- A. GA Industries (Except Models 284 and 991 DC)
- B. Val-Matic

END OF SECTION

Revised: 7/10/2017

## Butterfly Valves

### PART 1 – GENERAL

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

#### **Summary**

#### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **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. ANSI/AWWA C504 – Rubber-Seated Butterfly Valves
- C. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- D. ASTM A536 - Standard Specification for Ductile Iron Castings
- E. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- F. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### **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 14-inch.
- B. Ductile iron body with mechanical joint ends.
- C. Class 250B (ANSI/AWWA C504)
- D. Epoxy-coated interior and exterior (minimum 8 mils).
- E. Seats shall be acrylonitrile-butadiene rubber (NBR), permanently bonded and/or mechanically retained to the valve body.
- F. All fasteners exposed on the valve's exterior (bolts, nuts, etc.) shall be AISI Type 304 or 316 stainless steel (ASTM A276).
- G. For mechanical joints, bolts and nuts shall be high-strength, low-alloy steel in accordance with ANSI/AWWA C111/A21.11. Anti-rotational bolts shall be required at slotted bolt openings.
- H. Counter-clockwise rotation of operating nuts to open. Operating nut (AWWA standard) shall be affixed to screw rod with minimum 0.25-inch diameter solid AISI Type 304 or 316 stainless steel (ASTM A276) pin or keyed connection.
- I. Shall be NSF/ANSI 61 and 372 compliant.
- J. Product must be marked with a lead-free identifier (such as "NL" or "LF") and with the verifying agency's mark.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. Mueller Company - Linesal XP11 with MDT Actuator
- B. Henry Pratt Company (Mueller Company) - HP25011 with MDT Actuator
- C. DeZURIK - BAW with M, G, or LA-Series Actuator (screw rod on G-Series actuator shall be trimmed so that the operating nut is 1-inch from the housing)

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 C111/A21.11 - Rubber Gasket Joints for Ductile Iron Pressure Pipe and Fittings
- B. ANSI/AWWA C509 - Resilient-Seated Gate Valves for Water Supply Service (12" and smaller)
- C. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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. Maximum size 12-inch.
- B. Shall be resilient-seated.
- C. Ductile iron body with bronze or stainless steel stem.
- D. 2-inch and smaller shall be furnished with threaded ends.
- E. 3-inch and larger shall have mechanical joint ends.
- F. Provide O-ring seals.
- G. Counter-clockwise rotation of operating nut to open.
- H. Non-rising stem.
- I. All fasteners exposed on the valve's exterior (bolts, nuts, etc.) shall be AISI Type 304 or 316 stainless steel (ASTM A276).
- J. For mechanical joints, bolts and nuts shall be high-strength, low-alloy steel in accordance with ANSI/AWWA C111/A21.11. Anti-rotational bolts shall be required at slotted bolt openings.
- K. Shall be NSF/ANSI 61 compliant.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. Clow Valve Company (McWane, Inc.) - Model 2639 (Figure F-6100)
- B. Kennedy Valve Company (McWane, Inc.) - Model KS-FW (Figure 8571-SS)
- C. M&H Valve Company (McWane, Inc.) - Model 4067
- D. Mueller Company - Model A-2362
- E. U.S. Pipe Valve and Hydrant (Mueller Company) - Model A-USP2
- F. American AVK Company - Series 45
- G. J&S Valve - Series 6300 and 6900

END OF SECTION

Revised: 7/10/2017

## Flow and Pressure Control Valves

### PART 1 – GENERAL

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

#### **Summary**

#### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. ASTM A536 - Standard Specification for Ductile Iron Castings
- B. ANSI/AWWA C530 - Pilot Operated Control Valves
- C. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- D. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### **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.
- E. Shall be NSF/ANSI 61 and 372 compliant.
- F. Product must be marked with a lead-free identifier (such as "NL" or LF") and with the verifying agency's mark.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Cla-Val Company (Excluding type 94-01)

END OF SECTION

## Swing Check Valves

### PART 1 – GENERAL

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

#### **Summary**

#### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **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. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- D. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### **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/ANSI 61 and 372 compliant.
- E. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Cla-Val Company - Model 584 Flex Check Valve
- B. Kennedy Valve Company (McWane, Inc.) - Figure 106A (rubber-faced disc)
- C. Mueller Company - Series A2600 (rubber-faced disc)
- D. Val-Matic - Series 500 (rubber-faced disc)

END OF SECTION

## Vacuum Valves

### PART 1 – GENERAL

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

#### **Summary**

#### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. AWWA C512 - Air Release, Air Vacuum, and Combination Air Valves for Waterworks Service
- B. ASTM A126 - Standard Specification for Gray Iron Castings for Valves, Flanges, and Pipe Fittings
- C. ASTM A216 - Standard Specification for Steel Castings, Carbon, Suitable for Fusion Welding, for High-Temperature Service
- D. ASTM A536 - Standard Specification for Ductile Iron Castings
- E. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- F. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### **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. The float, guide, shafts, and bushings shall be of Type 304 Stainless Steel.
- B. Seats shall provide a tight shutoff and be of Buna-N (NBR).
- C. Shall be NSF/ANSI 61 and 372 compliant.
- D. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Val-Matic

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.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Bingham & Taylor - Fig. 4908
- B. R.B. Argawalla (India)/Capitol Foundry
- C. Creswell Trading Company - Model A-1 (India)
- D. EJ - Only product numbers 85557126U, 85556036U & 85556518U
- E. Sigma Corporation
- F. Star Pipe Products - Model VBFAIRFAXW

END OF SECTION

Revised: 1/23/2018

## 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 A36-05 - Standard Specification for Carbon Structural Steel
- B. ASTM A53 - Standard Specification for 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. Operating nut shall be 2-inch square (AWWA Standard).
- 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

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
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### *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.
- H. Shall be UL listed and FM approved.
- I. Shall be NSF 61 compliant.
- J. Hydrants shall be shop coated by the approved manufacturer as follows:
  - Hydrant Barrel – Red
  - Tops and Caps – Silver
  - Where indicated by Fairfax Water, the top shall be red and the barrel and caps shall be silver.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. Kennedy Valve Company - K81D with Safety Red and Silver
- B. Mueller Company - Centurion 250A-423 with Red #10 and Silver #18

END OF SECTION

## **Meters**

### Cold Water Meters

## **Cold Water Meters**

### **PART 1 – GENERAL**

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

#### ***Summary***

#### ***Legislation***

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C700 - Cold-Water Meters - Displacement Type, Bronze Main Case
- B. ANSI/AWWA C701-07 - Cold Water Meters - Turbine Type
- C. ANSI/AWWA C702 - Cold Water Meters - Compound Type
- D. ANSI/AWWA C707 - Water Meters, Encoder-Type Remote-Registration Systems for Cold Water Meters
- E. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- F. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### ***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.
- D. Shall be NSF/ANSI 61 and 372 compliant.
- E. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

Sizes 5/8-inch through 2-inch

- A. Badger Meter, Inc.
- B. Sensus - OMNI Series
- C. Hersey Meter
- D. Neptune Technology Group
- E. Master Meter

Sizes 3-inch through 8-inch

- A. Sensus - OMNI Series C2 & T2
- B. Neptune Technology Group

END OF SECTION

## Fire Line Meters

### PART 1 – GENERAL

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

#### ***Summary***

#### ***Legislation***

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C703 - Cold Water Meters - Fire Service Types
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- C. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### ***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.
- B. Shall be NSF/ANSI 61 and 372 compliant.
- C. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

### PART 2 – PRODUCTS

#### ***Manufacturers***

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

- A. Sensus - OMNI Series
- B. Neptune Technology Group

END OF SECTION

## Wholesale Meters

### PART 1 – GENERAL

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

#### **Summary**

#### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. AWWA C701 - Standard for Cold Water Meters - Turbine Type
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- C. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### **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 C701.
- 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.
- D. Shall be NSF/ANSI 61 and 372 compliant.
- E. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Sensus - OMNI Series T2
- B. Neptune Technology Group
- C. Badger Meter, Inc.

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

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 Fairfax Water standard detail.
- C. Foreign castings are allowed, subject to testing and approval.
- D. Country of origin must be cast into production.

### PART 2 – PRODUCTS

#### ***Manufacturers***

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

- A. R.B. Argawalla/Capital Foundry
- B. Creswell Trading Company
- C. Bingham & Taylor
- D. Uma Foundry

END OF SECTION

## Pipe Joints

### Flanged Joints - Pipe

## Flanged Joints – 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 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 C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- C. ANSI/AWWA C115/A21.15 - Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Flanges
- D. ASTM A307 - Standard Specification for Carbon Steel Bolts and studs, 60,000 psi Tensile Strength
- E. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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 and shall be rubber with cloth inserts.
- 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 and ANSI/AWWA C115.
- G. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. American
- B. U.S. Pipe (Forterra)

END OF SECTION

Revised: 7/10/2017

## Push-on Joints – 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/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ANSI/AWWA C115/A21.15 - Flanged Ductile-Iron Pipe with Ductile-Iron or Gray-Iron Threaded Flange
- C. ANSI/AWWA C150.50 - Thickness Design of Ductile-Iron Pipe
- D. ANSI/AWWA C151.51 - Ductile-Iron Pipe, Centrifugally Cast for Water or Other Liquids
- E. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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 or EPDM face gasket shall be bell and spigot type single elongated grooved gasket.
- B. Shall be NSF/ANSI 61 compliant.
- C. FKM/Viton gaskets required when excavated soils contain a Total Petroleum Hydrocarbon (TPH) concentration level of 10 mg/kg, or to the extent directed by Fairfax Water. Areas where FKM/Viton gaskets are installed shall require identification tape to be installed during backfill operations and laid one foot above the water main piping. Tape shall be marked "Caution, FKM/Viton Gaskets Below" or similar language approved by Fairfax Water.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. American - Fastite Joint Pipe
- B. U.S. Pipe (Forterra) - TYTON Joint
- C. McWane, Inc. – TYTON Joint
- D. FKM/Viton Gaskets:
  - 1. Champion Sales & Manufacturing, Inc.
  - 2. Specification Rubber Products, Inc.
  - 3. Atlantic Gasket Corporation

END OF SECTION

## Restrained Joints – 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. 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
- C. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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. Shall be NSF/ANSI 61 compliant.
- D. FKM/Viton gaskets required when excavated soils contain a Total Petroleum Hydrocarbon (TPH) concentration level of 10 mg/kg, or to the extent directed by Fairfax Water. Areas where FKM/Viton gaskets are installed shall require identification tape to be installed during backfill operations and laid one foot above the water main piping. Tape shall be marked "Caution, FKM/Viton Gaskets Below" or similar language approved by Fairfax Water.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. American - Lok-Ring Joint, Flex Ring
- B. U.S. Pipe (Forterra) - TR FLEX (including TR FLEX Gripper Ring), HP LOK, and BOLT LOK
- C. McWane, Inc. - TR FLEX
- D. FKM/Viton Gaskets:
  - 1. Champion Sales & Manufacturing, Inc.
  - 2. Specification Rubber Products, Inc.
  - 3. Atlantic Gasket Corporation

END OF SECTION

# 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 C219 - Bolted, Sleeve-Type Couplings for Plain End Pipe
- B. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- C. ASTM A536 - Standard Specification for Ductile Iron Castings
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

### ***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 AISI Type 304 or 316 stainless steel (ASTM A276).
- E. Gaskets shall be oil resistant synthetic rubber or EPDM.
- F. Shall be NSF/ANSI 61 compliant.

## 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. - Styles 501 and FCA 501, and Alpha Wide Range Restraint Coupling
- D. Smith-Blair, Inc. - Type 431, 441, 433, 435, 913, Quantum 461, and 421 Top Bolt Wide Range Coupling (2-inch through 16-inch)
- E. Dresser, Inc. - Style 38, 53, 3153
- F. Hymax - Two Bolt Wide Range Coupling, Versa Coupling-Clamp, and Grip Coupling
- G. PowerSeal Pipeline Products Corp - Model 3500

END OF SECTION

Revised: 1/23/2018

## 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 C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- C. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 psi Tensile Strength
- D. ASTM A536 - Standard Specification for Ductile Iron Castings
- E. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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 shall be constructed of ductile iron or carbon steel. Carbon steel shall be in accordance with ASTM A283C, A285A and A36. Ductile iron shall be in accordance with ASTM A536.
- B. All bolt circles, sizes and spacing shall conform to ANSI 150 LB flange drilling.
- C. Gasket shall be made of nitrile and be resistant to water and chemicals.
- D. O-rings shall be made of nitrile.
- E. Each item shall be shipped complete with bolts, nuts, and gaskets.
- F. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Smith-Blair, Inc. - 911, 912, 913 and 921 Top Bolt
- B. Star Pipe Products - Series 3200
- C. Sigma Corporation
- D. Hymax - Flange Adapter
- E. Romac Industries, Inc. - Alpha FC Restrained Flanged Coupling

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. ANSI/AWWA C111/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- C. ASTM D429 - Standard Specification for Rubber Metal Bond
- D. AWWA C509 - Resilient Seated Gate Valves for Water Supply Services
- E. AWWA C550 - Protective Interior Coatings for Valves and Hydrants
- F. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### ***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. All fasteners exposed on the valve's exterior (bolts, nuts, etc.) shall be AISI Type 304 or 316 stainless steel (ASTM A276).
- E. Rubber seal gaskets shall have a 250 psi pressure rating.
- F. Shall be NSF/ANSI 61 compliant.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. Clow Valve Company (McWane, Inc.) - Model 2639 (Figure F-6114)
- B. Kennedy Valve Company (McWane, Inc.) - Model KS-FW (Figure 8950SS)
- C. M&H Valve Company - Model 4751-01
- D. Mueller Company - Model T-2362
- E. US Pipe Valve and Hydrant (Mueller Company) - Model T-USP2
- F. J&S Valve - Series 6600

END OF SECTION

Revised: 7/10/2017

## Tapping Saddles 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/A21.11 - Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ANSI/AWWA C151/A21.51 - Ductile-Iron Pipe, Centrifugally Cast for Water or Other Liquids
- C. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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 250 psi 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.
- G. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. American
- B. U.S. Pipe (Forterra)

END OF SECTION

## **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. ANSI/AWWA C111/A21.11 - Rubber Gasket Joints for Ductile-Iron Pressure Pipe and Fittings
- B. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- C. ASTM A307 - Standard Specification for Carbon Steel Bolts and Studs, 60,000 PSI Tensile Strength
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### ***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, ductile iron, 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. Tap sizes up to same pipe size being tapped for DIP (size on size).
- D. External fasteners (bolts and nuts) along spline shall be AISI Type 304 or 316 stainless steel (ASTM A276). Flanged joint bolts and nuts shall be low-carbon steel in accordance ASTM A307, Grade B and ANSI/AWWA C115. Mechanical joint bolts and nuts shall be high-strength, low-alloy steel in accordance with ANSI/AWWA C111/A21.11 and ASTM A307.
- E. For centrifugal cast iron pipe or ductile iron pipe, minimum rated working pressure of 250 psi and shall be tested after installation to 250 psi. For asbestos-concrete pipe, minimum rated working pressure of 200 psi and shall be tested after installation to 200 psi. For pit cast iron pipe, minimum rated working pressure of 200 psi and shall be tested after installation to 200 psi.
- F. Shall be NSF/ANSI 61 compliant.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

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

- C. American
- A. Mueller Company
- B. Tyler Union (McWane, Inc.)
- C. Smith-Blair, Inc. - No. 624
- D. JCM Industries - Model No. 414

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 A276 - Standard Specification for Stainless Steel Bars and Shapes
- B. ASTM A536 - Standard Specification for Ductile Iron Casting
- C. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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 AISI Type 304 or 316 stainless steel (ASTM A276).
- J. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Forterra - Drawing No. 3211-B
- B. JCM Industries - No. 415
- C. Smith-Blair, Inc. - No. 362 (tapping saddle for services) and No. 625

END OF SECTION

Revised: 7/10/2017

## 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
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### ***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.
- C. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### ***Manufacturers***

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

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

END OF SECTION

## Other

### Backflow Preventer

# Backflow Preventer

## PART 1 – GENERAL

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

### **Summary**

### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

### **References**

Product shall adhere to the latest version of:

- A. ANSI/AWWA C510 - Double Check Valve Backflow-Prevention Assembly
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- C. NSF/ANSI 372 - Drinking Water System Components - Lead Content

### **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 C511.
- B. Dual check valve assembly with reduced pressure zone between the check valves.
- C. Bronze body with threaded end connections.
- D. Shall be NSF/ANSI 61 and 372 compliant.
- E. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

## PART 2 – PRODUCTS

### **Manufacturers**

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

- A. Zurn Wilkins

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
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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.
- D. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Cambridge-Lee
- B. Cerro
- C. Howell
- D. Mueller Company
- E. Wieland

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. ASTM A276 - Standard Specification for Stainless Steel Bars and Shapes
- B. ASTM A536 - Standard Specifications for Ductile Iron Castings
- C. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### ***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 AISI Type 304 or 316 stainless steel (ASTM A276).
- 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.
- F. Shall be NSF/ANSI 61 compliant.

### PART 2 – PRODUCTS

#### ***Manufacturers***

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

- A. JCM Industries - Models 406 & 418
- B. Smith-Blair, Inc. - Model 317
- C. Mueller Company - DR1S & DR2S Series
- D. Ford Meter Box Company, Inc. - Styles FC101 & FC202

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

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.

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. ANSI/AWWA C115/A21.15 - Flanged Ductile-Iron Pipe With Ductile-Iron or Gray-Iron Flanges
- 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. Product shall be made of ductile iron.
- B. Bolts and nuts shall be low-carbon steel in accordance with ASTM A307, Grade B and ANSI/AWWA C115.
- C. Side flanged and overlapping ears are permitted by appropriate manufacturers listed below.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Eagle Foundry - Bolt
- B. U.S. Pipe (Forterra) - Bolt
- C. Sigma Corporation - Bolt
- D. Tyler Union (McWane, Inc.) - Bolt and Overlapping Ears

END OF SECTION

Revised: 7/10/2017

## Utility Crossings

### **PART 1 – GENERAL**

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

#### ***Summary***

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

Product shall adhere to the latest version of:

#### **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 for crossing of non-metallic pipe requires expansion material made of closed-cell PVC foam.
- B. Separation of 12 inches or less for crossing of metallic pipe requires separator mesh.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

#### **Approved Manufacturer(s) – Expansion Material:**

- A. NONE

#### **Approved Manufacturer(s) – Separator Mesh:**

- A. Stuart Steel Protection Corp. - Stuart Rockstop

END OF SECTION

## **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. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### ***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 high-strength, low-alloy steel in accordance with ANSI/AWWA C111/A21.11.
- C. Shall be NSF/ANSI 61 compliant.

### **PART 2 – PRODUCTS**

#### ***Manufacturers***

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

- A. American
- B. Tyler Union (McWane, Inc.)
- C. Eagle Foundry
- D. U.S. Pipe
- E. SIGMA Corporation
- F. Jinan Kinger Industrial Corporation/Proselect
- G. Star Pipe Products

END OF SECTION

Revised: 7/10/2017

## Ductile Iron Restraining Glands & Gaskets

### Ductile Iron Restraining Glands & Gaskets

#### 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
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

#### **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. If applicable, wedges for 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 - 24-inch: pressure rating of 350 psi  
30-inch - 48-inch: pressure rating of 250 psi.
- F. Shall be NSF/ANSI 61 compliant.
- G. FKM/Viton gaskets required when excavated soils contain a Total Petroleum Hydrocarbon (TPH) concentration level of 10 mg/kg, or to the extent directed by Fairfax Water. Areas where FKM/Viton gaskets are installed shall require identification tape to be installed during backfill operations and laid one foot above the water main piping. Tape shall be marked "Caution, FKM/Viton Gaskets Below" or similar language approved by Fairfax Water.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. EBAA Iron, Inc.- Megalug Series 1100 (EBBA Seal Gasket as manufactured by EBBA Iron, Inc. required with this gland)
- B. SIGMA Corporation - One-Lok (ductile iron pipe only) and Ductile Iron Mechanical Joint Connector
- C. Ford Meter Box Company, Inc. - 1400 Uniflange
- D. U.S. Pipe - Field Lok 350 Gaskets (16" and under)
- E. Tyler Union (McWane, Inc.) - Series 1000 TLD-DUCTILE TUFGRIP
- F. Smith-Blair, Inc. - Cam Lock Model 111 (DIP)
- G. Infact Corporation - Foster Adapters
- H. Star Pipe Products - Stargrip Series 3000 and MJ x MJ Adapter Series 100 (3" to 36" only)
- I. American - Fast Grip Gasket (16" and under)
- J. McWane, Inc. - Sure Stop 350 Gaskets (16" and under)
- K. SIP Industries
- L. Gripper Gasket LLC - Gripper Gasket
- M. FKM/Viton Gaskets:
- N. Champion Sales & Manufacturing, Inc.
- O. Specification Rubber Products, Inc.
- P. Atlantic Gasket Corporation

END OF SECTION

## PVC Restraining Glands

### PVC 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
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

##### **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. 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.
- C. Twist off bolts shall be used to ensure proper actuating of the restraining devices.
- D. Shall be 165 psi (DR25), 235 psi (DR18), or 305 psi (DR14) pressure class, as required by project.
- E. Shall be NSF/ANSI 61 compliant.

#### PART 2 – PRODUCTS

##### **Manufacturers**

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

- A. EBAA Iron, Inc.,- Series 2000PV (EBAA Seal Gasket as manufactured by EBAA Iron, Inc. required with this gland)
- B. SIP Industries
- C. Star Pipe Products - PVC Stargrip Series 4000G2
- D. SIGMA Corporation - One-Lok SLCEP and PV-Lok Models PVP and PWP

END OF SECTION

Revised: 7/17/2017

# DIVISION 3 – CONCRETE

## 03400 Precast Concrete

### Precast Vaults

## Precast 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, 2 (maximum) middle sections, 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 butyl rubber type sealant applied, as manufactured by MultiSeal, Inc. or Construction Sealants, Inc. (Conseal).
- D. Factory applied exterior bitumastic waterproofing, minimum dry thickness required 9-12 mils.
- E. 14-inch minimum floor thickness with 10-inch deep by 16-inch diameter round sump or 10-inch deep by 16-inch square sump. Sump shall be located under piping closest to vault ladder with a minimum 4-inch gap between the interior vault wall and the edge of the sump.
- F. 1-inch wide channels shall be cast into vault floor to provide positive drainage to sump. Channels shall be flush with floor at farthest point and sloped to 1-1/2" depth at sump.
- G. All vaults shall be installed with top slabs flush to grade.
- H. If vault is provided with preassembled interior piping, a 2-foot pipe stub-out beyond the exterior vault side wall will be required on either side.
- I. 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
- J. Field installed Miller DuraHoist wall mount sleeve (Model # DH-8ZP) to accommodate a Miller DuraHoist Portable Confined Space System. Sleeve shall be accessible through access door

opening and placed adjacent to ladder. Sleeve may be excluded in the event there are space constraints within access door opening, if approved by Fairfax Water.

- K. Vaults shall accommodate AASHTO HS 20-44 live load with impact.
- L. Vaults shall be non-buoyant when installed. Manufacturer to provide buoyancy calculations with assumed water table elevation at the ground surface. Calculations shall not include the weights of the piping or equipment installed and shall be sealed by a Professional Engineer licensed in the Commonwealth of Virginia.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. Smith-Midland
- B. Oldcastle Precast
- C. Concrete Pipe & Precast, LLC
- D. A.C. Miller Concrete Products, Inc.
- E. Bartow Precast, Inc.

END OF SECTION

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

#### **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. Wall pipe shall meet the requirements for Standard Pattern Mechanical Joint Fittings from Fairfax Water's Approved Products List.
- B. Vault wall sleeves which are constructed primarily of rubber, shall meet ASTM C923 Standard Specification for Resilient Connectors Between Reinforced Concrete Manhole Structures, Pipes, and Laterals, ASTM A240 Standard Specification for Chromium and Chromium-Nickel Stainless Steel Plate, Sheet, and Strip for Pressure Vessels and for General Applications, and ASTM A666 Standard Specification for Annealed or Cold-Worked Austenitic Stainless Steel Sheet, Strip, Plate, and Flat Bar.
- C. Vault wall sleeves which are constructed primarily of ductile iron, shall meet ASTM 536 Standard Specification for Ductile Iron Castings, manufactured with a waterstop, and seal the annular space between the sleeve and carrier pipe by means of a confined rubber gasket capable of withstanding 10 PSI.
- D. Fairfax Water shall be responsible for determining the appropriate vault wall seal, based on the application.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. NPC, Inc. - Kor-N-Seal
- B. SIGMA Corporation - Omni Sleeve
- C. American - Wall Pipe

END OF SECTION

Revised: 7/17/2017

# 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 aluminum, stainless steel or 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. Shall have a recessed locking device with a hinged cover. The recess and hasp shall be sized for the use of a padlock with a 2.25 inch wide body, 0.375 inch diameter shackle, 2.5 inch shackle length, and overall length of 5 inches.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Bilco Company - Type J, JD, PDCM, J-AL, or JD-AL
- B. EJ
- C. PA Insert Corporation

END OF SECTION

Revised: 6/27/2016

## 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 or aluminum 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 (if constructed of high strength steel).
- 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. EJ
- C. PA Insert Corporation

END OF SECTION

## Vault Ladders

### PART 1 – GENERAL

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

#### **Summary**

#### **References**

Product shall adhere to the latest and more stringent version of:

- A. 29 CFR 1926.1053 Ladders (OSHA)
- B. 29 CFR 1910.27 Fixed Ladders (OSHA)

#### **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 6000-series aluminum with fully-welded construction, including vault connection clips
- B. Loading requirements shall be as stated in 29 CFR 1926.1053(a)(1)(iii).
- C. Rungs shall be square or rectangular with a nonslip top surface.
- D. Ladder shall include continuous side rails from vault floor to top of ladder. Rungs shall be fastened on both ends to side rails.
- E. Clearance between side rails shall be at least 16 inches.
- F. Distance between ladder rungs shall not exceed 12 inches.
- G. Rungs shall not be higher than 12 inches above vault floor or lower than 12 inches below top of vault structure.
- H. Clear distance from vault wall to ladder shall not be less than 7 inches.
- I. Steel washers shall be installed between connection clip and vault wall.
- J. Unit shall be completely fabricated and ready for installation before shipment to the site.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Precision Ladders, LLC Model FLH
- B. PA Insert Corporation

END OF SECTION

## **DIVISION 13 – SPECIAL CONSTRUCTION**

### ***13110 Cathodic Protection***

#### **Mastic Coating – External Pipe Surfaces**

### **Mastic 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 mastic with high electrical resistivity ( $2.12 \times 10^{13}$  ohm cm<sup>3</sup> and 58.6% solids by volume).
- C. Only one coating material per entire project.

#### **PART 2 – PRODUCTS**

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

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

- A. Royston Laboratories Division - Roskote R-28 Rubberized Mastic
- B. Carboline - Bitumastic No. 50

END OF SECTION

## 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 - 130C (Rubber) and 88 (Vinyl)

END OF SECTION

Insulating Devices  
**PVC and HDPE Pipe Inserts**

**PVC and HDPE 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. ANSI/AWWA C900 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings 4-inch through 12-inch for Water Transmission and Distribution
- B. ANSI/AWWA C905 - Polyvinyl Chloride (PVC) Pressure Pipe and Fabricated Fittings 14-inch through 48-inch
- C. ANSI/AWWA C906 - Polyethylene Pressure Pipe and Fittings, 4-inch through 12-inch for water distribution
- D. NSF/ANSI 61 - Drinking Water System Components - Health Effects

**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 a minimum pressure class of 165 PSI for PVC (DR25), or 160 PSI for HDPE (DR11), or as required by project.
- C. Outside diameter same as adjacent pipe.
- D. Shall meet the requirements of AWWA C900/C905/C906.
- E. Shall be NSF/ANSI 61 compliant.

**PART 2 – PRODUCTS**

**Manufacturers**

**Approved Manufacturer(s):**

- A. PVC - Diamond Plastics Corporation
- B. PVC - National Pipe and Plastics, Inc.- Dura-Blue
- C. PVC - North American Pipe Corporation
- D. HDPE - Performance Pipe

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: Shall be NSF International 61 certified and constructed of G10 Epoxy Glass with EPDM seals. 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. GPT
- B. Advanced Products & Systems, Inc.

END OF SECTION

## Insulated Union

### PART 1 – GENERAL

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

#### **Summary**

#### **Legislation**

Product shall comply with:

- A. Public Law 111-380, Reduction of Lead in Drinking Water Act

#### **References**

Product shall adhere to the latest version of:

- A. AWWA C800 - Underground Service Line Valves and Fittings
- B. NSF/ANSI 61 - Drinking Water System Components - Health Effects
- C. NSF/ANSI 372 - Drinking Water System Components - Lead Content

#### **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. Nylon shall be non-brittle and capable of withstanding impacts and loads
- B. An independent laboratory certification must be provided giving evidence that the goods comply with the material standards listed above.
- C. Shall be NSF/ANSI 61 and 372 compliant.
- D. Product must be marked with a lead-free identifier (such as “NL” or LF”) and with the verifying agency’s mark.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

- A. Mueller Co. (Specify “N” after part number when ordering)
- B. Ford Meter Box Company, Inc.

END OF SECTION

## Insulated Flanges – Internal Pipe Coating

### **Insulated Flanges – Internal Pipe 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. NSF/ANSI 61 - Drinking Water System Components - Health Effects

##### ***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/ANSI 61 compliant.
- B. Two component, high or 100% solids epoxy.

#### **PART 2 – PRODUCTS**

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

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

- A. Raven Lining Systems - Aquatapoxy Coating System A-6

END OF SECTION

## 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)
- C. Superior Corrosion Control

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 8 mil (0.2 mm) thick linear low-density co-extruded V-Bio enhanced 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. Balcan Plastics
- B. Crayex Corporation

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. ANSI/AWWA C209 - Cold-Applied Tape Coatings for the Exterior of Special Sections, Connections, and Fittings for Steel Water Pipelines
- B. ANSI/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:
  - Adhesion to steel greater than or equal to 2,000 psi
  - Cathodic disbondment less than 15 mm rad.
  - Resistivity  $1 \times 10^{14}$  ohms per  $\text{cm}^2$  minimum
  - Dielectric strength greater than 200 volts per mill
  - 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 8.0 mils dry film thickness minimum, applied per manufacturer's recommendations.

### PART 2 – PRODUCTS

#### **Manufacturers**

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

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

END OF SECTION

Revised 6/15/2015

## 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. High impact acrylonitrile butadiene styrene (ABS) shaft shall be permitted, when test station is not installed in the roadway. Rim and lid shall remain cast iron. ABS shall meet the following minimum requirements: Tensile Strength – 6,000 PSI; Flexural Modulus – 300,000 PSI; Impact Strength IZOD – 3.5 to 6.0 FT-LB/IN; Deflection Temperature at 66 PSI – 185 Degrees Fahrenheit ; and Specific Gravity – 1.05.

### PART 2 – PRODUCTS

#### ***Manufacturers***

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

- A. Bingham & Taylor
- B. C.P. Test and Valve Products, Inc.

END OF SECTION

## 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. thermOweld (Continental Industries, Inc.)
- C. Denso North America Inc - Protol 7200 Two Part Epoxy

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
- B. thermOweld (Continental Industries, Inc.)

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.

END OF SECTION

**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 compression terminal lug for ¼-inch bolt.

**PART 2 – PRODUCTS**

***Manufacturers***

**Approved Manufacturer(s):**

- A. Thomas and Betts Corporation - Series 54100 and Model C10-14
- B. Ideal Industries
- C. Morris Products, Inc.

END OF SECTION

## 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
- B. Morris Products, Inc.
- C. Burndy, LLC

END OF SECTION

## 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: 32 pounds.
2. Ingot Nominal Dimensions: Minimum 19 inches long and D-shaped (5 inches by 5 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. Backfill composition by weight:

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

5. 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.
6. Open Circuit Potential: Magnitude 1.6 volts or greater.  
Anode Current: Minimum 0.02 ampere per anode, adjusted to account for number of anodes included in circuit at any given location (e.g. 15 anodes – minimum 0.30 ampere).

7. Each anode shall be supplied within a bag provided by the manufacturer and/or supplier. Bag shall have Ingot Weight and Anode Material (Magnesium) marked on it, and shall not be removed for installation, until Fairfax Water has confirmed markings.

## **PART 2 – PRODUCTS**

### ***Manufacturers***

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

- A. Stuart Steel Protection Corp. - Vibroxed
- B. Piping and Corrosion Specialties
- C. Corrpro

END OF SECTION

### **3**

3M Company, 65

### **A**

A.C. Miller Concrete Products, Inc., 59  
A.Y. McDonald Manufacturing Company, 16  
Advanced Products & Systems, Inc., 2, 67  
American, 4, 5, 9, 13, 36, 37, 38, 43, 44, 54, 56, 60  
American AVK Company, 22  
Atlantic Gasket Corporation, 37, 38, 56  
Atlantic States Cast Iron Pipe Company, 37

### **B**

Badger Meter, Inc., 31, 33  
Balcan Plastics, 71  
Bartow Precast, Inc., 59  
Belton Industries, Inc., 1  
BH Runyon Company, 27  
Bilco Company, 61, 62  
Bingham & Taylor, 26, 34, 35, 73  
Burndy, LLC, 78  
BWM, 2

### **C**

C.P. Test and Valve Products, Inc., 73  
Cambridge-Brass, 16  
Cambridge-Lee, 48  
Capitol Foundry, 26  
Carboline, 64  
Cascade Waterworks Manufacturing Company, 2  
CCI Pipeline Systems, 2  
Central Plastics Company, 17  
Cerro, 48  
Champion Sales & Manufacturing, Inc., 37, 38, 56  
Cla-Val Company, 23, 24  
Clow Valve Company, 22, 42  
Clow Water Systems Company, 37  
Commercial Pantex Sika, Inc, 3  
Concrete Pipe & Precast, LLC, 59  
Contech Construction Products, 3  
Continental Industries, Inc., 74, 75  
Corrpro, 80  
Crayex Corporation, 71  
Creswell Trading Company, 26, 35

### **D**

Denso North America Inc., 70, 74  
DeZURICK, 20  
Diamond Plastics Corporation, 66  
Dresser, Inc., 39

### **E**

Eagle Foundry, 52, 54  
EBAA Iron, Inc., 56, 57  
EJ, 26, 61, 62  
Erico Products, Inc., 74

### **F**

Ford Meter Box Company, Inc., 16, 39, 49, 56, 68  
Forterra, 4, 6, 9, 11, 13, 36, 37, 38, 43, 45, 52  
Futura Coatings, 72

### **G**

GA Industries, 18  
GPT, 2, 67  
Griffin Pipe Products Company, 38  
Gripper Gasket LLC, 56

### **H**

Harco, 15  
Henry Pratt Company, 20  
Hersey Meter, 31  
Howell, 48  
Hunt Industries, 34  
Hymax, 39, 40

### **I**

Ideal Industries, 77  
Infact Corporation, 56

### **J**

J&S Valve, 22, 42  
JCM Industries, 39, 44, 45, 46, 49  
Jinan Kinger Industrial Corporation, 54

### **K**

Kennedy Valve Company, 22, 24, 29, 42

### **M**

M&H Valve Company, 22, 42  
Madison Chemical Industries, 72  
Master Meter, 31  
McWane, Inc., 4, 9, 11, 13, 22, 24, 37, 38, 44, 52, 54, 56  
Merit Brass, 15  
Morris Products, Inc., 77, 78  
Mueller Company, 16, 20, 22, 24, 29, 34, 42, 44, 48, 49, 68

### **N**

National Pipe and Plastics, Inc., 66  
Neptune Technology Group, 31, 32, 33

North American Pipe Corporation, 66  
Northwest, 5  
NPC, Inc., 60

## O

Oldcastle Precast, 59

## P

PA Insert Corporation, 61, 62, 63  
Pacific States Cast Iron Pipe Company, 37  
Performance Pipe, 7, 17, 66  
Permalok, 5  
Piping and Corrosion Specialties, 80  
PowerSeal Pipeline Products Corp, 2, 39  
Precision Ladders, LLC, 63  
Proselect, 54

## R

R.B. Argawalla, 26, 35  
Raci, 2  
Raven Lining Systems, 69  
Republic Steel Corporation, 3  
Romac Industries, Inc., 39, 40  
Royston Laboratories Division, 64, 72, 75

## S

Sensus, 31, 32, 33  
Sigma Corporation, 9, 11, 13, 26, 27, 52, 54, 56,  
57, 60

SIP Industries, 9, 11, 13, 56, 57  
Smith-Blair, Inc., 39, 40, 44, 45, 46, 49, 56  
Smith-Midland, 59  
Sonneborn-Lotech, 53  
Specification Rubber Products, Inc., 37, 38, 56  
Star Pipe Products, 9, 11, 13, 26, 40, 54, 56, 57  
Stuart Steel Protection Corp., 53, 80  
Superior Corrosion Control, 70

## T

thermOweld, 74, 75  
Thomas and Betts Corporation, 77, 78  
Trenton Corporation, 70  
Tyler Union, 9, 11, 13, 44, 52, 54, 56

## U

U.S. Pipe, 4, 9, 11, 13, 36, 37, 38, 43, 52, 54, 56  
U.S. Pipe Valve and Hydrant, 22, 42  
Uma Foundry, 35

## V

Val-Matic, 18, 24, 25

## W

Water Key, 27  
Wieland Copper Products, LLC, 48

## Z

Zurn Wilkins, 47