



UTILITY PIPE FITTINGS AND ACCESSORIES

UCAT.22.01-2



TÜVRheinland®

Certified to
ISO 9001:2015

Star® Pipe Products
4018 Westhollow Pkwy.
Houston, TX 77082

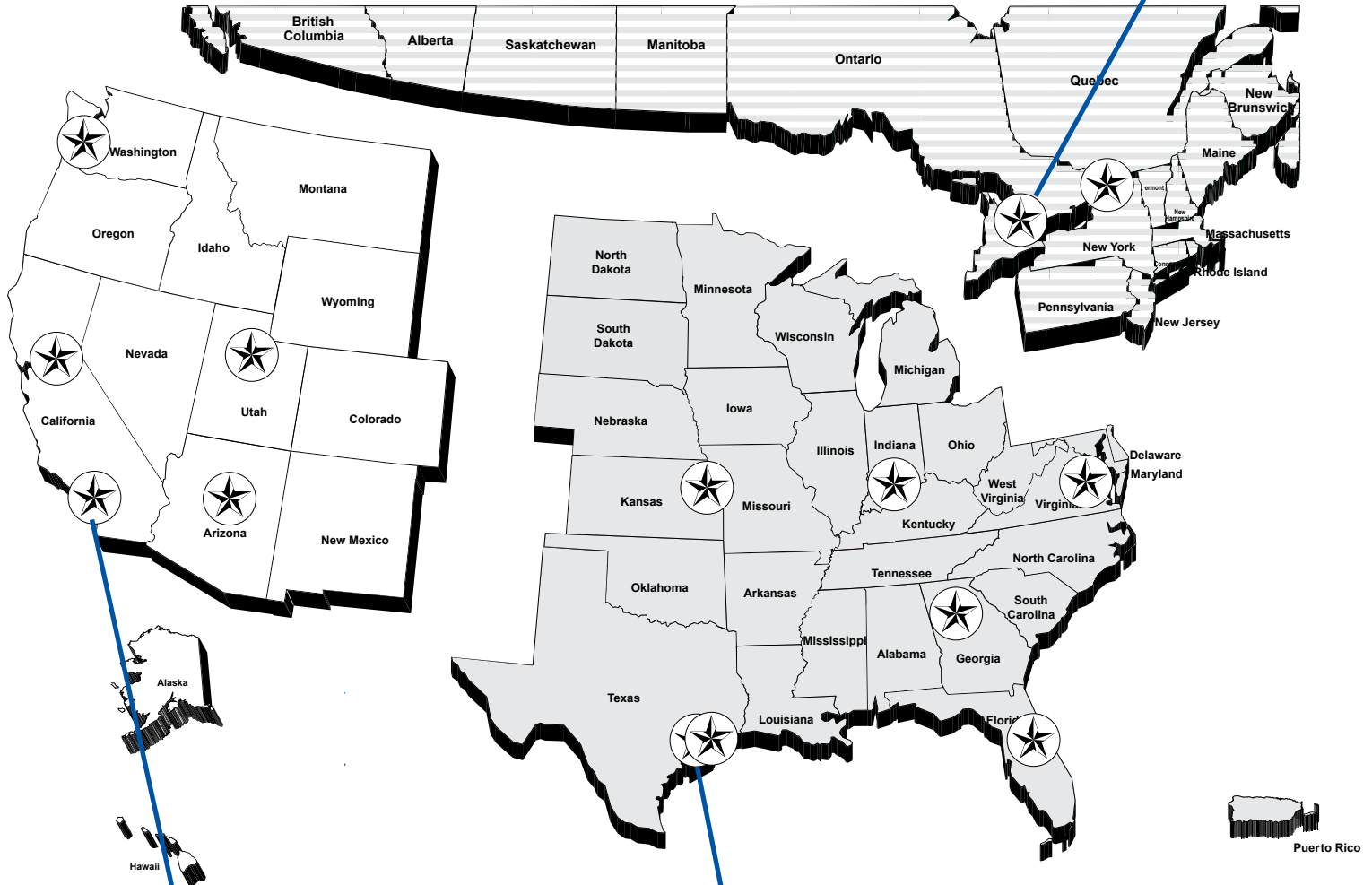
Toll-Free: (800) 999-3009
Tel: (281) 558-3000
Fax: (281) 558-9000

www.starpipeproducts.com

Call Centers

CAMBRIDGE CALL CENTER

1144 Industrial Road
 Cambridge, Ontario, N3H4W4
 Tel: (519) 650-1550
 Toll Free: (888) 893-7827
 Fax: (519) 650-1553



CORONA CALL CENTER

1223 Sherborn Street, Ste 102
 Corona, CA 92879
 Tel: (951) 898-0770
 Toll Free: (877) 701-7827
 Fax: (951) 898-9561

HOUSTON CALL CENTER

Corporate Headquarters
 4018 Westhollow Pkwy.
 Houston, TX 77082
 Tel: (281) 558-3000
 Toll Free: (800) 999-3009
 Fax: (281) 558-9000

Distribution Centers

Sacramento, CA
 830 W. National Drive, Ste 150
 Sacramento, CA 95834

Orlando, FL
 601 Gills Drive, Ste 100
 Orlando, FL 32824

Richmond, VA
 2913 Transport Street, Ste 101
 Richmond, VA 23234

Phoenix, AZ
 1250 East Hadley Street, Ste 2
 Phoenix, AZ 85034

Salt Lake City, UT
 2801 West Parkway Blvd.
 Salt Lake City, UT 84119

Seattle, WA
 13605 52nd Street East
 Sumner, WA 98390

Montreal, CAN
 3067 Rue Joseph A. Bombardier
 Laval, QC H7P 6C5

Atlanta, GA
 2885 Pacific Drive, Suite A
 Norcross, GA 30071

Houston, TX
 4023 Westhollow Pkwy, Suite 108
 Houston, TX 77082

Kansas City, MO
 1836 Levee Road
 North Kansas City, MO 64116

Indianapolis, IN
 7955 Zionsville Road
 Indianapolis, IN 46268

| | | |
|---|---|-----------|
|  | GENERAL TERMS & CONDITIONS | pg. 4-5 |
|  | COMPACT MJ FITTINGS ANSI/AWWA C153/A21.53 Sizes: 2" - 64" | pg. 7-17 |
|  | ACCESSORIES ANSI/AWWA C111/A21.11 | pg. 18-24 |
|  | FULL BODY MJ FITTINGS ANSI/AWWA C110/A21.10 Sizes: 2" - 64" | pg. 25-34 |
|  | COMPACT PUSH-ON FITTINGS ANSI/AWWA C153/A21.53 Sizes: 4" - 24" | pg. 35-42 |
|  | FLANGED FITTINGS & ACCESSORY PACKS ANSI/AWWA C110/A21.10 Sizes: 1" - 64" | pg. 43-54 |
|  | FLANGES ANSI/AWWA C115/A21.15 Sizes: 2" - 64" | pg. 55-58 |

LININGS & COATINGS

- Ceramic Epoxy
- Cement Lined
- Double Cement Lined
- UL/ANSI/NSF Standards 61 and 372 Epoxy
- Coal Tar Epoxy
- Asphalt Coatings
- Fusion Bonded Epoxy
- Glass Lining
- Bare/Bare Available

{ Additional Linings & Coatings Available }

PLEASE CALL FOR
- Product Data/Specifications Sheets
- Material Safety Data Sheets
- Special Coating Options

800.999.3009



STAR[®] PIPE PRODUCTS

General Terms and Conditions

| | |
|----------------------|---|
| GENERAL | Star Pipe Products' ("Seller") terms and conditions of sale (the "Terms") shall control with respect to any sale of Seller's products (the "Goods") to any customer (each, a "Buyer") (each, an "Order"). No waiver, alteration or modification of these terms and conditions whether on Buyer's purchase order or otherwise shall be valid unless the waiver, alteration or modification is specifically accepted in writing and signed by an authorized representative of Seller. Buyer acknowledges that these Terms and Conditions are subject to change from time to time and the parties agree that each sale of Goods will be independently governed by the version of the Terms available online at www.starpipeproducts.com at the time of acceptance by Seller such order. All references by Seller to Buyer's specifications and similar requirements are only to describe Goods and work covered hereby and no warranties or other terms will have any force or effect. Buyer may not rely on any representation, promise or term not set forth herein and Seller expressly objects to and rejects all terms not contained in these Terms. Seller's acceptance of an Order, whether oral or written, and/or its delivery of Goods to Buyer is based on the express condition that Buyer agrees to all of these Terms. |
| GOVERNING LAW; VENUE | These Terms (and every Order) shall be deemed made under and governed by the laws of the State of Texas and shall be construed and enforced in accordance therewith (without regard to its rules respecting conflicts of Law). Buyer irrevocably submits to the jurisdiction and venue of the state and federal courts located in Harris County, State of Texas, hereby waives any objections or defenses to such forum jurisdiction and venue selection, and agrees and consents that service of process may be made upon it in any legal proceeding relating to these Terms by any means allowed under Texas or federal law. No party shall have the right to litigate, include in any lawsuit, or otherwise present claims for any other person or entity or for any class of persons or entities, and each party waives any such rights or claims it might have. |
| QUOTATIONS | Where Seller issues a quotation to place a bid, Seller's quotation is for prompt acceptance (not later than 30 days) and Seller reserves the right to modify and/or withdraw such quotation without notice. Buyer's prompt acceptance of the quotation and these Terms are material terms of the quotation and any resulting Order. In cases where freight allowance is included in the quotation, Buyer shall be liable for any rate increase and/or additional expense over the calculated allowance resulting from compliance with Buyer's shipping instructions. |
| DELIVERY | Seller will make every effort to complete delivery of Goods as indicated on an Order, but Seller shall have no responsibility or liability, and will accept no back charge, for losses or damages arising from delivery delays or failure to give notice of expected delay. Seller may terminate any Order without liability of any nature, by written notice to Buyer, in the event that the delay in delivery or performance resulting from any of the aforesaid causes shall continue for a period of longer than sixty (60) days. |
| WARRANTY | Seller warrants Goods of its own manufacture for one (1) calendar year from the date of shipment shall conform to the material and technical specifications set forth in the Order. Goods manufactured by others are sold "as is" except to the extent the manufacturer honors any applicable warranty made by the manufacturer. Secondhand goods are sold "as is". If the new Goods fail to conform with such specifications upon inspection by Seller, Seller will, at its option and as Buyer's sole remedy, either repair or replace such Goods having defects in material or workmanship with the type originally furnished. Seller shall not be liable or responsible and Seller's warranty obligations shall not apply if (A) upon inspection any defects are attributed to normal wear and tear, erosion or corrosion, improper storage, use or maintenance or use of Goods with incompatible products, (B) the defect is in any portion or part of Goods not manufactured by Seller, (C) Goods have been repaired or altered outside of Seller's factory, in any manner; (D) Goods have been subjected to misuse, negligence or accidents; or (E) Goods have been used in a manner contrary to Seller's instructions or recommendations. If (B) above is applicable, Seller will, as an accommodation to Buyer, assign to Buyer any warranties given to it by any such other manufacturers; provided, however, that the foregoing will not extend Seller's warranty to any accessory products unless otherwise agreed to in writing by Seller. If Seller's examination shall disclose to its satisfaction that the Good is defective, cannot be replaced and an adjustment is required, the amount of such adjustment shall not exceed the net line item sales price of the defective Good only and no allowance will be made for labor or expense of repairing or replacing defective Good or workmanship or damage resulting from the same. No adjustment shall be implemented unless the Good in question is returned to Seller in its originally installed condition, still connected to other components of the joint. Buyer must contact Seller as quickly as possible so Seller can assess the Good in its installed condition. No claims will be honored unless claim is made within forty-five (45) days of the defect being discovered. Where engineering design or fabrication work is supplied, Buyer's acceptance of Seller's design or of delivery of work shall relieve Seller of all further obligation for such services. THIS CLAUSE CONTAINS SELLER'S SOLE WARRANTY. SELLER MAKES NO OTHER WARRANTY OF ANY KIND, EXPRESSED OR IMPLIED AND ALL IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE WHICH EXCEED SELLER'S AFORESTATED OBLIGATION ARE HEREBY DISCLAIMED BY SELLER AND EXCLUDED FROM THIS WARRANTY. Seller neither assumes, nor authorizes any person to assume for it, any other obligation in connection with the sale of its engineering designs or Goods. Seller shall not be responsible for design errors due to inaccurate or incomplete information supplied by Buyer or its representatives. This warranty is non-transferable. |
| LIABILITY | Seller shall not be liable for any loss, damage, cost of repairs, labor costs, special, incidental or consequential damages of any kind, whether based upon warranty (except for the obligation accepted by Seller under "Warranty" above), contract or negligence, arising in connection with the design, manufacture, sale, use or repair of the Goods or of the engineering designs supplied to Buyer. IN NO EVENT SHALL SELLER'S AGGREGATE LIABILITY ARISING OUT OF OR RELATED TO ANY ORDER ISSUED PURSUANT TO ANY ORDER, WHETHER ARISING OUT OF OR RELATED TO BREACH OF CONTRACT, TORT (INCLUDING NEGLIGENCE OF ANY KIND) OR OTHERWISE, EXCEED THE LINE ITEM PRICE OF THE GOOD(S) GIVING RISE TO THE CLAIM OR \$10,000 USD, WHICHEVER IS LESS. |

(Continued)

General Terms and Conditions

| | |
|---------------|--|
| DISCLAIMER | (1) PER AWWA/ANSI C110 A21.10, THE FLANGED JOINT IS GENERALLY SPECIFIED FOR ABOVE GROUND SERVICE. UNDERGROUND USE OF THE FLANGED JOINT IS GENERALLY NOT DESIRABLE DUE TO THE RIGIDITY OF THE JOINT. (2) SELLER WILL NOT PROVIDE WARRANTY FOR OR BE RESPONSIBLE FOR THE REPAIR OR REPLACEMENT OF GOOD DAMAGED BY PRESURE JETTING OF ANY KIND, REGARDLESS OF AGE OR CAUSE. |
| RETURNS | Seller will not accept return of any Good(s) unless Seller's written permission has been first obtained, in which case the Goods will be credited subject to the following: (a) All material returned must, on its arrival at Seller's plant, be found to be in first-class condition; if not, cost of putting in saleable condition will be deducted from credit memoranda; (b) A handling charge deduction of twenty-five percent (25%) will be made from all credit memoranda issued for material returned; (c) Transportation charges, if not prepaid will be deducted from credit memoranda. |
| SHIPMENTS | All Goods sent out will be carefully examined, counted and packed. The cost of any special packing or special handling caused by Buyer's requirements or requests shall be added to the amount of the Order. No claim for shortages will be allowed unless made in writing within ten (10) days of receipt of a shipment. Claims for Goods damaged or lost in transit should be made on the carrier, as Seller's responsibility ceases, and title passes, on delivery to the carrier. |
| GOODS | Orders covering special, made-to-order, rush or non-standard Goods are not subject to cancellation except on such terms as Seller may specify on application. |
| PRICES | All prices and designs are subject to change without notice. All prices are F.O.B. Point of Shipment, unless otherwise stated. |
| FORCE MAJEURE | Seller shall not be responsible or liable in any way for any failure to perform due to acts of God, fire, flood, serious accidents, foreign or United States embargo, war or riot, serious shortages, unavailability or significant price increases in commodities, materials or components, labor disputes, interruption of transportation, loss of essential production services, laws, rules, regulations, instructions or acts of any U.S. or foreign governmental authority, or by any other event beyond the reasonable control of Seller or its subcontractors. |
| TAXES | The amount of any sales, excise or other taxes, if any, applicable to the Goods covered by this order, shall be added to the purchase price and shall be paid by Buyer unless Buyer provides Seller with an exemption certificate acceptable to the taxing authorities. |
| MISCELLANEOUS | Seller produces both domestic and import Goods and each are cast with country of origin. The responsibility lies with the ordering and receiving parties to determine the suitability and origin of all Goods being requested. All Goods should be installed per Seller's installation instructions. Seller's Terms always apply. Please contact Seller if either are not readily available. All Domestic fittings are compliant with the Consolidated Appropriations Act of 2014 (AIS), the Recovery and Reinvestment Act of 2009 (ARRA) and the Buy America Acts of 1983 and 1933. We offer two (2) types of Domestic restraint Goods: (1) AIS Compliant and (2) Buy American Compliant. |

(1) All Goods described as AIS Compliant meet all requirements of the American Iron and Steel provision of the Consolidated Appropriations Act of 2014 (AIS), the Buy America Act of 1983 and the Buy American Act of 1933.

(2) Buy American Compliant Goods meet the original Federal Buy American Act of 1933. These Goods may include import components and this will be noted in the description of the Good.

Pressure Cleaning Guidelines: The Ductile Iron Pipe Research Association publishes the Installation Guide for Ductile Iron Pipe. The following language comes from Chapter 7 of the February 2012 edition of this document: "The use of pressure washing to clean the inside diameter of cement-mortar-lined iron pipe is not recommended due to the possibility of damage to the seal coat and/or cement-mortar lining. The aggressiveness of the pressure washing is dependent on water pressure, travel speed, water jets, water jet angle to the lining, distance of the water jets from the lining, diameter of pipe, type of lining application, etc. Any attempt to do so is at the sole risk of the equipment operator." Seller concurs with this position. Seller will not provide warranty for or be responsible for the repair or replacement of Good damaged by pressure jetting of any kind.

Non-Pressure Sewer Applications: If a mandrel test is required, or if a particular inside diameter is needed in order to accommodate CCTV equipment or some other tool, it is recommended that the installer check inside diameter compatibility by passing an object of the same size through the fitting prior to installation in order to ensure that the fitting's inside diameter is compatible with the test or inspection desired. Mandrels, CCTV equipment, testing balls, and any other object passed through the fitting shall be constructed such that it does not damage the fitting's lining when transported through it. Seller will not be responsible for buried sewer fittings that are incompatible with the aforementioned objects if that inside diameter that has not been assessed prior to installation.

STAR[®] PIPE PRODUCTS



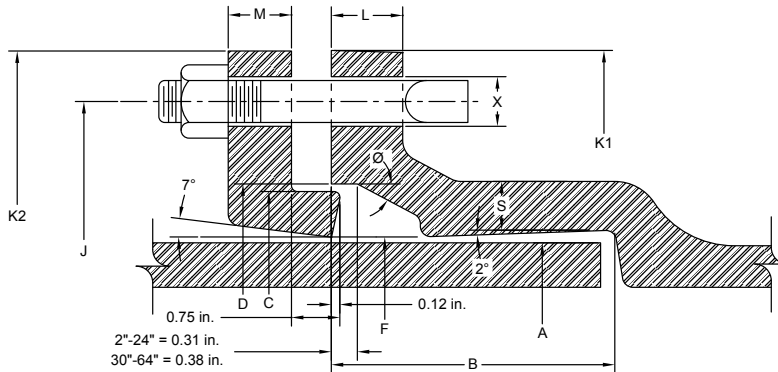
Compact MJ Fittings

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 2" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 64" sizes
- TESTING:** In accordance with ANSI/AWWA C153/A21.53, ANSI/AWWA C111/A21.11, UL and FM 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)
- DEFLECTION:** 2" - 4"=8° | 6"=7° | 8" - 12"=5° | 14" - 16"=3 1/2° | 18" - 24"=3° | 30" - 64"=2°
- WEIGHTS:** Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
- FLANGES:** Flanged ends on fittings match ANSI/AWWA 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. [Click here for a pressure jetting discussion](#) or visit http://www.starpipeproducts.com/pressure_cleaning_guidelines.asp.
- COATING:** Asphaltic seal coat inside and out in accordance with ANSI/AWWA C104/A21.4 and referenced in ANSI/AWWA C153/A21.53
- GASKETS:** SBR in accordance with ANSI/AWWA C111/A21.11 (see pg. 20)
- T-BOLTS/NUTS:** Low alloy steel in accordance with ANSI/AWWA C111/A21.11 (see pg. 22)
- APPROVALS:** 3" - 12" UL/ULC Listed | 2" and greater are UL/ANSI/NSF Standards 61 and 372 | 3" - 16" FM APPROVED. Please consult factory for detail listing and approvals.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise. ([Click here for a short commentary on non-pressure sewer applications](#) or visit http://www.starpipeproducts.com/non-pressure_sewer_applications.asp. Review commentary before ordering or installing fittings for this application.)
- INSTALLATION:** Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900



| MECHANICAL JOINT 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° | 3/4 | 5/8 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° | 3/4 | 5/8 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° | 7/8 | 3/4 x 3 1/2 | 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° | 7/8 | 3/4 x 3 1/2 | 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° | 7/8 | 3/4 x 3 1/2 | 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° | 7/8 | 3/4 x 3 1/2 | 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° | 7/8 | 3/4 x 3 1/2 | 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° | 7/8 | 3/4 x 4 | 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° | 7/8 | 3/4 x 4 | 12 |
| 18 | 19.50 | 3.50 | 20.60 | 20.74 | 19.64 | 23.25 | 24.83 | 24.75 | 1.00 | 1.38 | 0.68 | 28° | 7/8 | 3/4 x 4 | 12 |
| 20 | 21.60 | 3.50 | 22.70 | 22.84 | 21.74 | 25.50 | 27.08 | 27.00 | 1.02 | 1.44 | 0.69 | 28° | 7/8 | 3/4 x 4 | 14 |
| 24 | 25.80 | 3.50 | 26.90 | 27.04 | 25.94 | 30.00 | 31.58 | 31.50 | 1.02 | 1.56 | 0.75 | 28° | 7/8 | 3/4 x 4 1/2 | 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 1/8 | 1 x 5 1/2 | 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 1/8 | 1 x 5 1/2 | 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 3/8 | 1 1/4 x 6 | 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 3/8 | 1 1/4 x 6 | 32 |
| 54 | 57.56 | 4.00 | 58.82 | 59.02 | 57.73 | 63.20 | 65.70 | 65.70 | 1.88 | 2.00 | 1.50 | 20° | 1 3/8 | 1 1/4 x 6 1/2 | 36 |
| 60 | 61.61 | 4.00 | 62.87 | 63.07 | 61.78 | 67.72 | 70.22 | 70.22 | 1.88 | 2.00 | 1.55 | 20° | 1 3/8 | 1 1/4 x 6 1/2 | 36 |
| 64 | 65.67 | 4.00 | 66.96 | 67.13 | 65.84 | 71.86 | 74.36 | 74.36 | 1.88 | 2.00 | 1.62 | 20° | 1 3/8 | 1 1/4 x 6 1/2 | 38 |

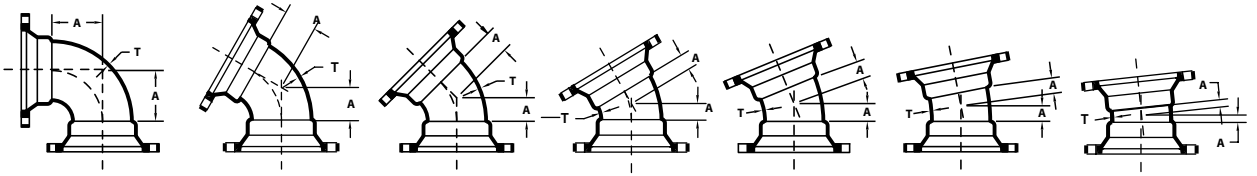
STAR[®] PIPE PRODUCTS



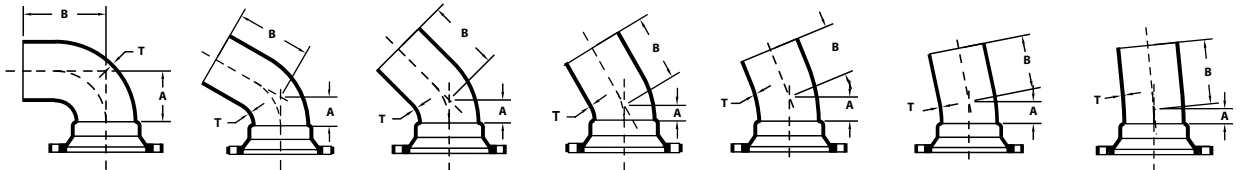


Compact MJ Fittings

ANSI/AWWA C153/A21.53



| MJ x MJ BENDS | | 90° MJ x MJ BENDS (1/4) | | 60° MJ x MJ BENDS (1/6) | | 45° MJ x MJ BENDS (1/8) | | 30° MJ x MJ BENDS (1/12) | | 22 1/2° MJ x MJ BENDS (1/16) | | 11 1/4° MJ x MJ BENDS (1/32) | | 5 5/8° MJ x MJ BENDS (1/64) | |
|---------------|------|-------------------------|-----------|-------------------------|-----------|-------------------------|-----------|--------------------------|-----------|------------------------------|-----------|------------------------------|-----------|-----------------------------|-----------|
| NOM. SIZE | T | A | WT (LBS.) | A | WT (LBS.) | A | WT (LBS.) | 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 | 1.00 | 13 |
| 4 | 0.34 | 4.00 | 27 | 3.00 | 21 | 2.00 | 23 | - | - | 1.50 | 18 | 1.25 | 16 | 1.25 | 16 |
| 6 | 0.36 | 5.00 | 39 | 4.00 | 35 | 3.00 | 32 | - | - | 2.00 | 32 | 1.50 | 30 | 1.50 | 27 |
| 8 | 0.38 | 6.50 | 57 | 4.50 | 50 | 3.50 | 46 | 3.00 | 44 | 2.50 | 46 | 1.75 | 42 | 1.75 | 38 |
| 10 | 0.40 | 7.50 | 89 | - | - | 4.50 | 70 | - | - | 3.00 | 64 | 2.00 | 58 | 2.00 | 56 |
| 12 | 0.42 | 9.00 | 108 | 6.50 | 104 | 5.50 | 98 | 4.00 | 87 | 3.50 | 84 | 2.25 | 74 | 2.25 | 73 |
| 14 | 0.47 | 11.50 | 180 | - | - | 5.00 | 145 | - | - | 3.75 | 140 | 2.50 | 128 | 2.50 | 121 |
| 16 | 0.50 | 12.50 | 264 | 7.50 | 210 | 5.50 | 202 | 4.50 | 177 | 3.75 | 178 | 2.50 | 148 | 2.50 | 150 |
| 18 | 0.54 | 14.00 | 335 | - | - | 6.00 | 250 | - | - | 4.50 | 255 | 3.00 | 205 | 3.00 | 204 |
| 20 | 0.57 | 15.00 | 400 | 10.50 | 365 | 7.00 | 305 | - | - | 4.50 | 262 | 3.00 | 245 | 3.00 | 239 |
| 24 | 0.61 | 17.00 | 565 | 10.50 | 479 | 7.50 | 405 | 6.00 | 385 | 4.50 | 412 | 3.00 | 315 | 3.00 | 317 |
| 30 | 0.66 | 21.50 | 1005 | 13.50 | 843 | 11.50 | 798 | 9.75 | 692 | 6.75 | 665 | 4.75 | 568 | 4.75 | 568 |
| 36 | 0.74 | 24.50 | 1562 | 17.00 | 1350 | 11.50 | 1164 | 11.00 | 1080 | 7.75 | 960 | 5.00 | 840 | 5.00 | 825 |
| 42 | 0.82 | 29.25 | 2506 | 19.00 | 2150 | 14.00 | 1792 | 12.00 | 1465 | 9.00 | 1350 | 6.00 | 1319 | 6.00 | 1125 |
| 48 | 0.90 | 33.25 | 3045 | 21.00 | 2650 | 15.00 | 2390 | 13.25 | 2075 | 10.00 | 1886 | 6.50 | 1700 | 6.50 | 1600 |
| 54 | 1.05 | 37.00 | 4023 | - | - | 20.25 | 3062 | - | - | 10.25 | 2198 | 5.00 | 1711 | - | - |
| 60 | 1.10 | 39.50 | 4714 | 24.00 | 3673 | 21.25 | 3487 | 19.00 | 3307 | 10.75 | 2434 | 7.00 | 2033 | - | - |
| 64 | 1.16 | 42.00 | 5508 | - | - | 22.25 | 4000 | 18.50 | 3620 | 11.00 | 2727 | 7.00 | 2245 | 7.00 | 2247 |



| MJ x PE BENDS | | 90° MJ x PE BENDS (1/4) | | | 60° MJ x PE BENDS (1/6) | | | 45° MJ x PE BENDS (1/8) | | | 30° MJ x PE BENDS (1/12) | | | 22 1/2° MJ x PE BENDS (1/16) | | | 11 1/4° MJ x PE BENDS (1/32) | | | 5 5/8° MJ x PE BENDS (1/64) | | |
|---------------|------|-------------------------|-------|-----------|-------------------------|-------|-----------|-------------------------|-------|-----------|--------------------------|-------|-----------|------------------------------|-------|-----------|------------------------------|-------|-----------|-----------------------------|-------|-----------|
| NOM. SIZE | T | A | B | WT (LBS.) | A | B | WT (LBS.) | A | B | WT (LBS.) | 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 | 13.50 | 22.50 | 846 | 10.50 | 19.50 | 715 | 9.75 | 18.75 | 762 | 6.75 | 15.75 | 600 | 4.75 | 13.75 | 535 | 4.75 | 13.75 | 505 |
| 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 | 42.25 | 2805 | - | - | - | 15.00 | 24.00 | 1905 | - | - | - | 10.00 | 19.00 | 1575 | 6.50 | 15.50 | 1290 | - | - | - |

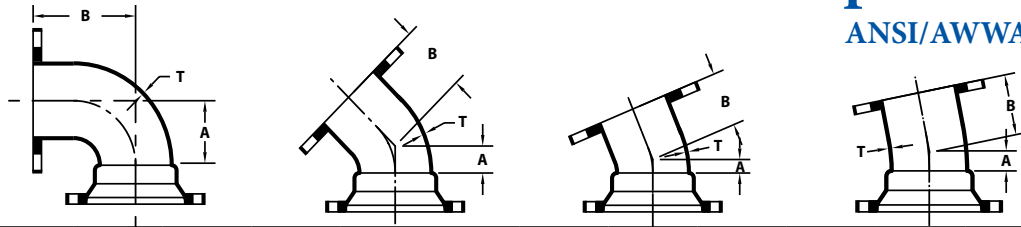
UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR[®] PIPE PRODUCTS

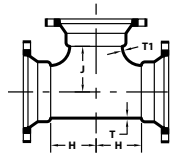
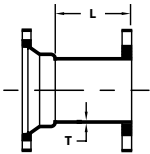


Compact MJ Fittings

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 | 3.75 | 7.50 | 166 | --- | --- | --- |
| 16 | 0.50 | 12.50 | 15.00 | 306 | 5.50 | 8.00 | 239 | 3.75 | 8.00 | 228 | 2.50 | 8.00 | 201 |
| 18 | 0.54 | 14.00 | 16.50 | 357 | 6.00 | 8.50 | 268 | 4.50 | 8.50 | 259 | 3.00 | 8.50 | 247 |
| 20 | 0.57 | 15.00 | 18.00 | 445 | 7.00 | 9.50 | 339 | 4.50 | 9.50 | 321 | 3.00 | 9.50 | 307 |
| 24 | 0.61 | 17.00 | 22.00 | 650 | 7.50 | 11.00 | 474 | 4.50 | 11.00 | 444 | 3.00 | 11.00 | 427 |
| 30 | 0.66 | 21.50 | 25.00 | 1070 | 10.50 | 15.00 | 858 | 6.75 | 15.00 | 764 | 4.75 | 15.00 | 733 |
| 36 | 0.74 | 24.50 | 28.00 | 1554 | 11.50 | 18.00 | 1240 | 7.75 | 18.00 | 1176 | 5.00 | 18.00 | 1118 |
| 42 | 0.82 | 29.25 | 31.00 | 2190 | 14.00 | 21.00 | 1820 | --- | --- | --- | 6.00 | 21.00 | 1627 |
| 48 | 0.90 | 33.25 | 34.00 | 3015 | 15.00 | 24.00 | 2421 | --- | --- | --- | --- | --- | --- |



| 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 | 47 |
| 10 | 0.40 | 4.00 | 66 |
| 12 | 0.42 | 4.00 | 91 |
| 14 | 0.47 | 5.00 | 141 |
| 16 | 0.50 | 5.00 | 170 |
| 18 | 0.54 | 5.00 | 176 |
| 20 | 0.57 | 5.00 | 252 |
| 24 | 0.61 | 5.00 | 320 |
| 30 | 0.66 | 7.00 | 558 |
| 36 | 0.74 | 8.50 | 796 |
| 42 | 0.82 | 12.00 | 1180 |
| 48 | 0.90 | 12.00 | 1499 |
| 54 | 1.05 | 13.00 | 1889 |
| 60 | 1.10 | 13.00 | 2148 |

| MJ x MJ TEES | | | | | |
|--------------|------|------|------|------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 2 x 2 | 0.39 | 0.39 | 3.25 | 3.25 | 20 |
| 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 2 | .034 | 0.30 | 3.00 | 4.00 | 29 |
| 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 | 50 |
| 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)

UCAT:22.01-2

* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



STAR[®] PIPE PRODUCTS



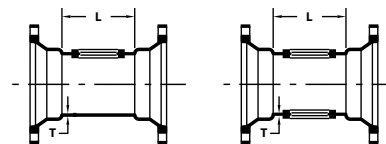
Compact MJ Fittings

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 4 | 0.57 | 0.34 | 5.50 | 14.00 | 295 |
| 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 4 | 0.61 | 0.34 | 6.00 | 16.00 | 398 |
| 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 | 685 |
| 30 x 8 | 0.66 | 0.38 | 8.50 | 20.00 | 739 |
| 30 x 10 | 0.66 | 0.40 | 10.00 | 20.00 | 760 |
| 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 | 878 |
| 30 x 18 | 0.66 | 0.54 | 14.00 | 20.00 | 1039 |
| 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 4 | 0.74 | 0.34 | 7.00 | 23.50 | 924 |
| 36 x 6 | 0.74 | 0.36 | 8.00 | 23.50 | 1045 |

(Con't)➔

| MJ x MJ TEES (Con't) | | | | | |
|----------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 36 x 8 | 0.74 | 0.38 | 9.00 | 23.50 | 1095 |
| 36 x 10 | 0.74 | 0.40 | 9.00 | 23.50 | 1024 |
| 36 x 12 | 0.74 | 0.42 | 10.00 | 23.50 | 1072 |
| 36 x 14 | 0.74 | 0.47 | 11.00 | 23.50 | 1135 |
| 36 x 16 | 0.74 | 0.50 | 12.50 | 23.50 | 1210 |
| 36 x 18 | 0.74 | 0.54 | 13.00 | 23.50 | 1251 |
| 36 x 20 | 0.74 | 0.57 | 15.00 | 23.50 | 1350 |
| 36 x 24 | 0.74 | 0.61 | 16.00 | 23.50 | 1550 |
| 36 x 30 | 0.74 | 0.66 | 20.00 | 23.50 | 1986 |
| 36 x 36 | 0.74 | 0.74 | 23.50 | 23.50 | 2072 |
| 42 x 6 | 0.82 | 0.36 | 9.00 | 27.50 | 1366 |
| 42 x 8 | 0.82 | 0.38 | 9.00 | 27.50 | 1369 |
| 42 x 12 | 0.82 | 0.42 | 14.00 | 27.50 | 1885 |
| 42 x 16 | 0.82 | 0.50 | 13.00 | 27.50 | 1929 |
| 42 x 18 | 0.82 | 0.54 | 16.00 | 27.50 | 2072 |
| 42 x 20 | 0.82 | 0.57 | 18.00 | 27.50 | 1947 |
| 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 | 1949 |
| 48 x 12 | 0.90 | 0.42 | 14.00 | 32.00 | 2535 |
| 48 x 16 | 0.90 | 0.50 | 13.00 | 32.00 | 2657 |
| 48 x 18 | 0.90 | 0.54 | 16.00 | 32.00 | 2293 |
| 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 | 1.05 | 0.57 | 23.00 | 37.00 | 3486 |
| 54 x 24 | 1.05 | 0.61 | 23.00 | 37.00 | 3505 |
| 54 x 30 | 1.05 | 0.66 | 29.30 | 37.00 | 4162 |
| 54 x 36 | 1.05 | 0.77 | 29.30 | 37.00 | 4257 |
| 54 x 42 | 1.05 | 0.88 | 31.00 | 39.00 | 4610 |
| 60 x 30 | 1.10 | 0.66 | 29.50 | 39.00 | 4648 |
| 64 x 64 | 1.16 | 1.16 | 43.30 | 43.30 | 7454 |



| MJ x MJ TAPPED TEES / CROSSES (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 | 42 |
| 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 |
| 24 | 0.61 | 8.00 | 3 | 325 |

Threads in Accordance with ANSI/ASME B1.20.1

STAR[®] PIPE PRODUCTS

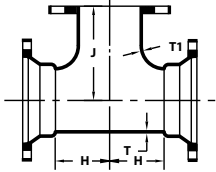
UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS





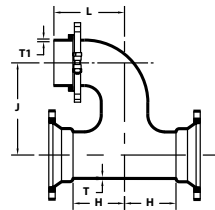
Compact MJ Fittings

ANSI/AWWA C153/A21.53

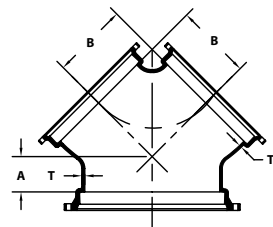


| MJ x FE TEES | | | | | |
|--------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 3 x 3 | 0.33 | 0.33 | 3.00 | 5.50 | 30 |
| 4 x 2 | 0.52 | 0.39 | 4.80 | 4.80 | 53 |
| 4 x 3 | 0.34 | 0.33 | 3.50 | 6.50 | 34 |
| 4 x 4 | 0.34 | 0.34 | 4.00 | 6.50 | 40 |
| 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 | 4.00 | 9.00 | 65 |
| 8 x 6 | 0.38 | 0.36 | 5.00 | 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 | 4.00 | 12.00 | 118 |
| 12 x 6 | 0.42 | 0.36 | 5.00 | 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 8 | 0.47 | 0.38 | 7.50 | 14.00 | 206 |
| 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 4 | 0.57 | 0.34 | 6.50 | 17.00 | 321 |
| 20 x 6 | 0.57 | 0.36 | 6.50 | 17.00 | 360 |
| 20 x 8 | 0.57 | 0.38 | 8.00 | 17.00 | 339 |
| 20 x 10 | 0.57 | 0.40 | 9.00 | 17.00 | 370 |
| 24 x 6 | 0.61 | 0.36 | 7.00 | 19.00 | 432 |
| 24 x 8 | 0.61 | 0.38 | 8.00 | 19.00 | 472 |
| 24 x 12 | 0.61 | 0.42 | 10.00 | 19.00 | 542 |
| 24 x 16 | 0.61 | 0.50 | 12.00 | 19.00 | 622 |
| 24 x 18 | 0.61 | 0.54 | 13.00 | 22.00 | 680 |
| 24 x 24 | 0.61 | 0.61 | 16.00 | 22.00 | 950 |
| 30 x 6 | 0.66 | 0.36 | 8.00 | 23.00 | 692 |
| 30 x 8 | 0.66 | 0.38 | 8.50 | 23.00 | 719 |
| 30 x 10 | 0.66 | 0.40 | 9.50 | 23.00 | 764 |
| 30 x 12 | 0.66 | 0.42 | 10.00 | 23.00 | 796 |

| MJ x FE TEES (Con't) | | | | | |
|----------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 30 x 16 | 0.66 | 0.50 | 12.50 | 23.00 | 909 |
| 30 x 24 | 0.66 | 0.61 | 16.00 | 25.00 | 1290 |
| 30 x 30 | 0.66 | 0.66 | 20.00 | 25.00 | 1355 |
| 36 x 6 | 0.74 | 0.36 | 8.00 | 26.00 | 980 |
| 36 x 14 | 0.74 | 0.47 | 11.10 | 26.00 | 1160 |
| 36 x 16 | 0.74 | 0.50 | 12.50 | 26.00 | 1241 |
| 36 x 20 | 0.74 | 0.57 | 15.00 | 26.00 | 1381 |
| 42 x 6 | 0.82 | 0.36 | 9.00 | 30.00 | 1384 |
| 42 x 24 | 0.82 | 0.61 | 20.00 | 30.00 | 2130 |
| 42 x 42 | 0.82 | 0.82 | 30.00 | 31.00 | 3878 |
| 48 x 20 | 0.90 | 0.57 | 22.00 | 34.00 | 2706 |
| 48 x 30 | 0.90 | 0.66 | 23.00 | 34.00 | 2872 |
| 48 x 48 | 0.90 | 0.90 | 33.50 | 34.00 | 4038 |
| 54 x 30 | 1.05 | 0.66 | 29.30 | 37.00 | 4179 |



| MJ x SWIVEL PARALLEL TEE W/ SWIVEL GLAND | | | | | | |
|--|------|------|-------|-------|-------|-----------|
| 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 | 0.36 | 11.00 | 14.00 | 13.00 | 125 |
| 12 x 6 | 0.42 | 0.36 | 12.00 | 16.00 | 14.00 | 235 |



| MJ x MJ TRUE WYES | | | | | |
|-------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | A | B | WT (LBS.) |
| 20 x 20 x 20 | 0.57 | 0.57 | 7.50 | 15.00 | 550 |
| 24 x 14 x 14 | 0.61 | 0.47 | 9.00 | 11.50 | 395 |
| 30 x 24 x 24 | 0.66 | 0.61 | 8.00 | 17.00 | 815 |
| 30 x 30 x 30 | 0.66 | 0.66 | 10.00 | 21.50 | 1380 |

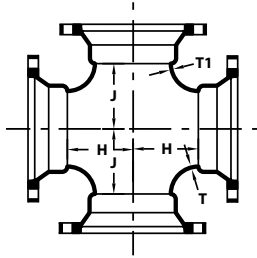
(Con't)➔

STAR[®] PIPE PRODUCTS



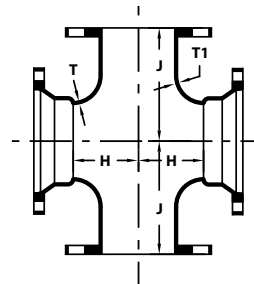
Compact MJ Fittings

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 3 | 0.36 | 0.33 | 3.50 | 5.00 | 48 |
| 6 x 4 | 0.36 | 0.34 | 4.00 | 5.00 | 57 |
| 6 x 6 | 0.36 | 0.36 | 5.00 | 5.00 | 80 |
| 8 x 4 | 0.38 | 0.34 | 4.00 | 6.00 | 68 |
| 8 x 6 | 0.38 | 0.36 | 5.00 | 6.00 | 74 |
| 8 x 8 | 0.38 | 0.38 | 6.00 | 6.00 | 105 |
| 10 x 4 | 0.40 | 0.34 | 4.00 | 7.00 | 112 |
| 10 x 6 | 0.40 | 0.36 | 5.00 | 7.00 | 119 |
| 10 x 8 | 0.40 | 0.38 | 6.50 | 7.00 | 124 |
| 10 x 10 | 0.40 | 0.40 | 7.00 | 7.00 | 145 |
| 12 x 4 | 0.42 | 0.34 | 4.00 | 8.50 | 119 |
| 12 x 6 | 0.42 | 0.36 | 5.00 | 8.50 | 126 |
| 12 x 8 | 0.42 | 0.38 | 6.00 | 8.50 | 149 |
| 12 x 10 | 0.42 | 0.40 | 7.50 | 8.50 | 179 |
| 12 x 12 | 0.42 | 0.42 | 8.50 | 8.50 | 200 |
| 14 x 6 | 0.47 | 0.36 | 6.50 | 10.50 | 200 |
| 14 x 8 | 0.47 | 0.38 | 7.50 | 10.50 | 228 |
| 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 | 240 |
| 16 x 8 | 0.50 | 0.38 | 7.50 | 11.50 | 260 |
| 16 x 10 | 0.50 | 0.40 | 8.50 | 11.50 | 317 |
| 16 x 12 | 0.50 | 0.42 | 9.50 | 11.50 | 320 |
| 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 10 | 0.57 | 0.40 | 9.00 | 14.00 | 395 |
| 20 x 12 | 0.57 | 0.42 | 10.00 | 14.00 | 413 |
| 20 x 16 | 0.57 | 0.50 | 12.00 | 14.00 | 527 |
| 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 10 | 0.61 | 0.40 | 9.00 | 16.00 | 499 |
| 24 x 12 | 0.61 | 0.42 | 10.00 | 16.00 | 529 |
| 24 x 16 | 0.61 | 0.50 | 12.00 | 16.00 | 641 |
| 24 x 18 | 0.61 | 0.54 | 13.00 | 16.00 | 868 |
| 24 x 20 | 0.61 | 0.57 | 14.00 | 16.00 | 757 |
| 24 x 24 | 0.61 | 0.61 | 16.00 | 16.00 | 881 |

| MJ CROSSES (Con't) | | | | | |
|--------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 30 x 12 | 0.66 | 0.42 | 10.00 | 20.00 | 882 |
| 30 x 20 | 0.66 | 0.57 | 15.00 | 20.00 | 1074 |
| 30 x 24 | 0.66 | 0.61 | 16.00 | 20.00 | 1246 |
| 30 x 30 | 0.66 | 0.66 | 22.00 | 22.00 | 1691 |
| 36 x 16 | 0.74 | 0.50 | 12.50 | 23.50 | 1262 |
| 36 x 24 | 0.74 | 0.61 | 16.00 | 23.50 | 1785 |
| 36 x 36 | 0.74 | 0.74 | 26.00 | 26.00 | 2811 |
| 42 x 24 | 0.82 | 0.61 | 20.00 | 27.50 | 2668 |
| 42 x 30 | 0.82 | 0.66 | 22.00 | 29.50 | 2950 |
| 42 x 36 | 0.82 | 0.74 | 30.00 | 30.00 | 3607 |
| 42 x 42 | 0.82 | 0.82 | 30.00 | 30.00 | 3725 |
| 48 x 20 | 0.90 | 0.57 | 20.00 | 32.00 | 2636 |
| 48 x 24 | 0.90 | 0.61 | 23.00 | 32.00 | 2921 |
| 48 x 30 | 0.90 | 0.66 | 23.00 | 32.00 | 4505 |
| 48 x 36 | 0.90 | 0.74 | 33.50 | 32.25 | 4700 |
| 48 x 48 | 0.90 | 0.90 | 33.50 | 33.50 | 5827 |
| 54 x 54 | 1.05 | 1.05 | 35.80 | 35.80 | 5844 |



| MJ x FLANGE CROSS | | | | | |
|-------------------|------|------|------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 6 x 6 | 0.36 | 0.36 | 5.00 | 8.00 | 84 |
| 8 x 6 | 0.38 | 0.36 | 5.00 | 9.00 | 100 |
| 8 x 8 | 0.38 | 0.38 | 6.50 | 9.00 | 130 |
| 10 x 10 | 0.40 | 0.40 | 7.50 | 11.00 | 185 |
| 12 x 6 | 0.42 | 0.36 | 5.00 | 12.00 | 140 |
| 12 x 8 | 0.42 | 0.38 | 6.50 | 12.00 | 175 |
| 12 x 10 | 0.42 | 0.40 | 7.50 | 12.00 | 206 |
| 12 x 12 | 0.42 | 0.42 | 8.75 | 12.00 | 256 |
| 16 x 12 | 0.50 | 0.42 | 9.50 | 15.00 | 371 |

(Con't)➔

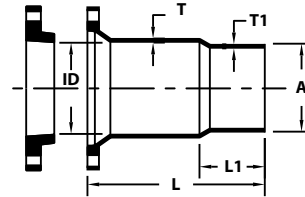
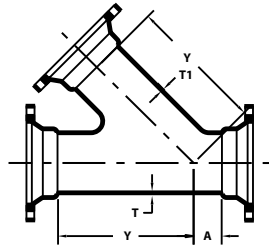
UCAT22.01-2
* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR® PIPE PRODUCTS



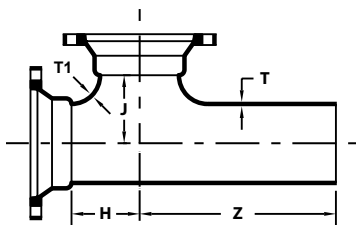
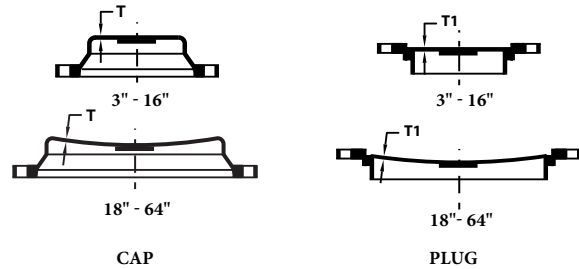
Compact MJ Fittings

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 3 | 0.38 | 0.33 | 0.50 | 13.00 | 74 |
| 8 x 4 | 0.38 | 0.34 | 0.50 | 13.00 | 77 |
| 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 | 150 |
| 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 6 | 0.47 | 0.36 | 0.00 | 19.50 | 245 |
| 14 x 8 | 0.47 | 0.38 | 1.50 | 21.00 | 279 |
| 14 x 10 | 0.47 | 0.40 | 3.00 | 22.50 | 316 |
| 14 x 14 | 0.47 | 0.47 | 6.00 | 25.00 | 474 |
| 16 x 4 | 0.50 | 0.34 | 0.00 | 21.00 | 272 |
| 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 10 | 0.50 | 0.40 | 2.00 | 24.00 | 370 |
| 16 x 12 | 0.50 | 0.42 | 3.50 | 25.00 | 453 |
| 16 x 14 | 0.50 | 0.47 | 5.00 | 26.50 | 500 |
| 16 x 16 | 0.50 | 0.50 | 6.50 | 28.00 | 575 |

| 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 | 70 |
| 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 | 17.94 | 0.54 | 0.50 | 17.40 | 20.00 | 9.00 | 275 |



| MJ x PE x MJ TEES | | | | | | |
|-------------------|------|------|-------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | Z | WT (LBS.) |
| 6 x 4 | 0.36 | 0.34 | 4.00 | 5.00 | 12.00 | 49 |
| 6 x 6 | 0.36 | 0.36 | 5.00 | 5.00 | 12.00 | 57 |
| 8 x 6 | 0.38 | 0.36 | 5.50 | 6.50 | 11.50 | 74 |
| 8 x 8 | 0.38 | 0.38 | 6.50 | 6.50 | 15.00 | 91 |
| 10 x 10 | 0.40 | 0.40 | 7.50 | 7.50 | 13.00 | 115 |
| 12 x 12 | 0.42 | 0.42 | 8.75 | 8.75 | 14.50 | 155 |
| 16 x 16 | 0.50 | 0.50 | 11.50 | 11.50 | 20.63 | 337 |

| MJ CAPS & PLUGS (SOLID OR TAPPED) | | | | | |
|-----------------------------------|------|------|----------|-----------|------|
| NOM. SIZE | T | T1 | MAX. TAP | WT (LBS.) | |
| | | | | PLUGS | CAPS |
| 3 | 0.46 | 0.50 | 2 | 9 | 8 |
| 4 | 0.34 | 0.40 | 2 | 13 | 9 |
| 6 | 0.42 | 0.42 | 2 | 20 | 15 |
| 8 | 0.44 | 0.44 | 2 | 30 | 23 |
| 10 | 0.46 | 0.46 | 2 | 39 | 33 |
| 12 | 0.48 | 0.48 | 2 | 52 | 44 |
| 14 | 0.55 | 0.55 | 2 1/2 | 93 | 64 |
| 16 | 0.56 | 0.56 | 2 1/2 | 116 | 79 |
| 18 | 0.54 | 0.54 | 2 1/2 | 135 | 121 |
| 20 | 0.57 | 0.57 | 2 1/2 | 161 | 140 |
| 24 | 0.61 | 0.65 | 3 | 239 | 199 |
| 30 | 0.70 | 0.66 | 4 | 387 | 361 |
| 36 | 1.03 | 1.00 | 4 | 689 | 635 |
| 42 | 1.13 | 1.13 | 4 | 965 | 896 |
| 48 | 1.43 | 1.25 | 4 | 1291 | 1329 |
| 54 | 2.16 | 2.19 | 6 | 2050 | 2167 |
| 60 | 2.25 | 2.38 | 6 | 2446 | 2571 |
| 64 | 2.38 | 2.56 | 6 | 2850 | 3018 |

Threads in Accordance with ANSI/ASME B1.20.1

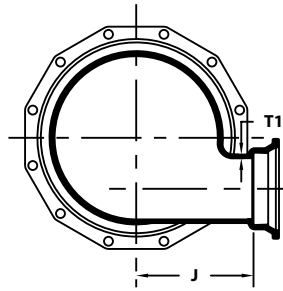
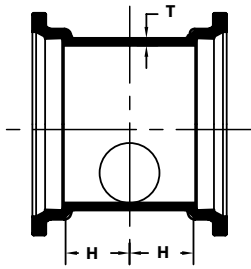
STAR[®] PIPE PRODUCTS



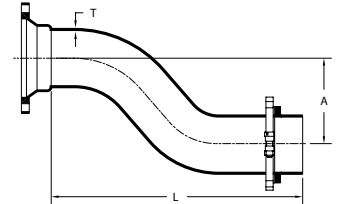
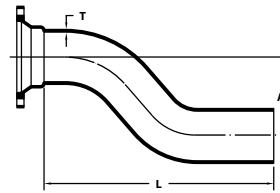
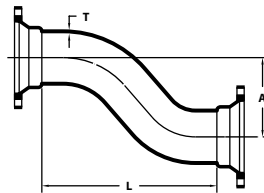


Compact MJ Fittings

ANSI/AWWA C153/A21.53



| 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 |
| 20 x 6 | 0.57 | 0.36 | 6.50 | 14.00 | 321 |
| 24 x 6 | 0.61 | 0.36 | 7.00 | 16.00 | 455 |
| 24 x 8 | 0.61 | 0.38 | 8.00 | 16.00 | 456 |
| 24 x 12 | 0.61 | 0.42 | 10.00 | 16.00 | 540 |
| 36 x 8 | 0.74 | 0.38 | 9.00 | 23.50 | 1027 |
| 48 x 8 | 0.90 | 0.38 | 10.00 | 30.00 | 1820 |
| 48 x 12 | 0.90 | 0.42 | 14.00 | 30.00 | 2116 |



| MJ OFFSETS | | | MJ x MJ | | MJ x PE | | MJ x SWIVEL W/ SWIVEL GLAND | |
|------------|------|-------|---------|-----------|---------|-----------|-----------------------------|-----------|
| NOM. SIZE | T | A | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) |
| 3 x 6 | 0.33 | 6.00 | 9.00 | 22 | --- | --- | --- | --- |
| 3 x 12 | 0.33 | 12.00 | 15.00 | 30 | --- | --- | --- | --- |
| 3 x 18 | 0.33 | 18.00 | 21.00 | 39 | --- | --- | --- | --- |
| 3 x 24 | 0.33 | 24.00 | 27.00 | 47 | --- | --- | --- | --- |
| 4 x 6 | 0.34 | 6.00 | 10.00 | 29 | 15.50 | 29 | --- | --- |
| 4 x 12 | 0.34 | 12.00 | 18.00 | 42 | 23.50 | 43 | --- | --- |
| 4 x 18 | 0.34 | 18.00 | 22.00 | 51 | 27.50 | 52 | --- | --- |
| 4 x 24 | 0.34 | 24.00 | 28.00 | 63 | 33.50 | 64 | --- | --- |
| 6 x 6 | 0.36 | 6.00 | 12.00 | 48 | 17.50 | 49 | 18.00 | 62 |
| 6 x 12 | 0.36 | 12.00 | 18.00 | 65 | 23.50 | 66 | 30.00 | 88 |
| 6 x 18 | 0.36 | 18.00 | 24.00 | 83 | 29.50 | 84 | --- | --- |
| 6 x 24 | 0.36 | 24.00 | 30.00 | 100 | 35.50 | 102 | 41.00 | 121 |
| 8 x 6 | 0.38 | 6.00 | 13.00 | 68 | 18.50 | 69 | --- | --- |
| 8 x 12 | 0.38 | 12.00 | 19.00 | 92 | 24.50 | 94 | --- | --- |
| 8 x 18 | 0.38 | 18.00 | 25.00 | 116 | 30.50 | 119 | --- | --- |
| 8 x 24 | 0.38 | 24.00 | 30.00 | 139 | 35.50 | 142 | --- | --- |
| 10 x 6 | 0.40 | 6.00 | 15.00 | 100 | 20.50 | 99 | --- | --- |
| 10 x 12 | 0.40 | 12.00 | 21.00 | 131 | 26.50 | 131 | --- | --- |
| 10 x 18 | 0.40 | 18.00 | 27.00 | 163 | 32.50 | 164 | --- | --- |
| 10 x 24 | 0.40 | 24.00 | 33.00 | 194 | 38.50 | 196 | --- | --- |
| 12 x 6 | 0.42 | 6.00 | 17.00 | 133 | 22.50 | 132 | --- | --- |
| 12 x 12 | 0.42 | 12.00 | 23.00 | 171 | 28.50 | 171 | --- | --- |
| 12 x 18 | 0.42 | 18.00 | 27.00 | 204 | 32.50 | 205 | --- | --- |
| 12 x 24 | 0.42 | 24.00 | 35.00 | 250 | 40.50 | 252 | --- | --- |
| 16 x 12 | 0.50 | 12.00 | 26.00 | 320 | --- | --- | --- | --- |
| 16 x 18 | 0.50 | 18.00 | 36.00 | 402 | --- | --- | --- | --- |
| 16 x 24 | 0.50 | 24.00 | 36.00 | 433 | --- | --- | --- | --- |
| 20 x 12 | 0.57 | 12.00 | 28.00 | 486 | --- | --- | --- | --- |
| 20 x 18 | 0.57 | 18.00 | 38.00 | 603 | --- | --- | --- | --- |

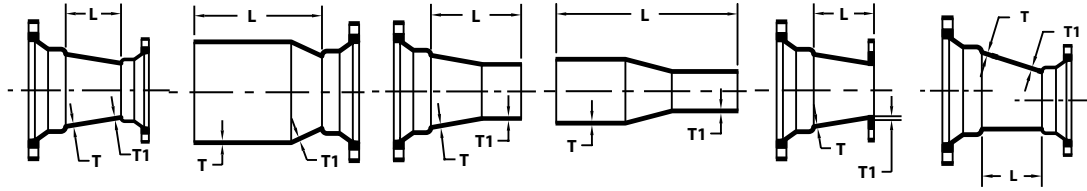
STAR[®] PIPE PRODUCTS

UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



Compact MJ Fittings

ANSI/AWWA C153/A21.53



| 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 | 16 | 8.50 | 17 | 8.50 | 16 | 14.00 | 14 | 5.00 | 19 | 3.00 | 15 |
| 6 x 2 | 0.36 | 0.30 | --- | --- | --- | --- | --- | --- | --- | --- | 7.00 | 23 | --- | --- |
| 6 x 3 | 0.36 | 0.33 | 5.00 | 22 | 10.62 | 24 | 10.50 | 19 | 16.00 | 19 | 6.00 | 25 | --- | --- |
| 6 x 4 | 0.36 | 0.34 | 4.00 | 24 | 9.50 | 23 | 9.50 | 23 | 15.00 | 22 | 5.00 | 30 | 4.00 | 24 |
| 8 x 4 | 0.38 | 0.34 | 5.00 | 32 | 10.50 | 30 | 10.50 | 34 | 16.00 | 30 | 7.00 | 38 | 5.00 | 31 |
| 8 x 6 | 0.38 | 0.36 | 4.00 | 36 | 9.50 | 35 | 9.50 | 32 | 15.00 | 33 | 6.00 | 41 | --- | --- |
| 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 | 7.00 | 54 | 5.00 | 46 |
| 10 x 8 | 0.40 | 0.38 | 4.00 | 50 | 9.50 | 49 | 9.50 | 50 | 15.00 | 47 | 6.00 | 62 | 4.00 | 48 |
| 12 x 4 | 0.42 | 0.34 | 9.00 | 58 | 14.50 | 60 | 14.50 | 57 | 20.00 | 58 | 11.00 | 66 | --- | --- |
| 12 x 6 | 0.42 | 0.36 | 7.00 | 60 | 12.50 | 53 | 12.50 | 57 | 18.00 | 57 | 9.00 | 69 | 7.00 | 60 |
| 12 x 8 | 0.42 | 0.38 | 5.00 | 60 | 10.50 | 61 | 10.50 | 59 | 16.00 | 54 | 7.00 | 82 | 5.00 | 59 |
| 12 x 10 | 0.42 | 0.40 | 4.00 | 64 | 9.50 | 53 | 9.50 | 58 | 15.00 | 54 | 7.00 | 85 | 4.00 | 61 |
| 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 | 20.30 | 91 | --- | --- | --- | --- |
| 14 x 10 | 0.47 | 0.40 | 5.00 | 120 | 12.90 | 96 | 10.40 | 92 | 18.30 | 88 | 8.00 | 112 | --- | --- |
| 14 x 12 | 0.47 | 0.42 | 4.00 | 132 | 11.90 | 90 | 9.40 | 92 | 17.30 | 89 | --- | --- | 4.00 | 94 |
| 16 x 6 | 0.50 | 0.36 | 11.00 | 120 | 21.00 | 125 | 16.50 | 144 | 24.30 | 93 | 13.00 | 128 | --- | --- |
| 16 x 8 | 0.50 | 0.38 | 9.00 | 118 | 18.00 | 124 | 14.50 | 136 | 22.30 | 119 | 11.00 | 133 | 9.00 | 119 |
| 16 x 10 | 0.50 | 0.40 | 7.00 | 118 | 15.00 | 124 | 12.50 | 125 | 20.50 | 119 | 9.00 | 136 | 9.00 | 129 |
| 16 x 12 | 0.50 | 0.42 | 5.00 | 115 | 12.90 | 122 | 10.50 | 116 | 18.30 | 99 | 7.00 | 145 | 5.00 | 115 |
| 16 x 14 | 0.50 | 0.47 | 4.00 | 131 | 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 | 13.00 | 165 |
| 18 x 10 | 0.54 | 0.40 | 10.00 | 196 | 18.00 | 165 | 17.40 | 185 | 25.50 | 160 | 12.00 | 179 | --- | --- |
| 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 | --- | --- | --- | --- | 6.00 | 168 |
| 18 x 16 | 0.54 | 0.50 | 5.00 | 196 | 12.50 | 170 | 12.50 | 192 | --- | --- | --- | --- | 5.00 | 174 |
| 20 x 6 | 0.57 | 0.36 | --- | --- | 24.00 | 182 | --- | --- | --- | --- | 18.00 | 203 | --- | --- |
| 20 x 8 | 0.57 | 0.38 | 16.00 | 227 | 24.00 | 191 | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | 21.50 | 164 | 14.00 | 234 | 8.00 | 183 |
| 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 | --- | --- | 9.00 | 237 | 8.00 | 217 |
| 20 x 18 | 0.57 | 0.54 | 4.00 | 225 | 12.00 | 200 | 12.00 | 215 | --- | --- | --- | --- | 8.00 | 235 |
| 24 x 6 | 0.61 | 0.36 | 22.00 | 279 | --- | --- | --- | --- | --- | --- | 22.00 | 284 | --- | --- |
| 24 x 8 | 0.61 | 0.38 | 20.00 | 263 | --- | --- | --- | --- | 22.50 | 201 | --- | --- | 20.00 | 287 |
| 24 x 10 | 0.61 | 0.40 | 18.00 | 286 | 21.50 | 235 | --- | --- | --- | --- | 20.00 | 306 | 18.00 | 287 |
| 24 x 12 | 0.61 | 0.42 | 16.00 | 263 | 21.50 | 275 | 21.00 | 290 | 22.50 | 213 | 18.00 | 318 | 16.00 | 285 |
| 24 x 14 | 0.61 | 0.47 | 14.00 | 310 | 22.00 | 310 | 21.90 | 315 | 25.00 | 238 | 16.00 | 323 | 14.00 | 298 |
| 24 x 16 | 0.61 | 0.50 | 13.00 | 279 | 21.00 | 285 | 17.50 | 285 | 23.10 | 323 | --- | --- | 12.00 | 299 |
| 24 x 18 | 0.61 | 0.54 | 10.00 | 284 | 18.00 | 300 | 18.00 | 310 | 21.00 | 228 | --- | --- | --- | --- |
| 24 x 20 | 0.61 | 0.57 | 7.00 | 328 | 15.00 | 276 | 13.50 | 275 | 24.00 | 271 | --- | --- | 7.00 | 370 |
| 30 x 12 | 0.66 | 0.42 | 30.00 | 530 | --- | --- | 39.00 | 565 | --- | --- | --- | --- | --- | --- |
| 30 x 14 | 0.66 | 0.47 | 30.00 | 585 | --- | --- | 39.00 | 598 | --- | --- | --- | --- | 30.00 | 583 |
| 30 x 16 | 0.66 | 0.50 | 30.00 | 633 | 39.00 | 565 | 39.00 | 623 | 48.00 | 690 | --- | --- | 30.00 | 613 |
| 30 x 18 | 0.66 | 0.54 | 28.00 | 658 | 37.00 | 654 | 37.00 | 635 | --- | --- | --- | --- | 28.00 | 800 |
| 30 x 20 | 0.66 | 0.57 | 24.00 | 628 | 33.00 | 590 | 33.00 | 603 | --- | --- | --- | --- | 24.00 | 630 |
| 30 x 24 | 0.66 | 0.61 | 10.00 | 478 | 24.50 | 536 | 24.50 | 526 | --- | --- | --- | --- | 10.00 | 570 |
| 36 x 4 | 0.74 | 0.34 | 36.00 | 712 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |

STAR[®] PIPE PRODUCTS

(Con't) → UCAT:22.01-2

* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



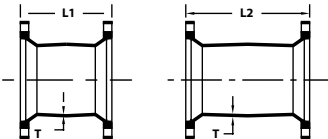


Compact MJ Fittings

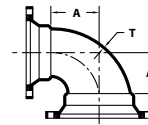
ANSI/AWWA C153/A21.53

STAR® PIPE PRODUCTS

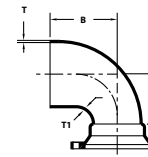
| REDUCERS (Con't) | | | MJ x MJ | | SEB | | LEB | | PE x PE | | MJ x FE | | ★ ECCENTRIC | |
|------------------|------|------|---------|-----------|-------|-----------|-------|-----------|---------|-----------|---------|-----------|-------------|-----------|
| NOM. SIZE | T | TI | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) |
| 36 x 6 | 0.74 | 0.36 | 36.00 | 731 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 36 x 8 | 0.74 | 0.38 | 36.00 | 750 | --- | --- | --- | --- | --- | --- | --- | --- | 36.00 | 7.52 |
| 36 x 10 | 0.74 | 0.40 | 36.00 | 775 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 36 x 12 | 0.74 | 0.42 | 36.00 | 1058 | --- | --- | --- | --- | --- | --- | --- | --- | 36.00 | 797 |
| 36 x 16 | 0.74 | 0.50 | 40.00 | 1016 | 27.00 | 595 | 45.00 | 901 | --- | --- | --- | --- | --- | --- |
| 36 x 18 | 0.74 | 0.54 | 38.00 | 983 | 37.00 | 800 | --- | --- | --- | --- | --- | --- | 38.00 | 963 |
| 36 x 20 | 0.74 | 0.57 | 36.00 | 1165 | 45.00 | 850 | 45.00 | 950 | 54.00 | 876 | --- | --- | --- | --- |
| 36 x 24 | 0.74 | 0.61 | 19.00 | 822 | 33.12 | 746 | 33.00 | 810 | 42.00 | 747 | 21.00 | 807 | 19.00 | 765 |
| 36 x 30 | 0.74 | 0.66 | 15.50 | 811 | 24.62 | 788 | 24.50 | 758 | 33.50 | 667 | 17.50 | 846 | 15.50 | 811 |
| 42 x 24 | 0.82 | 0.61 | 40.00 | 1356 | 49.00 | 1204 | 49.00 | 1320 | 58.00 | 1210 | 42.00 | 1410 | 40.00 | 1782 |
| 42 x 30 | 0.82 | 0.66 | 20.00 | 1083 | 29.12 | 1150 | 29.00 | 1015 | 38.00 | 889 | --- | --- | 20.00 | 1435 |
| 42 x 36 | 0.82 | 0.74 | 15.50 | 1114 | 24.62 | 962 | 24.50 | 1013 | 33.50 | 875 | --- | --- | 15.50 | 1114 |
| 48 x 20 | 0.90 | 0.57 | 40.00 | 1580 | 49.00 | 1320 | --- | --- | --- | --- | --- | --- | --- | --- |
| 48 x 24 | 0.90 | 0.61 | 40.00 | 1761 | --- | --- | --- | --- | --- | --- | --- | --- | 40.00 | 1800 |
| 48 x 30 | 0.90 | 0.66 | 40.00 | 1779 | 49.00 | 1594 | 49.00 | 1711 | 58.00 | 1554 | --- | --- | 40.00 | 1960 |
| 48 x 36 | 0.90 | 0.74 | 28.00 | 1641 | 37.00 | 1456 | 37.00 | 1540 | 46.00 | 1375 | --- | --- | 28.00 | 1668 |
| 48 x 42 | 0.90 | 0.82 | 15.50 | 1426 | 24.50 | 1241 | 24.50 | 1275 | 33.50 | 1112 | --- | --- | 15.50 | 1470 |
| 54 x 36 | 1.05 | 0.74 | 27.50 | 1916 | 37.25 | 1754 | --- | --- | --- | --- | --- | --- | --- | --- |
| 54 x 42 | 1.05 | 0.82 | 19.25 | 1817 | 29.25 | 1669 | --- | --- | --- | --- | --- | --- | --- | --- |
| 60 x 48 | 1.10 | 0.90 | 18.00 | 2038 | 29.50 | 1974 | --- | --- | --- | --- | --- | --- | --- | --- |



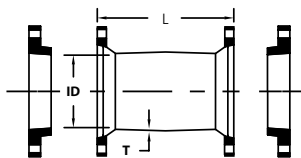
| MJ SLEEVES | | | | | |
|------------|------|---------------|-----------|--------------|-----------|
| NOM. SIZE | T | SHORT SLEEVES | | LONG SLEEVES | |
| | | L1 | WT (LBS.) | L2 | WT (LBS.) |
| 2 | 0.30 | 7.50 | 10 | 12.00 | 11 |
| 3 | 0.33 | 7.50 | 12 | 12.00 | 17 |
| 4 | 0.34 | 7.50 | 15 | 12.00 | 22 |
| 6 | 0.36 | 7.50 | 23 | 12.00 | 33 |
| 8 | 0.38 | 7.50 | 31 | 12.00 | 45 |
| 10 | 0.40 | 7.50 | 45 | 12.00 | 63 |
| 12 | 0.42 | 7.50 | 57 | 12.00 | 79 |
| 14 | 0.47 | 9.50 | 94 | 15.00 | 128 |
| 16 | 0.50 | 9.50 | 118 | 15.00 | 159 |
| 18 | 0.54 | 9.00 | 145 | 15.00 | 200 |
| 20 | 0.57 | 9.00 | 173 | 15.00 | 236 |
| 24 | 0.61 | 9.00 | 226 | 15.00 | 306 |
| 30 | 0.66 | 15.00 | 472 | 24.00 | 634 |
| 36 | 0.74 | 15.00 | 673 | 24.00 | 889 |
| 42 | 0.82 | 15.00 | 887 | 24.00 | 1114 |
| 48 | 0.90 | 15.00 | 1059 | 24.00 | 1406 |
| 54 | 1.05 | 21.00 | 1534 | 24.00 | 1687 |
| 60 | 1.10 | 21.00 | 1758 | 24.00 | 1930 |
| 64 | 1.16 | 21.00 | 1974 | 24.00 | 2167 |



| MJ x MJ RED 90° | | | | |
|-----------------|------|------|-------|-----------|
| Nom. SIZE | T | TI | A | WT (LBS.) |
| 20 x 16 | 0.57 | 0.50 | 15.00 | 348 |
| 48 x 36 | 0.90 | 0.74 | 33.25 | 2500 |



| PE x MJ RED 90° | | | | | |
|-----------------|------|------|-------|-------|-----------|
| Nom. SIZE | T | TI | A | B | WT (LBS.) |
| 48 x 36 | 0.90 | 0.74 | 33.25 | 42.25 | 2643 |



| 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 |

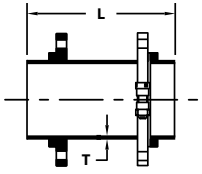
UCAT22.01-2
* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



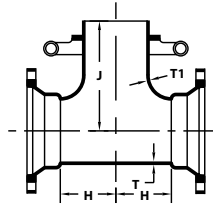


Compact MJ Fittings

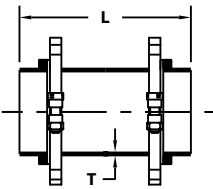
ANSI/AWWA C153/A21.53



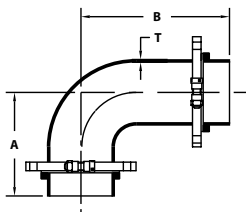
| SWIVEL x SOLID HYDRANT ADAPTERS W/ SWIVEL GLAND | | | |
|---|------|-------|-----------|
| NOM. SIZE | T | L | WT (LBS.) |
| 4 x 13 | 0.34 | 13.00 | 32 |
| 6 x 13 | 0.36 | 11.50 | 47 |
| 6 x 18 | 0.36 | 18.00 | 60 |
| 6 x 24 | 0.36 | 24.00 | 71 |
| 6 x 36 | 0.36 | 36.00 | 94 |
| 6 x 48 | 0.36 | 48.00 | 122 |
| 8 x 13 | 0.38 | 13.00 | 54 |
| 8 x 18 | 0.38 | 18.00 | 80 |
| 8 x 24 | 0.38 | 24.00 | 97 |
| 8 x 48 | 0.38 | 48.00 | 161 |
| 12 x 13 | 0.42 | 13.00 | 113 |



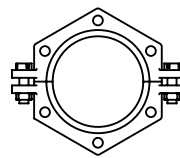
| MJ x SWIVEL HYDRANT TEES W/ SWIVEL GLAND | | | | | |
|--|------|------|------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 6 x 4 | 0.36 | 0.34 | 4.00 | 10.00 | 54 |
| 6 x 6 | 0.36 | 0.36 | 5.00 | 10.25 | 65 |
| 8 x 4 | 0.38 | 0.34 | 4.00 | 11.00 | 69 |
| 8 x 6 | 0.38 | 0.36 | 5.00 | 11.25 | 85 |
| 8 x 8 | 0.38 | 0.38 | 6.50 | 11.50 | 100 |
| 10 x 4 | 0.40 | 0.34 | 4.00 | 12.50 | 86 |
| 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 4 | 0.42 | 0.34 | 4.00 | 13.50 | 104 |
| 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 4 | 0.50 | 0.34 | 5.50 | 16.00 | 207 |
| 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 |
| 20 x 8 | 0.57 | 0.38 | 8.00 | 18.50 | 362 |
| 24 x 6 | 0.61 | 0.36 | 7.00 | 19.00 | 430 |
| 24 x 8 | 0.61 | 0.38 | 8.00 | 19.00 | 459 |
| 36 x 6 | 0.74 | 0.36 | 8.00 | 22.50 | 980 |
| 42 X 6 | 0.82 | 0.36 | 9.00 | 30.00 | 1371 |



| SWIVEL x SWIVEL HYDRANT ADAPTERS W/ 2 SWIVEL GLANDS | | | |
|---|------|-------|-----------|
| NOM. SIZE | T | L | WT (LBS.) |
| 6 x 12 | 0.36 | 12.00 | 50 |
| 6 x 18 | 0.36 | 18.00 | 62 |
| 6 x 24 | 0.36 | 24.00 | 74 |



| SWIVEL x SWIVEL HYDRANT ELL W/ 2 SWIVEL GLANDS | | | | |
|--|------|-------|-------|-----------|
| NOM. SIZE | T | A | B | WT (LBS.) |
| 6 | 0.36 | 10.50 | 16.00 | 71 |



| SWIVEL GLANDS | | |
|---------------|-----------|-------------------|
| NOM. SIZE | WT (LBS.) | T-HEAD BOLTS |
| 4 | 8 | (2) 3/4" x 3 1/2" |
| 6 | 11 | (2) 3/4" x 3 1/2" |
| 8 | 13 | (2) 3/4" x 3 1/2" |
| 12 | 25 | (2) 3/4" x 4" |

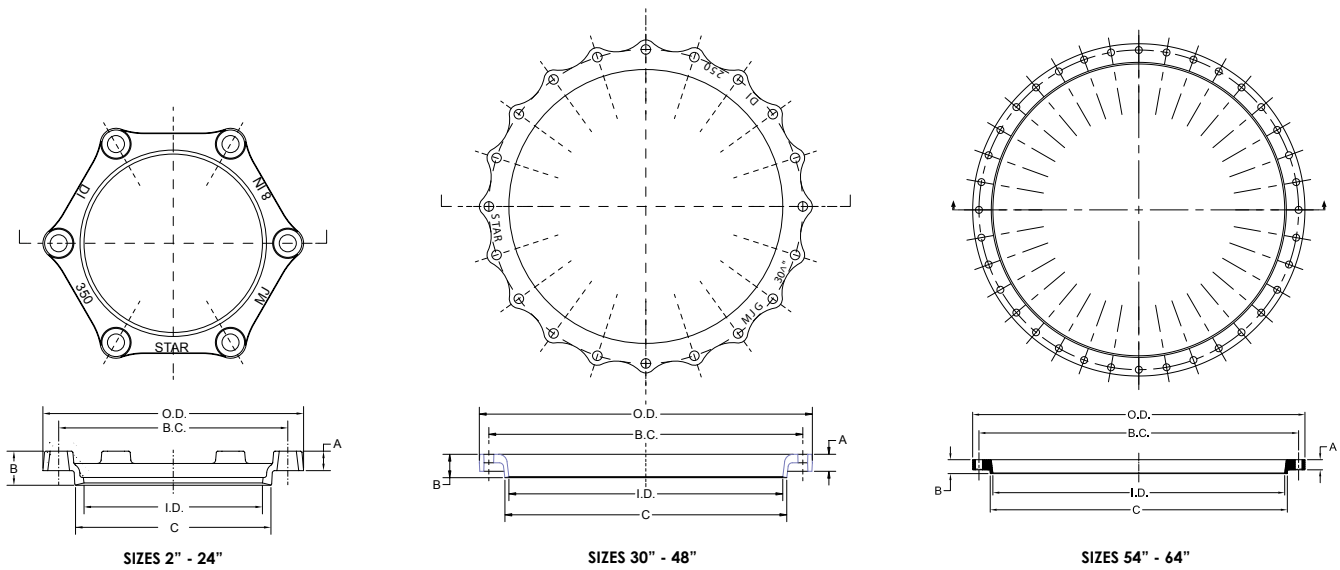
STAR® PIPE PRODUCTS



GLANDS, GASKETS, BOLTS & NUTS

GENERAL SPECIFICATION

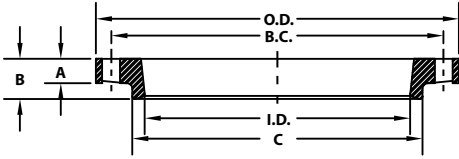
- MATERIAL:** Ductile Iron per ASTM A536
- PRESSURE:** 350 PSI rating for 2" - 24" sizes, 250 PSI rating for 30" - 48" sizes and 150 PSI rating for 54" - 64" sizes
- TESTING:** In accordance with ANSI/AWWA C111/A21.11, UL and FM requirements
- DIMENSIONS:** Are in accordance with ANSI/AWWA C111/A21.11, UL and FM requirements and are in inches unless noted otherwise
- WEIGHTS:** Are in pounds, unless noted otherwise and do not include accessories
- COATING:** Asphaltic seal coat is in accordance with ANSI/AWWA C104/A21.4 unless otherwise specified.
- APPROVALS:** Compact Glands 3" - 12" Underwrites Laboratories & ULC Listed. Factory Mutual approved 3"-16".



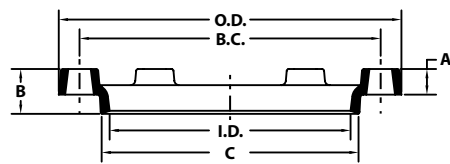
| MJ COMPACT GLANDS | | | | | | | | | |
|-------------------|-------|------|------|-------|-------|-------|-----------|----------|-----------|
| NOM. SIZE | O.D. | A | B | C | I.D. | B.C. | BOLT HOLE | BOLT QTY | WT (LBS.) |
| 2 | 6.12 | 0.62 | 1.18 | 3.40 | 2.61 | 4.75 | Ø0.75 | 2 | 1 |
| 3 | 7.69 | 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 | 4 |
| 8 | 13.37 | 1.00 | 1.75 | 10.17 | 9.15 | 11.75 | Ø0.88 | 6 | 5 |
| 10 | 15.62 | 1.00 | 1.75 | 12.22 | 11.20 | 14.00 | Ø0.88 | 8 | 7 |
| 12 | 17.88 | 1.00 | 1.75 | 14.32 | 13.30 | 16.25 | Ø0.88 | 8 | 8 |
| 14 | 20.25 | 1.25 | 2.00 | 16.40 | 15.44 | 18.75 | Ø0.88 | 10 | 11 |
| 16 | 22.50 | 1.31 | 2.06 | 18.50 | 17.54 | 21.00 | Ø0.88 | 12 | 14 |
| 18 | 24.75 | 1.38 | 2.13 | 20.60 | 19.64 | 23.25 | Ø0.88 | 12 | 19 |
| 20 | 27.00 | 1.44 | 2.19 | 22.70 | 21.74 | 25.50 | Ø0.88 | 14 | 27 |
| 24 | 31.50 | 1.56 | 2.31 | 26.90 | 25.94 | 30.00 | Ø0.88 | 16 | 36 |
| 30 | 39.12 | 2.00 | 2.75 | 33.29 | 32.17 | 36.88 | Ø1.13 | 20 | 90 |
| 36 | 46.00 | 2.00 | 2.75 | 39.59 | 38.47 | 43.75 | Ø1.13 | 24 | 118 |
| 42 | 53.12 | 2.00 | 2.75 | 45.79 | 44.67 | 50.62 | Ø1.38 | 28 | 151 |
| 48 | 60.00 | 2.00 | 2.75 | 52.09 | 50.97 | 57.50 | Ø1.38 | 32 | 187 |
| 54 | 65.70 | 2.00 | 2.75 | 58.82 | 57.73 | 63.20 | Ø1.38 | 36 | 362 |
| 60 | 70.22 | 2.00 | 2.75 | 62.87 | 61.78 | 67.72 | Ø1.38 | 36 | 413 |
| 64 | 74.36 | 2.00 | 2.75 | 66.96 | 65.84 | 71.86 | Ø1.38 | 38 | 444 |

UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR[®] PIPE PRODUCTS



| MJ FULLBODY GLANDS | | | | | | | | | |
|--------------------|-------|------|------|-------|-------|-------|-----------|----------|-----------|
| NOM. SIZE | O.D. | A | B | C | I.D. | B.C. | BOLT HOLE | BOLT QTY | WT (LBS.) |
| 2 | 6.12 | 0.62 | 1.18 | 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 | 5 |
| 4 | 9.12 | 0.75 | 1.50 | 5.92 | 4.90 | 7.50 | Ø0.88 | 4 | 6 |
| 6 | 11.12 | 0.88 | 1.63 | 8.02 | 7.00 | 9.50 | Ø0.88 | 6 | 10 |
| 8 | 13.37 | 1.00 | 1.75 | 10.17 | 9.15 | 11.75 | Ø0.88 | 6 | 14 |
| 10 | 15.62 | 1.00 | 1.75 | 12.22 | 11.20 | 14.00 | Ø0.88 | 8 | 20 |
| 12 | 17.88 | 1.00 | 1.75 | 14.32 | 13.30 | 16.25 | Ø0.88 | 8 | 24 |
| 14 | 20.25 | 1.25 | 2.00 | 16.40 | 15.44 | 18.75 | Ø0.88 | 10 | 45 |
| 16 | 22.50 | 1.31 | 2.06 | 18.50 | 17.54 | 21.00 | Ø0.88 | 12 | 55 |
| 18 | 24.75 | 1.38 | 2.13 | 20.60 | 19.64 | 23.25 | Ø0.88 | 12 | 55 |
| 20 | 27.00 | 1.44 | 2.19 | 22.70 | 21.74 | 25.50 | Ø0.88 | 14 | 66 |
| 24 | 31.50 | 1.56 | 2.31 | 26.90 | 25.94 | 30.00 | Ø0.88 | 16 | 90 |
| 30 | 39.12 | 2.00 | 2.75 | 33.29 | 32.17 | 36.88 | Ø1.13 | 20 | 220 |
| 36 | 46.00 | 2.00 | 2.75 | 39.59 | 38.47 | 43.75 | Ø1.13 | 24 | 286 |
| 42 | 53.12 | 2.00 | 2.75 | 45.79 | 44.67 | 50.62 | Ø1.38 | 28 | 288 |
| 48 | 60.00 | 2.00 | 2.75 | 52.09 | 50.97 | 57.50 | Ø1.38 | 32 | 400 |



| 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 | 17.94 | 21.00 | Ø0.88 | 12 | 14 |

STAR[®] PIPE PRODUCTS



Standard Mechanical Joint Gaskets

(SBR, NBR, EPDM, Neoprene, FKM)

ANSI/AWWA C111/A21.11

GASKET GENERAL SPECIFICATIONS

Star Pipe Products Mechanical Joint (MJ) Gasket dimensions conform to the drawings set forth in ANSI/AWWA C111/A21.11. Gasket markings include size, Manufacturer's mark, Country of origin and product identification. No markings are positioned on sealing surfaces per the ANSI/AWWA C111/A21.11 standard. MJ transition gaskets follow the requirements of ANSI/AWWA C111/A21.11 where applicable.

Standard gasket material is vulcanized styrene butadiene rubber (SBR). Special application elastomers (EPDM, Nitrile, Neoprene & FKM) are available and shall be identified on all documentation and corresponding gaskets. All SBR, EPDM, Nitrile and Fluoroelastomer MJ/transition gaskets supplied by Star Pipe Products are certified to NSF/ANSI 61.

Star Pipe gaskets are manufactured under quality control standards and procedures that are maintained by the gasket supplier. Appropriate documentation is maintained by the manufacturer and available for review upon request.

Star Pipe gasket suppliers maintain a quality assurance program and manual that is reviewed and updated on an ongoing basis to ensure product quality. Star Pipe gasket suppliers perform in house testing and submit to random testing by Underwriters Laboratories, Inc. Star Pipe gasket providers are recognized under the component program (UL 194/ UL 157) of Underwriters Laboratories, Inc.

Star Pipe provides that our Mechanical Joint gaskets for potable or wastewater projects will perform as designed, based on the published chemical and environmental resistance data for "generic" rubber compounds. Star Pipe should be consulted for specific recommendations or for unusual applications.

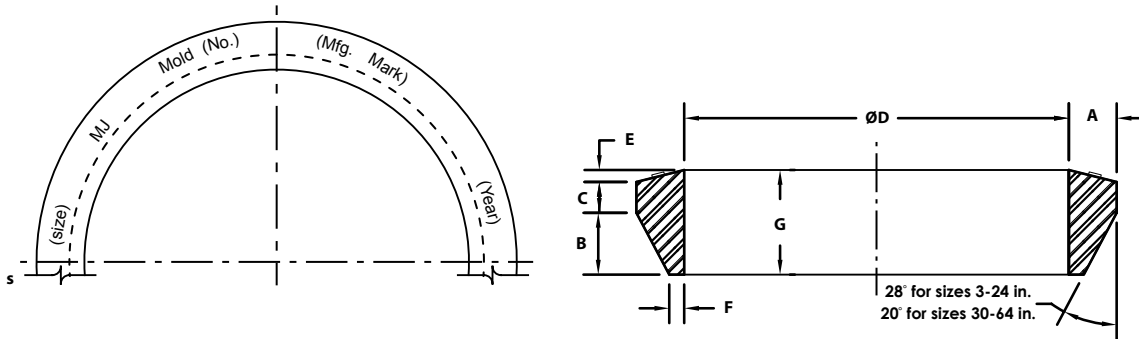
| GASKET PROPERTIES | | |
|--------------------------------------|------------------|----------------|
| PROPERTY | ASTM TEST METHOD | REQUIRED VALUE |
| Hardness, Shore "A" | D2240 | 75 ± 5 |
| Minimum Tensile | D412 | 1500 psi |
| Minimum Elongation | D412 | 150% |
| Minimum Aging | D573 | 60% |
| Maximum Compression Set | D395, Method B | 20% |
| Resistance to Surface Ozone Cracking | D1149 | No Cracking |

| GASKET TYPE | MAXIMUM CONTINUOUS TEMP | MAXIMUM EXPOSURE TEMP | STANDARD USAGE |
|--|-------------------------|-----------------------|--|
| SBR (Styrene Butadiene Rubber/ Buna-S) | 160 F | 180 F | Drinking water, Salt Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. Not Recommended for Hydrocarbon Service |
| EPDM (Ethylene Propylene) | 250 F | 300 F | Alcohols, Dilute Acids, Dilute Alkalis, Ketones (MEK/Acetone), Strong Oxidizing Chemicals; Drinking Water, Salt Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. Not Recommended for Hydrocarbon Service |
| Neoprene (Polychlorprene / CR) | 225 F | 300 F | Hydrocarbons, Unrefined Petroleum Products, Greasy Waste; Salt Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. |
| Nitrile (NBR / Buna-N) | 160 F | 180 F | Refined Oils and Fluids, Fats, Greases and Waste; Drinking Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. |
| FKM (Fluoroelastomer / Viton [®]) | 400 F | 500 F | Aromatic Hydrocarbons, Chlorinated Hydrocarbons, Vegetable Oils, Most Chemicals; Drinking Water, Reclaimed Water, Raw Water, Storm Water. |

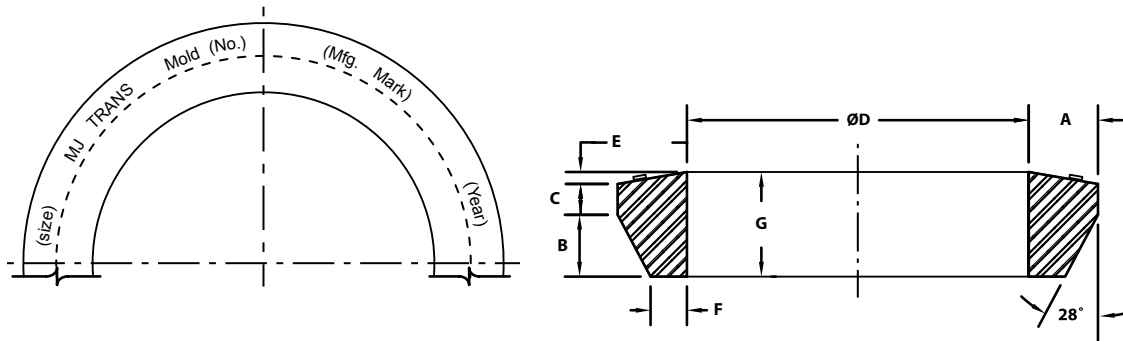
Viton[®] is a registered trademark of E.I. Du Pont De Nemours & Company.

UCAT:22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR[®] PIPE PRODUCTS



| 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 | 57.56 | 0.73 | 1.00 | 0.38 | 56.65 | 0.16 | 0.37 | 1.54 |
| 60 | 61.61 | 0.73 | 1.00 | 0.38 | 60.67 | 0.16 | 0.37 | 1.54 |
| 64 | 65.67 | 0.73 | 1.00 | 0.38 | 64.70 | 0.16 | 0.37 | 1.54 |



| 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 |

STAR[®] PIPE PRODUCTS



T-Bolts, Double Ended Rods & Nuts

H S L A S T E E L

SPECIFICATIONS:

- Bolts & Nuts are manufactured in accordance with ANSI / AWWA C111 / A21.11.
- Material is High Strength Low Alloy Steel per ANSI/AWWA C111/A21.11.
- Threads per ASME B1.1 unified standard coarse (Class 2A & 2B)

MECHANICAL PROPERTIES

- Yield Strength 45000 PSI (min)
- Elongation in 2in. 20% (min)

CHEMICAL PROPERTIES

| | |
|-----------|------------------------|
| Carbon | 0.20% Max |
| Manganese | 1.25% Max |
| Sulfur | 0.05% Max |
| Nickel | 0.25% Min |
| Copper | 0.20% Min |
| Combined | 1.25% Min (Ni, Cu, Cr) |

BLUE BOLT/NUT/ROD

T-Bolts, Rods & Nuts have fluoropolymer coating material which is VOC-compliant, resin-bonded, thermally cured and dry lubricant.

COATING PHYSICAL PROPERTIES

| | |
|----------------------------|--|
| Film Thickness: | 0.3 to 0.4 mil per coat |
| Number of Coats: | 3 to 4 coats |
| Adhesion: | 1 mm cross hatch test + 5 Pulls. Good knife resistance |
| Cure Test: | 50+Rubs with MEK. No substrate exposure |
| Pencil Hardness: | Pencil Hardness: 4-6H |
| Volatile Organic Compounds | 2.74lbs/gal |

Stainless Steel T-Bolts & Nuts

ALLOYS SS 304 & SS 316 PER ASTM F593

SPECIFICATIONS:

- T-bolt dimensions are manufactured in accordance with ANSI / AWWA C111 / A21.11.
- T-bolt alloys SS 304 and SS 316 per ASTM F593
- Heavy Hex Nut Alloys SS 304 & SS 316 per ASTM F594.

MECHANICAL PROPERTIES

- Tensile Strength: 85,000 PSI to 140,000 PSI
- Yield Strength: 45,000 PSI (min)

COATING SPECIFICATION

Nuts have fluoropolymer coating material which is VOC-Compliant, resin-bonded, thermally cured and dry lubricant.

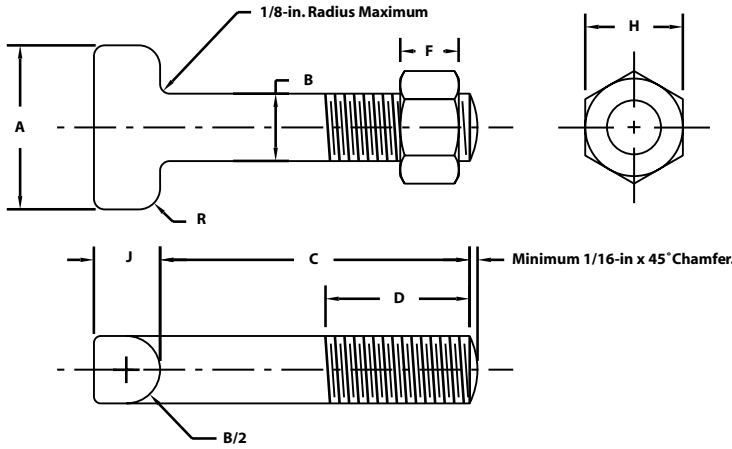
COATING PHYSICAL PROPERTIES

- | | |
|---|---|
| • Film Thickness: 0.3 to 0.4 mil per coat | • Pencil Hardness: 4-6H |
| • Number of Coats: 3 to 4 coats | • Volatile Organic Compounds 2.74 lbs/gal |
| • Adhesion: 1mm cross hatch test + 5 Tape Pulls. | • Continuous use temperature - 356°F |
| • Cure Test: 50+ Rubs with MEK, no substrate exposure | • Color: SS 304 is green, SS 316 is red |

STAR® PIPE PRODUCTS

UCAT22.01-2
* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



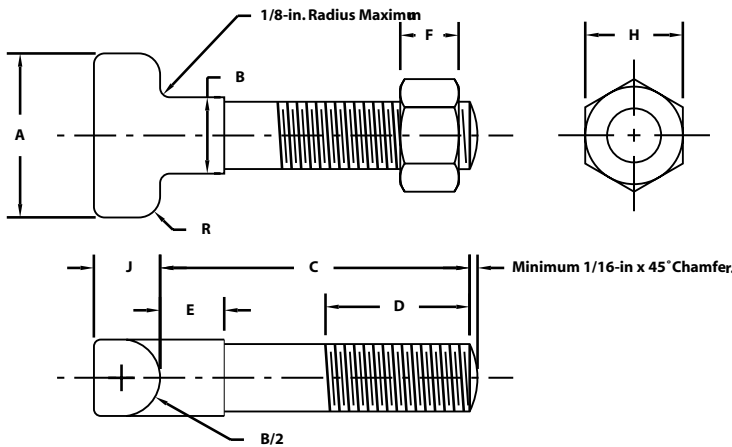


| MECHANICAL JOINT BOLT TORQUE | | |
|------------------------------|----------------|---------------------------------------|
| PIPE SIZE (IN) | BOLT SIZE (IN) | RANGE ¹ OF TORQUE (FT-LBS) |
| 2-3 | 5/8 | 45-60 |
| 4-24 | 3/4 | 75-90 |
| 30-36 | 1 | 100-120 |
| 42-48 | 1 1/4 | 120-150 |

¹These torque ranges are requirements of AWWA C600

T-HEAD (LOW ALLOY STEEL) BOLT & NUT

| NOM. SIZE | A | B | C | D | THREADS PER IN. | F | H | J | R |
|---------------|------|-------|------|------|-----------------|-------|-------|-------|-------|
| 5/8 x 3 | 1.50 | 0.625 | 3.00 | 2.00 | 11 | 0.625 | 1.062 | 0.625 | 0.312 |
| 5/8 x 3 1/2 | 1.50 | 0.625 | 3.50 | 2.70 | 11 | 0.625 | 1.062 | 0.625 | 0.312 |
| 3/4 x 3 1/2 | 1.75 | 0.750 | 3.50 | 2.50 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 3/4 x 4 | 1.75 | 0.750 | 4.00 | 3.00 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 3/4 x 4 1/2 | 1.75 | 0.750 | 4.50 | 3.00 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 3/4 x 5 | 1.75 | 0.750 | 5.00 | 3.00 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 3/4 x 5 1/2 | 1.75 | 0.750 | 5.50 | 3.70 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 1 x 5 1/2 | 2.25 | 1.000 | 5.50 | 3.00 | 8 | 1.000 | 1.625 | 1.000 | 0.500 |
| 1 x 6 | 2.25 | 1.000 | 6.00 | 3.00 | 8 | 1.000 | 1.625 | 1.000 | 0.500 |
| 1 1/4 x 6 | 2.50 | 1.250 | 6.00 | 3.00 | 7 | 1.250 | 2.000 | 1.250 | 0.625 |
| 1 1/4 x 6 1/2 | 2.50 | 1.250 | 6.50 | 3.50 | 7 | 1.250 | 2.000 | 1.250 | 0.625 |
| 1 1/4 x 8 1/2 | 2.50 | 1.250 | 8.50 | 3.50 | 7 | 1.250 | 2.000 | 1.250 | 0.625 |



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

| NOM. SIZE | A | B | C | D | E | THREADS PER IN. | F | H | J | R |
|-------------|------|-------|------|------|------|-----------------|-------|-------|-------|-------|
| 5/8 x 3 | 1.50 | 0.625 | 3.00 | 2.00 | 0.63 | 11 | 0.625 | 1.062 | 0.625 | 0.312 |
| 5/8 x 3 1/2 | 1.50 | 0.625 | 3.50 | 2.50 | 0.63 | 11 | 0.625 | 1.062 | 0.625 | 0.312 |
| 3/4 x 3 1/2 | 1.75 | 0.750 | 3.50 | 2.50 | 0.63 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 3/4 x 4 | 1.75 | 0.750 | 4.00 | 3.00 | 0.63 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 3/4 x 4 1/2 | 1.75 | 0.750 | 4.50 | 3.00 | 0.63 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |
| 3/4 x 5 | 1.75 | 0.750 | 5.00 | 3.00 | 0.63 | 10 | 0.750 | 1.250 | 0.750 | 0.375 |



STAR[®] PIPE PRODUCTS



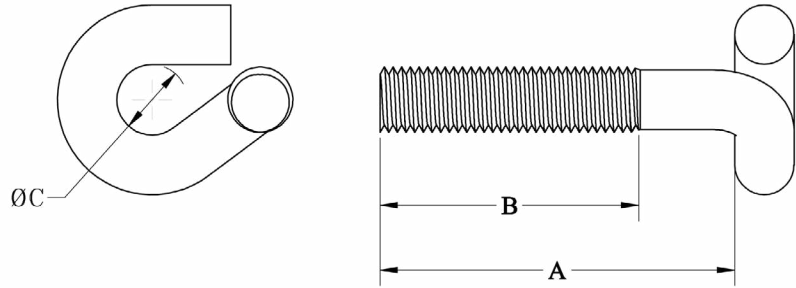
MJ Eyebolt(Pigtail) & Starlug

ANSI/AWWA C115/A21.15

MJ Eyebolt (Pigtail)

GENERAL SPECIFICATIONS

- High Strength Low alloy steel per ANSI/AWWA C111/121.11
- UNC 2A Threads per ASME B1.1
- Eye bolts can be used in place of T-Head bolts
- Used on sizes 4" through 24"
- Max. Load (per bolt): 7,500 lbs



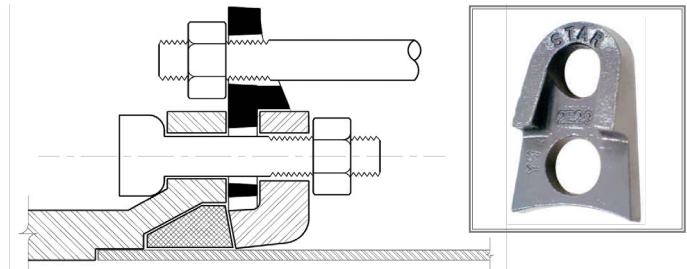
| SIZE | A | B | ØC |
|---------|------|------|------|
| ¾ x 3 ½ | 3.50 | 2.50 | 0.81 |
| ¾ x 4 | 4.00 | 3.00 | 0.81 |
| ¾ x 4 ½ | 4.50 | 3.50 | 0.81 |
| ¾ x 5 | 5.00 | 4.00 | 0.81 |
| ¾ x 5 ½ | 5.50 | 4.50 | 0.81 |

All dimensions in inches.

Starlug

GENERAL SPECIFICATIONS

- Designed to assist in restraining of mechanical joint fittings, valves, hydrants and pipes by threaded rods. Manufactured with high strength ductile iron per ASTM A 536, Grade 65-45-12
- Designed for use on sizes 4" through 24"
- Installed between MJ Bell and MJ Gland



Please refer to the chart below for determining the number of Starlugs to be used depending on the pipe size and pipe line working pressure.

Packaging: Boxes of 50 each

| NOM. PIPE SIZE | MINIMUM NUMBER OF STARLUGS REQUIRED FOR EACH MJ BELL | | | | | | | | | |
|----------------|--|-----|-----|-----|-----|-----|-----|-----|-----|---|
| | WORKING PRESSURE (PSI)* | | | | | | | | | |
| | 100 | 125 | 150 | 200 | 225 | 250 | 300 | 325 | 350 | |
| 4" | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 | 2 |
| 6" | 2 | 2 | 2 | 2 | 3 | 3 | 3 | 4 | 4 | |
| 8" | 2 | 2 | 3 | 4 | 4 | 4 | 6 | 6 | 6 | |
| 10" | 4 | 4 | 4 | 6 | 6 | 8 | 8 | 8 | NR | |
| 12" | 4 | 4 | 6 | 8 | 8 | 8 | NR | NR | NR | |
| 14" | 5 | 6 | 8 | 10 | NR | NR | NR | NR | NR | |
| 16" | 6 | 8 | 10 | 12 | NR | NR | NR | NR | NR | |
| 18" | 8 | 10 | 12 | NR | NR | NR | NR | NR | NR | |
| 20" | 10 | 12 | 14 | NR | NR | NR | NR | NR | NR | |
| 24" | 14 | 16 | NR | NR | NR | NR | NR | NR | NR | |

*Pressure ratings include a nominal 2:1 safety factor.

NR - Not Recommended

STAR[®] PIPE PRODUCTS



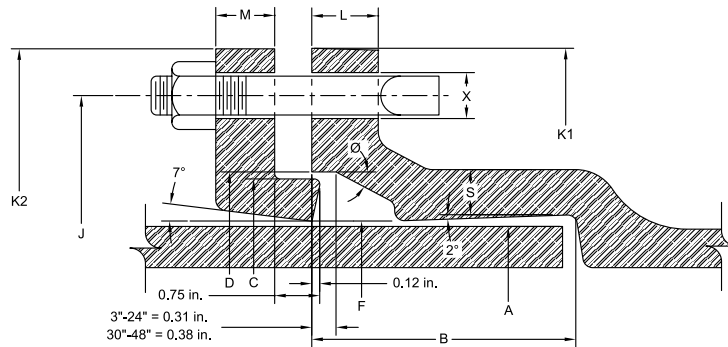
Full Body MJ Fittings

ANSI/AWWA C110/A21.10

2" - 64" DUCTILE IRON MECHANICAL JOINT FULL BODY FITTINGS

GENERAL SPECIFICATIONS

- MATERIAL:** Ductile iron per ASTM A536
- PRESSURE:** 350 PSI rating for 2" - 24" sizes, 250 PSI rating for 30" - 48" and 150 PSI for 54"-64" or as noted
- TESTING:** In accordance with ANSI/AWWA C110/A21.10
- LAYING LENGTH:** In accordance with ANSI/AWWA C110/A21.10 (fittings not listed in ANSI/AWWA have dimensions per Star design as noted in the catalog)
- DEFLECTION:** 2"-4"=8° | 6"-7"=7° | 8"-12"=5° | 14"-16"=3 1/2° | 18"-24"=3° | 30"-48"=2°
- WEIGHTS:** Are in pounds, unless noted otherwise and do not include accessories, cement lining and coating
- FLANGES:** Flanged ends on fittings match ANSI/AWW C110/A21.10 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. [Click here for a pressure jetting discussion](#) or visit http://www.starpipeproducts.com/pressure_cleaning_guidelines.asp.
- COATING:** Asphaltic seal coat inside and out in accordance with ANSI/AWWA C104/A21.4 and referenced in ANSI/AWWA C110/A21.10
- GASKETS:** SBR in accordance with ANSI/AWWA C111/A21.11 (see pg. 20)
- T-BOLTS/NUTS:** Low alloy steel in accordance with ANSI/AWWA C11/A21.11 (see pg. 22)
- APPROVALS:** Sizes 2" and greater are UL/ANSI/NSF Standards 61 and 372
- DIMENSIONS:** All dimensions are in inches unless noted otherwise. ([Click here for a short commentary on non-pressure sewer applications](#) or visit http://www.starpipeproducts.com/non-pressure_sewer_applications.asp. Review commentary before ordering or installing fittings for this application.)
- INSTALLATION:** Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900



| MECHANICAL JOINT 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 | 6.25 | 6.25 | 0.75 | 0.62 | 0.44 | 28° | 3/4 | 5/8 x 3 | 2 |
| 3 | 3.96 | 2.50 | 4.84 | 4.94 | 4.06 | 6.19 | 7.69 | 7.69 | 0.94 | 0.62 | 0.52 | 28° | 3/4 | 5/8 x 3 | 4 |
| 4 | 4.80 | 2.50 | 5.92 | 6.02 | 4.90 | 7.50 | 9.12 | 9.12 | 1.00 | 0.75 | 0.65 | 28° | 7/8 | 3/4 x 3 1/2 | 4 |
| 6 | 6.90 | 2.50 | 8.02 | 8.12 | 7.00 | 9.50 | 11.12 | 11.12 | 1.06 | 0.88 | 0.70 | 28° | 7/8 | 3/4 x 3 1/2 | 6 |
| 8 | 9.05 | 2.50 | 10.17 | 10.27 | 9.15 | 11.75 | 13.37 | 13.37 | 1.12 | 1.00 | 0.75 | 28° | 7/8 | 3/4 x 4 | 6 |
| 10 | 11.10 | 2.50 | 12.22 | 12.34 | 11.20 | 14.00 | 15.69 | 15.62 | 1.19 | 1.00 | 0.80 | 28° | 7/8 | 3/4 x 4 | 8 |
| 12 | 13.20 | 2.50 | 14.32 | 14.44 | 13.30 | 16.25 | 17.94 | 17.88 | 1.25 | 1.00 | 0.85 | 28° | 7/8 | 3/4 x 4 | 8 |
| 14 | 15.30 | 3.50 | 16.40 | 16.54 | 15.44 | 18.75 | 20.31 | 20.25 | 1.31 | 1.25 | 0.89 | 28° | 7/8 | 3/4 x 4 1/2 | 10 |
| 16 | 17.40 | 3.50 | 18.50 | 18.64 | 17.54 | 21.00 | 22.56 | 22.50 | 1.38 | 1.31 | 0.97 | 28° | 7/8 | 3/4 x 4 1/2 | 12 |
| 18 | 19.50 | 3.50 | 20.60 | 20.74 | 19.64 | 23.25 | 24.83 | 24.75 | 1.44 | 1.38 | 1.05 | 28° | 7/8 | 3/4 x 4 1/2 | 12 |
| 20 | 21.60 | 3.50 | 22.70 | 22.84 | 21.74 | 25.50 | 27.08 | 27.00 | 1.50 | 1.44 | 1.12 | 28° | 7/8 | 3/4 x 4 1/2 | 14 |
| 24 | 25.80 | 3.50 | 26.90 | 27.04 | 25.94 | 30.00 | 31.58 | 31.50 | 1.62 | 1.56 | 1.22 | 28° | 7/8 | 3/4 x 5 | 16 |
| 30 | 32.00 | 4.00 | 33.29 | 33.46 | 32.17 | 36.88 | 39.12 | 39.12 | 1.81 | 2.00 | 1.50 | 20° | 1 1/8 | 1 x 6 | 20 |
| 36 | 38.30 | 4.00 | 39.59 | 39.76 | 38.47 | 43.75 | 46.00 | 46.00 | 2.00 | 2.00 | 1.80 | 20° | 1 1/8 | 1 x 6 | 24 |
| 42 | 44.50 | 4.00 | 45.79 | 45.96 | 44.67 | 50.62 | 53.12 | 53.12 | 2.00 | 2.00 | 1.95 | 20° | 1 3/8 | 1 1/4 x 6 1/2 | 28 |
| 48 | 50.80 | 4.00 | 52.09 | 52.26 | 50.97 | 57.50 | 60.00 | 60.00 | 2.00 | 2.00 | 2.20 | 20° | 1 3/8 | 1 1/4 x 6 1/2 | 32 |
| 54 | { Fittings & Dimensions Available On Request } | | | | | | | | | | | | | | |
| 60 | | | | | | | | | | | | | | | |
| 64 | | | | | | | | | | | | | | | |

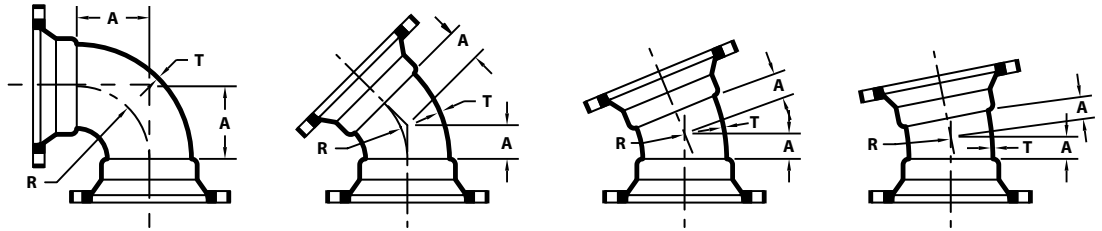
STAR[®] PIPE PRODUCTS



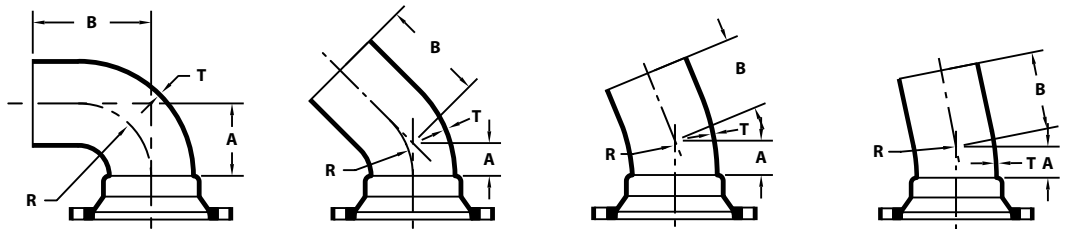


Full Body MJ Fittings

ANSI/AWWA C110/A21.10



| 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 | R | WT (LBS.) | A | R | WT (LBS.) | A | R | WT (LBS.) | A | R | WT (LBS.) |
| 2 | 0.39 | 3.25 | 2.25 | 14 | 1.80 | 1.96 | 13 | 1.80 | 4.02 | 13 | 1.80 | 8.12 | 13 |
| 3 | 0.48 | 5.50 | 4.00 | 35 | 3.00 | 3.62 | 30 | 3.00 | 7.56 | 30 | 3.00 | 15.25 | 30 |
| 4 | 0.52 | 6.50 | 4.50 | 55 | 4.00 | 4.81 | 50 | 4.00 | 10.06 | 50 | 4.00 | 20.31 | 50 |
| 6 | 0.55 | 8.00 | 6.00 | 85 | 5.00 | 7.25 | 75 | 5.00 | 15.06 | 75 | 5.00 | 30.50 | 75 |
| 8 | 0.60 | 9.00 | 7.00 | 125 | 5.50 | 8.44 | 110 | 5.50 | 17.62 | 110 | 5.50 | 35.50 | 110 |
| 10 | 0.68 | 11.00 | 9.00 | 190 | 6.50 | 10.88 | 155 | 6.50 | 22.62 | 160 | 6.50 | 45.69 | 160 |
| 12 | 0.75 | 12.00 | 10.00 | 255 | 7.50 | 13.25 | 215 | 7.50 | 27.62 | 220 | 7.50 | 55.81 | 220 |
| 14 | 0.66 | 14.00 | 11.50 | 340 | 7.50 | 12.06 | 270 | 7.50 | 25.12 | 275 | 7.50 | 50.75 | 275 |
| 16 | 0.70 | 15.00 | 12.50 | 430 | 8.00 | 13.25 | 340 | 8.00 | 27.62 | 345 | 8.00 | 55.81 | 345 |
| 18 | 0.75 | 16.50 | 14.00 | 545 | 8.50 | 14.50 | 420 | 8.50 | 30.19 | 430 | 8.50 | 60.94 | 430 |
| 20 | 0.80 | 18.00 | 15.50 | 680 | 9.50 | 16.88 | 530 | 9.50 | 35.19 | 535 | 9.50 | 71.06 | 540 |
| 24 | 0.89 | 22.00 | 18.50 | 1025 | 11.00 | 18.12 | 755 | 11.00 | 37.69 | 765 | 11.00 | 76.12 | 770 |
| 30 | 1.03 | 25.00 | 21.50 | 1690 | 15.00 | 27.75 | 1380 | 15.00 | 57.81 | 1400 | 15.00 | 116.75 | 1410 |
| 36 | 1.15 | 28.00 | 24.50 | 2475 | 18.00 | 35.00 | 2095 | 18.00 | 72.88 | 2135 | 18.00 | 147.25 | 2145 |
| 42 | 1.28 | 31.00 | 27.50 | 3410 | 21.00 | 42.25 | 2955 | 21.00 | 88.00 | 3020 | 21.00 | 177.69 | 3035 |
| 48 | 1.42 | 34.00 | 30.50 | 4595 | 24.00 | 49.50 | 4080 | 24.00 | 103.06 | 4170 | 24.00 | 208.12 | 4190 |



| 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 | R | WT (LBS.) | A | B | R | WT (LBS.) | A | B | R | WT (LBS.) | A | B | R | WT (LBS.) |
| 3 | 0.48 | 5.50 | 13.50 | 4.00 | 35 | 3.00 | 11.00 | 3.62 | 30 | 3.00 | 11.00 | 7.56 | 30 | 3.00 | 11.00 | 15.25 | 30 |
| 4 | 0.52 | 6.50 | 14.50 | 4.50 | 50 | 4.00 | 12.00 | 4.81 | 45 | 4.00 | 12.00 | 10.06 | 45 | 4.00 | 12.00 | 20.31 | 45 |
| 6 | 0.55 | 8.00 | 16.00 | 6.00 | 80 | 5.00 | 13.00 | 7.25 | 70 | 5.00 | 13.00 | 15.06 | 70 | 5.00 | 13.00 | 30.50 | 70 |
| 8 | 0.60 | 9.00 | 17.00 | 7.00 | 120 | 5.50 | 13.50 | 8.44 | 105 | 5.50 | 13.50 | 17.62 | 105 | 5.50 | 13.50 | 35.50 | 105 |
| 10 | 0.68 | 11.00 | 19.00 | 9.00 | 190 | 6.50 | 14.50 | 10.88 | 155 | 6.50 | 14.50 | 22.62 | 160 | 6.50 | 14.50 | 45.69 | 160 |
| 12 | 0.75 | 12.00 | 20.00 | 10.00 | 255 | 7.50 | 15.50 | 13.25 | 215 | 7.50 | 15.50 | 27.62 | 220 | 7.50 | 15.50 | 55.81 | 220 |
| 14 | 0.66 | 14.00 | 22.00 | 11.50 | 325 | 7.50 | 15.50 | 12.06 | 255 | 7.50 | 15.50 | 25.12 | 260 | 7.50 | 15.50 | 50.75 | 260 |
| 16 | 0.70 | 15.00 | 23.00 | 12.50 | 410 | 8.00 | 16.00 | 13.25 | 320 | 8.00 | 16.00 | 27.62 | 325 | 8.00 | 16.00 | 55.81 | 325 |
| 18 | 0.75 | 16.50 | 24.50 | 14.00 | 517 | 8.50 | 16.50 | 14.50 | 395 | 8.50 | 16.50 | 30.19 | 401 | 8.50 | 16.50 | 60.94 | 402 |
| 20 | 0.80 | 18.00 | 26.00 | 15.50 | 644 | 9.50 | 17.50 | 16.88 | 493 | 9.50 | 17.50 | 35.19 | 501 | 9.50 | 17.50 | 71.06 | 502 |
| 24 | 0.89 | 22.00 | 30.00 | 18.50 | 985 | 11.00 | 19.00 | 18.12 | 715 | 11.00 | 19.00 | 37.69 | 725 | 11.00 | 19.00 | 76.12 | 730 |
| 30 | 1.03 | 25.00 | 33.00 | 21.50 | 1585 | 15.00 | 23.00 | 27.75 | 1275 | 15.00 | 23.00 | 57.81 | 1295 | 15.00 | 23.00 | 116.75 | 1305 |
| 36 | 1.15 | 28.00 | 36.00 | 24.50 | 2310 | 18.00 | 26.00 | 35.00 | 1930 | 18.00 | 26.00 | 72.88 | 1970 | 18.00 | 26.00 | 147.25 | 1980 |
| 42 | 1.28 | 31.00 | 39.00 | 27.50 | 3200 | 21.00 | 29.00 | 42.25 | 2745 | 21.00 | 29.00 | 88.00 | 2810 | 21.00 | 29.00 | 177.69 | 2825 |

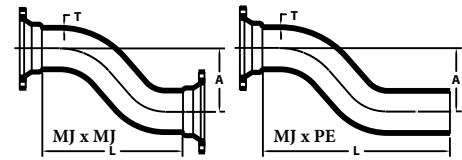
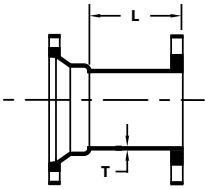
UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR[®] PIPE PRODUCTS



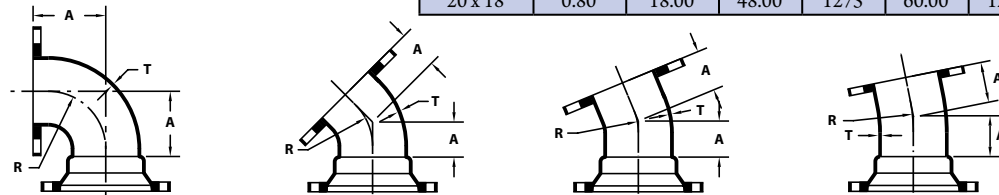
Full Body MJ Fittings

ANSI/AWWA C110/A21.10



| MJ x FLANGE ADAPTER | | | |
|---------------------|------|-------|-----------|
| NOM. SIZE | T | L | WT (LBS.) |
| 3 | 0.48 | 8.00 | 30 |
| 4 | 0.52 | 8.00 | 40 |
| 6 | 0.55 | 8.00 | 60 |
| 8 | 0.60 | 8.00 | 85 |
| 10 | 0.68 | 8.00 | 115 |
| 12 | 0.75 | 8.00 | 155 |
| 14 | 0.66 | 8.00 | 195 |
| 16 | 0.70 | 8.00 | 240 |
| 18 | 0.75 | 8.00 | 280 |
| 20 | 0.80 | 8.00 | 340 |
| 24 | 0.89 | 8.00 | 455 |
| 30 | 1.03 | 10.00 | 760 |
| 36 | 1.15 | 10.00 | 1070 |

| NOM. SIZE | MJ OFFSETS | | MJ x MJ | | MJ x PE | |
|-----------|------------|-------|---------|-----------|---------|-----------|
| | T | A | L | WT (LBS.) | L | WT (LBS.) |
| 4 x 6 | 0.52 | 6.00 | 19.00 | 75 | 27.00 | 70 |
| 4 x 12 | 0.52 | 12.00 | 22.00 | 85 | 30.00 | 80 |
| 4 x 18 | 0.52 | 18.00 | 30.00 | 105 | 38.00 | 100 |
| 4 x 24 | 0.52 | 24.00 | 30.00 | 125 | 38.00 | 115 |
| 6 x 6 | 0.55 | 6.00 | 20.00 | 110 | 28.00 | 105 |
| 6 x 12 | 0.55 | 12.00 | 26.00 | 135 | 34.00 | 130 |
| 6 x 18 | 0.55 | 18.00 | 33.00 | 165 | 41.00 | 160 |
| 6 x 24 | 0.55 | 24.00 | 33.00 | 195 | 41.00 | 195 |
| 8 x 6 | 0.60 | 6.00 | 21.00 | 160 | 29.00 | 155 |
| 8 x 12 | 0.60 | 12.00 | 28.00 | 200 | 36.00 | 195 |
| 8 x 18 | 0.60 | 18.00 | 35.00 | 245 | 43.00 | 240 |
| 8 x 24 | 0.60 | 24.00 | 36.00 | 280 | 44.00 | 275 |
| 10 x 12 | 0.68 | 12.00 | 30.00 | 250 | 38.00 | 280 |
| 10 x 18 | 0.68 | 18.00 | 38.00 | 340 | 46.00 | 340 |
| 10 x 24 | 0.68 | 24.00 | 38.00 | 420 | 46.00 | 420 |
| 12 x 12 | 0.75 | 12.00 | 37.00 | 420 | 45.00 | 420 |
| 12 x 18 | 0.75 | 18.00 | 48.00 | 520 | 56.00 | 520 |
| 12 x 24 | 0.75 | 24.00 | 48.00 | 640 | 56.00 | 630 |
| 16 x 12 | 0.70 | 12.00 | 40.00 | 600 | 48.00 | 580 |
| 16 x 18 | 0.70 | 18.00 | 50.00 | 710 | 58.00 | 690 |
| 20 x 12 | 0.80 | 12.00 | 40.00 | 1025 | 48.00 | 1015 |
| 20 x 18 | 0.80 | 18.00 | 48.00 | 1275 | 60.00 | 1265 |



| 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 | R | WT (LBS.) | A | R | WT (LBS.) | A | R | WT (LBS.) | A | R | WT (LBS.) |
| 4 | 0.52 | 6.50 | 4.50 | 38 | 4.00 | 4.81 | 45 | 4.00 | 10.06 | 45 | 4.00 | 20.31 | 45 |
| 6 | 0.55 | 8.00 | 6.00 | 75 | 5.00 | 7.25 | 69 | 5.00 | 15.06 | 69 | 5.00 | 30.50 | 69 |
| 8 | 0.60 | 9.00 | 7.00 | 115 | 5.50 | 8.44 | 105 | 5.50 | 17.62 | 105 | 5.50 | 35.50 | 105 |
| 10 | 0.68 | 11.00 | 9.00 | 177 | 6.50 | 10.88 | 155 | 6.50 | 22.62 | 155 | 6.50 | 45.69 | 155 |
| 12 | 0.75 | 12.00 | 10.00 | 246 | 7.50 | 13.25 | 215 | 7.50 | 27.62 | 215 | 7.50 | 55.81 | 215 |
| 14 | 0.66 | - | - | - | 7.50 | 12.06 | 245 | - | - | - | - | - | - |
| 16 | 0.70 | 15.00 | 12.50 | 465 | 8.00 | 13.25 | 360 | 8.00 | 27.62 | 360 | 8.00 | 55.81 | 360 |
| 18 | 0.75 | 16.50 | 14.00 | 577 | 8.50 | 14.50 | 422 | 8.50 | 30.19 | 422 | 8.50 | 60.94 | 422 |
| 20 | 0.80 | 18.00 | 15.50 | 745 | 9.50 | 16.88 | 543 | 9.50 | 35.19 | 575 | 9.50 | 71.06 | 575 |
| 24 | 0.89 | 22.00 | 18.50 | 1150 | 11.00 | 18.12 | 800 | 11.00 | 37.69 | 800 | 11.00 | 76.12 | 800 |
| 30 | 1.03 | 25.00 | 21.50 | 1559 | - | - | - | 15.00 | 57.81 | 1270 | - | - | - |
| 36 | 1.15 | 28.00 | 24.50 | 2318 | - | - | - | - | - | - | - | - | - |
| 48 | 1.42 | 34.00 | 30.50 | 4378 | - | - | - | - | - | - | - | - | - |

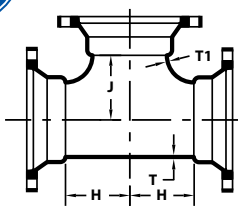
STAR[®] PIPE PRODUCTS





Full Body MJ Fittings

ANSI/AWWA C110/A21.10



STAR[®] PIPE PRODUCTS

| MJ x MJ TEES | | | | | |
|--------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 2 x 2 | 0.39 | 0.39 | 3.25 | 3.25 | 20 |
| 3 x 2 | 0.48 | 0.39 | 3.50 | 3.50 | 43 |
| 3 x 3 | 0.48 | 0.48 | 5.50 | 5.50 | 55 |
| 4 x 2 | 0.52 | 0.39 | 4.00 | 4.00 | 57 |
| 4 x 3 | 0.52 | 0.48 | 6.50 | 6.50 | 75 |
| 4 x 4 | 0.52 | 0.52 | 6.50 | 6.50 | 80 |
| 4 x 4 x 6 | 0.52 | 0.55 | 8.00 | 8.00 | 115 |
| 6 x 2 | 0.55 | 0.39 | 8.00 | 8.00 | 78 |
| 6 x 3 | 0.55 | 0.48 | 8.00 | 8.00 | 110 |
| 6 x 4 | 0.55 | 0.52 | 8.00 | 8.00 | 115 |
| 6 x 6 | 0.55 | 0.55 | 8.00 | 8.00 | 125 |
| 6 x 6 x 8 | 0.55 | 0.60 | 9.00 | 9.00 | 185 |
| 8 x 2 | 0.60 | 0.39 | 9.00 | 9.00 | 125 |
| 8 x 3 | 0.60 | 0.48 | 9.00 | 9.00 | 155 |
| 8 x 4 | 0.60 | 0.52 | 9.00 | 9.00 | 165 |
| 8 x 6 | 0.60 | 0.55 | 9.00 | 9.00 | 175 |
| 8 x 8 | 0.60 | 0.60 | 9.00 | 9.00 | 185 |
| 8 x 8 x 12 | 0.60 | 0.75 | 12.00 | 12.00 | 280 |
| 10 x 4 | 0.68 | 0.52 | 11.00 | 11.00 | 235 |
| 10 x 6 | 0.68 | 0.55 | 11.00 | 11.00 | 250 |
| 10 x 8 | 0.68 | 0.60 | 11.00 | 11.00 | 260 |
| 10 x 10 | 0.80 | 0.80 | 11.00 | 11.00 | 310 |
| 12 x 4 | 0.75 | 0.52 | 12.00 | 12.00 | 315 |
| 12 x 6 | 0.75 | 0.55 | 12.00 | 12.00 | 325 |
| 12 x 8 | 0.75 | 0.60 | 12.00 | 12.00 | 340 |
| 12 x 10 | 0.87 | 0.80 | 12.00 | 12.00 | 390 |
| 12 x 12 | 0.87 | 0.87 | 12.00 | 12.00 | 410 |
| 14 x 6 | 0.66 | 0.55 | 14.00 | 14.00 | 435 |
| 16 x 4 | 0.70 | 0.52 | 15.00 | 15.00 | 525 |
| 16 x 6 | 0.70 | 0.55 | 15.00 | 15.00 | 540 |
| 16 x 8 | 0.70 | 0.60 | 15.00 | 15.00 | 550 |
| 16 x 10 | 0.70 | 0.68 | 15.00 | 15.00 | 570 |
| 16 x 12 | 0.70 | 0.75 | 15.00 | 15.00 | 590 |
| 16 x 16 | 0.70 | 0.70 | 15.00 | 15.00 | 650 |
| 18 x 6 | 0.75 | 0.55 | 13.00 | 15.50 | 590 |
| 18 x 8 | 0.75 | 0.60 | 13.00 | 15.50 | 605 |
| 18 x 12 | 0.75 | 0.75 | 13.00 | 15.50 | 640 |
| 18 x 18 | 0.75 | 0.75 | 16.50 | 16.50 | 820 |
| 20 x 6 | 0.80 | 0.55 | 14.00 | 17.00 | 725 |
| 20 x 8 | 0.80 | 0.60 | 14.00 | 17.00 | 735 |
| 20 X 10 | 0.80 | 0.68 | 14.00 | 17.00 | 755 |
| 20 x 12 | 0.80 | 0.75 | 14.00 | 17.00 | 775 |
| 20 x 16 | 0.80 | 0.70 | 18.00 | 18.00 | 945 |
| 20 x 20 | 0.80 | 0.80 | 18.00 | 18.00 | 1020 |
| 24 x 6 | 0.89 | 0.55 | 15.00 | 19.00 | 985 |
| 24 x 8 | 0.89 | 0.60 | 15.00 | 19.00 | 1000 |
| 24 x 10 | 0.89 | 0.68 | 15.00 | 19.00 | 958 |

| MJ x MJ TEES (Con't) | | | | | |
|----------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 24 x 12 | 0.89 | 0.75 | 15.00 | 19.00 | 1030 |
| 24 x 14 | 0.89 | 0.66 | 15.00 | 19.00 | 1055 |
| 24 x 16 | 0.89 | 0.70 | 15.00 | 19.00 | 1075 |
| 24 x 18 | 0.89 | 0.75 | 22.00 | 22.00 | 1400 |
| 24 x 20 | 0.89 | 0.80 | 22.00 | 22.00 | 1450 |
| 24 x 24 | 0.89 | 0.89 | 22.00 | 22.00 | 1535 |
| 30 x 6 | 1.03 | 0.55 | 18.00 | 23.00 | 1730 |
| 30 x 8 | 1.03 | 0.60 | 18.00 | 23.00 | 1745 |
| 30 x 10 | 1.03 | 0.68 | 18.00 | 23.00 | 1760 |
| 30 x 12 | 1.03 | 0.75 | 18.00 | 23.00 | 1780 |
| 30 x 14 | 1.03 | 0.66 | 18.00 | 23.00 | 1648 |
| 30 x 16 | 1.03 | 0.70 | 18.00 | 23.00 | 1820 |
| 30 x 18 | 1.03 | 0.75 | 18.00 | 23.00 | 1845 |
| 30 x 20 | 1.03 | 0.80 | 18.00 | 23.00 | 1875 |
| 30 x 24 | 1.03 | 0.89 | 25.00 | 25.00 | 2400 |
| 30 x 30 | 1.03 | 1.03 | 25.00 | 25.00 | 2595 |
| 36 x 6 | 1.15 | 0.55 | 20.00 | 26.00 | 2500 |
| 36 x 8 | 1.15 | 0.60 | 20.00 | 26.00 | 2520 |
| 36 x 10 | 1.15 | 0.68 | 20.00 | 26.00 | 2535 |
| 36 x 12 | 1.15 | 0.75 | 20.00 | 26.00 | 2550 |
| 36 x 14 | 1.15 | 0.66 | 20.00 | 26.00 | 2570 |
| 36 x 16 | 1.15 | 0.70 | 20.00 | 26.00 | 2585 |
| 36 x 18 | 1.15 | 0.75 | 20.00 | 26.00 | 2610 |
| 36 x 20 | 1.15 | 0.80 | 20.00 | 26.00 | 2635 |
| 36 x 24 | 1.15 | 0.89 | 20.00 | 26.00 | 2690 |
| 36 x 30 | 1.15 | 1.03 | 28.00 | 28.00 | 3545 |
| 36 x 36 | 1.15 | 1.15 | 28.00 | 28.00 | 3745 |
| 42 x 12 | 1.28 | 0.75 | 23.00 | 30.00 | 3555 |
| 42 x 14 | 1.28 | 0.66 | 23.00 | 30.00 | 3575 |
| 42 x 16 | 1.28 | 0.70 | 23.00 | 30.00 | 3595 |
| 42 x 18 | 1.28 | 0.75 | 23.00 | 30.00 | 3615 |
| 42 x 20 | 1.28 | 0.80 | 23.00 | 30.00 | 3640 |
| 42 x 24 | 1.28 | 0.89 | 23.00 | 30.00 | 3690 |
| 42 x 30 | 1.28 | 1.03 | 31.00 | 31.00 | 4650 |
| 42 x 36 | 1.28 | 1.15 | 31.00 | 31.00 | 4880 |
| 42 x 42 | 1.28 | 1.28 | 31.00 | 31.00 | 5085 |
| 48 x 12 | 1.42 | 0.75 | 26.00 | 34.00 | 4870 |
| 48 x 14 | 1.42 | 0.66 | 26.00 | 34.00 | 4885 |
| 48 x 16 | 1.42 | 0.70 | 26.00 | 34.00 | 4905 |
| 48 x 18 | 1.42 | 0.75 | 26.00 | 34.00 | 4925 |
| 48 x 20 | 1.42 | 0.80 | 26.00 | 34.00 | 4950 |
| 48 x 24 | 1.42 | 0.89 | 26.00 | 34.00 | 4995 |
| 48 x 30 | 1.42 | 1.03 | 26.00 | 34.00 | 5140 |
| 48 x 36 | 1.42 | 1.15 | 34.00 | 34.00 | 6280 |
| 48 x 42 | 1.42 | 1.28 | 34.00 | 34.00 | 6510 |
| 48 x 48 | 1.42 | 1.42 | 34.00 | 34.00 | 6765 |
| 48 x 36 x 48 | 1.42 | 1.15 | 34.00 | 34.00 | 6275 |

(Con't)

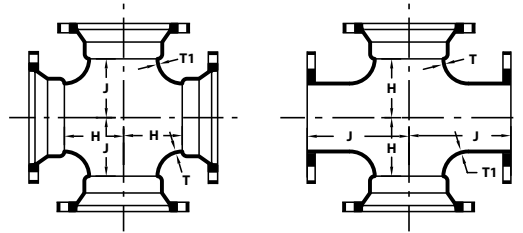
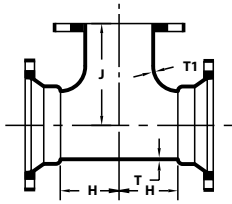
UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS





Full Body MJ Fittings

ANSI/AWWA C110/A21.10



| MJ x FE TEES | | | | | |
|--------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| | | | | | |
| 4 x 4 | 0.52 | 0.52 | 6.50 | 6.50 | 74 |
| 4 x 4 x 6 | 0.52 | 0.55 | 8.00 | 8.00 | 103 |
| 6 x 4 | 0.55 | 0.52 | 8.00 | 8.00 | 109 |
| 6 x 6 | 0.55 | 0.55 | 8.00 | 8.00 | 115 |
| 8 x 4 | 0.60 | 0.52 | 9.00 | 9.00 | 159 |
| 8 x 6 | 0.60 | 0.55 | 9.00 | 9.00 | 165 |
| 8 x 8 | 0.60 | 0.60 | 9.00 | 9.00 | 175 |
| 10 x 4 | 0.68 | 0.52 | 11.00 | 11.00 | 231 |
| 10 x 6 | 0.68 | 0.55 | 11.00 | 11.00 | 237 |
| 10 x 8 | 0.68 | 0.60 | 11.00 | 11.00 | 249 |
| 12 x 4 | 0.75 | 0.52 | 12.00 | 12.00 | 309 |
| 12 x 6 | 0.75 | 0.55 | 12.00 | 12.00 | 315 |
| 12 x 8 | 0.75 | 0.60 | 12.00 | 12.00 | 330 |
| 12 x 10 | 0.87 | 0.68 | 12.00 | 12.00 | 360 |
| 12 x 12 | 0.87 | 0.87 | 12.00 | 12.00 | 401 |
| 14 x 6 | 0.66 | 0.55 | 14.00 | 14.00 | 485 |
| 14 x 14 | 0.66 | 0.66 | 14.00 | 14.00 | 465 |
| 16 x 4 | 0.70 | 0.52 | 15.00 | 15.00 | 575 |
| 16 x 6 | 0.70 | 0.55 | 15.00 | 15.00 | 605 |
| 16 x 8 | 0.70 | 0.60 | 15.00 | 15.00 | 615 |
| 16 x 12 | 0.70 | 0.75 | 15.00 | 15.00 | 651 |
| 16 x 16 | 0.70 | 0.70 | 15.00 | 15.00 | 596 |
| 18 x 6 | 0.75 | 0.55 | 13.00 | 15.50 | 665 |
| 18 x 8 | 0.75 | 0.60 | 13.00 | 15.50 | 675 |
| 18 x 12 | 0.75 | 0.75 | 13.00 | 15.50 | 705 |
| 18 x 18 | 0.75 | 0.75 | 16.50 | 16.50 | 915 |
| 20 x 6 | 0.80 | 0.55 | 14.00 | 17.00 | 677 |
| 20 x 8 | 0.80 | 0.60 | 14.00 | 17.00 | 688 |
| 20 x 12 | 0.80 | 0.75 | 14.00 | 17.00 | 722 |
| 20 x 20 | 0.80 | 0.80 | 18.00 | 18.00 | 1165 |
| 24 x 6 | 0.89 | 0.55 | 15.00 | 19.00 | 1125 |
| 24 x 8 | 0.89 | 0.60 | 15.00 | 19.00 | 1140 |
| 24 x 12 | 0.89 | 0.75 | 15.00 | 19.00 | 1165 |
| 24 x 16 | 0.89 | 0.70 | 15.00 | 19.00 | 988 |
| 24 x 24 | 0.89 | 0.89 | 22.00 | 22.00 | 1795 |
| 30 x 10 | 1.03 | 0.68 | 18.00 | 23.00 | 1606 |
| 30 x 12 | 1.03 | 0.75 | 18.00 | 23.00 | 1626 |
| 30 x 30 | 1.03 | 1.03 | 25.00 | 25.00 | 3080 |
| 36 x 6 | 1.15 | 0.55 | 20.00 | 26.00 | 2325 |
| 36 x 10 | 1.15 | 0.68 | 20.00 | 26.00 | 2345 |
| 36 x 12 | 1.15 | 0.75 | 20.00 | 26.00 | 2361 |
| 36 x 16 | 1.15 | 0.70 | 20.00 | 26.00 | 2373 |
| 36 x 24 | 1.15 | 0.89 | 20.00 | 26.00 | 2432 |
| 36 x 30 | 1.15 | 1.03 | 28.00 | 28.00 | 3133 |
| 48 x 24 | 1.42 | 0.89 | 26.00 | 34.00 | 4965 |

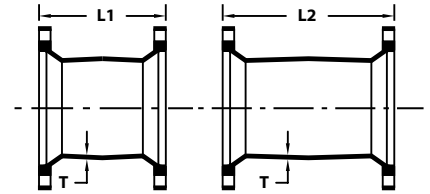
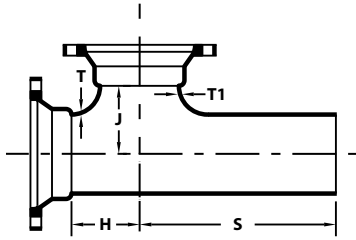
| MJ x MJ / MJ x FE CROSSES | | | | | | | |
|---------------------------|------|------|-------|-------|-----------|---------|--|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) | | |
| | | | | | MJ X MJ | MJ X FE | |
| 6 x 4 | 0.55 | 0.52 | 8.00 | 8.00 | 140 | --- | |
| 6 x 6 | 0.55 | 0.55 | 8.00 | 8.00 | 160 | 140 | |
| 8 x 4 | 0.60 | 0.52 | 9.00 | 9.00 | 185 | 176 | |
| 8 x 6 | 0.60 | 0.55 | 9.00 | 9.00 | 205 | 185 | |
| 8 x 8 | 0.60 | 0.60 | 9.00 | 9.00 | 235 | 215 | |
| 10 x 6 | 0.68 | 0.55 | 11.00 | 11.00 | 285 | 258 | |
| 10 x 8 | 0.68 | 0.60 | 11.00 | 11.00 | 310 | --- | |
| 10 x 10 | 0.80 | 0.80 | 11.00 | 11.00 | 380 | 354 | |
| 12 x 4 | 0.75 | 0.52 | 12.00 | 12.00 | 340 | --- | |
| 12 x 6 | 0.75 | 0.55 | 12.00 | 12.00 | 360 | 340 | |
| 12 x 8 | 0.75 | 0.60 | 12.00 | 12.00 | 385 | 365 | |
| 12 x 12 | 0.87 | 0.87 | 12.00 | 12.00 | 495 | 487 | |
| 14 x 8 | 0.66 | 0.60 | 14.00 | 14.00 | 500 | --- | |
| 14 x 14 | 0.66 | 0.66 | 14.00 | 14.00 | 635 | --- | |
| 16 x 6 | 0.70 | 0.55 | 15.00 | 15.00 | 575 | --- | |
| 16 x 8 | 0.70 | 0.60 | 15.00 | 15.00 | 605 | 585 | |
| 16 x 16 | 0.70 | 0.70 | 15.00 | 15.00 | 790 | 770 | |
| 18 x 8 | 0.75 | 0.60 | 13.00 | 15.50 | 655 | --- | |
| 18 x 10 | 0.75 | 0.68 | 13.00 | 15.50 | 685 | --- | |
| 18 x 12 | 0.75 | 0.75 | 13.00 | 15.50 | 725 | --- | |
| 18 x 18 | 0.75 | 0.75 | 16.50 | 16.50 | 995 | 846 | |
| 20 x 8 | 0.80 | 0.60 | 14.00 | 17.00 | 790 | --- | |
| 20 x 12 | 0.80 | 0.75 | 14.00 | 17.00 | 860 | --- | |
| 20 x 16 | 0.80 | 0.70 | 18.00 | 18.00 | 1085 | --- | |
| 20 x 20 | 0.80 | 0.80 | 18.00 | 18.00 | 1230 | --- | |
| 24 x 6 | 0.89 | 0.55 | 15.00 | 19.00 | 1025 | --- | |
| 24 x 8 | 0.89 | 0.60 | 15.00 | 19.00 | 1045 | --- | |
| 24 x 12 | 0.89 | 0.75 | 15.00 | 19.00 | 1110 | --- | |
| 24 x 16 | 0.89 | 0.70 | 15.00 | 19.00 | 1200 | 988 | |
| 24 x 20 | 0.89 | 0.80 | 22.00 | 22.00 | 1675 | --- | |
| 24 x 24 | 0.89 | 0.89 | 22.00 | 22.00 | 1835 | --- | |
| 30 x 6 | 1.03 | 0.55 | 18.00 | 23.00 | 1770 | --- | |
| 30 x 10 | 1.03 | 0.68 | 18.00 | 23.00 | --- | 1606 | |
| 30 x 12 | 1.03 | 0.75 | 18.00 | 23.00 | 1865 | 1687 | |
| 30 x 24 | 1.03 | 0.89 | 25.00 | 25.00 | 2675 | --- | |
| 30 x 30 | 1.03 | 1.03 | 25.00 | 25.00 | 3075 | --- | |
| 36 x 24 | 1.15 | 0.89 | 20.00 | 26.00 | 2910 | --- | |
| 36 x 30 | 1.15 | 1.03 | 28.00 | 28.00 | --- | 3133 | |
| 36 x 36 | 1.15 | 1.15 | 28.00 | 28.00 | 4370 | --- | |
| 42 x 24 | 1.28 | 0.89 | 23.00 | 30.00 | 3910 | --- | |
| 42 x 42 | 1.28 | 1.28 | 31.00 | 31.00 | 5840 | --- | |

STAR[®] PIPE PRODUCTS



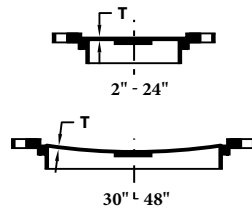
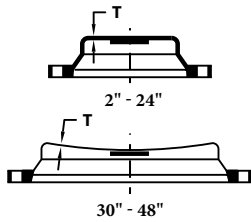
Full Body MJ Fittings

ANSI/AWWA C110/A21.10



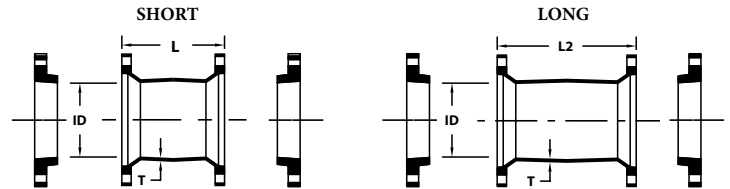
| MJ x PE x MJ TEES | | | | | | |
|-------------------|------|------|-------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | S | WT (LBS.) |
| 4 x 4 | 0.52 | 0.52 | 6.50 | 6.50 | 14.50 | 75 |
| 6 x 4 | 0.55 | 0.52 | 8.00 | 8.00 | 16.00 | 112 |
| 6 x 6 | 0.55 | 0.55 | 8.00 | 8.00 | 16.00 | 120 |
| 8 x 6 | 0.60 | 0.55 | 9.00 | 9.00 | 17.00 | 170 |
| 8 x 8 | 0.60 | 0.60 | 9.00 | 9.00 | 17.00 | 180 |
| 10 x 10 | 0.80 | 0.80 | 11.00 | 11.00 | 19.00 | 303 |
| 12 x 4 | 0.75 | 0.52 | 12.00 | 12.00 | 20.00 | 315 |
| 12 x 6 | 0.75 | 0.55 | 12.00 | 12.00 | 20.00 | 325 |
| 12 x 8 | 0.75 | 0.60 | 12.00 | 12.00 | 20.00 | 340 |
| 12 x 10 | 0.87 | 0.80 | 12.00 | 12.00 | 20.00 | 390 |
| 12 x 12 | 0.87 | 0.87 | 12.00 | 12.00 | 20.00 | 407 |

| MJ SOLID SLEEVES | | | | | |
|------------------|------|---------------|-----------|--------------|-----------|
| NOM. SIZE | T | SHORT SLEEVES | | LONG SLEEVES | |
| | | L1 | WT (LBS.) | L2 | WT (LBS.) |
| 2 | 0.39 | 7.50 | 12 | 12.00 | 18 |
| 3 | 0.48 | 7.50 | 25 | 12.00 | 30 |
| 4 | 0.52 | 7.50 | 35 | 12.00 | 45 |
| 6 | 0.55 | 7.50 | 45 | 12.00 | 65 |
| 8 | 0.60 | 7.50 | 65 | 12.00 | 85 |
| 10 | 0.68 | 7.50 | 85 | 12.00 | 115 |
| 12 | 0.75 | 7.50 | 110 | 12.00 | 145 |
| 14 | 0.66 | 9.50 | 150 | 15.00 | 195 |
| 16 | 0.70 | 9.50 | 180 | 15.00 | 235 |
| 18 | 0.75 | 9.50 | 215 | 15.00 | 285 |
| 20 | 0.80 | 9.50 | 240 | 15.00 | 325 |
| 24 | 0.89 | 9.50 | 320 | 15.00 | 425 |
| 30 | 1.03 | 15.00 | 635 | 24.00 | 885 |
| 36 | 1.15 | 15.00 | 855 | 24.00 | 1190 |
| 42 | 1.28 | 15.00 | 1115 | 24.00 | 1550 |
| 48 | 1.42 | 15.00 | 1385 | 24.00 | 1940 |



CAPS

PLUGS



| MJ CAPS & PLUGS (SOLID OR TAPPED) | | | | |
|-----------------------------------|------|----------|-----------|-------|
| NOM. SIZE | T | MAX. TAP | WT (LBS.) | |
| | | | CAPS | PLUGS |
| 2 | 0.39 | 1 1/2 | 5 | 5 |
| 3 | 0.50 | 2 | 12 | 10 |
| 4 | 0.60 | 3 | 15 | 15 |
| 6 | 0.65 | 4 | 25 | 25 |
| 8 | 0.70 | 4 | 45 | 45 |
| 10 | 0.75 | 4 | 60 | 65 |
| 12 | 0.75 | 4 | 80 | 85 |
| 14 | 0.82 | 5 | 120 | 115 |
| 16 | 0.89 | 6 | 155 | 145 |
| 18 | 0.96 | 6 | 195 | 185 |
| 20 | 1.03 | 6 | 240 | 225 |
| 24 | 1.16 | 6 | 345 | 335 |
| 30 | 1.03 | 6 | 590 | 573 |
| 36 | 1.15 | 6 | 850 | 815 |
| 42 | 1.28 | 6 | 1180 | 1110 |
| 48 | 1.42 | 6 | 1595 | 1455 |

| MJ DUAL PURPOSE SLEEVES W/ OVERSIZE GLANDS | | | | | | | |
|--|---------------|--------|------|-------|-----------|-------|-----------|
| NOM. SIZE | PIPE SIZE | (I.D.) | T | SHORT | | LONG | |
| | | | | L1 | WT (LBS.) | L2 | WT (LBS.) |
| 4 | 4.80 - 5.00 | 5.10 | 0.52 | 7.50 | 35 | 12.00 | 35 |
| 6 | 6.90 - 7.10 | 7.20 | 0.55 | 7.50 | 45 | 12.00 | 65 |
| 8 | 9.05 - 9.30 | 9.40 | 0.60 | 7.50 | 65 | 12.00 | 86 |
| 10 | 11.10 - 11.40 | 11.50 | 0.68 | 7.50 | 85 | 12.00 | 115 |
| 12 | 13.20 - 13.50 | 13.60 | 0.75 | 7.50 | 110 | 12.00 | 145 |
| 16 | 17.40 - 17.80 | 17.94 | 0.70 | --- | --- | 15.00 | 236 |

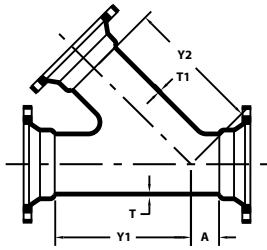
*Threads in Accordance with ANSI/ASME B1.20.1

STAR[®] PIPE PRODUCTS



Full Body MJ Fittings

ANSI/AWWA C110/A21.10



| 45° MJ LATERALS | | | | | | |
|-----------------|------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | A | Y1 | Y2 | WT (LBS.) |
| 3 x 3 | 0.48 | 0.48 | 3.00 | 10.00 | 10.00 | 60 |
| 4 x 3 | 0.52 | 0.48 | 3.00 | 12.00 | 12.00 | 85 |
| 4 x 4 | 0.52 | 0.52 | 3.00 | 12.00 | 12.00 | 90 |
| 6 x 3 | 0.55 | 0.48 | 3.50 | 14.50 | 14.50 | 125 |
| 6 x 4 | 0.55 | 0.52 | 3.50 | 14.50 | 14.50 | 130 |
| 6 x 6 | 0.55 | 0.55 | 3.50 | 14.50 | 14.50 | 145 |
| 8 x 3 | 0.60 | 0.48 | 4.50 | 17.50 | 17.50 | 185 |
| 8 x 4 | 0.60 | 0.52 | 4.50 | 17.50 | 17.50 | 190 |
| 8 x 6 | 0.60 | 0.55 | 4.50 | 17.50 | 17.50 | 205 |
| 8 x 8 | 0.60 | 0.60 | 4.50 | 17.50 | 17.50 | 230 |
| 10 x 6 | 0.68 | 0.55 | 5.00 | 20.50 | 20.50 | 285 |
| 10 x 8 | 0.68 | 0.60 | 5.00 | 20.50 | 20.50 | 310 |
| 10 x 10 | 0.68 | 0.68 | 5.00 | 20.50 | 20.50 | 340 |
| 12 x 8 | 0.75 | 0.60 | 5.50 | 24.50 | 24.50 | 425 |
| 12 x 12 | 0.75 | 0.75 | 5.50 | 24.50 | 24.50 | 490 |
| 14 x 6 | 0.66 | 0.55 | 6.00 | 27.00 | 27.00 | 570 |
| 14 x 14 | 0.66 | 0.66 | 6.00 | 27.00 | 27.00 | 645 |
| 16 x 4 | 0.70 | 0.52 | 6.50 | 30.00 | 30.00 | 585 |
| 16 x 10 | 0.70 | 0.68 | 6.50 | 30.00 | 30.00 | 665 |
| 16 x 12 | 0.70 | 0.75 | 6.50 | 30.00 | 30.00 | 700 |
| 16 x 14 | 0.70 | 0.66 | 6.50 | 30.00 | 30.00 | 750 |
| 16 x 16 | 0.70 | 0.70 | 6.50 | 30.00 | 30.00 | 770 |
| 18 x 4 | 0.75 | 0.52 | 7.00 | 32.00 | 32.00 | 560 |
| 18 x 8 | 0.75 | 0.60 | 7.00 | 32.00 | 32.00 | 766 |
| 18 x 10 | 0.75 | 0.68 | 7.00 | 32.00 | 32.00 | 801 |
| 18 x 12 | 0.75 | 0.75 | 7.00 | 32.00 | 32.00 | 840 |
| 18 x 16 | 0.75 | 0.70 | 7.00 | 32.00 | 32.00 | 905 |
| 18 x 18 | 0.75 | 0.75 | 7.00 | 32.00 | 32.00 | 953 |
| 20 x 4 | 0.80 | 0.52 | 0 | 27.00 | 29.50 | 673 |
| 20 x 6 | 0.80 | 0.55 | 0 | 27.00 | 29.50 | 691 |
| 20 x 8 | 0.80 | 0.60 | 0 | 27.00 | 29.50 | 710 |
| 20 x 10 | 0.80 | 0.68 | 8.00 | 35.00 | 35.00 | 985 |
| 20 x 12 | 0.80 | 0.75 | 8.00 | 35.00 | 35.00 | 1025 |
| 20 x 14 | 0.80 | 0.66 | 8.00 | 35.00 | 35.00 | 1047 |
| 20 x 16 | 0.80 | 0.70 | 8.00 | 35.00 | 35.00 | 1089 |
| 20 x 20 | 0.80 | 0.80 | 8.00 | 35.00 | 35.00 | 1203 |
| 24 x 4 | 0.89 | 0.52 | 0.50 | 31.50 | 31.50 | 980 |
| 24 x 6 | 0.89 | 0.55 | 0.50 | 31.50 | 31.50 | 994 |
| 24 x 8 | 0.89 | 0.60 | 0 | 31.50 | 34.50 | 1007 |
| 24 x 10 | 0.89 | 0.68 | 9.00 | 40.50 | 40.50 | 1399 |
| 24 x 12 | 0.89 | 0.75 | 9.00 | 40.50 | 40.50 | 1442 |
| 24 x 14 | 0.89 | 0.66 | 9.00 | 40.50 | 40.50 | 1458 |
| 24 x 16 | 0.89 | 0.70 | 9.00 | 40.50 | 40.50 | 1503 |
| 24 x 18 | 0.89 | 0.75 | 9.00 | 40.50 | 40.50 | 1556 |
| 24 x 20 | 0.89 | 0.80 | 9.00 | 40.50 | 40.50 | 1615 |
| 24 x 24 | 0.89 | 0.89 | 9.00 | 40.50 | 40.50 | 1755 |

(Con't)➔

| 45° MJ LATERALS (Con't) | | | | | | |
|-------------------------|------|------|-------|-------|-------|-----------|
| NOM. SIZE | T | T1 | A | Y1 | Y2 | WT (LBS.) |
| 30 x 12 | 1.37 | 0.75 | 10.00 | 49.00 | 49.00 | 2836 |
| 30 x 16 | 1.37 | 0.89 | 10.00 | 49.00 | 49.00 | 2959 |
| 30 x 20 | 1.37 | 1.03 | 10.00 | 49.00 | 49.00 | 3089 |
| 30 x 24 | 1.37 | 1.16 | 10.00 | 49.00 | 49.00 | 3260 |
| 30 x 30 | 1.37 | 1.37 | 10.00 | 49.00 | 49.00 | 3710 |
| 36 x 6 | 1.58 | 0.55 | 1.00 | 40.00 | 40.00 | 2868 |
| 36 x 8 | 1.58 | 0.60 | 15.25 | 54.00 | 54.00 | 4301 |
| 36 x 12 | 1.58 | 0.75 | 15.25 | 54.00 | 54.00 | 4376 |
| 36 x 14 | 1.58 | 0.82 | 15.25 | 54.00 | 54.00 | 4434 |
| 36 x 16 | 1.58 | 0.89 | 15.25 | 54.00 | 54.00 | 4488 |
| 36 x 18 | 1.58 | 0.96 | 15.25 | 54.00 | 54.00 | 4549 |
| 36 x 20 | 1.58 | 1.03 | 15.25 | 54.00 | 54.00 | 4615 |
| 36 x 24 | 1.58 | 1.16 | 15.25 | 54.00 | 54.00 | 4761 |
| 36 x 30 | 1.58 | 1.37 | 15.25 | 56.00 | 56.00 | 5266 |
| 36 x 36 | 1.58 | 1.58 | 19.50 | 60.00 | 60.00 | 6306 |
| 42 x 12 | 1.78 | 0.75 | 0 | 52.00 | 52.00 | 4495 |
| 42 x 20 | 1.78 | 1.03 | 12.00 | 60.00 | 60.00 | 6064 |
| 42 x 24 | 1.78 | 1.16 | 12.00 | 60.00 | 60.00 | 6203 |
| 42 x 30 | 1.78 | 1.37 | 12.00 | 63.00 | 63.00 | 6820 |
| ★ 42 x 36 | 1.78 | 1.58 | 12.00 | 66.00 | 66.00 | 7604 |
| ★ 42 x 42 | 1.78 | 1.78 | 15.00 | 71.00 | 71.00 | 9018 |
| 48 x 14 | 1.96 | 0.82 | 0 | 52.00 | 62.00 | 5723 |
| 48 x 18 | 1.96 | 0.96 | --- | 52.00 | 62.00 | 5810 |
| 48 x 20 | 1.96 | 1.03 | --- | 52.00 | 62.00 | 5861 |
| 48 x 24 | 1.96 | 1.16 | 5.00 | 58.00 | 64.00 | 6897 |
| 48 x 30 | 1.96 | 1.37 | 4.00 | 59.00 | 64.00 | 7183 |
| 48 x 36 | 1.96 | 1.58 | 6.00 | 64.00 | 68.00 | 8294 |
| ★ 48 x 42 | 1.96 | 1.78 | 12.00 | 77.00 | 77.00 | 10862 |
| ★ 48 x 48 | 1.96 | 1.96 | 16.00 | 77.00 | 77.00 | 11940 |

★ 150 PSI pressure rating

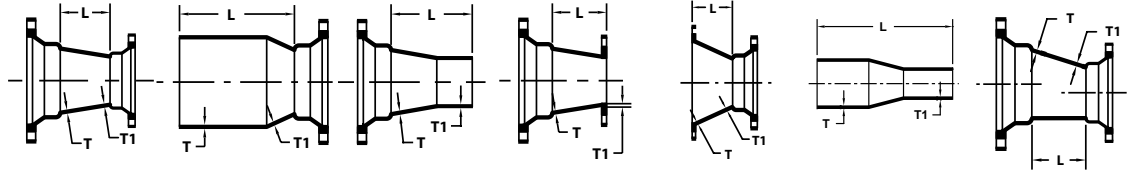
STAR[®] PIPE PRODUCTS





Full Body MJ Fittings

ANSI/AWWA C110/A21.10



| REDUCERS | | | MJ x MJ | | SEB | | LEB | | MJ x FE | | FE x MJ | | PE x PE | | ECCENTRIC | |
|-----------|------|------|---------|-----------|-------|-----------|-------|-----------|---------|-----------|---------|-----------|---------|-----------|-----------|-----------|
| NOM. SIZE | T | T1 | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) |
| 3 x 2 | 0.48 | 0.39 | 6.00 | 25 | 14.00 | 14 | 14.00 | 20 | 6.00 | 20 | --- | --- | --- | --- | --- | --- |
| 4 x 2 | 0.52 | 0.39 | 7.00 | 30 | 15.00 | 18 | 15.00 | 30 | 7.00 | 25 | --- | --- | --- | --- | --- | --- |
| 4 x 3 | 0.52 | 0.48 | 7.00 | 40 | 15.00 | 35 | 15.00 | 40 | 7.00 | 35 | 7.00 | 34 | --- | --- | --- | --- |
| 6 x 2 | 0.55 | 0.39 | 9.00 | 45 | 17.00 | 45 | 17.00 | 45 | 9.00 | 40 | --- | --- | --- | --- | --- | --- |
| 6 x 3 | 0.55 | 0.48 | 9.00 | 55 | 17.00 | 50 | 17.00 | 55 | 9.00 | 49 | --- | --- | --- | --- | --- | --- |
| 6 x 4 | 0.55 | 0.52 | 9.00 | 60 | 17.00 | 60 | 17.00 | 60 | 9.00 | 53 | 9.00 | 60 | --- | --- | 9.00 | 65 |
| 8 x 3 | 0.60 | 0.48 | 11.00 | 75 | 19.00 | 70 | 19.00 | 70 | 11.00 | 65 | --- | --- | --- | --- | --- | --- |
| 8 x 4 | 0.60 | 0.52 | 11.00 | 80 | 19.00 | 80 | 19.00 | 80 | 11.00 | 75 | 11.00 | 80 | --- | --- | --- | --- |
| 8 x 6 | 0.60 | 0.55 | 11.00 | 95 | 19.00 | 90 | 19.00 | 90 | 11.00 | 80 | 11.00 | 89 | 27.00 | 85 | 11.00 | 100 |
| 10 x 4 | 0.68 | 0.52 | 12.00 | 105 | 20.00 | 100 | 20.00 | 100 | --- | --- | --- | --- | --- | --- | --- | --- |
| 10 x 6 | 0.68 | 0.55 | 12.00 | 115 | 20.00 | 115 | 20.00 | 115 | 12.00 | 105 | 12.00 | 114 | --- | --- | --- | --- |
| 10 x 8 | 0.68 | 0.60 | 12.00 | 135 | 20.00 | 130 | 20.00 | 130 | 12.00 | 130 | 12.00 | 130 | --- | --- | 12.00 | 140 |
| 12 x 4 | 0.75 | 0.52 | 14.00 | 135 | 22.00 | 130 | 22.00 | 130 | 14.00 | 125 | --- | --- | --- | --- | --- | --- |
| 12 x 6 | 0.75 | 0.55 | 14.00 | 150 | 22.00 | 150 | 22.00 | 145 | 14.00 | 145 | 14.00 | 151 | --- | --- | --- | --- |
| 12 x 8 | 0.75 | 0.60 | 14.00 | 165 | 22.00 | 165 | 22.00 | 165 | 14.00 | 175 | 14.00 | 183 | 30.00 | 165 | --- | --- |
| 12 x 10 | 0.75 | 0.68 | 14.00 | 190 | 22.00 | 190 | 22.00 | 185 | 14.00 | 185 | 14.00 | 190 | --- | --- | 14.00 | 195 |
| 14 x 6 | 0.66 | 0.55 | 16.00 | 190 | 24.00 | 175 | 24.00 | 185 | 16.00 | 195 | --- | --- | 32.00 | 170 | --- | --- |
| 14 x 8 | 0.66 | 0.60 | 16.00 | 210 | 24.00 | 190 | 24.00 | 205 | 16.00 | 215 | --- | --- | --- | --- | --- | --- |
| 14 x 10 | 0.66 | 0.68 | 16.00 | 230 | --- | --- | --- | --- | 16.00 | 216 | --- | --- | --- | --- | --- | --- |
| 14 x 12 | 0.66 | 0.75 | 16.00 | 255 | 24.00 | 240 | 24.00 | 255 | 16.00 | 246 | --- | --- | --- | --- | --- | --- |
| 16 x 6 | 0.70 | 0.55 | 18.00 | 230 | 26.00 | 210 | 26.00 | 230 | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 x 8 | 0.70 | 0.60 | 18.00 | 250 | 26.00 | 230 | 26.00 | 250 | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 x 10 | 0.70 | 0.68 | 18.00 | 280 | 26.00 | 255 | 26.00 | 275 | --- | --- | --- | --- | --- | --- | 18.00 | 275 |
| 16 x 12 | 0.70 | 0.75 | 18.00 | 305 | 26.00 | 285 | 26.00 | 305 | 18.00 | 325 | 18.00 | 305 | --- | --- | 18.00 | 302 |
| 16 x 14 | 0.70 | 0.66 | 18.00 | 335 | 26.00 | 310 | 26.00 | 315 | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 x 8 | 0.75 | 0.60 | 19.00 | 295 | 27.00 | 270 | 27.00 | 295 | 19.00 | 300 | --- | --- | --- | --- | --- | --- |
| 18 x 10 | 0.75 | 0.68 | 19.00 | 325 | 27.00 | 300 | 27.00 | 320 | 19.00 | 340 | --- | --- | --- | --- | --- | --- |
| 18 x 12 | 0.75 | 0.75 | 19.00 | 350 | 27.00 | 325 | 27.00 | 350 | 19.00 | 360 | --- | --- | --- | --- | --- | --- |
| 18 x 14 | 0.75 | 0.66 | 19.00 | 380 | 27.00 | 355 | 27.00 | 365 | --- | --- | --- | --- | --- | --- | --- | --- |
| 18 x 16 | 0.75 | 0.70 | 19.00 | 415 | 27.00 | 390 | 27.00 | 395 | 19.00 | 405 | --- | --- | --- | --- | --- | --- |
| 20 x 8 | 0.80 | 0.60 | 20.00 | 345 | 28.00 | 345 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 x 10 | 0.80 | 0.68 | 20.00 | 375 | 28.00 | 345 | 28.00 | 375 | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 x 12 | 0.80 | 0.75 | 20.00 | 405 | 28.00 | 375 | 28.00 | 405 | --- | --- | --- | --- | --- | --- | 20.00 | 404 |
| 20 x 14 | 0.80 | 0.66 | 20.00 | 430 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 20 x 16 | 0.80 | 0.70 | 20.00 | 470 | 28.00 | 435 | 28.00 | 445 | 20.00 | 510 | --- | --- | --- | --- | --- | --- |
| 20 x 18 | 0.80 | 0.75 | 20.00 | 510 | 28.00 | 475 | 28.00 | 485 | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 x 8 | 0.89 | 0.60 | 24.00 | 482 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 x 12 | 0.89 | 0.75 | 24.00 | 550 | 32.00 | 510 | 32.00 | 550 | 24.00 | 535 | --- | --- | --- | --- | --- | --- |
| 24 x 14 | 0.89 | 0.66 | 24.00 | --- | --- | --- | --- | --- | 24.00 | 543 | --- | --- | --- | --- | --- | --- |
| 24 x 16 | 0.89 | 0.70 | 24.00 | 615 | 32.00 | 575 | 32.00 | 595 | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 x 18 | 0.89 | 0.75 | 24.00 | 660 | 32.00 | 620 | 32.00 | 635 | --- | --- | --- | --- | --- | --- | --- | --- |
| 24 x 20 | 0.89 | 0.80 | 24.00 | 705 | 32.00 | 665 | 32.00 | 675 | 24.00 | 648 | --- | --- | --- | --- | 24.00 | 710 |
| 30 x 12 | 1.03 | 0.75 | 30.00 | 920 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 x 16 | 1.03 | 0.70 | 30.00 | 945 | 38.00 | 830 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 x 18 | 1.03 | 0.75 | 30.00 | 990 | 38.00 | 885 | 38.00 | 965 | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 x 20 | 1.03 | 0.80 | 30.00 | 1050 | 38.00 | 945 | 38.00 | 1020 | --- | --- | --- | --- | --- | --- | --- | --- |
| 30 x 24 | 1.03 | 0.89 | 30.00 | 1165 | 38.00 | 1060 | 38.00 | 1125 | --- | --- | --- | --- | --- | --- | 30.00 | 1170 |
| 36 x 20 | 1.15 | 0.80 | 36.00 | 1450 | 44.00 | 1285 | 44.00 | 1420 | --- | --- | --- | --- | --- | --- | --- | --- |
| 36 x 24 | 1.15 | 0.89 | 36.00 | 1580 | 44.00 | 1410 | 44.00 | 1535 | --- | --- | --- | --- | --- | --- | --- | --- |

(Con't)➔

UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



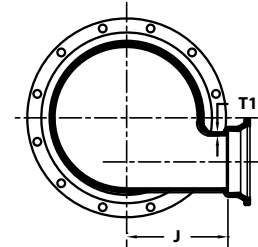
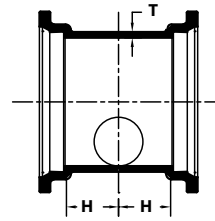
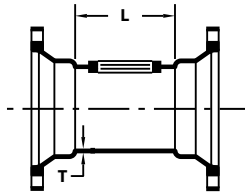
STAR[®] PIPE PRODUCTS



Full Body MJ Fittings

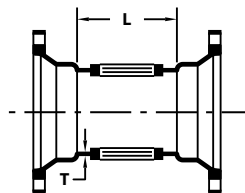
ANSI/AWWA C110/A21.10

| REDUCERS (con't) | | | MJ x MJ | | SEB | | LEB | | MJ x FE | | FE x MJ | | PE x PE | | ECCENTRIC | |
|------------------|------|------|---------|-----------|-------|-----------|-------|-----------|---------|-----------|---------|-----------|---------|-----------|-----------|-----------|
| NOM. SIZE | T | T1 | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) | L | WT (LBS.) |
| 36 x 30 | 1.15 | 1.03 | 36.00 | 1855 | 44.00 | 1690 | 44.00 | 1750 | --- | --- | --- | --- | --- | --- | 36.00 | 1865 |
| 42 x 24 | 1.28 | 0.89 | 42.00 | 2060 | 50.00 | 1855 | 50.00 | 2020 | --- | --- | --- | --- | --- | --- | --- | --- |
| 42 x 30 | 1.28 | 1.03 | 42.00 | 2370 | 50.00 | 2165 | 50.00 | 2265 | --- | --- | --- | --- | --- | --- | --- | --- |
| 48 x 30 | 1.42 | 1.03 | 48.00 | 3005 | 56.00 | 2740 | 56.00 | 2900 | --- | --- | --- | --- | --- | --- | --- | --- |
| 48 x 36 | 1.42 | 1.15 | 48.00 | 3370 | 56.00 | 3100 | 56.00 | 3205 | --- | --- | --- | --- | --- | --- | 48.00 | 3439 |
| 48 x 42 | 1.42 | 1.28 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | 48.00 | 3815 |

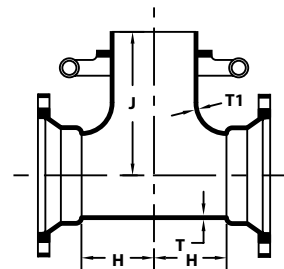


| MJ TAPPED TEE | | | | |
|---------------|------|------|---------|-----------|
| NOM. SIZE | T | L | MAX TAP | WT (LBS.) |
| 4 x 4 | 0.52 | 8.00 | 3 | 45 |
| 6 x 6 | 0.55 | 8.00 | 3 | 70 |
| 8 x 8 | 0.60 | 8.00 | 3 | 95 |
| 10 x 10 | 0.68 | 8.00 | 3 | 127 |
| 12 x 12 | 0.75 | 8.00 | 3 | 165 |
| 16 x 16 | 0.70 | 8.00 | 3 | 267 |
| 20 x 20 | 0.80 | 8.00 | 3 | 381 |
| 24 x 24 | 0.89 | 9.00 | 3 | 516 |

Threads in Accordance with ANSI/ASME B1.20.1



| TANGENTIAL TEE | | | | | |
|----------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 20 x 4 | 0.80 | 0.52 | 14.00 | 17.00 | 820 |
| 20 x 8 | 0.80 | 0.60 | 14.00 | 17.00 | 846 |
| 24 x 4 | 0.89 | 0.52 | 15.00 | 19.00 | 1120 |
| 24 x 8 | 0.89 | 0.60 | 15.00 | 19.00 | 1148 |



| MJ TAPPED CROSS | | | | |
|-----------------|------|------|---------|-----------|
| NOM. SIZE | T | L | MAX TAP | WT (LBS.) |
| 4 x 4 | 0.52 | 8.00 | 3 | 45 |
| 6 x 6 | 0.55 | 8.00 | 3 | 70 |
| 8 x 8 | 0.60 | 8.00 | 3 | 95 |
| 10 x 10 | 0.68 | 8.00 | 3 | 130 |
| 12 x 12 | 0.75 | 8.00 | 3 | 165 |
| 16 x 16 | 0.70 | 8.00 | 3 | 267 |
| 20 x 20 | 0.80 | 8.00 | 3 | 381 |
| 24 x 24 | 0.89 | 9.00 | 3 | 516 |

Threads in Accordance with ANSI/ASME B1.20.1

| MJ x SWIVEL HYDRANT TEES W/ SWIVEL GLAND | | | | | |
|--|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 6 x 6 | 0.55 | 0.55 | 8.00 | 10.50 | 150 |
| 8 x 6 | 0.60 | 0.55 | 9.00 | 11.50 | 200 |
| 8 x 8 | 0.60 | 0.60 | 9.00 | 11.50 | 210 |
| 10 x 6 | 0.68 | 0.55 | 11.00 | 13.50 | 239 |
| 12 x 6 | 0.75 | 0.55 | 12.00 | 14.50 | 341 |
| 16 x 6 | 0.70 | 0.55 | 15.00 | 17.50 | 619 |
| 16 x 8 | 0.70 | 0.60 | 15.00 | 17.50 | 649 |
| 20 x 6 | 0.80 | 0.55 | 14.00 | 19.50 | 829 |
| 30 x 6 | 1.03 | 0.55 | 18.00 | 24.50 | 2070 |



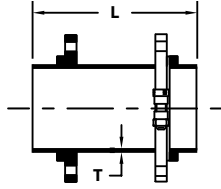
STAR[®] PIPE PRODUCTS



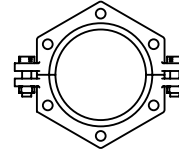
Full Body MJ Fittings

ANSI/AWWA C110/A21.10

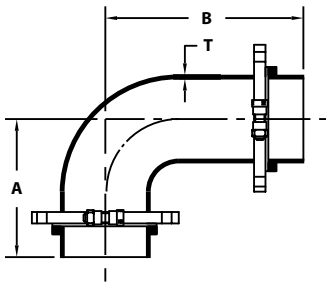
STAR® PIPE PRODUCTS



| SWIVEL x SOLID HYDRANT ADAPTER | | | |
|--------------------------------|------|-------|-----------|
| NOM. SIZE | T | L | WT (LBS.) |
| 4 x 13 | 0.52 | 13.00 | 28 |
| 6 x 13 | 0.55 | 13.00 | 54 |
| 6 x 18 | 0.55 | 18.00 | 68 |
| 6 x 24 | 0.55 | 24.00 | 81 |
| 6 x 36 | 0.55 | 36.00 | 110 |
| 6 x 48 | 0.55 | 48.00 | 139 |
| 8 x 13 | 0.60 | 13.00 | 68 |
| 8 x 18 | 0.60 | 18.00 | 88 |
| 8 x 24 | 0.60 | 24.00 | 112 |
| 8 x 48 | 0.60 | 48.00 | 208 |
| 12 x 13 | 0.75 | 13.00 | 123 |



| SWIVEL GLANDS | | |
|---------------|-----------|-------------------|
| NOM. SIZE | WT (LBS.) | T-HEAD BOLTS |
| 4 | 8 | (2) 3/4" x 3 1/2" |
| 6 | 11 | (2) 3/4" x 3 1/2" |
| 8 | 13 | (2) 3/4" x 3 1/2" |
| 12 | 25 | (2) 3/4" x 4" |



| SWIVEL x SWIVEL HYDRANT ELL W/ 2 SWIVEL GLANDS | | | | |
|--|------|-------|-------|-----------|
| NOM. SIZE | T | A | B | WT (LBS.) |
| 6 | 0.55 | 10.50 | 15.50 | 100 |
| 8 | 0.60 | 11.50 | 16.50 | 140 |



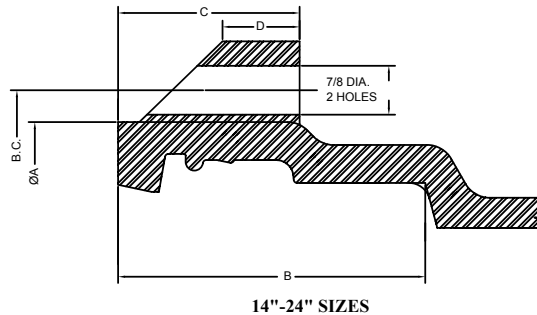
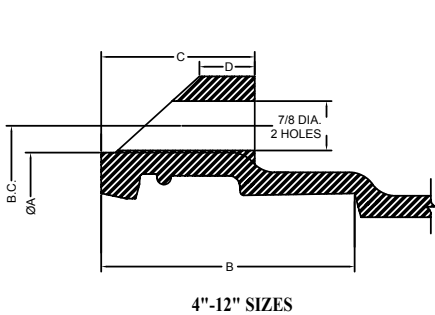
Compact Push-On Fittings

ANSI/AWWA C153/A21.53

4" - 24" DUCTILE IRON PUSH-ON JOINT COMPACT FITTINGS

GENERAL SPECIFICATIONS

- MATERIAL:** Ductile iron per ASTM A536
- PRESSURE:** 350 PSI rating for 4" - 24" sizes. Pressure rating applies to fittings only and does not apply to restraining lugs or external restrainers
- 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 -- sizes 4" - 24" double thickness. [Click here for a pressure jetting discussion](http://www.starpipeproducts.com/pressure_jetting_discussion) or visit http://www.starpipeproducts.com/pressure_cleaning_guidelines.asp.
- COATING:** Asphaltic seal coat inside and out in accordance with ANSI/AWWA C104/A21.4 and referenced in ANSI/AWWA C153/A21.53
- GASKETS:** Dual hardness SBR in accordance with ANSI/AWWA C111/A21.11 (see pg. 41)
- APPROVALS:** 4" - 12" UL/ULC Listed | 4" and greater are UL/ANSI/NSF Standards 61 and 372 | 4" - 12" FM Approved. Please consult factory for detail listing and approvals.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise. ([Click here for a short commentary on non-pressure sewer applications](http://www.starpipeproducts.com/non-pressure_sewer_applications.asp) or visit http://www.starpipeproducts.com/non-pressure_sewer_applications.asp. Review commentary before ordering or installing fittings for this application.
- INSTALLATION:** Per ANSI/AWWA C600 and C111 using DIP conforming to C150/C151 and PVC pipe conforming to C900/C905



WATER QUALITY

PUSH-ON JOINT DIMENSIONS

| NOM. SIZE | ØA | B.C. | B | C | D |
|-----------|-------|-------|------|------|------|
| 4 | 6.38 | 7.50 | 4.02 | 2.17 | 1.12 |
| 6 | 8.52 | 9.56 | 4.02 | 2.17 | 1.12 |
| 8 | 10.80 | 11.82 | 4.49 | 2.72 | 1.12 |
| 10 | 12.91 | 14.00 | 4.49 | 2.91 | 1.12 |
| 12 | 15.05 | 16.25 | 5.00 | 2.99 | 1.12 |
| 14 | 17.89 | 18.75 | 5.50 | 3.12 | 1.25 |
| 16 | 20.05 | 21.00 | 5.50 | 3.25 | 1.25 |
| 18 | 22.35 | 23.25 | 5.50 | 3.25 | 1.25 |
| 20 | 24.47 | 25.50 | 5.50 | 3.25 | 1.25 |
| 24 | 28.79 | 30.00 | 6.00 | 3.25 | 1.25 |



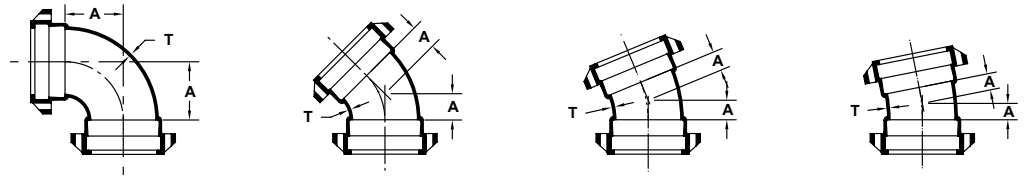
Please note: All fittings are standard with two (2) restraining lugs. Bends 45° & 90° in sizes 4" - 12" are also available with four (4) restraining lugs.

STAR[®] PIPE PRODUCTS

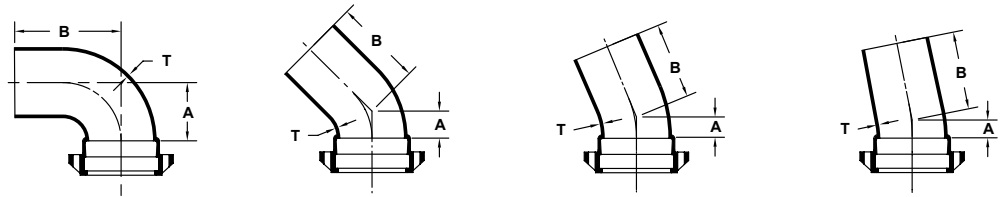


Compact Push-On Fittings

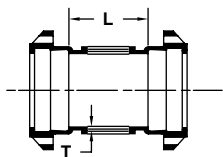
ANSI/AWWA C153/A21.53



| PO x PO BENDS | | 90° PO x PO BENDS (1/4) | | 45° PO x PO BENDS (1/8) | | 22 1/2° PO x PO BENDS (1/8) | | 11 1/4° PO x PO BENDS (1/32) | |
|---------------|------|-------------------------|-----------|-------------------------|-----------|-----------------------------|-----------|------------------------------|-----------|
| NOM. SIZE | T | A | WT (LBS.) | A | WT (LBS.) | A | WT (LBS.) | A | WT (LBS.) |
| 4 | 0.34 | 4.00 | 26 | 2.00 | 23 | 1.50 | 22 | 1.25 | 21 |
| 6 | 0.36 | 5.00 | 41 | 3.00 | 38 | 2.00 | 34 | 1.50 | 32 |
| 8 | 0.38 | 6.50 | 71 | 3.50 | 54 | 2.50 | 55 | 1.75 | 52 |
| 10 | 0.40 | 7.50 | 98 | 4.50 | 87 | 3.00 | 75 | 2.00 | 67 |
| 12 | 0.42 | 8.75 | 139 | 5.50 | 110 | 3.50 | 105 | 2.25 | 95 |
| 14 | 0.47 | 11.50 | 254 | 5.00 | 143 | 3.75 | 162 | 2.50 | 113 |
| 16 | 0.50 | 12.50 | 275 | 5.50 | 206 | 3.75 | 168 | 2.50 | 172 |
| 18 | 0.54 | 14.00 | 391 | 6.00 | 309 | 4.50 | 209 | 3.00 | 209 |
| 20 | 0.57 | 15.00 | 476 | 7.00 | 351 | 4.50 | 400 | 3.00 | 265 |
| 24 | 0.61 | 17.00 | 704 | 7.50 | 414 | 7.50 | 410 | 3.00 | 315 |

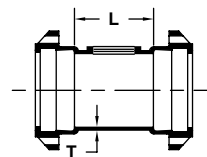


| PO x PE BENDS | | 90° PO x PE BENDS (1/4) | | | 45° PO x PE BENDS (1/8) | | | 22 1/2° PO x PE BENDS (1/8) | | | 11 1/4° PO x PE BENDS (1/32) | | |
|---------------|------|-------------------------|-------|-----------|-------------------------|------|-----------|-----------------------------|------|-----------|------------------------------|------|-----------|
| NOM. SIZE | T | A | B | WT (LBS.) | A | B | WT (LBS.) | A | B | WT (LBS.) | A | B | WT (LBS.) |
| 4 | 0.34 | 4.00 | 10.50 | 24 | 2.00 | 8.00 | 21 | 1.50 | 8.00 | 19 | 1.25 | 7.00 | 18 |
| 6 | 0.36 | 5.00 | 12.00 | 47 | 3.00 | 9.00 | 38 | 2.00 | 8.00 | 35 | 1.50 | 7.25 | 34 |
| 8 | 0.38 | 6.50 | 13.00 | 75 | 3.50 | 9.50 | 60 | 2.50 | 8.50 | 57 | 1.75 | 7.50 | 55 |



| PO x TAPPED CROSS | | | | |
|-------------------|------|------|----------|-----------|
| NOM. SIZE | T | L | MAX. TAP | WT (LBS.) |
| 4 | 0.34 | 6.00 | 3 | 35 |
| 6 | 0.36 | 6.00 | 3 | 45 |
| 8 | 0.38 | 6.00 | 3 | 61 |
| 10 | 0.40 | 6.00 | 3 | 100 |
| 12 | 0.42 | 6.00 | 3 | 140 |

Threads in Accordance with ANSI/ASME B1.20.1



| PO x TAPPED TEE | | | | |
|-----------------|------|------|----------|-----------|
| NOM. SIZE | T | L | MAX. TAP | WT (LBS.) |
| 4 | 0.34 | 6.00 | 3 | 35 |
| 6 | 0.36 | 6.00 | 3 | 45 |
| 8 | 0.38 | 6.00 | 3 | 61 |
| 10 | 0.40 | 6.00 | 3 | 100 |
| 12 | 0.42 | 6.00 | 3 | 140 |

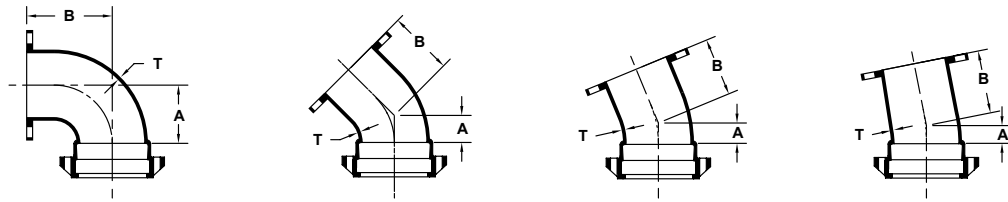
Threads in Accordance with ANSI/ASME B1.20.1

STAR[®] PIPE PRODUCTS

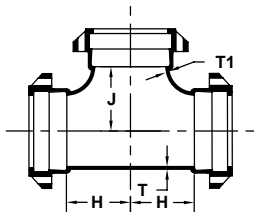


Compact Push-On Fittings

ANSI/AWWA C153/A21.53



| PO x FE BENDS | | 90° PO x FE BENDS (1/4) | | | 45° PO x FE BENDS (1/8) | | | 22 1/2° PO x FE BENDS (1/16) | | | 11 1/4° PO x FE BENDS (1/32) | | |
|---------------|------|-------------------------|-------|-----------|-------------------------|------|-----------|------------------------------|------|-----------|------------------------------|------|-----------|
| NOM. SIZE | T | A | B | WT (LBS.) | A | B | WT (LBS.) | A | B | WT (LBS.) | A | B | WT (LBS.) |
| 4 | 0.34 | 4.50 | 6.50 | 33 | 2.00 | 4.00 | 21 | 1.50 | 4.00 | 25 | 1.25 | 4.00 | 24 |
| 6 | 0.36 | 5.50 | 8.00 | 47 | 3.00 | 5.00 | 42 | 2.00 | 5.00 | 44 | 1.50 | 5.00 | 30 |
| 8 | 0.38 | 6.50 | 9.00 | 76 | 3.50 | 5.50 | 60 | 2.50 | 5.50 | 64 | 1.75 | 5.50 | 61 |
| 10 | 0.40 | 7.50 | 11.00 | 130 | 4.50 | 6.50 | 93 | 3.00 | 6.50 | 90 | 2.00 | 6.50 | 80 |
| 12 | 0.42 | 8.75 | 12.00 | 158 | 5.50 | 7.50 | 122 | 3.50 | 7.50 | 112 | 2.25 | 7.50 | 94 |
| 14 | 0.47 | 11.50 | 14.00 | 231 | 5.00 | 7.50 | 162 | 3.75 | 7.50 | 174 | 2.50 | 7.50 | 170 |
| 16 | 0.50 | 12.50 | 15.00 | 350 | 5.50 | 8.00 | 275 | 3.75 | 8.00 | 228 | 2.50 | 8.00 | 228 |
| 24 | 0.61 | 17.00 | 22.00 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |



| PO x PO TEES | | | | | |
|--------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 4 x 4 | 0.34 | 0.34 | 4.00 | 4.00 | 40 |
| 6 x 4 | 0.36 | 0.34 | 4.00 | 5.00 | 50 |
| 6 x 6 | 0.36 | 0.36 | 5.00 | 5.00 | 59 |
| 8 x 4 | 0.38 | 0.34 | 4.00 | 6.50 | 75 |
| 8 x 6 | 0.38 | 0.36 | 5.00 | 6.50 | 88 |
| 8 x 8 | 0.38 | 0.38 | 6.50 | 6.50 | 99 |
| 10 x 4 | 0.40 | 0.34 | 4.00 | 7.50 | 95 |
| 10 x 6 | 0.40 | 0.36 | 5.00 | 7.50 | 103 |
| 10 x 8 | 0.40 | 0.38 | 6.50 | 7.50 | 122 |
| 10 x 10 | 0.40 | 0.40 | 7.50 | 7.50 | 134 |
| 12 x 4 | 0.42 | 0.34 | 4.00 | 8.75 | 122 |
| 12 x 6 | 0.42 | 0.36 | 5.00 | 8.75 | 126 |
| 12 x 8 | 0.42 | 0.38 | 6.50 | 8.75 | 148 |
| 12 x 10 | 0.42 | 0.40 | 7.50 | 8.75 | 161 |
| 12 x 12 | 0.42 | 0.42 | 8.75 | 8.75 | 192 |
| 14 x 6 | 0.47 | 0.36 | 6.50 | 10.50 | 176 |
| 14 x 10 | 0.47 | 0.40 | 8.50 | 10.50 | 195 |
| 14 x 12 | 0.47 | 0.42 | 9.50 | 10.50 | 196 |
| 14 x 14 | 0.47 | 0.47 | 10.50 | 10.50 | 209 |

| PO x PO TEES (Con't) | | | | | |
|----------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 16 x 6 | 0.50 | 0.36 | 6.50 | 11.50 | 221 |
| 16 x 8 | 0.50 | 0.38 | 7.50 | 11.50 | 257 |
| 16 x 10 | 0.50 | 0.40 | 8.50 | 11.50 | 232 |
| 16 x 12 | 0.50 | 0.42 | 9.50 | 11.50 | 288 |
| 16 x 14 | 0.50 | 0.47 | 10.50 | 11.50 | 349 |
| 16 x 16 | 0.50 | 0.50 | 12.50 | 12.50 | 460 |
| 18 x 6 | 0.54 | 0.36 | 6.50 | 12.50 | 320 |
| 18 x 8 | 0.54 | 0.38 | 7.50 | 12.50 | 325 |
| 18 x 10 | 0.54 | 0.40 | 8.50 | 12.50 | 344 |
| 18 x 12 | 0.54 | 0.42 | 9.50 | 12.50 | 385 |
| 18 x 14 | 0.54 | 0.47 | 10.50 | 12.50 | 352 |
| 18 x 16 | 0.54 | 0.50 | 11.50 | 12.50 | 362 |
| 18 x 18 | 0.54 | 0.54 | 14.00 | 14.00 | 550 |
| 20 x 6 | 0.57 | 0.36 | 6.50 | 14.00 | 355 |
| 20 x 10 | 0.57 | 0.40 | 9.00 | 14.00 | 369 |
| 20 x 12 | 0.57 | 0.42 | 10.00 | 14.00 | 457 |
| 20 x 14 | 0.57 | 0.47 | 11.00 | 14.00 | 484 |
| 20 x 16 | 0.57 | 0.50 | 12.00 | 14.00 | 610 |
| 20 x 18 | 0.57 | 0.54 | 13.00 | 14.00 | 639 |
| 20 x 20 | 0.57 | 0.57 | 15.00 | 15.00 | 644 |
| 24 x 6 | 0.61 | 0.36 | 7.00 | 16.00 | 450 |
| 24 x 8 | 0.61 | 0.38 | 8.00 | 16.00 | 492 |
| 24 x 10 | 0.61 | 0.40 | 9.00 | 16.00 | 520 |
| 24 x 12 | 0.61 | 0.42 | 10.00 | 16.00 | 541 |
| 24 x 14 | 0.61 | 0.47 | 11.00 | 16.00 | 715 |
| 24 x 16 | 0.61 | 0.50 | 12.00 | 16.00 | 755 |
| 24 x 18 | 0.61 | 0.54 | 13.00 | 16.00 | 708 |
| 24 x 20 | 0.61 | 0.57 | 14.00 | 16.00 | 845 |
| 24 x 24 | 0.61 | 0.61 | 17.00 | 17.00 | 884 |

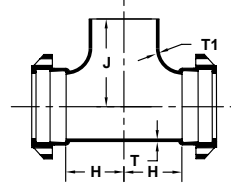
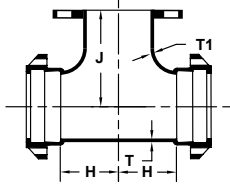
(Con't)➔

STAR[®] PIPE PRODUCTS



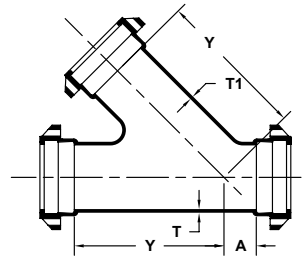
Compact Push-On Fittings

ANSI/AWWA C153/A21.53



| PO x FE TEES | | | | | |
|--------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 4 x 4 | 0.34 | 0.34 | 4.50 | 6.50 | 47 |
| 6 x 4 | 0.36 | 0.34 | 4.50 | 8.00 | 60 |
| 6 x 6 | 0.36 | 0.36 | 5.50 | 8.00 | 69 |
| 8 x 4 | 0.38 | 0.34 | 4.50 | 9.00 | 81 |
| 8 x 6 | 0.38 | 0.36 | 5.50 | 9.00 | 87 |
| 8 x 8 | 0.38 | 0.38 | 6.50 | 9.00 | 115 |
| 10 x 4 | 0.40 | 0.34 | 4.50 | 11.00 | 97 |
| 10 x 6 | 0.40 | 0.36 | 5.50 | 11.00 | 114 |
| 10 x 8 | 0.40 | 0.38 | 6.50 | 11.00 | 133 |
| 10 x 10 | 0.40 | 0.40 | 7.50 | 11.00 | 165 |
| 12 x 4 | 0.42 | 0.34 | 4.50 | 12.00 | 125 |
| 12 x 6 | 0.42 | 0.36 | 5.50 | 12.00 | 131 |
| 12 x 8 | 0.42 | 0.38 | 6.50 | 12.00 | 166 |
| 12 x 10 | 0.42 | 0.40 | 7.50 | 12.00 | 142 |
| 12 x 12 | 0.42 | 0.42 | 8.75 | 12.00 | 210 |
| 16 x 6 | 0.50 | 0.36 | 6.50 | 15.00 | 236 |
| 16 x 8 | 0.50 | 0.38 | 7.50 | 15.00 | 269 |
| 16 x 10 | 0.50 | 0.40 | 8.50 | 15.00 | 310 |
| 16 x 12 | 0.50 | 0.42 | 9.50 | 15.00 | 348 |
| 16 x 14 | 0.50 | 0.47 | 10.50 | 15.00 | 342 |
| 16 x 16 | 0.50 | 0.50 | 11.50 | 15.00 | 355 |
| 18 x 6 | 0.54 | 0.36 | 6.50 | 15.50 | 301 |
| 18 x 8 | 0.54 | 0.38 | 7.50 | 15.50 | 319 |
| 18 x 10 | 0.54 | 0.40 | 8.50 | 15.50 | 337 |
| 18 x 14 | 0.54 | 0.47 | 10.50 | 15.50 | 393 |
| 18 x 16 | 0.54 | 0.50 | 11.50 | 15.50 | 420 |
| 20 x 6 | 0.57 | 0.36 | 6.50 | 17.00 | 341 |
| 20 x 10 | 0.57 | 0.40 | 9.00 | 17.00 | 420 |
| 20 x 14 | 0.57 | 0.47 | 11.00 | 17.00 | 474 |
| 20 x 16 | 0.57 | 0.50 | 12.00 | 18.00 | 498 |
| 20 x 18 | 0.57 | 0.54 | 13.00 | 18.00 | 528 |
| 24 x 6 | 0.61 | 0.36 | 7.00 | 19.00 | 420 |
| 24 x 10 | 0.61 | 0.40 | 9.00 | 19.00 | 468 |
| 24 x 12 | 0.61 | 0.42 | 10.00 | 19.00 | 503 |
| 24 x 14 | 0.61 | 0.47 | 11.00 | 19.00 | 531 |
| 24 x 16 | 0.61 | 0.50 | 12.00 | 19.00 | 555 |

| PO x PE TEES | | | | | |
|--------------|------|------|------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 6 x 6 | 0.36 | 0.36 | 5.00 | 11.50 | 55 |
| 8 x 6 | 0.38 | 0.36 | 5.00 | 12.50 | 75 |
| 12 x 6 | 0.42 | 0.36 | 5.00 | 15.50 | 130 |



| 45° PO LATERALS | | | | | |
|-----------------|------|------|------|-------|-----------|
| NOM. SIZE | T | T1 | A | Y | WT (LBS.) |
| 4 x 4 | 0.34 | 0.34 | 2.50 | 9.50 | 55 |
| 6 x 4 | 0.36 | 0.34 | 3.00 | 13.00 | 76 |
| 6 x 6 | 0.36 | 0.36 | 3.00 | 13.00 | 85 |
| 8 x 4 | 0.38 | 0.34 | 3.50 | 16.00 | 89 |
| 8 x 6 | 0.38 | 0.36 | 3.50 | 16.00 | 125 |
| 8 x 8 | 0.38 | 0.38 | 3.50 | 16.00 | 140 |
| 10 x 4 | 0.40 | 0.34 | 3.50 | 19.00 | 144 |
| 10 x 6 | 0.40 | 0.36 | 3.50 | 19.00 | 154 |
| 10 x 8 | 0.40 | 0.38 | 3.50 | 19.00 | 160 |
| 10 x 10 | 0.40 | 0.40 | 3.50 | 19.00 | 170 |
| 12 x 4 | 0.42 | 0.34 | 4.50 | 22.50 | 224 |
| 12 x 6 | 0.42 | 0.36 | 4.50 | 22.50 | 236 |
| 12 x 8 | 0.42 | 0.38 | 4.50 | 22.50 | 259 |
| 12 x 10 | 0.42 | 0.40 | 4.50 | 22.50 | 282 |
| 12 x 12 | 0.42 | 0.42 | 4.50 | 22.50 | 300 |
| 14 x 6 | 0.47 | 0.36 | 0.00 | 19.50 | 236 |
| 14 x 8 | 0.47 | 0.38 | 1.50 | 21.00 | 255 |
| 14 x 10 | 0.47 | 0.40 | 3.00 | 22.50 | 325 |
| 14 x 14 | 0.47 | 0.47 | 6.00 | 25.00 | 475 |
| 16 x 6 | 0.50 | 0.36 | 0.00 | 21.00 | 281 |
| 16 x 8 | 0.50 | 0.38 | 1.00 | 22.50 | 305 |
| 16 x 12 | 0.50 | 0.42 | 3.50 | 25.00 | 346 |
| 16 x 16 | 0.50 | 0.50 | 6.00 | 28.00 | 380 |
| 18 x 18 | 0.75 | 0.75 | 7.00 | 29.00 | 812 |

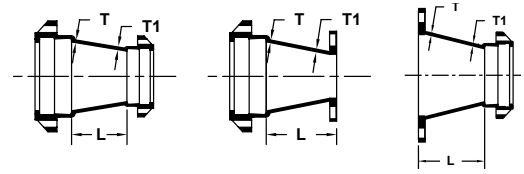
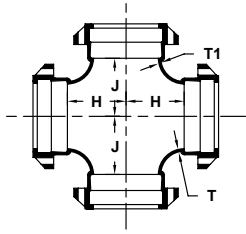
STAR® PIPE PRODUCTS

UCAT22.01-2
* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

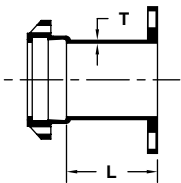


Compact Push-On Fittings

ANSI/AWWA C153/A21.53

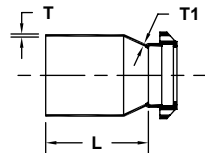


| PO CROSSES | | | | | |
|------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 4 x 4 | 0.34 | 0.34 | 4.00 | 4.00 | 55 |
| 6 x 6 | 0.36 | 0.36 | 5.00 | 5.00 | 74 |
| 8 x 6 | 0.38 | 0.36 | 5.00 | 6.50 | 103 |
| 8 x 8 | 0.38 | 0.38 | 6.50 | 6.50 | 115 |
| 10 x 4 | 0.40 | 0.34 | 4.00 | 7.50 | 116 |
| 10 x 8 | 0.40 | 0.38 | 6.50 | 7.50 | 150 |
| 10 x 10 | 0.40 | 0.40 | 7.50 | 7.50 | 160 |
| 12 x 8 | 0.42 | 0.38 | 6.50 | 8.75 | 171 |
| 12 x 10 | 0.42 | 0.40 | 7.50 | 8.75 | 176 |
| 12 x 12 | 0.42 | 0.42 | 8.75 | 8.75 | 216 |
| 14 x 6 | 0.47 | 0.36 | 6.50 | 10.50 | 189 |
| 14 x 8 | 0.47 | 0.38 | 7.50 | 10.50 | 204 |
| 14 x 10 | 0.47 | 0.40 | 8.50 | 10.50 | 222 |
| 14 x 12 | 0.47 | 0.42 | 9.50 | 10.50 | 239 |
| 14 x 14 | 0.47 | 0.47 | 10.50 | 10.50 | 270 |
| 16 x 6 | 0.50 | 0.36 | 6.50 | 11.50 | 234 |
| 16 x 8 | 0.50 | 0.38 | 7.50 | 11.50 | 245 |
| 16 x 10 | 0.50 | 0.40 | 8.50 | 11.50 | 268 |
| 16 x 12 | 0.50 | 0.42 | 9.50 | 11.50 | 274 |
| 16 x 14 | 0.50 | 0.47 | 10.50 | 11.50 | 322 |
| 16 x 16 | 0.50 | 0.50 | 12.50 | 12.50 | 417 |
| 18 x 8 | 0.54 | 0.38 | 7.50 | 12.50 | 363 |
| 24 x 24 | 0.61 | 0.61 | 17.00 | 17.00 | 1056 |



| PO x FLANGE ADAPTER | | | |
|---------------------|------|------|-----------|
| NOM. SIZE | T | L | WT (LBS.) |
| 4 | 0.34 | 3.50 | 22 |
| 6 | 0.36 | 3.50 | 34 |
| 8 | 0.38 | 3.50 | 46 |
| 10 | 0.40 | 3.50 | 59 |
| 12 | 0.42 | 3.50 | 98 |
| 14 | 0.47 | 5.00 | 113 |
| 16 | 0.50 | 5.00 | 180 |
| 24 | 0.61 | 5.00 | 308 |

| NOM. SIZE | T | T1 | PO x PO | | PO x FE | | FE x PO | |
|-----------|------|------|---------|-----------|---------|-----------|---------|----|
| | | | L | WT (LBS.) | L | WT (LBS.) | L | WT |
| 6 x 4 | 0.36 | 0.34 | 4.00 | 30 | 6.00 | 32 | | |
| 8 x 4 | 0.38 | 0.34 | 5.00 | 42 | 7.00 | 46 | | |
| 8 x 6 | 0.38 | 0.36 | 4.00 | 43 | 6.00 | 47 | 6.00 | 45 |
| 10 x 4 | 0.40 | 0.34 | 7.00 | 53 | 9.00 | 55 | | |
| 10 x 6 | 0.40 | 0.36 | 5.00 | 58 | 7.00 | 59 | | |
| 10 x 8 | 0.40 | 0.38 | 4.00 | 62 | 6.00 | 61 | | |
| 12 x 4 | 0.42 | 0.34 | 9.00 | 70 | 11.00 | 78 | | |
| 12 x 6 | 0.42 | 0.36 | 7.00 | 77 | 9.00 | 73 | | |
| 12 x 8 | 0.42 | 0.38 | 5.00 | 80 | 7.00 | 74 | | |
| 12 x 10 | 0.42 | 0.40 | 4.00 | 82 | 6.00 | 95 | | |
| 14 x 6 | 0.47 | 0.36 | 9.00 | 84 | 11.00 | 121 | | |
| 14 x 8 | 0.47 | 0.38 | 7.00 | 85 | 9.00 | 128 | | |
| 14 x 10 | 0.47 | 0.40 | 5.00 | 87 | 7.00 | 127 | | |
| 14 x 12 | 0.47 | 0.42 | 4.00 | 104 | 6.00 | 144 | | |
| 16 x 6 | 0.50 | 0.36 | 11.00 | 138 | 13.00 | 133 | | |
| 16 x 8 | 0.50 | 0.38 | 9.00 | 137 | 11.00 | 141 | | |
| 16 x 10 | 0.50 | 0.40 | 7.00 | 130 | 9.00 | 158 | | |
| 16 x 12 | 0.50 | 0.42 | 5.00 | 135 | 7.00 | 172 | | |
| 16 x 14 | 0.50 | 0.47 | 4.00 | 139 | 6.00 | 196 | | |
| 18 x 8 | 0.54 | 0.38 | 13.00 | 140 | 16.00 | 157 | | |
| 18 x 10 | 0.54 | 0.40 | 10.00 | 142 | 14.00 | 175 | | |
| 18 x 12 | 0.54 | 0.42 | 7.00 | 167 | 12.00 | 215 | | |
| 18 x 14 | 0.54 | 0.47 | 6.00 | 217 | 11.50 | 234 | | |
| 18 x 16 | 0.54 | 0.50 | 5.00 | 202 | 10.50 | 246 | | |
| 20 x 10 | 0.57 | 0.40 | 14.00 | 180 | 16.00 | 234 | | |
| 20 x 12 | 0.57 | 0.42 | 12.00 | 205 | --- | --- | | |
| 20 x 14 | 0.57 | 0.47 | 10.00 | 233 | 13.50 | 249 | | |
| 20 x 16 | 0.57 | 0.50 | 7.00 | 250 | 11.50 | 272 | | |
| 20 x 18 | 0.57 | 0.54 | 4.00 | 248 | --- | --- | | |
| 24 x 12 | 0.61 | 0.42 | 16.00 | 308 | 18.00 | 262 | | |
| 24 x 14 | 0.61 | 0.47 | 14.00 | 340 | 17.50 | 315 | | |
| 24 x 16 | 0.61 | 0.50 | 12.00 | 324 | 15.50 | 328 | | |
| 24 x 18 | 0.61 | 0.54 | 10.00 | 390 | --- | --- | | |
| 24 x 20 | 0.61 | 0.57 | 7.00 | 421 | --- | --- | | |



| PO SMALL END BELL (SEB) REDUCER | | | | |
|---------------------------------|------|------|-------|-----------|
| NOM. SIZE | T | T1 | L | WT (LBS.) |
| 6 x 4 | 0.37 | 0.35 | 9.50 | 27 |
| 8 x 4 | 0.39 | 0.35 | 9.50 | 29 |
| 8 x 6 | 0.39 | 0.37 | 9.50 | 37 |
| 12 x 6 | 0.43 | 0.37 | 12.50 | 63 |
| 12 x 8 | 0.43 | 0.39 | 10.50 | 64 |

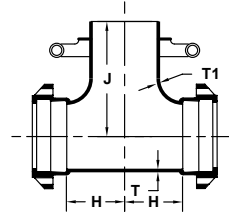
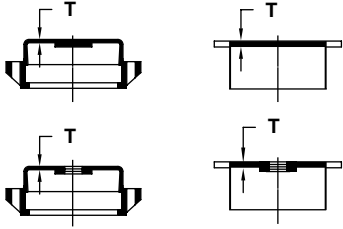
STAR[®] PIPE PRODUCTS





Compact Push-On Fittings

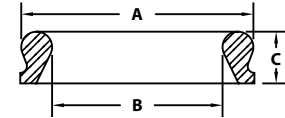
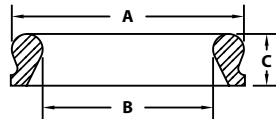
ANSI/AWWA C153/A21.53



| PO CAPS & PLUGS (SOLID OR TAPPED) | | | | |
|-----------------------------------|------|----------|-----------|-------|
| NOM. SIZE | T | MAX. TAP | WT (LBS.) | |
| | | | CAPS | PLUGS |
| 4 | 0.37 | 2 | 13 | 12 |
| 6 | 0.39 | 2 | 20 | 17 |
| 8 | 0.41 | 2 | 30 | 29 |
| 10 | 0.44 | 2 | 40 | 36 |
| 12 | 0.46 | 2 | 62 | 47 |
| 14 | 0.60 | 2.5 | 70 | 74 |
| 16 | 0.83 | 2.5 | 156 | 144 |
| 24 | 0.90 | 3 | 212 | 202 |

| PO x SWIVEL HYDRANT TEES | | | | | |
|--------------------------|------|------|------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | WT (LBS.) |
| 6 x 6 | 0.36 | 0.36 | 6.00 | 9.50 | 71 |
| 8 x 6 | 0.38 | 0.36 | 6.00 | 10.50 | 87 |
| 10 x 6 | 0.40 | 0.36 | 7.00 | 12.50 | 100 |
| 12 x 6 | 0.42 | 0.36 | 7.00 | 13.50 | 138 |
| 16 x 6 | 0.50 | 0.36 | 6.50 | 15.00 | 229 |
| 20 x 6 | 0.57 | 0.36 | 7.00 | 17.50 | 400 |
| 24 x 6 | 0.61 | 0.36 | 7.00 | 19.50 | 525 |

Threads in Accordance with ANSI/ASME B1.20.1



| PO GASKETS | | | |
|------------|-------|-------|------|
| NOM. SIZE | A | B | C |
| 4 | 5.74 | 4.54 | 1.00 |
| 6 | 7.86 | 6.64 | 1.00 |
| 8 | 10.15 | 8.73 | 1.21 |
| 10 | 12.22 | 10.80 | 1.30 |
| 12 | 14.34 | 12.92 | 1.30 |
| 14 | 16.90 | 15.90 | 1.65 |
| 16 | 19.01 | 17.01 | 1.65 |
| 18 | 21.13 | 19.13 | 1.65 |
| 20 | 23.25 | 21.25 | 1.65 |
| 24 | 27.48 | 25.48 | 1.65 |

| PO TRANSITION GASKETS | | | |
|-----------------------|-------|-------|------|
| NOM. SIZE | A | B | C |
| 4 | 5.74 | 4.18 | 1.00 |
| 6 | 7.86 | 6.31 | 1.10 |
| 8 | 10.15 | 8.32 | 1.29 |
| 10 | 12.22 | 10.30 | 1.36 |
| 12 | 14.34 | 12.70 | 1.45 |

STAR® PIPE PRODUCTS



Standard Push-On Joint Gaskets

(SBR, NBR, EPDM, Neoprene, FKM)

ANSI/AWWA C111/A21.11

GASKET GENERAL SPECIFICATIONS

Star Pipe Products Push-On Gasket dimensions conform to the requirements for Trim Tyton[®] style bells. Gasket markings include size, Manufacturer's mark, Country of origin and product identification. No markings are positioned on sealing surfaces per the ANSI/AWWA C111/A21.11 standard. Push-on Transition gaskets follow the requirements of ANSI/AWWA C111/A21.11 where applicable.

Standard gasket material is vulcanized styrene butadiene rubber (SBR). Special application elastomers (EPDM, Nitrile, Neoprene & FKM) are available and shall be identified on all documentation and corresponding gaskets. All SBR, EPDM, Nitrile and Flouroelastomer Push-On joint gaskets supplied by Star Pipe Products are certified to NSF/ANSI 61.

Star Pipe gaskets are manufactured under quality control standards and procedures that are maintained by the gasket supplier. Appropriate documentation is maintained by the manufacturer and available for review upon request.

Star Pipe gasket suppliers maintain a quality assurance program and manual that is reviewed and updated on an ongoing basis to ensure product quality. Star Pipe gasket suppliers perform in house testing and submit to random testing by Underwriters Laboratories, Inc. Star Pipe gasket providers are recognized under the component program (UL 194/ UL 157) of Underwriters Laboratories, Inc.

Star Pipe provides that our Push-On gaskets for potable or wastewater projects will perform as designed, based on the published chemical and environmental resistance data for "generic" rubber compounds. Star Pipe should be consulted for specific recommendations or for unusual applications.

| GASKET PROPERTIES | | | |
|--------------------------------------|------------------|-------------|----------|
| PROPERTY | ASTM TEST METHOD | MAIN BODY | HEEL |
| Hardness, Shore "A" | D2240 | 55±5 | 83±5 |
| Minimum Tensile | D412 | 2000 PSI | 1200 PSI |
| Minimum Elongation | D412 | 300% | 125% |
| Minimum Aging | D573 | 60% | --- |
| Maximum Compression Set | D395, Method B | 20% | --- |
| Resistance to Surface Ozone Cracking | D1149 | No Cracking | --- |

| GASKET TYPE | MAXIMUM CONTINUOUS TEMP | STANDARD USAGE |
|--|-------------------------|--|
| SBR (Styrene Butadiene Rubber/ Buna-S) | 150 F | Drinking Water, Salt Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. Not Recommended for Hydrocarbon Service |
| EPDM (Ethylene Propylene) | 212 F | Alcohols, Dilute Acids, Dilute alkalis, Ketones (MEK/Acetone), Strong Oxidizing Chemicals; Drinking Water, Salt Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. Not Recommended for Hydrocarbon Service |
| Neoprene (Polychlorprene / CR) | 200 F | Hydrocarbons, Unrefined Petroleum Products, Greasy Waste; Salt Water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. |
| Nitrile (NBR / Buna-N) | 150 F | Refined Oils and Fluids, Fats, Greases and Waste; Drinking water, Sanitary Sewage, Reclaimed Water, Raw Water, Storm Water. |
| FKM (Flouroelastomer / Viton [®]) | 212 F | Aromatic Hydrocarbons, Chlorinated Hydrocarbons, Vegetable Oils, most Chemicals; Drinking Water, Reclaimed Water, Raw Water, Storm Water. |

Trim Tyton[®] is a registered trademark of United States Pipe and Foundry Company.

Viton[®] is a registered trademark of E.I. Du Pont De Nemours & Company.

STAR[®] PIPE PRODUCTS





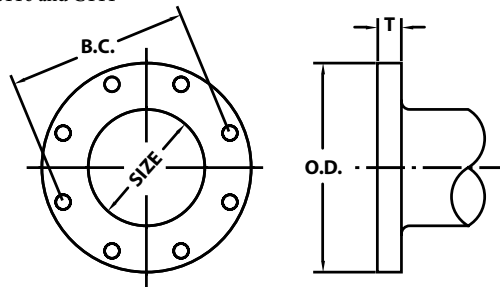
Flanged Fittings

ANSI/AWWA C110/A21.10

1" - 64" DUCTILE IRON FLANGED FITTINGS

GENERAL SPECIFICATIONS

- MATERIAL:** Ductile iron per ASTM A536
- PRESSURE:** 250 PSI rating for 1" - 48" sizes and 150 PSI rating for 54" - 64"
- TESTING:** In accordance with ANSI/AWWA C110/A21.10, UL and FM requirements
- LAYING LENGTH:** 2" - 48" sizes in accordance with ANSI/AWWA C110/A21.10 and ANSI B16.1 and 54" - 64" sizes 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 coatings
- DRILLING:** In accordance with ANSI/AWWA C110/A21.10, ANSI/AWWA C153/A21.53 and ANSI B16.1 Class 125 Flanges
- CEMENT LINING:** In accordance with ANSI/AWWA C104/A21.4 -- size 1" - 3" single thickness and sizes 4" - 64" double thickness. [Click here for a pressure jetting discussion](#) or visit http://www.starpipeproducts.com/pressure_cleaning_guidelines.asp.
- COATING:** Asphaltic seal coat inside in accordance with ANSI/AWWA C104/A21.4 and prime coat outside
- APPROVALS:** 2" - 12" Underwriters Laboratories and ULC Listed and Factory Mutual approved for 250 PSI rating. Please consult factory for detail listing and approvals. 2" and greater are UL/ANSI/NSF Standards 61 and 372.
- DIMENSIONS:** All dimensions are in inches unless noted otherwise.
- INSTALLATION:** Per ANSI/AWWA C110 and C111



| FLANGE DETAILS | | | | | | |
|----------------|-------|-------|------|----------------|---------------|-----|
| NOM. SIZE | O.D. | B.C. | T | BOLT HOLE DIA. | BOLTS | |
| | | | | | SIZE | NO. |
| 1 | 4.25 | 3.12 | 0.44 | 0.62 | 1/2 x 2 | 4 |
| 1 1/2 | 5.00 | 3.88 | 0.56 | 0.62 | 1/2 x 2 | 4 |
| 2 | 6.00 | 4.75 | 0.62 | 0.75 | 5/8 x 2 1/4 | 4 |
| 2 1/2 | 7.00 | 5.50 | 0.69 | 0.75 | 5/8 x 2 1/2 | 4 |
| 3 | 7.50 | 6.00 | 0.75 | 0.75 | 5/8 x 2 1/2 | 4 |
| 4 | 9.00 | 7.50 | 0.94 | 0.75 | 5/8 x 3 | 8 |
| 5 | 10.00 | 8.50 | 0.94 | 0.88 | 3/4 x 3 | 8 |
| 6 | 11.00 | 9.50 | 1.00 | 0.88 | 3/4 x 3 1/2 | 8 |
| 8 | 13.50 | 11.75 | 1.12 | 0.88 | 3/4 x 3 1/2 | 8 |
| 10 | 16.00 | 14.25 | 1.19 | 1.00 | 7/8 x 4 | 12 |
| 12 | 19.00 | 17.00 | 1.25 | 1.00 | 7/8 x 4 | 12 |
| 14 | 21.00 | 18.75 | 1.38 | 1.13 | 1 x 4 1/2 | 12 |
| 16 | 23.50 | 21.25 | 1.44 | 1.13 | 1 x 4 1/2 | 16 |
| 18 | 25.00 | 22.75 | 1.56 | 1.25 | 1 1/8 x 5 | 16 |
| 20 | 27.50 | 25.00 | 1.69 | 1.25 | 1 1/8 x 5 | 20 |
| 24 | 32.00 | 29.50 | 1.88 | 1.38 | 1 1/4 x 5 1/2 | 20 |
| 30 | 38.75 | 36.00 | 2.12 | 1.38 | 1 1/4 x 6 1/2 | 28 |
| 36 | 46.00 | 42.75 | 2.38 | 1.63 | 1 1/2 x 7 | 32 |
| 42 | 53.00 | 49.50 | 2.62 | 1.63 | 1 1/2 x 7 1/2 | 36 |
| 48 | 59.50 | 56.00 | 2.75 | 1.63 | 1 1/2 x 8 | 44 |
| 54 | 66.25 | 62.75 | 3.00 | 2.00 | 1 3/4 x 8 1/2 | 44 |
| 60 | 73.00 | 69.25 | 3.12 | 2.00 | 1 3/4 x 9 | 52 |
| 64 | 80.00 | 76.00 | 3.38 | 2.00 | 1 3/4 x 9 | 52 |

STAR[®] PIPE PRODUCTS

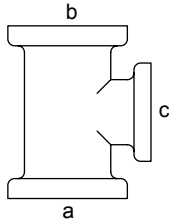


Flanged Fittings

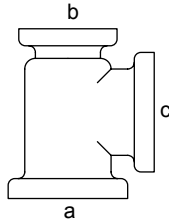
ANSI/AWWA C110/A21.10

METHOD OF DESIGNATING OUTLETS OF REDUCING FITTINGS FOR SPECIFICATIONS

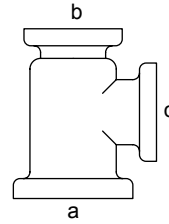
Reducing Tees



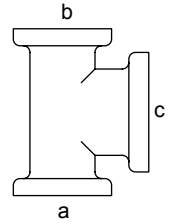
Reducing on Outlet



Reducing on One Run

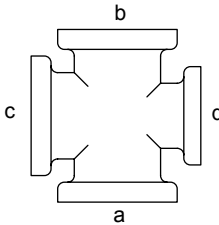


Reducing on One Run and Outlet

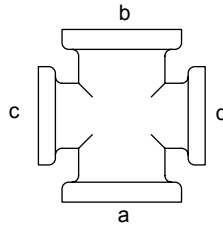


Reducing on Both Runs (Bull Head)

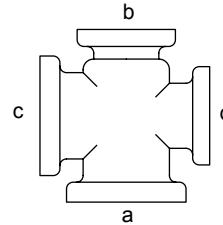
Reducing Crosses



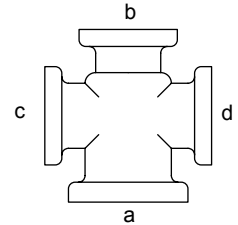
Reducing on One Outlet



Reducing on Both Outlets

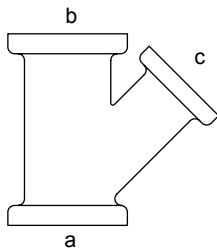


Reducing on One Run and Outlet

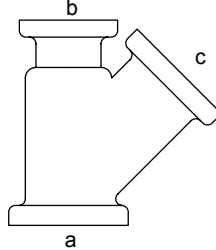


Reducing on One Run and Both Outlets

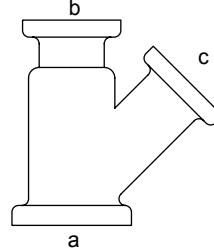
Reducing Laterals



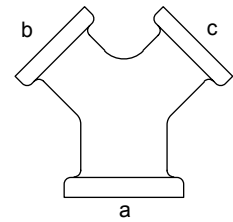
Reducing on Branch



Reducing on One Run

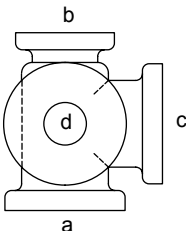


Reducing on One Run and Branch

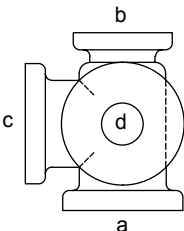


True Y

Side Outlet Tee

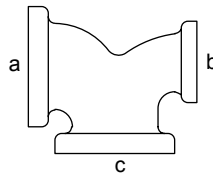


Right Hand

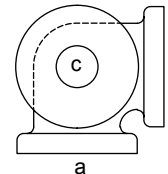


Left Hand

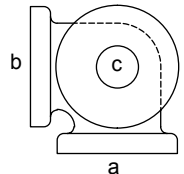
Double Branch Elbow



Side Outlet 90 deg. Elbow



Right Hand



Left Hand

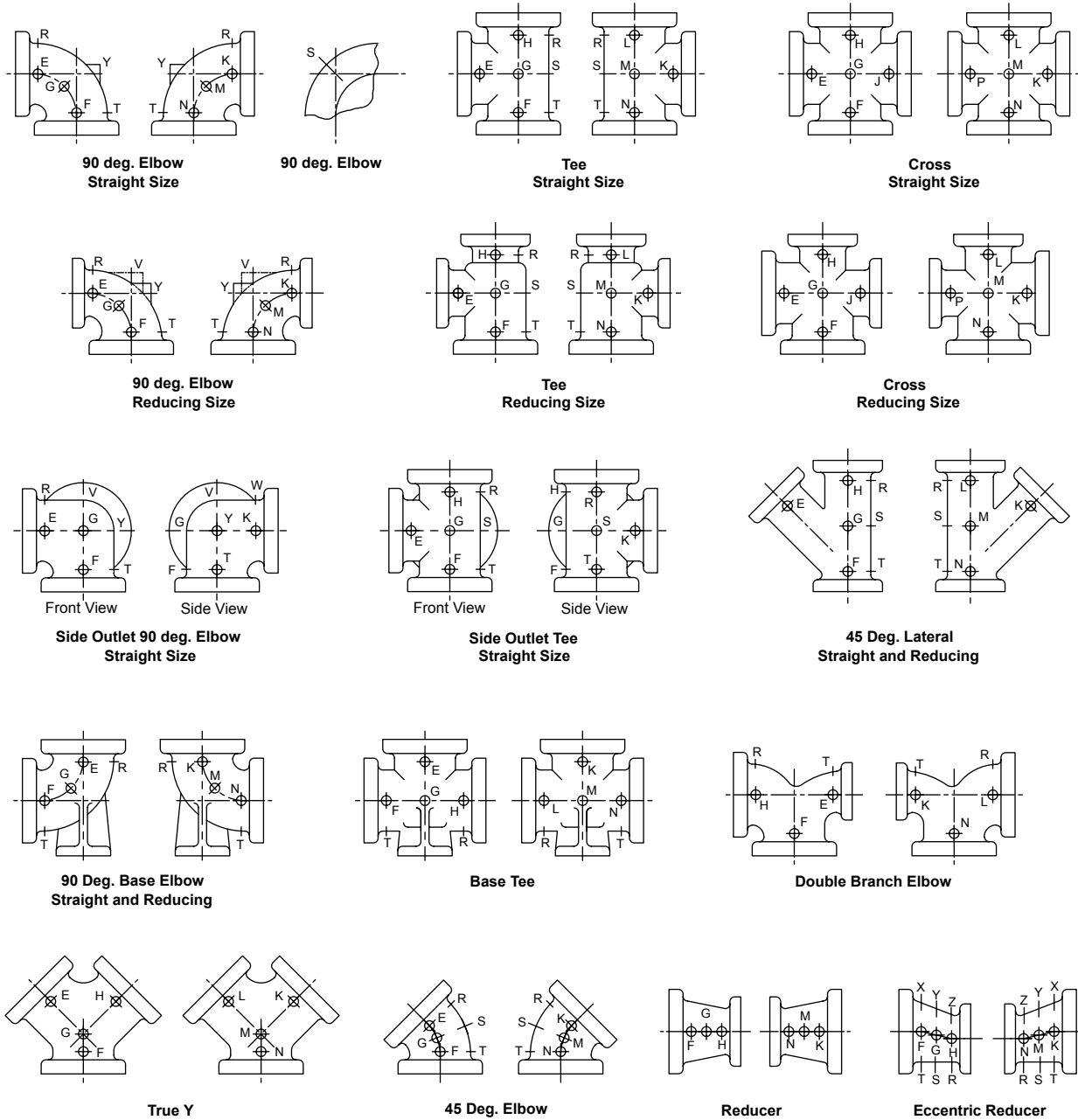
The largest opening establishes the basic size of a reducing fitting. The largest opening is named first, except for bull head tees which are reducing on both runs and double branch elbows where both branches are reducing; the outlet is the largest opening and named last in both cases.

In designating the opening of reducing fittings, they should be read in order indicated by the sequence of the letters a, b, c and d. In designating the outlets of side outlet of side outlet reducing fittings, the side outlet is named last; and in the case of the cross which is not shown, the side outlet is designated by the letter e.

STAR[®] PIPE PRODUCTS



METHOD OF DESIGNATING LOCATION OF TAPPED HOLES FOR DRAINS WHEN SPECIFIED



The above illustrations show two views of the same fitting and represent fittings with symmetrical shapes, with the exception of the side outlet elbow and the side outlet tee (straight sizes)

A boss is always required at location "Y" and "V" on straight and reducing sizes of 90° elbows, and on tapered sides of reducers.

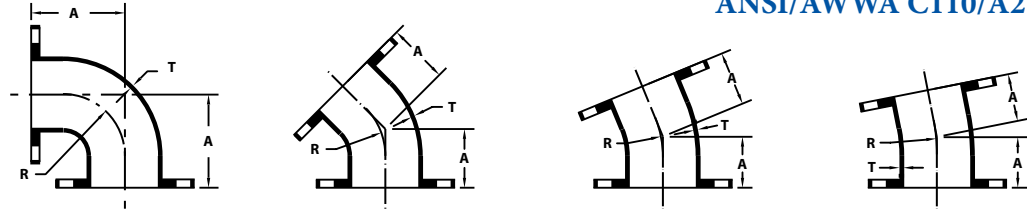
| NOM. SIZE | MAX TAP SIZE WITHOUT BOSS |
|-----------|---------------------------|
| 3 | ½ |
| 4-6 | ¾ |
| 8 | 1 ¼ |
| 10-16 | 1 ½ |
| 18-64 | 2 |

STAR[®] PIPE PRODUCTS

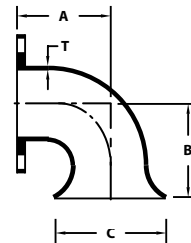
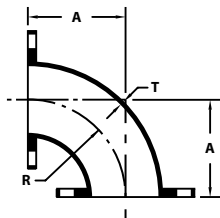


Flanged Fittings

ANSI/AWWA C110/A21.10



| FLANGED BENDS | | 90° FLANGED BENDS (1/4) | | | 45° FLANGED BENDS (1/8) | | | 22 1/2° FLANGED BENDS (1/16) | | | 11 1/4° FLANGED BENDS (1/32) | | |
|---------------|------|-------------------------|-------|-----------|-------------------------|-------|-----------|------------------------------|--------|-----------|------------------------------|--------|-----------|
| NOM. SIZE | T | A | R | WT (LBS.) | A | R | WT (LBS.) | A | R | WT (LBS.) | A | R | WT (LBS.) |
| 2 | 0.31 | 4.50 | 3.00 | 14 | 2.50 | 2.41 | 12 | 2.50 | 6.04 | 12 | 2.50 | 12.69 | 12 |
| 2 1/2 | 0.31 | 5.00 | 3.50 | 21 | 3.00 | 3.62 | 19 | --- | --- | --- | --- | --- | --- |
| 3 | 0.48 | 5.50 | 4.00 | 25 | 3.00 | 3.62 | 20 | 3.00 | 7.56 | 20 | 3.00 | 15.25 | 20 |
| 4 | 0.52 | 6.50 | 4.50 | 45 | 4.00 | 4.81 | 40 | 4.00 | 10.06 | 40 | 4.00 | 20.31 | 40 |
| 5 | 0.88 | 7.50 | 5.50 | 52 | 4.50 | 6.04 | 45 | --- | --- | --- | --- | --- | --- |
| 6 | 0.55 | 8.00 | 6.00 | 65 | 5.00 | 7.25 | 55 | 5.00 | 15.06 | 55 | 5.00 | 30.50 | 55 |
| 8 | 0.60 | 9.00 | 7.00 | 105 | 5.50 | 8.44 | 90 | 5.50 | 17.62 | 90 | 5.50 | 35.50 | 90 |
| 10 | 0.68 | 11.00 | 9.00 | 165 | 6.50 | 10.88 | 130 | 6.50 | 22.62 | 135 | 6.50 | 45.69 | 135 |
| 12 | 0.75 | 12.00 | 10.00 | 235 | 7.50 | 13.25 | 195 | 7.50 | 27.62 | 205 | 7.50 | 55.81 | 205 |
| 14 | 0.66 | 14.00 | 11.50 | 290 | 7.50 | 12.06 | 220 | 7.50 | 25.12 | 225 | 7.50 | 50.75 | 225 |
| 16 | 0.70 | 15.00 | 12.50 | 370 | 8.00 | 13.25 | 280 | 8.00 | 27.62 | 285 | 8.00 | 55.81 | 285 |
| 18 | 0.75 | 16.50 | 14.00 | 450 | 8.50 | 14.50 | 325 | 8.50 | 30.19 | 335 | 8.50 | 60.94 | 335 |
| 20 | 0.80 | 18.00 | 15.50 | 580 | 9.50 | 16.88 | 430 | 9.50 | 35.19 | 435 | 9.50 | 71.06 | 435 |
| 24 | 0.89 | 22.00 | 18.50 | 900 | 11.00 | 18.12 | 630 | 11.00 | 37.69 | 640 | 11.00 | 76.12 | 645 |
| 30 | 1.03 | 25.00 | 21.50 | 1430 | 15.00 | 27.75 | 1120 | 15.00 | 57.81 | 1135 | 15.00 | 116.75 | 1150 |
| 36 | 1.15 | 28.00 | 24.50 | 2135 | 18.00 | 35.00 | 1755 | 18.00 | 72.88 | 1790 | 18.00 | 147.25 | 1805 |
| 42 | 1.28 | 31.00 | 27.50 | 3055 | 21.00 | 42.25 | 2600 | 21.00 | 88.00 | 2665 | 21.00 | 177.69 | 2680 |
| 48 | 1.42 | 34.00 | 30.50 | 4095 | 24.00 | 49.50 | 3580 | 24.00 | 103.06 | 3665 | 24.00 | 208.12 | 3695 |
| 54 | 0.90 | 39.00 | 35.42 | 3740 | 20.50 | 41.05 | 2735 | 14.00 | 32.42 | 2260 | 12.00 | 30.81 | 2100 |
| 60 | 0.94 | 43.00 | --- | 4965 | 23.50 | --- | 3790 | 14.00 | --- | 2985 | 10.50 | --- | 2665 |
| 64 | 0.99 | 48.00 | 38.80 | 6745 | 25.00 | --- | 5105 | 13.50 | --- | 3995 | 9.50 | --- | 3585 |



| 90° FLANGED LONG RADIUS BENDS | | | | |
|-------------------------------|------|-------|-------|-----------|
| NOM. SIZE | T | A | R | WT (LBS.) |
| 3 | 0.48 | 7.75 | 6.25 | 30 |
| 4 | 0.52 | 9.00 | 7.00 | 50 |
| 6 | 0.55 | 11.50 | 9.50 | 80 |
| 8 | 0.60 | 14.00 | 12.00 | 140 |
| 10 | 0.68 | 16.50 | 14.50 | 215 |
| 12 | 0.75 | 19.00 | 17.00 | 325 |
| 14 | 0.66 | 21.50 | 19.00 | 400 |
| 16 | 0.70 | 24.00 | 21.50 | 525 |
| 18 | 0.75 | 26.50 | 24.00 | 750 |
| 20 | 0.80 | 29.00 | 26.50 | 875 |
| 24 | 0.89 | 34.00 | 30.50 | 1250 |
| 30 | 1.03 | 41.50 | 38.00 | 2105 |
| 36 | 1.15 | 49.00 | 45.50 | 3285 |
| 42 | 1.28 | 56.50 | 53.00 | 4865 |
| 48 | 1.42 | 64.00 | 60.50 | 7800 |
| 54 | 0.90 | 73.50 | 69.50 | 6205 |

| 90° FLANGE x FLARE BENDS | | | | | |
|--------------------------|------|-------|-------|-------|-----------|
| NOM. SIZE | T | A | B | C | WT (LBS.) |
| 3 | 0.48 | 5.50 | 11.00 | 7.50 | 25 |
| 4 | 0.52 | 6.50 | 12.00 | 9.00 | 40 |
| 6 | 0.55 | 8.00 | 12.00 | 11.00 | 70 |
| 8 | 0.60 | 9.00 | 14.00 | 13.50 | 110 |
| 10 | 0.68 | 11.00 | 17.00 | 16.00 | 175 |
| 12 | 0.75 | 12.00 | 18.00 | 19.00 | 245 |
| 14 | 0.66 | 14.00 | 20.00 | 21.00 | 260 |
| 16 | 0.70 | 15.00 | 21.00 | 23.50 | 460 |
| 18 | 0.75 | 16.50 | 22.50 | 25.00 | 560 |
| 20 | 0.80 | 18.00 | 24.00 | 27.50 | 700 |
| 24 | 0.89 | 22.00 | 28.00 | 32.00 | 1100 |
| 30 | 1.03 | 25.00 | 32.00 | 38.75 | 1640 |
| 36 | 1.15 | 28.00 | 35.00 | 46.00 | 2700 |
| 42 | 1.28 | 31.00 | 38.00 | 53.00 | 3250 |
| 48 | 1.42 | 34.00 | 41.00 | 59.50 | 4215 |
| 54 | 0.90 | 39.00 | 46.00 | 66.25 | 3965 |

UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

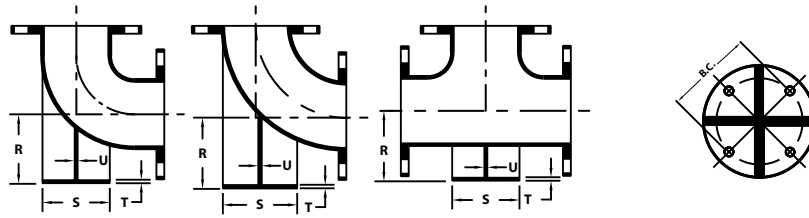


STAR[®] PIPE PRODUCTS

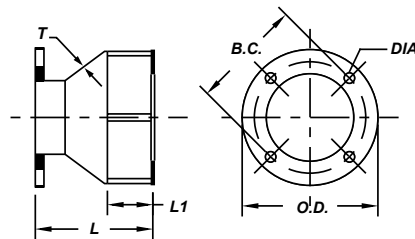
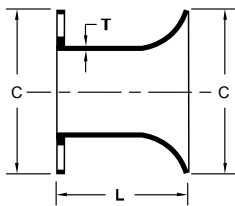


Flanged Fittings

ANSI/AWWA C110/A21.10



| 90° FLANGED LONG RADIUS BASE BENDS & BASE TEES | | | | | | BASE DRILLING DETAILS | | | | |
|--|-------|-------|------|------|------------|-----------------------|------|-------|----------------|--------------|
| NOM. SIZE | R | S | T | U | WT. (LBS.) | | | B.C. | BOLT HOLE DIA. | NO. OF BOLTS |
| | | | | | 90° | 90°LR | TEE | | | |
| 2 | 4.12 | 4.62 | 0.50 | 0.50 | 17 | 20 | 23 | 3.50 | 0.63 | 4 |
| 2 1/2 | 4.50 | 4.62 | 0.50 | 0.50 | 25 | --- | 34 | 3.50 | 0.63 | 4 |
| 3 | 4.88 | 5.00 | 0.56 | 0.50 | 35 | 40 | 45 | 3.88 | 0.63 | 4 |
| 4 | 5.50 | 6.00 | 0.62 | 0.50 | 55 | 60 | 75 | 4.75 | 0.75 | 4 |
| 5 | 6.25 | 7.00 | 0.69 | 0.62 | 70 | 85 | 95 | 5.50 | 0.75 | 4 |
| 6 | 7.00 | 7.00 | 0.69 | 0.62 | 85 | 100 | 110 | 5.50 | 0.75 | 4 |
| 8 | 8.38 | 9.00 | 0.94 | 0.88 | 145 | 180 | 185 | 7.50 | 0.75 | 4 |
| 10 | 9.75 | 9.00 | 0.94 | 0.88 | 210 | 260 | 300 | 7.50 | 0.75 | 4 |
| 12 | 11.25 | 11.00 | 1.00 | 1.00 | 300 | 390 | 430 | 9.50 | 0.88 | 4 |
| 14 | 12.50 | 11.00 | 1.00 | 1.00 | 360 | 490 | 485 | 9.50 | 0.88 | 4 |
| 16 | 13.75 | 11.00 | 1.00 | 1.00 | 445 | 606 | 600 | 9.50 | 0.88 | 4 |
| 18 | 15.00 | 13.50 | 1.12 | 1.12 | 565 | 787 | 740 | 11.75 | 0.88 | 4 |
| 20 | 16.00 | 13.50 | 1.12 | 1.12 | 700 | 1200 | 930 | 11.75 | 0.88 | 4 |
| 24 | 18.50 | 13.50 | 1.12 | 1.12 | 1030 | 1770 | 1410 | 11.75 | 0.88 | 4 |
| 30 | 23.00 | 16.00 | 1.19 | 1.15 | 1625 | 2295 | 2270 | 14.25 | 1.00 | 4 |
| 36 | 26.00 | 19.00 | 1.25 | 1.15 | 2385 | 3535 | 3320 | 17.00 | 1.00 | 4 |
| 42 | 30.00 | 23.50 | 1.44 | 1.28 | 3465 | 5275 | 4740 | 21.25 | 1.13 | 4 |
| 48 | 34.00 | 25.00 | 1.56 | 1.42 | 4610 | 7305 | 6235 | 22.75 | 1.25 | 4 |
| 54 | 38.00 | 27.50 | 1.69 | 1.55 | 4415 | 6880 | 6465 | 25.00 | 1.25 | 4 |



| STRAIGHT FLANGE x FLARE PIECES | | | | |
|--------------------------------|------|-------|-------|-----------|
| NOM. SIZE | T | L | C | WT (LBS.) |
| 3 | 0.48 | 8.00 | 7.50 | 20 |
| 4 | 0.52 | 8.00 | 9.00 | 30 |
| 6 | 0.55 | 8.00 | 11.00 | 40 |
| 8 | 0.60 | 10.00 | 13.50 | 70 |
| 10 | 0.68 | 10.00 | 16.00 | 95 |
| 12 | 0.75 | 12.00 | 19.00 | 155 |
| 14 | 0.66 | 12.00 | 21.00 | 165 |
| 16 | 0.70 | 16.00 | 23.50 | 240 |
| 18 | 0.75 | 16.00 | 25.00 | 275 |
| 20 | 0.80 | 18.00 | 27.50 | 360 |
| 24 | 0.89 | 18.00 | 32.00 | 480 |
| 30 | 1.03 | 24.00 | 38.75 | 850 |
| 36 | 1.15 | 24.00 | 46.00 | 1200 |
| 42 | 1.28 | 30.00 | 53.00 | 1900 |
| 48 | 1.42 | 30.00 | 59.50 | 2300 |
| 54 | 0.90 | 36.00 | 66.25 | 2225 |

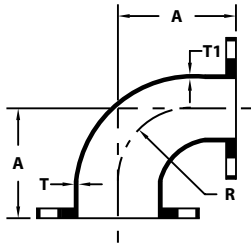
| SLUDGE SHOE | | | | | | | |
|-------------|------|-------|-------|-------|------|----------------|-----------|
| NOM. SIZE | T | OD | B.C. | L | L1 | BOLT HOLE DIA. | WT (LBS.) |
| 6 | 0.55 | 9.50 | 7.88 | 12.00 | 6.00 | 0.88 | 47 |
| 8 | 0.60 | 11.75 | 10.12 | 12.00 | 6.00 | 0.88 | 69 |

STAR[®] PIPE PRODUCTS



Flanged Fittings

ANSI/AWWA C110/A21.10



| 90° FLANGED REDUCING BENDS | | | | | |
|----------------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | A | R | WT (LBS.) |
| 3 x 1 1/2 | 0.48 | 0.31 | 5.50 | 4.00 | 18 |
| 3 x 2 | 0.48 | 0.31 | 5.50 | 4.00 | 20 |
| 3 x 2 1/2 | 0.48 | 0.31 | 5.50 | 4.00 | 23 |
| 4 x 2 | 0.52 | 0.31 | 6.50 | 4.50 | 29 |
| 4 x 2 1/2 | 0.52 | 0.31 | 6.50 | 4.50 | 33 |
| 4 x 3 | 0.52 | 0.48 | 6.50 | 4.50 | 35 |
| 5 x 2 | 0.50 | 0.31 | 7.50 | 5.50 | 42 |
| 5 x 2 1/2 | 0.50 | 0.31 | 7.50 | 5.50 | 44 |
| 5 x 3 | 0.50 | 0.48 | 7.50 | 5.50 | 45 |
| 5 x 4 | 0.50 | 0.50 | 7.50 | 5.50 | 50 |
| 6 x 2 | 0.55 | 0.31 | 8.00 | 6.00 | 40 |
| 6 x 2 1/2 | 0.55 | 0.31 | 8.00 | 6.00 | 44 |
| 6 x 3 | 0.55 | 0.48 | 8.00 | 6.00 | 45 |
| 6 x 4 | 0.55 | 0.52 | 8.00 | 6.00 | 55 |
| 6 x 5 | 0.55 | 0.50 | 8.00 | 6.00 | 60 |
| 8 x 4 | 0.60 | 0.52 | 9.00 | 7.00 | 80 |
| 8 x 5 | 0.60 | 0.50 | 9.00 | 7.00 | 80 |
| 8 x 6 | 0.60 | 0.55 | 9.00 | 7.00 | 90 |
| 10 x 4 | 0.68 | 0.52 | 11.00 | 9.00 | 105 |
| 10 x 6 | 0.68 | 0.55 | 11.00 | 9.00 | 125 |
| 10 x 8 | 0.68 | 0.60 | 11.00 | 9.00 | 150 |
| 12 x 6 | 0.75 | 0.55 | 12.00 | 10.00 | 165 |
| 12 x 8 | 0.75 | 0.60 | 12.00 | 10.00 | 190 |
| 12 x 10 | 0.75 | 0.68 | 12.00 | 10.00 | 220 |
| 14 x 6 | 0.66 | 0.55 | 14.00 | 11.50 | 144 |
| 14 x 8 | 0.66 | 0.60 | 14.00 | 11.50 | 200 |
| 14 x 10 | 0.66 | 0.68 | 14.00 | 11.50 | 260 |
| 14 x 12 | 0.66 | 0.75 | 14.00 | 11.50 | 270 |
| 16 x 6 | 0.70 | 0.55 | 15.00 | 12.50 | 220 |
| 16 x 8 | 0.70 | 0.60 | 15.00 | 12.50 | 240 |
| 16 x 10 | 0.70 | 0.68 | 15.00 | 12.50 | 344 |
| 16 x 12 | 0.70 | 0.75 | 15.00 | 12.50 | 373 |
| 16 x 14 | 0.70 | 0.66 | 15.00 | 12.50 | 330 |
| 18 x 6 | 0.75 | 0.55 | 16.50 | 14.00 | 260 |
| 18 x 8 | 0.75 | 0.60 | 16.50 | 14.00 | 280 |
| 18 x 10 | 0.75 | 0.68 | 16.50 | 14.00 | 320 |
| 18 x 12 | 0.75 | 0.75 | 16.50 | 14.00 | 365 |
| 18 x 14 | 0.75 | 0.66 | 16.50 | 14.00 | 370 |
| 18 x 16 | 0.75 | 0.70 | 16.50 | 14.00 | 410 |
| 20 x 6 | 0.80 | 0.55 | 18.00 | 15.50 | 320 |
| 20 x 8 | 0.80 | 0.60 | 18.00 | 15.50 | 345 |
| 20 x 10 | 0.80 | 0.68 | 18.00 | 15.50 | 385 |
| 20 x 12 | 0.80 | 0.75 | 18.00 | 15.50 | 415 |
| 20 x 14 | 0.80 | 0.66 | 18.00 | 15.50 | 518 |

(Con't)

| 90° FLANGED REDUCING BENDS (Con't) | | | | | |
|------------------------------------|------|------|-------|-------|-----------|
| NOM. SIZE | T | T1 | A | R | WT (LBS.) |
| 20 x 16 | 0.80 | 0.70 | 18.00 | 15.50 | 533 |
| 20 x 18 | 0.80 | 0.75 | 18.00 | 15.50 | 515 |
| 24 x 6 | 0.89 | 0.55 | 22.00 | 18.50 | 480 |
| 24 x 8 | 0.89 | 0.60 | 22.00 | 18.50 | 505 |
| 24 x 10 | 0.89 | 0.68 | 22.00 | 18.50 | 545 |
| 24 x 12 | 0.89 | 0.75 | 22.00 | 18.50 | 795 |
| 24 x 14 | 0.89 | 0.66 | 22.00 | 18.50 | 837 |
| 24 x 16 | 0.89 | 0.70 | 22.00 | 18.50 | 635 |
| 24 x 18 | 0.89 | 0.75 | 22.00 | 18.50 | 675 |
| 24 x 20 | 0.89 | 0.80 | 22.00 | 18.50 | 740 |
| 30 x 12 | 1.03 | 0.75 | 25.00 | 21.50 | 840 |
| 30 x 14 | 1.03 | 0.66 | 25.00 | 21.50 | 860 |
| 30 x 16 | 1.03 | 0.70 | 25.00 | 21.50 | 900 |
| 30 x 18 | 1.03 | 0.75 | 25.00 | 21.50 | 940 |
| 30 x 20 | 1.03 | 0.80 | 25.00 | 21.50 | 1005 |
| 30 x 24 | 1.03 | 0.89 | 25.00 | 21.50 | 1205 |
| 36 x 12 | 1.15 | 0.75 | 28.00 | 24.50 | 1195 |
| 36 x 14 | 1.15 | 0.66 | 28.00 | 24.50 | 1215 |
| 36 x 16 | 1.15 | 0.70 | 28.00 | 24.50 | 1255 |
| 36 x 18 | 1.15 | 0.75 | 28.00 | 24.50 | 1295 |
| 36 x 20 | 1.15 | 0.80 | 28.00 | 24.50 | 1315 |
| 36 x 24 | 1.15 | 0.89 | 28.00 | 24.50 | 1520 |
| 36 x 30 | 1.15 | 1.03 | 28.00 | 24.50 | 1785 |
| 42 x 12 | 1.28 | 0.75 | 31.00 | 27.50 | 1655 |
| 42 x 14 | 1.28 | 0.66 | 31.00 | 27.50 | 1675 |
| 42 x 16 | 1.28 | 0.70 | 31.00 | 27.50 | 1715 |
| 42 x 18 | 1.28 | 0.75 | 31.00 | 27.50 | 1755 |
| 42 x 20 | 1.28 | 0.80 | 31.00 | 27.50 | 1820 |
| 42 x 24 | 1.28 | 0.89 | 31.00 | 27.50 | 1980 |
| 42 x 30 | 1.28 | 1.03 | 31.00 | 27.50 | 2245 |
| 42 x 36 | 1.28 | 1.15 | 31.00 | 27.50 | 2600 |
| 48 x 12 | 1.42 | 0.75 | 34.00 | 30.50 | 2175 |
| 48 x 14 | 1.42 | 0.66 | 34.00 | 30.50 | 2195 |
| 48 x 16 | 1.42 | 0.70 | 34.00 | 30.50 | 2235 |
| 48 x 18 | 1.42 | 0.75 | 34.00 | 30.50 | 2275 |
| 48 x 20 | 1.42 | 0.80 | 34.00 | 30.50 | 2340 |
| 48 x 24 | 1.42 | 0.89 | 34.00 | 30.50 | 2500 |
| 48 x 30 | 1.42 | 1.03 | 34.00 | 30.50 | 3000 |
| 48 x 36 | 1.42 | 1.15 | 34.00 | 30.50 | 3115 |
| 48 x 42 | 1.42 | 1.28 | 34.00 | 30.50 | 3580 |
| 54 x 12 | 0.90 | 0.75 | 39.00 | 35.29 | 1990 |
| 54 x 14 | 0.90 | 0.66 | 39.00 | 35.29 | 2015 |
| 54 x 16 | 0.90 | 0.70 | 39.00 | 35.29 | 2055 |
| 54 x 18 | 0.90 | 0.75 | 39.00 | 35.29 | 2095 |
| 54 x 20 | 0.90 | 0.80 | 39.00 | 35.29 | 2160 |
| 54 x 24 | 0.90 | 0.89 | 39.00 | 35.29 | 2320 |
| 54 x 30 | 0.90 | 0.90 | 39.00 | 35.29 | 2585 |
| 54 x 36 | 0.90 | 0.90 | 39.00 | 35.29 | 2980 |
| 54 x 42 | 0.90 | 0.90 | 39.00 | 35.29 | 3395 |
| 54 x 48 | 0.90 | 0.90 | 39.00 | 35.29 | 3565 |

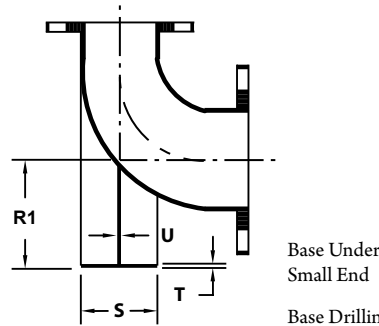
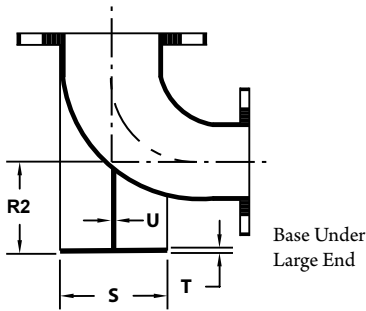
STAR[®] PIPE PRODUCTS

UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



Flanged Fittings

ANSI/AWWA C110/A21.10



Base Drilling Detail on pg. 43

90° FLANGED REDUCING BASE BENDS

| NOM. SIZE | R1 | R2 | S | T | U | WT (LBS.) |
|-----------|-------|-------|-------|------|------|-----------|
| 4 x 3 | 5.50 | 4.88 | 6.00 | 0.62 | 0.50 | 45 |
| 5 x 4 | 6.25 | 5.50 | 7.00 | 0.69 | 0.62 | 68 |
| 6 x 3 | 7.00 | 4.88 | 7.00 | 0.69 | 0.62 | 65 |
| 6 x 4 | 7.00 | 5.50 | 7.00 | 0.69 | 0.62 | 75 |
| 6 x 5 | 7.00 | 6.25 | 7.00 | 0.69 | 0.62 | 80 |
| 8 x 4 | 8.38 | 5.50 | 9.00 | 0.94 | 0.88 | 120 |
| 8 x 6 | 8.38 | 7.00 | 9.00 | 0.94 | 0.88 | 130 |
| 10 x 6 | 9.75 | 7.00 | 9.00 | 0.94 | 0.88 | 170 |
| 10 x 8 | 9.75 | 8.38 | 9.00 | 0.94 | 0.88 | 195 |
| 12 x 6 | 11.25 | 7.00 | 11.00 | 1.00 | 1.00 | 230 |
| 12 x 8 | 11.25 | 8.38 | 11.00 | 1.00 | 1.00 | 255 |
| 12 x 10 | 11.25 | 9.75 | 11.00 | 1.00 | 1.00 | 285 |
| 14 x 6 | 12.50 | 7.00 | 11.00 | 1.00 | 1.00 | 214 |
| 14 x 8 | 12.50 | 8.38 | 11.00 | 1.00 | 1.00 | 270 |
| 14 x 10 | 12.50 | 9.75 | 11.00 | 1.00 | 1.00 | 310 |
| 14 x 12 | 12.50 | 11.25 | 11.00 | 1.00 | 1.00 | 340 |
| 16 x 6 | 13.75 | 7.00 | 11.00 | 1.00 | 1.00 | 295 |
| 16 x 8 | 13.75 | 8.38 | 11.00 | 1.00 | 1.00 | 315 |
| 16 x 10 | 13.75 | 9.75 | 11.00 | 1.00 | 1.00 | 355 |
| 16 x 12 | 13.75 | 11.25 | 11.00 | 1.00 | 1.00 | 385 |
| 16 x 14 | 13.75 | 12.50 | 11.00 | 1.00 | 1.00 | 405 |
| 18 x 6 | 15.00 | 7.00 | 13.50 | 1.12 | 1.12 | 375 |
| 18 x 8 | 15.00 | 8.38 | 13.50 | 1.12 | 1.12 | 395 |
| 18 x 10 | 15.00 | 9.75 | 13.50 | 1.12 | 1.12 | 435 |
| 18 x 12 | 15.00 | 11.25 | 13.50 | 1.12 | 1.12 | 465 |
| 18 x 14 | 15.00 | 12.50 | 13.50 | 1.12 | 1.12 | 485 |
| 18 x 16 | 15.00 | 13.75 | 13.50 | 1.12 | 1.12 | 525 |
| 20 x 6 | 16.00 | 7.00 | 13.50 | 1.12 | 1.12 | 440 |
| 20 x 8 | 16.00 | 8.38 | 13.50 | 1.12 | 1.12 | 465 |
| 20 x 10 | 16.00 | 9.75 | 13.50 | 1.12 | 1.12 | 505 |
| 20 x 12 | 16.00 | 11.25 | 13.50 | 1.12 | 1.12 | 535 |
| 20 x 14 | 16.00 | 12.50 | 13.50 | 1.12 | 1.12 | 555 |
| 20 x 16 | 16.00 | 13.75 | 13.50 | 1.12 | 1.12 | 595 |
| 20 x 18 | 16.00 | 15.00 | 13.50 | 1.12 | 1.12 | 635 |
| 24 x 6 | 18.50 | 7.00 | 13.50 | 1.12 | 1.12 | 610 |
| 24 x 8 | 18.50 | 8.38 | 13.50 | 1.12 | 1.12 | 635 |
| 24 x 10 | 18.50 | 9.75 | 13.50 | 1.12 | 1.12 | 675 |
| 24 x 12 | 18.50 | 11.25 | 13.50 | 1.12 | 1.12 | 705 |
| 24 x 14 | 18.50 | 12.50 | 13.50 | 1.12 | 1.12 | 725 |
| 24 x 16 | 18.50 | 13.75 | 13.50 | 1.12 | 1.12 | 765 |
| 24 x 18 | 18.50 | 15.00 | 13.50 | 1.12 | 1.12 | 805 |

90° FLANGED REDUCING BASE BENDS (Con't)

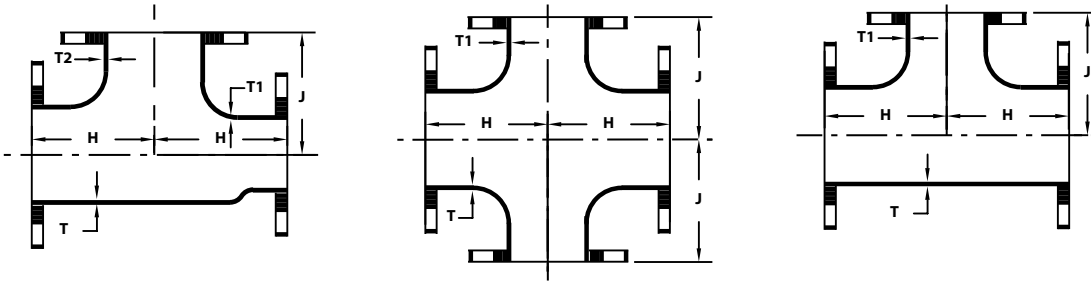
| NOM. SIZE | R1 | R2 | S | T | U | WT (LBS.) |
|-----------|-------|-------|-------|------|------|-----------|
| 24 x 20 | 18.50 | 16.00 | 13.50 | 1.12 | 1.12 | 870 |
| 30 x 12 | 23.00 | 11.25 | 16.00 | 1.19 | 1.15 | 1030 |
| 30 x 14 | 23.00 | 12.50 | 16.00 | 1.19 | 1.15 | 1050 |
| 30 x 16 | 23.00 | 13.75 | 16.00 | 1.19 | 1.15 | 1090 |
| 30 x 18 | 23.00 | 15.00 | 16.00 | 1.19 | 1.15 | 1130 |
| 30 x 20 | 23.00 | 16.00 | 16.00 | 1.19 | 1.15 | 1195 |
| 30 x 24 | 23.00 | 18.50 | 16.00 | 1.19 | 1.15 | 1355 |
| 36 x 12 | 26.00 | 11.25 | 19.00 | 1.25 | 1.15 | 1445 |
| 36 x 14 | 26.00 | 12.50 | 19.00 | 1.25 | 1.15 | 1465 |
| 36 x 16 | 26.00 | 13.75 | 19.00 | 1.25 | 1.15 | 1505 |
| 36 x 18 | 26.00 | 15.00 | 19.00 | 1.25 | 1.15 | 1545 |
| 36 x 20 | 26.00 | 16.00 | 19.00 | 1.25 | 1.15 | 1610 |
| 36 x 24 | 26.00 | 18.50 | 19.00 | 1.25 | 1.15 | 1770 |
| 36 x 30 | 26.00 | 23.00 | 19.00 | 1.25 | 1.15 | 2035 |
| 42 x 12 | 30.00 | 11.25 | 23.50 | 1.44 | 1.28 | 2065 |
| 42 x 14 | 30.00 | 12.50 | 23.50 | 1.44 | 1.28 | 2085 |
| 42 x 16 | 30.00 | 13.75 | 23.50 | 1.44 | 1.28 | 2125 |
| 42 x 18 | 30.00 | 15.00 | 23.50 | 1.44 | 1.28 | 2165 |
| 42 x 20 | 30.00 | 16.00 | 23.50 | 1.44 | 1.28 | 2230 |
| 42 x 24 | 30.00 | 18.50 | 23.50 | 1.44 | 1.28 | 2390 |
| 42 x 30 | 30.00 | 23.00 | 23.50 | 1.44 | 1.28 | 2655 |
| 42 x 36 | 30.00 | 26.00 | 23.50 | 1.44 | 1.28 | 3010 |
| 48 x 12 | 34.00 | 11.25 | 25.00 | 1.56 | 1.42 | 2690 |
| 48 x 14 | 34.00 | 12.50 | 25.00 | 1.56 | 1.42 | 2710 |
| 48 x 16 | 34.00 | 13.75 | 25.00 | 1.56 | 1.42 | 2750 |
| 48 x 18 | 34.00 | 15.00 | 25.00 | 1.56 | 1.42 | 2790 |
| 48 x 20 | 34.00 | 16.00 | 25.00 | 1.56 | 1.42 | 2855 |
| 48 x 24 | 34.00 | 18.50 | 25.00 | 1.56 | 1.42 | 3015 |
| 48 x 30 | 34.00 | 23.00 | 25.00 | 1.56 | 1.42 | 3280 |
| 48 x 36 | 34.00 | 26.00 | 25.00 | 1.56 | 1.42 | 3630 |
| 48 x 42 | 34.00 | 30.00 | 25.00 | 1.56 | 1.42 | 4095 |
| 54 x 12 | 38.00 | 11.25 | 27.50 | 1.69 | 1.55 | 2665 |
| 54 x 14 | 38.00 | 12.50 | 27.50 | 1.69 | 1.55 | 2690 |
| 54 x 16 | 38.00 | 13.75 | 27.50 | 1.69 | 1.55 | 2730 |
| 54 x 18 | 38.00 | 15.00 | 27.50 | 1.69 | 1.55 | 2770 |
| 54 x 20 | 38.00 | 16.00 | 27.50 | 1.69 | 1.55 | 2835 |
| 54 x 24 | 38.00 | 18.50 | 27.50 | 1.69 | 1.55 | 2995 |
| 54 x 30 | 38.00 | 23.00 | 27.50 | 1.69 | 1.55 | 3260 |
| 54 x 36 | 38.00 | 26.00 | 27.50 | 1.69 | 1.55 | 3615 |
| 54 x 42 | 38.00 | 30.00 | 27.50 | 1.69 | 1.55 | 4070 |
| 54 x 48 | 38.00 | 34.00 | 27.50 | 1.69 | 1.55 | 4240 |

STAR[®] PIPE PRODUCTS



Flanged Fittings

ANSI/AWWA C110/A21.10



| FLANGED TEES & CROSSES | | | | | | | | |
|------------------------|------|------|------|------|------|------------|-------|--|
| NOM. SIZE | T | T1 | T2 | H | J | WT. (LBS.) | | |
| | | | | | | TEE | CROSS | |
| 1 1/2 x 1 1/2 x 2 | 0.31 | 0.31 | 0.31 | 4.50 | 4.50 | 15 | --- | |
| 2 x 1 1/2 x 1 1/2 | 0.31 | 0.31 | 0.31 | 4.50 | 4.50 | 16 | --- | |
| 2 x 2 | 0.31 | 0.31 | --- | 4.50 | 4.50 | 20 | --- | |
| 2 1/2 x 2 x 2 | 0.31 | 0.31 | 0.31 | 5.00 | 5.00 | 27 | --- | |
| 2 1/2 x 2 x 2 1/2 | 0.31 | 0.31 | 0.31 | 5.00 | 5.00 | 28 | --- | |
| 2 1/2 x 1 | 0.31 | 0.31 | --- | 5.00 | 5.00 | 25 | --- | |
| 2 1/2 x 1 1/2 | 0.31 | 0.31 | --- | 5.00 | 5.00 | 26 | --- | |
| 2 1/2 x 2 1/2 | 0.31 | 0.31 | --- | 5.00 | 5.00 | 30 | --- | |
| 3 x 1 | 0.48 | 0.31 | --- | 5.50 | 5.50 | 32 | --- | |
| 3 x 1 1/2 | 0.48 | 0.31 | --- | 5.50 | 5.50 | 33 | --- | |
| 3 x 2 | 0.48 | 0.31 | --- | 5.50 | 5.50 | 35 | 45 | |
| 3 x 2 1/2 | 0.48 | 0.31 | --- | 5.50 | 5.50 | 36 | --- | |
| 3 x 3 | 0.48 | 0.48 | --- | 5.50 | 5.50 | 40 | 50 | |
| 4 x 3 x 3 | 0.52 | 0.48 | 0.48 | 6.50 | 6.50 | 55 | --- | |
| 4 x 2 | 0.52 | 0.31 | --- | 6.50 | 6.50 | 50 | 60 | |
| 4 x 2 x 4 | 0.52 | 0.31 | 0.52 | 6.50 | 6.50 | 51 | --- | |
| 4 x 2 1/2 | 0.52 | 0.31 | --- | 6.50 | 6.50 | 56 | 65 | |
| 4 x 2 1/2 x 4 | 0.52 | 0.31 | 0.52 | 6.50 | 6.50 | 55 | --- | |
| 4 x 3 | 0.52 | 0.48 | --- | 6.50 | 6.50 | 60 | 70 | |
| 4 x 4 | 0.52 | 0.52 | --- | 6.50 | 6.50 | 65 | 80 | |
| 4 x 4 x 5 | 0.50 | 0.50 | 0.50 | 7.50 | 7.50 | 75 | --- | |
| 4 x 4 x 6 | 0.52 | 0.52 | 0.55 | 8.00 | 8.00 | 90 | --- | |
| 5 x 2 1/2 | 0.50 | 0.31 | --- | 7.50 | 7.50 | 73 | --- | |
| 5 x 4 | 0.50 | 0.50 | --- | 7.50 | 7.50 | 77 | 92 | |
| 5 x 5 | 0.50 | 0.50 | --- | 7.50 | 7.50 | 80 | --- | |
| 5 x 5 x 6 | 0.50 | 0.50 | 0.55 | 8.00 | 8.00 | 87 | --- | |
| 6 x 3 x 3 | 0.55 | 0.48 | 0.48 | 8.00 | 8.00 | 75 | --- | |
| 6 x 3 x 5 | 0.55 | 0.48 | 0.50 | 8.00 | 8.00 | 81 | --- | |
| 6 x 4 x 4 | 0.55 | 0.52 | 0.52 | 8.00 | 8.00 | 85 | --- | |
| 6 x 4 x 5 | 0.55 | 0.50 | 0.50 | 8.00 | 8.00 | 85 | --- | |
| 6 x 4 x 6 | 0.55 | 0.52 | 0.55 | 8.00 | 8.00 | 90 | --- | |
| 6 x 5 x 2 1/2 | 0.55 | 0.50 | 0.31 | 8.00 | 8.00 | 73 | --- | |
| 6 x 5 x 3 | 0.55 | 0.50 | 0.48 | 8.00 | 8.00 | 81 | --- | |
| 6 x 5 x 5 | 0.55 | 0.50 | 0.50 | 8.00 | 8.00 | 87 | --- | |
| 6 x 2 | 0.55 | 0.31 | --- | 8.00 | 8.00 | 82 | 90 | |
| 6 x 2 1/2 | 0.55 | 0.31 | --- | 8.00 | 8.00 | 84 | 93 | |
| 6 x 3 | 0.55 | 0.48 | --- | 8.00 | 8.00 | 85 | 95 | |
| 6 x 4 | 0.55 | 0.52 | --- | 8.00 | 8.00 | 90 | 110 | |
| 6 x 5 | 0.55 | 0.50 | --- | 8.00 | 8.00 | 91 | 115 | |
| 6 x 6 | 0.55 | 0.55 | --- | 8.00 | 8.00 | 95 | 120 | |
| 6 x 6 x 8 | 0.55 | 0.55 | 0.60 | 9.00 | 9.00 | 140 | --- | |
| 8 x 4 x 8 | 0.60 | 0.52 | 0.60 | 9.00 | 9.00 | 138 | --- | |
| 8 x 5 x 4 | 0.60 | 0.50 | 0.50 | 9.00 | 9.00 | 126 | --- | |
| 8 x 6 x 4 | 0.60 | 0.55 | 0.52 | 9.00 | 9.00 | 130 | --- | |
| 8 x 6 x 6 | 0.60 | 0.55 | 0.55 | 9.00 | 9.00 | 135 | --- | |

| FLANGED TEES & CROSSES (Con't) | | | | | | | | |
|--------------------------------|------|------|------|-------|-------|------------|-------|--|
| NOM. SIZE | T | T1 | T2 | H | J | WT. (LBS.) | | |
| | | | | | | TEE | CROSS | |
| 8 x 6 x 8 | 0.60 | 0.55 | 0.60 | 9.00 | 9.00 | 145 | --- | |
| 8 x 2 1/2 | 0.60 | 0.31 | --- | 9.00 | 9.00 | 128 | --- | |
| 8 x 3 | 0.60 | 0.48 | --- | 9.00 | 9.00 | 130 | 140 | |
| 8 x 4 | 0.60 | 0.52 | --- | 9.00 | 9.00 | 140 | 155 | |
| 8 x 5 | 0.60 | 0.50 | --- | 9.00 | 9.00 | 144 | 160 | |
| 8 x 6 | 0.60 | 0.55 | --- | 9.00 | 9.00 | 145 | 165 | |
| 8 x 8 | 0.60 | 0.60 | --- | 9.00 | 9.00 | 155 | 195 | |
| 8 x 8 x 10 | 0.60 | 0.60 | 0.68 | 11.00 | 11.00 | 260 | --- | |
| 8 x 8 x 12 | 0.60 | 0.60 | 0.75 | 12.00 | 12.00 | 310 | --- | |
| 10 x 4 x 10 | 0.68 | 0.52 | 0.68 | 11.00 | 11.00 | 250 | --- | |
| 10 x 6 x 4 | 0.68 | 0.55 | 0.52 | 11.00 | 11.00 | 195 | --- | |
| 10 x 6 x 6 | 0.68 | 0.55 | 0.55 | 11.00 | 11.00 | 200 | --- | |
| 10 x 6 x 10 | 0.68 | 0.55 | 0.68 | 11.00 | 11.00 | 255 | --- | |
| 10 x 8 x 6 | 0.68 | 0.60 | 0.55 | 11.00 | 11.00 | 210 | --- | |
| 10 x 8 x 8 | 0.68 | 0.60 | 0.60 | 11.00 | 11.00 | 220 | --- | |
| 10 x 8 x 10 | 0.68 | 0.60 | 0.68 | 11.00 | 11.00 | 265 | --- | |
| 10 x 2 | 0.68 | 0.31 | --- | 11.00 | 11.00 | 199 | --- | |
| 10 x 3 | 0.68 | 0.48 | --- | 11.00 | 11.00 | 201 | --- | |
| 10 x 4 | 0.68 | 0.52 | --- | 11.00 | 11.00 | 205 | 220 | |
| 10 x 5 | 0.68 | 0.50 | --- | 11.00 | 11.00 | 211 | 230 | |
| 10 x 6 | 0.68 | 0.55 | --- | 11.00 | 11.00 | 215 | 240 | |
| 10 x 8 | 0.68 | 0.60 | --- | 11.00 | 11.00 | 225 | 265 | |
| 10 x 10 | 0.80 | 0.80 | --- | 11.00 | 11.00 | 270 | 330 | |
| 10 x 10 x 12 | 0.68 | 0.68 | 0.75 | 12.00 | 12.00 | 355 | --- | |
| 10 x 10 x 14 | 0.68 | 0.68 | 0.66 | 14.00 | 14.00 | 375 | --- | |
| 12 x 6 x 6 | 0.75 | 0.55 | 0.55 | 12.00 | 12.00 | 325 | --- | |
| 12 x 6 x 8 | 0.75 | 0.55 | 0.60 | 12.00 | 12.00 | 345 | --- | |
| 12 x 8 x 6 | 0.75 | 0.60 | 0.55 | 12.00 | 12.00 | 340 | --- | |
| 12 x 8 x 8 | 0.75 | 0.60 | 0.60 | 12.00 | 12.00 | 290 | --- | |
| 12 x 8 x 12 | 0.75 | 0.60 | 0.75 | 12.00 | 12.00 | 365 | --- | |
| 12 x 10 x 6 | 0.75 | 0.68 | 0.55 | 12.00 | 12.00 | 375 | --- | |
| 12 x 10 x 8 | 0.75 | 0.68 | 0.60 | 12.00 | 12.00 | 380 | --- | |
| 12 x 10 x 10 | 0.75 | 0.68 | 0.68 | 12.00 | 12.00 | 345 | --- | |
| 12 x 10 x 12 | 0.75 | 0.68 | 0.75 | 12.00 | 12.00 | 370 | --- | |
| 12 x 4 | 0.75 | 0.52 | --- | 12.00 | 12.00 | 290 | 310 | |
| 12 x 5 | 0.75 | 0.50 | --- | 12.00 | 12.00 | 291 | 315 | |
| 12 x 6 | 0.75 | 0.55 | --- | 12.00 | 12.00 | 295 | 320 | |
| 12 x 8 | 0.75 | 0.60 | --- | 12.00 | 12.00 | 310 | 345 | |
| 12 x 10 | 0.87 | 0.80 | --- | 12.00 | 12.00 | 360 | 415 | |
| 12 x 12 | 0.87 | 0.87 | --- | 12.00 | 12.00 | 385 | 460 | |
| 14 x 4 | 0.66 | 0.52 | --- | 14.00 | 14.00 | 370 | --- | |
| 14 x 6 | 0.66 | 0.55 | --- | 14.00 | 14.00 | 375 | 400 | |

(Con't)➔

STAR[®] PIPE PRODUCTS

UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

(Con't)➔





Flanged Fittings

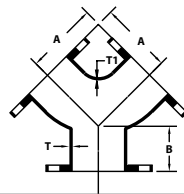
ANSI/AWWA C110/A21.10

STAR[®] PIPE PRODUCTS

| FLANGED TEES & CROSSES (Con't) | | | | | | | |
|--------------------------------|------|------|------|-------|-------|------------|-------|
| NOM. SIZE | T | T1 | T2 | H | J | WT. (LBS.) | |
| | | | | | | TEE | CROSS |
| 14 x 8 | 0.66 | 0.60 | --- | 14.00 | 14.00 | 390 | 425 |
| 14 x 10 | 0.66 | 0.68 | --- | 14.00 | 14.00 | 400 | 460 |
| 14 x 12 | 0.66 | 0.75 | --- | 14.00 | 14.00 | 425 | 505 |
| 14 x 14 | 0.66 | 0.66 | --- | 14.00 | 14.00 | 435 | 530 |
| 16 x 4 | 0.70 | 0.52 | --- | 15.00 | 15.00 | 460 | --- |
| 16 x 6 | 0.70 | 0.55 | --- | 15.00 | 15.00 | 465 | 490 |
| 16 x 8 | 0.70 | 0.60 | --- | 15.00 | 15.00 | 475 | 520 |
| 16 x 10 | 0.70 | 0.68 | --- | 15.00 | 15.00 | 495 | 555 |
| 16 x 12 | 0.70 | 0.75 | --- | 15.00 | 15.00 | 520 | 605 |
| 16 x 14 | 0.70 | 0.66 | --- | 15.00 | 15.00 | 530 | 620 |
| 16 x 16 | 0.70 | 0.70 | --- | 15.00 | 15.00 | 550 | 665 |
| 18 x 6 | 0.75 | 0.55 | --- | 13.00 | 15.50 | 480 | 505 |
| 18 x 8 | 0.75 | 0.60 | --- | 13.00 | 15.50 | 495 | 535 |
| 18 x 10 | 0.75 | 0.68 | --- | 13.00 | 15.50 | 510 | 560 |
| 18 x 12 | 0.75 | 0.75 | --- | 13.00 | 15.50 | 535 | 610 |
| 18 x 14 | 0.75 | 0.66 | --- | 16.50 | 16.50 | 630 | 720 |
| 18 x 16 | 0.75 | 0.70 | --- | 16.50 | 16.50 | 650 | 765 |
| 18 x 18 | 0.75 | 0.75 | --- | 16.50 | 16.50 | 665 | 795 |
| 20 x 6 | 0.80 | 0.55 | --- | 14.00 | 17.00 | 610 | 635 |
| 20 x 8 | 0.80 | 0.60 | --- | 14.00 | 17.00 | 620 | 665 |
| 20 x 10 | 0.80 | 0.68 | --- | 14.00 | 17.00 | 635 | 685 |
| 20 x 12 | 0.80 | 0.75 | --- | 14.00 | 17.00 | 660 | 735 |
| 20 x 14 | 0.80 | 0.66 | --- | 14.00 | 17.00 | 665 | 745 |
| 20 x 16 | 0.80 | 0.70 | --- | 18.00 | 18.00 | 810 | 915 |
| 20 x 18 | 0.80 | 0.75 | --- | 18.00 | 18.00 | 820 | 945 |
| 20 x 20 | 0.80 | 0.80 | --- | 18.00 | 18.00 | 855 | 1015 |
| 24 x 6 | 0.89 | 0.55 | --- | 15.00 | 19.00 | 845 | 875 |
| 24 x 8 | 0.89 | 0.60 | --- | 15.00 | 19.00 | 860 | 895 |
| 24 x 10 | 0.89 | 0.68 | --- | 15.00 | 19.00 | 880 | 930 |
| 24 x 12 | 0.89 | 0.75 | --- | 15.00 | 19.00 | 890 | 960 |
| 24 x 14 | 0.89 | 0.66 | --- | 15.00 | 19.00 | 900 | 975 |
| 24 x 16 | 0.89 | 0.70 | --- | 15.00 | 19.00 | 915 | 1010 |
| 24 x 18 | 0.89 | 0.75 | --- | 22.00 | 22.00 | 1220 | 1365 |
| 24 x 20 | 0.89 | 0.80 | --- | 22.00 | 22.00 | 1255 | 1430 |
| 24 x 24 | 0.89 | 0.89 | --- | 22.00 | 22.00 | 1330 | 1570 |
| 30 x 6 | 1.03 | 0.55 | --- | 18.00 | 23.00 | 1329 | 1352 |
| 30 x 8 | 1.03 | 0.60 | --- | 18.00 | 23.00 | 1340 | 1373 |
| 30 x 10 | 1.03 | 0.68 | --- | 18.00 | 23.00 | 1470 | --- |
| 30 x 12 | 1.03 | 0.75 | --- | 18.00 | 23.00 | 1490 | 1565 |
| 30 x 14 | 1.03 | 0.66 | --- | 18.00 | 23.00 | 1490 | 1570 |
| 30 x 16 | 1.03 | 0.70 | --- | 18.00 | 23.00 | 1505 | 1605 |
| 30 x 18 | 1.03 | 0.75 | --- | 18.00 | 23.00 | 1515 | 1615 |
| 30 x 20 | 1.03 | 0.80 | --- | 18.00 | 23.00 | 1540 | 1670 |
| 30 x 24 | 1.03 | 0.89 | --- | 25.00 | 25.00 | 2025 | 2245 |
| 30 x 30 | 1.03 | 1.03 | --- | 25.00 | 25.00 | 2150 | 2500 |
| 36 x 8 | 1.15 | 0.60 | --- | 20.00 | 26.00 | 1977 | --- |
| 36 x 10 | 1.15 | 0.68 | --- | 20.00 | 26.00 | 2150 | --- |
| 36 x 12 | 1.15 | 0.75 | --- | 20.00 | 26.00 | 2170 | 2240 |
| 36 x 14 | 1.15 | 0.66 | --- | 20.00 | 26.00 | 2175 | 2240 |
| 36 x 16 | 1.15 | 0.70 | --- | 20.00 | 26.00 | 2185 | 2270 |
| 36 x 18 | 1.15 | 0.75 | --- | 20.00 | 26.00 | 2190 | 2280 |
| 36 x 20 | 1.15 | 0.80 | --- | 20.00 | 26.00 | 2210 | 2325 |
| 36 x 24 | 1.15 | 0.89 | --- | 20.00 | 26.00 | 2255 | 2405 |
| 36 x 24 x 24 | 1.15 | 0.89 | 0.89 | 28.00 | 28.00 | 2670 | --- |
| 36 x 30 | 1.15 | 1.03 | --- | 28.00 | 28.00 | 3000 | 3300 |
| 36 x 36 | 1.15 | 1.15 | --- | 28.00 | 28.00 | 3160 | 3620 |
| 36 x 30 x 30 | 1.15 | 1.03 | 1.03 | 28.00 | 28.00 | 2885 | --- |

(Con't)➔

| FLANGED TEES & CROSSES (Con't) | | | | | | | | |
|--------------------------------|------|------|------|-------|-------|------------|-------|--|
| NOM. SIZE | T | T1 | T2 | H | J | WT. (LBS.) | | |
| | | | | | | TEE | CROSS | |
| 36 x 36 x 48 | 1.15 | 1.15 | 1.42 | 34.00 | 34.00 | 4360 | --- | |
| 42 x 12 | 1.28 | 0.75 | --- | 23.00 | 30.00 | 3165 | 3240 | |
| 42 x 14 | 1.28 | 0.66 | --- | 23.00 | 30.00 | 3170 | 3240 | |
| 42 x 16 | 1.28 | 0.70 | --- | 23.00 | 30.00 | 3180 | 3270 | |
| 42 x 18 | 1.28 | 0.75 | --- | 23.00 | 30.00 | 3185 | 3275 | |
| 42 x 20 | 1.28 | 0.80 | --- | 23.00 | 30.00 | 3205 | 3320 | |
| 42 x 24 | 1.28 | 0.89 | --- | 23.00 | 30.00 | 3245 | 3395 | |
| 42 x 30 | 1.28 | 1.03 | --- | 31.00 | 31.00 | 4125 | 4375 | |
| 42 x 36 | 1.28 | 1.15 | --- | 31.00 | 31.00 | 4265 | 4655 | |
| 42 x 42 | 1.28 | 1.28 | --- | 31.00 | 31.00 | 4470 | 5065 | |
| 48 x 12 | 1.42 | 0.75 | --- | 26.00 | 34.00 | 4315 | 4390 | |
| 48 x 14 | 1.42 | 0.66 | --- | 26.00 | 34.00 | 4315 | 4385 | |
| 48 x 16 | 1.42 | 0.70 | --- | 26.00 | 34.00 | 4330 | 4415 | |
| 48 x 18 | 1.42 | 0.75 | --- | 26.00 | 34.00 | 4330 | 4420 | |
| 48 x 20 | 1.42 | 0.80 | --- | 26.00 | 34.00 | 4350 | 4460 | |
| 48 x 24 | 1.42 | 0.89 | --- | 26.00 | 34.00 | 4385 | 4535 | |
| 48 x 30 | 1.42 | 1.03 | --- | 26.00 | 34.00 | 4455 | 4670 | |
| 48 x 36 | 1.42 | 1.15 | --- | 34.00 | 34.00 | 5555 | 5880 | |
| 48 x 42 | 1.42 | 1.28 | --- | 34.00 | 34.00 | 5720 | 6215 | |
| 48 x 48 | 1.42 | 1.42 | --- | 34.00 | 34.00 | 5900 | 6570 | |
| 54 x 12 | 1.05 | 0.75 | --- | 29.00 | 37.00 | 4435 | 4575 | |
| 54 x 14 | 1.05 | 0.66 | --- | 29.00 | 37.00 | 4435 | 4575 | |
| 54 x 16 | 1.05 | 0.70 | --- | 29.00 | 37.00 | 4450 | 4605 | |
| 54 x 18 | 1.05 | 0.75 | --- | 29.00 | 37.00 | 4460 | 4625 | |
| 54 x 20 | 1.05 | 0.80 | --- | 29.00 | 37.00 | 4480 | 4665 | |
| 54 x 24 | 1.05 | 0.89 | --- | 29.00 | 37.00 | 4515 | 4700 | |
| 54 x 30 | 1.05 | 0.72 | --- | 31.00 | 37.00 | 4615 | 4800 | |
| 54 x 36 | 1.05 | 0.77 | --- | 31.00 | 37.00 | 4695 | 4950 | |
| 54 x 42 | 1.05 | 0.88 | --- | 39.00 | 39.00 | 5461 | 6210 | |
| 54 x 48 | 1.05 | 0.94 | --- | 39.00 | 39.00 | 5850 | 6425 | |
| 54 x 54 | 1.05 | 1.05 | --- | 39.00 | 39.00 | 6025 | 6780 | |
| 60 x 24 | 1.10 | 0.89 | --- | 29.00 | 42.00 | 4990 | --- | |
| 60 x 36 | 1.10 | 0.77 | --- | 33.00 | 42.00 | 6015 | 6330 | |
| 60 x 48 | 1.10 | 0.94 | --- | 43.00 | 43.00 | 6923 | 7524 | |
| 60 x 60 | 1.10 | 1.10 | --- | 43.00 | 43.00 | 7334 | 8346 | |
| 64 x 42 | 1.16 | 0.88 | --- | 48.00 | 45.00 | 9610 | 10085 | |
| 64 x 64 | 1.16 | 1.16 | --- | 48.00 | 48.00 | 10995 | 12855 | |

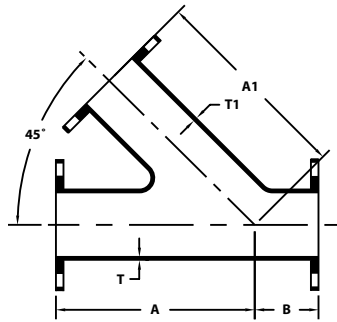


| FLANGED TRUE WYE | | | | | |
|------------------|------|------|-------|------|-----------|
| NOM. SIZE | T | T1 | A | B | WT (LBS.) |
| 3 x 3 x 3 | 0.48 | 0.48 | 5.50 | 2.50 | 32 |
| 4 x 4 x 4 | 0.52 | 0.52 | 6.50 | 3.00 | 50 |
| 6 x 4 x 4 | 0.55 | 0.52 | 8.00 | 3.50 | 75 |
| 6 x 6 x 6 | 0.55 | 0.55 | 8.00 | 3.50 | 80 |
| 8 x 6 x 6 | 0.60 | 0.55 | 9.00 | 4.50 | 120 |
| 8 x 8 x 8 | 0.60 | 0.60 | 9.00 | 4.50 | 125 |
| 10 x 8 x 8 | 0.68 | 0.60 | 11.00 | 5.00 | 155 |
| 12 x 12 x 12 | 0.75 | 0.75 | 12.00 | 5.50 | 300 |
| 16 x 16 x 16 | 0.70 | 0.70 | 15.00 | 6.50 | 456 |



Flanged Fittings

ANSI/AWWA C110/A21.10



| FLANGED WYE LATERALS | | | | | | |
|----------------------|------|------|-------|-------|------|-----------|
| NOM. SIZE | T | T1 | A | A1 | B | WT (LBS.) |
| 3 x 3 | 0.48 | 0.48 | 10.00 | 10.00 | 3.00 | 45 |
| 4 x 3 | 0.52 | 0.48 | 12.00 | 12.00 | 3.00 | 65 |
| 4 x 4 | 0.52 | 0.52 | 12.00 | 12.00 | 3.00 | 75 |
| 6 x 4 | 0.55 | 0.52 | 14.50 | 14.50 | 3.50 | 105 |
| 6 x 6 | 0.55 | 0.55 | 14.50 | 14.50 | 3.50 | 120 |
| 8 x 4 | 0.60 | 0.52 | 17.50 | 17.50 | 4.50 | 165 |
| 8 x 6 | 0.60 | 0.55 | 17.50 | 17.50 | 4.50 | 175 |
| 8 x 8 | 0.60 | 0.60 | 17.50 | 17.50 | 4.50 | 200 |
| 10 x 4 | 0.68 | 0.52 | 20.50 | 20.50 | 5.00 | 240 |
| 10 x 6 | 0.68 | 0.55 | 20.50 | 20.50 | 5.00 | 250 |
| 10 x 8 | 0.68 | 0.60 | 20.50 | 20.50 | 5.00 | 335 |
| 10 x 10 | 0.68 | 0.68 | 20.50 | 20.50 | 5.00 | 335 |
| 12 x 4 | 0.75 | 0.52 | 24.50 | 24.50 | 5.50 | 350 |
| 12 x 6 | 0.75 | 0.55 | 24.50 | 24.50 | 5.50 | 427 |
| 12 x 8 | 0.75 | 0.60 | 24.50 | 24.50 | 5.50 | 452 |
| 12 x 10 | 0.75 | 0.68 | 24.50 | 24.50 | 5.50 | 420 |
| 12 x 12 | 0.75 | 0.75 | 24.50 | 24.50 | 5.50 | 515 |
| 14 x 6 | 0.66 | 0.55 | 27.00 | 27.00 | 6.00 | 475 |
| 14 x 8 | 0.66 | 0.60 | 27.00 | 27.00 | 6.00 | 500 |
| 14 x 10 | 0.66 | 0.68 | 27.00 | 27.00 | 6.00 | 525 |
| 14 x 12 | 0.66 | 0.75 | 27.00 | 27.00 | 6.00 | 570 |
| 14 x 14 | 0.66 | 0.66 | 27.00 | 27.00 | 6.00 | 605 |
| 16 x 6 | 0.70 | 0.55 | 30.00 | 30.00 | 6.50 | 620 |
| 16 x 8 | 0.70 | 0.60 | 30.00 | 30.00 | 6.50 | 645 |
| 16 x 10 | 0.70 | 0.68 | 30.00 | 30.00 | 6.50 | 736 |
| 16 x 12 | 0.70 | 0.75 | 30.00 | 30.00 | 6.50 | 792 |
| 16 x 14 | 0.70 | 0.66 | 30.00 | 30.00 | 6.50 | 755 |
| 16 x 16 | 0.70 | 0.70 | 30.00 | 30.00 | 6.50 | 805 |
| 18 x 8 | 0.75 | 0.60 | 32.00 | 32.00 | 7.00 | 780 |
| 18 x 10 | 0.75 | 0.68 | 32.00 | 32.00 | 7.00 | 810 |
| 18 x 12 | 0.75 | 0.75 | 32.00 | 32.00 | 7.00 | 850 |
| 18 x 14 | 0.75 | 0.66 | 32.00 | 32.00 | 7.00 | 885 |
| 18 x 16 | 0.75 | 0.70 | 32.00 | 32.00 | 7.00 | 935 |
| 18 x 18 | 0.75 | 0.75 | 32.00 | 32.00 | 7.00 | 980 |
| 20 x 10 | 0.80 | 0.68 | 35.00 | 35.00 | 8.00 | 1025 |
| 20 x 12 | 0.80 | 0.75 | 35.00 | 35.00 | 8.00 | 1065 |
| 20 x 14 | 0.80 | 0.66 | 35.00 | 35.00 | 8.00 | 1110 |
| 20 x 16 | 0.80 | 0.70 | 35.00 | 35.00 | 8.00 | 1155 |
| 20 x 20 | 0.80 | 0.80 | 35.00 | 35.00 | 8.00 | 1265 |
| 24 x 8 | 0.89 | 0.60 | 40.50 | 40.50 | 9.00 | 1425 |

(Con't)➔

| FLANGED WYE LATERALS (Con't) | | | | | | |
|------------------------------|------|------|-------|-------|-------|-----------|
| NOM. SIZE | T | T1 | A | A1 | B | WT (LBS.) |
| 24 x 10 | 0.89 | 0.68 | 40.50 | 40.50 | 9.00 | 1460 |
| 24 x 12 | 0.89 | 0.75 | 40.50 | 40.50 | 9.00 | 1550 |
| 24 x 14 | 0.89 | 0.66 | 40.50 | 40.50 | 9.00 | 1560 |
| 24 x 16 | 0.89 | 0.70 | 40.50 | 40.50 | 9.00 | 1615 |
| 24 x 18 | 0.89 | 0.75 | 40.50 | 40.50 | 9.00 | 1680 |
| 24 x 20 | 0.89 | 0.80 | 40.50 | 40.50 | 9.00 | 1750 |
| 24 x 24 | 0.89 | 0.89 | 40.50 | 40.50 | 9.00 | 1905 |
| 30 x 12 | 1.37 | 0.75 | 49.00 | 49.00 | 10.00 | 2545 |
| 30 x 14 | 1.37 | 0.66 | 49.00 | 49.00 | 10.00 | 2590 |
| 30 x 16 | 1.37 | 0.70 | 49.00 | 49.00 | 10.00 | 2645 |
| 30 x 18 | 1.37 | 0.96 | 49.00 | 49.00 | 10.00 | 2690 |
| 30 x 20 | 1.37 | 1.03 | 49.00 | 49.00 | 10.00 | 2760 |
| 30 x 24 | 1.37 | 1.16 | 49.00 | 49.00 | 10.00 | 2915 |
| 30 x 30 | 1.37 | 1.37 | 52.50 | 52.50 | 18.30 | 3794 |
| 36 x 12 | 1.58 | 0.75 | 54.00 | 54.00 | 15.30 | 4017 |
| 36 x 14 | 1.58 | 0.66 | 54.00 | 54.00 | 15.30 | 4007 |
| 36 x 16 | 1.58 | 0.89 | 54.00 | 54.00 | 15.30 | 4108 |
| 36 x 18 | 1.58 | 0.96 | 54.00 | 54.00 | 15.30 | 4150 |
| 36 x 20 | 1.58 | 1.03 | 54.00 | 54.00 | 15.30 | 4214 |
| 36 x 24 | 1.58 | 1.16 | 54.00 | 54.00 | 15.30 | 4346 |
| 36 x 30 | 1.58 | 1.37 | 56.00 | 56.00 | 15.30 | 4785 |
| 36 x 36 | 1.58 | 1.58 | 60.00 | 60.00 | 19.50 | 5800 |
| 42 x 20 | 1.78 | 1.03 | 60.00 | 60.00 | 12.00 | 5629 |
| 42 x 24 | 1.78 | 1.16 | 60.00 | 60.00 | 12.00 | 5757 |
| 42 x 30 | 1.78 | 1.37 | 63.00 | 63.00 | 12.00 | 6305 |
| 42 x 36 | 1.78 | 1.58 | 66.00 | 66.00 | 12.00 | 7040 |
| 42 x 42 | 1.78 | 1.78 | 71.00 | 71.00 | 15.00 | 8405 |
| 48 x 18 | 1.96 | 0.96 | 65.00 | 65.00 | 9.00 | 7000 |
| 48 x 24 | 1.96 | 1.16 | 68.00 | 64.00 | 5.00 | 8695 |
| 48 x 30 | 1.96 | 1.37 | 63.00 | 68.00 | 9.00 | 5573 |
| 48 x 36 | 1.96 | 1.58 | 72.00 | 72.00 | 7.00 | 9515 |
| 48 x 42 | 1.96 | 1.78 | 77.00 | 77.00 | 12.00 | 11030 |
| 48 x 48 | 1.96 | 1.96 | 77.00 | 77.00 | 16.00 | 12115 |
| 54 x 24 | 1.55 | 0.89 | 67.00 | 67.00 | 5.00 | 6220 |
| 54 x 30 | 1.55 | 1.03 | 72.00 | 74.00 | 9.00 | 7478 |
| 54 x 36 | 1.55 | 1.15 | 76.00 | 76.00 | 9.00 | 7600 |
| 54 x 42 | 1.55 | 1.28 | 81.00 | 81.00 | 14.00 | 8930 |
| 54 x 48 | 1.55 | 1.42 | 86.00 | 86.00 | 18.00 | 9480 |
| 54 x 54 | 1.55 | 1.55 | 90.00 | 90.00 | 20.00 | 11780 |
| 60 x 30 | 1.67 | 1.03 | 76.00 | 79.00 | 5.00 | 9045 |
| 64 x 36 | 1.96 | 1.58 | 80.00 | 86.00 | 5.00 | 12634 |

STAR[®] PIPE PRODUCTS

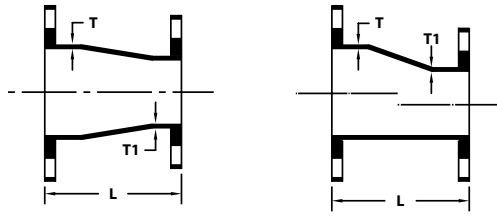
UCAT22.01-2
 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS





Flanged Fittings

ANSI/AWWA C110/A21.10



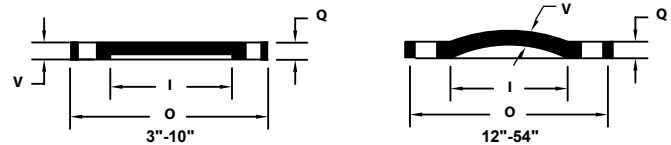
FE CONCENTRIC & ECCENTRIC REDUCERS

| NOM. SIZE | T | T1 | L | WT (LBS.) |
|-----------|------|------|-------|-----------|
| 2 x 1 1/2 | 0.31 | 0.31 | 5.50 | 10 |
| 2 1/2 x 2 | 0.31 | 0.31 | 5.50 | 14 |
| 3 x 2 | 0.48 | 0.31 | 6.00 | 16 |
| 3 x 2 1/2 | 0.48 | 0.31 | 6.00 | 21 |
| 4 x 2 | 0.52 | 0.31 | 7.00 | 25 |
| 4 x 2 1/2 | 0.52 | 0.31 | 7.00 | 28 |
| 4 x 3 | 0.52 | 0.48 | 7.00 | 30 |
| 5 x 2 | 0.50 | 0.31 | 8.00 | 34 |
| 5 x 2 1/2 | 0.50 | 0.31 | 8.00 | 35 |
| 5 x 3 | 0.50 | 0.48 | 8.00 | 37 |
| 5 x 4 | 0.50 | 0.50 | 8.00 | 41 |
| 6 x 1 1/2 | 0.55 | 0.31 | 9.00 | 33 |
| 6 x 2 | 0.55 | 0.31 | 9.00 | 35 |
| 6 x 2 1/2 | 0.55 | 0.31 | 9.00 | 38 |
| 6 x 3 | 0.55 | 0.48 | 9.00 | 40 |
| 6 x 4 | 0.55 | 0.52 | 9.00 | 45 |
| 6 x 5 | 0.55 | 0.52 | 9.00 | 52 |
| 8 x 3 | 0.60 | 0.48 | 11.00 | 60 |
| 8 x 4 | 0.60 | 0.52 | 11.00 | 65 |
| 8 x 5 | 0.60 | 0.52 | 11.00 | 70 |
| 8 x 6 | 0.60 | 0.55 | 11.00 | 75 |
| 10 x 3 | 0.68 | 0.48 | 12.00 | 81 |
| 10 x 4 | 0.68 | 0.52 | 12.00 | 85 |
| 10 x 6 | 0.68 | 0.55 | 12.00 | 90 |
| 10 x 8 | 0.68 | 0.60 | 12.00 | 110 |
| 12 x 4 | 0.75 | 0.52 | 14.00 | 120 |
| 12 x 5 | 0.75 | 0.50 | 14.00 | 126 |
| 12 x 6 | 0.75 | 0.55 | 14.00 | 130 |
| 12 x 8 | 0.75 | 0.60 | 14.00 | 145 |
| 12 x 10 | 0.75 | 0.68 | 14.00 | 170 |
| 14 x 6 | 0.66 | 0.55 | 16.00 | 155 |
| 14 x 8 | 0.66 | 0.60 | 16.00 | 175 |
| 14 x 10 | 0.66 | 0.68 | 16.00 | 190 |
| 14 x 12 | 0.66 | 0.75 | 16.00 | 220 |
| 16 x 6 | 0.70 | 0.55 | 18.00 | 190 |
| 16 x 8 | 0.70 | 0.60 | 18.00 | 210 |
| 16 x 10 | 0.70 | 0.68 | 18.00 | 235 |
| 16 x 12 | 0.70 | 0.75 | 18.00 | 265 |
| 16 x 14 | 0.70 | 0.66 | 18.00 | 280 |
| 18 x 8 | 0.75 | 0.60 | 19.00 | 240 |
| 18 x 10 | 0.75 | 0.68 | 19.00 | 265 |
| 18 x 12 | 0.75 | 0.75 | 19.00 | 295 |
| 18 x 14 | 0.75 | 0.66 | 19.00 | 310 |
| 18 x 16 | 0.75 | 0.70 | 19.00 | 340 |
| 20 x 8 | 0.80 | 0.60 | 20.00 | 290 |
| 20 x 10 | 0.80 | 0.68 | 20.00 | 310 |
| 20 x 12 | 0.80 | 0.75 | 20.00 | 345 |
| 20 x 14 | 0.80 | 0.66 | 20.00 | 355 |
| 20 x 16 | 0.80 | 0.70 | 20.00 | 390 |

(Cont'd)➔

FE CONCENTRIC & ECCENTRIC REDUCERS (Con't)

| NOM. SIZE | T | T1 | L | WT (LBS.) |
|-----------|------|------|-------|-----------|
| 20 x 18 | 0.80 | 0.75 | 20.00 | 410 |
| 24 x 10 | 0.89 | 0.68 | 24.00 | 450 |
| 24 x 12 | 0.89 | 0.75 | 24.00 | 480 |
| 24 x 14 | 0.89 | 0.66 | 24.00 | 490 |
| 24 x 16 | 0.89 | 0.70 | 24.00 | 525 |
| 24 x 18 | 0.89 | 0.75 | 24.00 | 550 |
| 24 x 20 | 0.89 | 0.80 | 24.00 | 590 |
| 30 x 8 | 1.03 | 0.60 | 30.00 | 700 |
| 30 x 12 | 1.03 | 0.75 | 30.00 | 730 |
| 30 x 14 | 1.03 | 0.66 | 30.00 | 752 |
| 30 x 16 | 1.03 | 0.70 | 30.00 | 770 |
| 30 x 18 | 1.03 | 0.75 | 30.00 | 810 |
| 30 x 20 | 1.03 | 0.80 | 30.00 | 870 |
| 30 x 24 | 1.03 | 0.89 | 30.00 | 970 |
| 36 x 16 | 1.15 | 0.70 | 36.00 | 1105 |
| 36 x 20 | 1.15 | 0.80 | 36.00 | 1230 |
| 36 x 24 | 1.15 | 0.89 | 36.00 | 1345 |
| 36 x 30 | 1.15 | 1.03 | 36.00 | 1555 |
| 42 x 20 | 1.28 | 0.80 | 42.00 | 1712 |
| 42 x 24 | 1.28 | 0.89 | 42.00 | 1820 |
| 42 x 30 | 1.28 | 1.03 | 42.00 | 2060 |
| 42 x 36 | 1.28 | 1.15 | 42.00 | 2345 |
| 48 x 30 | 1.42 | 1.03 | 48.00 | 2625 |
| 48 x 36 | 1.42 | 1.15 | 48.00 | 2950 |
| 48 x 42 | 1.42 | 1.28 | 48.00 | 3320 |
| 54 x 24 | 0.90 | 0.89 | 32.00 | 1820 |
| 54 x 30 | 0.90 | 0.61 | 32.00 | 1625 |
| 54 x 36 | 0.90 | 0.66 | 28.00 | 1680 |
| 54 x 42 | 0.90 | 0.76 | 25.00 | 1800 |
| 54 x 48 | 0.90 | 0.80 | 18.00 | 1695 |
| 60 x 54 | 0.94 | 0.90 | 15.00 | 2055 |



BLIND FLANGES (SOLID OR TAPPED)

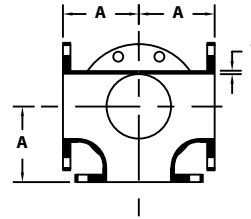
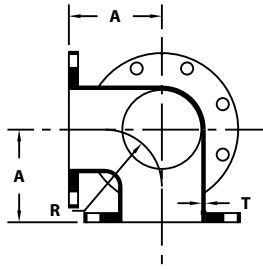
| NOM. SIZE | O | Q | V | I | WT (LBS.) |
|-----------|-------|------|------|-------|-----------|
| 3 | 7.50 | 0.75 | 0.69 | 3.00 | 9 |
| 4 | 9.00 | 0.94 | 0.88 | 4.00 | 16 |
| 6 | 11.00 | 1.00 | 0.94 | 6.00 | 25 |
| 8 | 13.50 | 1.12 | 1.06 | 8.00 | 42 |
| 10 | 16.00 | 1.19 | 1.12 | 10.00 | 63 |
| 12 | 19.00 | 1.25 | 0.81 | 12.00 | 85 |
| 14 | 21.00 | 1.38 | 0.88 | 14.00 | 120 |
| 16 | 23.50 | 1.44 | 1.00 | 16.00 | 145 |
| 18 | 25.00 | 1.56 | 1.06 | 18.00 | 164 |
| 20 | 27.50 | 1.69 | 1.12 | 20.00 | 245 |
| 24 | 32.00 | 1.88 | 1.25 | 24.00 | 318 |
| 30 | 38.75 | 2.12 | 1.44 | 30.00 | 500 |
| 36 | 46.00 | 2.38 | 1.62 | 36.00 | 960 |
| 42 | 53.00 | 2.62 | 1.81 | 42.00 | 1300 |
| 48 | 59.50 | 2.75 | 2.00 | 48.00 | 1740 |
| 54 | 66.25 | 3.00 | 2.25 | 54.00 | 2233 |
| 60 | 73.00 | 3.12 | 2.38 | 60.00 | 2845 |
| 64 | 80.00 | 3.38 | 2.56 | 64.00 | 3744 |

STAR[®] PIPE PRODUCTS



Flanged Fittings

ANSI/AWWA C110/A21.10

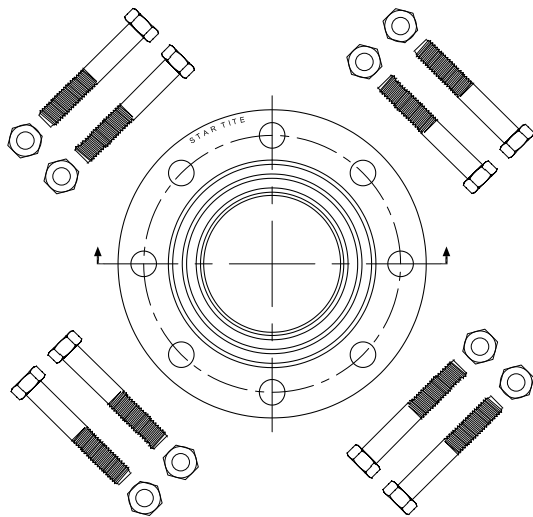


90° FLANGED SIDE OUTLET BEND

| NOM. SIZE | T | A | R | WT (LBS.) |
|-----------|------|-------|-------|-----------|
| 3 | 0.48 | 5.50 | 4.00 | 35 |
| 4 | 0.52 | 6.50 | 4.50 | 60 |
| 6 | 0.55 | 8.00 | 6.00 | 95 |
| 8 | 0.60 | 9.00 | 7.00 | 145 |
| 10 | 0.68 | 11.00 | 9.00 | 240 |
| 12 | 0.75 | 12.00 | 10.00 | 345 |
| 14 | 0.66 | 14.00 | 11.50 | 478 |

FLANGED SIDE OUTLET TEE

| NOM. SIZE | T | A | WT (LBS.) |
|-----------|------|-------|-----------|
| 4 x 4 | 0.52 | 6.50 | 80 |
| 6 x 6 | 0.55 | 8.00 | 120 |
| 8 x 8 | 0.60 | 9.00 | 195 |
| 10 x 10 | 0.80 | 11.00 | 316 |
| 16 x 16 | 0.70 | 15.00 | 629 |
| 20 x 20 | 0.80 | 18.00 | 952 |
| 24 x 24 | 0.89 | 22.00 | 1479 |



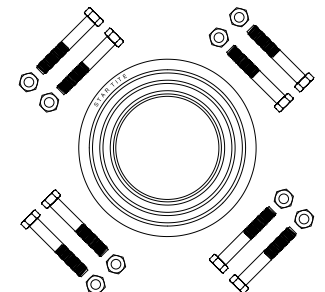
STAR-TITE™ FLANGE ACCESSORY PACKS* C111/A.21.11

| NOM SIZE (IN) | ID | STAR-TITE™ RING GASKET | FULL FACE STAR-TITE™ GASKET | BOLT SIZE (IN) | BOLTS (QTY) | MAX PRESSURE RATING (psi) | Bolt Torque (ft.-lbs) | APPROX. WT. (LBS) |
|---------------|--------|------------------------|-----------------------------|----------------|-------------|---------------------------|-----------------------|-------------------|
| 3 | 3.000 | 5.375 | 7.500 | 5/8 x 2 1/2 | 4 | 350 | 110 | 2 |
| 4 | 4.000 | 6.875 | 9.000 | 5/8 x 3 | 8 | 350 | 110 | 4 |
| 6 | 6.000 | 8.750 | 11.000 | 3/4 x 3 1/2 | 8 | 350 | 110 | 5 |
| 8 | 8.000 | 11.000 | 13.500 | 3/4 x 3 1/2 | 8 | 350 | 110 | 5 |
| 10 | 10.000 | 13.375 | 16.000 | 7/8 x 4 | 12 | 350 | 130 | 12 |
| 12 | 12.000 | 16.125 | 19.000 | 7/8 x 4 | 12 | 350 | 130 | 13 |
| 14 | 14.000 | 17.750 | 21.000 | 1 x 4 1/2 | 12 | 350 | 150 | 19 |
| 16 | 16.000 | 20.250 | 23.500 | 1 x 4 1/2 | 16 | 350 | 160 | 25 |
| 18 | 18.000 | 21.625 | 25.000 | 1 1/8 x 5 | 16 | 350 | 180 | 36 |
| 20 | 20.000 | 23.875 | 27.500 | 1 1/8 x 5 | 20 | 350 | 200 | 45 |
| 24 | 24.000 | 28.250 | 32.000 | 1 1/4 x 5 1/2 | 20 | 350 | 220 | 61 |
| 30 | 30.000 | 34.750 | 38.750 | 1 1/4 x 6 1/2 | 28 | 250 | 140 | 94 |
| 36 | 36.000 | 41.250 | 46.000 | 1 1/2 x 7 | 32 | 250 | 160 | 176 |

*All dimensions in inches except where indicated.

GENERAL SPECIFICATIONS

- HEX BOLTS:** Per ANSI/ASME B18.2.1- Material per ASTM A307 Grade B, Zinc Plated
- HEX NUTS:** Per ANSI/ASME B18.2.2- Material per ASTM A563 Grade A or B, Zinc Plated
- GASKET MATERIAL:** Vulcanized Styrene Butadiene Rubber (SBR). Listed by UL as satisfying both NSF/ANSI 61 and NSF/ANSI 372 requirements for potability.

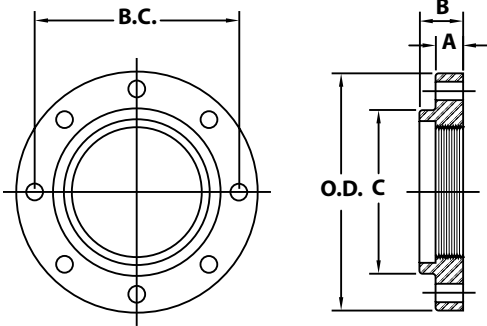


UCAT:22.01-2
* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS



Flanges

ANSI/AWWA C115/A21.15

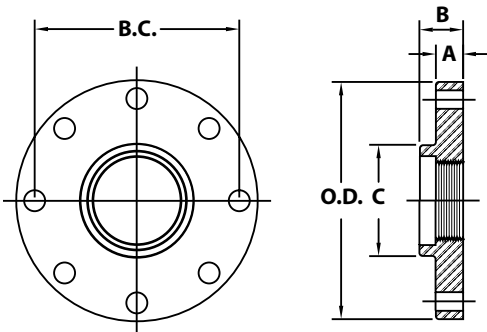


GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
- PRESSURE:** 250 PSI
- DRILLING:** In accordance with ANSI/AWWA C110/21.10, ASME B16.1 Class 125 and ASME B16.42 Class 150
- DIMENSIONS:** Per ANSI/AWWA C115/A21.15
Flange O.D. & thickness per ANSI/AWWA C110/21.10
- FLANGE THREADS:** Taper pipe thread per ASME B1.20.1 adapted to ductile iron pipe O.D.

HI HUB THREADED 125 LB. FLANGES FOR DUCTILE PIPE (DUCTILE IRON)

| NOM. SIZE | OD PIPE | FLANGE THK. A | FLANGE THK. B | THREAD LENGTH | OD FLANGE O.D. | HUB DIA. C | BOLT CIRCLE B.C. | BOLT HOLE DIA. | BOLT DIA. & LENGTH | NO. OF BOLT HOLES | WT (LBS.) |
|-----------|---------|---------------|---------------|---------------|----------------|------------|------------------|----------------|--------------------|-------------------|-----------|
| 2 | 2.50 | 0.62 | 1.25 | 1.00 | 6.00 | 3.06 | 4.75 | 3/4 | 5/8 x 2 1/4 | 4 | 4 |
| 3 | 3.96 | 0.75 | 1.69 | 1.25 | 7.50 | 4.45 | 6.00 | 3/4 | 5/8 x 2 1/2 | 4 | 7 |
| 4 | 4.80 | 0.94 | 1.81 | 1.37 | 9.00 | 5.32 | 7.50 | 3/4 | 5/8 x 3 | 8 | 12 |
| 6 | 6.90 | 1.00 | 2.00 | 1.53 | 11.00 | 7.56 | 9.50 | 7/8 | 3/4 x 3 1/2 | 8 | 17 |
| 8 | 9.05 | 1.12 | 2.25 | 1.75 | 13.50 | 9.69 | 11.75 | 7/8 | 3/4 x 3 1/2 | 8 | 26 |
| 10 | 11.10 | 1.19 | 2.44 | 1.88 | 16.00 | 12.00 | 14.25 | 1 | 7/8 x 4 | 12 | 37 |
| 12 | 13.20 | 1.25 | 2.56 | 2.12 | 19.00 | 14.06 | 17.00 | 1 | 7/8 x 4 | 12 | 55 |
| 14 | 15.30 | 1.38 | 2.62 | 2.12 | 21.00 | 16.25 | 18.75 | 1 1/8 | 1 x 4 1/2 | 12 | 70 |
| 16 | 17.40 | 1.44 | 2.75 | 2.12 | 23.50 | 18.44 | 21.25 | 1 1/8 | 1 x 4 1/2 | 16 | 80 |
| 18 | 19.50 | 1.56 | 3.00 | 2.25 | 25.00 | 20.53 | 22.75 | 1 1/4 | 1 1/8 x 5 | 16 | 85 |
| 20 | 21.60 | 1.69 | 3.25 | 2.44 | 27.50 | 22.63 | 25.00 | 1 1/4 | 1 1/8 x 5 | 20 | 106 |
| 24 | 25.80 | 1.88 | 3.50 | 2.75 | 32.00 | 26.82 | 29.50 | 1 3/8 | 1 1/4 x 5 1/2 | 20 | 147 |
| 30 | 32.00 | 2.12 | 3.75 | 3.37 | 38.75 | 32.75 | 36.00 | 1 3/8 | 1 1/4 x 6 1/2 | 28 | 224 |
| 36 | 38.30 | 2.38 | 5.00 | 4.00 | 46.00 | 39.12 | 42.75 | 1 5/8 | 1 1/2 x 7 | 32 | 337 |
| 42 | 44.50 | 2.62 | 5.12 | 4.50 | 53.00 | 46.00 | 49.50 | 1 5/8 | 1 1/2 x 7 1/2 | 36 | 495 |
| 48 | 50.80 | 2.75 | 5.50 | 5.12 | 59.50 | 52.25 | 56.00 | 1 5/8 | 1 1/2 x 8 | 44 | 622 |
| 54 | 57.56 | 3.00 | 6.45 | 4.75 | 66.25 | 58.75 | 62.75 | 2 | 1 3/4 x 8 1/2 | 44 | 711 |
| 60 | 61.61 | 3.12 | 6.75 | 5.00 | 73.00 | 63.00 | 69.25 | 2 | 1 3/4 x 9 | 52 | 1084 |
| 64 | 65.67 | 3.38 | 7.06 | 5.25 | 80.00 | 67.18 | 76.00 | 2 | 1 3/4 x 9 | 52 | 1575 |



GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
- PRESSURE:** 250 PSI
- DRILLING:** In accordance with ANSI/AWWA C110/21.10, ASME B16.1 Class 125 and ASME B16.42 Class 150
- DIMENSIONS:** Per ANSI/AWWA C115/A21.15
Flange O.D. & thickness per ANSI/AWWA C110/21.10
- FLANGE THREADS:** Taper pipe thread per ASME B1.20.1 adapted to ductile iron pipe O.D.

REDUCING 125 LB. FLANGES FOR DUCTILE PIPE (DUCTILE IRON)

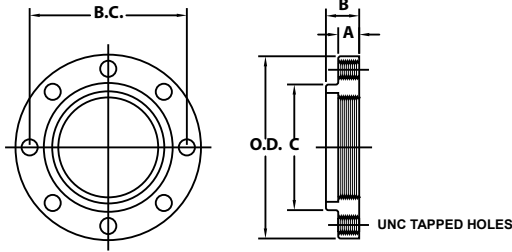
| NOM. SIZE | OD PIPE | FLANGE THK. A | FLANGE THK. B | THREAD LENGTH | OD FLANGE O.D. | HUB DIA. C | BOLT CIRCLE B.C. | BOLT HOLE DIA. | BOLT DIA. & LENGTH | NO. OF BOLT HOLES | WT (LBS.) |
|-----------|---------|---------------|---------------|---------------|----------------|------------|------------------|----------------|--------------------|-------------------|-----------|
| 4 x 3 | 3.96 | 0.94 | 1.37 | 0.94 | 9.00 | 4.45 | 7.50 | 3/4 | 5/8 x 3 | 8 | 16 |
| 6 x 4 | 4.80 | 1.00 | 1.56 | 1.00 | 11.00 | 5.32 | 9.50 | 7/8 | 3/4 x 3 1/2 | 8 | 25 |
| 8 x 4 | 4.80 | 1.12 | 1.75 | 1.00 | 13.50 | 5.32 | 11.75 | 7/8 | 3/4 x 3 1/2 | 8 | 40 |
| 8 x 6 | 6.90 | 1.12 | 1.75 | 1.16 | 13.50 | 7.56 | 11.75 | 7/8 | 3/4 x 3 1/2 | 8 | 35 |
| 10 x 8 | 9.05 | 1.19 | 2.00 | 1.38 | 16.00 | 9.69 | 14.25 | 1 | 7/8 x 4 | 12 | 50 |
| 12 x 8 | 9.05 | 1.25 | 2.19 | 1.38 | 19.00 | 9.69 | 17.00 | 1 | 7/8 x 4 | 12 | 85 |
| 12 x 10 | 11.10 | 1.25 | 2.19 | 1.38 | 19.00 | 12.00 | 17.00 | 1 | 7/8 x 4 | 12 | 65 |

STAR[®] PIPE PRODUCTS



Flanges

ANSI/AWWA C115/A21.15

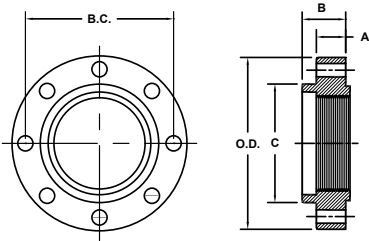


GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
- PRESSURE:** 250 PSI
- DRILLING:** In accordance with ANSI/AWWA C110/21.10, ASME B16.1 Class 125 and ASME B16.42 Class 150
- DIMENSIONS:** Per ANSI/AWWA C115/A21.15
Flange O.D. & thickness per ANSI/AWWA C110/21.10
- BOLT HOLE THREADS:** UNC-2B Per ASME B1.1
- FLANGE THREADS:** Taper pipe thread per ASME B1.20.1 adapted to ductile iron pipe O.D.

THREADED 125 LB. FLANGES FOR STUDS FOR DUCTILE PIPE (DUCTILE IRON)

| NOM. SIZE | OD PIPE | FLANGE THK. A | FLANGE THK. B | THREAD LENGTH | OD FLANGE O.D. | HUB DIA. C | BOLT CIRCLE B.C. | BOLT HOLE THREADS (UNC-2B) | NO. OF BOLT HOLES | WT (LBS.) |
|-----------|---------|---------------|---------------|---------------|----------------|------------|------------------|----------------------------|-------------------|-----------|
| 2 | 2.50 | 0.62 | 1.25 | 1.00 | 6.00 | 3.06 | 4.75 | 5/8 - 11 | 4 | 4 |
| 3 | 3.96 | 0.75 | 1.69 | 1.25 | 7.50 | 4.45 | 6.00 | 5/8 - 11 | 4 | 7 |
| 4 | 4.80 | 0.94 | 1.81 | 1.37 | 9.00 | 5.32 | 7.50 | 5/8 - 11 | 8 | 12 |
| 6 | 6.90 | 1.00 | 2.00 | 1.53 | 11.00 | 7.56 | 9.50 | 3/4 - 10 | 8 | 17 |
| 8 | 9.05 | 1.12 | 2.25 | 1.75 | 13.50 | 9.69 | 11.75 | 3/4 - 10 | 8 | 26 |
| 10 | 11.10 | 1.19 | 2.44 | 1.88 | 16.00 | 12.00 | 14.25 | 7/8 - 9 | 12 | 37 |
| 12 | 13.20 | 1.25 | 2.56 | 2.12 | 19.00 | 14.06 | 17.00 | 7/8 - 9 | 12 | 55 |
| 14 | 15.30 | 1.38 | 2.62 | 2.12 | 21.00 | 16.25 | 18.75 | 1 - 8 | 12 | 70 |
| 16 | 17.40 | 1.44 | 2.75 | 2.12 | 23.50 | 18.44 | 21.25 | 1 - 8 | 16 | 80 |
| 18 | 19.50 | 1.56 | 3.00 | 2.25 | 25.00 | 20.53 | 22.75 | 1 1/8 - 7 | 16 | 85 |
| 20 | 21.60 | 1.69 | 3.25 | 2.44 | 27.50 | 22.63 | 25.00 | 1 1/8 - 7 | 20 | 106 |
| 24 | 25.80 | 1.88 | 3.50 | 2.75 | 32.00 | 26.82 | 29.50 | 1 1/4 - 7 | 20 | 147 |
| 30 | 32.00 | 2.12 | 3.75 | 3.37 | 38.75 | 32.75 | 36.00 | 1 1/4 - 7 | 28 | 224 |
| 36 | 38.30 | 2.38 | 5.00 | 4.00 | 46.00 | 39.12 | 42.75 | 1 1/2 - 6 | 32 | 337 |
| 42 | 44.50 | 2.62 | 5.12 | 4.50 | 53.00 | 46.00 | 49.50 | 1 1/2 - 6 | 36 | 495 |
| 48 | 50.80 | 2.75 | 5.50 | 5.12 | 59.50 | 52.25 | 56.00 | 1 1/2 - 6 | 44 | 622 |
| 54 | 57.56 | 3.00 | 6.45 | 4.75 | 66.25 | 58.75 | 62.75 | 1 3/4 - 5 | 44 | 711 |
| 60 | 61.61 | 3.12 | 6.75 | 5.00 | 73.00 | 63.00 | 69.25 | 1 3/4 - 5 | 52 | 1084 |
| 64 | 65.67 | 3.38 | 7.06 | 5.25 | 80.00 | 67.18 | 76.00 | 1 3/4 - 5 | 52 | 1575 |



GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
- PRESSURE:** 640 PSI
- DRILLING:** In accordance with ASME B16.1 Class 250 and ASME B16.42 Class 300
- DIMENSIONS:** Per ANSI/B16.1 Class 250 and ASME B16.42 Class 300.
- FLANGE THREADS:** Taper pipe thread per ASME B1.20.1 adapted to ductile iron pipe O.D.

THREADED 250 LB. FLANGES FOR DUCTILE PIPE (DUCTILE IRON)

| NOM. SIZE | OD PIPE | FLANGE THK. A | FLANGE THK. B | THREAD LENGTH | OD FLANGE O.D. | HUB DIA. C | BOLT CIRCLE B.C. | BOLT HOLE DIA. | BOLT DIA. & LENGTH | NO. OF BOLT HOLES | WT (LBS.) |
|-----------|---------|---------------|---------------|---------------|----------------|------------|------------------|----------------|--------------------|-------------------|-----------|
| 3 | 3.96 | 1.12 | 1.56 | 1.19 | 8.25 | 4.62 | 6.62 | 7/8 | 3/4 x 3 1/2 | 8 | 10 |
| 4 | 4.80 | 1.25 | 1.75 | 1.31 | 10.00 | 5.75 | 7.88 | 7/8 | 3/4 x 4 | 8 | 19 |
| 6 | 6.90 | 1.44 | 1.94 | 1.56 | 12.50 | 8.12 | 10.62 | 7/8 | 3/4 x 4 | 12 | 31 |
| 8 | 9.05 | 1.62 | 2.19 | 1.75 | 15.00 | 10.25 | 13.00 | 1 | 7/8 x 4 1/2 | 12 | 47 |
| 10 | 11.10 | 1.88 | 2.38 | 1.94 | 17.50 | 12.62 | 15.25 | 1 1/8 | 1 x 5 1/2 | 16 | 70 |
| 12 | 13.20 | 2.00 | 2.56 | 2.19 | 20.50 | 14.75 | 17.75 | 1 1/4 | 1 1/8 x 5 1/2 | 16 | 114 |
| 14 | 15.30 | 2.12 | 2.69 | 2.25 | 23.00 | 16.25 | 20.25 | 1 1/4 | 1 1/8 x 6 | 20 | 122 |
| 16 | 17.40 | 2.25 | 2.88 | 2.50 | 25.50 | 18.38 | 22.50 | 1 3/8 | 1 1/4 x 6 1/2 | 20 | 159 |
| 18 | 19.50 | 2.38 | 3.00 | 2.56 | 28.00 | 20.53 | 24.75 | 1 3/8 | 1 1/4 x 6 1/2 | 24 | 205 |
| 20 | 21.60 | 2.50 | 3.31 | 2.87 | 30.50 | 22.63 | 27.00 | 1 3/8 | 1 1/4 x 7 | 24 | 220 |
| 24 | 25.80 | 2.75 | 3.75 | 3.25 | 36.00 | 26.82 | 32.00 | 1 3/8 | 1 1/2 x 7 1/2 | 24 | 342 |
| 30 | 32.00 | 3.00 | 4.75 | 4.33 | 43.00 | 35.00 | 39.25 | 2 | 1 3/4 x 8 1/2 | 28 | 502 |
| 36 | 38.30 | 3.38 | 5.37 | 4.63 | 50.00 | 41.25 | 46.00 | 2 1/4 | 2 x 9 1/2 | 32 | 690 |
| 42 | 44.50 | 3.69 | 6.00 | 5.38 | 57.00 | 48.50 | 52.75 | 2 1/4 | 2 x 10 | 36 | 986 |
| 48 | 50.80 | 4.00 | 6.63 | 6.25 | 65.00 | 56.55 | 60.75 | 2 1/4 | 2 x 11 | 40 | 1499 |

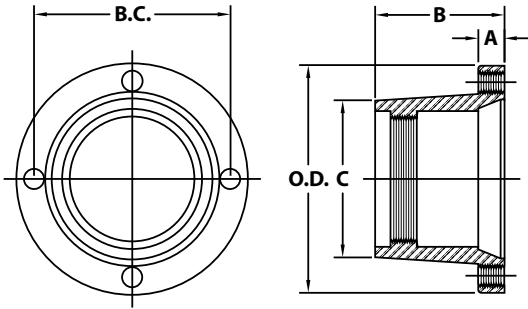
UCAT22.01-2
* REGISTERED TRADEMARK OF STAR PIPE PRODUCTS

STAR[®] PIPE PRODUCTS



Flanges

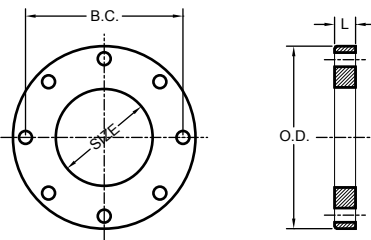
ANSI/AWWA C115/A21.15



GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
PRESSURE: 350 PSI 3"-24" and 250 PSI 30"-48"
DRILLING: In accordance with ANSI/AWWA C111/A21.11
DIMENSIONS: MJ BELL per ANSI/AWWA C111/A21.11
BOLT HOLE THREADS: UNC-2B Per ASME B1.1
FLANGE THREADS: Taper pipe thread per ASME B1.20.1 adapted to ductile iron pipe O.D.

| MJ THREADED BELL FOR DUCTILE PIPE (DUCTILE IRON) | | | | | | | | | | |
|--|---------|---------------|--------------|---------------|----------------|------------|------------------|----------------------------|-------------------|-----------|
| NOM. SIZE | OD PIPE | FLANGE THK. A | TOTAL THK. B | THREAD LENGTH | OD FLANGE O.D. | HUB DIA. C | BOLT CIRCLE B.C. | BOLT HOLE THREADS (UNC-2B) | NO. OF BOLT HOLES | WT (LBS.) |
| 3 | 3.96 | 0.94 | 4.12 | 0.94 | 7.69 | 4.50 | 6.19 | 5/8 - 11 | 4 | 11 |
| 4 | 4.80 | 1.00 | 4.25 | 1.00 | 9.12 | 5.32 | 7.50 | 3/4 - 10 | 4 | 15 |
| 6 | 6.90 | 1.06 | 4.43 | 1.16 | 11.12 | 7.56 | 9.50 | 3/4 - 10 | 6 | 22 |
| 8 | 9.05 | 1.12 | 4.75 | 1.38 | 13.37 | 9.73 | 11.75 | 3/4 - 10 | 6 | 35 |
| 10 | 11.10 | 1.19 | 4.87 | 1.50 | 15.69 | 12.06 | 14.00 | 3/4 - 10 | 8 | 46 |
| 12 | 13.20 | 1.25 | 5.12 | 1.75 | 17.94 | 14.16 | 16.25 | 3/4 - 10 | 8 | 55 |
| 14 | 15.30 | 1.31 | 6.50 | 1.87 | 20.31 | 16.25 | 18.75 | 3/4 - 10 | 10 | 94 |
| 16 | 17.40 | 1.38 | 6.75 | 2.06 | 22.56 | 18.44 | 21.00 | 3/4 - 10 | 12 | 118 |
| 18 | 19.50 | 1.44 | 7.00 | 2.25 | 24.83 | 20.53 | 23.25 | 3/4 - 10 | 12 | 125 |
| 20 | 21.60 | 1.50 | 7.25 | 2.44 | 27.08 | 22.63 | 25.50 | 3/4 - 10 | 14 | 150 |
| 24 | 25.80 | 1.62 | 7.50 | 2.75 | 31.58 | 26.82 | 30.00 | 3/4 - 10 | 16 | 235 |
| 30 | 32.00 | 1.81 | 9.13 | 3.37 | 39.12 | 32.75 | 36.88 | 1 - 8 | 20 | 375 |
| 36 | 38.30 | 2.00 | 9.75 | 4.00 | 46.00 | 39.12 | 43.75 | 1 - 8 | 24 | 500 |
| 42 | 44.50 | 2.00 | 10.50 | 4.00 | 53.12 | 46.00 | 50.62 | 1 1/4 - 7 | 28 | 735 |
| 48 | 50.80 | 2.00 | 11.00 | 4.12 | 60.00 | 52.25 | 57.50 | 1 1/4 - 7 | 32 | 940 |
| 54 | 57.56 | 2.00 | 11.50 | 4.25 | 65.70 | 59.18 | 63.20 | 1 1/4 - 7 | 36 | 978 |
| 60 | 61.61 | 2.00 | 11.50 | 5.00 | 70.22 | 63.00 | 67.72 | 1 1/4 - 7 | 36 | 1109 |



GENERAL SPECIFICATIONS

- MATERIAL:** Ductile Iron per ASTM A536
 Gray Iron Per ASTM A48 Class 30B
DRILLING: In accordance with ANSI/AWWA C110/21.10, ASME B16.1 Class 125
 And ASME B16.42 Class 150

| FILLER FLANGES (DUCTILE IRON & CAST GRAY IRON) | | | | | | | | | | | | | |
|--|----------------|------------------|----------------|-------------------|----------------|-----|-----|-------|-----|-----|-----|-----|-----|
| NOM. SIZE | OD FLANGE O.D. | BOLT CIRCLE B.C. | BOLT HOLE DIA. | NO. OF BOLT HOLES | L / WT. (LBS.) | | | | | | | | |
| | | | | | 1/2 | 3/4 | 1 | 1 1/2 | 2 | 3 | 4 | 5 | 6 |
| 3 | 7.50 | 6.00 | 3/4 | 4 | 5 | 7 | 9 | 14 | 18 | 27 | 36 | 45 | 54 |
| 4 | 9.00 | 7.50 | 3/4 | 8 | 6 | 9 | 12 | 19 | 25 | 37 | 49 | 62 | 74 |
| 6 | 11.00 | 9.50 | 7/8 | 8 | 8 | 12 | 16 | 24 | 32 | 48 | 64 | 81 | 97 |
| 8 | 13.50 | 11.75 | 7/8 | 8 | 11 | 17 | 23 | 34 | 46 | 69 | 92 | 114 | 137 |
| 10 | 16.00 | 14.25 | 1 | 12 | 15 | 22 | 29 | 44 | 59 | 88 | 118 | 147 | 176 |
| 12 | 19.00 | 17.00 | 1 | 12 | 21 | 31 | 42 | 63 | 84 | 126 | 167 | 209 | 251 |
| 14 | 21.00 | 18.75 | 1.12 | 12 | 23 | 35 | 47 | 70 | 94 | 141 | 188 | 235 | 282 |
| 16 | 23.50 | 21.25 | 1.12 | 16 | 28 | 42 | 56 | 85 | 113 | 169 | 225 | 282 | 338 |
| 18 | 25.00 | 22.75 | 1.25 | 16 | 28 | 42 | 56 | 85 | 113 | 169 | 225 | 282 | 338 |
| 20 | 27.50 | 25.00 | 1.25 | 20 | 33 | 50 | 66 | 100 | 133 | 199 | 265 | 332 | 398 |
| 24 | 32.00 | 29.50 | 1.38 | 20 | 42 | 63 | 84 | 126 | 167 | 251 | 335 | 419 | 502 |
| 30 | 38.75 | 36.00 | 1.38 | 28 | 56 | 84 | 112 | 168 | 224 | 336 | 448 | 560 | 672 |
| 36 | 46.00 | 42.75 | 1.63 | 32 | 75 | 113 | 150 | 225 | 300 | 450 | 601 | 751 | 901 |

STAR[®] PIPE PRODUCTS

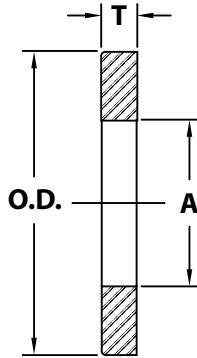
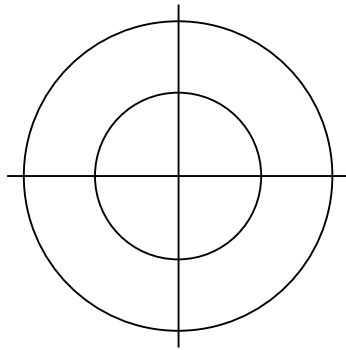


Flanges

ANSI/AWWA C115/A21.15

GENERAL SPECIFICATIONS

MATERIAL: Ductile iron per ASTM A536



DUCTILE IRON ANCHOR FLANGES

| NOM. SIZE | THICKNESS T | OD FLANGE O.D. | ID FLANGE A | WT (LBS.) |
|-----------|-------------|----------------|-------------|-----------|
| 3 | 0.50 | 6.50 | 4.06 | 3 |
| 4 | 0.50 | 7.40 | 4.90 | 3 |
| 6 | 0.50 | 9.50 | 7.00 | 4 |
| 8 | 0.50 | 12.00 | 9.15 | 6 |
| 10 | 0.50 | 14.10 | 11.20 | 7 |
| 12 | 0.50 | 16.25 | 13.30 | 9 |
| 14 | 0.50 | 18.40 | 15.44 | 10 |
| 16 | 0.50 | 21.00 | 17.54 | 14 |
| 18 | 0.50 | 23.10 | 19.64 | 15 |
| 20 | 0.50 | 25.70 | 21.74 | 19 |
| 24 | 0.50 | 30.00 | 25.94 | 23 |
| 30 | 0.63 | 37.00 | 32.17 | 43 |
| 36 | 0.63 | 43.40 | 38.47 | 52 |
| 42 | 1.00 | 50.00 | 44.67 | 103 |
| 48 | 1.00 | 56.50 | 50.97 | 121 |
| 54 | 1.25 | 62.50 | 57.73 | 146 |
| 60 | 1.25 | 69.00 | 61.78 | 241 |
| 64 | 1.25 | 75.75 | 65.84 | 358 |

STAR® PIPE PRODUCTS