



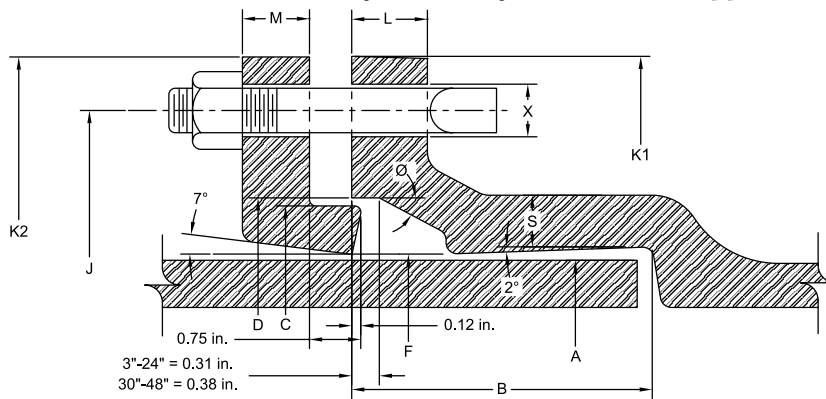
Full Body MJ Fittings

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)
- 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. 16)
- T-BOLTS/NUTS:** Low alloy steel in accordance with ANSI/AWWA C11/A21.11 (see pg. 18)
- 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/C905



| 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 | | | | | | | | | | | | | | | |

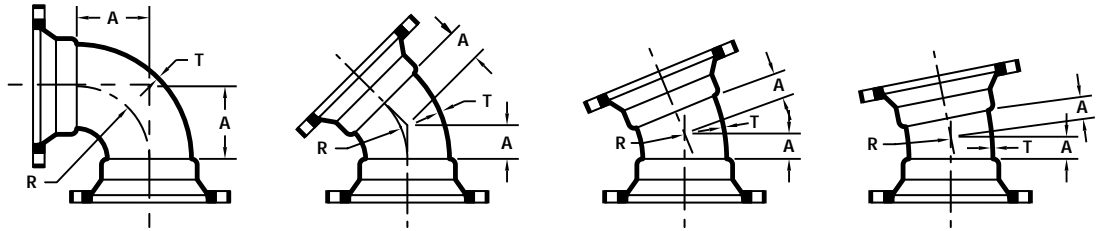
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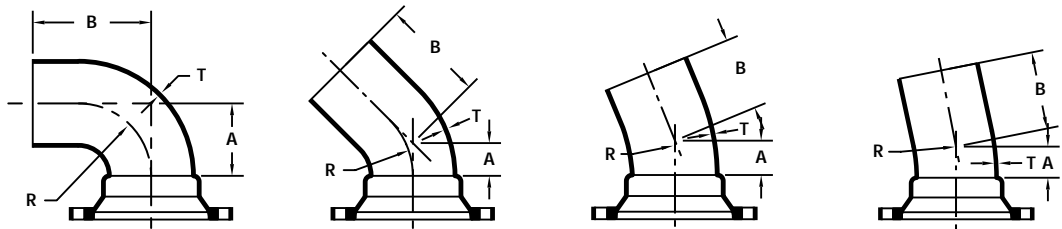


Full Body MJ Fittings

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 |

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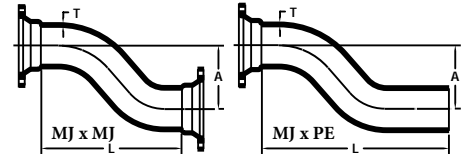
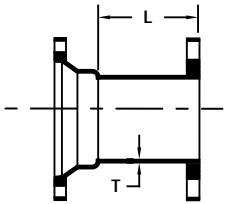


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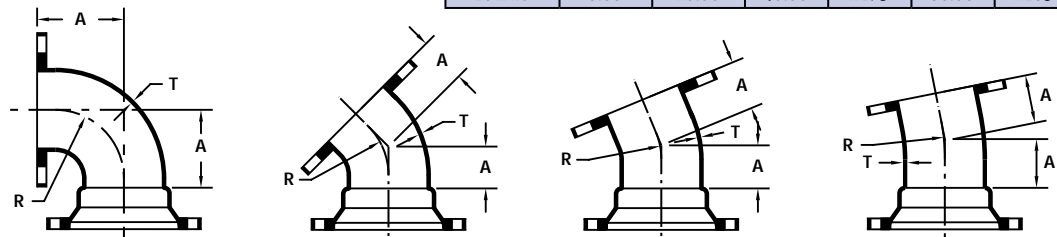
Full Body MJ Fittings

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 | T | A | MJ x MJ | | MJ x PE | |
|-----------|------|-------|---------|-----------|---------|-----------|
| | | | 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 |
| 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 |

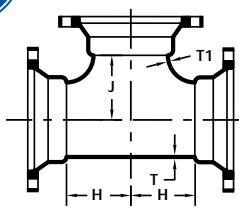
STAR[®] PIPE PRODUCTS





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 |

(Con't)

| 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 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 | 1.78 | 1.58 | 31.00 | 31.00 | 6075 |
| 42 x 42 | 1.78 | 1.78 | 31.00 | 31.00 | 6320 |
| 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 | 1.96 | 1.78 | 34.00 | 34.00 | 8130 |
| 48 x 48 | 1.96 | 1.96 | 34.00 | 34.00 | 8420 |
| 48 x 36 x 48 | 1.42 | 1.15 | 34.00 | 34.00 | 6275 |

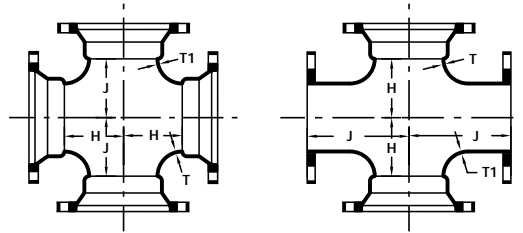
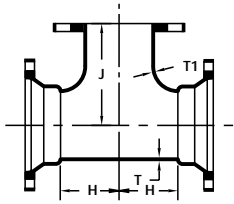
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 * REGISTERED TRADEMARK OF STAR PIPE PRODUCTS





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 | 730 |
| 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 | --- | |
| 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 | --- | |
| 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 | --- | |
| 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 42 | 1.78 | 1.78 | 31.00 | 31.00 | 7145 | --- | |

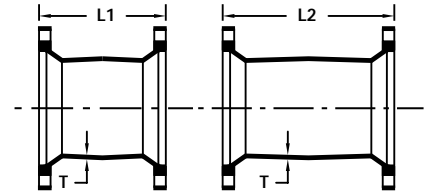
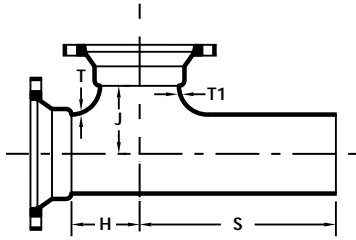
STAR[®] PIPE PRODUCTS





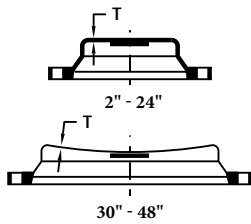
Full Body MJ Fittings

ANSI/AWWA C110/A21.10

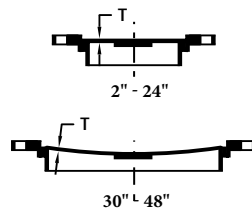


| MJ x PE x MJ TEES | | | | | | |
|-------------------|------|------|-------|-------|-------|-----------|
| NOM. SIZE | T | T1 | H | J | S | WT (LBS.) |
| 4 x 4 | 0.52 | 0.52 | 6.50 | 6.50 | 14.50 | 75 |
| 6 x 6 | 0.55 | 0.55 | 8.00 | 8.00 | 16.00 | 120 |
| 8 x 6 | 0.60 | 0.55 | 9.00 | 9.00 | 17.00 | 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 | 310 |
| 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 | 410 |

| 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 |



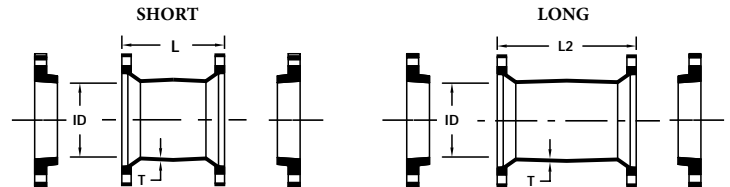
CAPS



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 |

*Threads in Accordance with ANSI/ASME B1.20.1



| 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 |

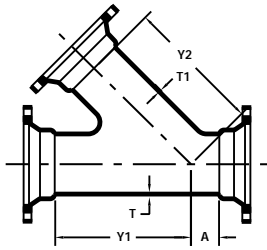
STAR[®] PIPE PRODUCTS





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 | 940 |
| 18 x 10 | 0.75 | 0.68 | 7.00 | 32.00 | 32.00 | 975 |
| 18 x 12 | 0.75 | 0.75 | 7.00 | 32.00 | 32.00 | 852 |
| 18 x 16 | 0.75 | 0.70 | 7.00 | 32.00 | 32.00 | 1135 |
| 18 x 18 | 0.75 | 0.75 | 7.00 | 32.00 | 32.00 | 960 |
| 20 x 10 | 0.80 | 0.68 | 8.00 | 35.00 | 35.00 | 1215 |
| 20 x 12 | 0.80 | 0.75 | 8.00 | 35.00 | 35.00 | 1260 |
| 20 x 14 | 0.80 | 0.66 | 8.00 | 35.00 | 35.00 | 1320 |
| 20 x 16 | 0.80 | 0.70 | 8.00 | 35.00 | 35.00 | 1168 |
| 20 x 20 | 0.80 | 0.80 | 8.00 | 35.00 | 35.00 | 1525 |
| 24 x 12 | 0.89 | 0.75 | 9.00 | 40.50 | 40.50 | 1800 |
| 24 x 16 | 0.89 | 0.70 | 9.00 | 40.50 | 40.50 | 1380 |
| 24 x 18 | 0.89 | 0.75 | 9.00 | 40.50 | 40.50 | 2060 |
| 24 x 24 | 0.89 | 0.89 | 9.00 | 40.50 | 40.50 | 2245 |
| 30 x 16 | 1.37 | 0.89 | 10.00 | 49.00 | 49.00 | 2960 |
| 30 x 20 | 1.37 | 1.03 | 10.00 | 49.00 | 49.00 | 2575 |
| 30 x 24 | 1.37 | 1.16 | 10.00 | 49.00 | 49.00 | 3280 |
| 30 x 30 | 1.37 | 1.37 | 10.00 | 49.00 | 49.00 | 3670 |
| 36 x 8 | 1.58 | 0.60 | 15.25 | 54.00 | 54.00 | 4055 |
| 36 x 16 | 1.58 | 0.89 | 15.25 | 54.00 | 54.00 | 4930 |
| 36 x 18 | 1.58 | 0.96 | 15.25 | 54.00 | 54.00 | 5000 |
| 36 x 20 | 1.58 | 1.03 | 15.25 | 54.00 | 54.00 | 5080 |
| 36 x 24 | 1.58 | 1.16 | 15.25 | 54.00 | 54.00 | 5245 |

(Con't)▶

| 45° MJ LATERALS (Con't) | | | | | | |
|-------------------------|------|------|-------|-------|-------|-----------|
| NOM. SIZE | T | T1 | A | Y1 | Y2 | WT (LBS.) |
| 36 x 30 | 1.58 | 1.37 | 15.25 | 56.00 | 56.00 | 5630 |
| 36 x 36 | 1.58 | 1.58 | 19.50 | 60.00 | 60.00 | 5196 |
| 42 x 20 | 1.78 | 1.03 | 12.00 | 60.00 | 60.00 | 6650 |
| 42 x 24 | 1.78 | 1.16 | 12.00 | 60.00 | 60.00 | 6810 |
| 42 x 30 | 1.78 | 1.37 | 12.00 | 63.00 | 63.00 | 7280 |
| ★ 42 x 36 | 1.78 | 1.58 | 12.00 | 66.00 | 66.00 | 8355 |
| ★ 42 x 42 | 1.78 | 1.78 | 15.00 | 71.00 | 71.00 | 9900 |
| 48 x 18 | 1.96 | 0.96 | --- | 52.00 | 62.00 | 6010 |
| 48 x 20 | 1.96 | 1.03 | --- | 52.00 | 62.00 | 6420 |
| 48 x 24 | 1.96 | 1.16 | 5.00 | 58.00 | 64.00 | 7610 |
| 48 x 30 | 1.96 | 1.37 | 4.00 | 59.00 | 64.00 | 7945 |
| 48 x 36 | 1.96 | 1.58 | 6.00 | 64.00 | 68.00 | 8354 |
| ★ 48 x 48 | 1.96 | 1.96 | 16.00 | 77.00 | 77.00 | 13150 |

★ 150 PSI pressure rating

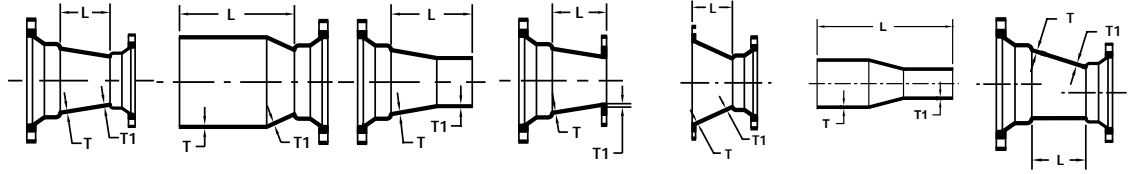
STAR[®] PIPE PRODUCTS





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 | 54 | 9.00 | 60 | --- | --- | 9.00 | 65 |
| 8 x 3 | 0.60 | 0.48 | 11.00 | 75 | 19.00 | 70 | 19.00 | 70 | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 14 x 12 | 0.66 | 0.75 | 16.00 | 255 | 24.00 | 240 | 24.00 | 255 | 16.00 | 270 | --- | --- | --- | --- | --- | --- |
| 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 | --- | --- | --- | --- | --- | --- | --- | --- |
| 16 x 12 | 0.70 | 0.75 | 18.00 | 305 | 26.00 | 285 | 26.00 | 305 | 18.00 | 325 | 18.00 | 305 | --- | --- | --- | --- |
| 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 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 12 | 0.89 | 0.75 | 24.00 | 550 | 32.00 | 510 | 32.00 | 550 | 24.00 | 455 | --- | --- | --- | --- | --- | --- |
| 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 | 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) ➔

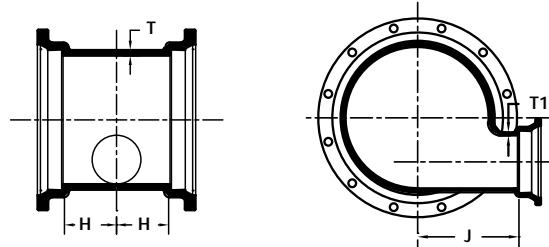
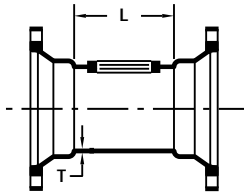




Full Body MJ Fittings

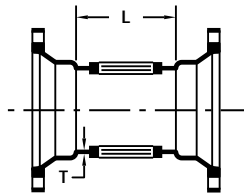
ANSI/AWWA C110/A21.10

| 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 | --- | --- | --- | --- | --- | --- | --- | --- |
| 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 | --- | --- | --- | --- | --- | --- | --- | --- |

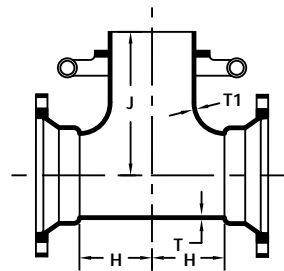


| MJ TAPPED TEE | | | | |
|---------------|------|------|---------|-----------|
| NOM. SIZE | T | L | MAX TAP | WT (LBS.) |
| 4 x 4 | 0.52 | 8.00 | 3 | 45 |
| 6 x 6 | 0.55 | 8.00 | 3 | 70 |
| 8 x 8 | 0.60 | 8.00 | 3 | 95 |
| 10 x 10 | 0.68 | 8.00 | 3 | 127 |
| 12 x 12 | 0.75 | 8.00 | 3 | 165 |
| 16 x 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 | 266 |
| 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 |



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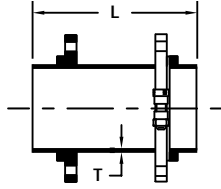
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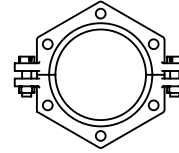
Full Body MJ Fittings

ANSI/AWWA C110/A21.10

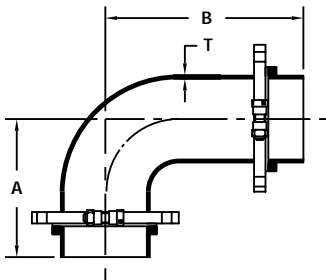
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| SWIVEL x SOLID HYDRANT ADAPTER | | | |
|--------------------------------|------|-------|-----------|
| NOM. SIZE | T | L | WT (LBS.) |
| 4 x 13 | 0.52 | 13.00 | 28 |
| 6 x 13 | 0.55 | 13.00 | 54 |
| 6 x 18 | 0.55 | 18.00 | 68 |
| 6 x 24 | 0.55 | 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 | 12 | (2) 3/4" x 3 1/2" |
| 8 | 10 | (2) 3/4" x 3 1/2" |
| 12 | 24 | (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 |

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