



# Water Distribution System

Approved Materials

# Metro Water Services

## Approved Materials

The Metropolitan Government of Nashville and Davidson County, through its Department of Water Services, presents this manual listing the approved manufacturers and distributors of various materials that may be used for the construction of Water Distribution System lines and appurtenances.

Standard details and specification information is also available at <http://www.nashville.gov/Water-Services/Developers/Water-and-Sewer.aspx> as a guide to architects and engineers in the preparation of detailed plans and specifications.

Private contractors are encouraged to use the manual for the purchase of materials to be installed in the Water Distribution System.

*We encourage users to notify Metro Water Services of any inaccuracies, problems with performance of materials, or any changes or modifications necessary for the proper function of MWS facilities.*

## Approved Materials - Water

Manufacturers claiming equal status with listed organizations should apply to:

Metro Water Services  
1600 2<sup>nd</sup> Avenue North  
Nashville, TN 37208

ATTN: Steve Nunley  
Phone: (615) 862-4534  
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**Deviation from approved materials list(s) may occur on a case by case basis at the sole discretion of MWS and will be as indicated on the construction plans and in the special provisions of the project specifications.**

## Revisions/Additions 2019

<b>Date</b>	<b>Description</b>	<b>Page(s)</b>
Oct/2019	33 05 16.17 Concrete Valve Boxes and Footing Blocks 1. Updated Materials Description to include 4" thick valve boxes 2. Updated Approved Manufacturers to include the following: <b>Holton Concrete Products, LLC.</b>	1.1
Oct/2019	33 11 13.13 Ductile Iron Mechanical Joint Restraints 1. Updated Approved Manufacturers and Model/Series to include the following: <ul style="list-style-type: none"> <li>• <b>SIP Industries - EZ Grip DI Pipe Joint Restraints</b></li> <li>• <b>Star Pipe Products - Stargrip Series 3000,3000S, 3000T, 3100P, 3100S</b></li> </ul>	2.3
Oct/2019	33 12 16.11 Swing Gate Check Valves 3"- 12" 1. Updated page heading by deleting "in Meter Boxes" 2. Updated Approved Manufacturers and Model/Series to include the following: <b>MATCO-NORCA - 120WC.</b>	3.6
Oct/2019	33 12 00 Valves 1. Updated the Section by adding a new page for <b>Insert Valves:</b> Approved Manufacturer: <b>Advanced Valve Technologies, a Clock Spring company</b> - Model/Series: <b>AVT EZ Valve™ Kit</b>	3.13
Oct/2019	33 12 13 Water Service Lines – Corporation Stops ¾" – 1" 1. Updated Materials Description to include the following verbiage: <b>NOT ALLOWED: Lead; 100psi.</b> 2. Updated The Ford Meter Box Company, Inc. Model/Series to <b>FB-200-x-NL 300 psi only.</b>	4.6
Oct/2019	Repair Fittings – Service Line Repair Couplings 1. Updated Approved Manufacturers and Model/Series to include the following: <b>PowerSeal Pipeline Products - Model 3152 DI</b>	8.4
Oct/2019	Repair Fittings – Service Saddles: Galvanized Steel, Cast and Ductile Iron Pipe 1. Updated Approved Manufacturers and Model/Series to include the following: <b>PowerSeal Pipeline Products - Model 3417 DI</b>	8.5
Jan/2020	12 16.11 Resilient Seated Gate Valves 2" – 60" 1. Updated Approved Manufacturers and Model/Series to include the following: <b>MATCO-NORCA – Series 225</b>	3.2
Jan/2020	33 12 16.17 Tapping Sleeves – 12" and Smaller 1. Updated Approved Manufacturers and Model/Series to include the following: <b>JCM Industries, Inc. – JCM 414, 350 psi required</b>	3.8
Jan/2020	33 12 16.17 Tapping Sleeves –16" and larger 1. Updated Approved Manufacturers and Model/Series to include the following: <b>JCM Industries, Inc. – JCM 414, 350 psi required</b>	3.9
Feb/2020	33 12 33 Water Meters 1. Updated Approved Manufacturers and Model/Series on each page in this section the to add the following for all <b>Neptune</b> models: <b>E-coder TC register ONLY</b>	7.1, 7.2, 7.3, 7.4

# **33 05 16.17 Valve Boxes, Meter Boxes, and Vaults**

## 33 05 16.17 Concrete Valve Boxes and Footing Blocks

### Materials Description

Valve Boxes <http://www.nashville.gov/Water-Services/Developers/Water-and-Sewer.aspx> :

Precast concrete sections; 12" to 18" deep; 11" x 13-1/4" inside dimensions; 3" and 4" thick; No. 2 reinforcing rods; 4" adjustment risers.

Valve box shall be a minimum 4000 psi, 28-day compressive strength precast concrete sections to support vehicle loading.

Footing Blocks <http://www.nashville.gov/Water-Services/Developers/Water-and-Sewer.aspx>:

Concrete blocks 12" x 12" x 4"; 1:2:4 mixture; **no** reinforcing

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

ASTM C-150 Type 1  
AASHTO H-20 Loading  
NSF 61



*Picture is for illustrative purposes only*

### Application

For use in potable water systems

### Approved Manufacturers

Holton Concrete Products, LLC

Hula Concrete Products, Inc.

Jarrett Concrete Products

Oldcastle Precast

### Model/Series

# Cast Iron Frames and Covers

## Materials Description

Frame and cover shall be 195 pounds minimum weight. Dimensions shall be as follows:

Frame 17" x 19-1/4" x 6-1/6"

Cover 11-3/4" x 14" x 1"

Valve boxes shall be cast labeled with "water" in the checked pattern top of the cover.

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

AASHTO H-20 Loading

ASTM A48, Class 30

NSF 61

## Application

For use in potable water systems



*Picture is for illustrative purposes only*

## Approved Manufacturers

John Bouchard & Sons Co.

Neenah Enterprises, Inc.

SIP Industries

## Model/Series

## **33 11 00 Water Mains and Fittings**

## 33 11 13.13 Ductile Iron Pipe 4" – 60"

### Materials Description

Pipe sizes 24 inches and below shall be pressure class 350. Pipe sizes above 24 inches shall be pressure class 250.

Pressure class must be cast or stamped on the outside of the pipe in a permanent and visible manner. The manufacturer shall also mark the year in which the pipe was produced. The letters "DI" or "Ductile" shall be cast or stamped on the pipe. Pipe shall be cement mortar lined on interior and coated on both interior and exterior with a 1-mil asphaltic seal coating.

Standard joint lengths shall be 18 or 20 feet in length. An approved restrained joint shall be provided for each piece of pipe.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

Pipe – C150/A21.50, C151/21.51  
 Restrained Joints – C111/A21.11  
 Flanged Joints – C115/A21.15  
 Interior Cement Mortar Lining - C104/A21.4  
 Asphaltic Coatings – C110/A21.10, C115/A21.15,  
 C151/A21.51, C153/A21.53  
 NSF 61



*Picture is for illustrative purposes only*

### Application

Water main installations

### Approved Manufacturers

American Cast Iron Pipe  
 McWane Ductile  
 U.S. Pipe, a Forterra company

### Model/Series

## 33 11 13.13 Ductile Iron Compact Pipe Fittings 4" – 60"

### Materials Description

Restrained joints and fittings 24 inches and below shall have a minimum pressure rating of 350 psi. Restrained joints and fittings above 24 inches shall have a minimum pressure rating of 250 psi.

Fittings shall have distinctly cast upon them the manufacturer's identification, pressure rating, nominal diameters of openings and the number of degrees or fraction of the circle on all bends along with the letters "DI" of "Ductile".

Fittings shall be cement mortar lined on interior and coated on both interior and exterior with a 1-mil asphaltic seal coating.

Provide mechanical joint fittings with approved restraint. Mechanical joint and swivel tee restraints are allowed.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C111/A21.11, C153/A21.53  
 Mechanical Joints – C111/A21.11  
 Interior Cement Mortar Lining – C104/A21.4  
 Asphaltic Coatings – C110/A21.10, C115/A21.15,  
 C151/A21.51, C153/A21.53  
 NSF 61

### Application

Water main installations:

- In above ground or vault applications, provide flanged joints and fittings.



*Picture is for illustrative purposes only*

### Approved Manufacturers

American Cast Iron Pipe Company  
 Mueller Co, a Mueller Water Products Company  
 SIGMA Corporation  
 SIP Industries  
 Star Pipe Products  
 Tyler Union, a McWane Company  
 U.S. Pipe, a Forterra company

### Model/Series

## 33 11 13.13 Ductile Iron Mechanical Joint Restraints

### Materials Description

Mechanical joint restraints shall have a working pressure rating as follows:  
 350 psi for pipe sizes 16" and below  
 250 psi for pipe sizes 18" to 48"  
 200 psi for pipe sizes above 54"

Mechanical joint restraints for all pipe sizes shall be Mega-Lug® or approved equal.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C110/A21.10, C111/A21.11, C153/A21.53  
 NSF 61



*Picture is for illustrative purposes only*

### Application

Water main installations

### Approved Manufacturers

EBAA Iron, Inc.  
 Romac Industries, Inc.  
 SIGMA Corporation  
 SIP Industries  
 Star Pipe Products  
 Tyler Union, a McWane Company

### Model/Series

Mega-Lug®, Series 1100  
 RomaGrip, GripRing Pipe Restraint, Piranha Gaskets  
 EZ Grip DI Pipe Joint Restraints  
 Stargrip Series 3000,3000S, 3000T, 3100P, 3100S

# 33 12 00 Valves

## 33 12 16.09 Pressure Reducing Valves

### Materials Description

Pressure reducing valves shall be ductile iron with flanged ends. Anti-cavitation option is required.

Contractor is required to submit shop drawings and specifications to Metro Water Services for approval.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C530  
NSF 61

### Application

For reducing high initial pressure to a safe operating pressure in potable water systems. PRV should maintain a constant reduced discharge pressure regardless of variations in flow or changes in upstream pressure.



*Picture is for illustrative purposes only*

### Approved Manufacturers

Cla-Val – 2" & above

Ross Valve – 1"

Watts – ¾", 1", 2"

Zurn Wilkins – ¾"; 1, 2"

### Model/Series

90-01KO PRV

6-14-B

LFN250, LF25AUBZ-23

¾" 610XL, 710 XL

1" 70XL, 610 XL

2" 600XL 4LR

## 33 12 16.11 Resilient Seated Gate Valves 2” – 60”

### Materials Description

Valves shall provide bubble tight closure up to 250 psi when closed and provide a clear, unobstructed waterway when open. Valves shall be non-rising stems with clockwise operation to open. Valve stems shall be low zinc alloy or stainless steel. The end configuration shall be mechanical joint. 4 – 12” valves may use the alpha restraint joint ends. Stem seals shall be O-ring capable of replacement under pressure when valve is fully open. Resilient seats shall be bonded or mechanically attached to either the gate or valve body. Valves shall be hydrostatically tested with twice the specified rated pressure applied to one side of the gate and zero pressure on the other side. The test shall be made in each direction across the gate. Valves shall be epoxy-coated on the inside, including the interior of the gate. Outside of valve, including bolt holes, shall be coated with epoxy. Valves 16” and larger shall be horizontal in orientation. Flush ports on horizontal valves must be installed on the bottom track. Vertical valves may be acceptable when depths allow. Push on joints or machine flanged joints may be used on 16 – 60” valves with prior approval of the MWS Chief Engineer.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C509, C515  
 Epoxy Coating – C550  
 Mechanical Joints C110/21.10, C111/21.11  
 Bonding/Vulcanizing - ASTM D429  
 NSF61  
 NSF 372 low lead content

### Application

Used to separate pressure systems, isolate sections, and change direction of flow in potable water systems.



*Picture is for illustrative purposes only*

### Approved Manufacturers

American AKV  
 AMERICAN Flow Control, a division of AMERICAN  
 Clow Valve, a McWane company  
 Kennedy Valve, a McWane company  
 M&H Valve Co, a McWane company  
 MATCO-NORCA, INC.  
 Mueller Co, a Mueller Water Products company  
 US Pipe Valve & Hydrant, a Mueller Co division

### Model/Series

Series 65  
 Series 2500  
 Model 2638 F6100, Model 2639/2640 F6100  
 KS-RW 7571, KS-FW 8571  
 M&H NRS Style 4067, Style 7000  
 Series 225  
 Series A-2362  
 A-USP2

## 33 12 16.11 Resilient Seated Gate Valves - Meter Box Use 3” – 12”

### Materials Description

Gate valves shall be iron body with bronze mountings, flanged ends, vertical double or single gate, wheel valve with opening to the left (counter clockwise). Rated working pressure of 250 psi minimum. Operating nut optional as requested.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C509, C515  
 Epoxy Coating – C550  
 Bonding/Vulcanizing - ASTM D429  
 NSF 61, NSF 14

### Application

For system shut off/on in potable water systems



*Picture is for illustrative purposes only*

### Approved Manufacturers

AMERICAN Flow Control, a division of AMERICAN  
 Clow Valve, a McWane Company  
 Mueller Co, a Mueller Water Products company  
 US Pipe Valve & Hydrant, a Mueller Co division

### Model/Series

Series 2500  
 F-5070  
 Series A-2360, A-2361  
 Series A-2360, A-2361

### 33 12 16.11 Resilient Seated Gate Valves - Streets/Sidewalks Water Services 2" – 12"

#### Materials Description

Gate valves shall be iron body with mechanical joints, resilient seated gate with 2" square nut on top of stem and opening to the right (clockwise). Valves shall have a rated working pressure of 250 psi.

*For detailed information, see referenced Specification Section*

#### National Standards – AWWA/ANSI

C509, C515  
Epoxy Coating – C550  
Bonding/Vulcanizing - ASTM D429  
NSF 61

#### Application

For system shut off/on in potable water systems



*Picture is for illustrative purposes only*

#### Approved Manufacturers

American AKV  
AMERICAN Flow Control, a division of AMERICAN  
Clow Valve, a McWane company  
Kennedy Valve, a McWane company  
M&H Valve Co, a McWane company  
Mueller Co, a Mueller Water Products company  
US Pipe Valve & Hydrant, a Mueller Co division

#### Model/Series

Series 65  
Series 2500  
Model 2638 F6100, Model 2639/2640 F6100  
KS-RW 7571, KS-FW 8571  
M&H NRS Style 4067, Style 7000  
Series A-2362  
A-USP2

## 33 12 16.11 Swing Gate Valves in Meter Boxes – 3/4", 1", 1-1/2", 2"

### Materials Description

All check valves shall be constructed of brass or bronze and have threaded ends. Valves shall have a rated working pressure of 200 psi.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C509, C515  
NSF 61, 372

### Application

For use in meter boxes in potable water systems



*Picture is for illustrative purposes only*

### Approved Manufacturers

CRANE, a CRANE ChemPharma Energy brand  
Jenkins, a CRANE ChemPharma Energy brand  
Kitz Corporation of American  
Red - White Valve Corporation

### Model/Series

Catalog 60, Figure 36 (200 psi)  
Catalog 77, Figure 92-A (250 psi)  
Code No. 29  
Red - White 236AB

## 33 12 16.11 Swing Gate Check Valves 3”- 12”

### Materials Description

All check valves shall be constructed of ductile iron with bronze mountings, resilient seat swing gate, and have flanged ends with a rated working pressure of 200 psi.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C509, C515  
Epoxy Coating – C550  
Bonding/Vulcanizing - ASTM D429  
NSF 61

### Application

For use in meter boxes in potable water systems



*Picture is for illustrative purposes only*

### Approved Manufacturers

AMERICAN Flow Control, a division of AMERICAN  
  
Clow Valve, a McWane company  
  
CRANE, a CRANE ChemPharma Energy brand  
  
Jenkins, a CRANE ChemPharma Energy brand  
  
M & H Valve, a McWane company  
  
MATCO-NORCA

### Model/Series

Series 52-SC  
  
Clow F-5347-B (Clow Catalog No. 75)  
  
Catalog 60, Figure No. 373  
  
Catalog 77, Figure 624 (200 psi)  
  
Dresser M & H, Style 59-02  
  
120WC

## 33 12 16.11 Gate and Ball Valves for Blow Off Assemblies 2”

### Materials Description

Gate valves shall be bronze body (Class 125 or higher) or iron body with bronze mountings and have threaded ends, non-rising stems, vertical double or single gate, wheel valve with opening to the left (counter clock-wise). Valves shall have a rated working pressure of 200 psi.

Ball valves should be forged brass and have threaded ends, lever handle, blowout-proof stem, and minimum working pressure of 200 psi

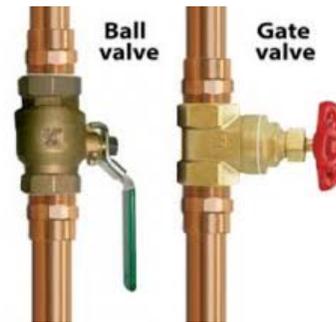
*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C509, C515  
 Bronze – ASTM 862  
 Forged Brass - ASTM-B283-C37700  
 NSF 61

### Application

For use in potable water systems



*Picture is for illustrative purposes only*

### Approved Manufacturers

Gate:  
 Clow Valve, a McWane company  
 Kitz Corporation of America  
 M&H Valve, a McWane company  
 Matco-Norca  
 Mueller Co., a Mueller Water Products company  
 Red-White Valve Corporation  
 Stockham, a CRANE ChemPharma Energy brand  
 US Pipe Valve & Hydrant, a Mueller Co division

Ball:  
 Kitz Corporation of America  
 Red-White Valve Corporation

### Model/Series

No. F-5068  
 Code # 40  
 NRS Style 67-07  
 514LF  
 No. A-2380-8  
 206AB (specify threaded ends)  
 G-739 (specify hand wheel)  
 Bronze, B-103 Metropolitan

Code # 68  
 Model # 5044 F

## 33 12 16.17 Tapping Sleeves – 12” and Smaller

### Materials Description

The sleeve shall be held together by bolts and bolted to sleeves. Rubber gaskets shall be furnished for use with the bolted sleeves. All sleeves must have a test tap. The O-Ring stem will be accepted. Fabricated stainless steel sleeves must be epoxy coated and have stainless steel bolts.

All tapping sleeves shall be tested to insure water tightness with no leakage permitted. Testing must be done in the presence of MWS.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C110, C111  
C500  
ASTM A536  
NSF 61

### Application

Used to install new mains without having to shut down existing mains in potable water systems. Eliminates cutting in a tee for new mains or services.



*Picture is for illustrative purposes only*

### Approved Manufacturers

AMERICAN Flow Control, a division of AMERICAN  
  
Clow Valve Co., a McWane company  
  
Ford Stainless Steel  
  
JCM Industries, Inc.  
  
M&H Valve, a McWane company  
  
Mueller Co., a Mueller Water Products company  
  
Romac Industries, Inc.  
  
Tyler Union, a McWane company

### Model/Series

No. 2800-C  
  
F-5205  
  
FTSS Series, 250 psi minimum  
  
JCM 414, 350 psi required  
  
1574 - D.I.P. Class C; 1674 - Old Pit Cast  
  
H-615 - D.I.P.  
  
FTS 421, 250 psi required  
  
Model 5-149 C.I. or D.I.

## 33 12 16.17 Tapping Sleeves – 16” and Larger

### Materials Description

The sleeve shall be held together by bolts and bolted to sleeves. Rubber gaskets shall be furnished for use with the bolted sleeves. All sleeves must have a test tap. The O-Ring stem will be accepted. Fabricated stainless steel sleeves must be epoxy coated and have stainless steel bolts.

All tapping sleeves shall be tested to insure water tightness with no leakage permitted. Testing must be done in the presence of MWS.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C110, C111  
C500  
ASTM A536  
NSF 61

### Application

Used to install new mains without having to shut down existing mains in potable water systems. Eliminates having to cut in a tee for new mains or services.



*Picture is for illustrative purposes only*

### Approved Manufacturers

AMERICAN Flow Control, a division of AMERICAN

JCM Industries, Inc.

M&H Valve Co., A McWane company

Mueller Co., A Mueller Water Products company

Romac Industries, Inc.

U.S. Pipe Valve & Hydrant, a Mueller Co division

**The JCM 412 and Ford FTSC will be acceptable with prior approval of Metro Water Services for pit cast or old cast iron mains ONLY.**

### Model/Series

Series 2800-C

JCM 414, 350 psi required

1574 - D.I.P.; 1674 - Old Pit Cast

H-615 - D.I.P.

FTS 421, 250 psi required

T-9 (30” & 36” water mains)

**250 psi required**

## 33 12 16.19 Air Release and Vacuum Relief Valves

### Materials Description

Air release and vacuum relief valves are float operated, having a large discharge orifice equal in size to the valves inlet. Bodies and covers shall be ductile iron or cast iron with 316 stainless steel float and internal components. Pressure Class shall be 300 for ductile iron body valves and Pressure Class 250 for cast iron body valves.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C512  
 ASTM A536, A126 or A48  
 Stainless steel 316  
 NSF61

### Application

Allows great volumes of air to be exhausted from or admitted into a system as it is filled or drained.



*Picture is for illustrative purposes only*

### Approved Manufacturers

APCO, a DeZURIK company  
 A.R.I. Optimal Flow Solutions  
 VAG USA, LLC

### Model/Series

(Model 145-C) 1" & 2" Pipe Threads  
 (Model 149-C) 3" - 8" Flange  
 D-040, D-060-C HF NS All Ductile  
 VAG GA Figure 950-D, 950H-U

## 33 12 16.21 Altitude Valves

### Materials Description

A single acting valve is installed in the supply line to an elevated tank, basin, or reservoir to prevent overflow by shutting off the supply when the high water level is reached. The valve opens for refilling the tank when the water level recedes. This valve is used for filling only. Discharge from tank is by a line other than supply line or by by-pass with check valve around the altitude valve.

Valves shall have an approved wireless remote telemetry unit (RTU) meeting the requirements of the MWS existing SCADA system and associated instrumentation for remote monitoring.

Note...must be able to adjust closure rate.

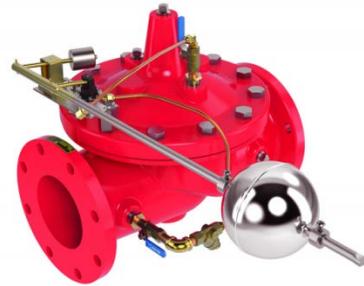
*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C530  
NSF 61

### Application

Installed in the supply line to an elevated tank, basin, or reservoir to prevent overflow by shutting off the supply when the high water level is reached



*Picture is for illustrative purposes only*

### Approved Manufacturers

Cla-val – Epoxy Coated

### Model/Series

Single – 124 Series (full port) speed control valve

## 33 12 16.25 Horizontal Check Valves 3” – 12”

### Materials Description

Check valves shall be constructed of ductile iron with bronze mountings and swing gate or stainless steel and resilient seat swing gate. Check valves shall have flanged ends and design working pressure of 200 psi.

Check valves installed at pumping stations shall have hydraulic cushion. Check valves installed in the distribution system shall have lever and weight arm.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C508  
C111, B16.2  
C550  
NSF 61



*Picture is for illustrative purposes only*

### Application

For use in potable water systems.

### Approved Manufacturers

American AVK  
AMERICAN Flow Control, a division of AMERICAN  
Clow Valve, a McWane company  
Kennedy Valve, a McWane company  
M&H Valve, a McWane company  
Mueller Co, a Mueller Water Products company  
VAG-USA, LLC

### Model/Series

Series 41/RW-RSLT/LW  
Series 600 LW  
Clow 1106 LW  
Figures 106 LS, 1106AW  
Style 159-01  
A2600-601BB, A2602-601B1  
VAG GA Industries Figures 220-DS, 220-US, 340-W

# Insert Valves

## Materials Description

Insert valves shall be designed to allow installation at full pressure with no need to shut off the water supply.

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

C515

## Application

For use in potable water systems



*Picture is for illustrative purposes only*

## Approved Manufacturers

Advanced Valve Technologies, a Clock Spring company

## Model/Series

AVT EZ Valve™ Kit

## **33 12 13 Water Service Lines**

## 33 12 13 Water Service Lines

### Materials Description

Water services lines shall be Type “K” annealed, copper pipe - 3/4”, 1” and 2” in diameter.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

ASTM B-88  
NSF 61

### Application

For use in potable water systems:

- provide water service to a new home
- reconnect a service to a new main
- replace existing old service line



*Picture is for illustrative purposes only*

### Approved Manufacturers

Open Range

### Model/Series

## 33 12 13 Water Service Lines – Brass Compression Fittings ¾” – 1”

### Materials Description

Copper to Copper Couplings  
 Copper to Copper Service Fittings - Unions, Tee, and Wye  
 Copper to Iron Pipe Couplings Female  
 Copper to Iron Pipe Couplings Male  
 Curb Stops  
 Quarter Bend Couplings

All fittings shall meet EPA regulations for no lead.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C800  
 NSF 61



*Picture is for illustrative purposes only*

### Application

For use in potable water systems.

### Approved Manufacturers

#### Copper to Copper Couplings

A.Y. McDonald Mfg, Co.

Mueller Co., a Mueller Water Products Company

The Ford Meter Box Company, Inc.

#### Copper to Iron Pipe Couplings Female

A.Y. McDonald Mfg, Co.

Mueller Co., a Mueller Water Products Company

The Ford Meter Box Company, Inc.

### Model/Series

74758Q

H-15403N

C44-NL Series

74754Q

H-15451N

C14-NL Series

**Copper to Iron Pipe Couplings Male**

A.Y. McDonald Mfg, Co.

74753Q

Mueller Co., a Mueller Water Products Company

H-15428N

The Ford Meter Box Company, Inc.

C84 NL Series

**Curb Stops**

A.Y. McDonald Mfg, Co.

76110MWQ

Mueller Co., a Mueller Water Products Company

B-24353N

The Ford Meter Box Company, Inc.

B43 G or Q Series

**Quarter Bend Couplings**

A.Y. McDonald Mfg, Co.

74777Q

Mueller Co., a Mueller Water Products Company

H-15492N

The Ford Meter Box Company, Inc.

L104-33S-NL; L104-44S-NL



## 33 12 13 Water Service Lines – Brass Flared Fittings ¾” – 1”

### Materials Description

Copper to Copper Couplings ¾”, 1”  
 Copper to Copper Service Fittings ¾”, 1”  
 Copper to Iron Pipe Couplings Female ¾”, 1”  
 Copper to Iron Pipe Couplings Male ¾”, 1”  
 Curb Stops ¾”, 1”  
 Quarter Bend Couplings ¾”, 1”

All fittings shall meet EPA regulations for no lead.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C800  
 NSF 61



*Picture is for illustrative purposes only*

### Application

For use in potable water systems.

### Approved Manufacturers

#### Copper to Copper Couplings

A.Y. McDonald Mfg, Co.

Mueller Co., a Mueller Water Products Company

The Ford Meter Box Company, Inc.

#### Copper to Iron Pipe Couplings Female

A.Y. McDonald Mfg, Co.

Mueller Co., a Mueller Water Products Company

The Ford Meter Box Company, Inc.

### Model/Series

74758

H-15400N

C22-33-NL, C22-44-NL

74754

H-15450N

C21-33-NL, C21-44-NL

**Copper to Iron Pipe Couplings Male**

A.Y. McDonald Mfg, Co.

74753

Mueller Co., a Mueller Water Products Company

H-15425N

The Ford Meter Box Company, Inc.

C28-33-NL, C28-44-NL

**Curb Stops**

A.Y. McDonald Mfg, Co.

Inverted Plug – 73061  
Ball – 76110, 76111

Mueller Co., a Mueller Water Products Company

H-10201N, B-24352-N

The Ford Meter Box Company, Inc.

BL11233R, BL11344F, B23-232-WR, B23-344-WR

**Quarter Bend Couplings**

A.Y. McDonald Mfg, Co.

74777

Mueller Co., a Mueller Water Products Company

H-15490N

The Ford Meter Box Company, Inc.

L102-33S-NL, L102-44S-NL



## 33 12 13 Water Service Lines – Corporation Stops ¾” – 1”

### Materials Description

Flared or compression brass fitting for copper water service lines.

**NOT ALLOWED:**

Lead

100 psi

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C800  
NSF 61

### Application

For use in potable water systems. Allows for the installation of a new copper water service line without interrupting water main pressure.



*Picture is for illustrative purposes only*

### Approved Manufacturers

A.Y. McDonald Mfg., Co.

Mueller Co., a Mueller Water Products, Inc. company

The Ford Meter Box Company, Inc.

### Model/Series

73120

H9971

FB-200-x-NL 300 psi only

## **33 12 13.13 Cross Connection Devices**

## 33 12 13.13 Cross Connection Devices

### Materials Description

Reduced Pressure (RP); Reduced Pressure Principle Fire Protection (RPF) – consist of two independently-acting check valve force loaded closed and separated by an intermediate chamber with an hydraulically operated relief as a means for venting. The assembly also contains two shutoff valves and test cocks. Reduced Pressure Detector Fire Protection (RPDA) contains, in addition to all of the components of an RP, a bypass line around the second check consisting of a water meter, alarm signaling device, or both, and a second RP device

Double Check (DC); Double Check Fire Protection (DCF) - consist of two independently acting check valves force loaded closed, two tightly closing shutoff (isolation) valves, and test cocks. Double Check Detector Fire Protection (DCDA) consists of two independently acting check valves force loaded closed, two tightly closing shutoff (isolation) valves, test cocks, and a bypass line around the second check with a water meter and/or signally device and a second DC device.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

ASSE – 1013, 1015, 1024, 1047, 1048

### Application

For use in potable water systems to prevent contamination or pollution due to backflow.



*Picture is for illustrative purposes only*

### Approved Manufacturers

Metro Water Services utilizes the most current USC Foundation for Cross Connection Control list of approved assemblies. <http://fccchr.usc.edu/list.html>

### Model/Series

# 33 12 19 Fire Hydrants

# 33 12 19 Fire Hydrants

## Materials Description

All hydrants shall be compression post type, opening to the left (counterclockwise) against pressure. Hydrant outlets shall consist of one main valve with a 4-1/2" pumper nozzle outlet and two 2-1/2" outlets with nozzles and caps. The hydrant barrel is to be made in two sections with revolving upper section to provide for adjusting position of hydrant outlets. Upper flange connection must be at such a distance above ground line so as to easily remove bolts and revolve head part of hydrant. All hydrants must be fitted with a mechanical joint inlet. Lubrication must be possible without removing stem nut. Hydrants shall have a 1" square operating nut on top of stem and on nozzle caps. Nozzle caps shall be chained or cabled to the barrel of the hydrant with a chain or cable constructed of material not less than 1/8" in diameter. Opening between the stem nut and the top of the bonnet shall be protected by a weather shield cap. There must be cast on top of the hydrant in characters raised 1/8" an arrow at 1-1/4 inches long and the word "open" in letters 1/2" high and 1/8" relief, indicating direction to turn to open the hydrant. No stuffing boxes or glands shall be used. O-rings or other approved seals of equal ease of operation shall be used. Corners shall have good radius in accordance with good foundry practice. Asphalt varnish and not primer shall be used for coatings. Red paint shall be used for the final coat on the hydrant barrel top or head section. Bury length shall be 3 1/2 feet unless otherwise indicated for new installations. Valve opening shall be 4 1/2" or 5 1/4".

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

C502  
 NFPA No. 194-1974  
 NFPA no. 1963  
 NSF 61

## Application

For use in domestic potable water systems to provide fire protection. Also used for flushing mains.



*Picture is for illustrative purposes only*

## Approved Manufacturers

American AVK  
 AMERICAN Flow Control, a division of AMERICAN  
 Clow Valve, a McWane Company  
 Kennedy Valve, a McWane company  
 M&H Valve Company, a McWane company  
 Mueller Co., a Mueller Water Products company

*Note...repair parts for older model hydrants will be ordered as needed.*

## Model/Series

Series 2780 Nostalgic Style  
 American-Darling Mark 73.5  
 Medallion F-2545  
 Guardian K81D  
 129 (M & H Traffic Model)  
 A-421 Super Centurion

## 33 12 33 Water Meters

### 33 12 33 Residential Cold Water Magnetic Drive Water Meters 5/8" – 1"

#### Materials Description

All water meters set in the Metro system must be equipped with an encoded register with a minimum of eight (8) dials that reads down to one (1) cubic foot wired to a Flex-Net AMI (Automatic Metering Infrastructure) MXU (meter interface unit) using a touch coupler connection.

Meters shall be lead free bronze or stainless steel. Meters shall be direct read, positive displacement type (oscillating piston design) or ultrasonic. Registers shall be tamper resistant, straight reading, hermetically sealed, magnetic drive equipped, and covered with a heat tempered glass lens. The meter serial number shall be permanently impressed on the lid of the register box. The register shall include a low flow indicator on the dial face. Casings must carry an unconditional 25 year guarantee from the date of shipment. Meters shall carry an unconditional guarantee that they will perform to AWWA new meter accuracy standards for five years from date of shipment and AWWA repaired meter accuracy standards for 15 years from date of shipment.

*For detailed information, see referenced Specification Section*

#### National Standards – AWWA/ANSI

C700-77  
C708  
NSF 61

#### Application

For use in potable cold water systems



*Picture is for illustrative purposes only*

#### Approved Manufacturers

Neptune  
Sensus, a Xylem brand

#### Model/Series

T-10; MACH 10 Ultrasonic – E-coder TC register ONLY  
SR II

### 33 12 33 Commercial Cold Water Magnetic Drive Water Meters 1 1/2" – 2"

#### Materials Description

All water meters set in the Metro system must be equipped with an encoded register with a minimum of seven (7) dials that reads down to one (1) cubic foot wired to a Flex-Net AMI (Automatic Metering Infrastructure) MXU (meter interface unit) using a touch coupler connection.

Meters must be lead free bronze or stainless steel with flanged ends. Registers shall be tamper resistant, straight reading, hermetically sealed, magnetic drive equipped, and covered with a heat tempered glass lens. The size, model and direction of flow through the meter shall be marked permanently on the outer cases of all meters. Manufacturer's meter serial number shall be imprinted permanently on the outer case and the register box lid. Name of the manufacturer shall be cast on the register box lid in raised letters.

*For detailed information, see referenced Specification Section*

#### National Standards – AWWA/ANSI

C700 – Displacement  
C708 – Ultrasonic  
NSF 61



*Picture is for illustrative purposes only*

#### Application

For use in potable cold water systems

#### Approved Manufacturers

Neptune  
  
Sensus, a Xylem brand

#### Model/Series

T-10; MACH 10 Ultrasonic – E-coder TC register ONLY  
  
Omni C-2 (stainless only)  
Omni T-2 Stainless Steel

### 33 12 33 Compound Meters – 3” and 4”

#### Materials Description

All water meters set in the Metro system must be equipped with an encoded register with a minimum number of dials (as noted below) that reads down to one (1) cubic foot wired to a Flex-Net AMI (Automatic Metering Infrastructure) MXU (meter interface unit) using a touch coupler connection.

External fasteners shall be of stainless steel. Companion flanges shall be of cast iron. Meters shall be provided with tapped bosses on the top of the case near the outlet for field testing purposes. Registers shall be hermetically sealed. Meters shall be equipped with strainers that shall be rigid, easily removed, and shall have an effective straining area at least double that of the water main-case inlet.

*For detailed information, see referenced Specification Section*

#### National Standards – AWWA/ANSI

C702  
NSF 61



*Picture is for illustrative purposes only*

#### Application

For use in potable cold water systems

#### Approved Manufacturers

Neptune

Sensus, a Xylem brand

#### Model/Series

Tru/Flo Mainline – 7 dials – E-coder TC register ONLY  
Bypass – 6 dials – E-coder TC register ONLY

3” Omni C-2 Stainless Steel; Omni T-2 Stainless Steel – 7 dials

4” Omni C-2 Stainless Steel; Omni T-2 Stainless Steel – 8 dials

## 33 12 33 Fire Service Meters – Cold Water 4” and Above

### Materials Description

Meters must be lead free bronze or stainless steel. External fasteners shall be stainless steel. Companion flanges shall be stainless of the same size and type as the meter flanges. The size, model and direction of flow through the meter shall be cast or stamped in the outer case. The name of the manufacturer and meter serial number shall be permanently impressed on the lid of the register box. Use of synthetic polymers is prohibited. Registers shall be hermetically sealed.

All commercial water meters set in the Metro system must be equipped with an encoded register with a minimum of eight (8) dials that reads down to one (1) cubic foot wired to a Flex-Net AMI (Automatic Metering Infrastructure) MXU (meter interface unit) using a touch coupler connection.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C703  
NSF 61

### Application

For use in potable cold water systems



*Picture is for illustrative purposes only*

### Approved Manufacturers

Neptune  
  
Sensus, a Xylem brand

### Model/Series

Protectus III (stainless steel only) – E-coder TC register ONLY  
  
OMNI™ Fireline (F<sup>2</sup>)

# Repair Fittings and Materials

# Repair Fittings – Ductile Iron and Steel Couplings

## Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

All ductile iron and steel couplings shall be designed for a rated working pressure of 200 psi.

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

C219, C111  
ASTM A 536, D2000 MBA 710  
NSF 61

## Application

For use in potable water systems



*Picture is for illustrative purposes only*

## Approved Manufacturers

Krausz USA  
  
Romac Industries, Inc.  
  
Smith-Blair, a Xylem brand  
  
The Ford Meter Box Company, Inc.

## Model/Series

HYMAX Coupling, HYMAX Grip Coupling  
  
Style 501, XR501, Macro, Alpha Wide Range,  
Alpha End Cap  
  
441  
  
Style FC2A

## Repair Fittings – 360 Degree Repair Clamps 2” – 24”

### Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

Repair clamps shall be of stainless steel construction with waffle type inner gasket. Bolts and nuts shall be manufactured of high corrosion resistant alloy steel. Stainless steel bolts and nuts are approved for use with repair clamps.

Pipe Rangers – See manufacturer’s recommendation

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C111  
ASTM 304L, 536, D 2000,  
NSF 61

### Application

For use in potable water systems



*Picture is for illustrative purposes only*

### Approved Manufacturers

Dresser Piping Specialties – The Macomb Group  
JCM Industries, Inc.  
Krausz USA  
Mueller Co, a Mueller Water Products Company  
PowerSeal Pipeline Products  
Romac Industries, Inc.  
Smith-Blair, a Xylem brand  
The Ford Meter Box Company, Inc.

### Model/Series

Style 360  
101, 131  
EZ-MAX, HYMAX VERSA  
Full Seal 500 and 520  
3121, 3122  
3131, 3132 – 3/4” and 1” tap hole  
Style CL1; Bell Joint Clamp 416, 418, 516, 517  
Style 226  
Style F1

# Repair Fittings – Service Line Wrap-Around Repair Clamps

## Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

For use with 1/2", 5/8", 3/4", 1", 1-1/4", 1-1/2", and 2" pipe

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

A21.11  
ASTM 304, 536  
NSF 61

## Application

For use in potable water systems



*Picture is for illustrative purposes only*

## Approved Manufacturers

Dresser Piping Specialties – The Macomb Group

Romac Industries, Inc.

The Ford Meter Box Company, Inc.

## Model/Series

Style 118

Style SC

Style FCS

# Repair Fittings – Service Line Repair Couplings

## Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

For use with 1/2", 5/8", 3/4", 1", 1-1/4", 1-1/2", and 2" pipe

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

ASTM A 536  
NSF 61



*Picture is for illustrative purposes only*

## Application

For use in potable water systems

## Approved Manufacturers

Dresser Piping Specialties – The Macomb Group

Cambridge Brass, Inc.

JCM Industries, Inc.

PowerSeal Pipeline Products

Romac Industries, Inc.

Smith-Blair, a Xylem brand

## Model/Series

Style 65 B Long (galvanized)

119NL-U3U3, 119NL-U4U4, 119NL-U7U7

Style 220 (galvanized)

Model 3152

Style 702

Style 525 (galvanized)

## Repair Fittings – Service Saddles: Galvanized Steel, Cast and Ductile Iron Pipe

### Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

For use with galvanized steel, cast and ductile iron pipe. All bolts or straps must be stainless steel.

*For detailed information, see referenced Specification Section*

### National Standards – AWWA/ANSI

C800  
304L  
ASTM A536  
NSF 61



*Picture is for illustrative purposes only*

### Application

For use in potable water systems

### Approved Manufacturers

Mueller Co, a Mueller Water Products company  
  
PowerSeal Pipeline Products  
  
The Ford Meter Box Company, Inc.

### Model/Series

DR1S and DR2S  
  
Model 3417 DI  
  
Style FS202

# Repair Fittings – Service Saddles: Asbestos Cement Pipe

## Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

For use with asbestos cement pipe

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

C800, C218  
ASTM A536, A108  
NSF 61

## Application

For use in potable water systems



*Picture is for illustrative purposes only*

## Approved Manufacturers

Smith-Blair, a Xylem brand  
  
The Ford Meter Box Company

## Model/Series

Series 313  
  
FSD-202

# Repair Fittings – Service Saddles: PVC Pipe

## Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

For use with PVC pipe

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

C800  
NSF 61

## Application

For use in potable water systems



*Picture is for illustrative purposes only*

## Approved Manufacturers

Mueller Co, a Mueller Water Products company

Romac Industries, Inc

Smith-Blair, a Xylem brand

The Ford Meter Box Co., Inc.

## Model/Series

H-13000; S-13000

Style 202S; 202NS

Series 315

S-70 Style

# Repair Fittings - Flanged Joint Fittings

## Materials Description

**These fittings are to be used by Metro Water Services Personnel ONLY.**

Fittings shall be ductile iron. Pressure ratings shall be 250 psi rating for sizes 3"- 48".

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

C104/A21.4  
C110/A21.10  
C115/A21.15  
C153/A21.53  
ASTM A536  
B16.1  
NSF61

## Application

For use in potable water systems

Can be used in meter pits, backflow areas, and/or above ground stations.



*Picture is for illustrative purposes only*

## Approved Manufacturers

American, an American Cast Iron Pipe company  
  
Krausz USA  
  
McWane Ductile  
  
SIGMA Corporation  
  
Star Pipe Products, Inc.  
  
Tyler Union, a McWane company

## Model/Series

HYMAX Grip Flange Adapter

# Repair Materials – Pre-stressed Concrete Pressure Pipe Adapters

## Materials Description

**To be used by Metro Water Services Personnel ONLY.**

Adapter for pre-stressed concrete pressure pipe to ductile iron pipe

*For detailed information, see referenced Specification Section*

## National Standards – AWWA/ANSI

C301-79



*Picture is for illustrative purposes only*

## Application

For use in potable water systems

## Approved Manufacturers

Thompson Pipe Group

## Model/Series