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CRIPE ARCHITECTS + ENGINEERS

Architects, Engineers & Surveyors 317-844-6777

PJT. NO. 090324-20000 SUBMIT NO. **331116 Site Water Utility Distribution Piping/Fire Hydrant**

☒ APPROVED — Fabrication/installation may be undertaken. Approval does not authorize changes to the Contract Sum or Contract Time.

☐ APPROVED AS CORRECTED

☐ RESUBMIT: Limit corrections to items marked.

☐ REJECTED; REVISE & RESUBMIT — Fabrication and/or installation may NOT be undertaken.

Reviewed only for general conformance with project design concept and general compliance with the Contract Documents. Corrections or comments made in review do not relieve contractor from compliance with requirements of the contract documents. Approval; of a specific item shall not include approval of an assembly of which the item is a component. Contractor is responsible for: all dimensions; information pertaining to the fabrication process or to the means, methods, techniques, sequence and procedure of construction; coordination of work with other trades; and performing of work in safe and satisfactory manner.

Signed by: _____

Consultant/Department: Cripe Architects + Engineers

Date: 3/3/10

Cripe®
Architects + Engineers

COMMENTS:

Submittal Item

Project [IPS-III-1015] - 015 - Thomas D. Gregg Elementary School

View Date 2/16/2010

Enginuity Management & Consulting Corp.
Ste 230
6214 Morenci Trail
Indianapolis, IN 46268
Phone: 317-297-5601
Fax: 317-423-5460

Submittal Item No.
00416

General Information

Item No.	00416	**Revision**	0
Package No. Rev.	331116.0		
Description	Product Data		
CSI Code	33 11 16 - Site Water Utility Distribution Piping	**Submitting Company**	MacDougall Pierce Construction, Inc.
Reference No.		**Copies Required**	1
Status	Requested from Prime	**Item Type**	Product Data
Responsible Team Member	Sahara Williams (Enginuity Management & Consulting Corp.)		
Item Notes			
Primary Response			
Submission Notes			
Review Notes			

Dates

Material Required on Site	**Required Lead Time (days)**
Approved Submittal Required By	**Required Review Time (days)**
Submission Due	

Manufacturer

Reviewed by WJB of Enginuity for CQM Team on 02/15/2010

Campbell Land Development
Construction Waste
935 West Troy Avenue
Indianapolis, IN 46225
Office: 317.783.1500
Fax: 317.783.4860

SUBMITTAL

Date: **February 1, 2010**

Project Name: **IPS Thomas D. Gregg Elementary School No. 15**

Architecture/Engineer:
Durkin & Villalta Partners Engineering
8440 Woodfield Crossing Blvd., Suite 175
Indianapolis, IN 46240

Construction Quality Manager (CQM):
Garcia Construction Group
6002 N. Michigan Road
Indianapolis, IN 46228

Contractor:
MacDougal Pierce
12720 Ford Drive
Fishers, IN 46038

Subcontractor:
Campbell Land Development
935 West Troy Ave.
Indianapolis, IN 46225

Supplier:
Utility Pipe Sales
3169A N. Shadeland Ave.
Indianapolis, IN 46226

Manufacturer:
Mueller Co.
956 Industrial Blvd.
Albertville, AL 35950

Unique identifier, including revision number

Number and title of appropriate Specification Section **331116**
Site Water Utility Distribution Piping

Drawing number and detail references, as appropriate **C501**

Other necessary identification **Fire Hydrant**

1. GENERAL CLASSIFICATION

1.1 MUELLER SUPER CENTURION 250 Hydrants are suitable for general waterworks service.

1.2 MUELLER SUPER CENTURION 250 Hydrants are dry barrel, post type with compression main valve closing with the inlet pressure.

1.3 MUELLER SUPER CENTURION 250 Hydrants have a replaceable Safety Stem Coupling and a replaceable Safety Flange at the ground line to minimize traffic damage.

1.4 MUELLER SUPER CENTURION 250 Hydrants comply with AWWA Standard C502, are Underwriters Laboratories listed, and are Factory Mutual Systems approved.

2. SELECTIVE SPECIFICATIONS (TO BE SELECTED BY CUSTOMER)

2.1 Size of Hydrant – 4-1/2" or 5-1/4" hydrants are sized by seat ring internal diameters.

2.2 Size and type of inlet connections.

2.2.1 Mueller AquaGrip™ Connection – Stab compression connection with integral restraint. Furnished ready to install with all hardware and O-ring seal assembled. Use on Ductile Iron, C900 PVC, or DIPS PE (DR9 through DR17). 6" size.

2.2.2 Flange – Horizontal or vertical in relation to hydrant barrel – American Standard complying to ANSI B16.1 Class 125 (ISO PN10/PN16 drilling optional). 4" and 6" sizes.

2.2.3 Standardized Mechanical Joint – Dimensions comply with ANSI/AWWA C111/A21.11. Furnished with integral anti-rotational pads on all bolt holes (allowing use of standard tee-head bolts), and with two strapping lugs. 4" and 6" sizes.

2.2.4 D-150 Mechanical Joint – With two specially designed gaskets to fit either of two diameters of Cast Iron or Ductile Iron pipe: duck-tipped rubber gasket for Class 150 pipe or plain rubber gasket for Class D pit cast pipe.

2.2.5 Slip-On Joint* – Complete with Mueller Slip-On Gasket, complies with ANSI/AWWA C111/A21.11. Fits Ductile Iron pipe manufactured to ANSI/AWWA C151/A21.51; including the plain end of all makes of Cast Iron or Ductile Iron of the slip connection type. Also fits Classes 150 and 200 Ductile Iron O.D. PVC plastic pipe.**

2.3 Operating nut and nozzle cap nut – shape and dimension according to customer selection.

2.4 Opening direction – Open left or right. Arrow on bonnet indicates opening direction.

2.5 Nozzle arrangement – Furnished 3-way, with 2 hose nozzles 180 degrees apart, 1 pumper in between, and all on the same horizontal plane.

2.5.1 Hose nozzle threading – Regularly furnished with 2-1/2 National Standard Hose Thread. Other 2-1/2" or 3" hose threads to customer specifications.

2.5.2 Pumper nozzel threading – Regularly furnished with 4-1/2" National Standard Pumper Hose Thread. Other 3-1/2", 4", 4-1/4", 4-1/2", and 5" pumper hose threads to customer specifications. Integral 4" or 5" Storz pumper connection available.

3. WORKING AND TEST PRESSURES

3.1 Working pressure 250 psi.

3.2 MUELLER SUPER CENTURION 250 Hydrants are subjected to two hydrostatic tests per AWWA C502 Standard.

3.2.1 First test at 500 psi is made with the main valve closed with pressure applied through the inlet of the shoe.

3.2.2 Second test is made with the main valve open and entire hydrant subject to a pressure of 500 psi.

During the above tests, no indication of leakage is permitted through castings, joints, main valve, or stem packing. Drain valve leakage cannot exceed five fluid ounces per minute.

* Design and dimensions of the joint are manufactured under license of U.S. Pipe and Foundry Company.

** When using DI O.D. PVC pipe, the gaskets supplied by Mueller must be used with this hydrant connection.

(Continued)

4. DESIGN FEATURES

4.1 Bonnet assembly – Dry top, factory lubricated. Oil level checked by removing the oil filler plug on outside of bonnet. Cannot be overfilled with oil.

4.2 Upper operating stem – Bronze encased for O-ring seal surface contact.

4.3 Nozzles – Interchangeable, threaded in place and retained by stainless steel locks.

4.4 Nozzle caps – Attached to upper barrel with individual non-kinking chains.

4.5 Lower barrel flange – Concealed for improved appearance.

4.6 Interchangeable design permits the upper barrel assembly to be used with existing MUELLER Improved or 107® Hydrants. (For 107 hydrant, use upper barrel assembly with stop-in-bonnet option.)

4.7 Safety flange – Breaks cleanly upon impact, yet strong enough for normal handling, shipping, and use. Permits full 360 degree rotation of upper barrel to position nozzles in any desired direction. Extension sections or upper barrel with different nozzle size or arrangement can easily be added. Full size un-notched steel bolts used to retain safety flange and connect the upper and lower barrel.

4.8 Stem coupling – Stainless steel, connects the upper and lower stems and is retained with stainless steel clevis and cotter pins. When traffic damage occurs, the portion of the coupling below the lower clevis pin is pulled free allowing coupling to remain attached to the upper stem. Lower stem retains bottom clevis and cotter pin with no loose parts to fall into hydrant barrel. Upper end of lower stem is located below lower barrel flange surface to prevent it from being held open by vehicle wheel after traffic damage.

4.9 Lower barrel – Heavy wall sections where flange joins the barrel section for added strength.

4.10 Shoe – Has lugs for strapping anchors on mechanical joint, D-150 and Slip-On Joint ends. Bottom has a support pad and side opposite inlet has a backing support pad.

4.11 Seat ring- Bronze ring threads into bronze drain ring, which has two drain holes to provide an all bronze drain way.

4.12 Double drain valves (with replaceable plastic drain valve facings) operate automatically to force flush the drain way each time the hydrant is opened or closed. No toggles, springs, or adjustable mechanisms are required and the drain valve facings can be replaced when seat ring and main valve assembly is removed.

4.13 Main valve – Molded rubber, reversible, compression type, closes with inlet pressure and remains closed during any above ground repairs or changes to upper barrel or bonnet assemblies.

4.14 Main valve opening – Controlled by lug in bottom of shoe. Stop in bonnet also available.

4.15 Main valve and seat ring – Removable from above ground with seat removal wrench.

4.16 Lower stem end threads – Covered with an epoxy coated iron cap nut and sealed with rubber washer to protect them from corrosion. The cap nut is retained with a stainless steel lock washer.

4.17 Shoe and upper valve plate design – Permits maximum flow by minimizing friction loss.

4.18 Shoe interior, lower valve plate and cap nut – Coated with MUELLER HP® Epoxy Coating to resist corrosion.

5. MATERIAL SPECIFICATION

5.1 Bonnet, nozzle caps, barrels, safety flange, drain ring housing, lower valve plate, cap nut and shoe (except AquaGrip and 6" Mechanical Joint shoes) – Cast Iron, ASTM A–126, Grade B.

5.1.1 AquaGrip Shoe – Ductile Iron, ASTM A-536, Grade 65-45-12.

5.1.2 Mechanical Joint Shoe (6" size only) – Ductile Iron, ASTM A-536, Grade 65-45-12.

5.2 Operating nut, hold down nut, nozzles, upper valve plate, seat ring and drain ring – Bronze. In compliance with AWWA Standard C502 Grade A.

5.3 Oil filler plug – Brass, ASTM B-16, half hard.

5.4 O-ring seals – Buna N, ASTM D2000 3CH720.

5.5 Weather seal – EPDM, ASTM D2000 2AA910.

5.6 Anti-friction washer – Thermoset plastic with high resistance to dynamic and static wear.

5.7 Bolts for bonnet, safety flange, shoe and drain ring housing – Steel, Electrogalvanized, ANSI B18.2 – ASTM A-307 Grade B.

(Continued)

5. MATERIAL SPECIFICATION (cont.)

5.8 Cap chains – Steel, Electrogalvanized.
5.9 Upper and lower stems – Steel, ASTM A-576 Grade 1117.
5.10 Stem pin – Stainless Steel, ASTM A-276 Type 302.
5.11 Drain valve facing screws – Stainless Steel, ASTM A-276 Type 305.
5.12 Nozzle lock – Stainless Steel, ASTM A-276 Type 410.
5.13 O-rings for bonnet and barrel flanges – Buna N, ASTM D2000.
5.14 O-ring for drain ring housing flange – Buna N, ASTM D2000.
5.15 Gaskets for nozzle caps – Neoprene, ASTM D2000, 3BC720.
5.16 Safety stem coupling – Stainless Steel, ASTM A-890.
5.17 Safety stem coupling clevis pins – Stainless Steel, ASTM A-276 Type 305.
5.18 Safety stem coupling cotter pins – Stainless Steel, ASTM A-276 Type 302.
5.19 Drain valve facings – Resilient precision molded thermoplastic with unique sealing characteristics.
5.20 Reversible main valve – Molded rubber, ASTM D2000.
5.21 Lower valve plate – Cast Iron, ASTM A-126 Class B and MUELLER HP® Epoxy Coating. In compliance with AWWA Standard C550.
5.22 Lock washer – Stainless Steel, ASTM A-276 Type 302.
5.23 Cap nut – Cast Iron ASTM A-126 Class B and MUELLER HP® Epoxy Coating. In compliance with AWWA Standard C550.
5.24 Cap nut seal – Rubber, ASTM D2000, 4AA715.
5.25 Shoe coating – Interior surfaces, MUELLER HP® Epoxy Coating. In compliance with AWWA Standard C550.
5.26 Paint – Interior and exterior above and below ground line – one coat water reducible alkyd enamel primer, black. Exterior above ground line – one coat short oil alkyd high gloss enamel, color as specified.

Logged in 2/22/10
Logged out 3/3/10 SW SW

CRIPE ARCHITECTS + ENGINEERS

Architects, Engineers & Surveyors 317-844-6777

PJT. NO. 090324-20000 SUBMIT NO. **331116 Site Water Utility Distribution Piping/6" Ductile Iron Pipe**

- [x] APPROVED — Fabrication/installation may be undertaken. Approval does not authorize changes to the Contract Sum or Contract Time.
- [ ] APPROVED AS CORRECTED
- [ ] RESUBMIT: Limit corrections to items marked.
- [ ] REJECTED; REVISE & RESUBMIT — Fabrication and/or installation may NOT be undertaken.

Reviewed only for general conformance with project design concept and general compliance with the Contract Documents. Corrections or comments made in review do not relieve contractor from compliance with requirements of the contract documents. Approval; of a specific item shall not include approval of an assembly of which the item is a component. Contractor is responsible for: all dimensions; information pertaining to the fabrication process or to the means, methods, techniques, sequence and procedure of construction; coordination of work with other trades; and performing of work in safe and satisfactory manner.

Signed by: [signature]

Consultant/Department: Cripe Architects + Engineers

Date: 3/3/10

Cripe®
Architects + Engineers

COMMENTS:

Reviewed by WJB of Enginuity for CQM Team on 02/15/2010

Campbell Land Development
Construction Waste
935 West Troy Avenue
Indianapolis, IN 46225
Office: 317.783.1500
Fax: 317.783.4860

SUBMITTAL

Date: **February 1, 2010**

Project Name: **IPS Thomas D. Gregg Elementary School No. 15**

Architecture/Engineer:
Durkin & Villalta Partners Engineering
8440 Woodfield Crossing Blvd., Suite 175
Indianapolis, IN 46240

Construction Quality Manager (CQM):
Garcia Construction Group
6002 N. Michigan Road
Indianapolis, IN 46228

Contractor:	**Subcontractor:**	**Supplier:**	**Manufacturer:**
MacDougal Pierce	Campbell Land Development	Utility Pipe Sales	U.S. Pipe
12720 Ford Drive	935 West Troy Ave.	3169A N. Shadeland Ave.	P.O. Box 10406
Fishers, IN 46038	Indianapolis, IN 46225	Indianapolis, IN 46226	Birmingham, AL 35202

Unique identifier, including revision number

Number and title of appropriate Specification Section **331116**
Site Water Utility Distribution Piping

Drawing number and detail references, as appropriate **C501**

Other necessary identification **6" Ductile Iron Pipe**

2005 EDITION

TYTON JOINT® Pipe

DUCTILE IRON

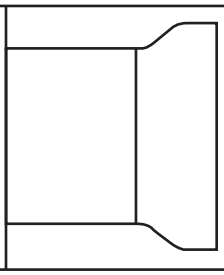
4"-64"

NSF Certified to ANSI/NSF 61

FOR WATER & WASTEWATER, FIRE PROTECTION & INDUSTRIAL APPLICATIONS

MORE THAN JUST PIPE.

U.S. PIPE



TYTON JOINT® Pipe

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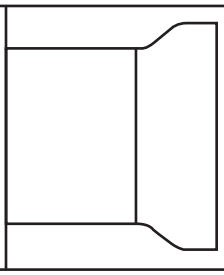


TYTON JOINT® Pipe

TYTON JOINT Pipe

TYTON JOINT is U.S. Pipe's trademark for pipe with a push-on type connection. Simplicity, sturdiness and water-tightness of the system are built into the system by design. Convincing proof of its worldwide acceptance is shown by the fact that more than 95% of the pipe now sold by U.S. Pipe is TYTON JOINT Pipe.

TYTON JOINT Pipe is available in sizes 4" through 64". Sizes 4" through 42" are available in nominal 18-foot laying lengths. 16", 20" and 24" sizes along with sizes 48" through 64" are available in nominal 20-foot laying lengths.

TYTON JOINT Pipe in sizes 4" through 36" are UL Listed and sizes 4" through 16" are FM Approved.

When TYTON JOINT Pipe are used for bridge crossings or other above-ground installations, each length of pipe must be supported in a manner to restrict both vertical and horizontal movement.

TYTON® Gasket is the only accessory required when installing TYTON JOINT Pipe. It is a circular rubber gasket which has a modified bulb shape in cross section. Gaskets are furnished in accordance with ANSI/AWWA C111/A21.1. Composition and dimensions of the gasket have been carefully engineered to ensure a water-tight and lasting seal. The standard TYTON Gasket is manufactured of SBR - styrene butadiene rubber. Gaskets of special elastomers may be ordered for special applications. The gasket contour and bell socket contour ensure that the gasket will remain seated during proper assembly of the pipe. When joint restraint is required for push-on joint pipe, two options are available from U.S. Pipe. For joint restraint of 4" through 24", FIELD LOK 350® Gaskets may be used and for joint restraint for 30" and 36", FIELD LOK® Gaskets may be used. FIELD LOK 350 Gaskets are rated for 350 psi in sizes 4" through 24". In addition, for 4" through 64" sizes, TR FLEX® Pipe and Fittings may be used. TR FLEX Pipe and Fittings are rated for working pressures for 350 psi in 4" through 24" sizes, 250 psi in sizes 30" through 48", and 200 psi in sizes 54" through 64". For higher pressure applications contact your U.S. Pipe representative. Complete details on both FIELD LOK 350 Gaskets and TR FLEX Pipe and Fittings can be found on our website, www.uspipe.com.

NOTE: *U.S. Pipe qualifies for Federal Procurement under Public Law No. 94-580, Section 6002, known as the Resource Recovery Act of 1976, since, due to modern technology, recycled iron and steel scrap is used to a large degree in our Ductile Iron Pipe production.*

The plain end of the pipe is furnished beveled or with a quarter ellipse on the edge to allow assembly. More than 40 years of successful experience have proved its sealing capabilities. Hydrostatic tests have shown that the system will withstand pressures far in excess of rated pressures.

ANSI/AWWA Standards

ANSI/AWWA C151/A21.5, Ductile-Iron Pipe, Centrifugally Cast for Water.

Ductile Iron TYTON JOINT Pipe is centrifugally cast in metal molds in accordance with ANSI/AWWA C151/A21.5.

ANSI/AWWA C151/A21.51, Standard for Ductile-Iron Pipe, Centrifugally Cast, for Water.

The asphaltic outside coating is in accordance with ANSI/AWWA C151/A21.51.

As specified in ANSI/AWWA C151/A21.51, pipe weights have been calculated using standard barrel weights and weights of bells being produced.

ANSI/AWWA C104/ A21.4, Cement-Mortar Lining For Ductile-Iron Pipe and Fittings For Water.

The cement-mortar lining and inside coating are in accordance with ANSI/AWWA C104/ A21.4. Special linings and/or coatings can be furnished for specific conditions.

ANSI/AWWA C111/A21.11, Rubber-Gasket Joints for Ductile-Iron Pressure Pipe and Fittings.

TYTON® Gaskets are furnished in accordance with ANSI/AWWA C111/A21.11.

ANSI/ AWWA C105/A21.5, Polyethylene Encasement for Ductile Iron Pipe Systems.

If specifiers and users believe that corrosive soils will be encountered where our products are to be installed, please refer to ANSI/AWWA C105/A21.5, for proper external protection procedures.

Assembly

Figure 1. Insertion of Gasket

All foreign matter in the socket must be removed, i.e., mud, sand, cinders, gravel, pebbles, trash, frozen material, etc. The gasket seat should be thoroughly inspected to be certain it is clean. Foreign matter in the gasket seat may cause a leak. The gasket must be wiped clean with a clean cloth, flexed, and then placed into the socket with the rounded bulb end entering first. Looping the gasket in the initial insertion will facilitate seating the gasket heel evenly around the retainer seat. 4" through 12" sizes require only one loop. For larger sizes, additional loops may be required: 14" through 36", two to three loops; 42" through 54", four to six loops; 60" and 64", six or more loops. When installing TYTON JOINT Pipe in sub-freezing weather, the gaskets, prior to their use, must be kept at a temperature of at least 40°F by suitable means, such as storing in a heated area or keeping them immersed in a tank of warm water. If the gaskets are kept in warm water, they should be dried before placing in the pipe socket.

Figure 2. Application of Lubricant

A thin film of TYTON JOINT® Lubricant should be applied to the inside surface of the gasket, which will come in contact with the plain end of the pipe. Spray-on lubricants should not be used as it may not provide sufficient lubricity. The plain end of the pipe must be cleaned of all foreign matter on the outside from the end to the stripes. Frozen materials may cling to the pipe in cold weather and must be removed. A thin film of lubricant is applied to the outside of the plain end for about 3" back from the end. Do not allow the plain end to touch the ground or trench side after lubricating since foreign matter may adhere to the plain end and cause a leak.

Figure 3. Initial Entry of Plain End in Socket

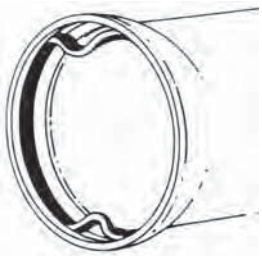
The plain end of the pipe should be aligned and carefully entered into the socket until it just makes contact with the gasket. This is the starting position for the final assembly of the joint. Note the two painted stripes on the plain end.

Figure 4. Completely Assembled Joint

Joint assembly should be completed by forcing the plain end of the entering pipe past the gasket (which is thereby compressed) until the plain end makes contact with the bottom of the socket. Note that the first painted stripe will have disappeared into the socket and the front edge of the second stripe will be approximately flush with the bell face. Joint deflection may be achieved after the pipe is fully inserted. If assembly is not accomplished with the application of reasonable force by the methods indicated, the plain end of the pipe should be removed to check for the proper positioning of the gasket, adequate lubrication, and removal of foreign matter in the joint.

A feeler gage may be inserted between the bell and the plain end of the assembled joint to verify the position of the gasket. When the gage encounters the gasket, increased resistance will be felt. Note the depth of insertion of the gage. Continue probing around the periphery of the joint, noting the depth to resistance each time. If the depth of insertion is uniform, the gasket has remained in place. If, at any point, the depth of insertion increases significantly, this indicates a dislodged gasket. The joint should be disassembled, thoroughly cleaned with water, and examined for any condition that might have caused the gasket to become dislodged before attempting to reassemble the joint.

1.



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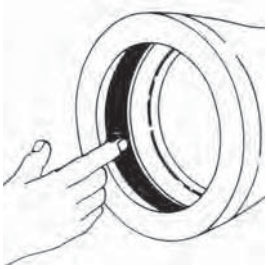

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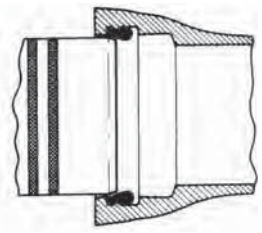

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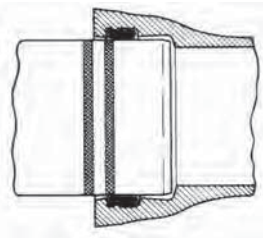


NOTE: *When using FIELD LOK 350® Gaskets or pipe with special linings, assemble the joint until the inside edge of the first painted stripe (or the assembly mark) is flush with the bell face.*

CAUTION: *The inside of the socket, the gasket, and the plain end to be inserted must be kept clean through-out the assembly. Joints are only as water-tight as they are clean. If the joint is somewhat difficult to assemble, inspect for proper gasket positioning, adequate lubrication, and foreign matter in the joint.*

Alternate Methods of Assembly

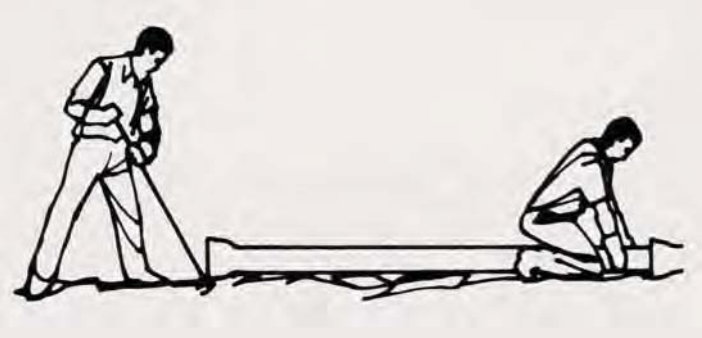
Procedures outlined in figures 1-3 on page 3, showing the assembly of TYTON JOINT Pipe, should be followed before proceeding with the methods shown below.

Backhoe Method of Assembly

A backhoe may be used to assemble pipe of intermediate and larger sizes. The plain end of the pipe should be carefully guided by hand into the bell of the previously assembled pipe. The bucket of the backhoe may then be used to carefully push the pipe until fully seated. A timber header should be used between the pipe and the backhoe bucket to avoid damage to the pipe. Caution: Avoid “slamming" the pipe home to prevent damage to lining material inside the bell at the back of the socket.

Crowbar Method of Assembly

Smaller sizes of pipe may be assembled using a crowbar as a lever and pushing against the face of the bell.



Come-along Method of Assembly

Installers may prefer to use come-alongs to assemble pipe of all sizes. Two (2) 3/4 ton chain hoists, 24 feet of chain and two (2) bell choker slings for 4"-24" sizes or two (2) 1-1/2 ton (minimum) chain hoists for 30"-64" sizes.

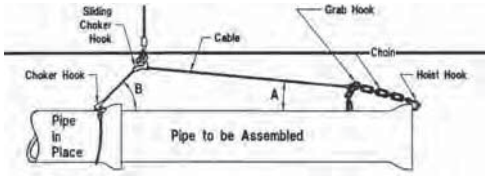
Alternate Methods of Assembly (cont.)

The most common field method of assembling larger diameter TYTON JOINT Pipe is to use a backhoe to push against the face of the bell end of the pipe to be assembled. Occasionally, there are installations where a backhoe cannot be located in line with the pipe and it is, therefore, difficult to develop enough axial force to assemble the pipe. In such cases, it may be possible to use the method described below to assemble the pipe from the side of the trench. With this method, the weight of the pipe is used to provide the axial force required for assembly. In general, a choker chain or cable is hooked around the bell of the previously laid pipe. The spigot end of the pipe to be assembled is first inserted as far as possible into the bell end of the previously laid pipe. The end of the choker is then hooked into the bell end of the pipe to be laid.

One such rigging is made from a long cable with a choker on one end and a chain grab hook on the other end with a sliding choker hook between the two other hooks. A second section of the rigging is a shorter chain with a wide throat hoisting hook on one end. The cable is first "choked" around the bell of the previously laid pipe using the fixed choker hook. The chain is hooked into the bell end of the pipe to be laid. The cable is hooked to the chain with the grab hook. The connected length of the rigging can thus be adjusted with the connection between the cable grab hook and the chain. The pipe assembly is made by lifting up on the sliding choker hook.

A few rules of thumb:

1. Angle 'A' should be no greater than 15 degrees.
2. Angle 'B' should be from 45 to 60 degrees.
3. The sliding choker hook should be located from 2 to 8 feet from the bell of the previously laid pipe.
4. Trial assembly may be made to get a "feel" for the correct amount of slack to be left in the rigging and the proper location of the sliding choker hook.



A few precautions:

1. The smaller the angle (A), the larger will be the assembly force and the tension in the rigging. The assembly force and the tension will generally range from 2 to 10 times the weight of the pipe being assembled. These forces are at a maximum when the assembly is bottomed out and lift is still being applied to the rigging. To minimize the loads on the rigging, it is recommended that the assembly be made slowly and the assembly stopped as soon as the joint is bottomed out.
2. The rigging should be properly designed to accommodate the diameter, length, and weight of the pipe on the job and the loads previously described.

NOTE: *This method should not be employed when installing FIELD LOK 350® Gaskets since alignment of the joint cannot be assured. For the proper installation practice, refer to U.S. Pipe Brochure FIELD LOK 350® Gasket Joint Restraint for 4"-24" Ductile Iron Pipe for Water, Wastewater, Fire Protection and Industrial Applications.*

Field Cut Pipe

When pipe are cut in the field, the cut end may be readily conditioned so that it can be used to make up the next joint. The outside of the cut end should be beveled with a portable grinder about 1/4 - inch at an angle of about 30 degrees. This operation removes any sharp, rough edges which otherwise might damage the gasket.

When Ductile Iron pipe 14" and larger is to be cut in the field, the material should be ordered as “GAUGED FULL LENGTH.” A *Full Length Gauged Pipe* is a pipe whose barrel outside diameter is within the spigot diameter dimensional specifications as determined by diameter tape measurements over the pipe’s length to within approximately two feet of the bell chime. Pipe that is “gauged full length" is specially marked to avoid confusion. ANSI/AWWA C151 Standard for Ductile Iron pipe requires factory gauging of the spigot end. Accordingly, pipe selected for field cutting should also be field gauged in the location of the cut and ensured to be within the tolerances shown in the table on page 8. In the field a mechanical joint gland can be used as a gauging device.

NOTE: *When necessary, pipe may be rounded in accordance with U.S. Pipe’s Brochure, Recommended Methods For Rounding The Cut Ends Of Out-Of-Round 14" And Larger Diameter Ductile Iron Pipe.*

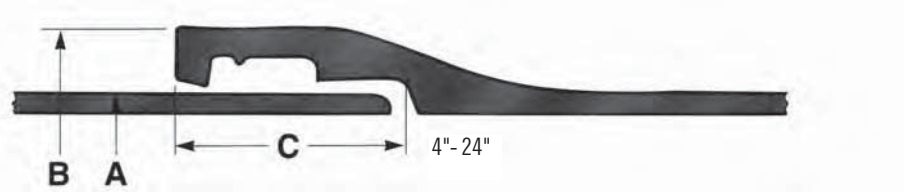
Pipe Diameters

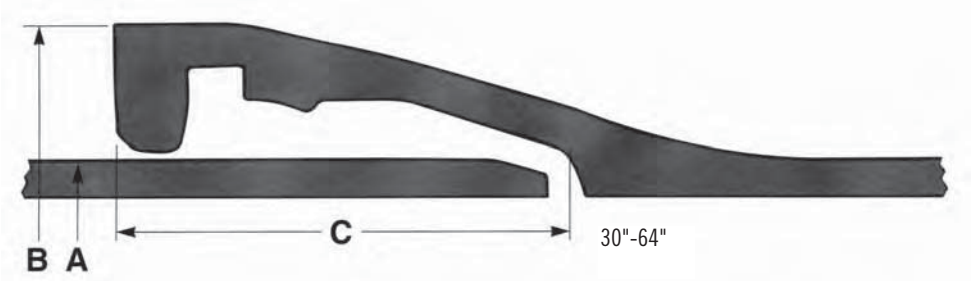
Suitable Pipe Diameters for Field Cuts and Restrained Joint Field Fabrication.

NOMINAL PIPE SIZE Inches	PIPE DIAMETER Inches		PIPE CIRCUMFERENCE Inches	
	MINIMUM	MAXIMUM	MINIMUM	MAXIMUM
4	4.74	4.86	14-29/32	15-9/32
6	6.84	6.96	21-1/2	21-7/8
8	8.99	9.11	28-1/4	28-5/8
10	11.04	11.16	34-11/16	35-1/16
12	13.14	13.26	41-9/32	41-21/32
14	15.22	15.35	47-13/16	48-7/32
16	17.32	17.45	54-13/32	54-13/16
18	19.42	19.55	61	61-13/32
20	21.52	21.65	67-19/32	68
24	25.72	25.85	80-13/16	81-7/32
30	31.94	32.08	100-11/32	100-25/32
36	38.24	38.38	120-1/8	120-9/16
42	44.44	44.58	139-5/8	140-1/16
48	50.74	50.88	159-13/32	159-27/32
54	57.46	57.60	180-17/32	180-31/32
60	61.51	61.65	193-1/4	193-11/16
64	65.57	65.71	206	206-7/16

Above table based on ANSI/AWWA C151/A21.51 guidelines for push-on joints.

Bell Dimensions

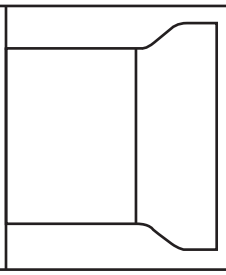




NOTE: *Actual bell configuration may vary from illustration shown.*

SIZE Inches	A PIPE OUTER DIAMETER Inches	B BELL OUTER DIAMETER Inches	C SOCKET DEPTH Inches
4	4.80	6.52	3.15
6	6.90	8.66	3.38
8	9.05	10.82	3.69
10	11.10	12.91	3.75
12	13.20	15.05	3.75
14	15.30	17.67	5.00
16	17.40	19.79	5.00
18	19.50	21.91	5.00
20	21.60	24.03	5.50
24	25.80	28.21	5.95
30	32.00	35.40	6.55
36	38.30	41.84	7.00
42	44.50	49.36	7.90
48	50.80	55.94	8.60
54	57.56	63.38	9.40
60	61.61	67.38	10.10
64	65.67	71.56	10.65

**Subject to manufacturing tolerances. Dimensions in inches.*



Pressure Class

Nominal Thickness for Standard Pressure Classes of Ductile Iron Pipe

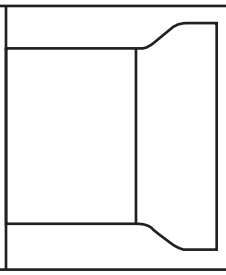
SIZE Inches	OUTSIDE DIAMETER Inches	NOMINAL THICKNESS Inches PRESSURE CLASS*					CASTING TOLERANCES Inches
		150	200	250	300	350	
3	3.96	—	—	—	—	0.25**	0.05
4	4.80	—	—	—	—	0.25**	0.05
6	6.90	—	—	—	—	0.25**	0.05
8	9.05	—	—	—	—	0.25**	0.05
10	11.10	—	—	—	—	0.26	0.06
12	13.20	—	—	—	—	0.28	0.06
14	15.30	—	—	0.28	0.30	0.31	0.07
16	17.40	—	—	0.30	0.32	0.34	0.07
18	19.50	—	—	0.31	0.34	0.36	0.07
20	21.60	—	—	0.33	0.36	0.38	0.07
24	25.80	—	0.33	0.37	0.40	0.43	0.07
30	32.00	0.34	0.38	0.42	0.45	0.49	0.07
36	38.30	0.38	0.42	0.47	0.51	0.56	0.07
42	44.50	0.41	0.47	0.52	0.57	0.63	0.07
48	50.80	0.46	0.52	0.58	0.64	0.70	0.08
54	57.56	0.51	0.58	0.65	0.72	0.79	0.09
60	61.61	0.54	0.61	0.68	0.76	0.83	0.09
64	65.67	0.56	0.64	0.72	0.80	0.87	0.09

NOTE: *Per ANSI/AWWA C150/A21.50 the thicknesses in above table include the 0.08" service allowance and the casting tolerance by size ranges.*

Dimensions and weights of Special Classes (Thickness Classes) are found on pages 13, 14, 15 and 16.

** Pressure Classes are defined as the rated water pressure of the pipe in psi. The thicknesses shown are adequate for the rated water working pressure plus a surge allowance of 100 psi. Calculations are based on a minimum yield strength of 42,000 and a 2.0 safety factor times the sum of the working pressure and 100 psi surge allowance.*

*** Calculated thickness for these sizes and pressure ratings are less than those shown above. Presently these are the lowest nominal thicknesses available in these sizes.*



TYTON JOINT® Pipe

Pressure Class – Thickness, Dimensions and Weight

SIZE Inches	PRESSURE CLASS psi	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds	WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds
4	350	0.25	4.80	205	11.4	—	—
6	350	0.25	6.90	305	16.9	—	—
8	350	0.25	9.05	400	22.2	—	—
10	350	0.26	11.10	515	28.6	—	—
12	350	0.28	13.20	660	36.7	—	—
14	250	0.28	15.30	780	43.3	—	—
14	300	0.30	15.30	835	46.4	—	—
14	350	0.31	15.30	860	47.8	—	—
16	250	0.30	17.40	950	52.8	1048	52.40
16	300	0.32	17.40	1010	56.1	1113	55.65
16	350	0.34	17.40	1065	59.2	1177	58.85
18	250	0.31	19.50	1095	60.8	—	—
18	300	0.34	19.50	1195	66.4	—	—
18	350	0.36	19.50	1260	70.0	—	—
20	250	0.33	21.60	1285	71.4	1422	71.10
20	300	0.36	21.60	1395	77.5	1542	77.10
20	350	0.38	21.60	1465	81.4	1622	81.10
24	200	0.33	25.80	1550	86.1	1712	85.6
24	250	0.37	25.80	1725	95.8	1905	95.3
24	300	0.40	25.80	1855	103.1	2049	102.5
24	350	0.43	25.80	1985	110.3	2193	109.7
30	150	0.34	32.00	2005	111.4	—	—
30	200	0.38	32.00	2220	123.3	—	—
30	250	0.42	32.00	2435	135.3	—	—
30	300	0.45	32.00	2600	144.4	—	—
30	350	0.49	32.00	2815	156.4	—	—
36	150	0.38	38.30	2680	148.9	—	—
36	200	0.42	38.30	2940	163.3	—	—
36	250	0.47	38.30	3265	181.4	—	—
36	300	0.51	38.30	3525	195.8	—	—
36	350	0.56	38.30	3845	213.6	—	—

NOTE: *Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51. Weights may vary from the standard because of differences in bell weights.*

**Tolerance of O.D. of spigot end: 4-12 in., ±0.06 in.; 14-24 in., +0.05 in., -0.08 in.; 30-48 in., +0.08 in., -0.06 in.; 54-64 in., +0.04 in., -0.10 in.*

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

Table continued on next page.

Pressure Class – Thicknesses, Dimensions and Weight (cont.)

SIZE Inches	PRESSURE CLASS psi	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds	WEIGHT PER LENGTH† Pounds	AVG. WEIGHT PER FOOT†† Pounds
42	150	0.41	44.50	3480	193.3	—	—
42	200	0.47	44.50	3945	219.2	—	—
42	250	0.52	44.50	4310	239.4	—	—
42	300	0.57	44.50	4685	260.3	—	—
42	350	0.63	44.50	5135	285.3	—	—
48	150	0.46	50.80	—	—	4930	246.5
48	200	0.52	50.80	—	—	5505	275.3
48	250	0.58	50.80	—	—	6080	304.0
48	300	0.64	50.80	—	—	6650	332.5
48	350	0.70	50.80	—	—	7220	361.0
54	150	0.51	57.56	—	—	6520	326.0
54	200	0.58	57.56	—	—	7280	364.0
54	250	0.65	57.56	—	—	8035	401.8
54	300	0.72	57.56	—	—	8795	439.8
54	350	0.79	57.56	—	—	9550	477.5
60	150	0.54	61.61	—	—	7501	375.0
60	200	0.61	61.61	—	—	8316	415.0
60	250	0.68	61.61	—	—	9126	456.3
60	300	0.76	61.61	—	—	10056	457.8
60	350	0.83	61.61	—	—	10861	543.0
64	150	0.56	65.67	—	—	8303	415.2
64	200	0.64	65.67	—	—	9293	464.7
64	250	0.72	65.67	—	—	10283	514.2
64	300	0.80	65.67	—	—	11268	563.4
64	350	0.87	65.67	—	—	12113	606.7—

NOTE: *Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51. Weights may vary from the standard because of differences in bell weights.*

**Tolerance of O.D. of spigot end: 4-12 in., ±0.06 in.; 14-24 in., +0.05 in., -0.08 in.; 30-48 in., +0.08 in., -0.06 in.; 54-64 in., +0.04 in., -0.10 in.*

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

Thickness Class – Thicknesses, Dimensions and Weight

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				AVG. WEIGHT LENGTH† Pounds	WEIGHT PER PER FOOT†† Pounds	AVG. WEIGHT LENGTH† Pounds	PER FOOT†† Pounds
4	51	0.26	4.80	215	11.9	—	—
4	52	0.29	4.80	235	13.1	—	—
4	53	0.32	4.80	260	14.4	—	—
4	54	0.35	4.80	280	15.6	—	—
4	55	0.38	4.80	300	16.7	—	—
4	56	0.41	4.80	320	17.8	—	—
6	50	0.25	6.90	305	16.9	—	—
6	51	0.28	6.90	335	18.6	—	—
6	52	0.31	6.90	370	20.6	—	—
6	53	0.34	6.90	400	22.2	—	—
6	54	0.37	6.90	435	24.2	—	—
6	55	0.40	6.90	465	25.8	—	—
6	56	0.43	6.90	495	27.5	—	—
8	50	0.27	9.05	430	23.9	—	—
8	51	0.30	9.05	475	26.4	—	—
8	52	0.33	9.05	520	28.9	—	—
8	53	0.36	9.05	560	31.1	—	—
8	54	0.39	9.05	605	33.6	—	—
8	55	0.42	9.05	650	36.1	—	—
8	56	0.45	9.05	690	38.3	—	—
10	50	0.29	11.10	570	31.7	—	—
10	51	0.32	11.10	625	34.7	—	—
10	52	0.35	11.10	680	37.8	—	—
10	53	0.38	11.10	730	40.6	—	—
10	54	0.41	11.10	785	43.6	—	—
10	55	0.44	11.10	840	46.7	—	—
10	56	0.47	11.10	890	49.4	—	—

NOTE: *Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51. Weights may vary from the standard because of differences in bell weights.*

**Tolerance of O.D. of spigot end: 4-12 in., ±0.06 in.; 14-24 in., +0.05 in., -0.08 in.; 30-48 in., +0.08 in., -0.06 in.; 54-64 in., +0.04 in., -0.10 in.*

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

Table continued on next page.

Thickness Class – Thicknesses, Dimensions and Weight (cont.)

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				AVG. WEIGHT LENGTH† Pounds	WEIGHT PER PER FOOT†† Pounds	AVG. WEIGHT LENGTH† Pounds	PER FOOT†† Pounds
12	50	0.31	13.20	725	40.3	—	—
12	51	0.34	13.20	790	43.9	—	—
12	52	0.37	13.20	855	47.5	—	—
12	53	0.40	13.20	920	51.1	—	—
12	54	0.43	13.20	985	54.7	—	—
12	55	0.46	13.20	1045	58.1	—	—
12	56	0.49	13.20	1110	61.7	—	—
14	50	0.33	15.30	910	50.6	—	—
14	51	0.36	15.30	985	54.7	—	—
14	52	0.39	15.30	1060	58.9	—	—
14	53	0.42	15.30	1135	63.1	—	—
14	54	0.45	15.30	1210	67.2	—	—
14	55	0.48	15.30	1285	71.4	—	—
14	56	0.51	15.30	1360	75.6	—	—
16	50	0.34	17.40	1065	59.2	1177	58.9
16	51	0.37	17.40	1150	63.9	1273	63.7
16	52	0.40	17.40	1240	68.9	1369	68.5
16	53	0.43	17.40	1325	73.6	1465	73.3
16	54	0.46	17.40	1410	78.3	1560	78.0
16	55	0.49	17.40	1495	83.1	1655	82.8
16	56	0.52	17.40	1580	87.8	1750	87.5
18	50	0.35	19.50	1225	68.1	—	—
18	51	0.38	19.50	1325	73.6	—	—
18	52	0.41	19.50	1420	78.9	—	—
18	53	0.44	19.50	1520	84.4	—	—
18	54	0.47	19.50	1615	89.7	—	—
18	55	0.50	19.50	1710	95.0	—	—
18	56	0.53	19.50	1805	100.3	—	—

NOTE: *Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51. Weights may vary from the standard because of differences in bell weights.*

**Tolerance of O.D. of spigot end: 4-12 in., ±0.06 in.; 14-24 in., +0.05 in., -0.08 in.; 30-48 in., +0.08 in., -0.06 in.; 54-64 in., +0.04 in., -0.10 in.*

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

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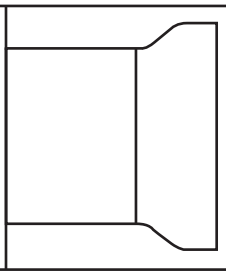


Thickness Class – Thicknesses, Dimensions and Weight (cont.)

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH AVG. WEIGHT LENGTH† Pounds	18-FOOT LAYING LENGTH WEIGHT PER PER FOOT†† Pounds	20-FOOT LAYING LENGTH AVG. WEIGHT LENGTH† Pounds	20-FOOT LAYING LENGTH PER FOOT†† Pounds
20	50	0.36	21.60	1395	77.5	1542	77.1
20	51	0.39	21.60	1505	83.6	1662	83.1
20	52	0.42	21.60	1610	89.4	1782	89.1
20	53	0.45	21.60	1720	95.6	1902	95.1
20	54	0.48	21.60	1825	101.4	2021	101.1
20	55	0.51	21.60	1935	107.5	2140	107.0
20	56	0.54	21.60	2040	113.3	2259	113.0
24	50	0.38	25.80	1765	98.1	1955	108.1
24	51	0.41	25.80	1895	105.3	2095	115.9
24	52	0.44	25.80	2025	112.5	2240	123.9
24	53	0.47	25.80	2155	119.7	2385	132.0
24	54	0.50	25.80	2285	126.9	2530	140.0
24	55	0.53	25.80	2415	134.2	2670	148.0
24	56	0.56	25.80	2540	141.1	2915	161.4
30	50	0.39	32.00	2275	126.4	—	—
30	51	0.43	32.00	2490	138.3	—	—
30	52	0.47	32.00	2705	150.3	—	—
30	53	0.51	32.00	2920	162.2	—	—
30	54	0.55	32.00	3135	174.2	—	—
30	55	0.59	32.00	3350	186.1	—	—
30	56	0.63	32.00	3560	197.8	—	—
36	50	0.43	38.30	3005	166.9	—	—
36	51	0.48	38.30	3330	185.0	—	—
36	52	0.53	38.30	3655	203.1	—	—
36	53	0.58	38.30	3975	220.8	—	—
36	54	0.63	38.30	4295	238.6	—	—
36	55	0.68	38.30	4615	256.4	—	—
36	56	0.73	38.30	4935	274.2	—	—

NOTE: *Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.*
Weights may vary from the standard because of differences in bell weights.

**Tolerance of O.D. of spigot end: 4-12 in., ±0.06 in.; 14-24 in., +0.05 in., -0.08 in.; 30-48 in., +0.08 in., -0.06 in.; 54-64 in., +0.04 in., -0.10 in.*

† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.

Table continued on next page.

Thickness Class – Thicknesses, Dimensions and Weight

SIZE Inches	THICKNESS CLASS	THICKNESS Inches	OUTSIDE DIAMETER* Inches	18-FOOT LAYING LENGTH		20-FOOT LAYING LENGTH	
				AVG. WEIGHT LENGTH† Pounds	WEIGHT PER PER FOOT†† Pounds	AVG. WEIGHT LENGTH† Pounds	PER FOOT†† Pounds
42	50	0.47	44.50	3935	218.6	—	—
42	51	0.53	44.50	4385	243.6	—	—
42	52	0.59	44.50	4835	268.6	—	—
42	53	0.65	44.50	5285	293.6	—	—
42	54	0.71	44.50	5735	318.6	—	—
42	55	0.77	44.50	6110	339.4	—	—
42	56	0.83	44.50	6625	368.1	—	—
48	50	0.51	50.80	5410	270.5	—	—
48	51	0.58	50.80	—	—	6080	304.0
48	52	0.65	50.80	—	—	6745	337.3
48	53	0.72	50.80	—	—	7410	370.5
48	54	0.79	50.80	—	—	8075	403.8
48	55	0.86	50.80	—	—	8735	436.8
48	56	0.93	50.80	—	—	9395	469.8
54	50	0.57	57.56	—	—	7170	358.5
54	51	0.65	57.56	—	—	8035	401.8
54	52	0.73	57.56	—	—	8900	445.1
54	53	0.81	57.56	—	—	9765	488.3
54	54	0.89	57.56	—	—	10620	531.1
54	55	0.97	57.56	—	—	11480	574.0
54	56	1.05	57.56	—	—	12335	616.8

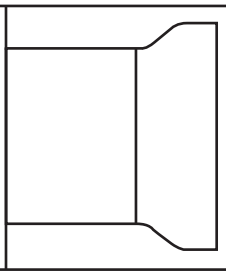
NOTE: *Thicknesses and dimensions of 4" through 64" Ductile Iron pipe conform to ANSI/AWWA C151/A21.51.*
Weights may vary from the standard because of differences in bell weights.

60" and 64" classified as pressure class only.

**Tolerance of O.D. of spigot end: 4-12 in., ±0.06 in.; 14-24 in., +0.05 in., -0.08 in.; 30-48 in., +0.08 in., -0.06 in.; 54-64 in., +0.04 in., -0.10 in.*

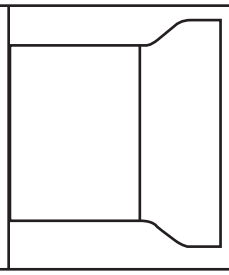
† Including bell; calculated weight of pipe rounded off to nearest 5 lbs.

†† Including bell; average weight, per foot, based on calculated weight of pipe before rounding.



Maximum Deflection – Full Length Pipe

SIZE Inches	MAXIMUM JOINT DEFLECTION Degrees	DEFLECTION Inches		PRODUCED BY SUCCESSION OF JOINTS Feet	
		18 FT. LENGTH	20 FT. LENGTH	18 FT. LENGTH	20 FT. LENGTH
4	5º	19	—	206	—
6	5º	19	—	206	—
8	5º	19	—	206	—
10	5º	19	—	206	—
12	5º	19	—	206	—
14	5º	19	—	206	—
16	5º	19	21	206	229
18	5º	19	—	206	—
20	5º	19	21	206	229
24	5º	19	21	206	229
30	5º	19	—	206	—
36	5º	19	—	206	—
42	4º	15	—	258	—
48	4º	—	17	—	287
54	4º	—	17	—	287
60	4º	—	17	—	287
64	4º	—	17	—	287



TYTON JOINT® Pipe

Products for Water, Wastewater and Fire Protection

Ductile Iron Pipe	SIZE RANGE
TYTON JOINT® Pipe	4"-64" Ductile Iron
Mechanical Joint Pipe	4"-12" Ductile Iron
TR FLEX® Pipe	4"-64" Ductile Iron
Flanged Pipe	3"-64" Ductile Iron
USIFLEX® Boltless Flexible Joint Pipe — for Subaqueous Installations	4"-48" Ductile Iron
Restrained Joints	
TR FLEX® Pipe	4"-64" Ductile Iron
MJ FIELD LOK® Gaskets	4"-24"
FIELD LOK 350® Gaskets	4"-24"
FIELD LOK® Gasket	30" & 36"
TR FLEX GRIPPER® Rings	4"-36" Ductile Iron
TR TELE FLEX® Assemblies	4"-24" Ductile Iron
HP LOK™ Restrained Joint	30"-42"
Ductile Iron Fittings	
TYTON® Fittings	14"-64" Ductile Iron
TRIM TYTON® Fittings	4"-12" Ductile Iron
TR FLEX® Fittings and TR FLEX® Telescoping Sleeves	4"-64" Ductile Iron
Mechanical Joint Fittings	3"-48" Ductile Iron
TRIM TYTE® MJ Fittings	3"-48" Ductile Iron
Flanged Fittings	3"-64" Ductile Iron
XTRA FLEX® Couplings	4"-24" Ductile Iron
Miscellaneous Products	
PROTECTO 401™ Lined Ductile Iron Pipe for Domestic Sewage and Industrial Wastes	4"-64" Ductile Iron
FLANGE-TYTE® Gaskets	4"-64"
Polymeric Linings	For all pipe sizes
Saddle Outlets	Various Ductile Iron
Welded Outlets	Various Ductile Iron
Polyethylene Encasement	4"-64"

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PJT. NO. 090324-20000 SUBMIT NO. **331116 Site Water Utility Distribution Piping/Ductile Iron fittings**

☒ APPROVED

☐ APPROVED AS CORRECTED

Fabrication/installation may be undertaken. Approval does not authorize changes to the Contract Sum or Contract Time.

☐ RESUBMIT: Limit corrections to items marked.

☐ REJECTED; REVISE & RESUBMIT

Fabrication and/or installation may NOT be undertaken.

Reviewed only for general conformance with project design concept and general compliance with the Contract Documents. Corrections or comments made in review do not relieve contractor from compliance with requirements of the contract documents. Approval; of a specific item shall not include approval of an assembly of which the item is a component. Contractor is responsible for: all dimensions; information pertaining to the fabrication process or to the means, methods, techniques, sequence and procedure of construction; coordination of work with other trades; and performing of work in safe and satisfactory manner.

Signed by: [signature]

Consultant/Department: Cripe Architects + Engineers

Date: 3/3/10

Cripe®
Architects + Engineers

COMMENTS:

Reviewed by WJB of Enginuity for CQM Team on 02/15/2010

Campbell Land Development
Construction Waste
935 West Troy Avenue
Indianapolis, IN 46225
Office: 317.783.1500
Fax: 317.783.4860

SUBMITTAL

Date: **February 1, 2010**

Project Name: **IPS Thomas D. Gregg Elementary School No. 15**

Architecture/Engineer:
Durkin & Villalta Partners Engineering
8440 Woodfield Crossing Blvd., Suite 175
Indianapolis, IN 46240

Construction Quality Manager (CQM):
Garcia Construction Group
6002 N. Michigan Road
Indianapolis, IN 46228

Contractor:
MacDougal Pierce
12720 Ford Drive
Fishers, IN 46038

Subcontractor:
Campbell Land Development
935 West Troy Ave.
Indianapolis, IN 46225

Supplier:
Utility Pipe Sales
3169A N. Shadeland Ave.
Indianapolis, IN 46226

Manufacturer:
Star Pipe Products
4018 Westhollow Parkway
Houston, TX 77082

Unique identifier, including revision number

Number and title of appropriate Specification Section **331116**
Site Water Utility Distribution Piping

Drawing number and detail references, as appropriate **C501**

Other necessary identification **Ductile Iron Fittings**

Compact MJ Fittings

ANSI/AWWA C153/A21.53

2" - 64" DUCTILE IRON MECHANICAL JOINT COMPACT FITTINGS

GENERAL SPECIFICATIONS

MATERIAL: Ductile Iron per ASTM A536

PRESSURE: 350 PSI rating for 3" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 60" sizes

TESTING: In accordance with ANSI/AWWA C153/A21.53 and UL requirements

LAYING LENGTH: In accordance with ANSI/AWWA C153/A21.53 (fittings not listed in ANSI/AWWA have dimensions per Star design as noted in the catalog)

WEIGHTS: Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating

FLANGES: Flanged ends on fittings match ANSI/AWW C115/A21.15 and ANSI B16.1 class 125 flanges

CEMENT LINING: In accordance with ANSI/AWWA C104/A21.4 -- size 2" - 3" single thickness and sizes 4" - 64" double thickness

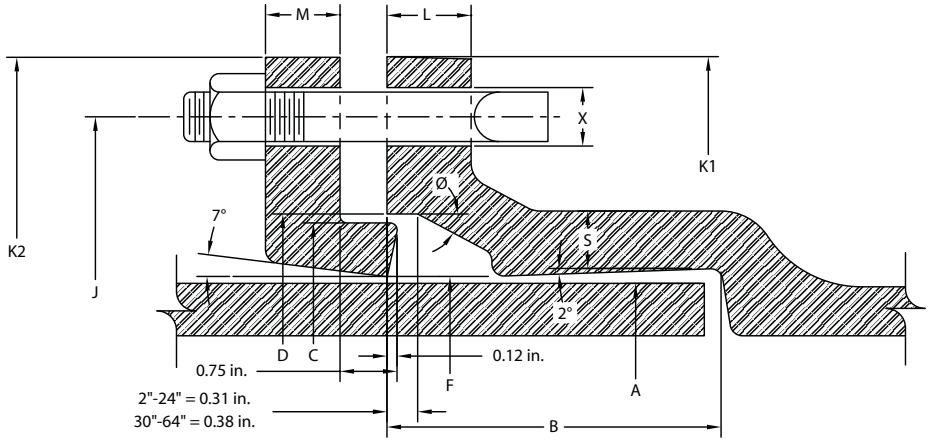
COATING: Asphaltic seal coat inside and out in accordance with ANSI/AWWA C104/A21.4

GASKETS: SBR in accordance with ANSI/AWWA C111/A21.11 (see pg. 17)

T-BOLTS/NUTS: Low alloy steel in accordance with ANSI/AWWA C111/A21.11 (see pg. 16)

APPROVALS: 4" - 12" Underwriters Laboratories Listed
3" and greater are UL/NSF-61

DIMENSIONS: All dimensions are in inches unless noted otherwise



AWWA MEMBER

CLASSIFIED UL WATER QUALITY

MECHANICALJOINT DIMENSIONS

	NOM. SIZE	A DIA.	B	C DIA.	D DIA.	F DIA.	J DIA.	K1 DIA.	K2 DIA.	L	M	S	Ø	X DIA.	BOLTS	
															SIZE	NO.
★	2	2.50	2.50	3.39	3.50	2.61	4.75	6.19	6.25	0.58	0.62	0.36	28°	¾	⅝ x 3	2
	3	3.96	2.50	4.84	4.94	4.06	6.19	7.62	7.69	0.58	0.62	0.39	28°	¾	⅝ x 3	4
	4	4.80	2.50	5.92	6.02	4.90	7.50	9.06	9.12	0.60	0.75	0.39	28°	⅞	¾ x 3 ½	4
	6	6.90	2.50	8.02	8.12	7.00	9.50	11.06	11.12	0.63	0.88	0.43	28°	⅞	¾ x 3 ½	6
	8	9.05	2.50	10.17	10.27	9.15	11.75	13.31	13.37	0.66	1.00	0.45	28°	⅞	¾ x 3 ½	6
	10	11.10	2.50	12.22	12.34	11.20	14.00	15.62	15.62	0.70	1.00	0.47	28°	⅞	¾ x 4	8
	12	13.20	2.50	14.32	14.44	13.30	16.25	17.88	17.88	0.73	1.00	0.49	28°	⅞	¾ x 4	8
	14	15.30	3.50	16.40	16.54	15.44	18.75	20.25	20.25	0.79	1.25	0.55	28°	⅞	¾ x 4 ½	10
	16	17.40	3.50	18.50	18.64	17.54	21.00	22.50	22.50	0.85	1.31	0.58	28°	⅞	¾ x 4 ½	12
	18	19.50	3.50	20.60	20.74	19.64	23.25	24.75	24.83	1.00	1.38	0.68	28°	⅞	¾ x 4 ½	12
	20	21.60	3.50	22.70	22.84	21.74	25.50	27.00	27.08	1.02	1.44	0.69	28°	⅞	¾ x 4 ½	14
	24	25.80	3.50	26.90	27.04	25.94	30.00	31.50	31.58	1.02	1.56	0.75	28°	⅞	¾ x 5	16
	30	32.00	4.00	33.29	33.46	32.17	36.88	39.12	39.12	1.31	2.00	0.82	20°	1 ⅛	1 x 6	20
	36	38.30	4.00	39.59	39.76	38.47	43.75	46.00	46.00	1.45	2.00	1.00	20°	1 ⅛	1 x 6	24
	42	44.50	4.00	45.79	45.96	44.67	50.62	53.12	53.12	1.45	2.00	1.25	20°	1 ⅜	1 ¼ x 6 ½	28
	48	50.80	4.00	52.09	52.26	50.97	57.50	60.00	60.00	1.45	2.00	1.35	20°	1 ⅜	1 ¼ x 6 ½	32
★	54	*{ Dimensions Available On Request }*														
★	60															
★	64															

★Not Included in AWWA C153

FM Approvals Quality System Registration ISO 9001:2000

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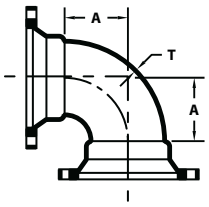
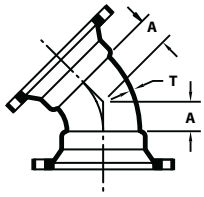
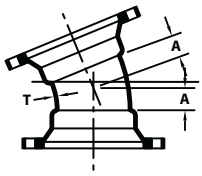
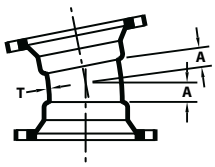
Compact MJ Fittings

ANSI/AWWA C153/A21.53

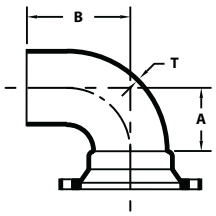


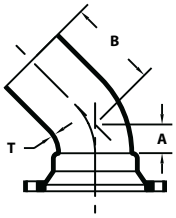


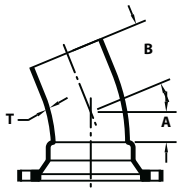


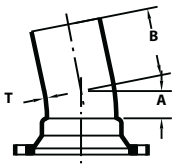


MJ x MJ BENDS		90° MJ x MJ BENDS (1/4)		45° MJ x MJ BENDS (1/8)		22 1/2° MJ x MJ BENDS (1/16)		11 1/4° MJ x MJ BENDS (1/32)	
NOM. SIZE	T	A	WT (LBS.)	A	WT (LBS.)	A	WT (LBS.)	A	WT (LBS.)
★ 2	0.30	3.25	14	1.80	13	1.00	9	1.00	8
3	0.33	3.50	23	1.50	21	1.00	16	1.00	14
4	0.34	4.00	27	2.00	23	1.50	18	1.25	16
6	0.36	5.00	39	3.00	32	2.00	32	1.50	30
8	0.38	6.50	57	3.50	46	2.50	46	1.75	42
10	0.40	7.50	89	4.50	70	3.00	64	2.00	58
12	0.42	9.00	108	5.50	86	3.50	84	2.25	74
14	0.47	11.50	180	5.00	145	3.75	140	2.50	128
16	0.50	12.50	264	5.50	202	3.75	178	2.50	148
18	0.54	14.00	335	6.00	250	4.50	255	3.00	205
20	0.57	15.00	400	7.00	305	4.50	262	3.00	245
24	0.61	17.00	565	7.50	405	4.50	412	3.00	315
30	0.66	21.50	1005	11.50	798	6.75	665	4.75	606
36	0.74	24.50	1562	11.50	1164	7.75	960	5.00	840
42	0.82	29.25	2506	14.00	1792	9.00	1350	6.00	1319
48	0.90	33.25	3045	15.00	2390	10.00	1886	6.50	1700
★ 54	*{ Dimensions Available On Request }*								
★ 60									
★ 64									





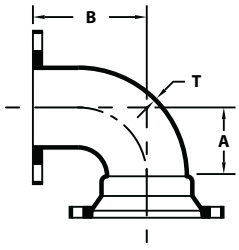


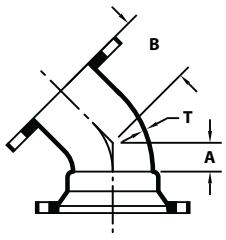


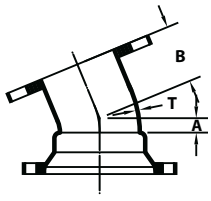
MJ x PE BENDS		90° MJ x PE BENDS (1/4)			45° MJ x PE BENDS (1/8)			22 1/2° MJ x PE BENDS (1/16)			11 1/4° MJ x PE BENDS (1/32)		
NOM. SIZE	T	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)
3	0.33	3.50	8.50	16	1.50	7.00	13	1.00	6.50	12	1.00	6.50	12
4	0.34	4.00	9.50	22	2.00	7.50	19	1.50	7.00	18	1.25	6.25	17
6	0.36	5.00	12.00	40	3.00	8.50	31	2.00	7.50	29	1.50	7.00	27
8	0.38	6.50	12.50	61	3.50	9.00	46	2.50	8.00	43	1.75	7.25	39
10	0.40	7.50	13.00	83	4.50	10.00	68	3.00	8.50	61	2.00	7.50	52
12	0.42	9.00	14.50	114	5.50	11.00	95	3.50	9.00	81	2.25	7.75	70
14	0.47	11.50	19.50	197	5.00	13.00	148	3.75	11.25	133	2.50	10.50	122
16	0.50	12.50	20.50	248	5.50	13.50	184	3.75	11.75	166	2.50	10.50	148
18	0.54	14.00	21.00	325	6.00	13.00	235	6.00	13.00	235	6.00	13.00	235
20	0.57	15.00	22.50	390	7.00	14.00	300	7.00	14.00	300	7.00	14.00	300
24	0.61	17.00	25.00	575	7.50	14.50	390	7.50	14.50	395	7.50	14.50	400
30	0.66	22.75	31.75	865	10.50	19.50	715	6.75	15.75	600	4.75	13.75	535
36	0.74	24.50	33.50	1355	12.00	21.00	1040	7.75	16.75	865	5.00	14.00	725
42	0.82	29.25	38.25	2055	14.00	23.00	1460	9.00	18.00	1200	6.00	15.00	1030
48	0.90	33.25	4225	2805	15.00	24.00	1905	10.00	19.00	1575	6.50	15.50	1290

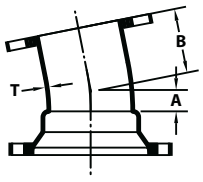
Compact MJ Fittings

ANSI/AWWA C153/A21.53

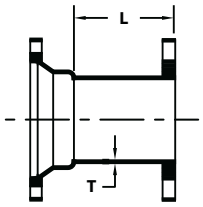


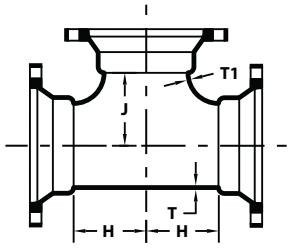






★ MJ x FE BENDS		90° MJ x FE BENDS (1/4)			45° MJ x FE BENDS (1/8)			22 1/2° MJ x FE BENDS (1/16)			11 1/4° MJ x FE BENDS (1/32)		
NOM. SIZE	T	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)	A	B	WT (LBS.)
3	0.33	3.50	5.50	20	1.50	3.00	17	1.00	3.00	17	1.00	3.00	15
4	0.34	4.00	6.50	26	2.00	4.00	24	1.50	4.00	26	1.25	4.00	19
6	0.36	5.00	8.00	47	3.50	5.00	40	2.00	5.00	36	1.50	5.00	30
8	0.38	6.50	9.00	68	3.50	5.50	57	2.50	5.50	53	1.75	5.50	50
10	0.40	7.50	11.00	102	4.50	6.50	83	3.00	6.50	102	2.00	6.50	75
12	0.42	9.00	12.00	134	5.50	7.50	110	3.50	7.50	134	2.25	7.50	88
14	0.47	11.50	14.00	227	5.00	7.50	207	---	---	---	---	---	---
16	0.50	12.50	15.00	306	5.50	8.00	239	---	---	---	---	---	---
30	0.66	21.50	25.00	1070	10.50	15.00	858	---	---	---	---	---	---





★ MJ x FLANGE ADAPTER			
NOM. SIZE	T	L	WT (LBS.)
3	0.33	3.50	13
4	0.34	3.50	22
6	0.36	3.50	32
8	0.38	3.50	46
10	0.40	3.50	63
12	0.42	3.50	100
14	0.47	5.00	141
16	0.50	5.00	170
18	0.54	5.00	221
20	0.57	5.00	252
24	0.61	5.00	324
30	0.66	7.00	557
36	0.74	8.50	798
42	0.82	12.00	1214
48	0.90	12.00	1600

MJ x MJ TEES						
	NOM. SIZE	T	T1	H	J	WT (LBS.)
★	2 x 2	0.39	0.39	3.25	3.25	22
★	3 x 2	0.48	0.39	3.50	3.50	43
	3 x 3	0.33	0.33	3.00	3.00	28
	4 x 3	0.34	0.33	3.50	4.00	30
	4 x 4	0.34	0.34	4.00	4.00	32
	6 x 3	0.36	0.33	3.50	5.00	42
	6 x 4	0.36	0.34	4.00	5.00	46
★	6 x 4 x 6	0.36	0.36	5.00	5.00	45
	6 x 6	0.36	0.36	5.00	5.00	56
★	6 x 6 x 8	0.36	0.38	6.50	6.50	62
★	8 x 3	0.38	0.33	4.00	6.50	52
	8 x 4	0.38	0.34	4.00	6.50	60
	8 x 6	0.38	0.36	5.00	6.50	72
★	8 x 6 x 6	0.38	0.38	5.00	6.50	62
★	8 x 6 x 8	0.38	0.38	6.00	6.50	85
	8 x 8	0.38	0.38	6.50	6.50	86
★	10 x 3	0.40	0.33	4.00	7.50	75
	10 x 4	0.40	0.34	4.00	7.50	78
	10 x 6	0.40	0.36	5.00	7.50	90
	10 x 8	0.40	0.38	6.50	7.50	105
	10 x 10	0.40	0.40	7.50	7.50	120
★	12 x 3	0.42	0.33	4.00	8.75	90
	12 x 4	0.42	0.34	4.00	8.75	94

(Con't)➡

STAR® PIPE PRODUCTS

★Not Included in AWWA C153

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Compact MJ Fittings

ANSI/AWWA C153/A21.53

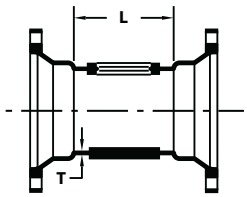
MJ x MJ TEES (Con't)

	NOM. SIZE	T	T1	H	J	WT (LBS.)
	12 x 6	0.42	0.36	5.00	8.75	110
	12 x 8	0.42	0.38	6.50	8.75	125
	12 x 10	0.42	0.40	7.50	8.75	140
	12 x 12	0.42	0.42	8.75	8.75	160
	14 x 6	0.47	0.36	6.50	10.50	182
	14 x 8	0.47	0.38	7.50	10.50	190
	14 x 10	0.47	0.40	8.50	10.50	206
	14 x 12	0.47	0.42	9.50	10.50	221
	14 x 14	0.47	0.47	10.50	10.50	251
	16 x 6	0.50	0.36	6.50	11.50	218
	16 x 8	0.50	0.38	7.50	11.50	223
	16 x 10	0.50	0.40	8.50	11.50	264
	16 x 12	0.50	0.42	9.50	11.50	280
	16 x 14	0.50	0.47	10.50	11.50	316
	16 x 16	0.50	0.50	11.50	11.50	322
	18 x 6	0.54	0.36	6.50	12.50	275
	18 x 8	0.54	0.38	7.50	12.50	295
	18 x 10	0.54	0.40	8.50	12.50	315
	18 x 12	0.54	0.42	9.50	12.50	335
	18 x 14	0.54	0.47	10.50	12.50	380
	18 x 16	0.54	0.50	11.50	12.50	405
	18 x 18	0.54	0.54	12.50	12.50	435
	20 x 6	0.57	0.36	6.50	14.00	315
	20 x 8	0.57	0.38	8.00	14.00	345
	20 x 10	0.57	0.40	9.00	14.00	370
	20 x 12	0.57	0.42	10.00	14.00	395
	20 x 14	0.57	0.47	11.00	14.00	440
	20 x 16	0.57	0.50	12.00	14.00	465
	20 x 18	0.57	0.54	13.00	14.00	505
	20 x 20	0.57	0.57	14.00	14.00	535
	24 x 6	0.61	0.36	7.00	16.00	415
	24 x 8	0.61	0.38	8.00	16.00	445
	24 x 10	0.61	0.40	9.00	16.00	470
	24 x 12	0.61	0.42	10.00	16.00	500
	24 x 14	0.61	0.47	11.00	16.00	550
	24 x 16	0.61	0.50	12.00	16.00	580
	24 x 18	0.61	0.54	13.00	16.00	625
	24 x 20	0.61	0.57	14.00	16.00	660
	24 x 24	0.61	0.61	16.00	16.00	720
★	30 x 6	0.66	0.36	8.00	20.00	686
	30 x 8	0.66	0.38	8.50	20.00	739
	30 x 12	0.66	0.42	10.00	20.00	830
★	30 x 14	0.66	0.47	11.00	20.00	880
	30 x 16	0.66	0.50	12.50	20.00	959
★	30 x 18	0.66	0.54	14.00	20.00	1085
	30 x 20	0.66	0.57	15.00	20.00	1000
	30 x 24	0.66	0.61	21.00	22.00	1389
	30 x 30	0.66	0.66	20.00	20.00	1323
★	36 x 6	0.74	0.36	8.00	23.50	1100
★	36 x 8	0.74	0.38	9.00	23.50	1287
	36 x 12	0.74	0.42	10.00	23.50	1150
★	36 x 16	0.74	0.50	12.50	23.50	1165
★	36 x 18	0.74	0.54	13.00	23.50	1410

(Con't)➡

MJ x MJ TEES (Con't)

	NOM. SIZE	T	T1	H	J	WT (LBS.)
★	36 x 20	0.74	0.57	15.00	23.50	1650
	36 x 24	0.74	0.61	16.00	23.50	1550
	36 x 30	0.74	0.66	26.00	26.00	2381
	36 x 36	0.74	0.74	23.50	23.50	2072
★	42 x 6	0.82	0.36	9.00	27.50	1600
★	42 x 12	0.82	0.42	14.00	27.50	1950
★	42 x 16	0.82	0.50	13.00	27.50	2040
★	42 x 18	0.82	0.54	16.00	27.50	2195
	42 x 24	0.82	0.61	20.00	27.50	2270
	42 x 30	0.82	0.66	22.00	29.50	2608
	42 x 36	0.82	0.74	30.00	30.00	3000
	42 x 42	0.82	0.82	30.00	30.00	3175
★	48 x 6	0.90	0.36	10.00	32.00	2155
★	48 x 12	0.90	0.42	14.00	32.00	2500
★	48 x 16	0.90	0.50	13.00	32.00	2405
	48 x 24	0.90	0.61	23.00	32.00	2870
	48 x 30	0.90	0.66	23.00	32.00	3050
	48 x 36	0.90	0.74	33.50	32.25	3900
	48 x 42	0.90	0.82	33.50	33.50	4100
	48 x 48	0.90	0.90	33.50	33.50	4250
★	54 x 20	*{ Dimensions Available On Request }*				
★	64 x 64					



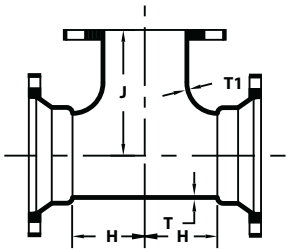
★ MJ x MJ TAPPED TEES (2" TAP)

NOM. SIZE	T	L	MAX TAP	WT (LBS.)
3	0.33	6.00	2 ½	18
4	0.34	6.00	3	25
6	0.36	6.00	3	35
8	0.38	6.00	3	55
10	0.40	6.00	3	70
12	0.42	6.00	3	85
16	0.50	6.00	3	164

Threads in Accordance with ANSI/ASME B1.20.1

Compact MJ Fittings

ANSI/AWWA C153/A21.53



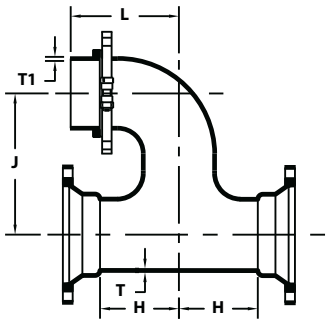
★ MJ x FE TEES

NOM. SIZE	T	T1	H	J	WT (LBS.)
3 x 3	0.33	0.33	3.00	5.50	30
4 x 2	0.52	0.39	4.80	4.80	53
4 x 3	0.34	0.33	3.50	6.50	34
4 x 4	0.34	0.34	4.00	6.50	40
6 x 3	0.36	0.33	3.50	8.00	50
6 x 4	0.36	0.34	4.00	8.00	65
6 x 6	0.36	0.36	5.00	8.00	62
8 x 4	0.38	0.34	4.50	9.00	75
8 x 6	0.38	0.36	5.50	9.00	78
8 x 8	0.38	0.38	6.50	9.00	88
10 x 4	0.40	0.34	4.00	11.00	90
10 x 6	0.40	0.36	5.00	11.00	106
10 x 8	0.40	0.38	6.50	11.00	114
10 x 10	0.40	0.40	7.50	11.00	126
12 x 4	0.42	0.34	4.50	12.00	118
12 x 6	0.42	0.36	5.50	12.00	133
12 x 8	0.42	0.38	6.50	12.00	134
12 x 10	0.42	0.40	7.50	12.00	145
12 x 12	0.42	0.42	8.75	12.00	170
14 x 6	0.47	0.36	6.50	14.00	185
14 x 10	0.47	0.40	8.50	14.00	244
14 x 12	0.47	0.42	9.50	14.00	284
14 x 14	0.47	0.47	10.50	14.00	305
16 x 6	0.50	0.36	6.50	15.00	207
16 x 8	0.50	0.38	7.50	15.00	260
16 x 10	0.50	0.40	8.50	15.00	287
16 x 12	0.50	0.42	9.50	15.00	312
16 x 14	0.50	0.47	10.50	15.00	348
16 x 16	0.50	0.50	11.50	15.00	374
18 x 6	0.54	0.36	6.50	15.50	325
18 x 8	0.54	0.38	7.50	15.50	351
18 x 12	0.54	0.42	9.50	15.50	358
18 x 18	0.54	0.54	12.50	16.50	445
20 x 6	0.57	0.36	6.50	17.00	360
20 x 8	0.57	0.38	8.00	17.00	339
24 x 6	0.61	0.36	7.00	19.00	406
24 x 8	0.61	0.38	8.00	19.00	472
24 x 12	0.61	0.42	10.00	19.00	580
24 x 16	0.61	0.50	12.00	19.00	744
24 x 24	0.61	0.61	16.00	22.00	950
30 x 6	0.66	0.36	8.00	23.00	675
30 x 8	0.66	0.38	8.50	23.00	695
30 x 12	0.66	0.42	10.00	23000	715
30 x 16	0.66	0.50	12.50	23.00	1125

(Con't)➔

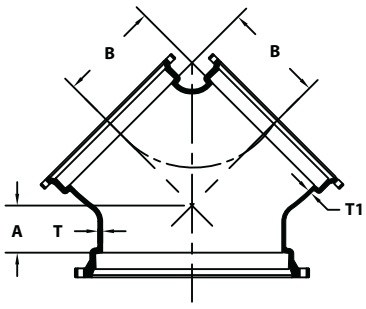
★ MJ x FE TEES (Con't)

NOM. SIZE	T	T1	H	J	WT (LBS.)
30 x 24	0.66	0.61	16.00	25.00	1290
36 x 6	0.74	0.36	8.00	26.00	1175
36 x 16	0.74	0.50	12.50	26.00	1475



★ MJ x SWIVEL PARALLEL TEE

NOM. SIZE	T	T1	H	J	L	WT (LBS.)
6 x 6	0.36	0.36	8.00	12.50	10.00	83
8 x 6	0.38	0.36	9.00	13.50	11.00	105
10 x 6	0.40	0.38	11.00	14.00	13.00	125

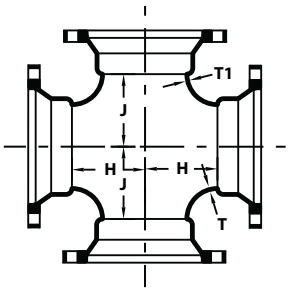


★ MJ x MJ TRUE WYES

NOM. SIZE	T	T1	A	B	WT (LBS.)
24 x 14	0.61	0.47	9.00	11.50	395
30 x 24	0.66	0.61	8.00	17.00	815

Compact MJ Fittings

ANSI/AWWA C153/A21.53



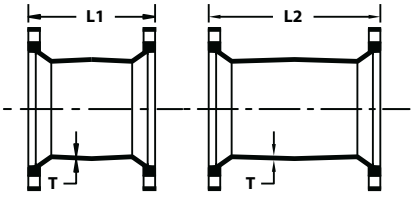
MJ CROSSES

	NOM. SIZE	T	T1	H	J	WT (LBS.)
	3 x 3	0.33	0.33	3.00	3.00	35
★	4 x 3	0.34	0.33	3.50	4.00	38
	4 x 4	0.34	0.34	4.00	4.00	40
★	6 x 4	0.36	0.34	4.00	5.00	68
	6 x 6	0.36	0.36	5.00	5.00	80
★	8 x 4	0.38	0.34	4.00	6.00	99
★	8 x 6	0.38	0.36	5.00	6.00	100
	8 x 8	0.38	0.38	6.00	6.00	106
★	10 x 4	0.40	0.34	4.00	7.00	120
★	10 x 6	0.40	0.36	5.00	7.00	125
★	10 x 8	0.40	0.38	6.50	7.00	130
	10 x 10	0.40	0.40	7.00	7.00	145
★	12 x 4	0.42	0.34	4.00	8.50	123
★	12 x 6	0.42	0.36	5.00	8.50	142
★	12 x 8	0.42	0.38	6.00	8.50	157
★	12 x 10	0.42	0.40	7.50	8.50	189
	12 x 12	0.42	0.42	8.50	8.50	200
★	14 x 6	0.47	0.36	6.50	10.50	210
★	14 x 8	0.47	0.38	7.50	10.50	231
★	14 x 10	0.47	0.40	8.50	10.50	255
★	14 x 12	0.47	0.42	9.50	10.50	269
	14 x 14	0.47	0.47	10.50	10.50	335
★	16 x 6	0.50	0.36	6.50	11.50	250
★	16 x 8	0.50	0.38	7.50	11.50	264
★	16 x 10	0.50	0.40	8.50	11.50	286
★	16 x 12	0.50	0.42	9.50	11.50	310
	16 x 16	0.50	0.50	11.50	11.50	385
★	18 x 12	0.54	0.42	9.50	12.50	348
	18 x 18	0.54	0.54	12.50	12.50	478
★	20 x 8	0.57	0.38	8.00	14.00	379
★	20 x 12	0.57	0.42	10.00	14.00	413
★	20 x 18	0.57	0.54	13.00	14.00	554
	20 x 20	0.57	0.57	14.00	14.00	590
★	24 x 6	0.61	0.36	7.00	16.00	481
★	24 x 8	0.61	0.38	8.00	16.00	500
★	24 x 12	0.61	0.42	10.00	16.00	529
★	24 x 16	0.61	0.50	12.00	16.00	576
★	24 x 18	0.61	0.54	13.00	16.00	868
★	24 x 20	0.61	0.57	14.00	16.00	1015
	24 x 24	0.61	0.61	16.00	16.00	881
★	30 x 12	0.66	0.42	10.00	20.00	870
★	30 x 24	0.66	0.61	16.00	20.00	1333
	30 x 30	0.66	0.66	22.00	22.00	1691
★	36 x 24	0.74	0.61	16.00	23.50	1840

(Con't)➡

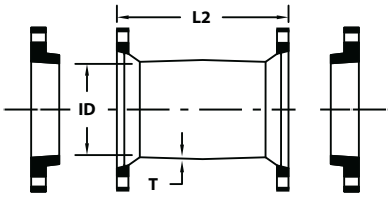
MJ CROSSES (Con't)

	NOM. SIZE	T	T1	H	J	WT (LBS.)
	36 x 36	0.74	0.74	26.00	26.00	2811
★	42 x 24	0.82	0.61	20.00	27.50	2480
★	42 x 36	0.82	0.74	30.00	30.00	3900
★	48 x 24	0.90	0.61	23.00	32.00	3670
★	48 x 30	0.90	0.66	23.00	32.00	4505
★	48 x 36	0.90	0.74	33.50	32.25	4700



MJ SLEEVES

	NOM. SIZE	T	SHORT SLEEVES		LONG SLEEVES	
			L1	WT (LBS.)	L2	WT (LBS.)
★	2	0.30	7.50	8	12.00	13
	3	0.33	7.50	13	12.00	18
	4	0.34	7.50	17	12.00	20
	6	0.36	7.50	28	12.00	36
	8	0.38	7.50	38	12.00	46
	10	0.40	7.50	49	12.00	62
	12	0.42	7.50	56	12.00	76
	14	0.47	9.50	93	15.00	125
	16	0.50	9.50	108	15.00	172
	18	0.54	9.00	160	15.00	225
	20	0.57	9.00	195	15.00	255
	24	0.61	9.00	255	15.00	335
	30	0.66	15.00	500	24.00	670
	36	0.74	15.00	725	24.00	1091
	42	0.82	15.00	877	24.00	1390
	48	0.90	15.00	1406	24.00	1740

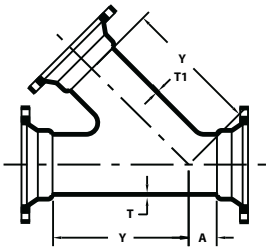


★ MJ DUAL PURPOSE SLEEVES W/ OVERSIZE GLANDS

NOM. SIZE	PIPE SIZE	T	L	(I.D.)	WT (LBS.)
4	4.80 - 5.00	0.34	12.00	5.10	20
6	6.90 - 7.10	0.36	12.00	7.20	36
8	9.05 - 9.30	0.38	12.00	9.40	46
10	11.10 - 11.40	0.40	12.00	11.50	62
12	13.20 - 13.50	0.42	12.00	13.60	76
16	17.40 - 17.80	0.50	15.00	17.94	172

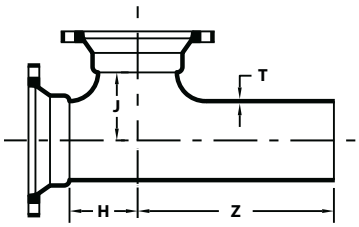
Compact MJ Fittings

ANSI/AWWA C153/A21.53



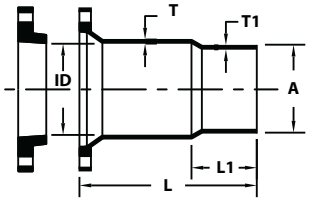
★ 45° MJ LATERALS

NOM. SIZE	T	T1	A	Y	WT (LBS.)
3 x 3	0.33	0.33	2.50	8.50	36
4 x 3	0.34	0.33	2.50	8.50	40
4 x 4	0.34	0.34	2.50	8.50	41
6 x 4	0.36	0.34	1.50	11.00	53
6 x 6	0.36	0.36	3.00	12.50	85
8 x 4	0.38	0.34	0.50	13.00	73
8 x 6	0.38	0.36	2.00	14.50	90
8 x 8	0.38	0.38	3.50	16.00	102
10 x 4	0.40	0.34	0.00	15.00	150
10 x 6	0.40	0.36	1.00	16.00	158
10 x 8	0.40	0.38	2.50	17.00	172
10 x 10	0.40	0.40	3.50	19.00	210
12 x 4	0.42	0.34	0.00	16.50	184
12 x 6	0.42	0.36	1.50	18.50	186
12 x 8	0.42	0.38	1.50	18.50	188
12 x 10	0.42	0.40	3.00	20.00	250
12 x 12	0.42	0.42	4.50	22.50	272
14 x 14	0.47	0.47	6.00	25.00	474
16 x 6	0.50	0.36	0.00	21.00	300
16 x 8	0.50	0.38	0.50	22.50	349
16 x 12	0.50	0.42	3.50	25.00	453
16 x 16	0.50	0.50	6.50	28.00	575



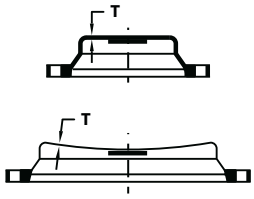
★ MJ x PE x MJ TEES

NOM. SIZE	T	H	J	Z	WT (LBS.)
6 x 6	0.36	5.00	5.00	12.00	57
8 x 6	0.38	5.50	6.50	11.50	69
8 x 8	0.38	6.50	6.50	12.50	77
10 x 10	0.40	7.50	7.50	13.00	120

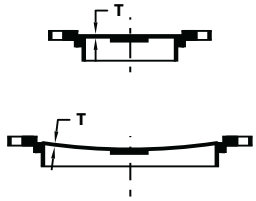


★ MJ x PE CUTTING IN SLEEVE W/ OVER SIZE GLAND

NOM. SIZE	ID	T	T1	A	L	L1	WT (LBS.)
4	5.10	0.36	0.34	4.80	20.00	9.00	50
6	7.20	0.38	0.36	6.90	20.00	9.00	62
8	9.40	0.40	0.38	9.05	20.00	9.00	90
10	11.50	0.42	0.40	11.10	20.00	9.00	105
12	13.60	0.47	0.42	13.20	20.00	9.00	128
16	17.90	0.54	0.50	17.40	20.00	9.00	275



30"-48"
CAPS



30"-48"
PLUGS

MJ CAPS & PLUGS (SOLID OR TAPPED)

NOM. SIZE	T	MAX. TAP	WT (LBS.)	
			PLUGS	CAPS
3	0.48	2	9	8
4	0.34	2	12	9
6	0.42	2	21	15
8	0.44	2	32	22
10	0.46	2	40	32
12	0.48	2	54	42
14	0.55	2 ½	77	86
16	0.56	2 ½	101	94
18	0.60	3	126	116
20	0.66	3	139	129
24	0.68	3	181	171
30	0.82	4	434	395
36	1.00	4	688	628
42	1.00	4	1200	893
48	1.00	4	1550	1076

Threads in Accordance with ANSI/ASME B1.20.1

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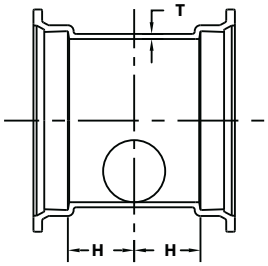
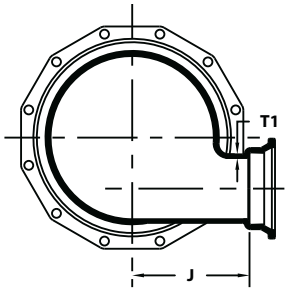
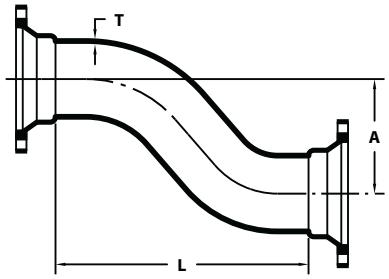
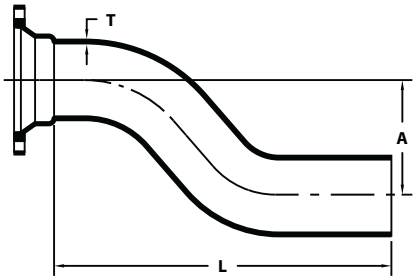




★ **MJ x MJ TANGENTIAL TEES**

NOM. SIZE	T	T1	H	J	WT (LBS.)
16 X 6	0.50	0.38	6.50	11.50	225
16 X 12	0.50	0.42	9.50	11.50	300
18 X 6	0.54	0.36	6.50	12.50	285
24 X 6	0.61	0.36	7.00	16.00	455
24 X 12	0.61	0.42	10.00	16.00	540





★ **MJ OFFSETS**

NOM. SIZE	T	A	MJ x MJ L	MJ x MJ WT (LBS.)	MJ x PE L	MJ x PE WT (LBS.)
3 X 6	0.33	6.00	9.00	20	---	---
4 X 6	0.34	6.00	10.00	25	15.50	25
4 X 12	0.34	12.00	18.00	55	23.50	46
4 X 18	0.34	18.00	22.00	65	27.50	59
4 X 24	0.34	24.00	28.00	75	33.50	65
6 X 6	0.36	6.00	12.00	29	17.50	51
6 X 12	0.36	12.00	18.00	69	23.50	68
6 X 18	0.36	18.00	24.00	87	29.50	96
6 X 24	0.36	24.00	30.00	107	35.50	117
8 X 6	0.38	6.00	13.00	80	18.50	78
8 X 12	0.38	12.00	19.00	105	24.50	110
8 X 18	0.38	18.00	25.00	135	30.50	124
8 X 24	0.38	24.00	30.00	141	35.50	189
10 X 6	0.40	6.00	15.00	110	20.50	130
10 X 12	0.40	12.00	21.00	135	26.50	172
10 X 18	0.40	18.00	27.00	183	32.50	189
10 X 24	0.40	24.00	33.00	175	38.50	237
12 X 6	0.42	6.00	17.00	118	22.50	115
12 X 12	0.42	12.00	23.00	203	28.50	198
12 X 18	0.42	18.00	27.00	190	32.50	270
12 X 24	0.42	24.00	35.00	277	40.50	334
16 X 12	0.50	12.00	26.00	206	---	---
16 X 18	0.50	18.00	36.00	250	---	---

★Not Included in AWWA C153

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Compact MJ Fittings

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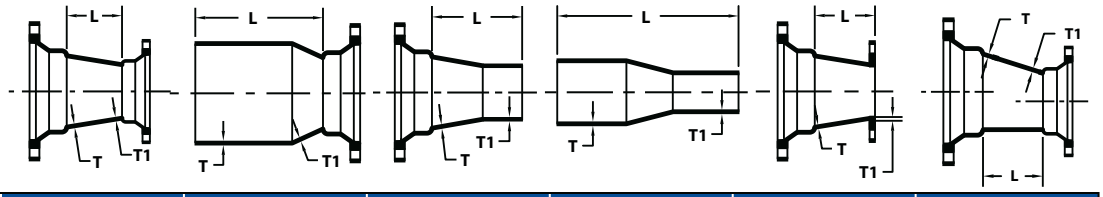

	REDUCERS			MJ x MJ		SEB		LEB		PE x PE		MJ x FE		★ ECCENTRIC	
	NOM. SIZE	T	T1	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)
	4 x 3	0.34	0.33	3.00	18	8.50	17	8.50	18	14.00	14	5.00	19.00	---	---
	6 x 3	0.36	0.33	5.00	22	10.62	24	10.50	19	16.00	19	---	---	---	---
	6 x 4	0.36	0.34	4.00	24	9.50	23	9.50	23	15.00	22	5.00	30.00	---	---
	8 x 4	0.38	0.34	5.00	32	10.50	30	10.50	34	16.00	30	---	---	---	---
	8 x 6	0.38	0.36	4.00	36	9.50	35	9.50	32	15.00	33	6.00	41.00	---	---
	10 x 4	0.40	0.34	7.00	46	12.50	44	12.50	43	---	---	---	---	---	---
	10 x 6	0.40	0.36	5.00	47	10.50	46	10.50	46	16.00	46	---	---	---	---
	10 x 8	0.40	0.38	4.00	50	9.50	49	9.50	50	15.00	47	---	---	---	---
	12 x 4	0.42	0.34	9.00	58	14.50	60	14.50	57	20.00	58	---	---	---	---
	12 x 6	0.42	0.36	7.00	60	12.50	53	12.50	57	18.00	57	---	---	---	---
	12 x 8	0.42	0.38	5.00	60	10.50	61	10.50	59	16.00	54	7.00	82	---	---
	12 x 10	0.42	0.40	4.00	64	9.50	53	9.50	58	15.00	54	---	---	---	---
	14 x 6	0.47	0.36	9.00	110	16.90	100	14.50	105	---	---	---	---	---	---
	14 x 8	0.47	0.38	7.00	122	14.90	99	12.40	98	---	---	---	---	---	---
	14 x 10	0.47	0.40	5.00	120	12.90	96	10.40	92	---	---	---	---	---	---
	14 x 12	0.47	0.42	4.00	132	11.90	90	9.40	92	17.30	88	---	---	---	---
	16 x 6	0.50	0.36	11.00	148	21.00	125	16.50	144	24.30	93	---	---	---	---
	16 x 8	0.50	0.38	9.00	155	18.00	124	14.50	136	22.30	119	---	---	---	---
	16 x 10	0.50	0.40	7.00	160	15.00	124	12.50	125	20.50	119	---	---	---	---
	16 x 12	0.50	0.42	5.00	161	12.90	122	10.50	116	18.30	99	---	---	---	---
	16 x 14	0.50	0.47	4.00	173	12.00	133	12.00	135	19.70	129	---	---	---	---
	18 x 8	0.54	0.38	13.00	201	20.00	170	19.50	195	---	---	16.00	190	---	---
	18 x 10	0.54	0.40	10.00	196	18.00	165	17.40	185	25.50	160	---	---	---	---
	18 x 12	0.54	0.42	7.00	180	15.50	150	14.00	150	19.50	150	12.00	198	---	---
	18 x 14	0.54	0.47	6.00	200	15.00	175	15.00	200	---	---	---	---	---	---
	18 x 16	0.54	0.50	5.00	196	12.50	170	12.50	192	---	---	---	---	---	---
★	20 x 8	0.57	0.38	16.00	227	---	---	---	---	---	---	---	---	---	---
	20 x 10	0.57	0.40	16.00	220	22.12	200	19.00	210	---	---	---	---	---	---
	20 x 12	0.57	0.42	12.00	227	17.50	170	16.00	205	---	---	---	---	---	---
	20 x 14	0.57	0.47	10.00	200	18.00	190	17.90	205	---	---	---	---	---	---
	20 x 16	0.57	0.50	7.00	231	13.50	185	13.50	200	---	---	---	---	---	---
	20 x 18	0.57	0.54	4.00	225	12.00	200	12.00	215	---	---	---	---	8.00	235
★	24 x 8	0.61	0.38	20.00	263	---	---	---	---	---	---	---	---	---	---
	24 x 12	0.61	0.42	16.00	263	21.50	275	21.00	290	---	---	18.00	318	---	---
	24 x 14	0.61	0.47	14.00	310	22.00	310	21.90	315	---	---	---	---	---	---
	24 x 16	0.61	0.50	13.00	279	21.00	285	17.50	285	---	---	---	---	---	---
	24 x 18	0.61	0.54	10.00	284	18.00	300	18.00	310	---	---	---	---	---	---
	24 x 20	0.61	0.57	7.00	328	15.00	276	13.50	275	---	---	---	---	---	---
★	30 x 12	0.66	0.42	30.00	763	---	---	---	---	---	---	---	---	---	---
	30 x 16	0.66	0.50	30.00	633	39.00	565	39.00	623	48.00	690	---	---	---	---
	30 x 18	0.66	0.54	28.00	658	37.00	654	37.00	635	---	---	---	---	---	---
	30 x 20	0.66	0.57	24.00	628	33.00	590	33.00	603					---	---
	30 x 24	0.66	0.61	10.00	478	24.50	536	24.50	526	---	---	---	---	---	---
★	36 x 12	0.74	0.42	36.00	1135	---	---	---	---	---	---	---	---	---	---

(Con't)➡

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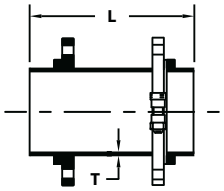
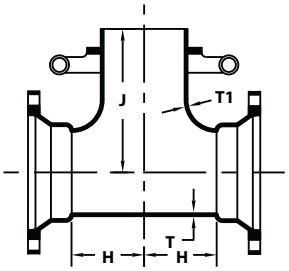
Compact MJ Fittings

ANSI/AWWA C153/A21.53

	REDUCERS* (Con't)	MJ x MJ		SEB		LEB		PE x PE		MJ x FE		★ ECCENTRIC	
	NOM. SIZE	T	T1	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)	L	WT (LBS.)
★	36 x 16	0.74	0.50	40.00	1078	27.00	700	---	---	---	---	---	---	---	---
★	36 x 18	0.74	0.54	38.00	1329	37.00	800	---	---	---	---	---	---	---	---
★	36 x 20	0.74	0.57	36.00	1165	45.00	850	45.00	950	---	---	---	---	---	---
	36 x 24	0.74	0.61	19.00	822	33.12	746	33.00	810	---	---	---	---	19.00	820
	36 x 30	0.74	0.66	15.50	650	24.62	788	24.50	758	---	---	---	---	15.50	650
	42 x 24	0.82	0.61	40.00	1356	49.00	1204	49.00	1320	---	---	---	---	---	---
	42 x 30	0.82	0.66	20.00	1083	29.12	1150	29.00	1015	---	---	---	---	---	---
	42 x 36	0.82	0.74	15.50	1114	24.62	962	24.50	1013	---	---	---	---	15.50	1114
★	48 x 24	0.90	0.61	40.00	1700	---	---	---	---	---	---	---	---	---	---
	48 x 30	0.90	0.66	40.00	1779	49.00	1594	49.00	1711	---	---	---	---	40.00	1960
	48 x 36	0.90	0.74	28.00	1641	37.00	1456	37.00	1540	---	---	---	---	---	---
	48 x 42	0.90	0.82	15.50	1426	24.50	1241	24.50	1275	---	---	---	---	---	---
★	54 X 36 60 X 48	*{ Dimensions Available On Request }*													





★ **SWIVEL x SOLID HYDRANT ADAPTERS W/ SWIVEL GLAND**

NOM. SIZE	T	L	WT (LBS.)
4 x 13	0.34	13.00	29
6 x 13	0.36	11.50	47
6 x 18	0.36	18.00	56
6 x 24	0.36	24.00	60
6 x 36	0.36	36.00	75
6 x 48	0.36	48.00	94
8 x 13	0.38	13.00	54
8 x 18	0.38	18.00	67
8 x 24	0.38	24.00	82
8 x 48	0.38	48.00	143
12 x 13	0.42	13.00	120

★ **MJ x SWIVEL HYDRANT TEES W/ SWIVEL GLAND**

NOM. SIZE	T	T1	H	J	WT (LBS.)
6 x 6	0.36	0.36	5.00	10.25	65
8 x 6	0.38	0.36	5.00	11.25	85
8 x 8	0.38	0.38	6.50	11.50	100
10 x 6	0.40	0.36	5.00	12.75	105
10 x 8	0.40	0.38	6.50	12.75	118
12 x 6	0.42	0.36	5.00	13.75	126
12 x 8	0.42	0.38	6.50	13.75	128
14 x 6	0.47	0.36	6.50	15.00	211
16 x 6	0.50	0.36	6.50	16.00	279
18 x 6	0.54	0.36	6.50	18.00	278
20 x 6	0.57	0.36	6.50	18.50	358
24 x 6	0.61	0.36	7.00	19.00	460

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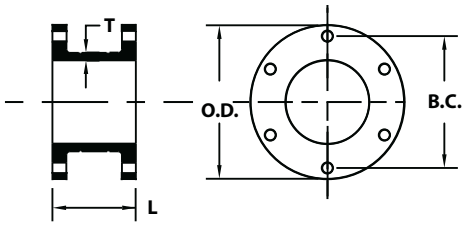
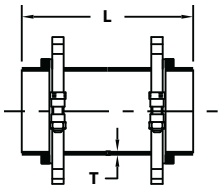


Material: Cast Grey Iron per ASTM A 48
Extensions include two (2) break-away grooves

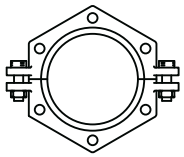
★ HYDRANT EXTENSIONS (STANDARD 6 HOLE)

NOM. SIZE	T	DIMENSIONS			FLANGE HOLE DIA.	WT (LBS.)
		L	B.C.	O.D.		
6 x 6	0.56	6.00	9.50	11.12	0.75	50
6 x 12	0.56	12.00	9.50	11.12	0.75	73



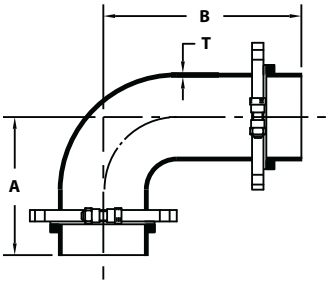
★ SWIVEL x SWIVEL HYDRANT ADAPTERS W/ 2 SWIVEL GLANDS

NOM. SIZE	T	L	WT (LBS.)
6 x 12	0.36	12.00	28
6 x 18	0.36	18.00	49
6 x 24	0.36	24.00	52



★ SWIVEL GLANDS

NOM. SIZE	WT (LBS.)
4	8
6	12
8	10
12	24



★ SWIVEL x SWIVEL HYDRANT ELL W/ 2 SWIVEL GLANDS

NOM. SIZE	T	A	B	WT (LBS.)
6	0.36	10.50	16.00	50

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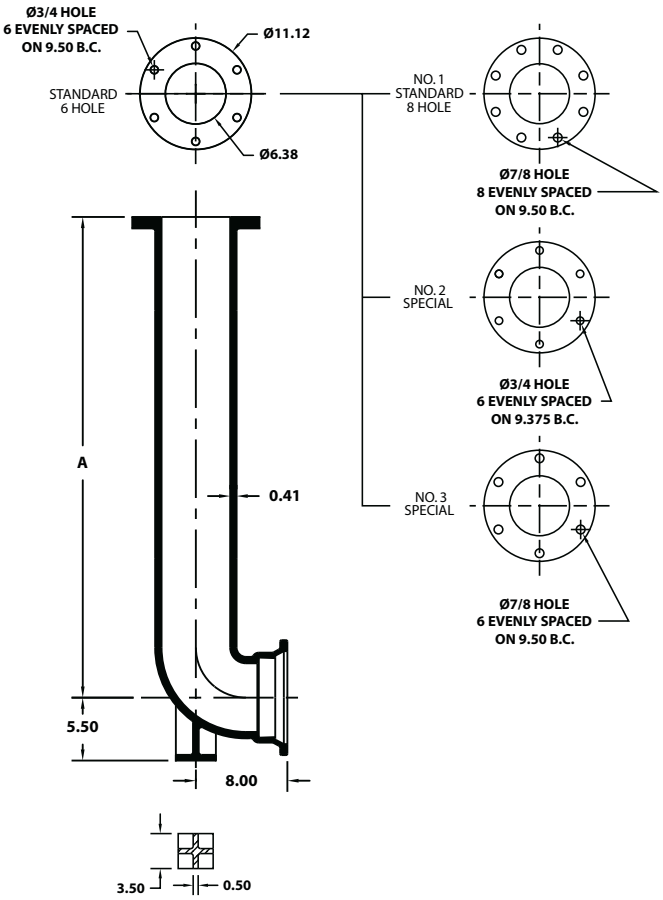

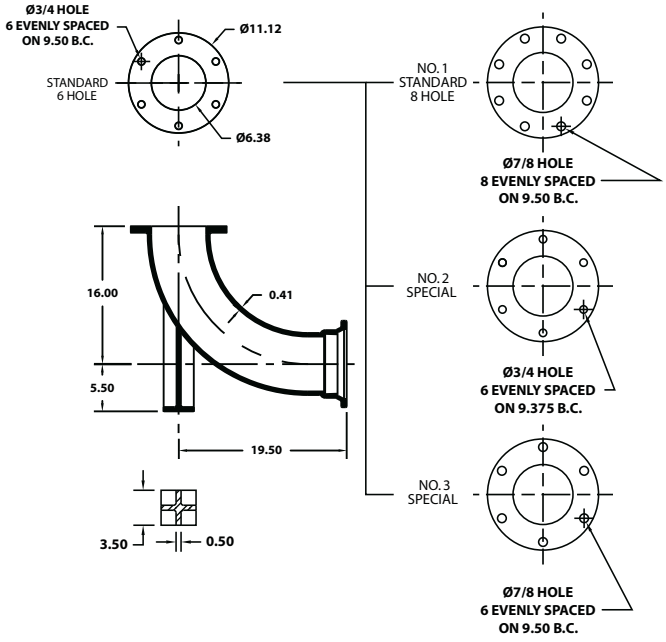

★ **MJ HYDRANT BURY**

NOM. SIZE	A	WT (LBS.)
6 x 22	22.00	85
6 x 24	24.00	90
6 x 30	30.00	103
6 x 36	36.00	117
6 x 42	42.00	130
6 x 48	48.00	146
6 x 54	54.00	160

★ **MJ LONG RADIUS HYDRANT BURY**

NOM. SIZE	RADIUS	WT (LBS.)
6	15.00	84

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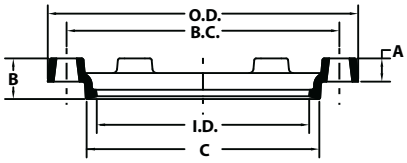
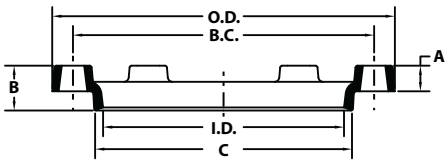


★ MJ GLANDS

NOM. SIZE	O.D.	A	B	C	I.D.	B.C.	BOLT HOLE	BOLT QTY	WT (LBS.)
2	6.12	0.62	1.12	3.40	2.61	4.75	Ø0.75	2	1
3	7.69	0.62	1.37	4.84	4.06	6.19	Ø0.75	4	2
4	9.12	0.75	1.50	5.92	4.90	7.50	Ø0.88	4	3
6	11.12	0.88	1.63	8.02	7.00	9.50	Ø0.88	6	5
8	13.37	1.00	1.75	10.17	9.15	11.75	Ø0.88	6	6
10	15.62	1.00	1.75	12.22	11.20	14.00	Ø0.88	8	8
12	17.88	1.00	1.75	14.32	13.30	16.25	Ø0.88	8	9
14	20.25	1.25	2.00	16.40	15.44	18.75	Ø0.88	10	13
16	22.50	1.31	2.06	18.50	17.54	21.00	Ø0.88	12	17
18	24.83	1.38	2.13	20.60	19.64	23.25	Ø0.88	12	30
20	27.08	1.44	2.19	22.70	21.74	25.50	Ø0.88	14	35
24	31.58	1.56	2.31	26.90	25.94	30.00	Ø0.88	16	50
30	39.12	2.00	2.75	33.29	32.17	36.88	Ø1.13	20	85
36	46.00	2.00	2.75	39.59	38.47	43.75	Ø1.13	24	115
42	53.12	2.00	2.75	45.79	44.67	50.62	Ø1.38	28	143
48	60.00	2.00	2.75	52.09	50.97	57.50	Ø1.38	32	237
54 60 64	*{ Dimensions Available On Request }*								

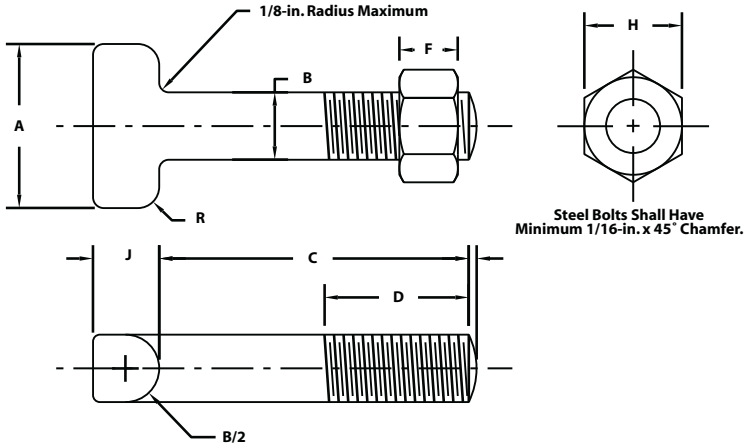


★ MJ OVERSIZE GLANDS

NOM. SIZE	O.D.	A	B	C	I.D.	B.C.	BOLT HOLE	BOLT QTY	WT (LBS.)
4	9.12	0.75	1.50	5.92	5.10	7.50	Ø0.88	4	3
6	11.12	0.88	1.63	8.02	7.20	9.50	Ø0.88	6	5
8	13.37	1.00	1.75	10.17	9.40	11.75	Ø0.88	6	6
10	15.62	1.00	1.75	12.22	11.50	14.00	Ø0.88	8	8
12	17.88	1.00	1.75	14.32	13.60	16.25	Ø0.88	8	9
16	22.50	1.31	2.06	18.50	17.90	21.00	Ø0.88	12	17

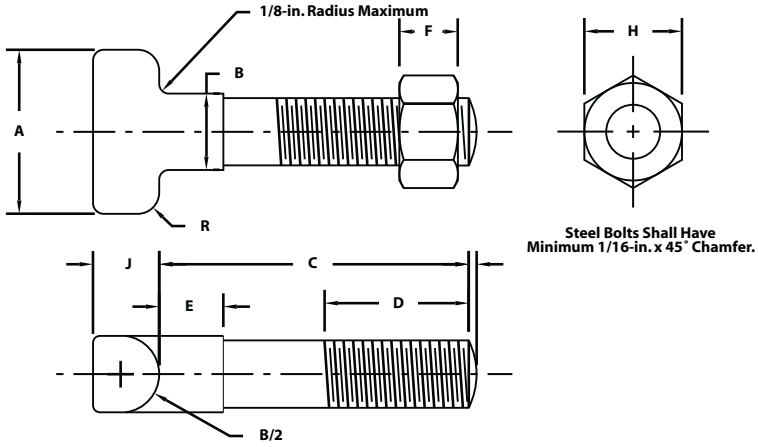
Compact MJ Fittings

ANSI/AWWA C153/A21.53



★ T-HEAD (LOW ALLOY STEEL) BOLT & NUTS

NOM. SIZE	A	B	C	D	THREADS PER IN.	F	H	J	R
⅝ x 3	1.50	0.625	3.00	2.00	11	0.625	1.062	0.625	0.312
⅝ x 3 ½	1.50	0.625	3.50	2.70	11	0.625	1.062	0.625	0.312
¾ x 3 ½	1.75	0.750	3.50	2.50	10	0.750	1.250	0.750	0.375
¾ x 4	1.75	0.750	4.00	3.00	10	0.750	1.250	0.750	0.375
¾ x 4 ½	1.75	0.750	4.50	3.00	10	0.750	1.250	0.750	0.375
¾ x 5	1.75	0.750	5.00	3.00	10	0.750	1.250	0.750	0.375
¾ x 5 ½	1.75	0.750	5.50	3.70	10	0.750	1.250	0.750	0.375
1 x 6	2.25	1.000	6.00	3.00	8	1.000	1.625	1.000	0.500
1 ¼ x 6 ½	2.50	1.250	6.50	3.50	7	1.250	2.000	1.250	0.625

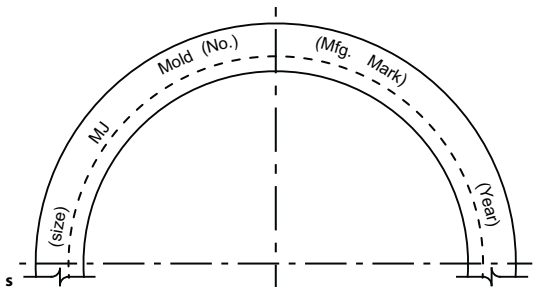


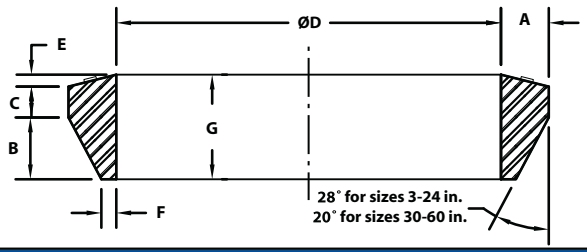
★ ANTI-ROTATION T-HEAD (LOW ALLOY STEEL) BOLT & NUTS

NOM. SIZE	A	B	C	D	E	THREADS PER IN.	F	H	J	R
⅝ x 3	1.50	0.625	3.00	2.00	0.63	11	0.625	1.062	0.625	0.312
¾ x 3 ½	1.75	0.750	3.50	2.50	0.63	10	0.750	1.250	0.750	0.375
¾ x 4	1.75	0.750	4.00	3.00	0.63	10	0.750	1.250	0.750	0.375
¾ x 4 ½	1.75	0.750	4.50	3.00	0.63	10	0.750	1.250	0.750	0.375
¾ x 5	1.75	0.750	5.00	3.00	0.63	10	0.750	1.250	0.750	0.375

Compact MJ Fittings

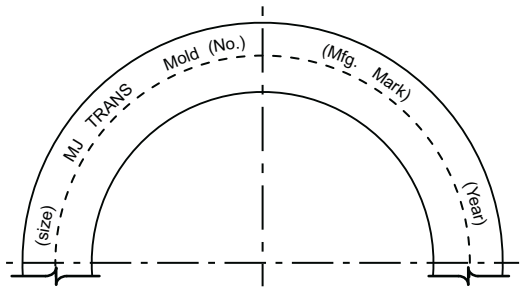
ANSI/AWWA C153/A21.53

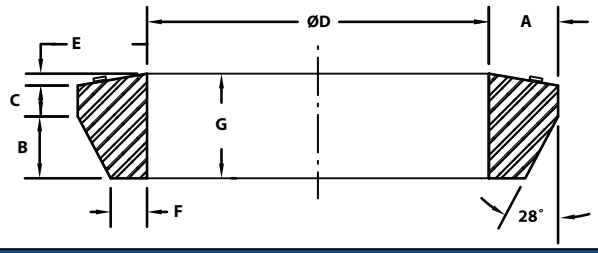




MECHANICAL-JOINT GASKET

NOM. SIZE	PIPE O.D.	A	B	C	ØD ±1 %	E	F	G
2	2.50	0.48	0.62	0.31	2.48	0.12	0.15	1.05
3	3.96	0.48	0.62	0.31	3.86	0.12	0.15	1.05
4	4.80	0.62	0.75	0.31	4.68	0.16	0.22	1.22
6	6.90	0.62	0.75	0.31	6.73	0.16	0.22	1.22
8	9.05	0.62	0.75	0.31	8.85	0.16	0.22	1.22
10	11.10	0.62	0.75	0.31	10.87	0.16	0.22	1.22
12	13.20	0.62	0.75	0.31	12.95	0.16	0.22	1.22
14	15.30	0.62	0.75	0.31	14.99	0.16	0.22	1.22
16	17.40	0.62	0.75	0.31	17.07	0.16	0.22	1.22
18	19.50	0.62	0.75	0.31	19.13	0.16	0.22	1.22
20	21.60	0.62	0.75	0.31	21.20	0.16	0.22	1.22
24	25.80	0.62	0.75	0.31	25.34	0.16	0.22	1.22
30	32.00	0.73	1.00	0.38	31.47	0.16	0.37	1.54
36	38.30	0.73	1.00	0.38	37.67	0.16	0.37	1.54
42	44.50	0.73	1.00	0.38	43.78	0.16	0.37	1.54
48	50.80	0.73	1.00	0.38	49.98	0.16	0.37	1.54
54 60 64	*{ Dimensions Available On Request }*							





★ TRANSITION MECHANICAL-JOINT GASKET

NOM. SIZE	PIPE O.D.	A	B	C (REF.)	ØD ±1 %	E	F	G
2	2.375	0.56	0.66	0.31	2.32	0.12	0.21	1.10
3	3.500	0.72	0.64	0.34	3.43	0.12	0.38	1.10
4	4.500	0.76	0.73	0.33	4.43	0.20	0.37	1.26
6	6.625	0.75	0.73	0.32	6.53	0.20	0.36	1.25
8	8.625	0.82	0.73	0.34	8.50	0.20	0.43	1.27
10	10.750	0.79	0.75	0.31	10.59	0.20	0.39	1.26
12	12.750	0.84	0.75	0.33	12.56	0.20	0.44	1.28

★Not Included in AWWA C153

NOTES:

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